

L. C. KRUMMEL & J. C. TALIAFERRO.

BOTTLE CAPPING HEAD.

APPLICATION FILED MAY 15, 1909.

960,960.

Patented June 7, 1910.

2 SHEETS—SHEET 1.

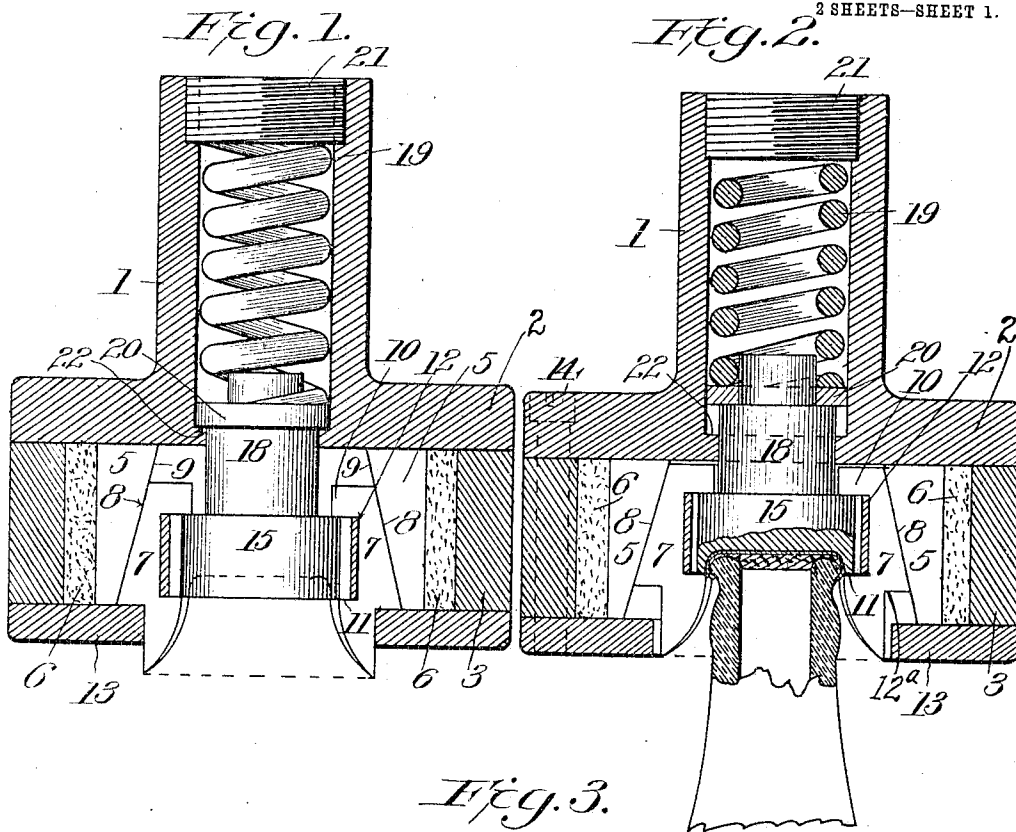
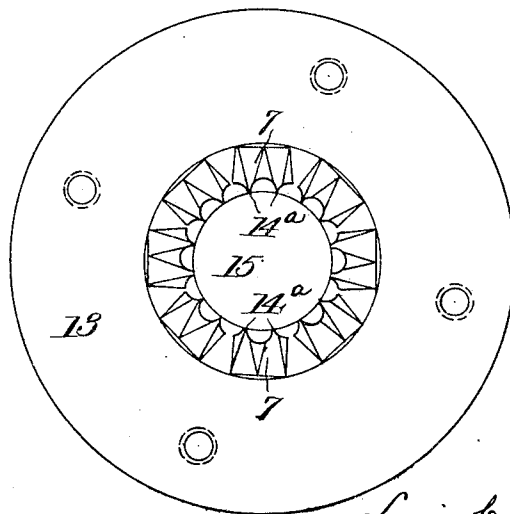


