

No. 663,621.

Patented Dec. 11, 1900.

C. BONAFEDE.
AUTOMATIC FUNNEL.
(Application filed May 2, 1899.)

(No Model.)

Fig. 1.

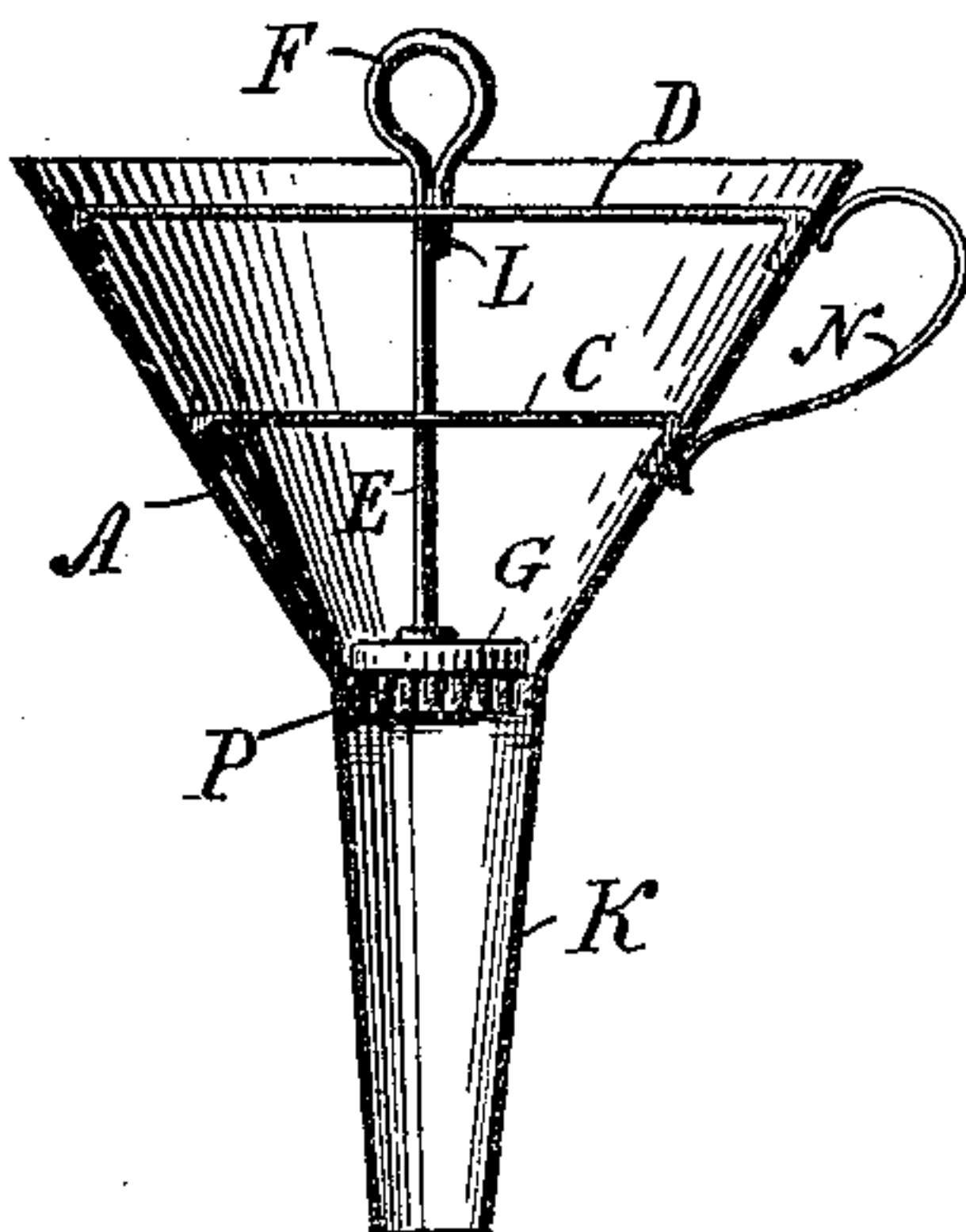


Fig. 2.

