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A

SHORT ACCOUNT
OF A
NEW METHOD
OF
FILTRATION BY ASCENT;

WITH
EXPLANATORY SKETCHES, UPON SIX PLATES,

By JAMES PEACOCK,

OF FINSBURY-SQUARE, ARCHITECT;
Author of OIKIDIA; or NUTSHELLS, SUPERIOR POLITICS, &c.

Adde quod e parvis ac lævibus est clementis
Nec facile est tali naturæ obfistere quicquam
Inter enim fugit ac penetrat per rara viarum.

LUCRETIVS.

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9

ERRATA.

In the Title Page, dele the *semicolon* after the word OIKIDIA.

- | | | | | |
|------|-----|------|-----|---|
| Page | 2, | Line | 3, | for <i>dicipline</i> , read discipline. |
| — | — | — | 9, | for <i>leffer</i> , read less. |
| — | 3, | — | 27, | dele the <i>comma</i> after Mineral. |
| — | 4, | — | 9, | for <i>is</i> , read are. |
| — | 9, | — | 21, | for <i>port</i> , read port-hole. |
| — | 12, | — | 17, | for <i>aperature</i> , read aperture. |
| — | 18, | — | 16, | for <i>brick-worst</i> , read brick-work. |
| — | 20, | — | 12, | read in. |
| — | — | — | 18, | read before, |
| — | 21, | — | 1, | for <i>water</i> , read waste. |
| — | 22, | — | 20, | for <i>incompresobility</i> , read incompressibility. |



A
S H O R T A C C O U N T
O F A
N E W M E T H O D
O F
FILTRATION.

THE Poets maxim, that "God never meant his works for man to mend," if not generally false, is however pretty glaringly so, in many very important particulars upon this atom of the universe.

Should the tiller of the ground remit his mental and corporeal labours, and leave nature to pursue her works alone; what a formidable degeneracy would speedily take place in the vegetable world?

On the contrary, how wonderfully does the exertions of man increase the quantity and variety, and mend and improve the flavour, salubrity, and beauty of fruits and flowers! Similar effects are visible from the same agency in the Grazier, Shepherd, and Herdsman, who mend and improve the breed of the various animals reared to furnish food, cloathing, use and pleasure to the children of men, nor does the noblest work of Creation we are acquainted with, stand in less need of human aid.

The

The faculties of the Soul must be mended, strengthened, and cultivated by education, to produce the fruits of virtue, and the wonders of science and art, as well as mended, restrained and regulated by discipline, and the terrors of penal laws, to prevent degeneracy into an infinity of evils and disorders of the most dreadful and malignant kinds.

If these positions are admitted, the exact reverse of the poets maxim must be true (so far at least as it respects the beings of this sublunar spot) and that God, in his infinite Wisdom, did really intend that his various works here, should, in greater or lesser degrees, possess a weakness, crudity, ruggedness or wildness, most pointedly and expressly calculated to call forth and afford continual exercise both to the muscular and intellectual powers of man, to strengthen, protect, ripen, polish and subdue, under the penalties of suffering many distressing inconveniences, and of forfeiting many rational comforts and delights.

The mental powers, with all their latent inexhaustible and invaluable treasures, are however upon the whole, but little attended to in this very self sufficient and intelligent age; little further than as they can be made to subserve the growing empires of ambition, vanity and sensual gratification; yet the extent of those which contribute to such of the latter, as are not only perfectly innocent, but politically advantageous, and virtually praise worthy, are most miserably cramped and limited, under the gloomy dominions of apathy, indolence, prejudice, precedent, custom, formalities, and other pests and plagues, in a far darker region than that of involuntary Ignorance and error.

Curiosity, indeed, is prompt enough to ask, with Pilate, "what is truth?" but prejudice is afraid, and indolence careless, of waiting for an answer!

Among

Among the various subjects evidently designed by Providence to ask amendment at the hands of men, there is one of immente importance, which has not yet received it in the degree it is capable of, and that is WATER.

This element, necessarily of such universal use, and particularly in food and medicine, is suffered to remain laden with a great diversity of impurities, and is taken into the stomach, by the majority of mankind, without the least hesitation, not only in its fluid state, however turbid it may happen to be; but also in the forms of bread, pastry, soups, tea, medicines, and innumerable other particulars.

Medical gentlemen can readily point out the probable advantages towards the preservation of health, and extending the period of human life, which would result from the use of soft water, cleared from the earthy, and the living, dead, and putrid, animal, and vegetable substances, with which it is always, more or less, defiled and vitiated.

But independent of this consideration respecting health, an intimation of this nature must be not a little alarming to delicacy; and most certainly had better have been entirely suppressed, if adequate means had not, at the same moment, been offered to quiet such alarms. Such means, however, simple in their nature, and easy in their process, are pointed out, in the following pages, with demonstrative evidence; whereby pure soft water may be had at all times, and in any quantity, as clear and brilliant as that from the finest springs.

Many are sensible of the indelicacies of turbid soft water; and are thence driven to the use of hard water, although they are not unapprized of the probable danger to their health, from its petrifying quality, or from the metallic, or other mineral, taints, too frequently suspended and concealed therein. Others

Others of nephritic or gouty habits, justly dreading the petrifying effects of spring waters, clarify their soft water, by passing it through what are called filtering stones; these, if natural, are supposed to be a kind of pumice or calx, the produce of some volcano, and may contain copper, or other metallic, or mineral substances, dissoluble by water, and may therefore render the perfect salubrity of water, passed through such bodies, somewhat suspicious.

