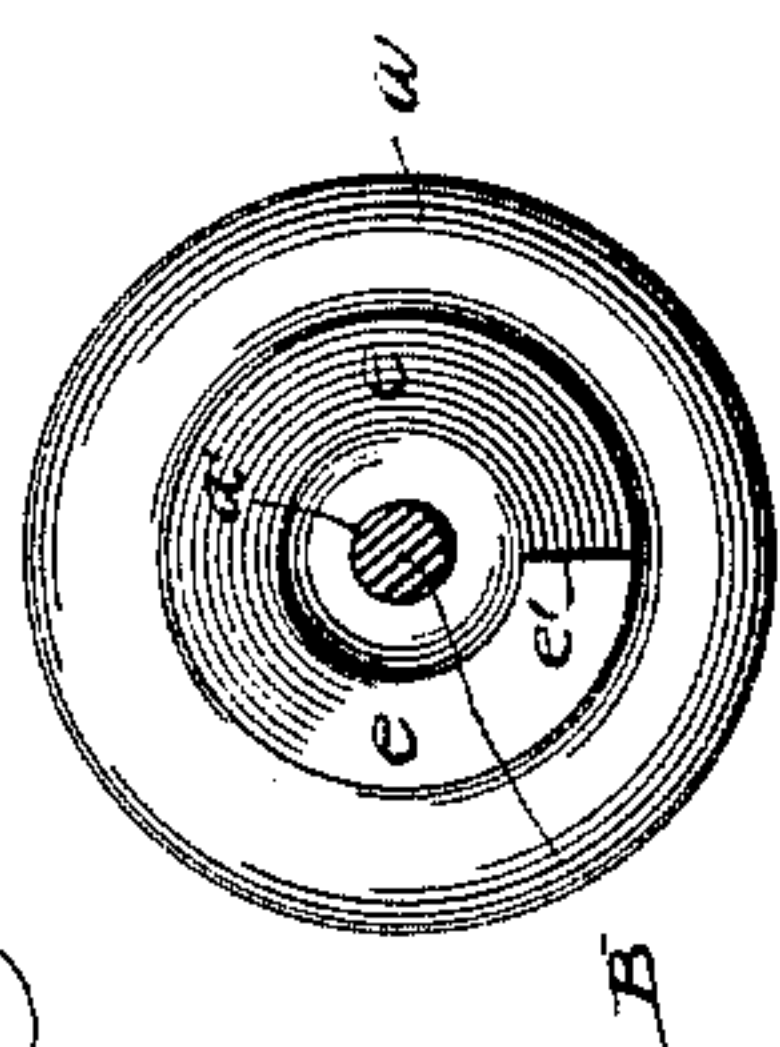
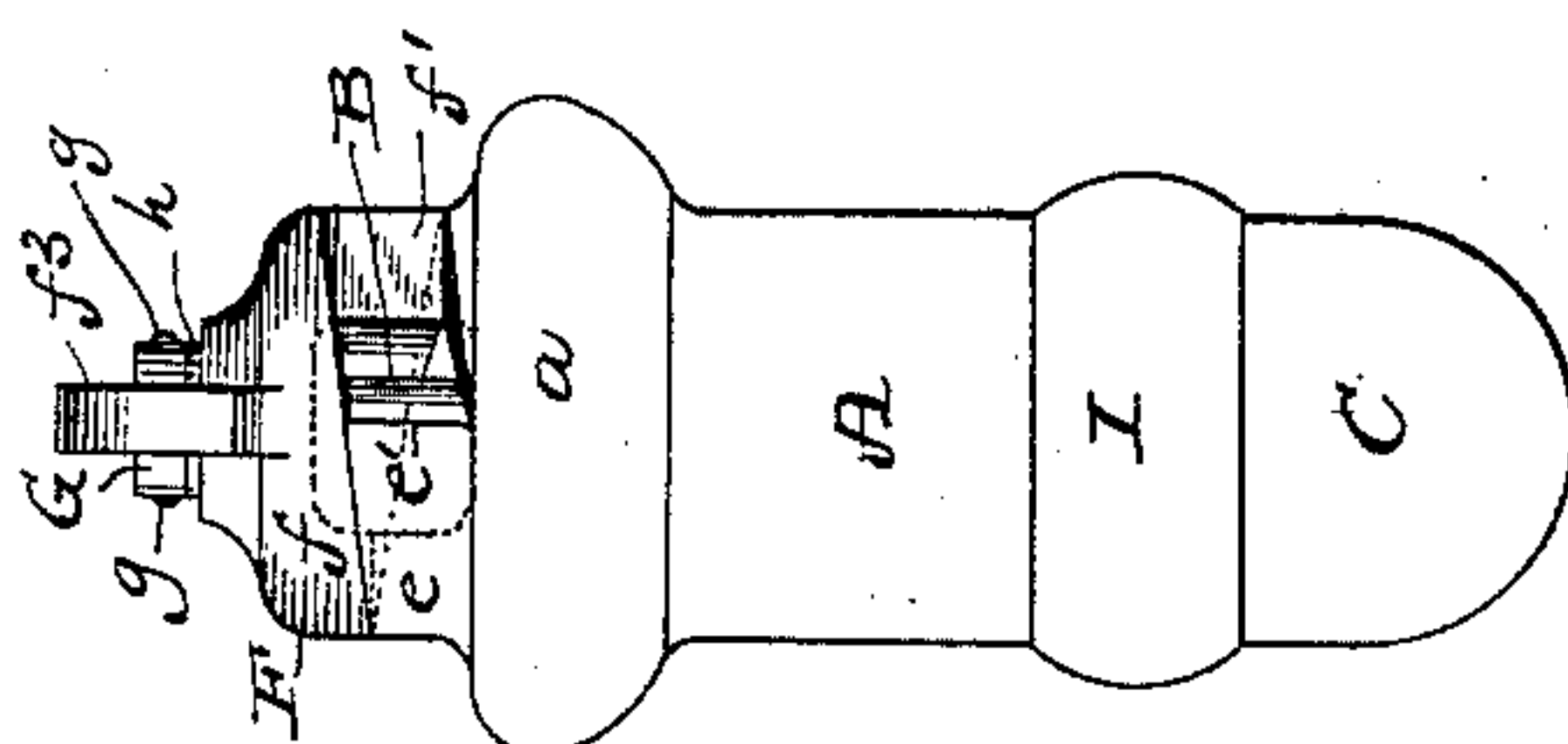
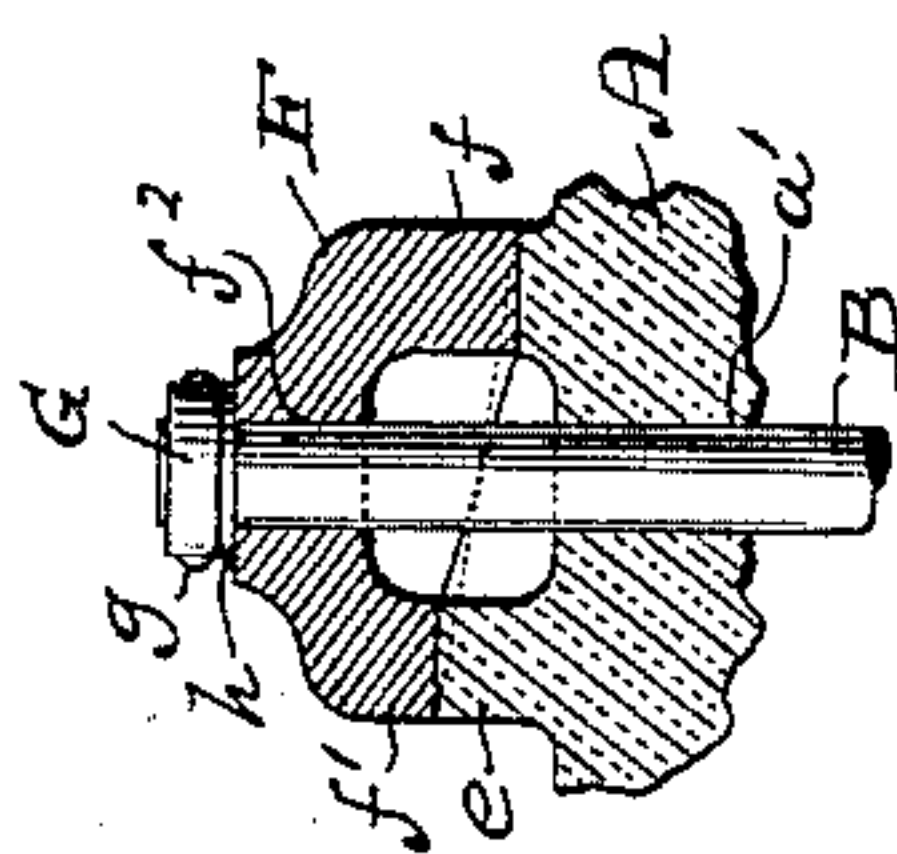