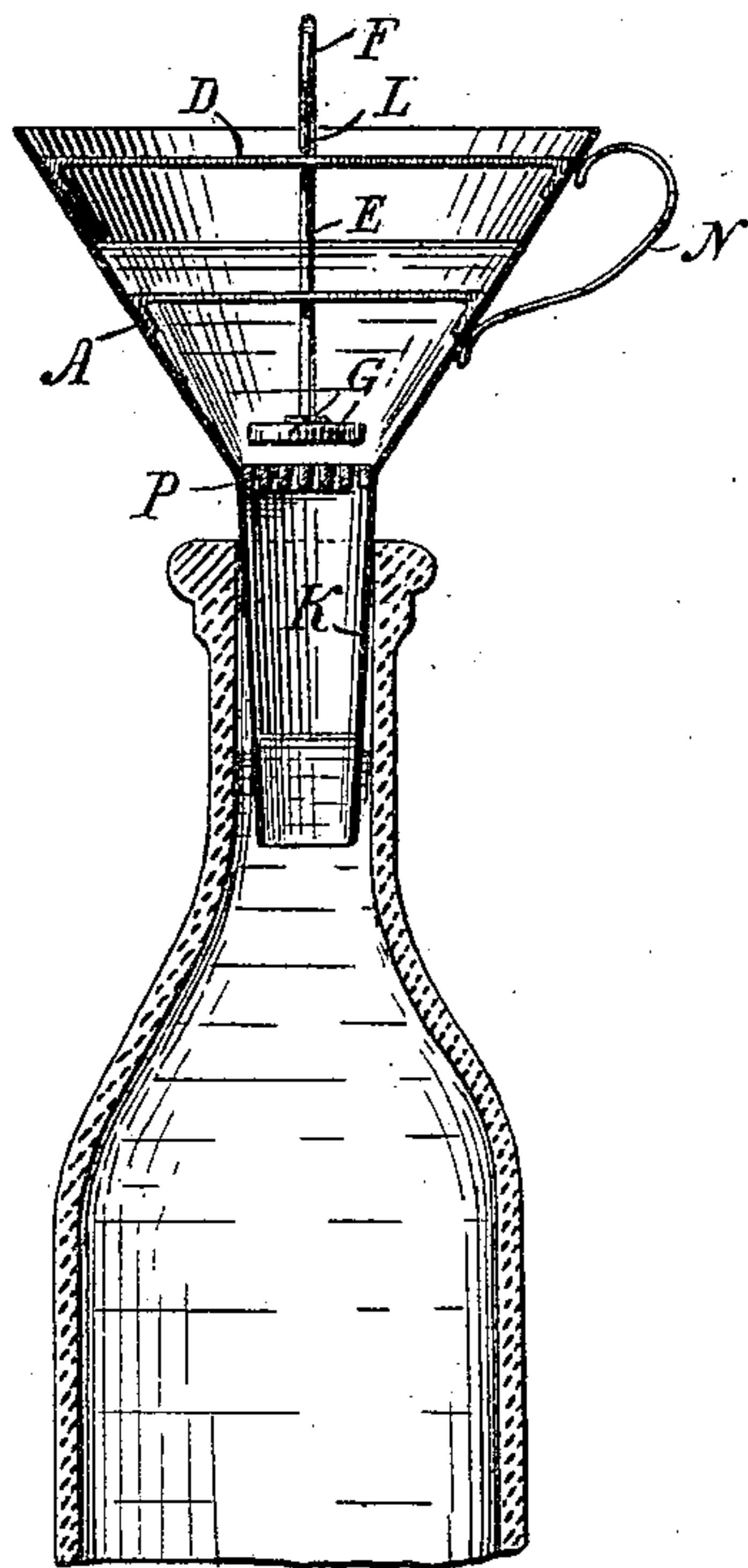


Fig. 4.

