(No Model.)

C. B. SMITH.

INKSTAND.

No. 526,059. Patented Sept. 18, 1894.

Fig. 2

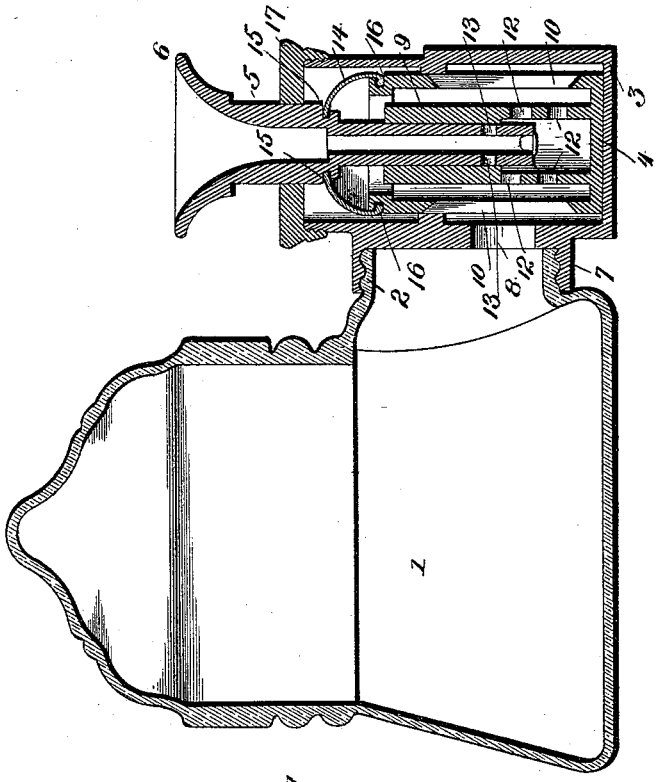
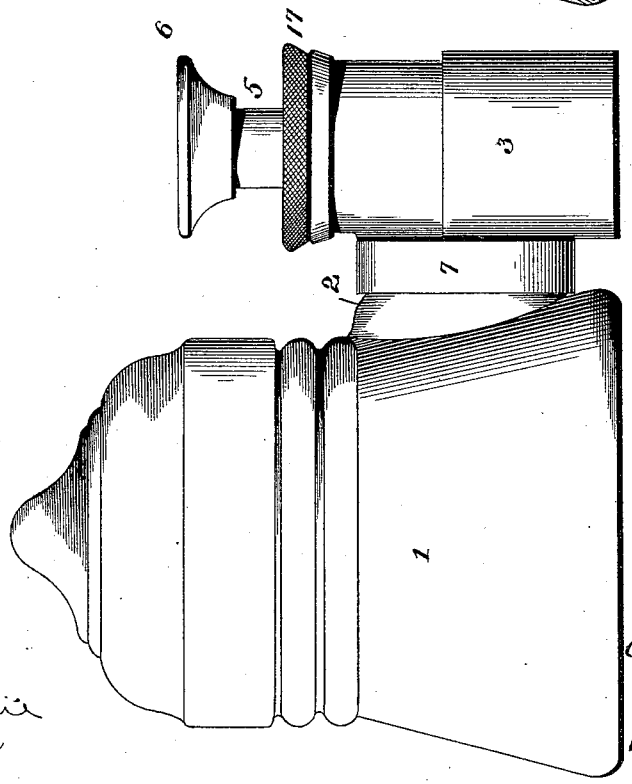


Fig. 1.



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UNITED STATES PATENT OFFICE.

CHARLES B. SMITH, OF WARREN, PENNSYLVANIA.

INKSTAND.

SPECIFICATION forming part of Letters Patent No. 526,059, dated September 18, 1894.

Application filed January 22, 1894. Serial No. 497,676. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. SMITH, a citizen of the United States, residing at Warren, in the county of Warren and State of Pennsylvania, have invented new and useful Improvements in Inkstands, of which the following is a specification.

This invention relates to that type of inkstands wherein a tubular ink-conducting stem having an expanded mouth or dip-cup is supported on the ink-reservoir or fount through the medium of a flexible or elastic diaphragm, in such manner that downward pressure on the expanded mouth or dip-cup compresses air within the reservoir or fount, and causes ink to rise through the tubular stem into the expanded mouth or dip-cup, and to remain there until the pressure is released, for supplying a pen with ink.

