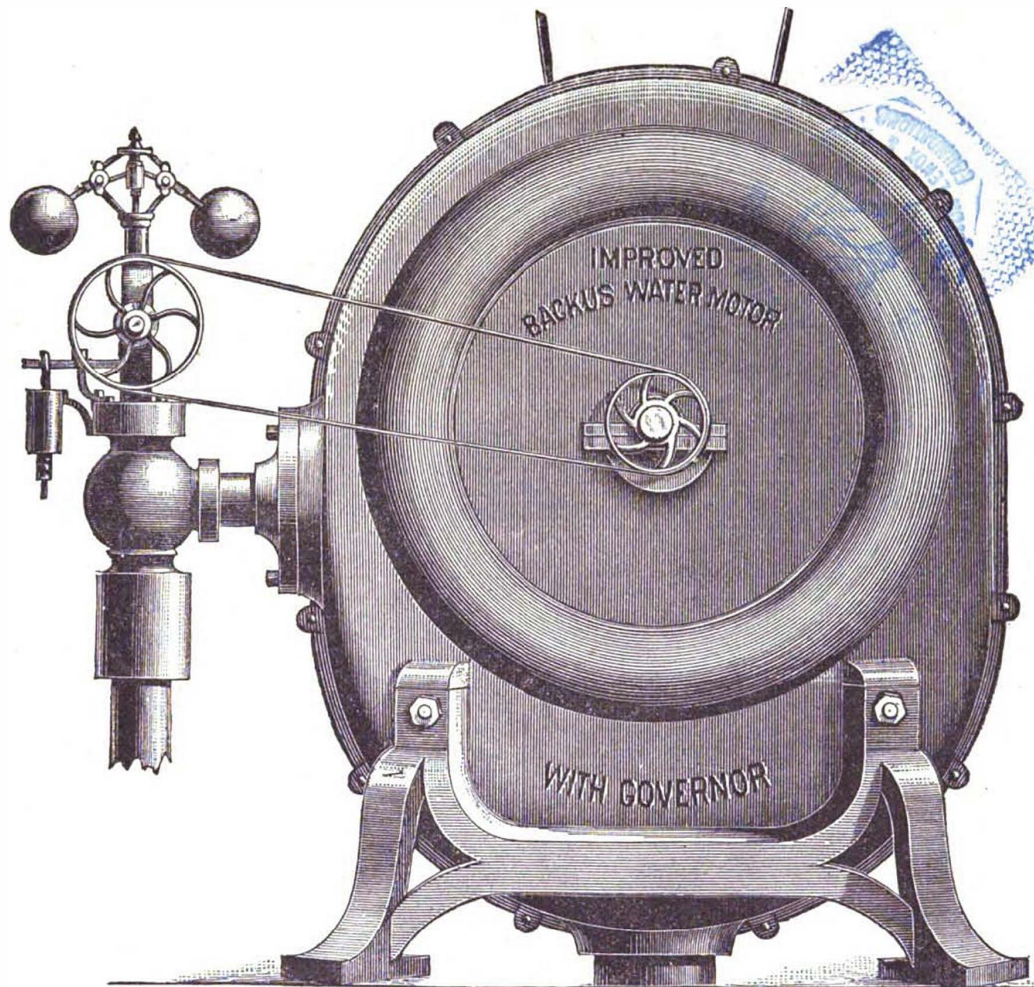


BACKUS WATER MOTOR CO.



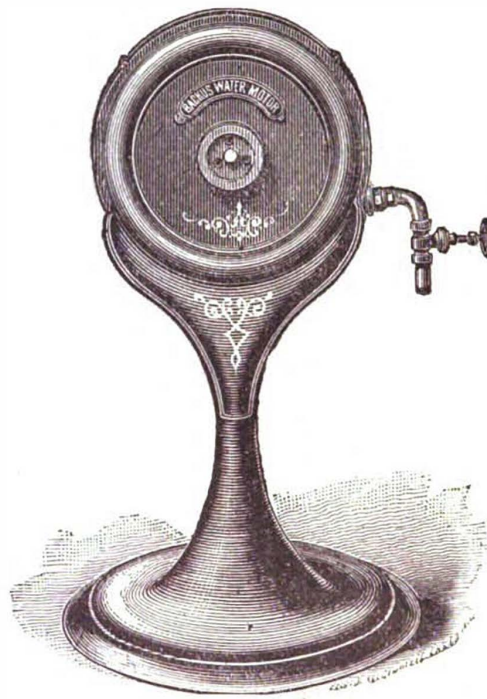
Power Given for all kinds of Machinery from One-Eighth to Ten Horse-Power.

Works Cor. Hamilton St. & R. R. Ave.,
ONE BLOCK FROM MARKET ST. DEPOT, - PENN. R. R.
NEWARK, NEW JERSEY, U. S. A.

PATENTED. All Infringements will be Prosecuted.

NOTICE.

Beware of parties who state that they have taken out our Motors and replaced them with others, as in all such cases an excessive waste of water has been the result. With an equal sized jet the Backus Motor will do more work than any other motor in existence, and by our system of interchangeable jets the amount of water used is always adapted to the power required, thus preventing all waste.



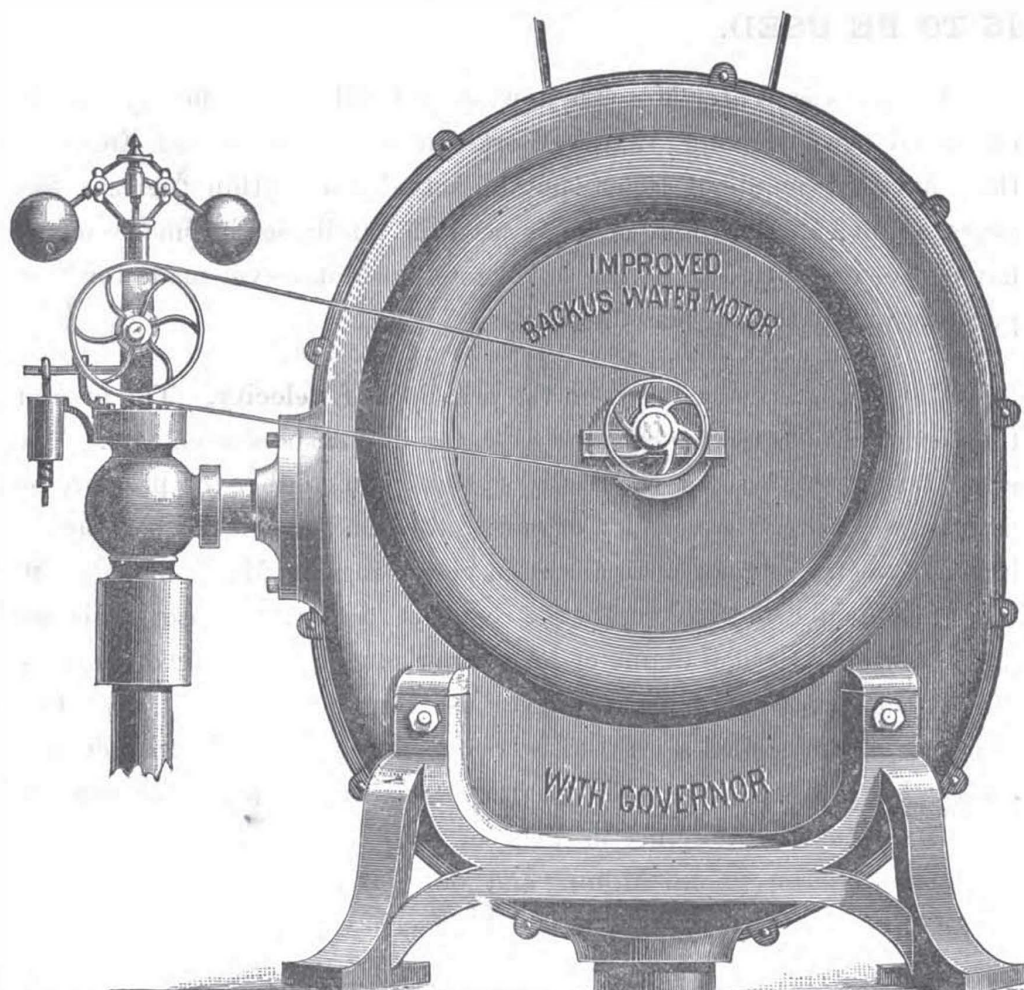
The above cut shows our new 12-in. Motor. It is erected on a stand, and the waste-pipe passes through the bottom of the same. It is made with a 3-4-in. shaft, and is adapted to watchmakers' lathes, parlor organs, and for dentists' use in polishing, and also for grinding teeth. The price of this new Motor is \$40, complete with pulley and valve to control speed.

POWER GIVEN
From 1-8 to 10 Horse Power,

ADAPTED TO ALL KINDS OF LIGHT MACHINERY,

SUCH AS

Sewing Machines, Coffee or Drug Mills, Church Organs, Lathes,
Printing Presses, &c., &c.



The general points of excellence may be briefly summarized, as follows: **FIRST:** Nominal cost, convenience and great durability. **SECOND:** Its noiseless running qualities. **THIRD:** Its availability, when shut off there is no waste, as occurs in ordinary steam boilers. **FOURTH:** Its safety and freedom from derangement.

**MAIN POINTS OF SUPERIORITY,
OVER ALL OTHER STYLES OF MOTORS.**

No dead centres, like in Rams, no Gear Wheels. Nothing to wear out; will last a lifetime, and will not use but about ONE-HALF as much water as any other motor in existence, to do the same work. They cost less than any other motor in the market.

Important Instruction.

We shall be pleased to furnish all information, as regards size of Motor and pipes necessary to drive any kind of machinery, on receipt of information, GIVING SIZE AND MAKE OF MACHINERY, AND THE PRESSURE OF WATER ON STREET MAIN, WHERE THE MOTOR IS TO BE USED.

The Backus Water Motor is now in general use in nearly all the cities and towns having Water Works in this country and England, there having been about 10,000 put in actual use within the last five years, about half that number being used on family sewing machines, it having been admitted to be the only practical Motor ever made for that purpose, by all sewing machine dealers.

The Motor is constructed on the principle of velocity. The greater the elevation of reservoir or stand pipe, the higher speed we attain. The same result follows for the Holly system; the higher the pressure on mains, the greater the velocity of our Motors, and the more economical in use of water. Our principal aim in perfecting our Motor has been to economize water and still retain the requisite power. To prove this, we use jets from 1-16 inch diameter for sewing machines, and on our 45 inch Motor, the largest we make, we never use larger than $\frac{1}{2}$ inch jets. Our Motor should be called a pressure wheel, as it requires the impact and not the body of the water, and will run just as well with a jet of steam to drive it. Another difference in favor of the Backus above all others is, there is no friction to our Motors, and our jets never affect the pressure in the street mains. In Sandusky, Ohio, where we have about twenty large sized Motors in use, none with jets over $\frac{1}{2}$ inch, there is no visible effect on the pressure in street mains, which makes a great difference in case of fire protection. We develop a power up to 8-horse, at 80 lbs. pressure, varying according to the pressure on the mains.

Our Motors are noiseless and adapted to all purposes, are very simple in construction, and will last a lifetime without repairs; cannot freeze up, as no water remains in them, and they run with a steady even motion.

TESTIMONIALS.

PRINTERS AND PUBLISHERS.

BACKUS WATER MOTOR Co.:

WESTFIELD, Mass.

GENTLEMEN: We have in use one of your 17-in. "Water Motors" and are more than pleased with it. Our water pressure is about 125 lbs., and with a feeder to the wheel only ($\frac{1}{4}$) inch in diameter, it runs three printing presses, viz: Half Medium and Eighth Medium Gordon's, and Eighth Medium Globe. We take pleasure in sending you this testimonial to the merits of your Motor.

Yours, respectfully,

J. D. CADLE & CO.

BACKUS WATER MOTOR Co.:

DANVILLE, Pa.

GENTS: I have the "Motor" in the Montour American office in running order and it works to entire satisfaction. It is driving a large Campbell Country Press, giving 960 impressions per hour. The water pressure in main water pipe is 60 lbs.; we feed the "Motor" through a service of 180 feet of $1\frac{1}{4}$ inch, and the friction between main and Motor is 20 lbs., (showing pipe is too small.) giving me only 40 lbs. but it does its work all right. Yours truly,

JOHN SPERRING, Supt. of Water Works.

BACKUS WATER MOTOR Co.:

HACKENSACK, N. J.

GENTS: I have tried the "Motor" patiently and thoroughly. I find it has the following good points:—1st. It saves me \$50 per year in insurance. 2d. Its cost is 100 per cent. less in running it than steam. 3rd. Its perfect safety in comparison with steam. 4th. It is always ready, needs no attention, is easily controlled and is always clean. It drives my large Campbell Country Press, working daily. Water pressure is about 40 lbs. You may refer to me with pleasure.

