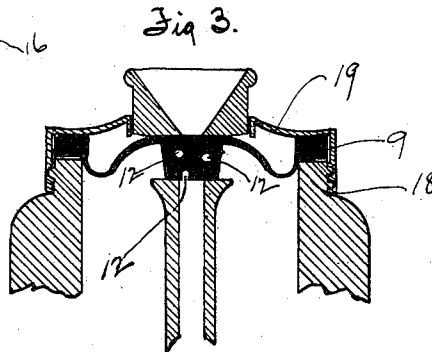
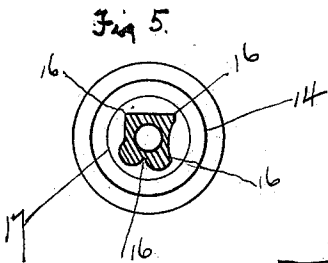
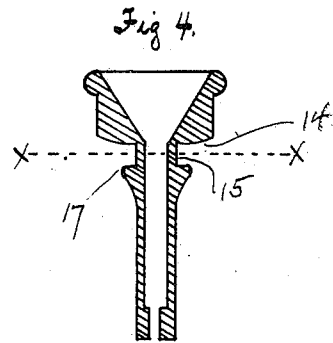
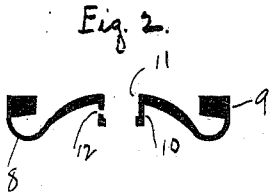
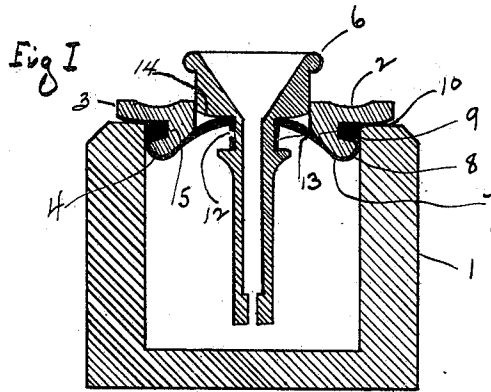


(No Model.)

C. A. SIGELEN.
PNEUMATIC INKSTAND.

No. 566,346.

Patented Aug. 25, 1896.



WITNESSES:

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PNEUMATIC INKSTAND.

SPECIFICATION forming part of Letters Patent No. 566,346, dated August 25, 1896.

Application filed March 29, 1895. Serial No. 543,713. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN A. SIGELEN, a citizen of the United States, residing at Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Inkstands, of which the following is a full, clear, and exact specification.

My invention relates to improvements in pneumatic inkstands, that is, those in which the ink is contained in a well and caused to rise in a funnel by pneumatic pressure caused by the depression of a diaphragm.

The object of my invention is to provide a new and improved inkstand of the kind specified that can be filled through the funnel without removing any part thereof, to provide a new and improved cover, to seal the well without the use of screw-threads, a new and novel diaphragm, in which the resistance offered is reduced to the lowest degree, and a new and novel air-vent, which allows any surplus air accumulating in the ink-chamber to escape instantly without forcing the ink up into the mouth of the funnel to be exposed to the atmosphere.

The aforesaid objects are accomplished by the peculiar and novel construction of the parts, which will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, forming a part of this specification, in which similar numerals of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical central section of my inkstand. Fig. 2 is central vertical section of the diaphragm. Fig. 3 is a similar view of a modified form of the diaphragm. Fig. 4 is a similar view of the funnel, and Fig. 5 is a sectional plan view of the funnel, taken at line *x x* of Fig. 4.

In detail, 1 is my ink-well, made of glass or other suitable material, having a suitable opening to receive the cover 2, preferably of hard rubber, having an upwardly-curved horizontal flange 3 to rest partly on the body of the well 1, an inner depending ring 4, provided with a peripheral groove 5, and through its center an aperture for the funnel 6. On the depending ring 4 and peripheral groove 5 I mount the diaphragm 7, which is made of soft rubber in the form shown with an outer depressed channel 8, a packing-ring or gasket

9 overhanging said channel 8, so as to allow said gasket 9 to engage in the peripheral groove 5 on the ring 4 and form a stopper snugly fitting the mouth of the well 1, rendering it air-tight. Depending from the under side of the diaphragm 7 is a straight tapered or shouldered sleeve or collar 10 of suitable length surrounding the central orifice 11, said sleeve or collar having one or more perforations or notches 12, the diaphragm 7 being reinforced or thickened immediately under the shoulder of the funnel 6, at point 13, thereby strengthening it, and thinner in the part forming the outer depressed channel 8 than at any other portion to lessen the resistance. Through the central orifice 11 extends the funnel 6, provided with a curved or beveled shoulder 14, partly resting on the diaphragm 7, having a neck 15 of suitable length, with one or more corners or angles 16, and an annular flange or button 17. In use the gasket 9 on diaphragm 7 is sprung over the ring 4 into the peripheral groove 5 on cover 2, the funnel 6 is inserted into the central aperture of cover 2 through the orifice 11 and the collar 10, the latter drawn up over the flange 17 until it surrounds the neck 15, when the curved or beveled shoulder 14 will rest in part on the diaphragm 7. The cover 2, funnel 6, and diaphragm 7 are now secured together, forming a stopper which is readily inserted into the mouth of well 1, when it can be filled with ease through the funnel 6, the air in the ink-chamber finding a free outlet through the air-vents 12. Should the air in the ink-chamber at any time expand from any cause, these air-vents 12 will furnish ample means of escape, so that the ink will not be forced up into the mouth of the funnel 6 to evaporate and thicken. I make the diaphragm 7 thinner in the part forming the outer depressed channel 8 than at any other portion, so as to reduce the resistance offered, when depressing the funnel 6 with the pen, to the lowest possible degree and reinforce or thicken it immediately under the funnel at point 13, so that the weight of the funnel 6 will not form a depression in the diaphragm by long use, and by using a concavo-convex central portion I distribute the action of the funnel thereon, when being depressed throughout its entire surface, thereby

