C. HAMMER.

BOTTLE OR JAR CLOSURE.

APPLICATION FILED DEC. 16, 1911.

1,028,718. Patented June 4, 1912.

Fig. 1.

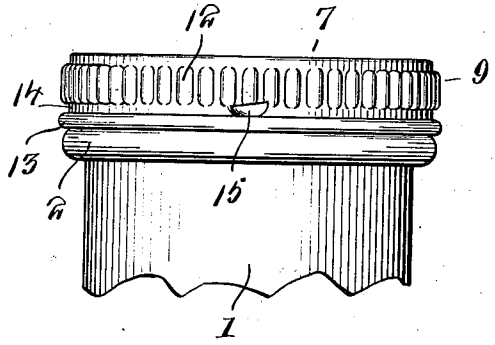


Fig. 2.

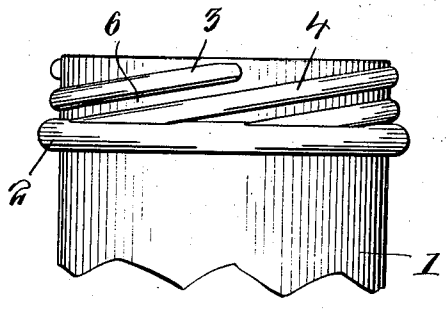


Fig. 3.

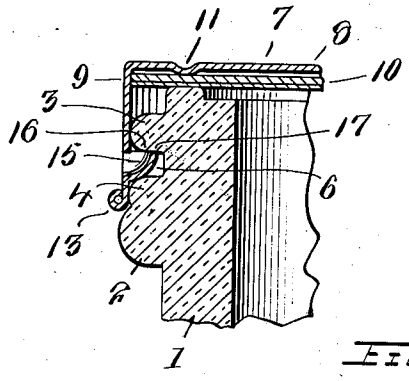


Fig. 4.

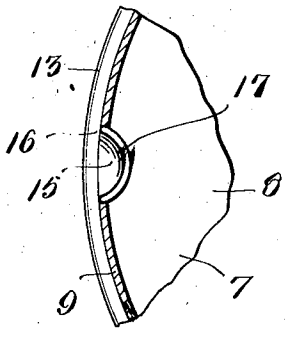
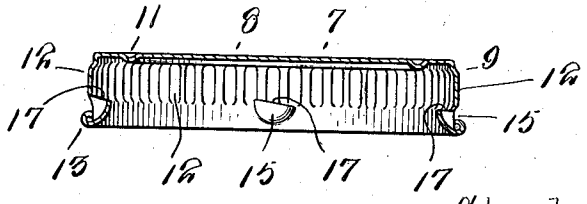


Fig. 5.



Witnesses

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BOTTLE OR JAR CLOSURE.

1,028,718. Specification of Letters Patent. Patented June 4, 1912.

Application filed December 16, 1911. Serial No. 666,128. REISSUED

To all whom it may concern:

Be it known that I, CHARLES HAMMER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Bottle or Jar Closures, of which the following is a specification.

This invention relates to bottle or jar closures of that type employing metal sealing caps provided with inpunched locking projections to engage separated spiral threads upon the mouth of the bottle or jar, whereby the cap is fastened in sealing position.

The primary object of my invention is to provide a sealing cap which may be made of thin metal, and yet possess maximum strength and durability, and in which the inpunched locking projections are so constructed and arranged as to have a double locking action with superposed threads upon the bottle or jar, whereby the efficiency of the seal is increased.

A further object of the invention is to provide a bottle cap in which the parts are combined and arranged to manually reinforce each other, to prevent buckling of the cap under the strain upon the locking projections, or stretching of the flange of the cap in application when the threads are of abnormal size.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:

Figure 1 is a side elevation of a bottle neck showing the application of the sealing cap. Fig. 2 is a side elevation of the jar neck with the cap detached. Fig. 3 is a vertical transverse section through one side of the jar and the adjacent side of the flange of the cap. Fig. 4 is a horizontal section through the flange of the cap on an enlarged scale, showing one of the locking projections. Fig. 5 is a sectional view through the cap looking toward the inner side of the flange thereof.

Referring to the drawing, 1 designates the neck of a bottle or jar which may be of any suitable form, size, shape and construction. This neck 1 is formed adjacent to the upper end thereof with an annular rib or shoulder 2. Extending upward from said rib or shoulder 2 is a plurality of separated spiral threads 3 and 4, arranged in spaced pairs to produce intervening guide grooves 6. The number of pairs of threads employed may vary under different conditions of service, but, in the present instance, I have shown the neck provided with four pairs of threads in order that a locking action may be obtained at quarter points around the circumference of the cap.

