No. 886,397. PATENTED MAY 5, 1908.

H. P. McMILLAN.

DETACHABLE CLOSURE FOR RECEPTACLES.

APPLICATION FILED JAN. 29, 1907.

Fig. 1.

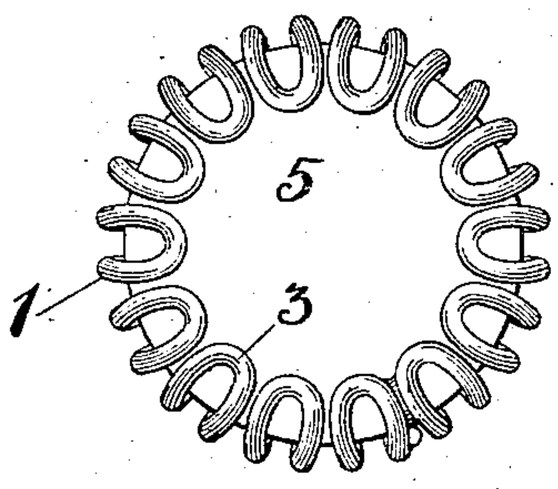


Fig. 2.

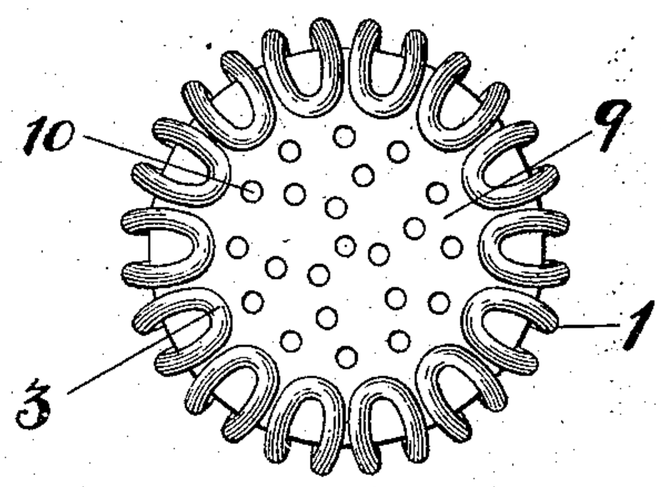


Fig. 3.

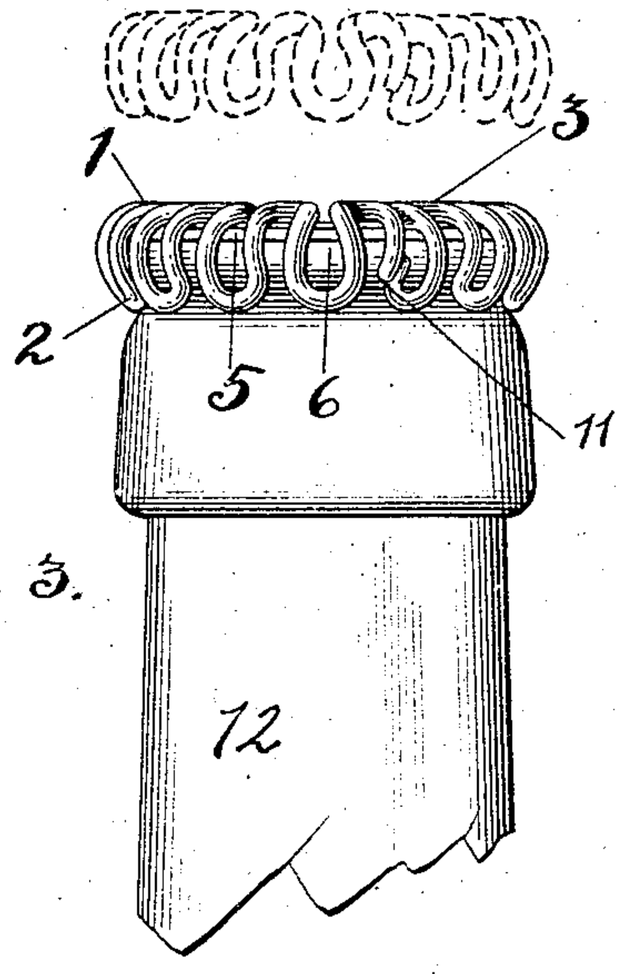


Fig. 4.