Yours, very truly,

H. D. WINTON,

Editor Bergen Co. Democrat.

OFFICE OF THE HUDSON COUNTY JOURNAL,

BAYER & KAUFMANN, *Proprietors*,

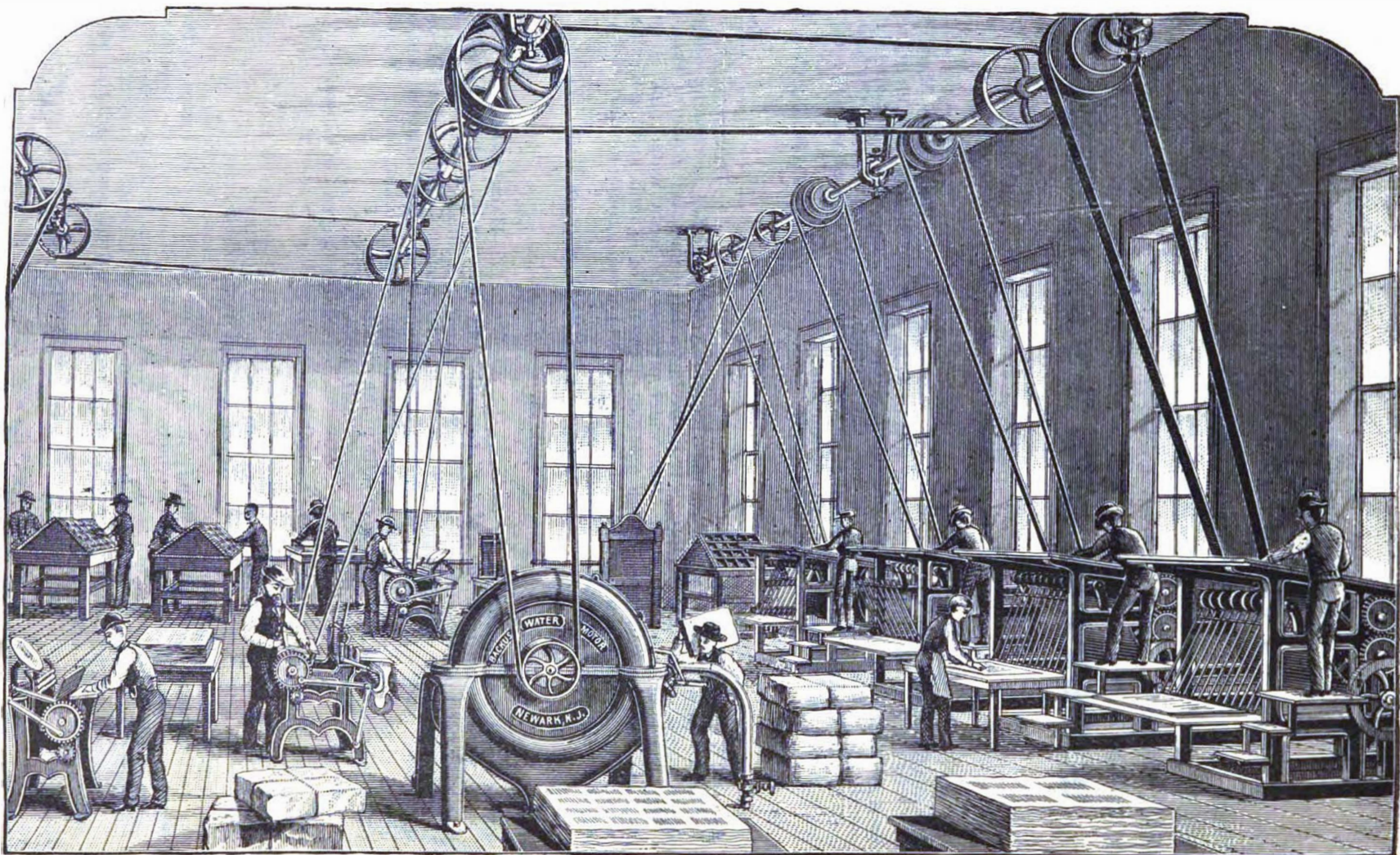
HOBOKEN, N. J. }

BACKUS WATER MOTOR Co. .

GENTLEMEN: It gives us great pleasure to offer our testimony in regard to the working of your "Water Motor," which runs our Cottrell & Babcock Improved Country, 32x46, and an Eighth Medium Liberty Press. It runs 12 impressions of the Country Press in one minute, and 25 impressions on the Liberty. We would say that after our experience with your Motor we would *not* sell the same for a thousand dollars if we could not replace it.

Respectfully yours,

BAYER & KAUFMANN.



BACKUS WATER MOTOR Co.:

DUNKIRK, N. Y.

GENTS: We are using one of your Motors running our printing press; we consider it the best wheel we have ever examined, it being no trouble to take care of, and always ready.

Respectfully yours,

BENTON & CUSHING.

BACKUS WATER MOTOR Co.:

NEWARK, N. J.

GENTLEMEN: The 30 inch "Motor" you placed in our office runs our Liberty one-half medium press at the rate of 18 impressions per minute, and our one-eighth medium Gordon at the rate of 32 impressions per minute. We consider it a perfect success, and deem it invaluable for all kinds of light work. To-day, while trying our one-eighth medium Gordon press, we printed 1,000 bill heads in 35 minutes.

J. M. BROOKFIELD, No. 11 New Street.

OUR WATER MOTOR.—Our readers are informed no doubt as to the removal of the DEMOCRAT to the new building prepared expressly for our use. We have now the most comfortable and convenient office that has ever been enjoyed by any paper published in Flemington. And now as to the power: We formerly printed by steam power, (5 horse engine,) now we print by means of the "Backus Water Motor," which is supplied from the water in the main pipe from the water works. We have 30 pounds pressure, and by means of our Backus Water Motor we print 900 impressions per hour on our Potter Power Press. We have now printed long enough by our water power to say it is a decided success; less heat in warm weather, no smell, no danger, no engineer required; all we have to do is to pull a cord and in thirty seconds we have full power on, or can turn on only a part, just as we may want it. It is cleanly, sightly, manageable by any one who can pull a cord, and is perfectly reliable. We invite newspaper men who have the facilities for using it to call and see it. It is in operation at our office on Mondays and Thursdays at 1 o'clock P. M.

The same power on a smaller scale is used for sewing machines, church organs, &c.—*Hunterdon County Democrat*, of April 11th 1876.

OUR MOTOR.

As is well known, a few weeks ago we introduced into our office a power-press of the Campbell style and build, and then the next thing to do was to find a suitable power to drive it with sufficient speed to work off our large edition with dispatch. We were earnest in our inquiries, but could not find anything in the motive power line adapted to our work, except at an enormous outlay. At last we called on Wm. A. Young, Esq., of Easton, as he, we knew, could solve our difficulty and put us in the way of getting just what we needed. He came over, took a glance at the situation, and at once told us that he could give us a power on which we could depend, at a price less than one-half asked for other machines. We contracted with him at once, for we knew when he said he could do a thing of this kind, he would do it. The result is, we have a Backus Water Motor, completely adjusted and rigged, which does our work in a very satisfactory and speedy manner, and which we would not dispose of, could we not obtain another. We feel grateful to Mr. Young for the interest taken by him, and the strict personal supervision he exercised in having everything properly fixed for us, and we would advise all who are in want of anything in this line, to wait upon him for information, and procure his services. To all who have the proper water power, we would say that the Backus Water Motor is just the thing they need to drive any reasonable amount of machinery.—*Warren Democrat*, Phillipsburgh, N. J., June 24th, 1875.

NEW WATER MOTOR.

Some weeks ago we mentioned the fact that we were placing in our office on trial, a Backus Water Motor for the purpose of supplying power to run our several presses. We have had it running pretty thoroughly since then, and are now perfectly satisfied that it is the most convenient and cheapest power that we can secure. This machine consists of a 30-inch wheel enveloped by an iron hood, and occupies about two or three feet space in one corner of the room. Water is supplied from street main by a $1\frac{1}{2}$ inch service pipe, and thus furnishes an abundant power to drive all our presses, which consist of one Campbell press, one Taylor Cylinder jobbing press, one half-medium Universal and one Gordon. The power runs all these presses at even greater speed than is required. It is always ready for service, being put in instant motion by simply raising the water gate. It is economical, simply costing the annual water rates. It requires no attention, and no time nor labor in building fires, &c., such as was heretofore necessary in our engine. It is a perfect gem for a printing office where water convenience is at hand—*Montour American*, Danville, Pa., October 7th, 1875.

OUR WATER MOTOR.

This week we have been running the presses in this office by power supplied from the Backus Water Motor, a new invention adapted to localities where there is a certain pressure of water. The Motor we have runs with ease all our presses, both newspaper and job, using a $\frac{1}{2}$ inch stream of water, and for simplicity and economy in arrangement exceeds steam or anything else where limited power is demanded. It is far superior to steam in many respects. There is less exhaust, less trouble, less dirt; no danger from fire, and requires no attention after the water is let on until you desire to stop the machinery. We are well pleased with the machine throughout, and invite our friends to visit our office and see it in operation. It was placed in position, as well as the machinery to run the presses, by our townsman, Mr. John Sperring, who is the Agent for the Backus Water Motor.—*Danville Intelligencer*, November 26, 1875.

THE BACKUS WATER MOTOR.

The Backus Water Motor, which is used in THE DAILY UNION printing establishment to run the presses, is one of the greatest inventions of the age, and is destined to take high rank among the powers that are at present utilized to drive various kinds of machinery. The Motor is commendable for its compactness, power and utility. An inspection at any time will convince the most skeptical of this assertion. The "Backus Motor" in our establishment is supplied with water from the main pipe of the water works. We use about forty pounds pressure, which affords sufficient power to print 1,000 DAILY UNIONS in an hour, on our Potter power-press. We have used the motor long enough to fully testify to its excellence and superiority over similar inventions we have seen elsewhere. As far as our office is concerned it is a perfect success. There is no heat in warm weather, no smell, no danger, and no engineer required. All that is to be done to "get steam up," is to turn a hand-wheel, and in an instant full power is on, or, you can turn on only a part. It is cleanly, neat, and manageable by any one who can turn a screw. This power can be used to operate any kind of machinery, and those who are about to put power in their establishments should give it an examination. We invite the public generally to call in and view this excellent little machine, at the time when our daily edition half-past four o'clock in the afternoon, is being worked off.—*Port Jervis Daily Union*, May 5th, 1876.

WESTFIELD, MASS., JANUARY 15, 1884.

BACKUS WATER MOTOR Co.:

Ten years ago we put in one of your 17 inch Motors and had it in constance until about a month ago. During that time not over \$5 was expended in repairs upon it. A few weeks since we exchanged for one of your 22 inch motors, in order to increase our power, and that is giving even greater satisfaction than its predecessor. We run three job presses by it and expect no difficulty in adding one or two more should we desire, as the power is ample. Our water pressure is 125lbs. and we use the smallest feeder furnished with the Motor, $\frac{3}{16}$ inch diameter.

Yours truly,

J. D. CADLE & CO.

OUR NEW WATER MOTOR.

We have before alluded to the introduction into our press-room of a Backus Water Motor, by Charles Hale & Co., of this city. The machine has now been in operation three weeks, and has performed its work to the satisfaction of all concerned. The motor had been previously applied to sewing machines and small job presses in the city; but when Mr. Hale talked of driving our heavy Hoe stop-cylinder press, with its bed of 32 by 47 inches, which had hitherto been driven by a four-horse power engine, the people on Central street generally and doubtingly shook their heads.

But Mr. Hale went forward and made his connection with the street water main, and put up his double 30-inch motor with calm confidence, vouchsafing only quiet smiles in response to all doubting remarks made by bystanders. From the first moment when the pulley of the motor was connected with the shaft of the press, and the water was let on, three weeks ago, the press has moved off with all the steadiness and reliability of the great Corliss engine at the Centennial Exhibition.

It is a matter of amazement to all spectators, how so small a machine can develop such power. There are only two tiny streams of water of three-sixteenths of an inch in diameter that play upon the wheel and give all the power.

Of the convenience and comfort of this power during this excessively hot weather, too much cannot be said in praise. No hot fires, no seething boiler, no steaming, puffing engine; only the quiet flow of two little streams of water but a little larger than the stem of an apple.

Of the economy of this power we are not yet prepared to speak definitely, although there is little doubt that it be vastly in favor of the motor. Within a year, we apprehend, the Backus Motor will be used everywhere in the city where the Holly water power can be reached, and where less than three or four horse power is required. The city itself will derive a revenue from these motors never dreamed of when the Holly system was introduced.—*Bangor Daily Commercial*, August 12, 1876.