The objects of my invention are to provide new and improved means for regulating the flow of ink to the expanded mouth or dip-cup by the movement of the latter; and to provide new and improved means whereby the automatic devices for supplying the pen can be mounted at one side of the ink-reservoir or fount in juxtaposition to the bottom wall thereof, thus permitting the top of the reservoir or fount to be made of any desired form, shape, or configuration, and providing a secondary ink reservoir constantly communicating with the base of the main reservoir or fount, whereby the ink-stand is rendered effective in use so long as any ink remains therein.

To accomplish these objects my invention consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of an ink stand constructed in accordance with my invention, and Fig. 2 is a vertical sectional view of the same.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the reservoir or fount of an inkstand, which may be of any form, shape, or configuration desired; and is provided at one side, in juxtaposition to the bottom wall, with a laterally projecting screw-threaded neck 2 for the attachment of the ink-feeding devices, which comprise a case, cylinder or barrel 3, and internal hollow plug 4, and a vertically movable tubular stem 5 having an expanded mouth or dip-cup 6 at its upper end.

The case, cylinder, or barrel 3 is provided, at one side, with a collar 7 having an internal screw-thread to form a screw socket which engages the screw-threaded neck 2, whereby the case, cylinder, or barrel 3 is supported in a vertical position at one side of the main reservoir or fount 1. The base of the screw-threaded socket, formed by the collar 7, is closed, except as to a transverse orifice or passage 8, by which ink can flow from the main reservoir or fount 1 into the case, cylinder, or barrel, and thence pass into the hollow plug 4. The hollow plug 4, is provided with a closed bottom wall from which rises a tube 9, the bore of which is of a diameter at the lower end portion greater than it is at the upper end portion. The stem 5 moves in contact with that part of the bore of least diameter so that a surrounding space is provided at the lower end of the stem. The tube 9 is so arranged as to provide a surrounding space between the tube and the interior of the case, cylinder or barrel, and the latter is constructed with vertical slots 10 for the passage of ink into such surrounding space. The tube 9 is provided with transverse orifices 12 for the flow of ink thereinto.

I have illustrated two slots 10, and two transverse orifices 12 arranged one above the other; but I do not confine myself to any particular number of slots and orifices.

The tubular stem 5 is closed at its lower end, and in juxtaposition to this closed end, the stem is provided with two oppositely arranged inlet orifices 13, in such manner that, when the stem is depressed, the orifices 13 will communicate with the orifices 12, and ink will flow into the interior of the stem and rise through the same into the expanded mouth or dip-cup 6 for supplying a pen. The tubular stem is yieldingly supported through the medium of a flexible or elastic diaphragm 14 having a central opening, the edge of which is adapted to snap into an annular groove 15

provided on the stem, in juxtaposition to the expanded mouth or dip-cup 6 so that the stem can be readily removed and replaced, and when in position will have an air-tight connection with the diaphragm.

The diaphragm may be composed of any material suitable for the conditions required, but I prefer to employ a sheet of soft india-rubber, which is beaded at its outer edge, and sprung into an annular groove 16 formed in the upper end of the hollow plug 4. The diaphragm is dome-shaped, to provide an air chamber between it and the upper end of the hollow plug, in such manner that when a pen is laid on the dip-cup and pressure is applied to depress the latter, the diaphragm is depressed, and the confined air is utilized to force ink upwardly through the tubular stem into the expanded mouth or dip-cup for supplying the pen with ink. The ink remains in the expanded mouth or dip-cup so long as pressure upon the latter is maintained, but when this pressure is relieved, the flexible or elastic diaphragm assumes its normal dome-shaped position, and raises the stem vertically in the hollow-plug, thereby placing the orifices 13 in the least diameter of the tube 9 and closing them from communication with the orifices 12, for excluding the atmosphere from the ink contained in the hollow-plug. By this means air is effectually excluded from the ink when the inkstand is not in use, or when the expanded mouth or dip-cup is not depressed. This is very useful and advantageous, in that it preserves the ink in its original pure condition, and prevents it from becoming thick or moldy; while at the same time all dust and dirt are excluded.

The case, cylinder, or barrel constitutes in effect a secondary reservoir having constant communication with the main reservoir or fount 1; but the interior of the tubular stem only communicates with the ink in the secondary reservoir or fount and hollow-plug when the expanded mouth or dip-cup is depressed to place the transverse orifice or orifices 13 in communication with the transverse orifice or orifices 12. The upper end of the case, cylinder, or barrel is provided with an external screw-thread to receive an internally screw-threaded cap 17 which is provided with a central orifice in which the enlarged upper end portion of the tubular stem is susceptible of moving vertically.

In practice I construct the case, cylinder, or barrel, the hollow-plug, the stem and dip-cup, and the screw-threaded cap of hard rubber, but any other material suitable for the purpose in hand may be employed.