The other kind of filtering stones are artificial productions, said to be formed of a sort of clay, with which is mixed some particles of a combustible nature, which diminish in bulk in the fire, and thereby render the mass porous. The ingenious Mr. *Wedgwood*, informed the writer hereof that he had caused some of this kind to be made, but that their effects were so trifling, and temporary, that he did not think proper to continue the manufacture of them.

Neither of these kinds of filters will afford clear water in any considerable quantity, and notwithstanding the repeated brushing and cleansing applied to the surfaces of their concavities, the pores, beyond the reach of the brush, will, sooner or later, clog up; and the stones become entirely useless; this is so extremely evident, that it would be insulting to common sense and experience to attempt a formal proof of it, and, perhaps, something worse than insult, to deny it.

To supply, therefore, the inhabitants of this great metropolis and its environs with *more than a sufficiency* of perfectly clear soft water from the inexhaustible sources contained in the noble rivers in its vicinity, has been the writer's study for several years past. He has viewed the subject with much attention; and has made a very great variety of experiments, in order to arrive, as near as possible, to the simplicity and perfection of nature, in her process of percolation, by using the same medium

dium and the same mode, taking away, by human art, her hurtful and disgusting redundances only : how far he has succeeded herein, the impartial public will best judge.

The inventor of the mode of filtration, (whereto the machinery described in the following plates and references is applicable ; and which, he presumes are fully explanatory of the subject) having been at very considerable expence, and employed much time and labour in various experiments, has taken out a patent to secure to himself a reasonable remuneration, being determined to accommodate the public in as easy a manner as possible.

It is necessary here, to hint at the proper materials of which vessels, designed to contain water, should be made ; and perhaps glass and porcelain, or stone ware, are the fittest for family uses ; and * ashen wood, or brick, marble, or stone, in tarras, or barrow lime, may be best for larger purposes.

The cisterns are divided into three parts. The first division receives the turbid water from the service pipe ; the second contains the stratified medium for the filtration ; and the third receives the water, in a clarified state, after its ascent through the filter.

It has been hinted that cast iron would be an excellent material to form the vessels of, and perhaps it might, if it could be guarded with some resinous coating or varnish, which would prevent rust and any chalybeate taste, and at the same time, communicate no ill flavour or quality itself to the water. Ashen casks seem, upon the whole,

B

to

* Of ashen wood are made the several vessels used in dairies, for milk, butter, &c. probably because it communicates no ill taste.

to be the least objectionable of any thing, as they will not be liable to break, and it is probable that they will not discolour or communicate any ill taste to the water.

Gravel of different sizes, suited to the several strata necessary to secure the end of filtration; and glass, reduced to those sizes, seem the properest for this purpose; but if the mind of any ingenious gentleman should advert to any materials better suited thereto, the inventor will always be ready to express his thanks for the communication: especially as his patent secures to him the exclusive right of extending his systematic arrangements to, and forming his stratified mediums of, any substance or substances he may think fit to use, as most appropriate to the particular fluid or fluids to be percolated,

And being aware of the probability of there being a considerable demand for percolators, to refine and clarify various liquors, when their principles and powers should come to be sufficiently known and understood, he can assure the public that the magnitudes of the particles of the filtering agent or stratum, may be readily proportioned to the texture of the fluid intended to be clarified.

It has been experienced upon porter with very good effect, by taking the third degree or stratum below that used for water.

Porter, in a state fit for receiving the usual finings, was procured from Mr. *Whitebread's* brewhouse, and having prepared a medium in which the filtering agent or stratum was chosen of the third degree, the porter ascended through it, in a very few minutes, perfectly fine, and at the same time perfectly uninjured in any of its good qualities.

Its effects upon other liquors have not yet been properly tried, but if a fluid of the tenacity of porter can be suddenly and effectually refined,

fixed, no doubt can be reasonably entertained of its power upon any fluid however gross, or indeed however subtle it may be, since there is scarce any limits to the divisibility of particles by trituration.

Explanation of PLATE No. I.

The general principle upon which the medium for filtration is formed is this; if a number of equal spheres are laid upon a plane so as to touch each other, the greatest possible space or interstice e, f, g, h, will occur; when four of them happen to lye so that lines drawn from their centers form a square A B C D, and the least possible space or interstice i, k, l, will be had, when lines drawn from the centers of three of them form an equilateral triangle as C D E..

Whence it is evident from inspection, that if upon the first layer or stratum of spheres, a second stratum be laid of equal spheres, whose diameters shall not be less than one half of those of the first stratum, the second bed of spheres or particles, cannot possibly pass through the interstices of the first, howsoever they may chance to be disposed..

A decreasing progression according to this law, being observed in every succeeding stratum, the interstices or spaces between the spheres converge very swiftly, so as to form a secure foundation for the filtering agent or stratum, how fine soever its particles may be chosen..