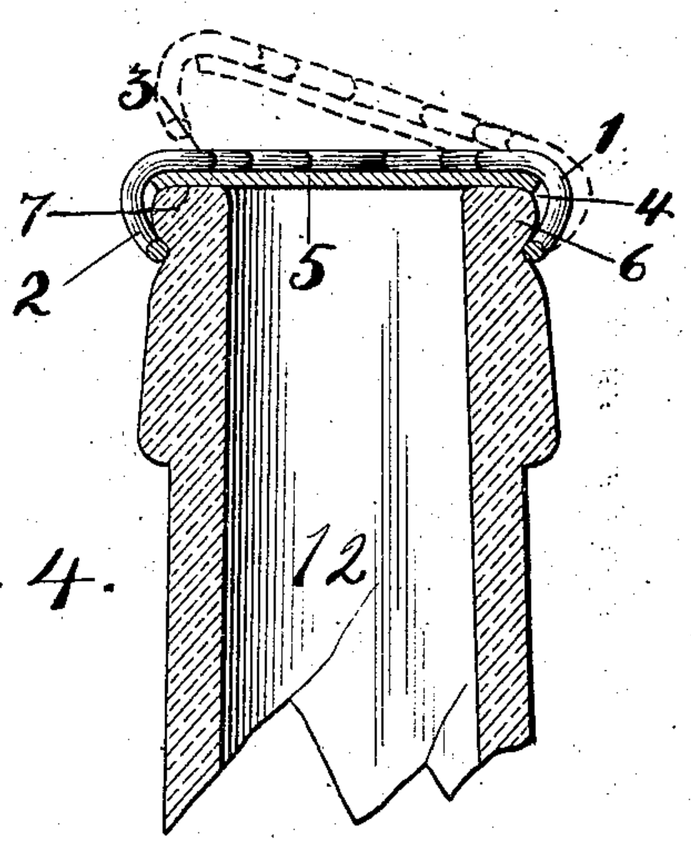
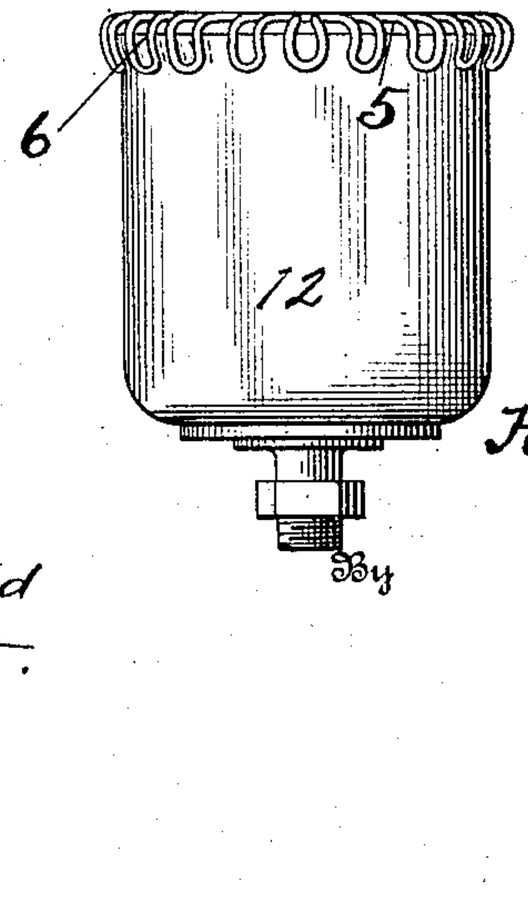


Fig. 5.



Witnesses

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DETACHABLE CLOSURE FOR RECEPTACLES.

No. 886,397. Specification of Letters Patent. Patented May 5, 1908.

Application filed January 29, 1907. Serial No. 354,632.

To all whom it may concern:

Be it known that I, HUGH P. McMILLAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Detachable Closures for Receptacles, of which the following is a specification.

My invention relates to improvements in detachable closures for receptacles in which a disk is employed to cover the mouth of the receptacle and is held in close contact therewith by means of a yielding annulus of a sinuous form.

The object of the invention is to provide an improved wire holding device to coact with a sealing disk to hold the latter in contact with the mouth of a receptacle to effect either a complete or a partial closure of the receptacle and which may be removed and replaced at will without the aid of tools.

The invention is applicable to receptacles of various kinds, such for example as bottles, or oil-cups where the closure is to be complete, or in other cases where it is desired to effect only a partial closure such as in salt, pepper or sugar receptacles where the contents is to be discharged by sifting it through perforations in the disk.

The invention is illustrated in the accompanying drawing in which,—

Figure 1 illustrates a plan views of the improved device. Fig. 2 shows a plan view of the device in connection with a perforated disk, and Fig. 3 a side elevation of the same attached to a bottle neck, and showing in broken lines the horizontal position the wire annulus has when being placed in position. Fig. 4 a vertical sectional view through a bottle neck and also through the closing device attached thereto, and shows in broken lines the tilted position the wire annulus must take when being removed. Fig. 5 illustrates the device as applied to seal an oil cup.

