

No. 668,120.

Patented Feb. 12, 1901.

E. C. PHILLIPS.
EXPANDING BUNG OR STOPPER.

(Application filed Sept. 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

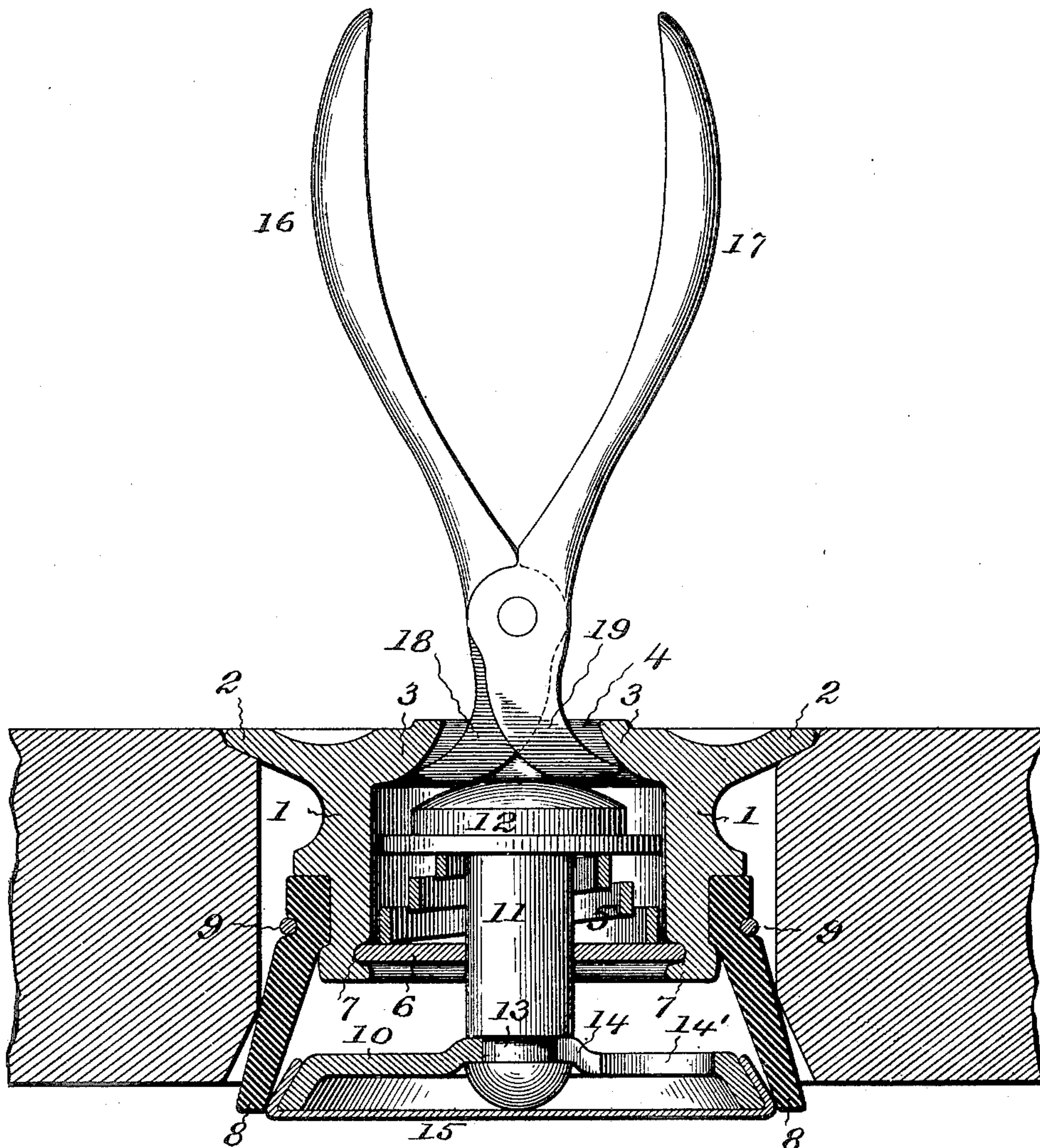
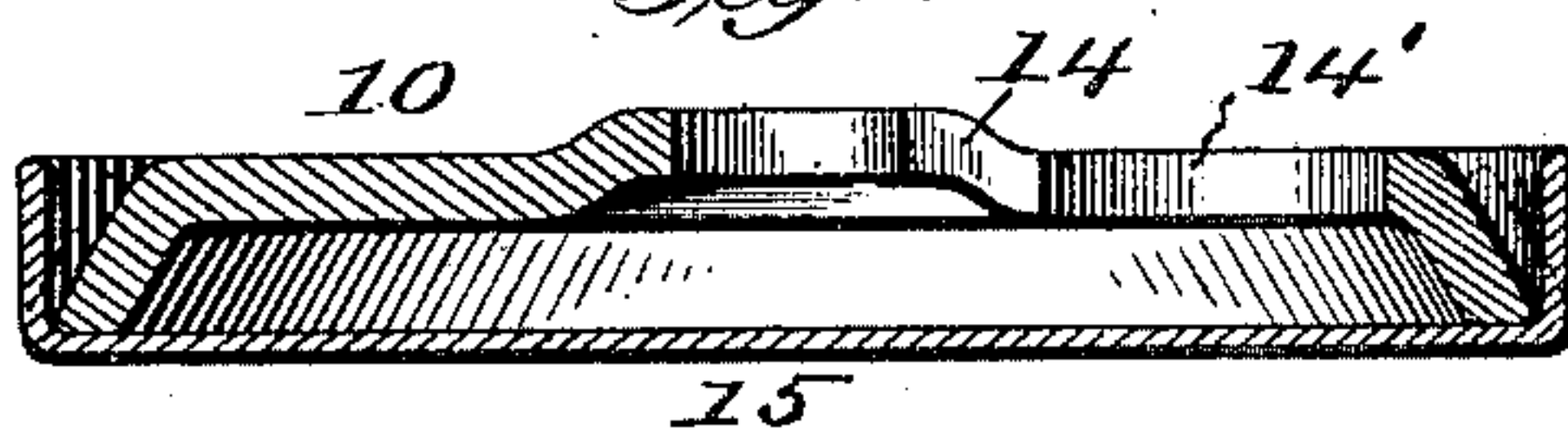