But as the forms of gravel stones are not spherical, it is necessary, in practice, to increase the number of particles in the height or thickness of each stratum, to correct any errors which might arise from the irregularities of the forms: and this, long, and repeated experience has firmly

firmly established to be perfectly adequate to the intention ; so that not a single particle of a bed of sand, glass, or other matter, reduced if possible to an impalpable powder, can, by any means descend through the interstices of the stratum upon which it is placed.

This distribution of the filtering particles refines the fluid by degrees : its grosser foulnesses are progressively arrested as they rise, and every succeeding stratum executes its own proper office only.

This systematic arrangement of the strata, is equally favourable for cleansing the medium, whenever its operation appears to be diminished ; the areas of the interstices continually increasing downwards in a four-fold proportion (according to this series 1, 4, 16, 64, 256, 1024, 4096, &c.) a free passage is afforded for the sudden and complete precipitation of all foreign particles, by merely causing a reflux of the fluid, of which more hereafter.

Explanation of PLATE No. II.

A B C represents the plan and section of three cylindrical glasses, with which the first experiment for clarifying water, in this way, was made.

That marked A, receives the water in its turbid state, with which it may be continually served from any remote or concealed cistern, by means of the pipe and ball cock at D.

E, is a bag or strainer of cloth called bunting, or other proper matter, through which the water ought first to run, particularly in the summer season,

season, when innumerable green*filaments abound in the water of some rivers, to such a degree, as to coalesce and form a tough mucous, which will have disagreeable effects, if not taken out.

This bag or strainer may be fixed to a hoop, which may rest upon the top of the glass; and the bag must be of such a depth as will admit sufficient room for the free play of the ball, and whenever it is found necessary to discharge the bag or strainer of its contents, the cock behind the ball may be turned, to shut off the water, and the ball taken off to admit of the bag being taken out, washed and replaced,

It is taken for granted that these glasses will be set together and confined in a neat light strong frame, having the inside of the bottom and two or three inches in height of the sides and ends lined with thin lead, to form a recipient for any dripping or waste of water from the cocks in the glasses; and that this recipient for the waste water shall also have a cock to discharge the same from time to time, as occasion may require, so that when the cock D, is shut and the ball taken off, the whole may be moved with safety, whenever necessary.

It is also supposed that these glasses will be set in a cool place under a shade, or near to some shaded aperture, so that a current of air may play upon them, somewhat in the same manner as wine is cooled on ship-board by hanging the bottle in an open port, with a wetted cloth round it.

But to return,

The turbid water from the vessel A passes, by means of the pipe G, into the lower part of the vessel B, under a spherical or conical grating
C H,

* It may be proper to observe here, that these never appeared, but in machines exposed to the sun.

H, which grating is supported by three feet I, I, I, in order to be steady. Upon this dome, or conical grating is then laid the several courses, layers, or strata, of the filtering medium, until it is raised to the height proper to receive the lower end of the air pipe K.

The said air pipe is then introduced and suspended, by a proper supporter at the top of the glass.

This being done, the remainder of the strata are introduced round the outside of the said pipe, in their proper order, until a secure foundation is obtained for the finest stratum, which is the main agent in the percolation, and is represented as being at L.

Upon this finest stratum the others are laid in an inverse order, to those below the said finest stratum, and the medium is raised to such a height, as shall securely over balance and resist any disturbance from the pressure of the column of water in A.

The pipe K, is progressively charged to the same height, with several strata beginning with one degree coarser than that at the bottom of the pipe, and leaving out that which is here called the principal agent or finest stratum, whence, as the water passes from the vessel A, through the pipe G, into the cavity below the grating H, in the vessel B, the air from the said cavity, and from the interstices of those strata of the filtering medium, as lie below the end of the pipe K, is driven up the said pipe, and permits the water to rise to the pipe F, through which it passes, in a filtered state into the vessel C, and from this it is drawn by the cock M, from time to time for use, the ball cock at D, feeding it, constantly, with fresh supplies of water.

This

This little apparatus will yield an ample sufficiency of perfectly clear soft water, for every necessary use of a small family, of six or eight persons.

Whenever the operation appears to be uncommonly languid, it will be proper to let all the vessels fill as full as the ball cock will permit, which will be in the course of a night in its very worst state, and the next morning a stop cock, in the pipe G, may be turned, and the cock N, opened to discharge all the water in the vessel B, together with as much of that in C, as shall be above the pipe F.

By this means the reflux of the water carries down with it, all feculencies and obstructions, and the degree of filtration is restored as at first.

This cleansing operation will be very seldom necessary, not oftener than five or six times in the course of a year, unless the water from the service pipe comes in uncommonly turbid.

This cleansing or precipitation of the feculencies from the pores or interstices of the filtering medium, may be effected in a few minutes, at any time, if the stop-cock, at D, be shut, and the cock at O opened, all the water above F, in the third vessel, together with the whole of that in the second vessel, down to the pipe G, would flow back, and pass through the cock O; It will be proper when severe frosts are apprehended, to move these glasses from their summer station, to avoid the danger of breaking.

In that case, the ball must be taken off, and the whole may be moved together, in their frame, to a safe situation, where the ball may be fixed to another cock, from the same, or some other cistern, ; or

in defect of either of these, the vessel A, may be supplied by hand. N. B. It will be necessary to have covers to the vessels B and C, to keep out the dust, but they must not fit so close, as to exclude the air from passing and re-passing with freedom.