rendering the life of the rubber much longer, as I do not stretch or strain it. The neck 15 of the funnel 6 being provided with one or more corners or angles 16 furnishes a freer outlet for the air from the air-vents 12, which are thereby made far more positive, being of large capacity, aided by the curved or beveled shoulder 14. Resting in part only on the convex surface they act instantaneously, as there are no broad flat surfaces united to shut off the escape of the air when the funnel is in its normal position. There are no perforations in the diaphragm covered by the shoulder of the funnel, producing a suction when the funnel is being depressed, thereby attracting the fluid to said perforations and through them between the funnel and diaphragm, where, by being exposed to the atmosphere, it becomes dry and hard and cements the funnel to the diaphragm, thereby defeating the very object sought to accomplish.

The diaphragm shown in Fig. 3 can be used in connection with a screw-threaded cover, the gasket 9 resting on the threaded collar 18 of the well, and the screw-threaded cover 19 secures it thereto, making an air-tight joint. This method is not as costly, but not as desirable as the method previously described.

It will be seen by the preceding description and drawings that I have an inkstand which overcomes several objections to prior devices of this nature and which overcomes all of the objections that I have been able to discover, thus making an inkstand all of whose parts will last a long time. The cover can be removed with ease at all times. The air-vents having no suction will not attract the fluid between the funnel and diaphragm, there to be exposed, to become dry, to close and obstruct them. Hence the ink will not be forced up into the mouth of the funnel to overflow by the expansion of the air in the well below. It can readily be filled through the funnel, as the air-vents are of ample capacity to allow the air to escape as rapidly as displaced by the fluid entering the well. The diaphragm offers the least possible resistance and will not wear or break at any one place, as it bends at all points equally.

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

1. In a pneumatic inkstand, a cover, centrally apertured, provided with an upwardly-curved horizontal flange, a depending ring, having a peripheral groove and a flexible rubber diaphragm fitting into the said groove, forming a stopper, to fit the mouth of the well, substantially as shown and described.

2. In a pneumatic inkstand, a flexible rubber diaphragm, centrally apertured, having an annular channel or groove formed in its face, the part forming the said channel or

groove, being of a lesser thickness than its parts of greater or lesser diameter, a concavo-convex central portion and a gasket or packing-ring extending inwardly and overhanging said channel, substantially as shown and described.

3. In a pneumatic inkstand, a flexible rubber diaphragm centrally apertured, provided with a collar or sleeve depending from its under side having one or more perforations, substantially as herein shown and described.

4. In a pneumatic inkstand, a flexible rubber diaphragm, centrally apertured, provided with a collar or sleeve depending from its under side having a reduced opening at its lower extremity with one or more perforations, substantially as shown and described.

5. In a pneumatic inkstand, the combination, of a funnel, a cover, having a horizontal flange, a depending ring, provided with a peripheral groove and a flexible rubber diaphragm, centrally apertured, fitting into the said groove, forming a stopper, to fit the mouth of the well, substantially as shown and described.

6. In a pneumatic inkstand, the combination, of a funnel, a cover, having a horizontal flange, a depending ring provided with a peripheral groove and a flexible rubber diaphragm, centrally apertured, having a gasket or packing-ring extending inwardly and overhanging said diaphragm, engaging with said cover, over its depending ring, into its peripheral groove, forming a stopper to fit the mouth of the well, substantially as shown and described.

7. In a pneumatic inkstand, the combination of a funnel having a shoulder at its top, an annular flange below the said shoulder, the shoulder and flange being connected together by a neck having one or more corners or angles, a cover provided with a horizontal flange and a depending ring having a peripheral groove and a flexible rubber diaphragm, centrally apertured, having an annular channel or groove formed in its face, the part forming the said channel or groove being of a lesser thickness than its parts of greater or lesser diameter, a concavo-convex central portion connected with and forming part of said channel, a gasket or packing-ring extending inwardly and overhanging the said channel or groove and a sleeve or collar depending from its underside having one or more perforations, substantially as shown and described and for the purpose set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

CHRISTIAN A. SIGELEN.

Witnesses:

WM. LANGSENKAMP,
FRANK ALDAG.