T. L. KAUFMAN.

AUTOMATIC VALVE FOR FUNNELS.

APPLICATION FILED DEC. 1, 1919.

1,341,563. **Patented May 25, 1920.**

Fig. 1.

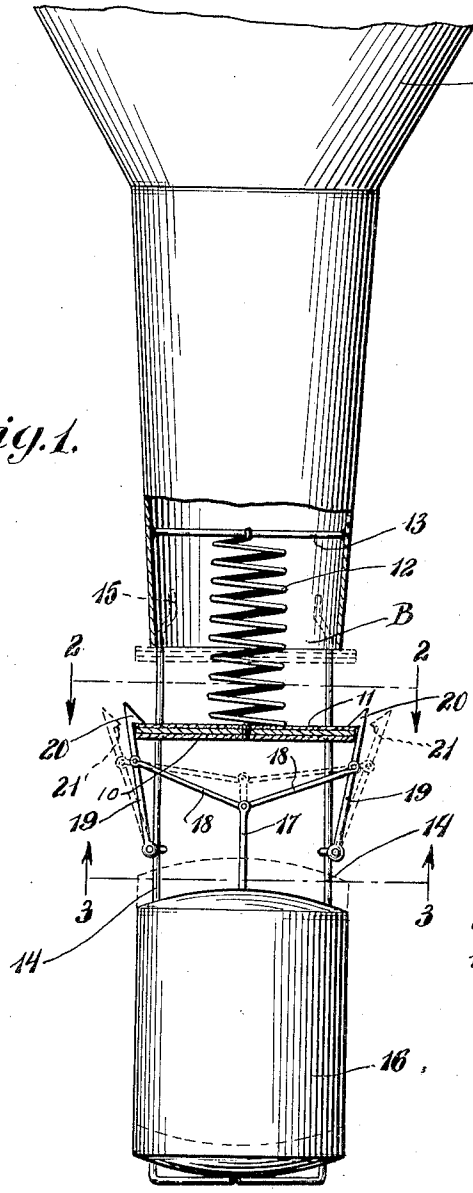
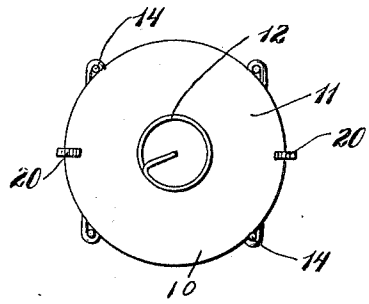


Fig. 2.



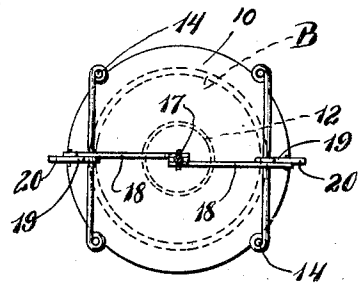


Fig. 3.

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UNITED STATES PATENT OFFICE.

THEODORE L. KAUFMAN, OF CARBONDALE, ILLINOIS.

AUTOMATIC VALVE FOR FUNNELS.

1,341,563. Specification of Letters Patent. Patented May 25, 1920.

Application filed December 1, 1919. Serial No. 341,634.

To all whom it may concern:

Be it known that I, THEODORE L. KAUFMAN, a citizen of the United States, residing at Carbondale, in the county of Jackson and State of Illinois, have invented new and useful Improvements in Automatic Valves for Funnels, of which the following is a specification.

This invention relates to funnels used in filling bottles, carboys, and in fact any receptacle, and has for its object the provision of a funnel equipped at its discharge end with a float operated valve structure which will automatically close the discharge end of the funnel when the level of the liquid within the receptacle being filled, reaches a certain predetermined height, the advantage being that overflowing of a receptacle will be prevented.

An important object is the provision of a valve structure of this character in which the valve member is normally held by catch members against the resistance of a spring which tends to seat the valve, the catch members being released by an upward movement of the float so that the spring may function to seat the valve.

An additional object is the provision of a device of this character which will be simple and inexpensive in manufacture, highly efficient in use, durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed, and illustrated in the accompanying drawing in which—

Figure 1 is a longitudinal sectional view through my funnel,

Fig. 2 is a cross sectional view taken above the valve on the line 2—2 of Fig. 1, and

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1.

Referring more particularly to the drawings, the letter A designates a funnel which is of ordinary construction, and the discharge end of which is indicated at B.

In carrying out my invention I provide a valve formed as a disk which is of greater diameter than the discharge end of the funnel and this disk is covered on its top side with compressible material 11, such as rubber, felt, or the like, which is engageable against the discharge end of the funnel and forms a closure therefor. A coil spring 12 has one end connected with the disk 10 and its other end connected with a cross rod or wire 13 extending across the lower portion of the funnel.

Secured at the lower end of the funnel are guide members each formed as a U-shaped member 14 of wire which has its arms preferably soldered at their ends upon the funnel, exteriorly thereof, as shown at 15. The disk 10 and its covering 11 are slidably engaged between these guide members, as clearly shown. These guide members 14 constitute a cage within which is vertically slidable a float 16, which may be formed of wood or cork, but which is preferably a hollow metal shell. This float is provided at its upper end with a stem 17 which is pivotally connected with outwardly extending links 18 which are in turn pivotally connected with latches 19 secured upon the guide members 14 and having beveled upper ends 20 and shoulders 21.

In the use of the funnel, the disk 10 and its covering are together pulled away from the discharge end of the funnel and slid over the beveled ends 20 of the latch members and engaged beneath the shoulders 21 thereon. These latch members are naturally resilient and so mounted that their tendency is to spring inwardly and they will consequently hold the disk 10 in spaced relation to the end of the funnel. At this time the float 16 will be at the lower limit of its movement. The funnel is then inserted into the receptacle to be filled and the proper liquid is of course poured through the funnel into the receptacle. When the receptacle becomes filled to a desired level and the liquid rises along the float the float will of course be elevated which will result in pushing the links 18 outwardly and this will effect outward movement of the latches 19 so that the shoulders 21 thereof will be disengaged from the disk 10, permitting the spring 12 to pull the disk 10 into engagement with the end of the funnel to form a closure therefor. Any liquid remaining in the funnel cannot pass therefrom and overflowing of the receptacle filled will consequently be prevented.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a simple and inexpensive device for the purpose specified, which will be very efficient and properly

carry out all the functions for which it is intended.

While I have shown and described the preferred embodiment of my invention, it is of course to be understood that I reserve the right to make such changes in the form, construction, and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A valve attachment for funnels comprising a disk normally spring-pressed into engagement with the end of the funnel, a plurality of U-shaped guide members carried by the funnel and constituting a guide, latch members pivoted upon said guide members and engageable with said disk whereby to hold the same away from the end of the funnel, a float slidable within said guide members, and links connected with said float and with said latch members, whereby upon upward movement of the float such latch members will be moved outwardly to disengage the disk and permit the same to engage the end of the funnel.

2. In combination with the discharge end of a funnel, a plurality of parallel rods secured to and extending beyond the discharge end of the funnel, a disk slidable within the cage formed by said rods, a spring secured at one end within the funnel and secured at its other end centrally upon said disk whereby to urge the same into engagement with the end of the funnel to form a closure thereof, a plurality of resilient latch members secured upon said rods and so mounted as to normally press inwardly in engagement with the outer periphery of the disk, a float slidable within the cage, a stem extending upwardly from the float, and links pivotally connected with the stem and with said latch members whereby upon upward movement of the float said latch members will be spread apart to release said disk.

In testimony whereof I affix my signature.

THEODORE L. KAUFMAN.