Explanation of PLATE No. III.

If it be possible to construct of fine earthen ware, stone ware, or artificial stone, vessels sufficiently large for the purpose of large consumptions: Perhaps the annexed form may be acceptable, as it contains within itself the whole of the necessary apparatus. The exterior form is a hollow cylinder, made as large as the nature of the material will admit of. Within this is to be fixed (while the clay is moist) a curved partition A, well united to, and incorporated with, the body of the inner surface of the cylinder, to form a tube B A C, perfectly water tight in its whole length, for the double purpose of receiving the turbid water from the ball cock at D, and for the discharge of the air from the vacuity, and the interstices of the gross particles below.

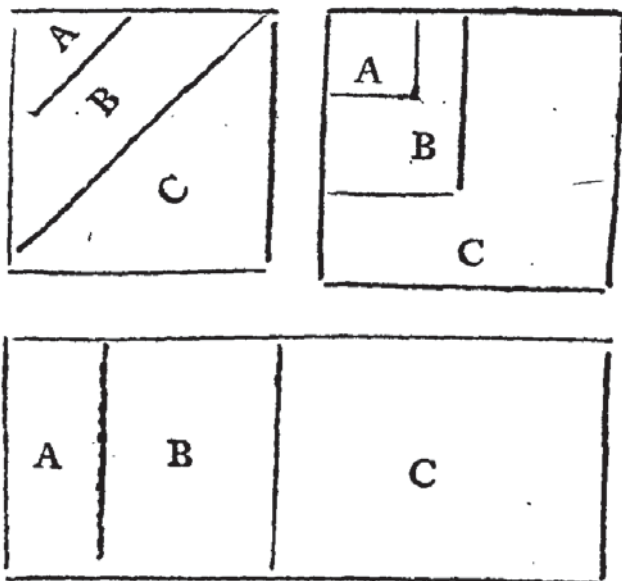
The lower aperature of the tube, formed by this partition, is to extend to within a few inches of the back of the semi-conical grating E.

The other curved partition F, is also to be well incorporated with, and united to, the inner surface and bottom of the cylinder, so as to be water-tight throughout, and at about the middle of the height thereof, is to be inserted a pipe, to discharge the filtered water into the division G.

The

The divisions H and I are then to be charged with the filtering medium, properly stratified, and a cock being fixed at K, to emit the clear water for use, and another at L, to draw off the turbid water, whenever it may be found necessary for the water to reflow, in order to precipitate and carry off all feculencies from the filtering medium, the whole will be complete for use.

If stone or marble slabs, or plates of unground glass, could be fo joined, cemented, hooped or cramped together, as to be perfectly water-tight, such substances might be brought unto use with advantage, as the circular forms are by no means essential.



The forms in the margin may convey an idea of plans of three vessels supposed to be made of one or other of the said materials, wherein the space A, represents the bottomless tube, which is to receive the turbid water from the ball cock, and discharge the air from the grateing, &c. under it.

B, shews the part in which the filtering medium, and agent

is to be placed : And

C, is the part to receive the clear water. These hints are thrown out for the notice of ingenious workmen, to be by them improved upon and perfected ; and to whom the patentee is very much inclined to
D give

give every necessary instruction, and every encouragement, consistent with his profession, of serving the Public, in the most honourable way, and upon the most reasonable terms ; reserving positively, and absolutely, to himself, the preparation, and placing of the filtering mediums, either under his own immediate inspection, or that of such person or persons in his service, in whom he can place full confidence.

Explanation of PLATES No. IV. and V.

For sea, camp, or garrison service, perhaps wood is the most, if not the only proper material.

Hence let A, represent a common cask or butt ; to be filled and supplied with the water intended to be filtered.

B, a conical cask to contain the filtering apparatus ; and

C, another common cask, or butt, to receive and contain the filtered water.

D, the pipe to convey the turbid water from the cask A, into the vacuity under the grating in the conical cask B ; and

E, the pipe to convey the filtered water, from the upper part of the filtering medium, into the cask C.

F, the grating which is to support the medium for filtration.

This is to be composed of pieces of wood of the same kind as that of the cask, and consists of the following parts :

g, two

g, two supporters fixed edgways, the lower parts being arched out, that the water in the vacuity may pass freely under the whole of the grateing.

Upon the the supporters g (properly notched out to receive them) are placed the wood bars G, leaving intervals between them, proportioned to the size of the first layer of stones, or portions of glass, &c.

The stratification of the filtering medium, is then carried up, in conical forms (to facilitate the ascent of the air in the nature of inclined planes) until the last stratum is laid, from the interstices whereof, the air is to be discharged. The air pipe P, is then introduced, (made of wood, stone-ware, or some other proper matter) and suspended by the supporters Q, properly fixed for that purpose, across the top of the cask.

The remaining strata are then introduced, to complete the foundation for the filtering agent, at its proper height above the lower aperture of the air pipe.

The stratum which forms the said agent being then deposited in its assigned place, the other strata are severally placed thereon in a reversed order, so as to finish at the top, immediately under the upper grateing H, with a stratum of gross particles, similar to that laid first upon the lower grateing F.

