No. 710,259. Patented Sept. 30, 1902.

J. D. DICKSON.

INK WELL.

(Application filed June 2, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

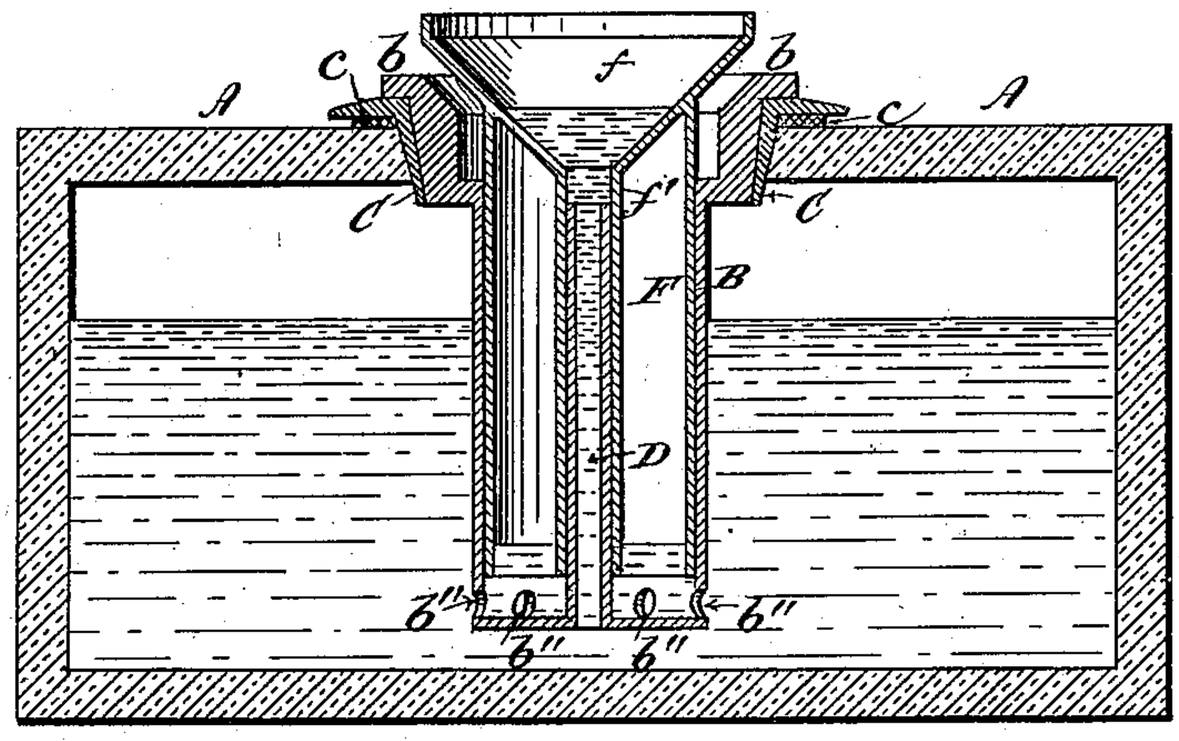

Fig. 2.