(No Model.)

A. ROEMER & F. W. ROLL.  
STOPPER FOR BOTTLES.

No. 436,569.

Patented Sept. 16, 1890.



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# UNITED STATES PATENT OFFICE.

ADOLPH ROEMER AND FRED W. ROLL, OF MILWAUKEE, WISCONSIN.

## STOPPER FOR BOTTLES.

SPECIFICATION forming part of Letters Patent No. 436,569, dated September 16, 1890.

Application filed April 25, 1890. Serial No. 349,464. (No model.)

*To all whom it may concern:*

Be it known that we, ADOLPH ROEMER and FRED W. ROLL, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Stoppers for Bottles, &c.; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to stoppers for closing the mouths or necks of bottles and similar vessels; and our invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described, and pointed out in the appended claim.

In order that our invention may be fully understood, we will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a view, partially in side elevation and partially in central transverse vertical section, of a stopper constructed in accordance with our invention. Fig. 2 is a plan view of the same with the cam-head removed and with the adjacent portion of the stem in horizontal cross-section. Fig. 3 is a side elevation of the stopper with its cam-head turned a quarter of a revolution from the position shown in Fig. 1, so as to compress the elastic gland. Fig. 4 is a central transverse vertical section of the cam-head and the upper part of the stopper, the upper portion of the stem being shown in side elevation.