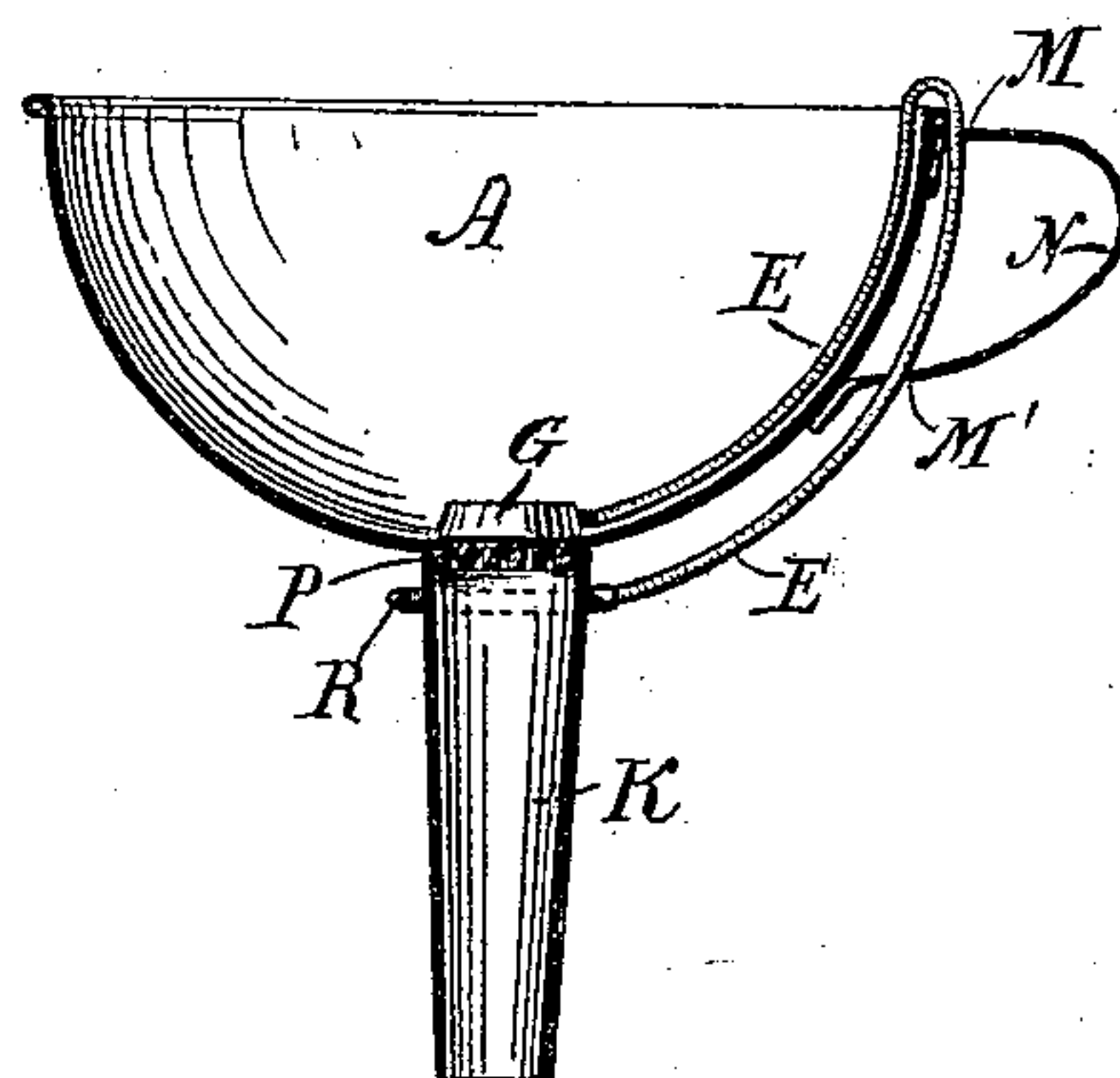


Fig. 3.