Fig. 6.



Attest:
John Enders, Jr.
Henry A. Vott.

Inventor:
Elwood C. Phillips,
by Robert Burns
Attorney.

No. 668,120.

Patented Feb. 12, 1901.

E. C. PHILLIPS.
EXPANDING BUNG OR STOPPER.

(Application filed Sept. 29, 1900.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.

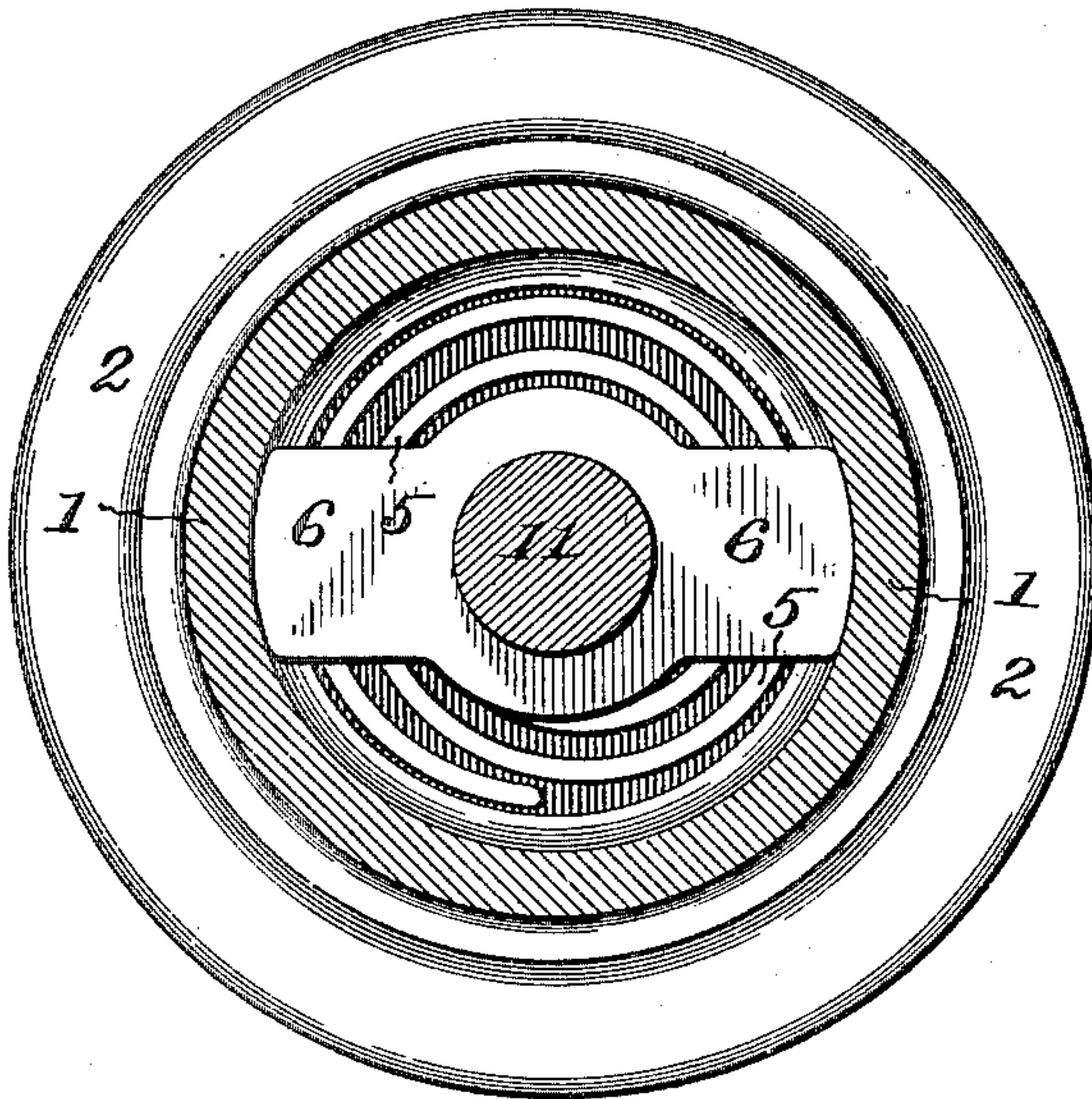


Fig. 4.

