

Fig: 1

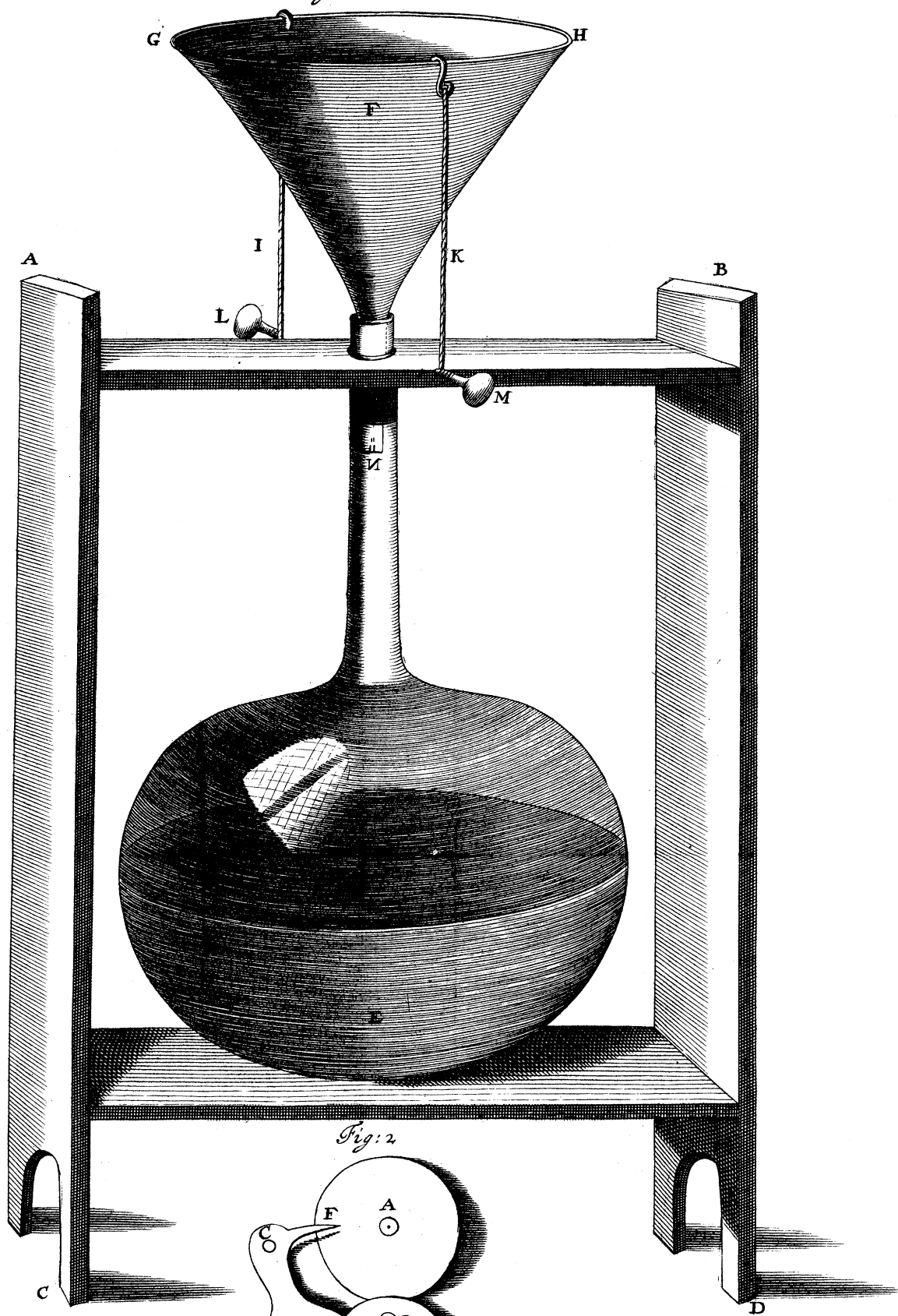
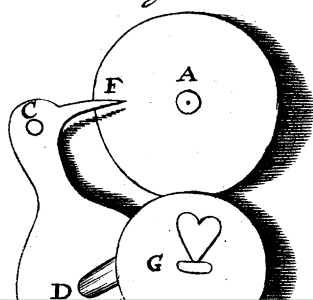
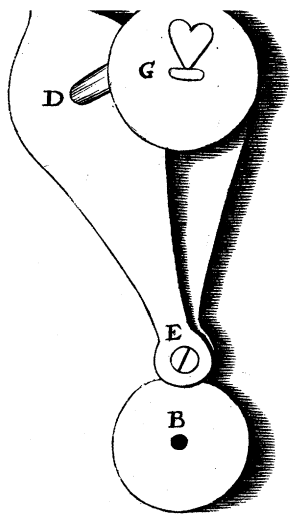


Fig: 2





P

them. Our Fen Geese, when taken up and Fed with Corn, become as good as others. After the pressing out the Oyl from the Coal-Seed, the remainder is called Cakes, which here they heat Ovens with, and burn for Fewel (but smell strong) we Export them to *Holland*, where they feed their Kine with them, which doubtless must yield Milk, &c. *Q* if sweet tasted.