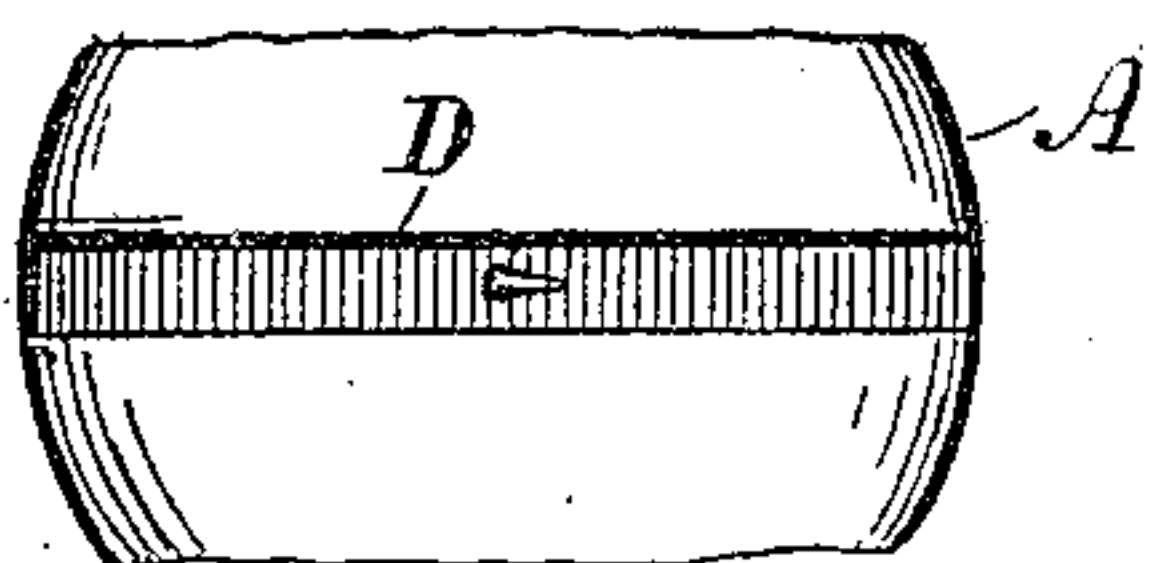
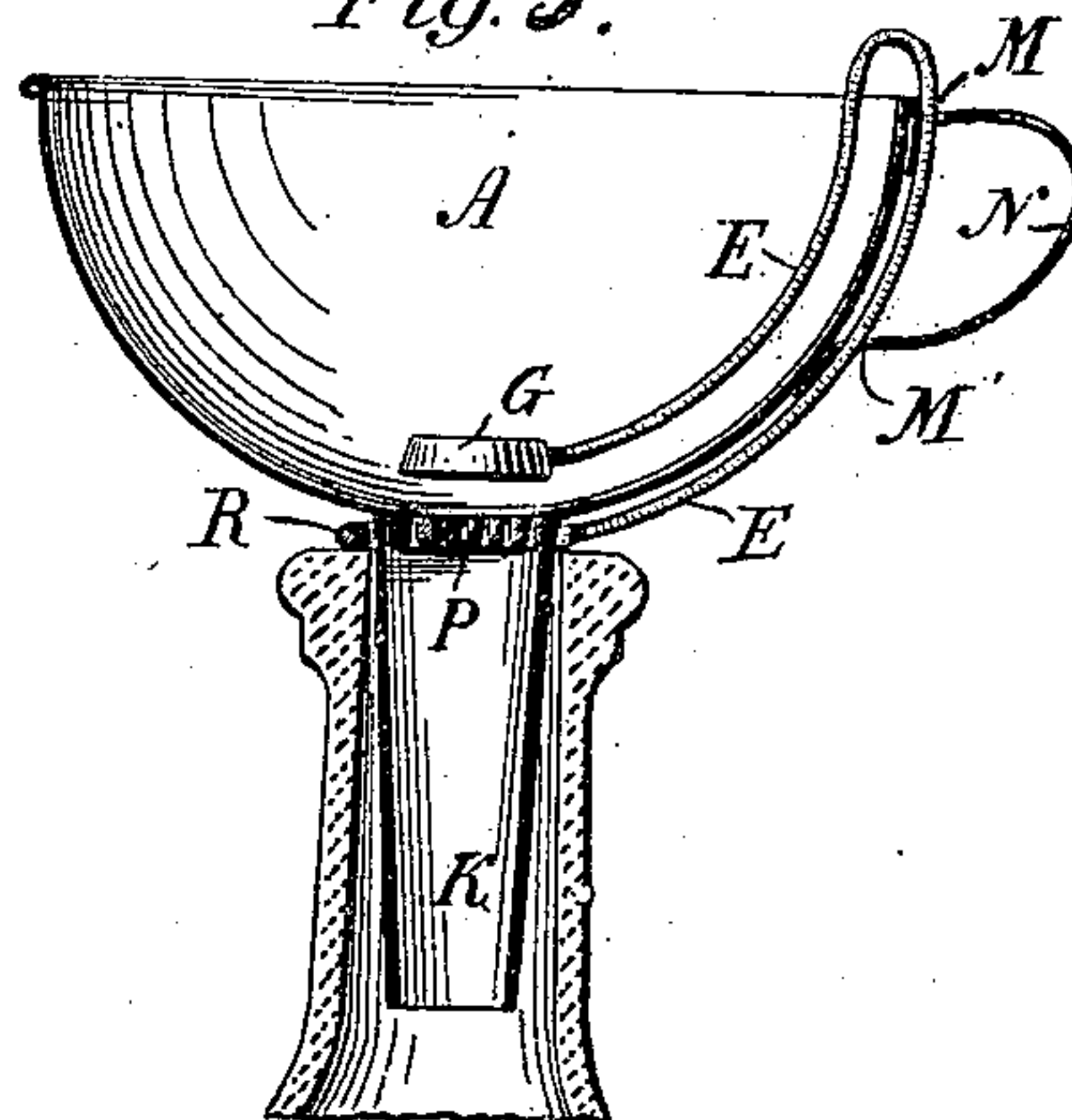


Fig. 5.