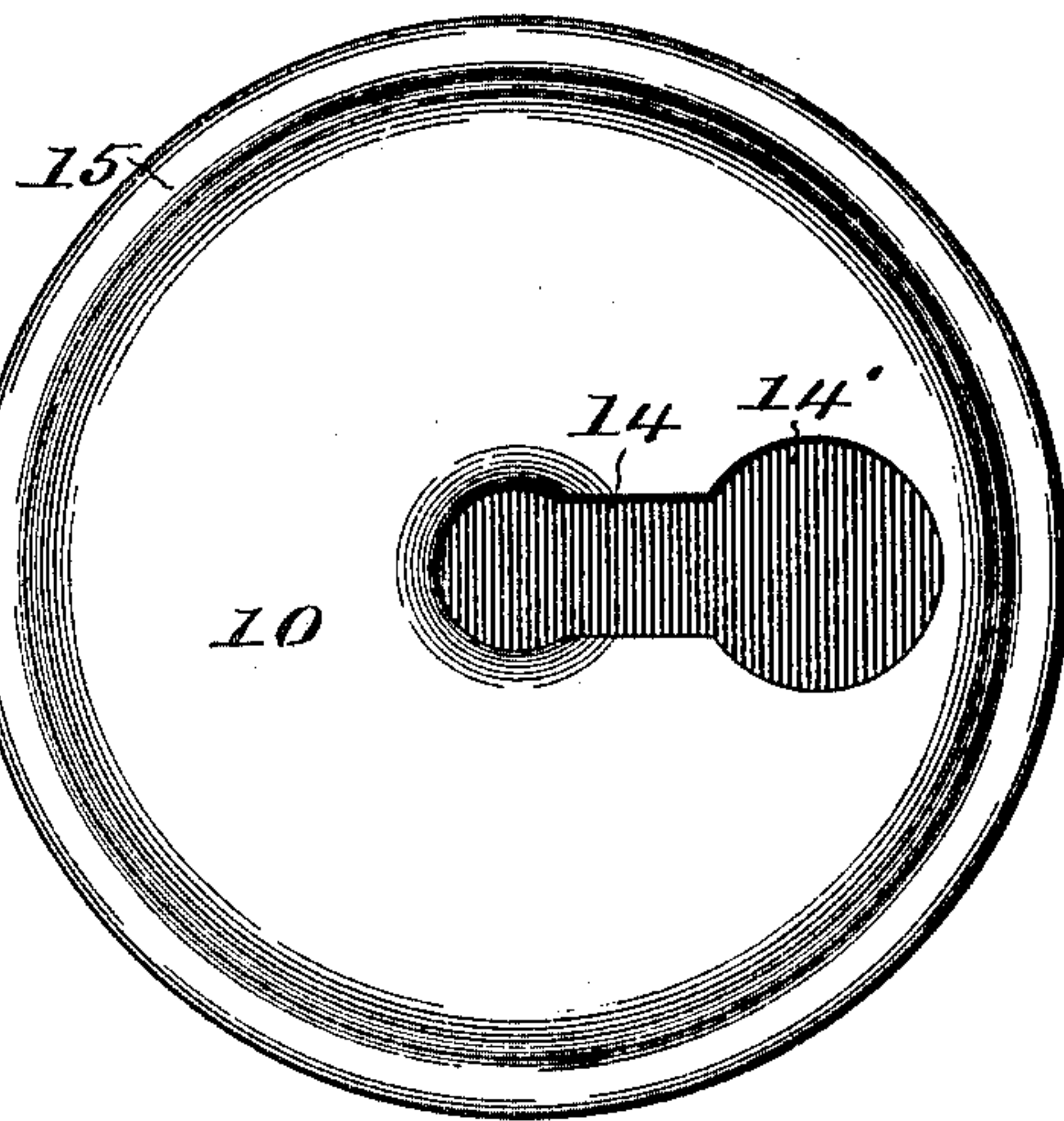


Fig. 2.