A few parties using them—

J. M. BROOKFIELD, 11 New st., Newark, N. J.
 WARREN COUNTY DEMOCRAT, Phillipsburgh, N. J.
 MONTGOMERY AMERICAN, Danville, Pa.
 CHRONICLE PUBLISHING Co., Pottsville, Pa.
 NORTH WESTERN BIBLE AND PUBLISHING Co., Allegan, Mich.
 BERGEN COUNTY DEMOCRAT, Hackensack, N. J.
 OTTAWA TIMES, Ottawa, Canada.
 PUBLIC LEDGER, Memphis, Tenn.
 EVENING REPUBLICAN, (1 double Motor,) Meadville, Pa.
 DANVILLE INTELLIGENCER, Danville, Pa.
 NORTHERN BORDER, Bangor, Me.
 PORT JERVIS DAILY UNION, Port Jervis, N. Y.
 WAYNE CITIZEN, Honesdale, Pa.
 HUNTERDON COUNTY DEMOCRAT, Flemington, N. J.
 OIL CITY DERRICK, Oil City, Pa.
 BANGOR DAILY COMMERCIAL, Bangor, Me.
 HUDSON COUNTY JOURNAL, Hoboken, N. J.
 JOHN M. MILLER, (Cottrell & Babcock No 7 Press,) Pottsville, Pa.
 S. R. JOHNSTON & Co., Pittsburgh, Pa.
 F. M. RYDER, Ansonia, Conn.
 H. L. RICHMOND & Son, Meadville, Pa.
 JOHN H. BACON, Bangor, Me.
 ENNIS BROS., St. Louis, Mo.
 F. G. BOYD & Co., Pittsburg, Pa.
 BENTON & CUSHING, Dunkirk, N. Y.
 J. D. CADLE & Co., Westfield, Mass.

SPECIAL TESTIMONIALS.

SEWING MACHINE WORK.

JERSEY CITY, Jan. 26, 1881.

Backus Water Motor Co.

GENTLEMEN : In answer to your inquiries about my experience with the Water Motor, I am pleased to be able to say that it is satisfactory in every respect. I have, as you know, a 22-inch Motor, with water pressure of about 40 lbs., which enables me to run eight sewing-machines with *full* speed and power. The Motor has given me no trouble whatever, and is altogether the cheapest and best power I could have. I would call your attention to the low rate that our city charges for water, as it may enable you to recommend our city to some of your customers who wish to be in the immediate vicinity of New York City. I pay \$25.00 for the use of water to run my Motor.

Hoping that you may sell many thousand Motors in the near future,
I am respectfully yours,

J. W. KNAUSE,
Custom Shirt Manufacturer,
101 Montgomery St., Jersey City.

GLOVERSVILLE, N. Y., Jan. 31, 1881.

Backus Water Motor Co.

GENTLEMEN : We take great pleasure in saying that we are now using one of your 30-inch Double Water Motors, to which is now attached seventy sewing-machines, fifteen of which are the heavy wax-thread machines, and that it has exceeded our most sanguine expectations. We cannot say more in its favor than to simply say that we are delighted with its work.

Yours, very respectfully,

A. C. CHURCHILL & CO.

JOHNSTOWN, N. Y., Jan. 25, 1881.

To Whom it may Concern.

We are using the Backus Water Motor (six horse power). We are running with it forty-one machine attachments. It works to our entire satisfaction, and we cheerfully recommend it to manufacturers who are using any kind of sewing machines.

P. P. ARGERSINGER & CO.,
Glove Manufacturers,
Johnstown, N. Y.

JOHNSTOWN, N. Y., Jan. 26, 1881.

Backus Water Motor Co.

GENTLEMEN : The Motor purchased from you has now been in use for a year, and gives entire satisfaction. To run it we have one $\frac{1}{2}$ -inch tap in the water main, which furnishes water for our entire building, besides giving us the power for Motor. We have 90 feet of shafting and run 40 machines, and have plenty of power. We carry the water 100 feet from main, then 25 feet up into our second story, where Motor stands.

Yours respectfully,

IRELAND BROS.

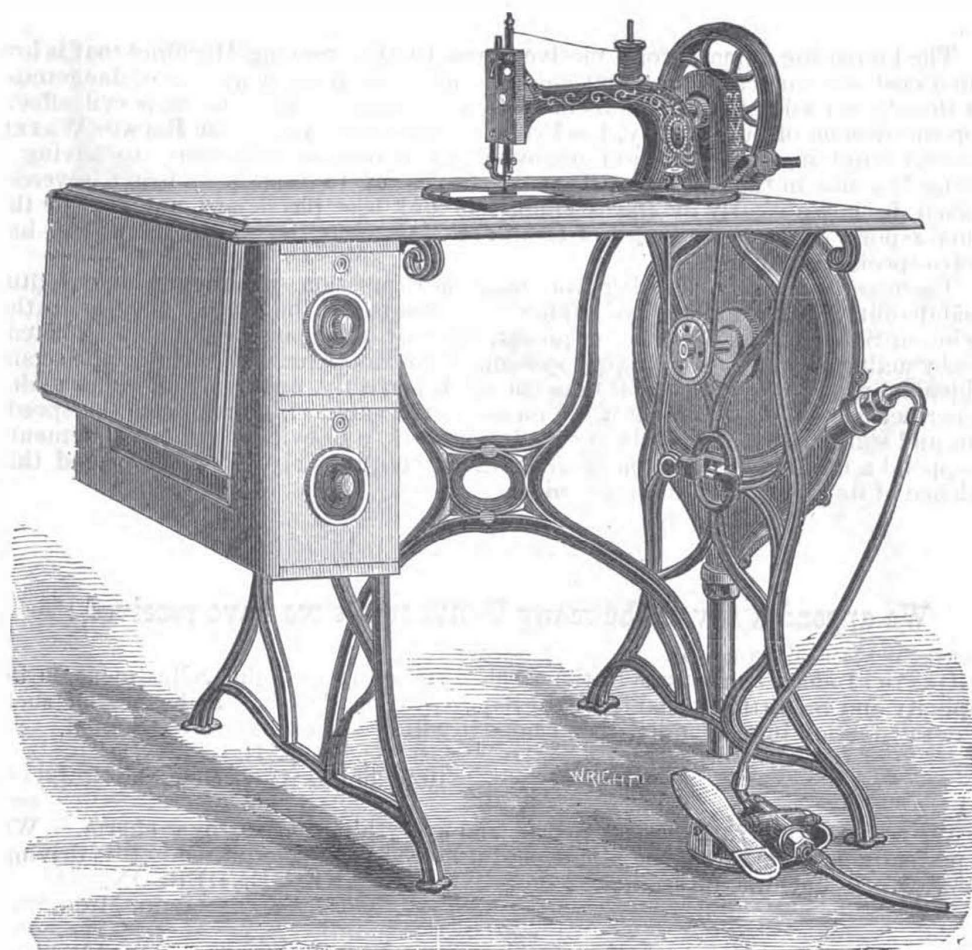
JERSEY CITY, Feb. 5, 1881.

Backus Water Motor Co.

DEAR SIR: After using your 30-inch Double Motor for six months, I am pleased to say it works to my entire satisfaction. It is at present running 25 sewing machines without any trouble, making corsets.

Respectfully yours,

ALBERT LOSEL.



TO ALL who have a wife, sister or mother at home who does the family sewing, and also to those who have wives that are not compelled from affluence to do such work, but who would gladly do many little jobs to save expenses if the hard labor of running the Sewing Machine could be obviated. The BACKUS WATER MOTOR is recommended.

We use the aqueduct water, and a pressure of 15 lbs. will suffice to give all power required.

The cost of the water varies from \$1.00 to \$3.00 per annum, but in no case exceeds an annual tax of \$3.00 for running in families, and from \$3.00 to \$6.00 for manufacturing, when run ten hours per day. The ordinary house pipes are sufficient.

It can be attached to any Sewing Machine in the family sewing room, is perfectly neat, does not injure the house, and is an ornament rather than otherwise. In many places where a high pressure is obtained, an opening the size of a pin will give all the power required.

THE ONLY PRACTICAL MOTOR EVER SUCCESSFULLY APPLIED TO SEWING MACHINES. The large number in use (*over 5000*) have proved the Motor capable of performing **THREE TIMES THE LABOR** possible by foot power, without the slightest fatigue to the operator, and at a cost of only **ONE CENT A DAY** for water, at rate of \$3 per year.

The increasing demand for a motive power to drive Sewing Machines that is low in first cost, economical in use, and unattended by anything obnoxious or dangerous, and thereby set aside the numerous ills which are now fast showing their evil effects upon the women of our country, has led us to bring to the public the BACKUS WATER Motor as supplying this want and removing the objection with many to having a Sewing Machine in their houses. That the health of thousands is being severely affected, is shown clearly by the testimony of our best physicians, and also in the annual reports of the State Board of Health of Massachusetts, where the matter has receive special attention.

There are thousands suffering from nervous depression, weakness and constitutional debility, that wonder why? These complaints can be traced directly to the driving of Sewing Machines by foot power, whereby the spinal column is affected, thereby acting on the entire nervous system. Our Motor removes entirely the strain incident to running by foot; as it does the work perfectly, and is at all times under the perfect control of the operator, by means of the valve which regulates the speed, stops and starts easily, and is always ready for work. In evidence of our statements we append a number of testimonials from those who are only too glad to lend this evidence of its great relief and convenience.

We append a few of the many Testimonials we have received :

BACKUS WATER MOTOR CO. :

GENTS : Indeed I think one of the greatest advantages of the adjustment, is its simplicity and the little mechanical skill required to regulate it. It has given such entire satisfaction in my family, that I hope it will be soon universally adopted.

J. T. HOWLAND,

192 Clinton Ave., Newark, N. J.

We completed the attachment to-day, and everything works to a charm. We are perfectly delighted with the Motor, and it has been much admired. It is driving a G. F. Weed Machine, on leather.

FRANK HENDERSON,

KALAMAZOO, MICH.

GENTS : Your 11-inch Motor has been attached to my Domestic Sewing Machine. Feed the water through a $\frac{1}{4}$ -inch orifice and from 12 to 15 lbs. pressure. It works nicely and rapidly, in all thickness of cloth, and we are highly pleased with it.

Respectfully yours,

WELLS W. LEGGETT,

CLEVELAND, OHIO.

GENTS : The Motor has been attached to a new Grover & Baker Machine some months, and has given entire satisfaction.

Respectfully,

C. G. HILDRETH, LOCKPORT, N. Y.

Treas. Holly Manufacturing Co.

The 11-inch Motor sent me is attached to our Sewing Machine, and does as well as could be desired. I have quite a number of visitors to see it who appear to think it just the machine wanted for the purpose.

WM. S. SHRYOCK,

Sec'y Johnstown, Pa., Water Works.

GENTLEMEN : I must say I am much pleased with your Motor, which is attached to my Singer. I made it send through twenty-four folds of Napkin Cloth, and on light cloth seven hundred stitches per minute.

Yours very truly,

C. W. SCOFIELD,

Sec'y & Treas. Lake Erie Iron Co.

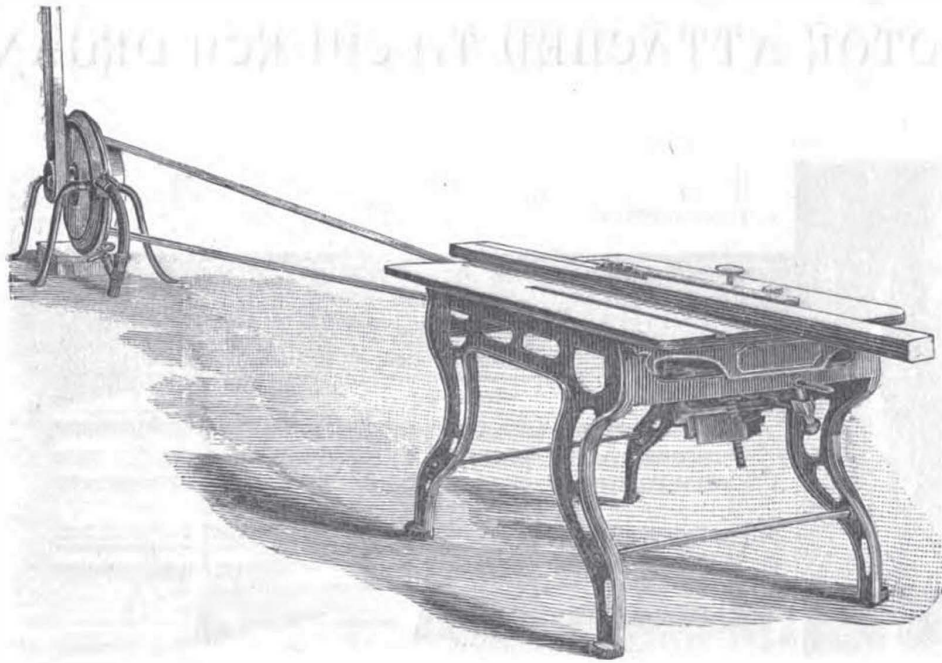
CLEVELAND, O.