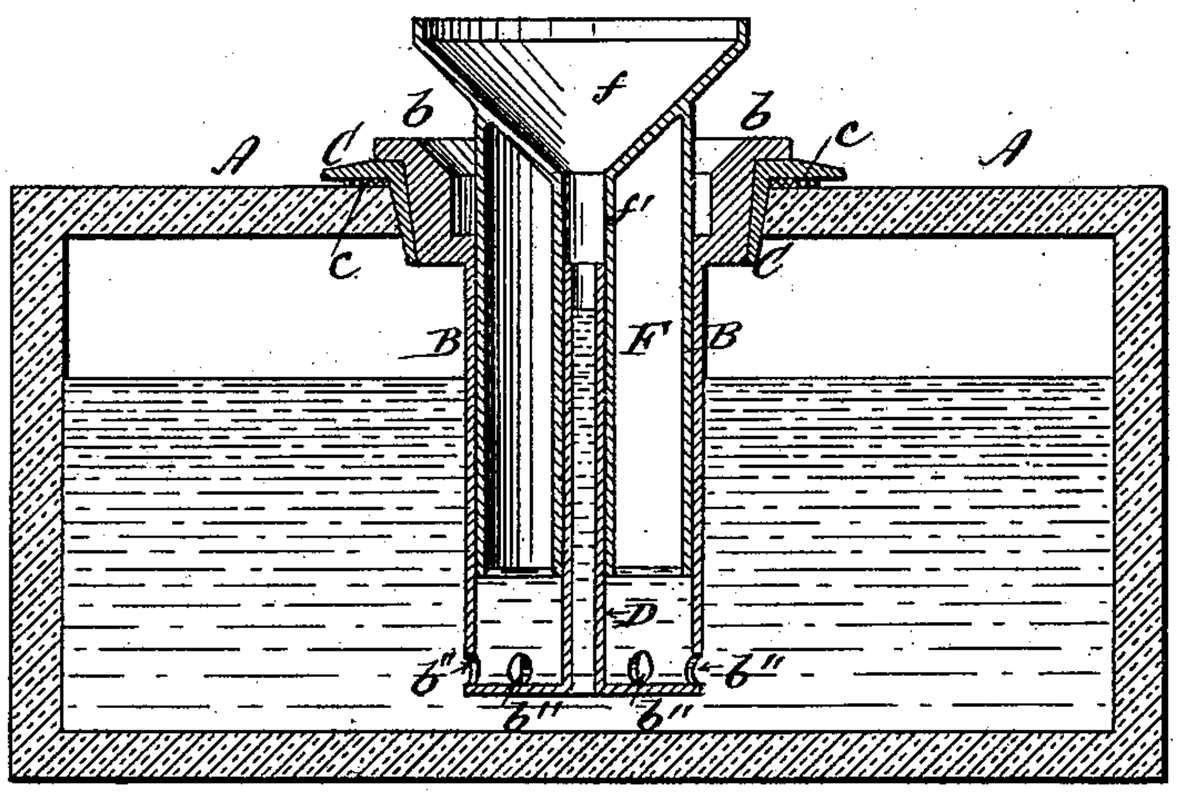

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Fig. 3.