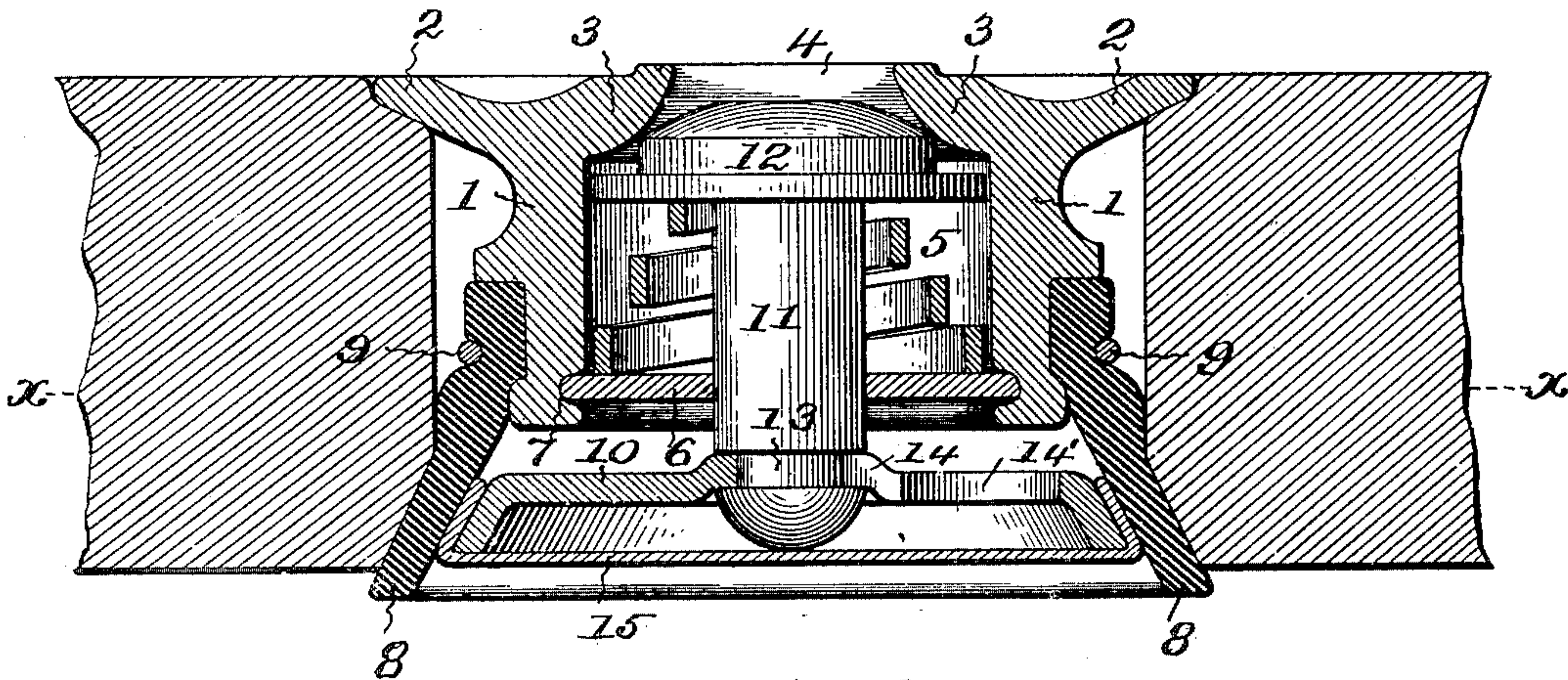
