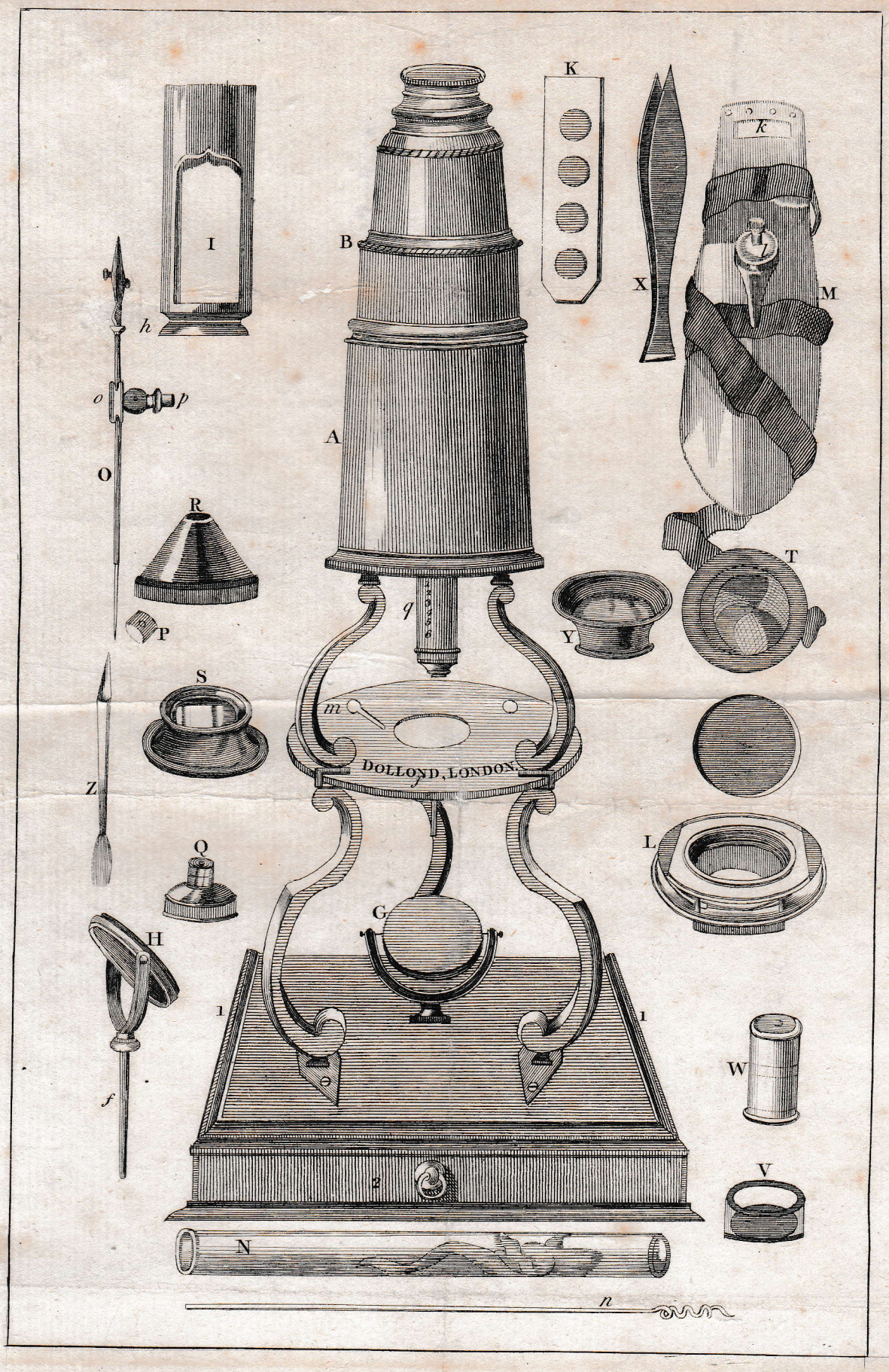

DESCRIPTION

OF A

DOUBLE REFLECTING MICROSCOPE,

MADE BY

P. and J. DOLLOND, OPTICIANS,

IN

ST. PAUL'S CHURCH-YARD, LONDON.

A Repreſents a tube, into which *B*, the body of the Microſcope, is made to ſlide, that it may be adjuſted to the proper diſtance from the object, ſo as to render it diſtinct to any ſight.

The flat horizontal plate, *m f*, is contrived for holding the objects, with the different parts of the apparatus in which they are contained, properly called the *ſtage*.

