I. E. Hicks.

Inkstand.

No. 38,863. Patented Jun. 9, 1863.

Fig. 2.

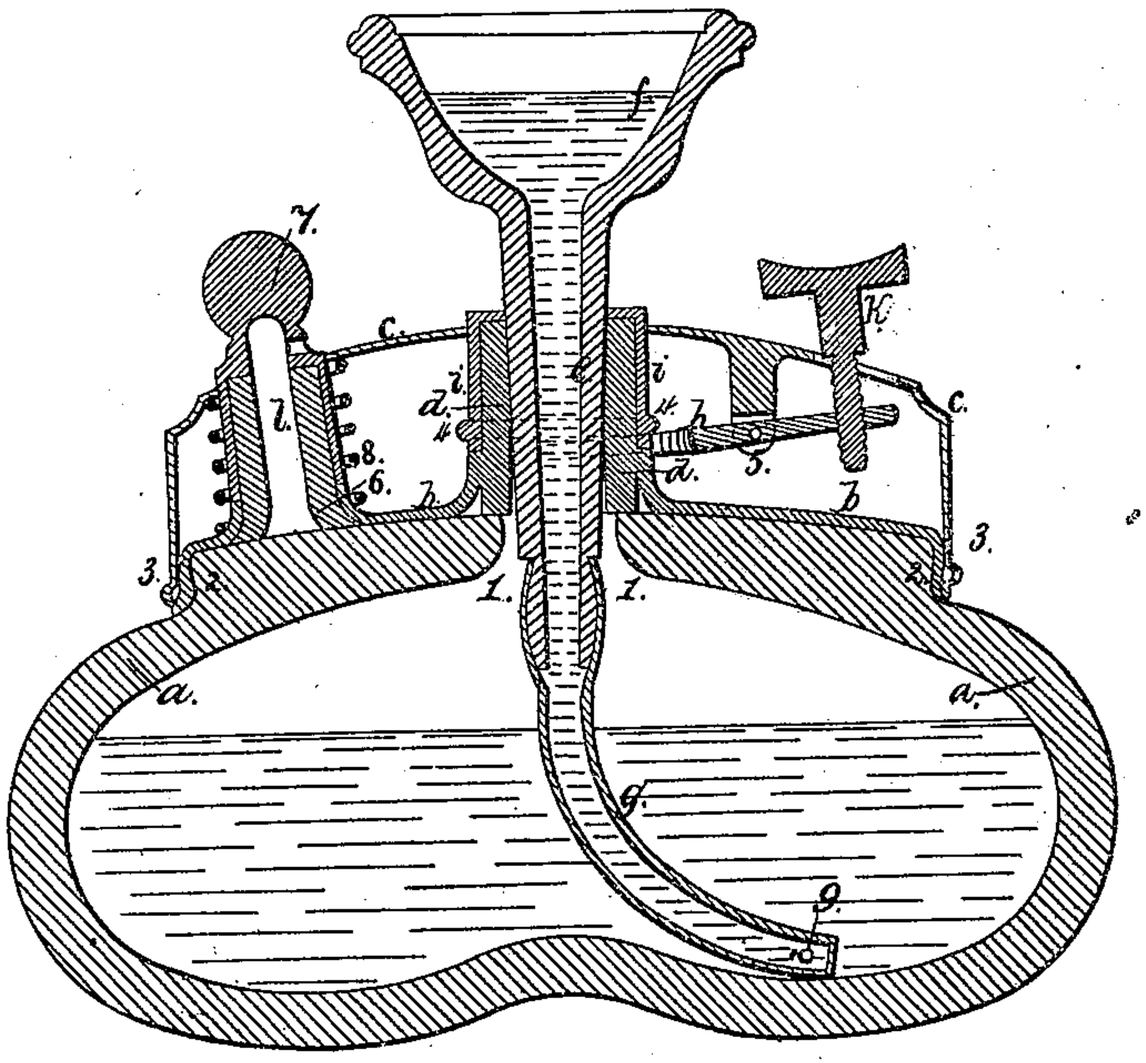
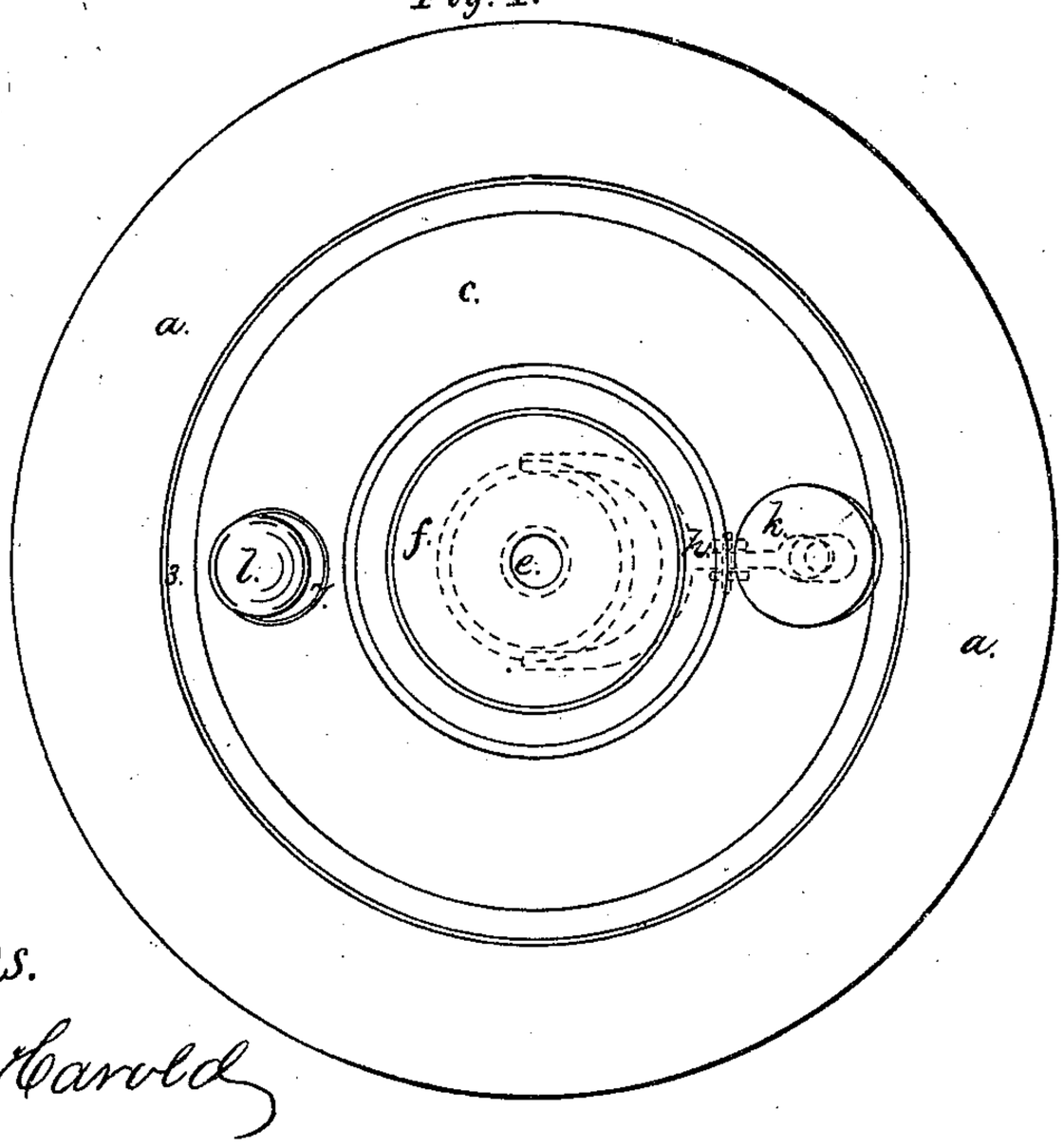