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UNITED STATES PATENT OFFICE.

CARLO BONAFEDE, OF ROME, ITALY.

AUTOMATIC FUNNEL.

SPECIFICATION forming part of Letters Patent No. 663,621, dated December 11, 1900.

Application filed May 2, 1899. Serial No. 715,295. (No model.)

To all whom it may concern:

Be it known that I, CARLO BONAFEDE, by profession a civil engineer, a subject of the King of Italy, residing at No. 37 Via Montebello, in the city of Rome, in the Kingdom of Italy, have invented a certain new and useful Automatic Funnel, of which the following is a specification.

My invention relates to certain new and useful improvements in funnels; and my object is to provide an automatic closure and a valve in order to prevent any running out or loss of the liquid from the bottle or vessel already filled, as well as of the liquid remaining in the funnel when said filled bottle is removed.

These improvements are illustrated in the accompanying drawings, wherein like letters of reference indicate like parts.

Figures 1, 2, and 3 are sectional and detailed views of an improved form of the funnel. Figs. 4 and 5 show another form of the valve.

With reference to the drawings it is shown that instead of having a single opening in the bottom of the bowl of the funnel, such opening being of a smaller section than the spout K, the same object may be attained by means of a diaphragm P, provided with a number of holes. Besides that the valve G instead of being put beneath may be put upon the bottom of the bowl of the funnel. The number and the diameter of the holes of the diaphragm depend upon the kind of the liquid for which the funnel is used, for rendering more efficient the phenomenon of capillarity. Said diaphragm P may be a metallic net or canvas.

In Figs. 1, 2, and 3 the valve G is fixed upon the vertical rod E, which cross two bridge-pieces C and D. The rod E ends at its upper end with a ring F. The traversal bridge D, Fig. 3, bears at its center an eyelet formed by a circular part and a rectangular extension, like the mouth of an ordinary lock. The rod E bears below the ring a rectangular projection L, which can penetrate in the corresponding eyelet of the bridge-piece D. By means of such arrangement the valve may be lowered to the position of Fig. 1 or raised by ring F until the projection L

passes above bridge D, when by properly turning the ring the valve will be held up, as in Fig. 2.

With reference to Figs. 4 and 5 it is shown that the valve G is soldered or otherwise fixed to the rod E, which is formed, as shown by the drawings, in such a way that one branch lies along the interior of the bowl of the funnel and the other branch along the exterior of the bowl, passing through two guiding-holes M M', provided in the handle N. This second branch ends at its lower part with a ring R, surrounding the spout K of the funnel.

It is evident that when the funnel is placed upon the neck of the bottle, Fig. 5, this neck, pressing upon the ring R, keeps the valve G raised up from its seat. When the funnel is taken out from the bottle, there being no more pressure beneath the ring R, the valve G falls again upon its seat and stops the discharge of the liquid.

It is to be observed that the diaphragm need not be located in all cases exactly at the junction of the bowl and the spout.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A funnel comprising a bowl and a spout provided at the top of the spout with a perforated diaphragm, and a valve on one side of said diaphragm, said valve being movable against the diaphragm to close the funnel, and movable away from the diaphragm to open the funnel.

2. In a funnel with a bowl and a spout the combination of a perforated diaphragm between the bowl and spout, a stop-valve with a rod bent in two branches, one in the interior and the other at the exterior of the bowl, ending with a ring surrounding the spout of the funnel, so that when the funnel is placed upon the neck of a bottle the pressure exercised beneath said ring keeps the valve raised, and when the funnel is removed the valve closes.

Signed at Rome, Italy, this 19th day of April, 1899.

CARLO BONAFEDE.

Witnesses:

GIOVANNI BORTOLUZZI,
ARISTODEMO RAGGI.