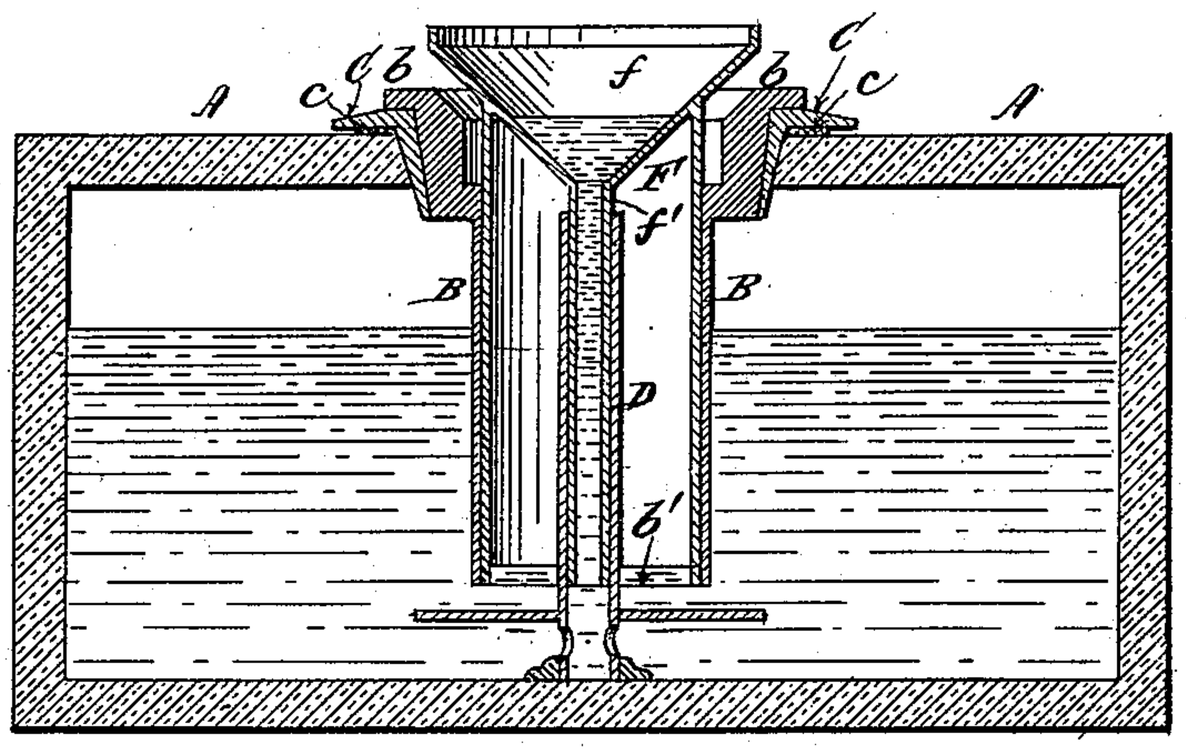
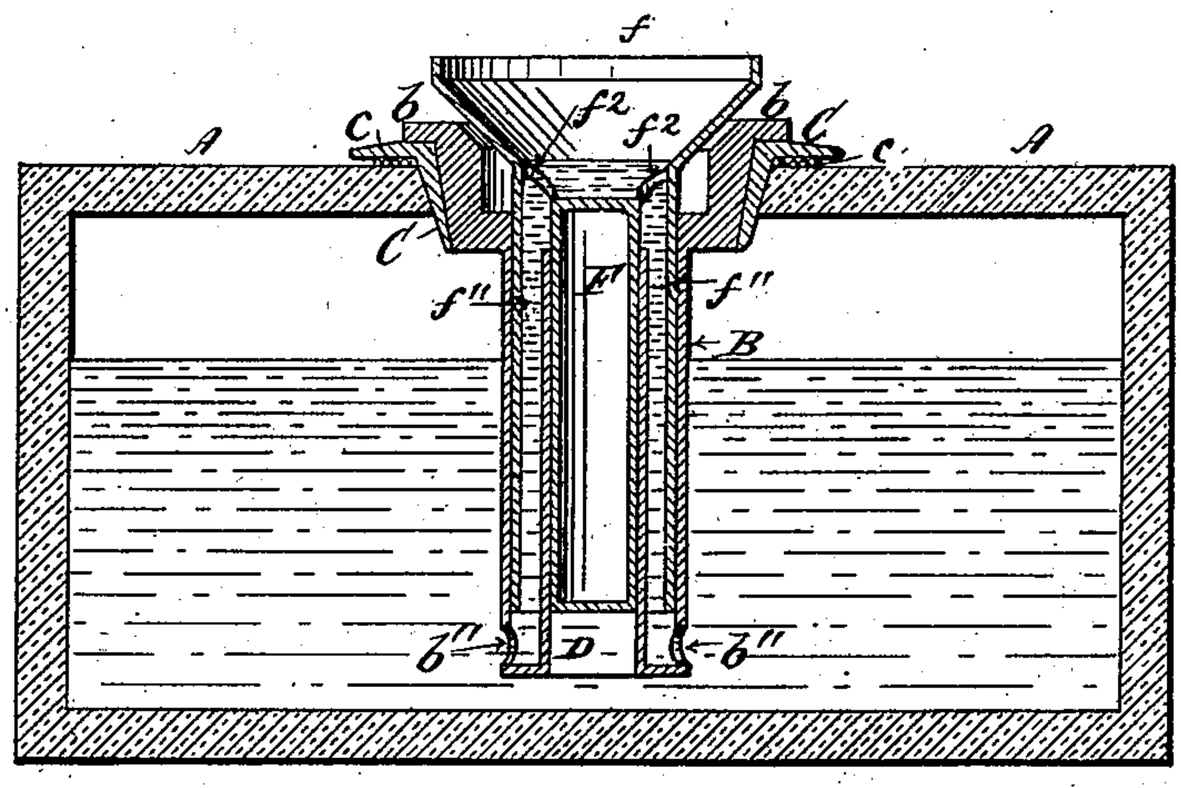


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES D. DICKSON, OF NEW BRIGHTON, NEW YORK.

INK-WELL.

SPECIFICATION forming part of Letters Patent No. 710,259, dated September 30, 1902.

Application filed June 2, 1902. Serial No. 109,861. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. DICKSON, a citizen of the United States, residing at New Brighton, Richmond county, and State of New York, have invented certain new and useful Improvements in Ink-Wells, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My invention relates to the class of ink-wells in which a depressible float carrying the dipping-cup is utilized to present the ink as required for use, the release of the float and its return to its normal position causing the ink to recede from the dipping-cup, thus avoiding unnecessary evaporation, comtamination, &c.

My invention consists in the combination and arrangement of parts hereinafter described and claimed specifically, whereby I am enabled to practically exhaust the contents of an ink-well of any desired capacity before renewal, and whereby air is quickly and conveniently admitted to restore the equilibrium between the parts by simply raising the float to the level desired.

In the accompanying drawings, Figure 1 is a vertical section of my improved inkstand, showing the float depressed; Fig. 2, a similar view showing the float in its normal position. Figs. 3 and 4 are views similar to Fig. 1, illustrating modifications of structure.