GENTS : The 11-inch Motor purchased of you for running the Elias Howe Sewing Machine is a success. On first trial I got 400 stitches per minute, under about 15 lbs. pressure with $\frac{1}{4}$ -inch stream. Am much pleased with it.

Yours truly,

FRANK SEWARD,

NEW HAVEN, CONN.



This cut represents one of our 30-inch double motors driving a circular saw which is done in a very satisfactory and successful manner, as attested to by the parties named below.

It obviates the use of fire and steam in carpenter shops, carriage and furniture factories, thus saving the insurance which alone pays for its use.

The great advantages acquired by use of our motor as compared with a steam engine are, that it is never out of repair, always ready, requires no engineer, power being obtained by simply turning on a valve which starts the motor.

Belt can be run from fly-wheel pulley on one side of motor to saw, and by belt from pulley on other side to main shaft any other machinery can be driven.

WALTON, N. Y., April 2d, 1881.

BACKUS WATER MOTOR CO. :

GENTS: The 30-inch double motor used in the furniture factory of N. J. Kinch, of this place, gives complete satisfaction. It runs a planing machine, jointer, band saw, turning lathe, circular saw, shaper, boring machine and polishing wheel. There is no difficulty in running three or four of these machines at the same time. Equal power from a steam engine would cost not less than two dollars per day, while the quickness with which motor power can be applied, ease of management, safety from fire, makes it much more valuable than steam in such an establishment.

Very truly,

S. COMSTOCK,
Pres't Walton Water Co.

BANGOR, MAINE, August, 1876.

BACKUS WATER MOTOR CO. :

GENTS: The 30-inch Double Backus Motor runs one 8-inch saw, a buzz planer, 20 feet of shafting, grindstone, emery wheel and boring shaft; saw 4-inch stuff, using a $\frac{1}{4}$ -inch and $\frac{3}{8}$ -inch stream, pressure 90 pounds. Class of work, window frames.

Yours respectfully,

FIELD & ROBERTSON,
NORWALK, CONN.

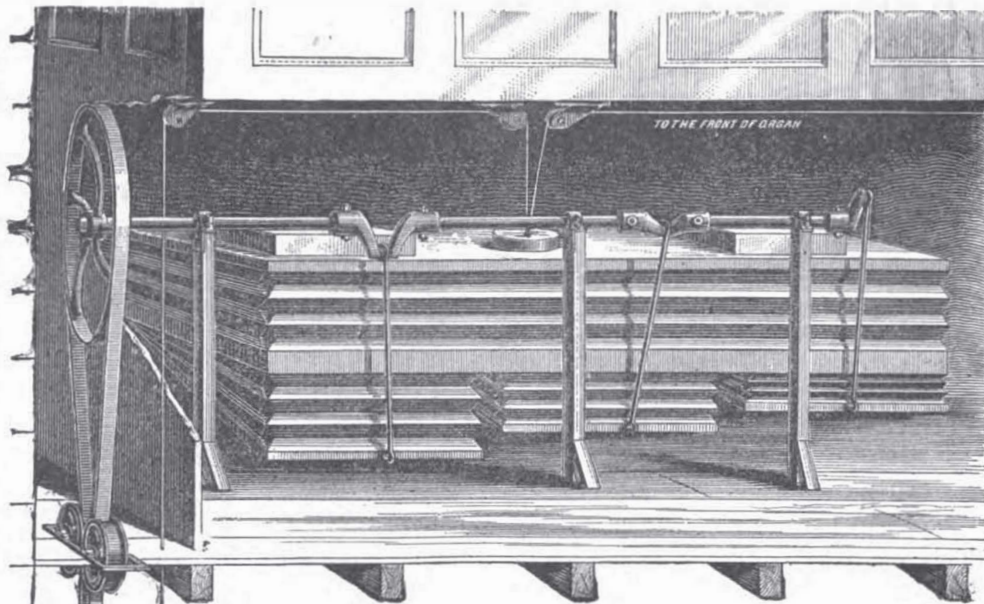
BACKUS WATER MOTOR CO. :

GENTS: My motor, a 30-inch Backus, does my work satisfactorily, sawing through eight thicknesses of boards with valve only one-quarter open, and combining, as it does, simplicity, power and economy.

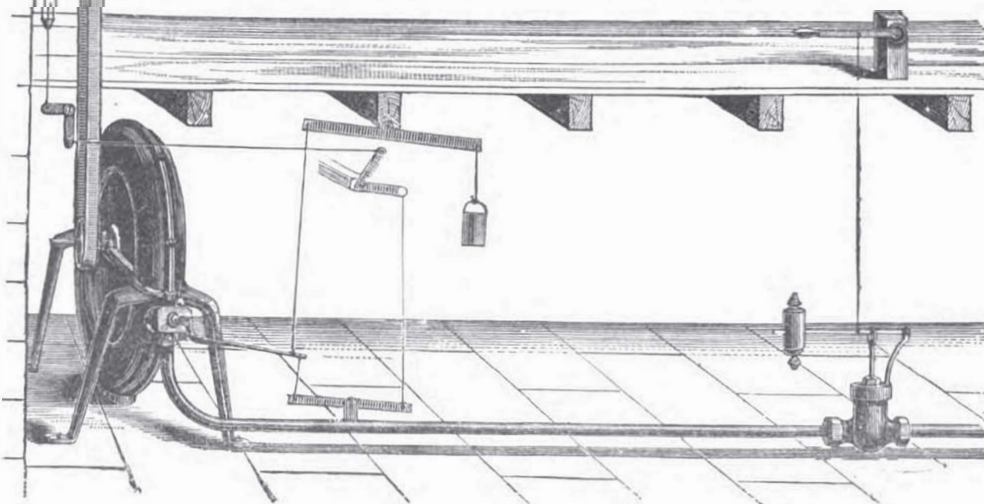
GILES HANLENBECK.

RUSSELL & SAYRE, Crawford Street, Newark, N. J., 30-inch double motor ripping 3-inch stuff on circular saw and driving other machinery. J. PLUMMER, furniture factory, Hackettstown, N. J. GEO. W. WISWALL, Troy, N. Y., 45 inch motor and circular saw in lumber yard. CASSELL & ZINT, Agents, Crestline, Ohio, 30-inch double in large factory; band saw, drill, circular saw, etc.

MOTOR ATTACHED TO CHURCH ORGAN.



This cut represents *Motor located in cellar*, and belt and wire from automatic valve run up in a casing six inches square against side wall of vestibule, to *organ in gallery*: belts being brought close together by two guide pulleys below the large belt wheel on the shaft. *When organ is located on ground floor*, both Motor and shaft can be placed in the cellar immediately under the bellows, and the feeders can be pushed up through the floor. In either mode of attachment we guarantee a perfectly noiseless action; and will be pleased to furnish estimate for all attachments on receipt of answers to questions on page opposite.



THE BACKUS WATER MOTOR, FOR BLOWING ORGANS.

In offering to the public the Backus Water Motor for the purpose of blowing Organs, we do so with the fullest confidence in its capacity to do that work, in a more perfect and satisfactory manner than any other method that has heretofore been adopted.

A long sought for principle in an Organ Motor has been a rotary motion. This has never been attained until now, and we claim that our Motor is the first successful application of this principle, thereby giving a perfectly smooth flow of air, so desirable for the perfect rendition of delicate and piano passages, (where the least jarring of the bellows would destroy the effect.)

Organ Builders and Churches Using Them.

Johnson & Son, Westfield, Mass.
Jardine & Son, New York.
Odell & Bro., New York.
Erben & Co., New York.
Wilson & Co., New York.
Labaugh & Kemp, New York.
R. Midmer, Brooklyn, N. Y.
L. C. Harrison, New York.
L. U. Stuart, New York.
W. King, Elmira, New York.
Third Pres. Church, Newark, N. J.
St. Andrew's Episcopal, W. Meriden, Ct.
Second Cong. Church, New London, Ct.
Roseville Pres. Church, Newark, N. J.
Christ's Episcopal Ch., Elizabeth, N. J.
Worcester Place Bap. Ch., New Haven, Ct.
St. Michael's Church, Geneseo, N. Y.
Church of the Redeemer, Newark, N. J.
R. C. Church, New London, Ct.
Woodland Pres. Ch., Philadelphia, Pa.
Clinton St. M. E. Church, Newark, N. J.
Stewart St. Baptist Ch., Providence, R. I.
Trinity Church, Williamsport, Pa.

Organ
Builders.

Congregational Church, Westfield, Mass.
Park Pres. Church, Newark, N. J.
First Congregational Ch., Ithaca, N. Y.
Dwight Place Church, New Haven, Ct.
Park Church, Norwich, Conn.
Christ Church, Williamsport, Pa.
Trinity Church, Buffalo, N. Y.
St. Paul's M. E. Church, Newark, N. J.
Christ's Church, New Brunswick, N. J.
English Evan. Luth. Ch., Johnstown, Pa.
Congregational Church, Mansfield, Ohio.
St. Andrew's Pres. Ch., Ottawa, Canada.
First Pres. Church, Youngstown, O.
Episcopal Church, Marquette, Mich.
New Jewish Synagogue, Bet. Broadway
and 10th St., Brooklyn, N. Y.
Reformed Church, Easton, Pa.
Catholic Cathedral, Paterson, N. J.
Trinity Church, Buffalo, N. Y.
W. L. Randall, 218 Clark St., Chicago, Ill.
G. M. Phelps, Brooklyn, N. Y.
6th Ave. Baptist Church, Brooklyn, N. Y.
St. Patrick's Cathedral, Newark, N. J.

For reply as to estimated cost, for application to an organ, please answer each of the following questions:

- | | |
|--|---|
| 1. Length of Bellows. | 8. Length of Shaft to outside of Organ Case. |
| 2. Breadth of Bellows. | 9. Distance from Center to Center of Feeders. |
| 3. Rise of Reservoir. | 10. Be sure to give the pressure of Water at Church. |
| 4. Number of Feeders. | 11. Give Sketch showing Location of Organ. |
| 5. Size of Feeders. | 12. Give Name and Address of Organist—Street, City and State. |
| 6. Rise or Stroke of Feeders (not the Stroke of the Lever). | |
| 7. Number of Stroke per Minute for Full Organ of each Feeder (up and down—counts one). | |

**Every Motor Guaranteed to Perform Just What We Represent, or
MONEY REFUNDED.**

BACKUS WATER MOTOR Co. are now prepared to furnish all the iron work for changing the organ from the old lever motion to the rotary, such as shaft, pitman boxes, pulleys, etc., etc., all complete, and so arranged that a good mechanic can put it up without the slightest trouble by simply following the directions as printed in our direction circular, which we send with each machine, thereby saving traveling expenses of a mechanic to and from the place of manufacture.

Sizes used for Organs, 30-inch Double and Single, 22-inch and 17-inch—depending on Pressure of Water.

DETROIT, MICH.

Gents : The 30 inch motor you placed in the church proves entirely satisfactory. The organ is three manual, built and put up by the Odells, of New York city. At the trial, it gave evidence of its superiority by furnishing a very even pressure of air, which I consider of great importance to an organ.

Yours, &c., HENRY MEAKIN, Organist, Fort St. Presby'n Church.

NEWARK, N. J.

Gents : I take pleasure in recommending the Water Motor placed in St. Patrick's Cathedral, Newark, N. J.

Our organ was built by Messrs. Erben & Co., of New York, and is one of the largest in the State. The motor gives all the wind necessary to blow it, and in a satisfactory manner.

To those in need of a power for this purpose, I cheerfully recommend the Backus.
G. H. DOANE, V.G.

RAHWAY, N. J.

Gents : The Motor which you placed in my house to propel the bellows of my parlor organ, is giving me entire satisfaction, rendering the organ as available for practice as a piano. I would not be without it, if it cost double. I can run it 24 hours if so disposed for less than 2½ cents. Yours truly, JESSE COOPER.

OTTAWA, ONT., April 22, 1876.

GENTS : It affords me great pleasure to bear testimony as to the working of the Backus Water Motor purchased from you for use in St. Andrew's Church, as a bellows blower. Its advantages must be patent to every organist. Owing to its self-regulating action there is no danger of the bellows ever being strained by an excess of pumping, and being always ready for work it renders the organ as available for practice as either the piano or ordinary cabinet organ in the house parlor. The machine has now been in operation for some months, giving every satisfaction, and from its simplicity of construction it appears to me almost impossible for it to get out of order. I have already recommended the use of the motor to some of my friends here and at a distance, and I hope ere long to see it in general use.