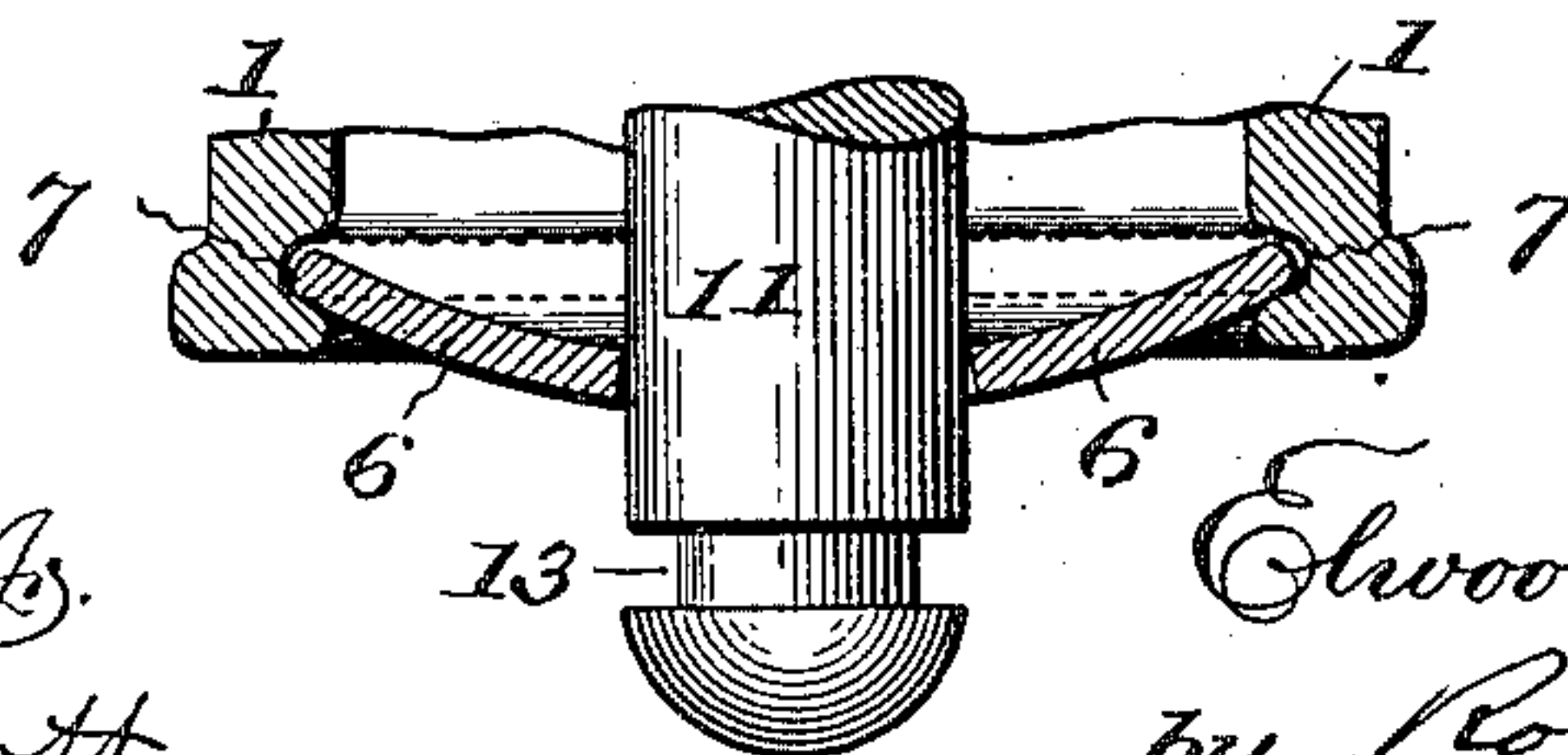