The upper gross stratum being then properly levelled, the whole medium is to be consolidated, and firmly locked together, by means of the upper grateing H, in the following manner :

The

The square bars I, are to be laid upon the gravel stones or portions of glass, and be placed equidistant and parallel, by the two pieces K, by means of notches, or pins contrived for that purpose : across the ends of the two pieces K, are placed the two pieces L, and upon these are placed, in a vertical position, the two pieces M.

Then having firmly fixed the two blocks N, to opposite staves of the cask, directly over the heads of the upright pieces M, the two pair of wedges O. are to be driven equally, and at the same instant, until by passing the finger along the intervals between the bars I, every stone visible in the said intervals, shall be found fixed and immovable.

The cask may then be headed up, leaving an aperture for the upper orifice of the air pipe.

Every vacancy and fissure in, and round the head of the cask, and round the top of the air pipe therein, may then be carefully caulked and pitched.

Lastly, insert the end of a lead pipe through the head, at one extremity of its diameters, and having carried the same across the head, let a short part of it be turned up, at the other extremity of the same diameter.

¶ Pipes of the same kind should be inserted into, and traverse the heads of the other two casks.

The directions of all these pipes should be athwart the ship, by which disposition no water would be lost by the ships' rolling, although the air would have free passage into and out of the casks,
and

and, consequently, the filtration, or the drawing out, or filling in, of water would not be in the least impeded. On ship-board, perhaps, it would be right, for every person, who should draw water out of the cask c, to be obliged to bring his vessel, full of unfiltered water, to supply and keep up the head in the cask A, before he should be permitted to draw from the cask c.

This supply to the cask A, might be easily made by a funnel, through a small plug hole in the head; or by lifting up a small flap therein, which may be made fast by a hasp, staple, and wedge, or small turnbuckle, &c.

The cleansing of the filtering medium may be effected at any time, in the manner described in the explanation of plate No. II. and the grosser feculencies in the water drawn off, may be left a while to settle: after which the water may be returned into the cask A, so that comparatively speaking, it may be said, that this apparatus will not occasion the loss of a drop of water,

It will be readily seen that the wedging, or locking the several strata of the medium firmly together, gives it the desirable property of remaining undisturbed; so that no motion or shock, it can reasonably be supposed to receive, by land carriage, rolling of a ship, or removals of any kind, can possibly injure it; and its durability will be equal to that of the vessel which contains it.

Perhaps adopting this machine in the navy, may be a capital means of preserving the seamen's health; it will, at least, furnish them with a cheap, innocent, and elegant luxury; inasmuch as their water will be always as clear and brilliant as that from the finest springs.

E

With

With respect to the diameter of the filtering vessel, competent to supply a given quantity, in a given time, it must remain to be ultimately decided by experiment.

If, however, a cylinder of six inches diameter, will furnish water enough for six persons only, (though it will certainly do more) one of three feet diameter, will yield enough for two hundred and sixteen persons; so that four or five of these machines, (placed in different parts of the ship, in case of accidents, in an engagement, &c.) would afford a plentiful supply for drinking, and for tea, soups, and boiling provisions, &c. for the whole crew of a first-rate man of war.

Explanation of PLATE No. VI.

In many parts of this island, little other than rain, or pond water, can be obtained, and one or both of them generally very much fouled with earthy, vegetable, and even animal substances.

To clarify and reserve such water, fit receptacles might be formed in the earth, of stone, or brick-work; of such depth and latitude, as would furnish, and retain any assigned quantity, supposing the source to be sufficiently ample.

In this case a whole district, village, town, or even city of any magnitude, might be supplied at very easy rates, in the manner of subscriptions, or small annual rents. In fact the quantity of filtered water, required in any case, depending upon the quantity of surface of the filtering medium, it must be evident, that both may be extended at pleasure; and that any volume of water, however great,
may

may be, comparatively speaking, as easily percolated, as that of a small stream.

This plate gives a rough hint of a filter for a village or district.

A represents a pond, ditch, portion of a river, or other collection of water.

B, C, D, three wells or receptacles made in the earth, at any convenient distance from the pond, &c. and lined with stone or brick-work, made quite sound, and water-proof in every part; and the well D (being the reservoir) to be as deep as conveniently may be.

E, F, G, H, the plan; and I, K, L, M, the section of a thatched hovel, or shed, over the said wells; N a drain, or conduit to convey the water from the pond to the well B.

And here it may be proper to remark, that if there should be a certainty of a constant supply from the pond A, the well B may be omitted, and the drain N may have an immediate communication with the vacuity, under the filter, in the well C; but if any apprehension should be entertained of the water failing, at times, in the pond A, it will be proper to retain the well B, and then it will be necessary to prevent any person from drawing or pumping water from the well D, who should not regularly bring and pour into the well B, as much turbid water at least as he should have occasion to take away of filtered water from the well D, in order that the necessary quantity of filtered water, may not remain sensibly diminished, for any considerable time.

Q, is

O, is a grateing or strainer, to prevent weeds, &c, from entering into, or clogging the drain.

In the well C, is represented the filtering medium, upon a perforated brick or stone dome.

The manner of operation is, generally, the same as before described, viz.

The water from the pond A passes, by means of the drain N, into the well B, and fills it up to its own level.