Yours very truly, R. W. BAXTER, Organist St. Andrew's Pres. Church.

JOHNSON & SON, *Church Organ Builders.*

BACKUS WATER MOTOR CO. :

WESTFIELD, MASS., Aug. 17, 1876.

GENTLEMEN : We have to record another grand success in organ blowing by means of a Backus motor, this being the third we have adopted since last March. The second one you will remember, was a double one, the pressure being light, only thirty pounds, and the organ a large one requiring one hundred superficial feet of bellows, but it works perfectly, furnishing at all times an ample supply. This last machine runs on a quarter inch stream and has a large surplus of power. We are greatly pleased with these motors because of the simplicity of their construction and the small amount of care required to keep them in running condition.

Truly yours,

JOHNSON & SON.

JARDINE & SON, *Church Organ Builders.*

BACKUS WATER MOTOR CO. :

NEW YORK, May 4, 1876.

GENTLEMEN : The motors you have attached to our organs have given us great satisfaction, as well as the parties using them. The rotary motion gives them the great advantage of easing off at each end of the feeder stroke, producing a smooth, even flow of wind, avoiding any unsteadiness of the tone and also preserving the organ in better tune and order. Yours faithfully,

GEO. JARDINE & SON, Organ Builders. 318 & 320 E. 39th St., N. Y.

BACKUS WATER MOTOR CO.:

ALBANY, SEPT. 6, 1883.

GENTS: I have requested Mr. Boehm to prepare a letter for you. In the meantime, you may state that the Motors and the attachments applied to the bellows of St. Joseph's organ, are working perfectly smooth and in a very satisfactory manner.

I remain, Dear Sir, very truly Yours,

THOMAS M. A. BURKE.

BACKUS WATER MOTOR CO.:

ALBANY, N. Y., OCTOBER 20, 1883.

GENTS: It gives me great pleasure to testify to the efficiency of your 80 inch double Motor in use in St. Joseph's church in this city. The organ made by Simmons & Wilcox of Boston, is one of the largest ones in the United States, has 60 stops, 2,846 pipes, 6 registers, 16 feet, 1 register of 32 feet, 3 bellows with 6 feeders and 2 reservoirs with a total area of about 280 square feet by a pressure of respective $5\frac{1}{2}$, $4\frac{1}{2}$, and $3\frac{1}{2}$ pounds to the square inch, but your Motor keeps it fully supplied with wind, the B manual and pedal coupled and all stops drawn.

The rotary motion is "non plus ultra," noiseless and producing an even and smooth flow of wind and steady tone. The Motor is completely under the control of the organist and works with its automatic apparatus very promptly and requires on account of the simplicity of the construction but very little care to keep it in running condition.

After various severe experimental tests and the regular use in church services for five months, I must state that I am perfectly satisfied and highly recommend the Motor, as well as the rotary movement.

Yours respectfully,

WM. BOEHM, Organist St. Joseph's Church.

NEW HAVEN, CONN., August, 1875.

MR. A. C. BRECKENRIDGE, AGENT, WEST MERIDEN, CONN.—DEAR SIR: The water motor which you placed in the Dwight Place Church, of this city, for the purpose of blowing the organ, works like a charm. We think it one of the best improvements added to our church, and shall not hesitate to recommend it to all churches who are in need of one. Our organist thinks there is nothing like it.

Yours respectfully,

JOHN G. NORTH, } Committee.
F. C. LUM, }

NORWICH, CONN., February 27, 1876.

GENTS: It gives me great pleasure to testify to the efficiency of your 30-inch motor, in use in the Park Church in this city. Our organ, made by Walcker & Co., of Germany, has 1960 pipes, 4 registers of 16 feet, and a bellows of two reservoirs, with a total area of about 126 square feet, but your motor keeps it fully supplied with wind. The motor is completely under the control of the organist, and works, with its automatic apparatus, without jar or noise, and very promptly. After various severe experimental tests, and regular use in church service for four months, we are perfectly satisfied with your machine.

Your obedient servant,

B. P. LEARNED, Director of Music.

BACKUS WATER MOTOR CO.

NEW BRUNSWICK, N. J., February 28, 1876.

GENTS: The motor which you have placed in our organ works beautifully, and is really a great source of pleasure, as we are never in fear of the "blower" going to sleep or of the wind giving out. Hoping you success, I remain,

Very truly, yours, ADOLPHO H. FISCHER, Choir Master, Christ Church.

BUFFALO, N. Y., March 3, 1876.

DEAR SIR: The Backus Water Motor placed in Trinity Church has proved itself equal to all demands made upon it in supplying wind for the new "Johnson" organ, during the three months that it has been in operation, has given perfect satisfaction. It fills the bellows more steadily and with less noise than is possible, by hand, but the great advantage and one that will be appreciated by all organists, consists in having a blower "who" is always at his post and who never tires. The organ is a two manual, containing twenty-two speaking stops, including three pedal stops. The motor is a 30-inch, and is operated with 30 lbs. pressure of water. I am perfectly satisfied with it, and heartily recommend the motor.

Yours truly,

ROBT. DENTON, Organist Trinity Church.

Extract from Letter dated June 20, 1876.

(Two years afterward.)

I gladly avail myself of this opportunity to testify as to the merits of the Motor which you attached to our organ two years ago. It has been in constant use ever since and I am happy to say that it has met every want and has never yet failed to perform all its duty. You cannot tell when it is in motion, and under the severest tests the wind gauge never rises more than three inches. It answers all requirements—would use no other. Total cost of running, about \$15 per year. Recommend it to all churches. Endorse it fully.

Yours truly,
GEO. H. BRUEN, Organist Third Pres. Church, Newark.

ST. ANDREW'S EPISCOPAL CHURCH, }
WEST MERIDEN, CONN., Feb. 25, 1875. }

BACKUS WATER MOTOR CO.:

GENTLEMEN: I am pleased to inform you that the 30-inch motor which I attached to the organ of St. Andrew's Episcopal Church in this city, works well and is giving perfect satisfaction. The organ is a large Hook & Hastings make, Boston. It has 48 stops, 3 banks of keys and the bellows has two feeders, each 6 ft. square, requiring two men to operate it. Your motor was selected, because on trial it did the work required, easier and better, with no noise, no jerking and jarring of the bellows, and at the same time, with one-third of the amount of water required by any other motor. The organist, Mr. Henry A. Foster, is highly pleased with its performances, and has given me permission to refer any persons or societies wanting power for that purpose to him.

Yours truly,
A. C. BRECKENRIDGE, Agent.

BACKUS WATER MOTOR CO.:

GENTLEMEN: On the 8th inst. I visited the Third Presbyterian Church in Newark, and inspected the working of your motor recently introduced for blowing the large organ there, erected by Hall & LaBogh, of New York. I found the instrument very hard to blow and presenting unusual difficulties for any motor. I can only say that I was amazed to see a stream of water three-eighths of an inch in diameter, with a pressure indicated of 22½ lbs., doing more than one man could do. No ordinary tests would or could exhaust the bellows, and the motor appeared to me to combine every possible excellence for the purpose there used. It is very sensitive, makes no noise and requires no attention. I shall bring it to the notice of all my professional friends.

U. C. BURNAP,
Mus. Dir. Organist, Church on Heights, Brooklyn.

SECOND CONGREGATIONAL CHURCH, }
NEW LONDON, CONN., Feb. 24, 1874. }

BACKUS WATER MOTOR CO.:

GENTLEMEN: It gives me great pleasure to inform you that the 30-inch motor you sent to us has given no trouble on adjustment and is now doing its work to our entire satisfaction, supplying our organ of 40 stops with air, doing perfectly well the work of two men. It is now acknowledged by our best mechanics to be the most practical application of water for light power that has yet been invented. No church can well afford to be without it. Wishing you all the success your enterprise merits, I am respectfully yours,

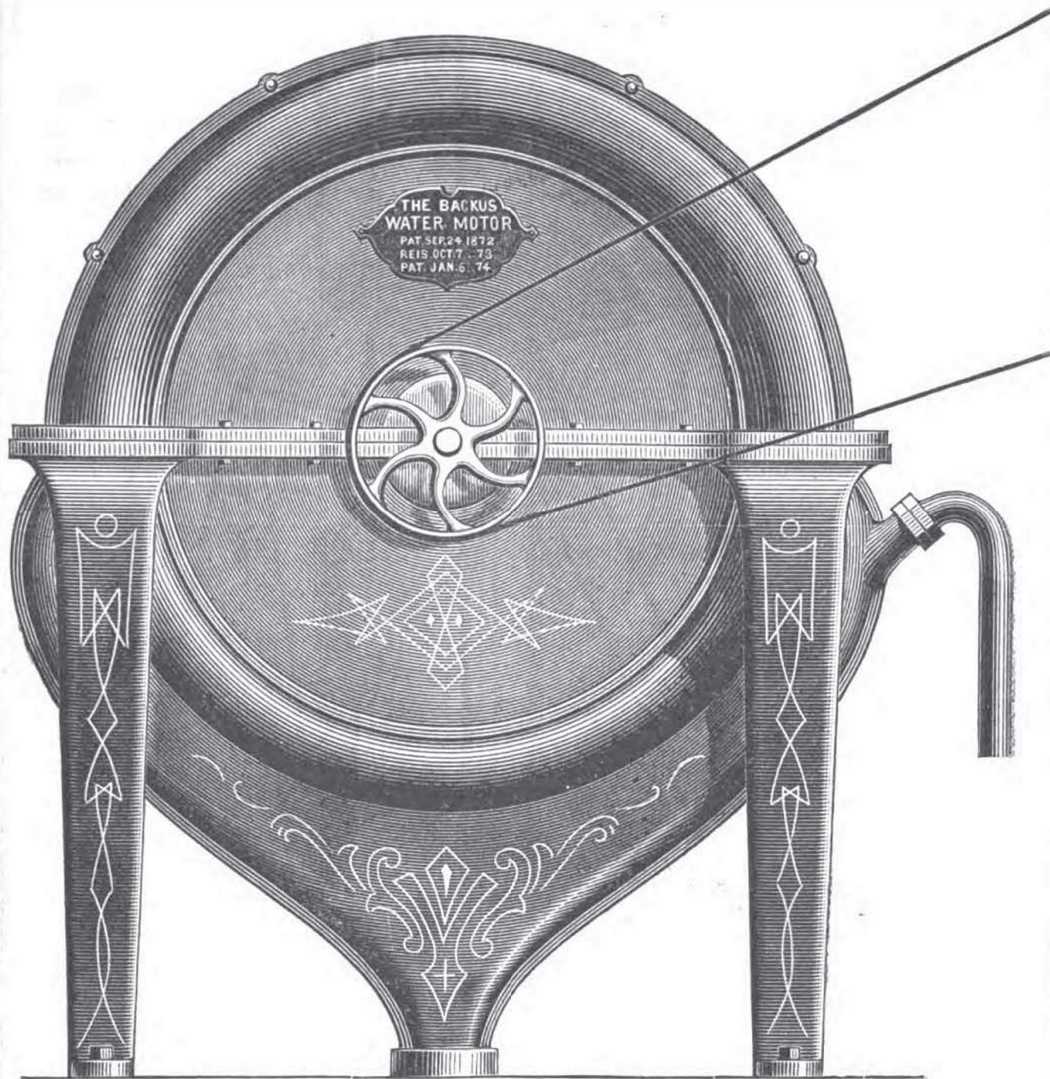
M. W. TOBEY, Chairman of Com.