About Five or Six Miles above this Town when the Fens are drowned, they cut the River Bank for about Thirty Yards, discharging vast quantities of Water which keeps back the Flood.

Sir, There were several other Observations, which might have been added to that piece ; but being above my Level, and beyond my Survey, and not so proper for this Discourse, I here omit.

IV. *A Letter from Mr. Stephen Gray, giving a further Account of his Water Microscope.*

S I R,

MY Experiments and Observations Microscopical, having been thought worthy to be incerted in your Philosophical Transactions, I presume the Additions and Improvement I have now made to the Water Microscope may be no less acceptable, I therefore herein send you its Description and Use according to my last Contrivance whereby it not only renders Objects more distinct, but is much more Commodious for Observation.

It consists of Five parts or pieces of Brass, whose Form and Combination is according to my rude Draught, Expressed by the annexed Figure *Fig .2. A. B.* I call the

the Frame of the Microscope, it may be about half one eighth part of an Inch in thickness; at *A.* there is a small hole, near one thirtieth of an Inch Diameter, this serve for the Aperture of the Water, being in the Center of a larger Spherical Cavity, about one eighth of an Inch Diameter, and in depth, somewhat more than half the thickness of the Brass; opposite to this, at the other side, there is an other Concave but half the breadth of the former; which is so deep, as to reduce the Circumference of the small Hole in the Center, to almost a sharp edge; in these Cavities the Water is to be placed, being taken upon a Pin or large Needle, and conveyed into them, till there be formed a double Convex Lens of Water; which, by the Concaves being of different Diameters, will be equivalent to a double Convex, of unequal Convexities; by this means I find the Object is rendered more distinct than by a Plano Convex of Water, or by a double one, formed on the plain Surface of the Metal; beside the Water is now better secured in its Spherical Form.

C. D. E. is the supporter, whereon to place the Object; if it be Water in the Hole *G.* if a solid Object on the Point *F.* this is fixed to the Frame of the Microscope, by the Screw *E.* where 'tis bent upwards, that its upper part may stand at a distance from the Frame; 'tis moveable on the Skrew, as a Center to the end, that either the Hole *C.* or the Point *F.* may be exposed before the Microscope; and that the Object may be brought to, and fixed in its Focus: There is another Skrew, about half an Inch in length, which goes through the round Plate into the Frame of the Microscope *A. E.* the Skrew and Plate taking hold of the Supporter about *D.* where there is a slit somewhat larger then the Diameter of the Skrew, which is requisite

requisite for the admission of the Hole *C.* or Point *F.* according to the nature of the Object, into the *Focus* of the Glass; for by turning the Skrew *G.* the Supporter is carried to or from the same, which may be sooner done, if whilst one turn the Skrew with ones Hand, the other hold the Microscope by the end *B.* and one continue looking through the Water till the Object be seen most distinctly.

The Supporter must be made of a thin piece of Brass well Hammered, that by its Spring it may the better follow the motion of the Skrew. I chose rather to fix the Supporter by the Skrew *E.* then by a Rivet, because it may now, by help of a Knife be unskrewed, and by the other Skrew *G.* be brought close to the Frame of the Microscope without weakning its Spring, and so become more conveniently portable.

At *B.* there is a hole, about one tenth of an Inch Diameter, which serves to Convey the Water in, when one has a mind to see the Minute Objects or Animals contained therein, by having their Images reflected, from the opposite interior Surface of the Drop, after the manner of the fourth Experiment, the frame of the Microscope being held by the other end *A.* in time of Observation; for I find, that if the Plate be of some thickness, the Objects are seen more distinctly, then by only taking the Water on a Pin Wire, or the like: Besides, the Water is now better secured, and one may with more ease give it to others to observe, without so much danger of spoiling the Spherical Form, whereon I need not tell you, Sir, the distinctness of its Objects depend.

The Spherical Form of the Cavities adds but little, if any thing, to the Form of the Water as

a Microscope, they are chiefly for the better Conservation of it, so that they must be more then filled to the end, the Water may Spontaneously receive its adapted Figure.

If the Hole in the Supporter be filled with Water, but not so as to be Spherical; all Objects that will bear it, are seen therein more distinctly.

The best proportion for the Hole at *B.* is, to be somewhat less then half the thickness of the Metal in its Diameter, and to be so filled with Water, till there remain near an Hemisphere of Water on each side the Hole; and it will not be amiss to have this end somewhat thicker then the other.

Thus, Sir, you have the natural Microscope in all its parts described, which, though I do not pretend to be altogether so commodious for Observation, as those of Glafs, yet, whether in case they are wanting, those of Water may be not ineffectually succeededaneous (or whether Water have been before taken Notice of to be its own Microscope) I shall leave to decided by competent and impartial Judges, such as I esteem your self.

Fig: 1