The objects of our invention are to produce a stopper which can be easily inserted into and withdrawn from the mouths or necks of bottles, jars, and similar vessels, and which after such insertion can be readily expanded, so as to fit tightly in the neck or mouth, and thus effectively seal the same against the admission of air or the emission of liquid or gases from the vessel. A further object of our invention is to produce a bottle-stopper which will effectively close different sizes of mouths or necks of bottles and similar articles. These objects we attain by virtue of the construction which we will now proceed to describe.

Referring to the drawings, A designates the central or body portion of our improved stopper, said portion being usually of cylindrical form, but essentially of a form corre-

sponding approximately to the internal contour of the mouth or neck of the vessel to which the stopper is to be applied. The upper part of the body A is preferably formed or provided with a continuous flange or shoulder *a*, which limits the degree of insertion of the stopper, and a central longitudinal bore *a'* to receive a stem B.

C designates the base of the stopper, which preferably corresponds in form to the body A, and is provided with a central longitudinal socket *c* to receive the lower end of the stem B. At the point marked *b* the stem B is preferably screw-threaded to enter socket *c*, and a filling of plaster-of-paris or other cement, as indicated at *d*, is interposed between the lower threaded end *b* of the stem and the walls of the socket *c*, so as to firmly retain said stem therein.

Upon the upper end of the body A is formed a spiral cam *e*, inclining upward in a circular path and terminating in a shoulder *e'*, as shown.

F designates the head of the stopper, the under side of which has a spiral cam *f*, inclining downward in a circular path oppositely to that of the cam *e* of body A, and terminating in a shoulder *f'*, which at times abuts against the shoulder *e'* of said cam *e*. This head is also formed with a longitudinal bore *f<sup>2</sup>*, through which the upper part of stem B extends, and with wings *f<sup>3</sup>*, which are grasped by the user's finger and thumb in manipulating the stopper.

G designates a collar which surrounds the upper end of the stem B above the head F, and which is firmly secured to said head by one or more pins *g*, as shown. This collar serves to retain the head in position relative to the stem B and body A, and a washer *h*, which surrounds the stem B, is preferably interposed between the upper end of the head and the under side of the collar, said washer serving to take the wear from said head and collar.

I designates an elastic gland, which preferably corresponds in form to the body A and base C, and which surrounds the stem B and lies between the lower end of said body and the upper end of the bottom piece of the stopper. This gland is preferably of rubber,



but is permissibly of any elastic and expandible composition.

The operation of our improved stopper is as follows: Before the stopper is inserted into the mouth or neck of the bottle, jar, or other vessel the cam-head F is brought into such position that the shoulders  $e' f'$  are in contact, as shown in Fig. 1, and the stopper is extended to its fullest length. The body portion A is now inserted into the mouth or neck of the vessel, generally as far as the flange or shoulder  $a$  will permit, and the cam-head F is turned by the wings  $f^3$  so as to carry the shoulders  $e' f'$  away from each other. This movement causes the spiral cam-surfaces  $e f$  to ride upon each other and forces the body and base toward each other, which compresses the elastic gland I longitudinally, and consequently expands it laterally, thus bringing the outer sides of the gland closely against the inner surface of the mouth or neck of the vessel and tightly closing the same. A reverse movement of the head F forces the body A and base C away from each other and permits the gland I to contract laterally, thus enabling the stopper to be easily withdrawn from the neck or mouth of the vessel.

It is obvious that various alterations in details of construction may be adopted without involving any departure from the essential spirit of our invention. For example, the pins  $g$  may be dispensed with, and the upper end of stem B may simply be upset to retain the ring G in place. The pins are preferable when the parts of the stopper are constructed of porcelain, glass, or other brittle material. Furthermore, the stem B may extend entirely through the base C and have its lower end upset to retain the base in position. In this instance the upper end of stem B may be screw-threaded to retain the ring G, or the arrangement may be reversed, the upper end of

the stem being upset and the lower end receiving the nut.

The body A, base C, and cam-head F may be of any suitable material—such as metal, wood, or otherwise—adapted to perform the functions required of them.

Instead of screw-threading the lower end of the stem B or securing it by plaster-of-paris or other cement, as described, we may secure the same to the base C by inserting the lower end of the stem (which may be squared or flattened or have anchor-shaped or other projections thereon) in the clay or other material of which the base C is formed while in a plastic state, so that the stem and base will be rigidly secured together when the base sets or hardens.

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

An improved bottle-stopper consisting of a body portion having a continuous spiral cam upon its upper end, a stem extending longitudinally through the body, a base secured to the lower end of the stem, an elastic gland surrounding the stem and interposed between the body and base, and a head secured to the upper end of the stem and having finger-pieces, and provided also upon its under side with a continuous spiral cam operating by engagement with the cam of the body portion to laterally expand and contract the gland, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

ADOLPH ROEMER.  
FRED W. ROLL.

Witnesses:

H. G. UNDERWOOD,  
JNO. L. CONDRON.