FIRST CONGREGATIONAL CHURCH, }
ITHACA, N. Y., Feb. 5, 1875. }

BACKUS WATER MOTOR CO.:

DEAR SIR: It is with pleasure we subscribe our names to this testimonial. The motor placed in our church runs the organ to our entire satisfaction. Although the organ is a large one, containing many stops, and having a large bellows, the Motor supplies it without any difficulty. Under no circumstances would we return to manual labor. Hoping you will meet with the success you certainly deserve, we are respectfully yours,

S. H. WILCOX, Chorister.

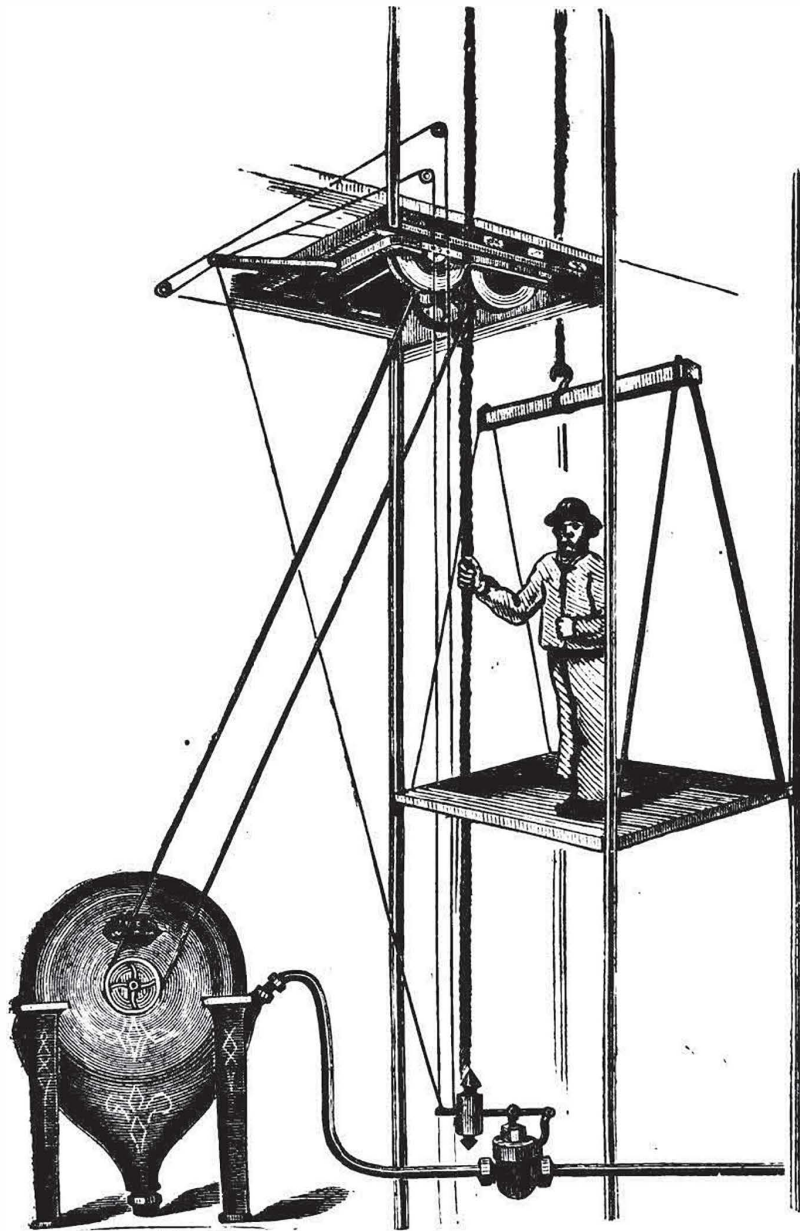


The 45 and 30 in. Double Motors are constructed to use one or two streams of water at will, and used where a larger amount of power is required than can be obtained by the Single Motor. The supply pipe for this Motor should be 3 to 4 inches, depending on pressure of water and power required. They are used for Printing Presses, large Church Organs, Hoisting for Stores and Warehouses, Circular Saws and Machinery, such as Lathes, Drills, &c. We have the most flattering testimonials in regard to their work and power, in many instances doing the work and displacing 4 and 8 horse-power Steam Engines.

CONNECTIONS.—The size of pipes and connections depends on the pressure of water and the amount of power required. Cannot lay down rules that will govern in all cases, except that the pipes should always be large enough to overcome the loss of power caused by friction of the water in passing through, thereby giving the full amount of pressure, clear of drawbacks at the place of use.

Full information given as to best size of Motor to do special work, sent on receipt of application, stating name and size of each machine, desired to run, and pressure of water at point of use.

SEE TESTIMONIALS.



This cut represents Motor attached to levator by a simple attachment which can be bolted to the ceiling and made to grasp the hand rope by two sheaves. On pulling the guide rope attached to the brake on the gearing, it throws the two sheave pulleys against the hand rope, and at same time opens the valve and starts the Motor. On pulling the guide rope in opposite direction, it releases the hand rope and shuts off the water, preventing all waste when not in use. By having the platform weighted sufficiently to come down by its own weight, you require the use of water only in lifting the load, and regulate speed in coming down by brake. At pressure of 40 to 80 lbs. we can raise loads from 1,000 to 2,500 lbs., at rate of 40 feet per minute, by use of this attachment and the 30-inch double or 45-inch double Motors. The attachment takes up space only about two feet square on ceiling, and costs \$60.

ELEVATOR TESTIMONIALS.

SANDUSKY, O., Oct. 15, 1880.

BACKUS WATER MOTOR Co.—Gentlemen: The 30-inch Double Motor used in connection with your hand-rope gearing purchased of you to run our store elevator has been in successful operation for over a year, and we are well pleased with it. It is always ready (day or night) and is a great improvement over working by hand, or by steam power. We elevate easily 1500 lbs. at a hoist.

Yours Truly,
ROBERTSON & CO.

BACKUS WATER MOTOR Co..

GENTS: The 30-inch Motor put up for us by Mr. J. J. Bingley works very satisfactorily. It has superseded our horse-power, and we would not be without it at any price. We hoist 100 bushels of corn 20 feet in fourteen minutes, which is as fast as the hands can get it out of the way.

Yours Respectfully,
HOKE & SHAFFER,
Commission Merchants,
Hanover, York Co., Pa.

BANGOR, ME., Sept. 29, 1881.

BACKUS WATER MOTOR Co., NEW YORK:

GENTS:—Respecting the Motor and Attachment which I applied last spring to a hand-rope elevator for use in my store, allow me to say that I am well satisfied with its working; its power as applied here being sufficient to raise loads of say 800 to 1500 lbs., which is all I require, and for prompt, quick work and the fact that it needs no "looking after" nor repairs, I can recommend it as equal to your statements.

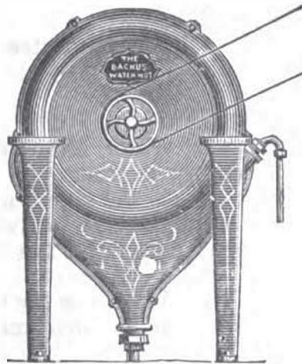
Yours Truly,
WM. E. MANN.

Other parties using Elevators:

REUBEN YOUNG & SON,
Hanover, Pa.

JAS. VICK,
Seedsman, Rochester, N. Y.

MCDONALD & CO.,
Clothiers, Rochester, N. Y.



THIS cut shows our 17-inch Motor. These are used for Parlor Organs, Polishing Jewelry, Running Wax-thread machines for Harness and other heavy work also, supplying air for Portable Gas Machines, ventilation in stores and Offices, Turning Lathes, Jig or Scroll Saws. Under a pressure of 60 pounds or upwards, Printing Presses, Coffee Mills, Refrigerators, small Sausage Cutters for Hotels and Butchers; also for Revolving Hair Brushes, taking the place of the hand or foot power

for all kinds of light and fatiguing work. Supply pipe 1 to 1½ inches.

DENTAL MOTORS.

Adapted to run Dental Engines of all descriptions; Morrison, White's or Suspension. Also for brushing, grinding or polishing teeth, and all work requiring power in a Dental Office or Laboratory.

The motive power being a minute stream of water (in some cases no larger than a pin head) taken from the house pipe, a pressure of 15 lbs. per square inch or upwards gives the necessary power to drive either of the above-named engines at any speed required, from 1000 to 2000 revolutions per minute, and is under perfect control of the operator, by a slight touch of the toe on the valve, any speed may instantly be obtained or stopped.

Makes no noise, never leaks or becomes deranged, will run for years with simply oiling, can be moved as easily as the White or Morrison Engine. It is not necessary, however, to have it movable, as the operator does not have to stand by it as in the case where foot power is used.

Dentists who have used these Motors pronounce them the perfection of power for their purpose, and say no first-class operator can afford to be without it, as it enables him to accomplish much more work in a day, with greater ease to the patient and less fatigue to himself. Often time is of very great value to a dentist, and anything that will save time must be a great desideratum.

The Motors are all complete and ready for either pipes or hose as desired; couplings also being furnished with them. They are nicely japanned and ornamented with plated trimmings, finished in every respect, and are very beautiful. Size 12 inch diameter, 1½ inch thick by 23 inches in height, weight 17 lbs.

We call your attention to the report of the Committee of the New Jersey Dental Society; also testimonials of prominent dentists who have them in use, to whom we are permitted to refer.

EVERY MOTOR WARRANTED if put up according to directions.

DENTISTS USING THEM.

Geo. C. Brown, D.D.S.,	Mt. Holly, N. J.	A. A. Pierce, D.D.S.,	Elizabeth, N. J.
C. S. Beck,	" Wilkesbarre, Pa.	W. S. Elliot,	" Goahan, N. Y.
E. H. Robbins,	" New Brunswick, N. J.	Quincey A. Scott,	" Pittsburgh, Pa.
L. S. Straw,	" Newburgh, N. Y.	J. H. Smith,	" New Haven, Ct.
G. W. Spencer,	" Pittsburgh, Pa.	W. S. Edington,	" Geneva, N. Y.
C. F. Wheeler,	" Albany, N. Y.	W. H. Loomis,	" Rockville, Ct.

TESTIMONIALS.

MOUNT HOLLY.

We, the Committee appointed by the NEW JERSEY DENTAL SOCIETY to examine the BACKUS WATER MOTOR attached to the Morrison Engine in possession of Dr. Geo. C. Brown, of this town, have attended to their duty, and beg leave to report as follows: We find the arrangement to work with entire satisfaction. It runs the Engine very smoothly, and is under the perfect control of the operator. The same power seems capable of being adapted to many uses in the Dental Office, such as running the lathe, operating a pair of fans, &c. It is, without doubt, capable of performing much labor which otherwise would have to be done by manual exertion.

WORTHINGTON PINNEY,	} Committee.
W. H. DIBBLE,	
J. HAYHURST.	

WILKESBARRE, PA.

BACKUS WATER MOTOR Co.—Gentlemen: Having used your Water Motor (11 inch) for several months, it gives me much pleasure to offer my testimony to its utility in dental operations. It drives my Morrison Engine with all the speed, and with much comfort to myself and patient. In connection with the Engine I drive a fan. The Engine and the fan are driven at the same time. When I excavate I fan my patient.

Last July the State Dental Convention convened here. The Motor was the admiration of all. Anything I can do to forward the use of this invaluable instrument in the Dental Office, I shall be happy to do.

Very respectfully,

DR. C. S. BECK.

NEW BRUNSWICK, N. J.

BACKUS WATER MOTOR Co.—Gentlemen: The Dental Motor was duly received, and in a few minutes attached to my Morrison Engine. After a thorough trial I am willing to pronounce it the perfection of power for driving either the Morrison or Suspension Engines, and am confident no operator having once introduced it in his practice, where the pressure of water is sufficient to develop its merits, will ever willingly dispense with its assistance.

Yours, very truly,

E. H. ROBBINS, D.D.S.

ALBANY, N. Y.

BACKUS WATER MOTOR Co.—Gentlemen: I am very much pleased with the "Dental Motor" you sent me; it is all I expected, and works to my entire satisfaction. I have delayed writing you before this time in regard to the "Motor," in order that I might satisfy myself as to its working power in the capacity in which it is to be employed, and I think that now I can safely say that it is the best for the work I have yet seen.

Yours, &c.,

DR. C. F. WHEELER

NEWARK, N. J.

BACKUS WATER MOTOR Co.—Dear Sirs: You ask me how I like the Motor. I reply "first rate," and would not know how to practice dentistry without it. I had to work one day without it during the last winter, on account of the water freezing, and felt at the close of the day's work, that I would not be without the Motor for ten times its cost. The duty of the dentist to himself, to his family, and to his patients, demands that he should preserve his health, prolong his usefulness, and I am sure the Motor is the best help he can have to this end. With the "rubber dam," any one of the Dental Engines the operator may prefer, and the Backus Motor, dentistry is made easy.

Yours, &c.,

DR. C. S. STOCKTON.

GOSHEN, N. Y., October 12, 1875.

Gents:—As for my Motor I must say that I am wonderfully pleased with it. It seems as if the millennium of dentistry was at hand. With my Elliott Suspension Engine driven by the Backus Motor, there appears to be nothing more desired. The 7 inch has ample power, runs smooth and noiseless, and is efficient in every particular. Hoping you the best success.

I remain yours,

W. S. ELLIOTT, D.D.S.

Messrs. BACKUS & BRO:

ALBANY, N. Y., June 1st, 1875.

Gents: Having tested your Motor, I cheerfully offer my testimony to its efficiency in running dental engines, it having exceeded my most sanguine expectations. For a little Motor, I have never seen its equal. Respectfully,

EDWIN C. BAXTER

MISCELLANEOUS.

The Motor in *Whig and Courier* office has been running (by a meter) the press with two 8-16 streams, at an average cost of 85 cents per day. The work was formerly done with a 6 horse power engine, costing for fuel alone over \$4.00 per day. The impression is superior to that of steam.