Fig. 5.



Attest:
John Anders Jr.
Henry A. Vott.

Inventor:
Edward C. Phillips,
by Robert Burns
Attorney

UNITED STATES PATENT OFFICE.

ELWOOD C. PHILLIPS, OF CHICAGO, ILLINOIS.

EXPANDING BUNG OR STOPPER.

SPECIFICATION forming part of Letters Patent No. 668,120, dated February 12, 1901.

Application filed September 29, 1900. Serial No. 31,588. (No model.)

To all whom it may concern:

Be it known that I, ELWOOD C. PHILLIPS, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Expanding Bungs or Stoppers, of which the following is a specification.

This invention relates to that type of expanding bungs or stoppers for barrels and other like containing vessels in which the expansion of the bung is effected by a spring.

One object of the present improvement is to provide a simple, durable, and efficient construction of an expanding bung or stopper which is adapted for ready and convenient application and removal and which also affords a perfect and substantial closure for the barrel or other opening to which it is applied.

Further objects of the present improvement are to provide a simple and efficient construction of parts whereby the attachment and detachment of the expanding head of the bung or stopper can be readily effected and which will also afford a simple and efficient provision against the usual corrosion of the inner surface of the expanding head and which has been a serious defect with the ordinary expanding bung heretofore used for sealing beer and other barrels.