A represents an ink-well of any desired form and capacity.

B is a guiding and sealing tube, the upper end of which is supported upon the top of the ink-well by means which render the connection air-tight. Thus in the drawings the flanged head *b* of the tube B fits snugly into a conical bushing C, which is rendered air-tight by means of a gasket *c*, interposed between its flange and the ink-well. I do not, however, confine myself to this structure, since any mechanical expedient for hermetically coupling the tube B to the ink-well may obviously be substituted with like result.

The lower end of the sealing-tube B extends down approximately to the bottom of the ink-well, so that the ink in the well seals said lower end so long as the level of ink in the well is above the opening *b'* or openings *b''* *b''*, through which the ink has access to the sealing-tube. Thus in Figs. 1, 2, and 4 lateral openings *b''* *b''* are formed in the side walls of the sealing-tube B, whereas in Fig. 3 the lower extremity of said tube is formed with the single opening *b'*, the result being the same in either case.

Attached to or extending upward through the bottom of the sealing-tube B is the stand-tube D, the lower end of which opens into the ink-well A below the sealing-tube B.

F is a float fitting snugly but freely within the sealing-tube B. This float carries the dipping-cup *f*, which opens into the ink-tube *f'*, which engages telescopically with the stand-tube D, as shown in the first three figures of the drawings. In the modification shown in Fig. 4 the order of parts is simply reversed with like result, the float F' being in this case central and sliding within the stand-tube D, enlarged for the purpose, while the ink-tube *f''* fits the sealing-tube B and creates an annular space around the stand-tube D, through which the ink ascends to the dipping-cup *f*, entering the latter through one or more openings f^2.

The operation is as follows: The float and sealing-tube having been removed and the desired quantity of ink supplied to the ink-well, the sealing-tube is inserted in position, the ink flowing into the same from the well. Upon the introduction of the float the latter displaces from the sealing-tube an amount of ink proportionate to its weight, returning it to the ink-well against the resistance of air confined in the well above the ink, thus slightly compressing the air and causing it to raise the ink in the stand-tube (or the ink-tube *f''* in Fig. 4) above the level in the ink-well until an equilibrium is established. A slight downward pressure now exerted upon the dipping-cup will displace more ink from the sealing-tube, again compressing the air in the ink-well, and cause the ink to rise into the dipping-cup from the well. Upon the release of the dipping-cup and float the ink recedes from the dipping-cup and conditions are resumed.

As the ink is gradually abstracted by the pen it is obvious that after a time the compression of the air in the ink-well by the depression of the float will be insufficient to raise a sufficient quantity of ink into the dip-

ping-cup, so that it is desirable to admit more air into the upper part of the ink-well to replace or compensate for the ink used. This is accomplished by simply raising the float, so that the ink rises in the sealing-tube, following the float upward, thereby creating a partial vacuum in the ink-well, with the result that the air descends through the ink-tube and stand-pipe (driving the ink before it) and enters the ink-well below the sealing-tube, beyond the lower extremity of which it escapes to the upper portion of the ink-well. The float being now released seeks its normal level, the rise in the level of the ink in the stand-tube, ink-tube, and dipping-cup being in proportion to the amount of air thus admitted to the ink-well and the operation being repeated whenever the quantity of ink available in the dipping-cup is insufficient for convenience of use. It will be noted in this connection that I do not pump or force the air into the ink-well, but simply raise the dipping-cup and float sufficiently to withdraw the ink from the ink-tube and stand-tube and allow the air to enter said tubes to relieve the partial vacuum in the ink-well.

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

1. The combination of an ink-well, a sealing-tube connected with said well by means of an air-tight joint and extending downward approximately to the bottom of the ink-well with which it communicates at its lower extremity, a float within said sealing-tube formed with an ink-tube and dipping-cup, and a stationary tube engaging telescopically with the ink-tube of said float, and communicating at its lower extremity with the ink-well, for the purpose and substantially in the manner set forth.

2. The combination with an ink-well of a sealing-tube connected with said ink-well by means of an air-tight joint, said sealing-tube extending downward approximately to the bottom of the well, its lower extremity being closed and it being formed with lateral openings above said closed end for communication with the ink-well, a float within said sealing-tube formed with an ink-tube and dipping-cup, and a stand-tube engaging telescopically the ink-tube on the float and opening into the ink-well below the closed lower end of the sealing-tube, for the purpose described.

JAMES D. DICKSON.

Witnesses:
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