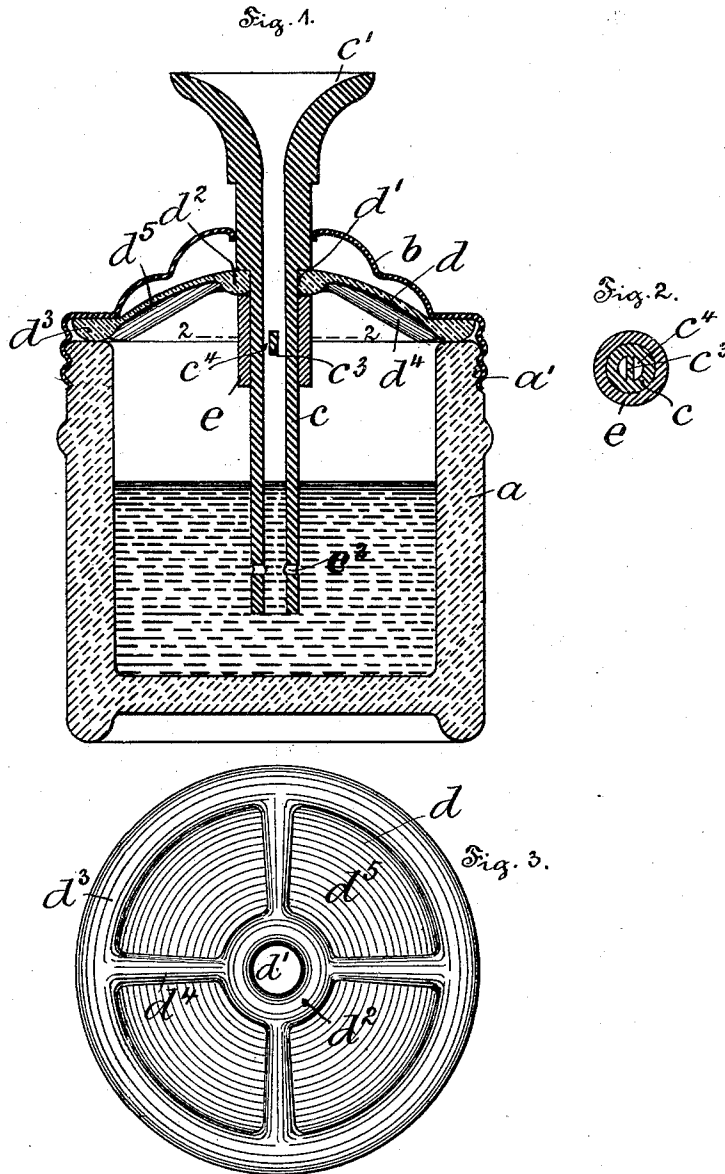


(No Model.)

J. W. GRANTLAND.
INKSTAND.

No. 473,551.

Patented Apr. 26, 1892.



Witnesses:
Hermann Bornemann
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UNITED STATES PATENT OFFICE.

JOHN W. GRANTLAND, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
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INKSTAND.

SPECIFICATION forming part of Letters Patent No. 473,551, dated April 26, 1892.

Application filed September 25, 1891. Serial No. 406,794. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. GRANTLAND, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Inkstands, of which the following is a specification.

My present invention relates in general to that type of inkstands in which the ink is forced up for use into the funnel-shaped portion of a movable tube by means of a yielding disk attached to the tube and to the sides of the mouth of the inkstand; and it relates more particularly to the construction and arrangement of the disk and of the ink-tube. Heretofore such inkstands have been provided with a metal cap, a yielding disk interposed between the cap and the mouth of the stand, a movable ink-tube provided with a funnel and connected with said yielding disk, and a metal spring interposed between said cap and disk in order to return the tube to its normal position and in order to render said yielding disk operative for compressing air in the stand.

The principal objects of my present invention are, first, to provide a simple, durable, and efficient inkstand adapted to present ink for use in a funnel attached to a movable tube whenever the tube is depressed; second, to reduce the number and simplify the construction of the parts of such inkstand, and, third, to render the apparatus more sensitive, and thus susceptible of being operated by a lighter pressure upon the funnel than was heretofore possible.

In my invention the metal spring for operating the ink-tube and returning the yielding disk to its normal position is dispensed with and use is made of an arched or convex disk that is automatically returned to its normal position by its own resiliency and configuration, or both, and of an ink-tube having perforated side walls for the reception of ink and having a valve formed integral therewith for regulating and controlling the flow of ink.

The nature and objects of my present invention will be more fully understood from the following description, taken in connection

with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a transverse section of an inkstand embodying features of my invention, showing a resilient arched or convex disk connected with an ink-tube having perforated side walls and a valve integral therewith. Fig. 2 is a transverse section on the line 2 2 of Fig. 1, illustrating the details of construction of the valve; and Fig. 3 is a plan of a resilient arched disk embodying features of my invention and comprising reinforced central and peripheral rims connected by radial arms and said rims and arms united by a web.