Referring to the drawings by numerals, 1, designates a wire annulus comprising two series of uniformly-curved loops, 2, and, 3, the rounded points of one series of loops being in position reverse with respect to the rounded points of the other series. These two series of loops are formed from a continuous piece of wire, and each loop is capable of yielding slightly independently of the others.

The upper series of wire loops, 3, lie flat or in a horizontal plane and above the lower series; the series of curved loops, 2, extend downwardly and the rounded points of this series are curved inwardly. The ends of the wire are permanently united in some suitable manner, as by solder, 11, and thus forms an endless ring or annulus, which never thereafter has the ends separated. It will thus be understood that the endless wire annulus comprises two sets or series of uniformly-curved and annularly-arranged loops which have rounded points,—one series, 3, being in a horizontal plane and the other series, 2, being inclined slightly from a vertical plane and also curved inwardly.

It will be noted that the curved ends of the horizontal loops, 3, project inward further than the curved ends of the loops, 2, and thus the latter lie in a vertical plane outside of the ends of the loops, 3. This difference in the ends of the two series of loops provides a circular opening bounded by the extremities of the loops, 3, that is of a smaller diameter than the opening bounded by the ends of the loops, 2, and this difference enables the disks to be placed in the annulus and held therein during handling.

The receptacles, 12, should be provided with an exterior circumferential bead, 6, adjacent the rim or lip, 7, of the opening or mouth of the receptacle and rounded in the vertical direction; and immediately below the said rounded bead is a surrounding depression, 8; the disk, 5, which closes the opening of the receptacle, except in Fig. 2, will seat upon the said rim or lip.

The endless wire annulus is especially constructed to admit of being fastened in position upon the receptacle by placing it horizontally in the position shown by broken lines in Fig. 3, and setting the rounded points of the lower series of loops, 2, upon the rim or lip, 7, of the receptacle, and then simply pressing downward. This down pressure will cause the lower series of loops to automatically expand sufficiently to enable them to pass over the rounded shoulder or bead, 6, and then said loops will automatically contract again and the rounded points of said loops, 2, will take into the depression, 8, on the receptacle below the bead, 6. As the lower side of the said bead is rounded into this depression, the effect of this construction is to cause the lower set of loops to be drawn downwardly which will press the upper set of loops, 3, hard upon the top surface of the sealing disk, 5. When this endless wire annulus is to be removed from the receptacle in order to open the latter, the

better way is to tilt one side upward, as indicated by broken lines in Fig. 4; by forcing it to tilt in this manner, the lower loops, 2, will automatically expand, and their rounded ends which are in the depression, 8, of the receptacle, will let go or release.

The operation here described of applying the endless wire annulus when closing the receptacle, and the other operation of tilting it off the receptacle to remove it, is new in this style of device.

In the closure shown in Fig. 2, the closing disk, 9, has a plurality of perforations, 10, by means of which the closure may be utilized as a sifter for salt, pepper or sugar receptacle.

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

1. A receptacle provided with a rim and adjacent said rim having an exterior circumferential bead rounded in a vertical direction, in combination with a flexible disk resting on said rim, and an endless wire annulus formed into two continuous series of curving loops, the loops of the upper series being in a vertical plane between two adjacent loops of the lower series and the loops of the lower series being inclined downwardly with their rounded ends lying in a vertical plane outside of the ends of the upper loops whereby the central circular opening between the ends of the lower loops will be of a greater diameter than the central opening between the ends of the upper loops, and said wire annulus being yielding in a circumferential direction to permit its repeated engagement with and removal from the rounded bead on the receptacle.

2. A receptacle provided with a rim and an exterior circumferential bead rounded in a vertical direction and adjacent the rim, in combination with a perforated disk resting upon said rim, and an endless wire annulus having two series of loops merging by curving into each other,—one series of said curved loops engaging the perforated disk and the other series inclining downwardly and yieldingly engaging the rounded bead whereby to permit its repeated engagement with and to removal from said curved bead.

3. The combination with a receptacle provided with a rim and an exterior circumferential rounded bead adjacent the rim, of a flexible disk seated on said rim, and a clamping ring comprising an annulus of permanent spring loops normally of a smaller diameter than the bead on the receptacle and independently yielding in a lateral and circumferential direction when forced over said bead.

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

HUGH P. McMILLAN.

Witnesses:

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