Under the ſtage at *G* is a *concave mirror*, to illuminate the objects by reflecting the light from a candle or window. It has two different motions, whereby it may be adjuſted ſo as to reflect the light *up* to the object placed on the ſtage.

H, a *double convex lens*, is fixed at the corner of the ſtage. This is of uſe to illuminate opaque objects by candle, and having two motions to it, may be adjuſted according to the direction of the light.

Q repreſents the braſs cells in which the magnifying glaſſes are ſet, and therefore uſually called *magnifiers*. Five of theſe belong to this Microſcope, any of which may be ſcrewed on to the ſmall end of the body of the Microſcope, as one of them is repreſented in the figure. They are numbered from 1 to 6, according to their degrees of magnifying: the number 1 magnifies the moſt.

There are ſeveral different contrivances for holding objects on the ſtage, according to the nature of the ſubject to be examined. Moſt ſmall tranſparent objects are beſt preſerved between two *talcs*, which are fixed in thin *ivory ſliders*, as at *K*. There are ſix of theſe ſliders belonging to this Microſcope, each holding four objects.

L is a contrivance for holding the ſliders. It contains a ſpring that preſſes againſt a thin plate, by which the ſlider is held. It is fixed on the ſtage by a round part underneath, that fits into the hole in the ſtage.

O is a ſteel wire, pointed at one end to ſtick any object upon, and a pair of *pincers* at the other end, which may ſerve to hold any live object. This wire ſlips into a jointed piece *p o*, that fits into the ſtage at *m*.

P a little *cylindrical block* of *ivory*, white at one end and black at the other; on either of which *opaque* objects are fixed, according to their colour. By means of a hole

hole made through this cylinder it may be fixed on to the ſharp end of the ſteel wire above-mentioned.

I is a *hollow cylinder* that ſlides on the ſmall end of the body of the Microſcope at *q*. This cylinder carries the *ſilver diſh* or *ſpeculum h*, for illuminating opaque objects. When this ſilver ſpeculum is uſed, the hollow cylinder muſt be ſlipt on the end of the Microſcope until the upper edge comes to the circular mark correſponding to the number of the magnifier intended to be uſed; then the object being adjuſted to the focus of the magnifier will be at the focus of the ſilver ſpeculum; and the light coming from the glaſs mirror will be reflected back by the ſilver ſpeculum to the object which is in its focus.

M, a braſs *fiſh-pan* to which may be faſtened a *ſmelt*, *gudgeon*, or any other ſmall *fiſh*, in order to ſee the circulation of the *blood* in the *tail*: for which purpoſe the tail of the fiſh muſt be laid acroſs the oblong hole *k*, while its body is kept firm by the ribbon. The nut *l*, under the pan, fits into the ſtage at *m*.

R, a *braſs cone* to faſten on the ſhank under the ſtage when the deepeſt magnifiers are uſed, to view objects that are very tranſparent. It cuts off ſome of the oblique rays that are reflected from the glaſs mirror, and renders the object more diſtinct. Experience only can teach its proper uſe.

S is a round cell, or box, that contains two glaſſes, one *plain* and the other *concave*, intended to confine ſmall living objects without cruſhing them, ſuch as *fleas*, *lice*, *mites*, &c.

T, a *concave glaſs* proper for holding a drop of any liquid for diſcovering the ſmalleſt kind of animalculas that may have bred therein.

V, a glaſs cylindrical veſſel, or watch glaſs, for holding a larger quantity of liquid, for viewing the larger kind of animalcula.

N is a *glaſs tube* to confine ſmall frogs, fiſhes, or water newts, to diſcover the circulation of the blood. If the object be a fiſh, place it within the tube, and ſpread its tail or fin againſt the inſide. If it be a frog, chuſe ſuch a one as can but juſt go into the glaſs tube, and with a piece of quill or ſtick expand the *tranſparent membrane* between the toes of the frog's *hind* foot as wide as you can. There are three of theſe glaſs tubes of different ſizes. When they are applied to the Microſcope they muſt be placed under the ſtage within two ſteel ſprings that are made ſo as to ſupport any of the three different ſizes.

W, an ivory box full of ſpare talc and wire rings, for fixing the objects in th y ſliders.

X, a *pair* of *pliers* for taking up inſects and other ſmall objects, and adjuſting them to the glaſſes.

Y, a hand magnifying glaſs to aſſiſt the ſight in preparing objects.

Z, a hair pencil.

n, a ſpiral wire for taking any thing out of the glaſs tubes.