I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a central sectional elevation of a bung or stopper embodying the present invention, the parts being shown in their unexpanded position and with the manipulating pliers in place to hold such parts in their unexpanded condition; Fig. 2, a central sectional elevation of the same with the parts in their normal expanded condition; Fig. 3, a detail horizontal section at line *x x*, Fig. 2, the yielding packing-skirt being removed; Fig. 4, a detail plan view of the expanding head of the bung, illustrating the attaching means thereof; Fig. 5, a detail sectional elevation illustrating the manner of assembling the bung parts together; Fig. 6, a similar view illustrating the assemblage of the parts of the expanding head of the bung.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 represents the rigid body portion of the bung or stopper, which in the preferred construction will comprise a main cylindrical portion the interior cavity of which is adapted to contain the spiral actuating-spring and the connection between the same and the expander-head of the bung, while its exterior is formed with a circular recess for the attachment of the flexible expanding skirt or closure-ring of the bung and with a marginal top flange 2, by which the insertion of the present bung into the barrel-opening is limited.

3 is an inwardly-projecting marginal flange at the upper end of the interior cavity of the main bung portion 1, forming a central contracted entrance-orifice 4 to such cavity. The inner face of such flange is beveled, as shown, for the purpose hereinafter set forth.

5 is the spiral spring by which the actuation of the bung parts to their normal expanded position is attained. Such spring is preferably of a cone shape, as shown, so as to be capable of a very extended range of compression.

6 is an abutment-spider for the support of the lower end of the spiral spring 5. Such spider in my preferred construction is sprung into the internal annular recess 7 at the lower end of the main body portion 1 of the bung in manner illustrated in Fig. 5 to attain a permanent attachment between the parts. Any other usual and well-known means of attachment may be used instead of that above described without departing from the spirit of this part of my present invention.

8 is the annular flaring skirt or elastic closure-ring of the present construction, secured at its upper end to the exterior of the main bung portion 1 by means of a confining-wire 9 or other usual attaching means. In some cases the annular skirt 8 may be closed at bottom, where the particular application of the present invention would suggest such particular form of the closure-skirt.

10 is the rigid expander head or ring, formed with a flaring margin adapted to fit the flaring interior of the closure-skirt 8 and provided with a central shank 11, passing through and guided by the abutment-spider 6 and through the spring 5 and provided at top with a head or enlargement 12, which rests upon the up-

per end of the spring 5 and has abutment against the marginal flange 3 in the normal position of the parts to limit the upward movement of the expander-head 10 and the
5 other vertically-moving parts of the bung.

In my preferred construction, as illustrated in Figs. 1, 2, and 4 of the drawings, the expander-head 10 is made detachable from its central carrying-shank 11 for the purpose of
10 removal, repair, and replacement by the following formation of the parts: 13 is an annular groove or recess at the lower end of the carrying-shank 11, and 14 is an elongated slot extending radially from the center of the
15 expander-head and ending in an enlarged orifice 14', which in the assemblage of the parts is adapted to permit the entrance of the end of the shank 11 and the engagement of the annular recess 13 with the narrower portion of the slot 14, after which the expander-head is moved laterally to its proper central relation with the other parts. In such improved construction the expander-head 10 will be in the form of a sheet-metal stamping, as shown, and the lower end of the same
25 will be made fluid-tight by means of a cap-disk 15, preferably of non-corrodible metal, permanently secured in place by being flanged or beaded upon the tapering margin of the expander-head, as illustrated in Figs. 1, 2,
30 and 6, and as so constructed the face of the expander-head engaging the flexible closure-skirt 8 will be formed by a layer of non-corrodible metal to impart greater durability to the parts.
35

In use the expander-head 10 will be forced downward to allow the expanding skirt or elastic closure-ring 8 to assume its contracted condition and allow a ready insertion or
40 removal of the expanding bung into or from the barrel-hole or other opening. It is very material to the practical operation of the present spring-bung mechanism that the movement of the expander-head be longitudinal with the axis of its carrying-shank and that no turning strain be exerted on the parts, and accordingly a material feature of the present invention consists in means whereby
45 such longitudinal movement of the expander-head is attained with an entire absence of any turning strain.
50