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

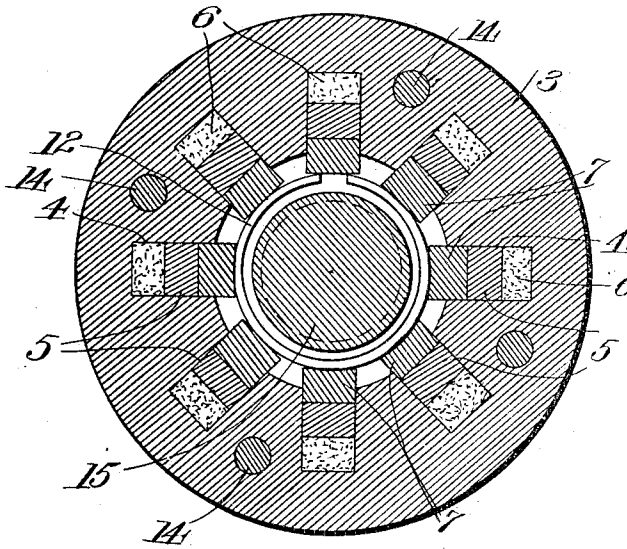


Fig. 5.

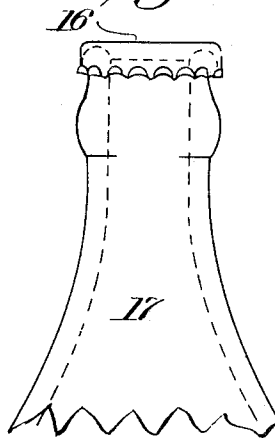
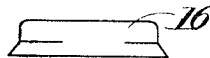


Fig. 6.



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UNITED STATES PATENT OFFICE.

LOUIS CHARLES KRUMMEL, OF CLINTON, CONNECTICUT, AND JOHN C. TALIAFERRO
OF BALTIMORE, MARYLAND.

BOTTLE-CAPPING HEAD.

960,960.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed May 15, 1909. Serial No. 498,240.

To all whom it may concern:

Be it known that we, LOUIS C. KRUMMEL and JOHN C. TALIAFERRO, citizens of the United States, residing at Clinton, in the county of Middlesex, State of Connecticut, and Baltimore, Maryland, respectively, have invented certain new and useful Improvements in Bottle-Capping Heads, of which the following is a description, reference being had to the accompanying drawing, and to the numerals of reference marked thereon.

The invention relates to new and useful improvements in bottle capping heads, and more especially a bottle-capping head of the type wherein the head remains in a fixed position and the bottle cap is crimped or secured to the bottle merely by inserting the bottle with the cap applied, into the head.

An object of the invention is to provide a bottle-capping head of the above type, wherein the parts shall be of simple construction, positive in operation, and wherein the cap may be tightly crimped on to the bottle neck regardless of any slight inequalities in the size or shape of the neck.

A further object of the invention is to provide a bottle-capping head with a plurality of crimping jaws, which are normally held separated, and which are brought into crimping action by inserting the neck of the bottle into the crimping head.

These and other objects will in part be obvious, and will in part be hereinafter more fully described.

In the drawings,—Figure 1 is a sectional view through our improved head, showing the parts in their expanded position ready to receive the bottle neck; Fig. 2 is a similar view with the spring also in section, and showing a bottle neck inserted in the crimping head and the parts in final crimping position; Fig. 3 is a bottom plan view of the crimping head; Fig. 4 is a horizontal sectional view through the head at the point where the crimping jaw engages the cap. Fig. 5 shows a bottle neck with the cap crimped thereon. Fig. 6 is a detail showing a cap prior to being crimped on the bottle.

In carrying out the invention, we provide a suitable shank 1, which may be mounted in any desired way, so as to hold the head in a stationary position. Said shank has an outwardly extending flange 2, and said flange carries the cylindrical body portion 3. The body portion 3 is provided with a

plurality of radial slots 4, (see Fig. 4). In each of the radial slots we have provided a wedge-shaped member 5, which tapers from its upper end toward its lower end. In the rear of each of the wedge shaped members 5 is an elastic backing 6, which may be of rubber or any other suitable substance.

Each of the radial grooves 4 also receives a crimping jaw 7. The jaw 7 has a tapered face 8, which is adapted to cooperate with the tapered face 9 on the wedge member 5. The jaw 7 at its upper end has a laterally projecting portion 10, and at a distance below said laterally projecting portion 10 is a laterally projecting shoulder 11.

Within the space formed by the projecting member 10 and the shoulder 11 is a spring ring 12, which engages each one of the jaws and normally tends to press the jaws outward, so that as the jaws move up and down they will remain in contact with the wedging members 5, and move outwardly and inwardly, according to the direction of movement of the jaws, toward a center line passing through the crimping head.