The main reservoir or fount may be of glass, through which the ink is visible, or it may be of any other material desired.

I prefer to mount the improved ink-feeding devices at the side of the main reservoir or fount, in that by this means I can construct the top wall of the latter of any form, shape, or configuration; but I do not confine myself in all cases to this particular arrangement. It is possible to suspend the hollow plug and the tubular stem within the upper end of the main reservoir or fount, in which event I would dispense with the case, cylinder, or barrel 3. The arrangement shown in the drawings is, however, much preferred, in that the main reservoir or fount, or inkstand proper, can be of any desired configuration, and its top wall be perfectly closed and ornamented in any suitable manner.

Having thus described my invention, what I claim is—

1. The combination with the reservoir of an inkstand, of a hollow plug communicating with the interior of the reservoir, a flexible diaphragm secured to the upper end of the hollow plug, and a tubular stem movable vertically in the plug, secured to the diaphragm and having a perforation at its lower end which is closed when the tube is in its elevated position, substantially as described.

2. The combination with the reservoir of an inkstand, of a hollow plug having a lateral orifice for communicating with the interior of the reservoir, a flexible diaphragm secured to the upper end of the hollow plug, and a tubular stem movable vertically in the plug, secured to the diaphragm and having a dip-cup at its upper end and a lateral orifice at its lower end portion which communicates with the lateral orifice in the plug when the stem is depressed and is cut off from such communication when the stem is raised, substantially as described.

3. The combination with the reservoir of an inkstand, of a hollow plug having communication with the interior of the reservoir and provided at its upper end with an annular groove, a flexible diaphragm secured in the groove of the plug and having a central opening, and a tubular stem having a dip-cup and an annular groove below the same into which the edge of the opening in the diaphragm is adapted to spring for connecting the diaphragm and stem, substantially as described.

4. The combination with the reservoir of an inkstand, of a case or cylinder secured to one side of the reservoir and in communication with the interior thereof in juxtaposition to the bottom of the reservoir, a hollow plug arranged within the case or cylinder and provided at its upper end with a flexible diaphragm, and a tubular stem movable vertically in the hollow plug, secured to the diaphragm and having an expanded mouth or dip-cup, substantially as described.

5. The combination with the reservoir of an inkstand having an opening in one side thereof, of a case or cylinder connected with said side opening, and having an orifice or passage for the flow of ink into its interior, a hollow-plug arranged within the case or cylinder and having its upper portion provided with a flexible diaphragm, a cap mounted upon the upper end of the case or cylinder, and a tubu-

lar stem extending through the cap, secured to the diaphragm and movable vertically in the hollow plug, substantially as described.

6. The combination with the reservoir of an inkstand, of a case or cylinder secured thereto and in communication therewith, a hollow-plug arranged within the case or cylinder and having a passage for the flow of ink from the case or cylinder into the interior of the plug, a tubular stem vertically movable in the hollow-plug and having a transverse orifice which is caused to communicate with the transverse orifice in the plug when the tube is depressed and is cut off from such communication when the stem is raised, and means for supporting the stem and restoring it to its normal position after it has been depressed, substantially as described.

7. The combination with an ink-reservoir having a neck projecting from one side thereof, of a case or cylinder mounted on said neck and in communication with the interior of the reservoir, a hollow-plug arranged in the case or cylinder, a tubular stem movable vertically in the hollow plug and having an orifice for the flow of ink thereinto, and means for yieldingly supporting the tubular stem, substantially as described.

8. The combination with a reservoir having a neck projecting from one side thereof, of a case or cylinder mounted upon said neck and communicating with the reservoir, a hollow-plug arranged in the case or cylinder and having a transverse orifice for the passage of ink to its interior, a flexible diaphragm attached to the upper end of the hollow-plug, and a tubular stem movable vertically in the hollow-plug, secured to the diaphragm and having an orifice for the passage of ink from the hollow-plug into its interior, substantially as described.

9. The combination with a reservoir, of a case or cylinder secured to one side of the reservoir and communicating with the interior thereof, a cap mounted upon the upper end of the case or cylinder, a hollow-plug arranged within the case or cylinder and having a longitudinal slot and a tube provided with a transverse orifice, a flexible diaphragm secured to the upper end of the hollow-plug, and a tubular stem extending through the cap, secured to the diaphragm and having a transverse orifice which is caused to communicate with the orifice in the plug when said stem is depressed, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES B. SMITH.

Witnesses:
CHAS. E. COBB,
GEO. H. JACKSON.