In Fig. 1 I illustrated in position an operating hand-pliers specially adapted for use in connection with my improved construction
55 of bung, as heretofore described, and, as shown, said pliers consist of a pair of substantially counterpart members 16 and 17, pivoted together near their lower ends and having outwardly-curved jaws 18 and 19 at their lower ends that are adapted to be inserted through the contracted upper orifice 4 of the main bung portion to engage the beveled under surface of the inturned marginal flange 3 of such main bung portion, as clearly illustrated in Fig. 1.
65

With the construction above described the operator grasping the upper ends or handles

of the pliers can by the movement of such handle ends together cause the outwardly-curved jaws to separate, and in so separating
70 the points of the said jaws will ride down the inclined face of the flange 3, while the heels of said jaws will press against the upper end of the head 12 of the carrying-shank of the expander-head to force the bung parts into
75 the open or unexpanded condition, as illustrated in Fig. 1.

With the described construction the pliers afford a convenient and reliable means whereby the bung can be held and handled in the
80 various operations of inserting, adjusting, and removing the bung.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—
85

1. In an expanding bung or stopper, the combination of a main body portion formed with a spring-containing cavity and an inturned rim at the upper end of such cavity to afford an abutment for the operating implement, an actuating-spring arranged in said cavity, an elastic closure-skirt secured to the main body portion, a movable expander-head, a carrying-shank for said expander-head provided with a head or enlargement on its upper end adapted to engage the upper end of the actuating-spring, and means for imparting vertical movement to said expander-head and carrying-shank by engagement between the aforesaid inturned rim and the headed shank
90 of the expander-head, substantially as set forth.
95
100

2. In an expanding bung or stopper, the combination of a main body portion formed with a spring-containing cavity and an inturned rim at the upper end of such cavity to afford an abutment for the operating implement, an actuating-spring arranged in said cavity, a spider-support for said spring secured to the lower end of the main body portion by means of an internal annular groove in the same, an elastic closure-skirt secured to the main body portion, a movable expander-head engaging said skirt and connected to said actuating-spring, and means for imparting vertical movement to said expander-head, substantially as set forth.
105
110
115

3. In an expanding bung or stopper, the combination of a main body portion formed with a spring-containing cavity and a beveled annular inturned rim at the upper end of said cavity to afford means of engagement for the operating implement, an actuating-spring arranged in said cavity, an elastic closure-skirt secured to the main body portion, a movable expander-head, a carrying-shank for said expander-head provided with a head or enlargement on its upper end adapted to engage the upper end of the actuating-spring, and means for imparting vertical movement to said expander-head and carrying-shank by engagement between the aforesaid inturned rim and the headed shank of the expander-head, substantially as set forth.
120
125
130

4. In an expanding bung of the character
herein described, the combination of a main
body portion, an elastic closure-skirt secured
thereto, an expander-head engaging said clo-
5 sure-skirt, and provided with a headed carry-
ing-shank, and a conical coiled spring sup-
ported by the main body portion and engag-
ing with the headed shank of the expander-
head and adapted to draw the expander-head
10 toward the main body portion, substantially
as set forth.

5. In an expanding bung of the character
herein described, the combination of the main
body portion, elastic closure-skirt, expander-
15 head, carrying-shank for such expander-head,
and an actuating-spring, the expander-head
being detachably secured to the shank by a
radially-extending slot having an entrance-

orifice at its outer end, and the shank formed
with an annular recess to engage with the 20
walls of such slot, substantially as set forth.

6. In an expanding bung of the character
herein described, the combination of the ex-
pander-head and its carrying-shank detach-
ably connected together, with a cap-disk of 25
non-corrodible material secured to its under
side by means of a flange that embraces the
active tapering periphery of said head, sub-
stantially as set forth.

Signed at Chicago, Illinois, this 17th day of 30
September, 1900.

ELWOOD C. PHILLIPS.

Witnesses:

HENRY A. NOTT,
ROBERT BURNS.