The jaws are cut away so as to provide shoulders 12^a. The crimping head has at its lower end a cap 13, which cap is secured to the cylindrical body portion 3 and to the flange of the shank portion by suitable bolts 14. The cap 13 is cut away to form a central opening, and extends into the path of the shoulder 12^a on the crimping jaws 7, so that said cap will limit the downward movement of the crimping jaws and retain the jaws within the crimping head.

The inner face of each of the crimping jaws 7 is cut away so as to form inwardly projecting ribs 14^a (see Fig. 3). The jaws 7 are centered around a chuck 15, which is so shaped as to extend between the projecting member 10 and the shoulder 11. This chuck is, however, made of such diameter that the jaws may slide inward on the chuck to the extreme inner crimping position, as shown in Fig. 2. The chuck in its lower face is provided with a pocket, shaped so as to receive a cap 16 placed on the neck of the bottle 17, and allow the crimping flange of the cap to extend beneath the chuck.

The chuck has a stem 18, which extends up into a cylindrical recess in the shank 1 of the crimping head. A spring 19 is located in said recess and bears upon the up-

per end of the stem 18. A collar 20 rests on a reduced portion of the stem 18 and receives one end of the spring 19. The other end of the spring 19 bears against an adjustable screw 21, and by adjusting the screw 21 the tension on the spring may be varied.

The cylindrical recess in the shank 1 is reduced at its lower end so as to form a ledge or shoulder 22, which receives the collar 20, and may limit the downward movement of the spring 19.

In the operation of our device, the spring 19 normally holds the chuck in its lower position, as shown in Fig. 1, and in this position the jaws 7 are carried downward and the spring ring 12 has forced the jaws outward radially, so as to open the crimping head ready to receive the neck of a bottle. A cap 16 is placed on the neck of a bottle, such as shown in Fig. 6, and the cap and neck are together inserted in the crimping head. The pocket in the chuck will receive the cap, and as the bottle is forced upwardly into the crimping head, the cork or other flexible material in the cap will be crowded down into the mouth of the bottle by the pressure which is necessary to overcome the tension of the spring 19, before the chuck can move upwardly. By increasing the tension on the spring 19, the pressure exerted upon the cork before the crimping action takes place may be varied.

As the chuck moves upwardly, the jaws 7 are carried therewith, compressing the spring ring 12 by reason of the fact that the tapered face of the jaw slides up the inclined face of the wedge members 5. This will cause an inward movement of the jaws, which will engage the flange of the cap and bend the same underneath the retaining rib at the upper end of the neck of the bottle.

The upward movement of the bottle may be continued until the cap has been properly crimped and secured to the bottle. The flexible backing located in the rear of each of the wedge members which control the action of the jaws, yields so that the jaws may conform to any irregularities in the shape of the mouth of the bottle.

While we have described our crimping head as a stationary head into which the bottle may be moved, in order to perform the crimping action, it will be obvious that from certain aspects of the invention the crimping head may be moved vertically relative to the bottle, which may be held stationary, and said crimping head will operate in precisely the same way to crimp the bottle cap.

The lower ends of the jaws are tapered outwardly, so as to properly guide the neck of the bottle and cap into the capping head. Inasmuch as the jaws are normally held in

their extreme outer position, that is, with the head expanded there will be no crimping action whatever applied to the flange of the cap until after the cap has been seated in the chuck and sufficient pressure applied to the chuck to overcome the tension of the spring 19. Therefore, the cap will be firmly seated in the mouth of the bottle before the crimping action takes place.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a bottle capping head, the combination of a chuck, crimping jaws, each of said jaws having spaced projections for corrugating or crimping the cap, means for normally holding the jaws out of contact with the cap and an independently yielding means for each jaw, for positively forcing the same inwardly to crimp the cap, said jaws having their inner faces at their lower ends tapered outwardly so as to guide the cap and bottle head into the chuck.

2. In a bottle capping head, the combination of a chuck, crimping jaws, each of said jaws having spaced projections for corrugating or crimping the cap, means for yieldingly forcing said jaws outwardly and an independently yielding means for each jaw, for positively forcing the same inwardly to crimp the cap, said jaws having their inner faces at their lower ends tapered outwardly so as to guide the cap and bottle head into the chuck.

3. In a bottle capping head, the combination of a chuck having a pocket to receive the cap, a plurality of crimping jaws, each of said jaws having spaced projections for corrugating or crimping the cap, means for connecting the jaws to said chuck, whereby said jaws are movable with the chuck, means for yieldingly forcing said jaws outwardly away from the chuck, and an independently yielding means for each jaw, for positively forcing the same inwardly to crimp the cap, said jaws having their inner faces at their lower ends tapered outwardly so as to guide the cap and bottle head into the chuck.