In the drawings, *a* is an inkstand provided with a threaded upper extremity *a'*.

b is an arched and centrally perforated cap adapted to be screwed onto the threaded portion *a'* of the inkstand *a*.

c is an ink-tube provided with a flaring or funnel-shaped upper portion *c'* and adapted to work freely in the central opening in the cap *b*. The side walls of this tube *c* are provided near the lower portion thereof with perforations *c²* for purposes to be presently described.

c³, Fig. 2, is a valve ranging transversely of the ink-tube *c* and formed integral, so that passages *c⁴* for the passage of ink are formed on each side of the valve.

d is an arched or convex disk of rubber or other analogous material provided with a central aperture *d'*, having a reinforced rim *d²*, for the reception of the ink-tube *c*.

d³ is a reinforced peripheral rim formed integral with the arched disk *d* and adapted to serve as a gasket between the top *a'* of the inkstand *a* and the under side of the cap *b*.

d⁴ are ribs uniting the reinforced rims *d²* and *d³* and preferably gradually reduced in cross-section from the rim *d³* to the rim *d²* for a purpose to be presently described.

d⁵ are webs uniting the rims *d²* and *d³* and ribs *d⁴*.

e is a gasket fitted onto the ink-tube *c* and adapted to connect the latter with the resilient disk *d*.

The mode of operation of the hereinabove-described inkstand is as follows: The inkstand *a* is filled with ink, the cap *b* is screwed

to place thereon, and the other parts of the device are arranged in the manner illustrated in the drawings. The funnel c' and ink-tube c are then depressed or shifted downward by means of a pen or in any convenient manner, and this motion of the ink-tube causes the arched or convex disk d to be flattened or depressed. The flattening or depression of the disk d compresses the air contained in the inkstand a above the level of the fluid, and this compressed air in expanding causes the ink to rise in the ink-tube c and to be presented in the funnel c' for use. In use the lower extremity of the tube c is frequently forced into contact with the bottom of the inkstand a , and if this latter is covered with sediment the opening in the lower end of the tube is closed by the sediment before the compressed air has time to force up the ink into the tube. This objectionable feature is avoided in my invention by the use of the apertures c^2 in the side wall of the ink-tube, because even if the lower extremity of the ink-tube is closed by being forced into contact with the bottom of the inkstand or with any sediment that may have become deposited therein the holes or apertures c^2 will lie above such sediment and will afford a passage through which the compressed air may force the ink into the ink-tube. The valve c^3 regulates the passage of ink through the ink-tube, and inasmuch as it is made integral with the side walls thereof the cost of the tube is reduced and its strength is increased. As soon as the ink-tube is released it is elevated or returned to its normal position, as shown in Fig. 1, by the inherent resiliency of the disk d , which tends to cause the latter to assume normally a convex or arched shape. In some instances the inherent resiliency of the disk d is sufficient to insure the proper operation of the device; but in most instances it is necessary to provide the disk with integral radially-disposed ribs d^4 for increasing its resiliency and for preventing it from becoming permanently flattened and set. Moreover, the cross-section of the arms may be gradually reduced from the rim d^2 to the rim d^3 , whereby the resiliency

of the disk may be nicely regulated. It may be remarked that the employment of a resilient disk without a metal spring renders the device more sensitive and more positive in action.

Having thus described the nature and objects of my present invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an inkstand, a cap, a movable ink-tube provided with a valve and with a perforation in the wall of said tube, and an arched or convex and centrally-perforated resilient disk connected with said ink-tube and interposed between the cap and inkstand, for the purposes set forth.

2. In an inkstand, a cap, a movable ink-tube, and an arched or convex and centrally-perforated resilient disk provided with reinforced rims, radial ribs, and webs connecting said rims and ribs, substantially as and for the purposes set forth.

3. In an inkstand, a cap, an arched or convex and centrally-perforated resilient disk provided with reinforced rims, radial ribs, and webs connecting said rims and ribs, and a movable ink-tube having a perforation in the lower part of the wall thereof, for the purposes set forth.

4. In an inkstand, a cap, an arched resilient disk, and a movable ink-tube having a valve consisting of a bar extending across the interior of said tube and formed integral at its extremities with the side walls thereof, substantially as and for the purposes set forth.

5. In an inkstand, a cap, a movable ink-tube, and an arched or convex and centrally-perforated resilient disk provided with reinforced rims, radial tapering ribs, and webs connecting said ribs and rims, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JOHN W. GRANTLAND.

Witnesses:

RICHARD C. MAXWELL,
HERMANN BORMANN.