The cap 7 is formed of thin sheet metal, and comprises a top or crown portion 8 provided with a depending annular flange 9 of proper diameter to snugly embrace the threaded portion of the bottle or jar neck. This cap is adapted to be used with a suitable inner sealing disk or liner 10, and its top or crown portion may be provided with an annular depressed rib 11 to bear against and crimp the liner for a tight sealing action against the rim edge of the neck when the cap is applied for use.

The flange 9 is formed with an annular series of outstruck vertical corrugations or milling projections 12, which serve the double function of stiffening the flange and forming a roughened peripheral surface to facilitate the application of the cap to and its removal from the bottle. These corrugations terminate at their upper ends below the top of the flange and at their lower ends some distance above the lower edge of the flange, which latter is bent upward to form an annular reinforcing bead 13, spaced from the corrugations to leave an intervening plain or unstiffened surface 14. By this construction and arrangement of the corrugations and bead the flanges are stiffened and strengthened to a maximum degree, allowing the cap to be made of very thin metal without liability of its buckling or becoming distorted out of shape under pressure when applied and removed.

The cap is formed with a series of semi-elliptical instruck locking projections 15, equal in number to the pairs of separated threads 3 and 4 on the neck, and arranged in the construction shown equidistantly around the circumference of the flange. These projections are formed in the plain portion 14 of the flange at the bases of adjacent corrugations. As shown, each projection is separated by a slit 16 from the contiguous corrugations so as to provide a bearing edge 17 to engage the lower surface of the upper thread 3. The body portion of

the projection is longitudinally and transversely curved or rounded and is adapted to engage the upper surface of the coacting lower thread 4. In order to secure this double binding action of the locking projections upon the upper and lower threads, the body and bearing edge of each projection are inclined at an angle to the horizontal or at an angle corresponding to the angle of inclination of the threads. The semi-elliptical shape of the projections gives maximum strength to prevent their distortion under the pressure of the threads, and, as the projections lie between the stiffening corrugations and stiffening bead, the strength of said projections is further promoted.

In applying the cap, the cap is disposed so as to bring the projections in line with the upper ends of the grooves 6, and is then turned to cause the projections to travel down in the grooves to seat the cap in position and bring the projections in bearing contact with the surfaces of the spiral threads. As a result, a double binding action of the locking projections on the threads is secured, whereby the cap is held against any possibility of becoming loosened and turning in a retrograde direction and allowing the seal to leak. A positive movement of the cap in a retrograde direction will, however, result in the quick release of the cap, as will be readily understood.

It will be observed that the construction described not only provides a cap which may be made of thin metal without sacrificing strength and durability, but which at the same time provides for a binding action of the locking projections on the surfaces of upper and lower threads, whereby the cap is held more securely in position and a more perfect and reliable sealing action secured.

Having thus described the invention, what I claim as new is:

1. A bottle cap formed of thin sheet metal and having a flange provided with a series of vertical stiffening corrugations, a stiffening bead or rim formed at the lower edge of the flange, and an intervening unstiffened portion, said unstiffened portion being provided with a series of instruck locking projections intersecting and reinforced by the adjacent corrugations and portions of the stiffening bead or rim, said projections being of semi-elliptical form with their major axes disposed at an angle to the plane of the flange, said projections being longitudinally and transversely curved and inclined to the horizontal plane of the cap and having their upper edges separated from the flange and their lower surfaces rounded, whereby said edges and rounded lower surfaces of the projections are adapted to bind respectively upon the lower and upper surfaces of pairs of coacting superposed spiral threads on a receptacle.

2. The combination with a receptacle having pairs of spaced superposed separated spiral threads, of a thin sheet metal cap having a flange provided with an upper corrugated portion spaced from the side of the receptacle a distance equivalent to the thickness of the threads and terminating about in line with the bottom faces of the upper threads, a stiffening bead or rim at its lower edge arranged in line with the outer faces of the lower threads and an intermediate unstiffened portion disposed opposite the space between the threads, said unstiffened portion being provided with instruck locking projections disposed between said corrugations and bead and separated by slits from the adjacent corrugations, said projections being longitudinally and transversely bowed and reinforced by the adjacent corrugations and portions of the rim and bead, the upper edges of said locking projections being arranged to bear against the lower faces of the upper threads and the outwardly and downwardly curved inner faces thereof arranged to bind against the upper surfaces of the lower threads.

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

CHARLES HAMMER.

Witnesses:
WM. F. A. KURZ,
THOMAS T. UREN.