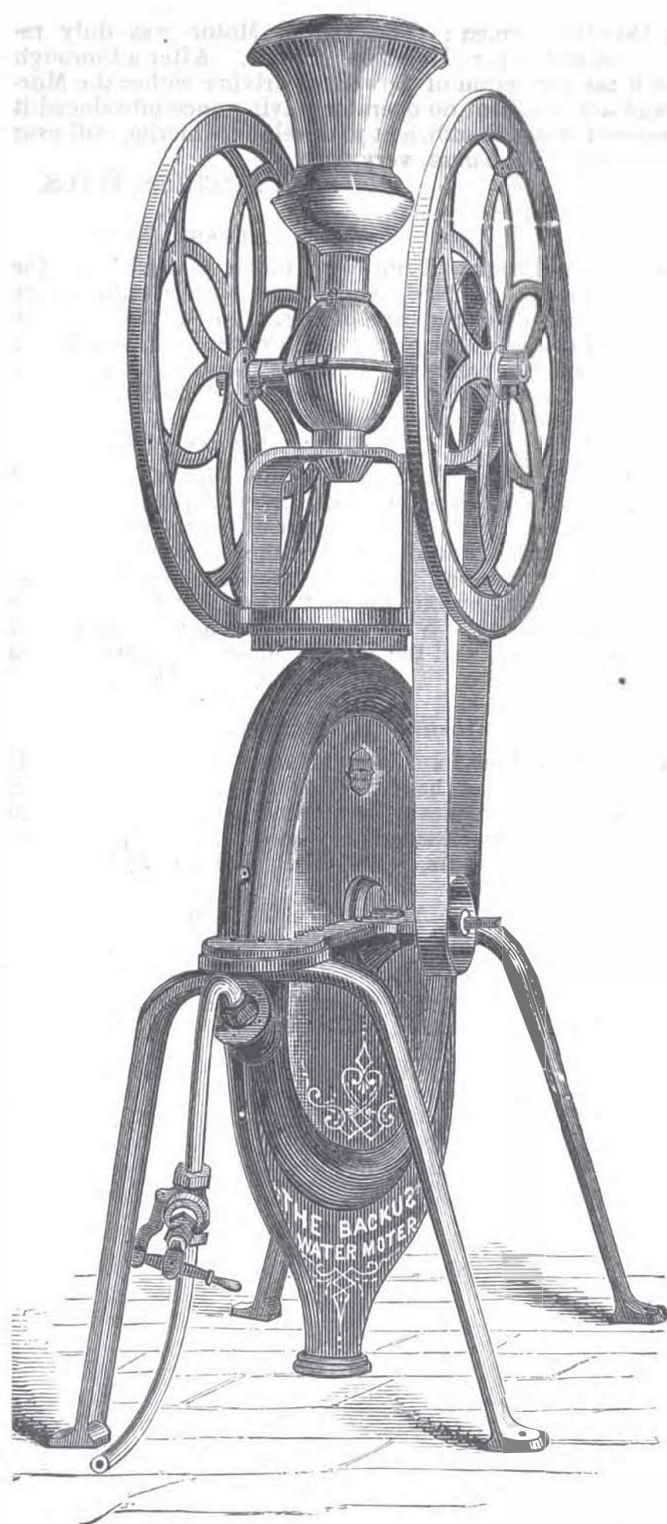
WHIG & COURIER, Bangor, Me.

STAUNTON, VA., July 19.

The novel water power at the *Vindicator* office.—Since last Friday the *Vindicator* office has had a constant stream of visitors inspecting the new "Backus Water Motor" which drives our presses, and to say 1000 have seen it would not be over the mark. It is the novelty of the age in machine power, and is worth a visit. A large cylinder and a job press driven at a rapid speed by a machine not larger than a hat box, into which pours a stream of water not larger than a goose quill, is a curiosity worth seeing.

SAN ANTONIO, TEXAS, July 10, 1878.

The latest advance by the *Express Printing Co.* is the adoption of the "Backus Water Motor" to run its presses. This Motor, with a 1½ inch pipe and ½ inch nozzle, under a pressure of 40 lbs., obtains a force equal to 8 horse power, amply sufficient for any Texas printing establishment. It will prove both labor saving and economical, being indeed a most useful machine for service where a light motive power is required.



30-inch Motor with Coffee Mill attached.

For prices, see Price List.

This cut represents our 30-inch Motor with Coffee Mill attached. This is a 2 pound per minute Mill, and under 100 pounds pressure has ground 6 pounds of coffee per minute.

The Motor is capable of running a Roaster and Mill. Motor can be placed in cellar or store, belt to Mill and Roaster, let them be ever so far apart. The cost of grinding 100 pounds of coffee by water with this motor is between 2 and 5½ cents, not over 5½ cents where water is 2½ cents per 100 gallons. Making it by far the cheapest power in the world for such purpose. In most cities the charge for water is from \$5 to \$20 per annum. Must have a supply pipe from 1½ to 2 inches, according to water pressure. See testimonials. In ordering, state make and size of mill, and pressure of water.

COFFEE MILLS.

—†—

BACKUS WATER MOTOR Co.:

EASTON, PA.

DEAR SIR: I have in use a thirty inch Backus Water Motor, for running my drug and spice mill. It works very satisfactorily, enabling us to reduce any drug to whatever fineness required, and I cheerfully recommend it to all those wishing a light, cheap and convenient power.

JOHN A. WEAVER, Pharmacist.

BACKUS WATER MOTOR Co.,

DEAR SIR: The 17. inch Motor and Coffee Mill bought of you, works beyond my expectations. Am perfectly satisfied with it. Grinds two pounds coffee per minute when the hopper is kept full. It is a perfect thing, no water leaking; can set in a parlor or any place you wish; is almost noiseless, and is a perfect "little gem." In regard to connections, I have a three-quarter inch pipe, distant from the main about sixty-five feet, under a pressure of eighty-five pounds, and use a 5-32 inch stream of water.

Yours respectfully,

HOBART SPERRY, Ansonia, Conn.

BACKUS WATER MOTOR Co.:

BROOKLYN, N. Y.

GENTS: I have submitted it to every conceivable test and find it to work admirably. I would not be without it now for five times its cost, or the expense of running it. Even at the high price of water in Brooklyn it only costs, by meter, 5½ cents per 100 pounds of coffee to run it.

Yours respectfully,

W. S. CARLISLE, 493 Fulton Street.

BACKUS WATER MOTOR Co.:

EASTON, March 31, 1874.

GENTS: The Water Motor manufactured by you and put up for us on the 21st inst., for grinding coffee, works to our entire satisfaction; in fact, would do a considerable more work than we require of it. We consider it the cheapest and handiest power manufactured.

Yours, &c.,

CORNELL & MICHLER.

BACKUS WATER MOTOR Co.,

JERSEY CITY.

GENTS.: It gives me great pleasure to offer my testimony in regard to the working of your Water Motor for the purpose of grinding coffee. It performs the work to my entire satisfaction, running my mill at any desired speed, and when necessary, working it to its fullest capacity, 2 pounds of coffee per minute.

R. McBRIDE

GOES LIKE A TOP.—Messrs. Charles Hale & Co. to-day set up in the show window of Tea White one of the Backus Water Motors. This Motor is very neatly built, is strong and runs with a very small amount of water. The Motor placed in White's is 30 inches in diameter, and requires a stream of water only three-sixteenths of an inch in diameter. White's Motor has a large Coffee Mill attached, which it carries with great speed and grinds out the coffee in a lively manner.—*Bangor Daily Commercial*.

Also at the China Tea Store, on Main street, is another one of the above named Motors, and the mill now grinds out six pounds of coffee per minute, and makes no fuss about it.—*Bangor Daily Commercial*.

BACKUS WATER MOTOR Co.:

NEWARK, N. J., Aug. 21, 1876.

GENTLEMEN: It is now nearly three years since I put in my store three of your 30-inch motors, to run my coffee mills. I have had no occasion to change the favorable opinion formed after one day's trial of them, except to become more fully convinced that for such use there could be nothing better.

They have been in daily use from the first, doing all that was required of them, and are in as good order to-day as they ever were, though not one cent has been expended in repairs.

I shall be happy to give information concerning any points that may have come under my observation, if you at any time desire it.

Yours truly,

T. M. WARD.

PARTIES WHO ARE USING THEM

W. WHITTY, Market street, Newark, N. J.
 E. J. WALKER, Pottsville, Pa.
 J. DELANNAY, Coffee Mill and Roaster, Meadville, Pa.
 T. J. DRESHER, Hoboken, N. J.
 J.E. FOSTER & Co., Coffee Mill, Gloversville, N. Y.
 AMBROSE SMULLEY, Main street, near Market, Scranton, Pa.
 ATWATER & CARTER, Broad street, Newark, N. J.
 T. M. WARD, Market and Mulberry streets, Newark, N. J.
 CORNELL & MICHLER, Easton, Pa.
 R. MCBRIDE, Jersey City, N. J.
 HOBART SPERRY, Ansonia, Conn.
 TEA WHITE's, Bangor, Me.
 G. C. KEAYS, Victoria, B. C.
 W. S. CARLISLE, 493 Fulton street, Brooklyn, N. Y.
 CHINA TEA STORE, Bangor, Me.
 F. F. FRENCH, Lynn, Mass.
 STEVENS & Co., Pittsfield, Mass.

It works splendidly. A Brady patent triturating machine and a 17 inch Backus Motor to drive it. Its work surprises everybody. It moves the triturator with a steady motion at the rate of 100 revolutions a minute.

A. F. WORTHINGTON, Cincinnati, O.

WEST TROY, N. Y., January 28th, 1881.

BACKUS WATER MOTOR CO. :

Gents: The 30-inch motor which we recently obtained from you drives our foundry tumbler at full speed with surplus power to spare. We use a $\frac{5}{8}$ -jet, the water pressure (at our foundry) being about 65 pounds to the inch.

Yours truly,

GEO. R. MENEELY & CO.

NEWARK, N. J., January 29th, 1881.

BACKUS WATER MOTOR CO. :

Gents: We have used one of your motors for about nine months with perfect satisfaction driving a blower.

Yours truly,

BENJAMIN ATHA & CO.,

Steel Works.

841 GROVE STREET, JERSEY CITY, N. J., July 3, 1878.

Gents: The 30 inch single motor you attached to my 40 quart ice cream freezer works like a charm. Does the work much quicker and better than by hand, and I would not take \$500 for it if I could not get another one.

Yours truly,

FRANK GALLERY, Confectionery and Ice Cream.

MEAT CHOPPER.

HARTFORD, December 6, 1877.

Sir: Yours of the 5th is at hand, and in reply would say to you that we are much pleased with the motor. It does the work, but not as fast as it would if we had more force to our water; but it does our work with more time, and we like it much, as it is always ready for use.

Yours truly,

A. SQUIRES & SON.

Messrs. BACKUS & BRO. :

Gents: For sometime I have been using one of Kinyon Bros. machines for chopping sausage meat, and recently attached one of your Water Motors, and can truly say they work like a charm together, saving both money and labor. Is always ready and reliable, and without danger of explosion.

Yours truly,

HENRY TAYLOR, Jersey City, N. J.

PRINTING PRESSES.

Stanislas Drapeau, Ottawa, Canada.
Geo. E. Starr, New London, Conn.
"Journal," Sandusky, O.

"

John F. Porter, Beaver Falls, Pa.
"Republican," Cedar Rapids, Iowa.
F. H. Webb, Hudson, N. Y.
"Tribune," Rome, Ga.

[Pa.

"Wyoming Democrat," Tunckhannock
"Constitution," Atlanta, Ga.
T. S. Reynolds, Atlanta, Ga.
T. F. Scheffer, Harrisburg, Pa.
"Volksblatt," Rochester, N. Y.
"Daily," Parker City, Pa.
"Derrick," Oil City, Pa.
"Sunday Call," Oil City, Pa.
Graham & Lake, Titusville, Pa.
"Mirror," Danvers, Mass.
"Gazette," Erie, Pa.
"Visitor," Erie, Pa.
"Tribune, Evansville, Ind.
"Vindicator," Staunton, Va.

[N. Y.

"Independent Republican," Goshen,
"Democrat," Columbus, Ind.
"Crawford Journal, Meadville, Pa.
T. S. Hammond, Providence, R. I.
"News Co.," Youngstown, O.
W. T. Kelsey & Co., Meriden, Conn.
B. & O. R. R. Office, Baltimore, Md.
Reynolds & Smith, Lafayette, Ind.
"Whig & Courier," Bangor, Me.
"Express," San Antonio, Tex

CHURCH ORGANS.

