F. E. Oliver.

Inkstand.

No. 38836. Patented June 9 1863

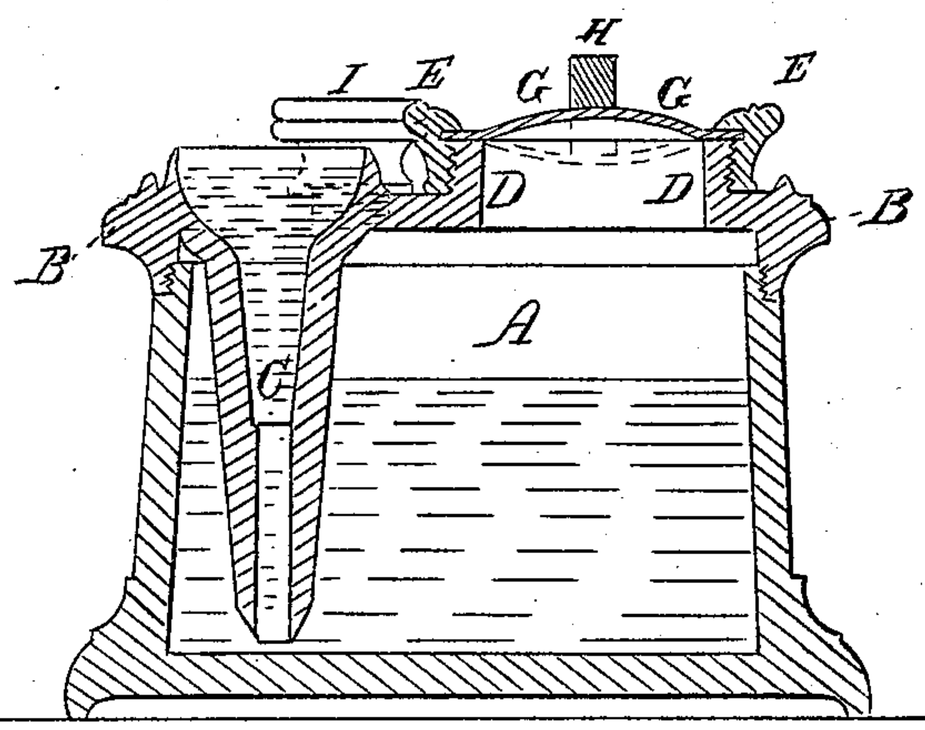


Fig 3

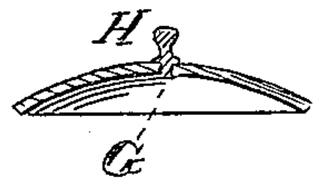


Fig 2

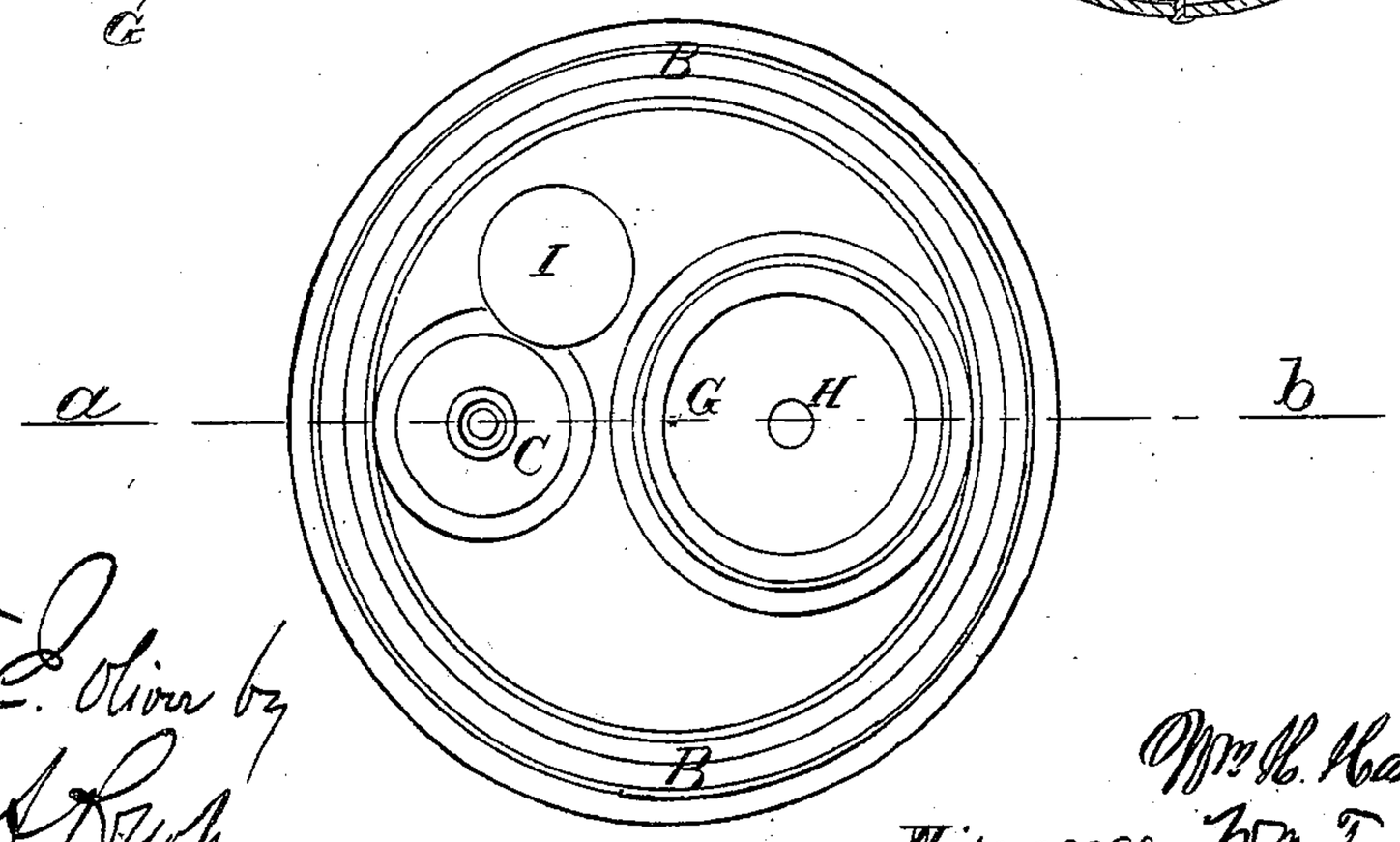
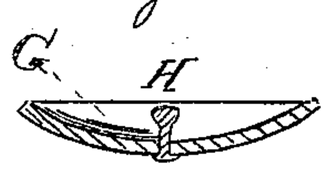


Fig 4



F. E. Oliver by
A. Brooks
Atty

Witnesses Wm H. Harrison
Wm F. Brooks

UNITED STATES PATENT OFFICE.

F. E. OLIVER, OF NEW YORK, N. Y.

IMPROVEMENT IN INKSTANDS.

Specification forming part of Letters Patent No. **38,836**, dated June 9, 1863.

To all whom it may concern:

Be it known that I, F. E. OLIVER, of New York, in the county and State of New York, have invented certain new and useful Improvements in Inkstands; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of my improved inkstand by a plane passing through the axis of the same on line *a b* in Fig. 2. Fig. 2 is a top view of the same; and Figs. 3 and 4 are sectional views of the valve, showing the same in two different positions—*i. e.*, elevated and depressed.

My invention relates to the construction of inkstands or ink-reservoirs provided with the usual dipping-cup, so that the same may be filled with ink for use at pleasure, while allowing of the ready return of the ink into the reservoir after use. This has heretofore been accomplished in a more or less perfect manner in various ways, most of which involved apparatus or devices of a complicated nature, or such as were liable to get out of working order.