In the interim it fills the vacuity, under the dome, which supports the medium for filtration, in the well C, (proper vents being first made, to discharge the air therefrom) and rises through the said medium, and passes, by means of a pipe, or orifice, in a clarified state, into the well D, and, in a short time the water in the three wells, and that in the pond, becomes all on a level.

When this is accomplished, the operation of filtration is suspended until part of the clarified water is drawn, or pumped up for use; when the operation is again renewed, and continued until the whole regains its level as before.

When it shall be found necessary to facilitate the cleansing of the medium (for some of the feculencies will subside by their own gravity, when the machine is at rest) a valve, sluice, or flood-gate, at one end of the drain N, should be shut, and another, near the bottom of the well B, or C, opened, through which the reflowing water may pass away, down some declivity, or by means of a drain,
&c.

&c. into an adjacent ditch or water, as circumstances may require. As soon as the water has ceased running, the medium will be completely cleansed ; when the valves may be restored to their former positions ; and the filtration will proceed as at first.



F

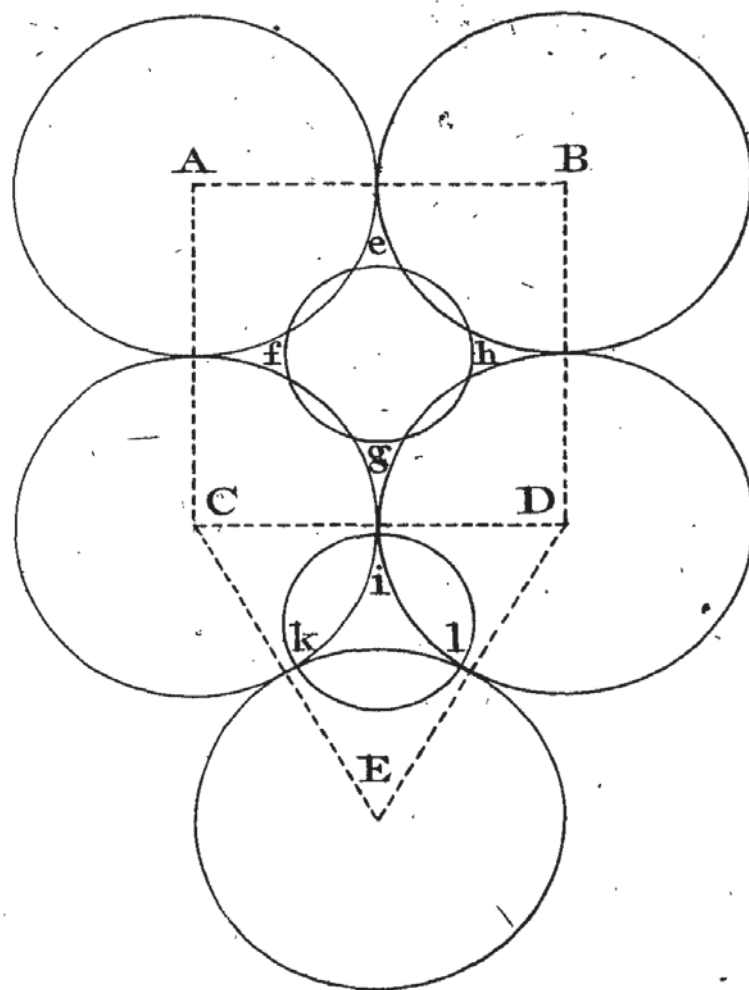
THE

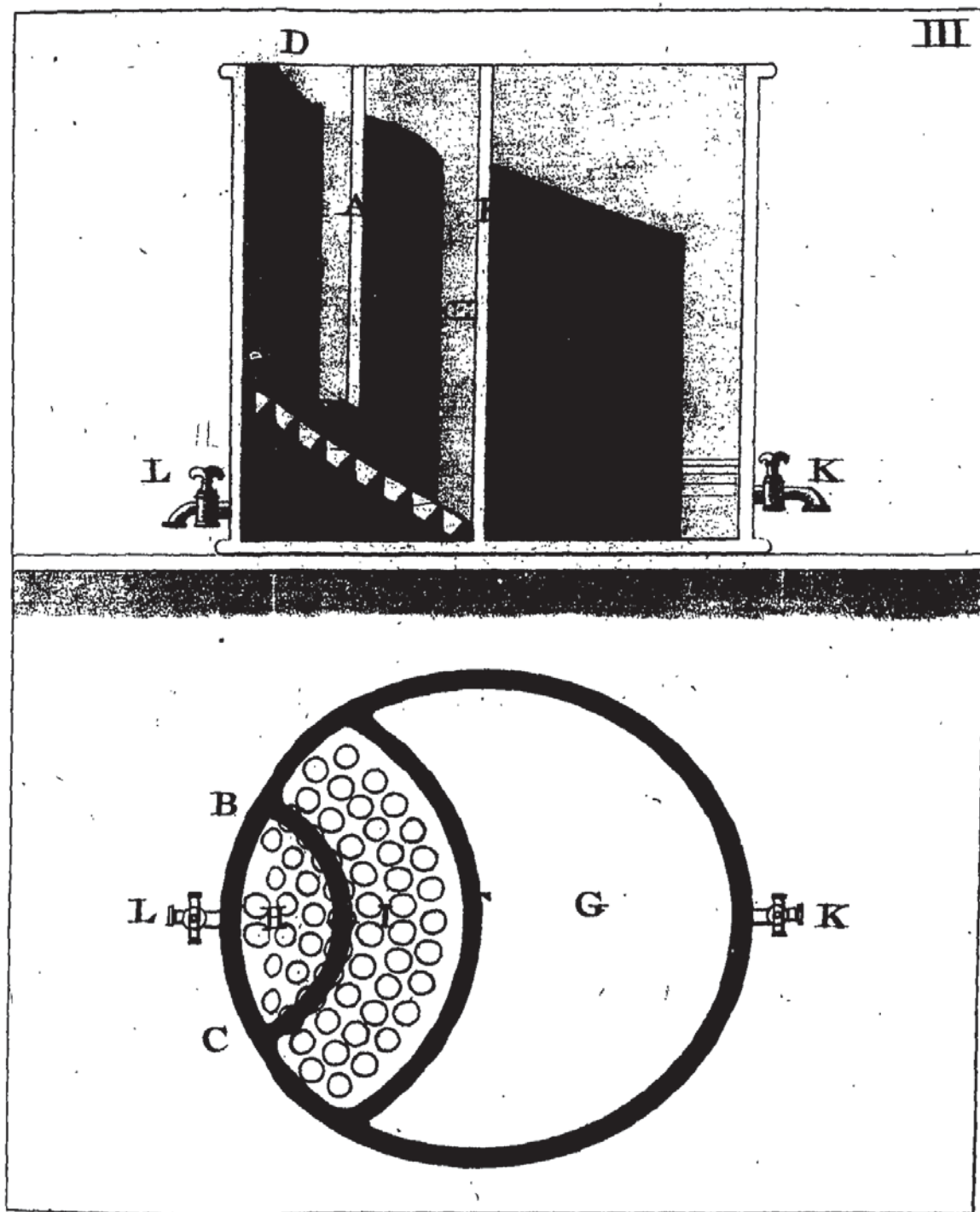
