(No Model.)

F. S. RICHARDSON.

MEASURING FUNNEL.

No. 423,954. Patented Mar. 25, 1890.

Fig. 1.

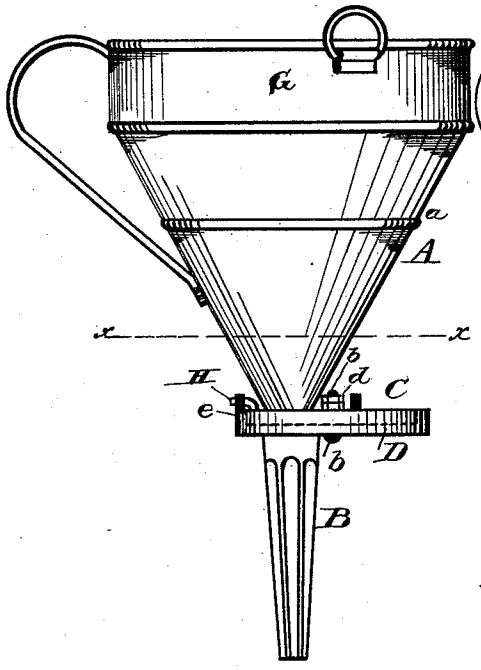


Fig. 3.

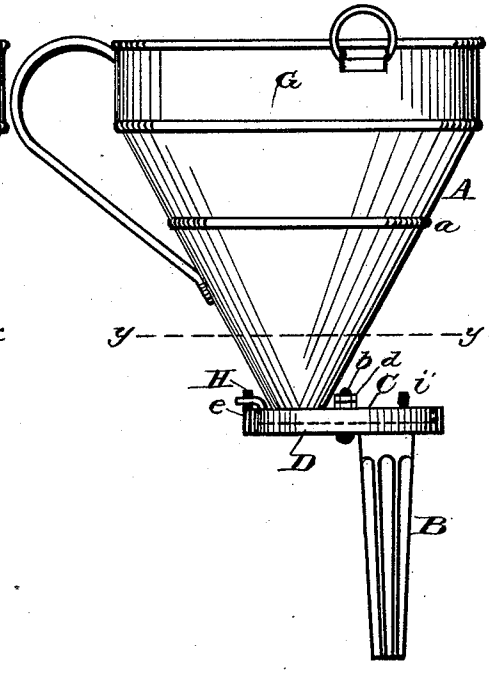


Fig. 2.

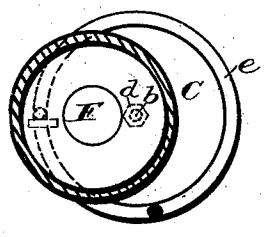
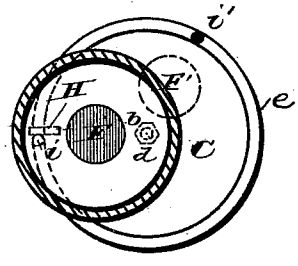


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANCISCO SOLANO RICHARDSON, OF WARREN, PENNSYLVANIA.

MEASURING-FUNNEL.

SPECIFICATION forming part of Letters Patent No. 423,954, dated March 25, 1890.

Application filed October 12, 1889. Serial No. 326,887. (No model.)

To all whom it may concern:

Be it known that I, FRANCISCO SOLANO RICHARDSON, a citizen of England, residing at Warren, in the county of Warren and State of Pennsylvania, have invented certain new and useful Improvements in Measuring-Funnels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to measuring-funnels; and it consists in certain details of construction and arrangement of parts, as will be hereinafter described in the specification, illustrated in the drawings, and pointed out in the claim.

In the drawings, Figure 1 is a side elevation showing the nozzle or outlet in line with the upper or measuring part of the funnel. Fig. 2 is a horizontal section through the line *x x* of Fig. 1. Fig. 3 is a side elevation showing the nozzle turned away from or out of line with the discharge-port of the measuring part. Fig. 4 is a horizontal section through the line *y y* of Fig. 2.

The object of my invention is to provide a funnel in two sections, so united that a valve is provided between the outlet-port of the upper or receiving section and the mouth of the nozzle or lower section. This I accomplish by means of two disks centrally pivoted together and each provided near one side with an opening corresponding in size to the discharge-port of the upper section of the funnel and the mouth of the nozzle or lower section. One of these disks is rigidly fixed to the bottom of the upper section by soldering or otherwise, so that its opening registers with the discharge-port in the latter, and the other disk is similarly united with the mouth of the nozzle or lower section.

Referring more particularly to the drawings, A represents the upper or receiving section of the funnel, or the funnel proper, which is divided into measuring-spaces by one or more circumferential corrugations *a*, formed in the metal of which the funnel is composed, and which spaces serve to graduate the quantity of liquid as it is drawn from the cask or other receptacle. A graduation-scale may be employed instead of these corrugations.

B is the lower section or discharge-nozzle. C is the disk secured to the bottom of the upper section, and D the disk secured to the mouth of the nozzle. The latter is made of a circumference slightly greater than the former, and is provided at its outer edge with an upstanding flange *e* equal in height to the thickness of the disk C, so that when the two disks are united by the central bolt *b* the flange *e* will surround and inclose the edge of disk C. By means of the central pivot-bolt *b* disk C will turn freely upon disk D and within the inclosing-flange *e* of the latter.

F is the opening at one side of disk C, surrounded by the discharge-port of the funnel proper or upper section, and F′ is a similar opening in disk D, communicating with the mouth of the nozzle or lower section B. These openings are adapted to register with each other when the nozzle is in line with the upper section, as shown in Figs. 1 and 2; but when the funnel is employed as a measure the disk C, upon which the upper section is mounted, is turned, as shown in Figs. 3 and 4, until its opening is over a solid portion of disk D, thereby closing the outlet of the funnel.

To prevent any possibility of the liquid to be measured leaking between the disks C and D, a ground joint is formed between the same.

The motion of disk C is limited by means of a spur H, secured on its upper side near its edge, and which projects over the flange *e* of disk D, which flange is provided with two lugs or short projecting posts *i i′* at a suitable distance apart to arrest the revolution of the disk C when turned toward the right at the point when the outlet is fully closed and again when turned toward the left at a point when the outlet is fully opened.

A vertical flange G is provided at the upper edge of the funnel to prevent overflow or waste during the operation of opening the valve or outlet when the funnel is filled.

The pivot-bolt *b*, uniting the disks, is inserted from beneath and screw-threaded on its outer end and provided with a nut *d*, for the purpose of enabling the valve formed by

the disks to be readily tightened or loosened, as may be found desirable.

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

The combination, with the graduated funnel provided at its upper edge with an upstanding flange and at its lower edge with a circular disk secured eccentrically thereto and surrounding its outlet, of the nozzle having eccentrically secured to its upper end and opening into it a flanged or cup-shaped disk adapted to receive and inclose the funnel-disk, and provided on its rim or flange with posts or stops designed to limit the motion of the latter through the medium of a spur secured to its upper face and projecting over the rim between the stops, whereby the openings in the disk between the funnel and nozzle may be caused to register with each other when the disks are turned in opposite directions, and the threaded pivot-bolt uniting the disks, substantially as described.

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

FRANCISCO SOLANO RICHARDSON.

Witnesses:
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