The object of my invention is to construct such inkstands of any desirable material, and so that the filling and emptying of the dipping-cup may be effected by means of a device cheap and simple in construction, not liable to get out of order, yet effective and readily operated.

My invention consists in combining with an ink-reservoir of otherwise ordinary construction, and provided with the usual dipping-cup, a diaphragm-valve, flexible, so as to be capable of assuming a convex or concave form, for withdrawing the ink from or forcing it into the dipping-cup, as hereinafter more fully explained.

My invention further consists in forming the diaphragm-valve, for operation as above referred to, of a concavo-convex vulcanized india-rubber disk, in combination with a central knob, the whole being secured in a frame, as hereinafter shown and described.

To enable others skilled in the art to make and use improved inkstand, I shall now proceed to describe its construction and *modus operandi*.

A in the accompanying drawings is the ink-reservoir. This may be made of hard rubber or glass, or any other suitable non-corroding substance. If made of rubber or other material that may be turned on the lathe, I make the top B of a separate piece, and provide it with a female screw-thread, whereby it may be screwed onto the upper rim of the reservoir, which in its turn is furnished with a male screw-thread. The top may be made in one piece with a dipping-cup, C, or the dipping-cup may be screwed into it. The dipping cup is made funnel-shaped, the flare-mouthed end projecting above the top surface of the reservoir, its tapering channel extending downward almost but not quite to reach the bottom of the reservoir. The top B is also provided with an upright annular flange, D, upon whose exterior surface is cut a male screw to receive a screw-threaded clamping-flange, E, overlapping and clasping a flexible india-rubber diaphragm-disk, G, of a peculiar construction. All the parts so far mentioned are snugly fitted, so that when properly adjusted all the joints are tight or hermetically sealed. The valve or rubber disk is made of an elastic vulcanizable rubber compound in a suitable mold that will impart to it a permanent concavo-convex form. This I deem an essential feature of my improvement, and is the result of many experiments. By thus forming the valve it will, when clasped between the two flanges or frame, as hereinbefore described, retain its convexity relatively to the surface of the inkstand as well as its concavity, if once depressed, until raised again. If the valve were made concavo-convex with a horizontal border or flange upon its periphery, it would be impossible to maintain it depressed without some mechanical appliance to forcibly keep it down.

For the convenient operation of the valve I apply a knob, H, in the center upon the outside thereof. It may be made in the mold, of india-rubber, or of some other material embedded in the rubber of the valve, or it may be riveted to it after the valve is made.

In the inkstand shown in the drawings there is an air-escape channel cut in the screw-plug I, but this may be dispensed with.

The operation of this inkstand will be readily understood from the foregoing description of the apparatus. The inkstand is filled carefully, to allow of the air being displaced and expelled from the reservoir while filling. The requisite amount of ink is introduced when

the reservoir is half-full, more or less. The valve being then raised, the dipping-cup is free from ink. In this condition of things the ink will be retained in the reservoir, whatever may be the position of the inkstand. On depressing the valve the air which is imprisoned in the ink-reservoir will be compressed, and a column of liquid (ink) will be formed in the dipping-cup that will establish the equilibrium of pressures upon the surface of the liquid within and around the dipping-cup. This column of liquid is such as to properly fill the dipping-cup, and the play of the valve is regulated to effect in the reservoir a corresponding pressure.

Having now fully described my improvement, I claim—

1. The combination, with an ink-reservoir of otherwise ordinary construction, and provided with the usual dipping-cup, of a flexible diaphragm-valve capable of assuming and retaining a convex or concave form for withdrawing the ink from or forcing it into the dipping-cup, substantially as herein set forth.

2. Forming the diaphragm-valve, for operation hereinbefore referred to, of a concavo convex vulcanized india-rubber disk, in combination with a center knob, substantially in the manner and for the purposes herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

F. E. OLIVER.

Witnesses:
JOHN H. RIKER,
JNO. E. EARLE.