THE Writer has been asked, if his Percolator will sweeten *Putrid Water*? He is not yet qualified to resolve that question; but if mixing loam with tainted water (as directed in a valuable Work, intituled, *DE RE RUSTICA*) will have that effect, as there stated, he can have no doubt but his Machine will equal, if not exceed, it in that respect.

Several Friends having repeatedly urged the Inventor to try the effect of his MACHINE upon sea water, he projected a long tube for that purpose, with his filtering medium firmly locked together at the lower end thereof, but having first tried a strong solution of common salt in fresh water in one of his common Machines, wherein his filtering agent was made as fine as possible, being reduced to almost an impalpable powder, he found in the said solution after its ascent, no sensible difference in its flavour. Hence he is much inclined to doubt an assertion in one of the early Numbers of the *PHILOSOPHICAL TRANSACTIONS*, where it is stated, that a hollow globe of wax being plunged into the sea, the cavity thereof, when taken out, was found to be full of sweet water; here he conceives must have been some mistake, for if the percolation of water through wax or even through pure gold (as in the experiment to prove the imcompressibility of fluids) could separate it from the salt, there is no doubt but this invention would effect the same thing to an equal degree of perfection.

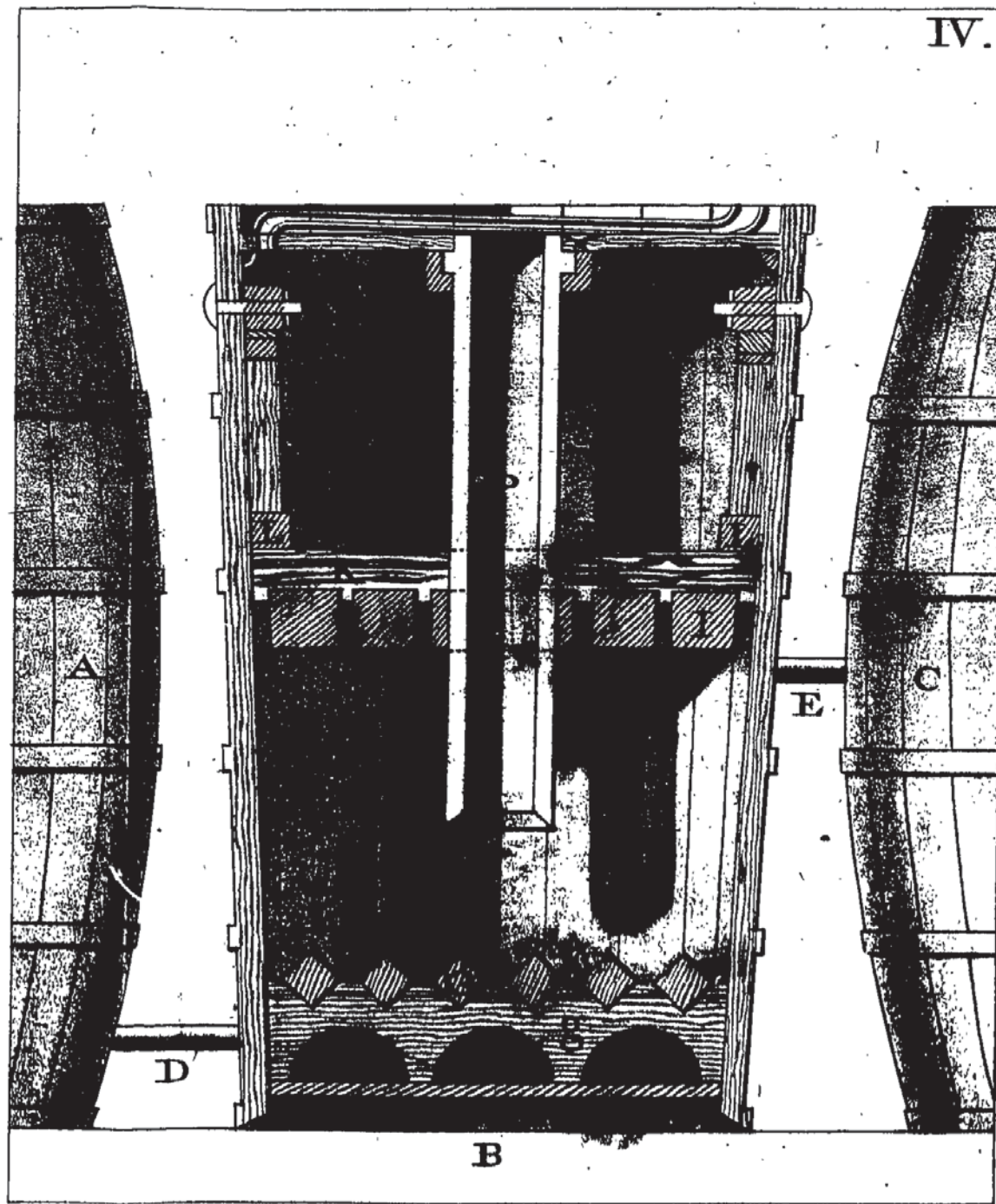
THE END.