Fort St. Presbyterian, Detroit, Mich.
St. Paul's Episcopal, Detroit, Mich.
First Baptist, Oswego, N. Y.
Catholic Ch., Lock-Haven, Pa.
St. John's Episcopal, Providence, R. I.
1st Methodist, Westfield, Mass.
St. Paul's Episcopal, Cleveland, O.
Delaware Ave. M. E., Buffalo, N. Y.
First Presbyterian, Rahway, N. J.
First Presbyterian, Hudson, N. Y.
Grace Episcopal, Newark, N. J.
Cathedral of the Holy Name, Chicago, Ill.
Grace Episcopal, Brooklyn, N. Y.
Trinity, Episcopal, Easton, Pa.
St. Stephen's Episcopal, Providence, R. I.
First Baptist, Middletown, Conn.
St. George's Episcopal, St. Louis, Mo.
Central Presbyterian, St. Louis, Mo.

HOUSE ORGANS.

J. J. Smith, 362 W. 57th St., N. Y.
Masonic Hall, Portland, Me.
I. O. of O. F. Hall, Portland, Me.
Brindley & Foster, Sheffield, England.
W. Belden, 566 5th Ave., New York.
J. Cooper, Rahway, N. J.
L. H. Russell, Elizabeth, N. J.

MISCELLANEOUS

Adolph & Stoll, Ice Cutting Machine,
Sandusky, O.
C. B. Sillyman, Tobacco Cutting Ma-
chine, Pottsville, Pa.
McDonald & Co., Elevator, Rochester,
N. Y.
L. C. Magew, Coffee Roaster and Mill,
Meadville, Pa.
Oliver, Finnie & Co., Coffee Roaster
and Mill, Memphis, Tenn.
Charles T. George, Drug Mill, Harris-
burg, Pa.
W. Williams, Jersey City, N. J.
D. Murray, Fans, Newark, N. J.
A. J. Stoll, Ice, Sandusky, O.
J. R. Morin & Co., Cedar Rapids, Ia.
Dunn, Thompson & Co., Ventilating
Refrigerator, St. Paul, Minn.
Joseph Merrill, Danvers, Mass.
Beatty Bros., Hat Mach., Norwalk, Ct.
A. Solmans, Hat Machinery, South
Norwalk, Conn.
T. Cousins, Boot and Shoe Machinery,
Norwalk, Conn.
C. H. Gmehlin, Gunsmith, Bloom-
ington, Ill.
A. & J. Trounstone & Co., Cloth Cut-
ting Machine, Cincinnati, O.
Reynolds & Co., Poughkeepsie, N. Y.
Gas Light Co., Exhauster, Springfield,
Mass.
Kilbourne & Co., Marble Polishers,
New Brunswick, N. J.

40 QT. ICE CREAM FREEZERS.

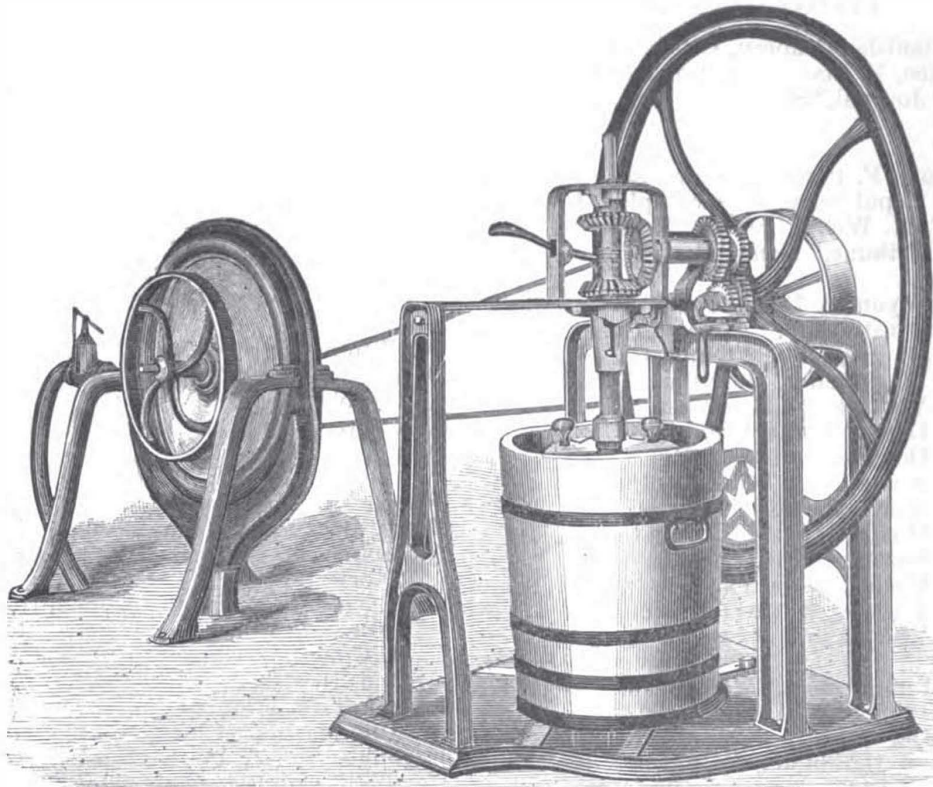
J. Frasc, Newport, R. I.
A. B. Stevenson, Columbus, O.
Morrow, Day & Co., Jersey City, N. J.
J. A. VanDiesten, Hoboken, N. J.
A. W. Miller, Hoboken, N. J.
F. Gallery, Jersey City, N. J.
L. A. Tillinghast, Providence, R. I.
C. Washburne, Newburgh, N. Y.
B. Dorscher, 567 Grand St., Williams-
burgh, Long Island.

COFFEE MILLS.

S. E. Goodyear, Springfield, Mass.
Soule & Ridgway, Corning, N. Y.
W. S. Graham, Reading, Pa.
W. L. Crow, Hudson, N. Y.
Eby & Sons, Harrisburg, Pa.
J. C. Haynes & Co., Norfolk, Va.
Demarest & Wortendyke, Paterson, N. J.
D. Davis & Co., Litchfield, Ill.
G. H. Sampson, Boston, Mass.

MEAT CHOPPERS.

Henry Taylor, Jersey City, N. J.
C. F. Mayer, 633 Fulton Ave., Brook-
lyn, N. Y.
Jas. F. Byrnes, Springfield, Mass.
A. Bauerschmidt, Rochester, N. Y.
Sheldon & Bennett, Springfield, Mass.



The above cut shows Motor attached to 40 quart Mills' Ice Cream Freezer.

It will be found the most complete and economical water-power for running ice cream freezers ever invented. At only half the cost of steam, and obviates the many inconveniences of steam, including noise, dust, waste of ice, and danger to person and property. It requires no attention whatever.

The 30-inch Single Motor (price \$140, and fly-wheel \$7.50 extra), where water pressure is above 45 pounds to square inch, and where the pressure is from 25 to 40 pounds, the 30-inch Double (price \$200 net, and fly-wheel \$10 extra), is what is required to drive a 40-quart freezer. By placing a grove pulley on Motor shaft, and using round belt, Motor can be utilized to drive our rotary fans on ceilings of saloons which will keep the saloon cool and free from flies.

Reference is made to the following few parties who have recently put Motors in :

J. SCHMIDT, Jersey Avenue, Jersey City, N. J.—Running 40-quart freezer, and three fans in saloon.

L. A. TILLINGHAST, 231 Westminster Street, Providence, R. I.—Running two 40-quart freezers.

R. A. JILLSON, 89 N. Main Street, Providence, R. I.

B. DORSCHER, 567 Grand Street, Williamsburgh, L. I.—Running 40-quart and four fans.

NEWBURGH, N. Y., January 6th, 1881.

BACKUS WATER MOTOR CO:

Gents: The 30-inch double motor I purchased of you has run my 40-quart freezer during the whole of the past season to my entire satisfaction without one cent's worth of repairs, or a moment's loss of time, freezing six to ten batches per day. I would not part with it under any circumstances

Yours respectfully,

C. WASHBURNE.

TABLE OF HORSE POWER.

The 7 and 11 inch Motors are adapted to Sewing Machines and all light work, such as Scroll Saws, small Lathes, where the pressure is from 15 pounds up.

7-in. Motor will run any Family Sewing Machine at 30 lbs. pressure. 11-in. at 15 to 25 lbs.

Full instructions sent for setting each sized Motor.

PRESSURE FROM 20 TO 40 POUNDS.

	SUPPLY PIPE.	WASTE PIPE.	HORSE POWER	SIZE JET.
7-in. Motor,	$\frac{3}{4}$ -in.	1-in.		1-64 to 1-16-in.
11 " "	$\frac{3}{4}$ "	1 "		1-64 to 1-16 "
17 " "	$1\frac{1}{4}$ "	3 "	$\frac{1}{4}$ to $1\frac{1}{4}$	Jets used from 3-16 up.
22 " "	$1\frac{1}{2}$ "	4 "	$\frac{1}{2}$ to 2	" " " " "
30 " sgl. "	2 "	5 "	1 to 3	" " " " "
30 " dbl. "	3 "	6 "	2 to 4	" " " " "
45 " dbl. "	3 "	6 "	3 to 5	" " " " "

PRESSURE FROM 40 TO 80 POUNDS.

17-in. Motor,	$1\frac{1}{4}$ -in.	3-in.	1 to $1\frac{1}{2}$	Jets used from 3-16 up.
22 " "	$1\frac{1}{2}$ "	4 "	2 to $2\frac{1}{2}$	" " " " "
30 " sgl. "	2 "	5 "	3 to 4	" " " " "
30 " dbl. "	3 "	6 "	4 to 6	" " " " "
45 " dbl. "	3 "	8 "	6 to 10	" " " " "

PRICE LIST.

POWER GIVEN FROM 1-8 TO 10 H. P

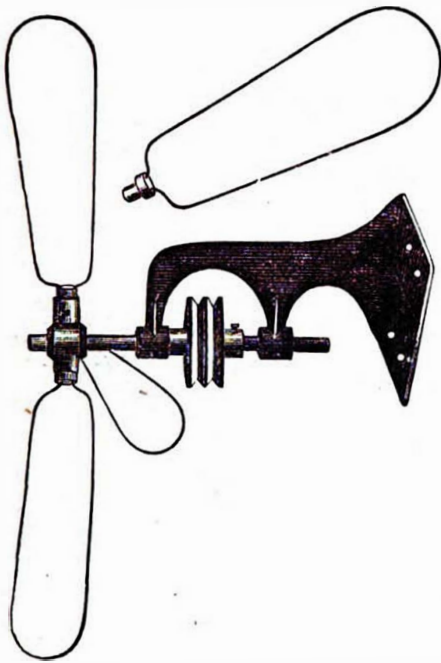
7-in. Motor, Complete,	\$15.00	
Will run Sewing Machine 30 pounds pressure.		
11 " " Complete,	22.50	
Will run Sewing Machine 15 pounds pressure.		
12 " " Complete, with stand,	40.00	
17 " " Complete,	65.00	
22 " " " "	85.00	
30 " " (Single) "	140.00	
30 " " (Double) "	200.00	
45 " " " "	300.00	
7 " Dental Motor, Complete, with stand,	30.00	
11 " " " " " "	40.00	
11 " Motor, with Fleetwood Scroll Saw attached,	35.00	
17 " { " " Coffee Mill, $\frac{3}{4}$ lb. per min. " }	80.00	
{ No. 6 Enterprise, and 15 in. fly wheels, }		
22 " " 18 " " 31 " " "	150.00	
30 " { Motor, with Coffee Mill, 3 lb. per min. attached }	225.00	
{ No. 20 Enterprise, }		
{ Automatic Ball Governor for 22, 30 and 45 in.		
Motors price,		35.00
These Ball Governors are not required except where very fine and particular work is done, as the <i>Regular Governor Valve</i> that comes with each Motor will answer for regulating speed in nine cases out of ten where Motors are used.		
Hand Rope Attachment for Elevator,		60.00
Fly Wheel for 45 in. Motor,		20.00
" " Pulley for Circular Saw,		10.00
Fan, each, with 10 in. shaft,		5.00
" " " extra long shaft, 2 ft. 6 in.,		6.00

NET CASH.

Governor Valve and Pulley included for each size.

All Goods deliv'd to Express Co., or on cars in Newark, N. J.

NOISELESS ROTARY FANS.



These Fans, which are perfectly noiseless, can be fastened to ceiling or side wall of room, and driven by a round belt direct from grooved pulley on Motor.

Two or more Fans can be connected on ceiling; blades of Fan can be covered with paper muslin to suit the taste in color; amount of air can be regulated by changing angle of blade, which is 10 inches wide by 24 inches long.

Shaft of Fan is ten inches long, and runs in metalline journals, and requires no oiling, which is quite a consideration where they are put up in dining-rooms over tables. Price, - - - - - \$5 each.

Perfect ventilation and freedom from flies secured by use of our Fans, which are adapted to ice-cream saloons, dining-rooms, hotels, restaurants, kitchens, saloons, concert halls, offices, and factories, also private families in dining rooms.

Fans with long shaft and long hanger, also with wooden blades, - - - \$6 each.