Fig. 1.



Witnesses.

Thos. Geo. Harold

Chas. H. Smith

Inventor.

I. E. Hicks

UNITED STATES PATENT OFFICE.

LUCIEN E. HICKS, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND RUFUS E. CRANE, OF SAME PLACE.

IMPROVEMENT IN INKSTANDS.

Specification forming part of Letters Patent No. **38,863**, dated June 9, 1863.

To all whom it may concern:

Be it known that I, LUCIEN E. HICKS, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Inkstands; and I do hereby declare the following to be a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a plan of my said inkstand, and Fig. 2 is a vertical section of the same.

Similar marks of reference denote the same parts.

Inkstands have heretofore been constructed with a bowl above the inkstand at the end of a pipe passing down into the ink, into which bowl the ink has been forced by atmospheric pressure within the inkstand, produced through the agency of an elastic diaphragm.

The nature of my said invention consists in an arrangement of elastic diaphragm, in combination with a pipe and bowl acted on by a key in such a manner that the raising of the said bowl by the key draws air into the inkstand, while the releasing of the said key, and the consequent descent of the pipe and bowl, causes the said elastic diaphragm to produce a sufficient compression on the air within the inkstand to form a pressure that elevates the column of ink into the said bowl, and when it is desired to allow the ink to descend into the stand from the said bowl it is effected by raising a valve that allows the compressed air in the inkstand to escape and the ink to find its own level.

In the drawings, *a* is a reservoir, of any desired size or shape, closed at the top, except an opening at 1. The upper part of this reservoir is formed as a convex surface, around which is an under-cut ledge, 2.

b is an elastic diaphragm of rubber, setting upon this convex surface, the edges of which diaphragm are held firmly against the undercut ledge 2 by means of the flange 3 of the metallic cap *c*. In the center of this diaphragm *b* is a section of a rubber tube, *d*, standing vertically above the opening 1, the lower end of said tube *d* resting upon the top of the said reservoir around this opening 1, and said tube and diaphragm are to be formed in one piece or cemented together. Through this tube *d* passes the pipe *e*, that terminates at the upper end in a bowl, *f*, and at the lower end a flexible pipe, *g*, passes away and lies on the bottom of the said reservoir *a*. Around this tube *d* is a thimble of metal or other material at *i* having a rib or flange, 4, beneath which a fork-lever, *h*, is placed, that sets upon a fulcrum, 5, and is provided with a key, *k*, at the other end. By the depressing of this lever *h* at one end by the key *k*, the thimble *i*, tube *d*, bowl *f*, and pipe *e* will be raised and the diaphragm *b* distended. This creates a partial vacuum in the inkstand, drawing air into the same through *e* and *g*, and when the said key is relieved the contraction of the diaphragm *b* and descent ot the pipe *e* produce a sufficient compression of the air in the inkstand to cause the ink to rise in the tube *e* and bowl *f* sufficient for use. The key *k* can be screwed farther in, or unscrewed, as desired, and the end of the screw on *k*, taking the surface of *b*, determines the amount of motion that is given to the diaphragm and tubes, and consequently the height to which the ink shall rise in the said bowl *f*. The pipe *g*, being flexible and curved, as shown, always remains with the end resting upon the bottom of the inkstand, even when the pipe *e* and bowl are raised; hence all the ink in the inkstand can be used so long as said ink is sufficiently deep to cover the end of said pipe *g*.

In order to relieve the atmospheric pressure in the inkstand and allow the ink to run down out of the cup *f*, I employ the valve *l*, that is formed of an elastic tube, 6, cemented in the diaphragm *b* near one side; and 7 is a hollow cap of metal or other material grasping this tube 6 and passing through an opening in the cap *c;* and 8 is a spring around 7, between *b* and *c*, to keep the lower end of the tube 6 closely upon the surface of the reservoir *a*. By lifting this valve *l* the diaphragm *b* is raised sufficiently to let out through 6 and 7 the air from within the inkstand, and equalize the pressure so that the ink may find its level.

It will be apparent that the section of rubber tube at *d* allows for the entrance or removal of the pipe *e* of the bowl *f*, and makes the parts air-tight at this point.

I have found that the rush of ink up through the tube *e* into the bowl *f* is sometimes so great as to spurt over the bowl. I therefore have formed the end of said pipe with holes in the

side, as at 9, and close the end of the pipe itself, as represented, in order to check this impetus of the ink, and cause the same to flow up into the bowl more graduaily.

What I claim, and desire to secure by Letters Patent, is—

1. The elastic diaphragm *b*, resting upon the top of the reservoir and secured by the cover or cap *c*, in combination with the elastic tube *d*, formed with or attached to said diaphragm and receiving the tube *e* of the bowl *f*, whereby said tube and bowl are sustained, but can be raised for drawing air to the reservoir, as set forth.

2. The flexible tube *g*, in combination with the tube *e* and bowl *f*, for the purposes set forth.

3. The air-valve *l*, applied as shown, in combination with the diaphragm *b*, tube *e*, and bowl *f*, as specified.

4. The forked lever *h* and key *k*, in combination with the thimble *i*, tubes *d* and *e*, and bowl *f*, as and for the purposes set forth.

5. The holes 9 at the sides of the tube leading to the bowl to prevent the ink jetting or spurting up in the bowl, the end of said pipe being closed, as set forth.

In witness whereof I have hereunto set my signature this 30th day of March, 1863.

L. E. HICKS.

Witnesses:

THOS. GEO. HAROLD,

CHAS. H. SMITH.