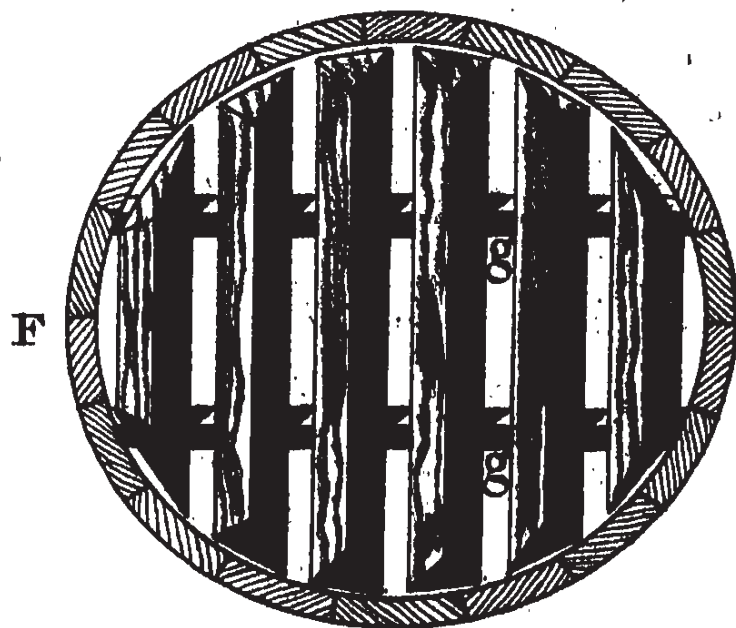
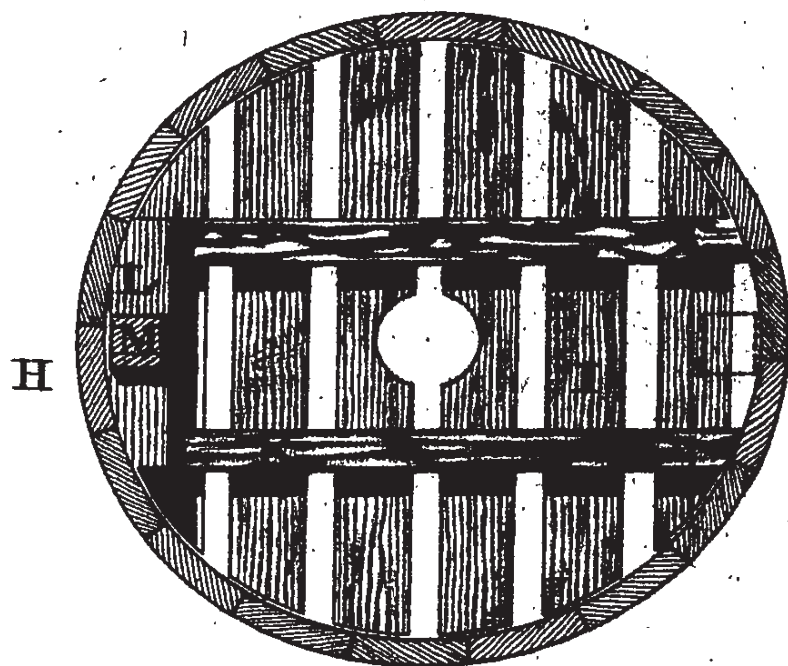
I.





IV.





II