4. In a bottle capping head, the combination of a chuck having a pocket to receive the cap, a plurality of crimping jaws, each of said jaws having spaced projections for corrugating or crimping the cap, means for connecting said jaws to said chuck, and an independently yielding wedging member for each jaw, for moving the same inwardly, and means for yieldingly holding said jaws in contact with said wedging members, said jaws having their inner faces at their lower ends tapered outwardly so as to guide the cap and bottle head into the chuck.

5. In a bottle capping head, the combination of a supporting stem, a body portion carried thereby, and having radial recesses, crimping jaws mounted in said radial re-

cesses, a chuck located intermediate said jaws, means for yieldingly forcing said jaws outwardly, and independently yielding means for each jaw for forcing the same inwardly to crimp the cap.

6. In a bottle-capping head, the combination of a supporting stem, a body portion carried thereby having radial recesses, crimping jaws mounted in said radial recesses, wedge-shaped members mounted in said radial recesses for operating said jaws, and a yielding backing in the rear of said wedging members.

7. In a bottle-capping head, the combination of a supporting stem, a body portion carried thereby having radial recesses, crimping jaws mounted in said radial recesses, each jaw having a cam face, a wedging member in each recess cooperating with said cam face on the jaw, a yielding backing in the rear of said wedging member, a chuck located intermediate the said jaws, and a spring ring for holding said jaws in contact with said wedging members.

8. In a bottle-capping head, the combination of a supporting stem, a body portion carried thereby having radial recesses, crimping jaws mounted in said radial recesses, each jaw having a cam face, a wedging member in each recess cooperating with said cam face on the jaw, a yielding backing in the rear of said wedging member, a chuck located intermediate the said jaws, and a spring ring for holding said jaws in contact with said wedging members, each of said jaws having projecting shoulders for engaging said chuck, whereby said jaws will move up and down with said chuck.

9. In a bottle-capping head, the combination of a supporting stem, a body portion having radial recesses formed therein, crimping jaws located in said radial recesses, means mounted in said radial recesses for moving said jaws inwardly toward the center of the head as the jaws are moved upwardly in the head, a chuck located intermediate said jaws, means for connecting said jaws with said chuck, whereby said jaws move with said chuck, and a detachable cap carried by the body portion for limiting the downward movement of said jaws.

10. A bottle-capping head including in combination, a supporting stem, a body portion carried thereby and having radial recesses, crimping jaws mounted in said radial recesses, a chuck located intermediate said

jaws, spaced projecting shoulders formed on said jaws and slidingly engaging the upper and lower faces of said chuck, a spring ring located between said projecting shoulders for normally forcing said jaws outwardly away from the chuck, and means for forcing said jaws inwardly as said chuck moves upwardly.

11. A bottle-capping head including in combination, a supporting stem, a body portion carried thereby and having radial recesses, crimping jaws mounted in said radial recesses, a chuck located intermediate said jaws, spaced projecting shoulders formed on said jaws and slidingly engaging the upper and lower faces of said chuck, a spring ring located between said projecting shoulders for normally forcing said jaws outwardly away from the chuck, wedging members located in said radial recesses for moving said jaws inwardly, and a yielding backing in the rear of said wedging members.

12. A bottle-capping head including in combination, a supporting stem, a body portion carried thereby and having radial recesses, crimping jaws mounted in said radial recesses, a chuck located intermediate said jaws and having an upwardly extending shank extending into said supporting stem, a spring surrounding said shank and located in said stem, an adjusting screw carried by the upper end of said stem for varying the tension on said spring, means carried by said shank and engaging the lower end of said spring whereby said spring forces said chuck downwardly, means for connecting said crimping jaws to said chuck, wedging members mounted in said radial recesses for forcing said jaws inwardly, and yielding means for normally holding said jaws forced outwardly away from the chuck.

In testimony whereof we affix our signatures, in presence of two witnesses.

LOUIS CHARLES KRUMMEL.
JOHN C. TALIAFERRO.

Witnesses to the signature of Louis Charles Krummel:

WM. G. BISSELL,
EZRA E. POST.

Witnesses to the signature of John C. Taliaferro:

MARK A. ELLIOTT,
M. E. WELLENER.