

(No Model.)

J. BAEUMLE.  
BUNG.

No. 482,713.

Patented Sept. 20, 1892.

Fig. 1.

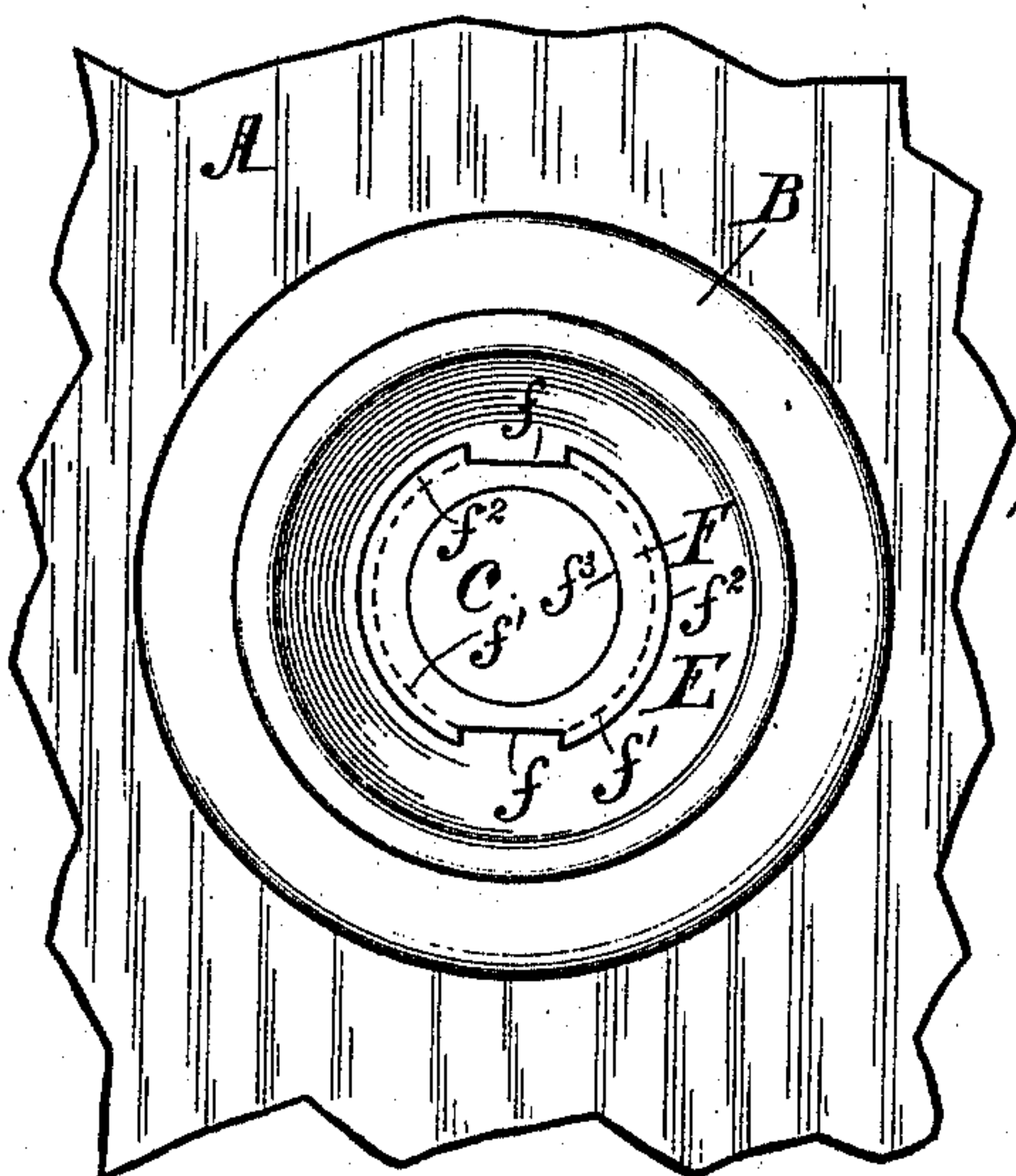


Fig. 2.

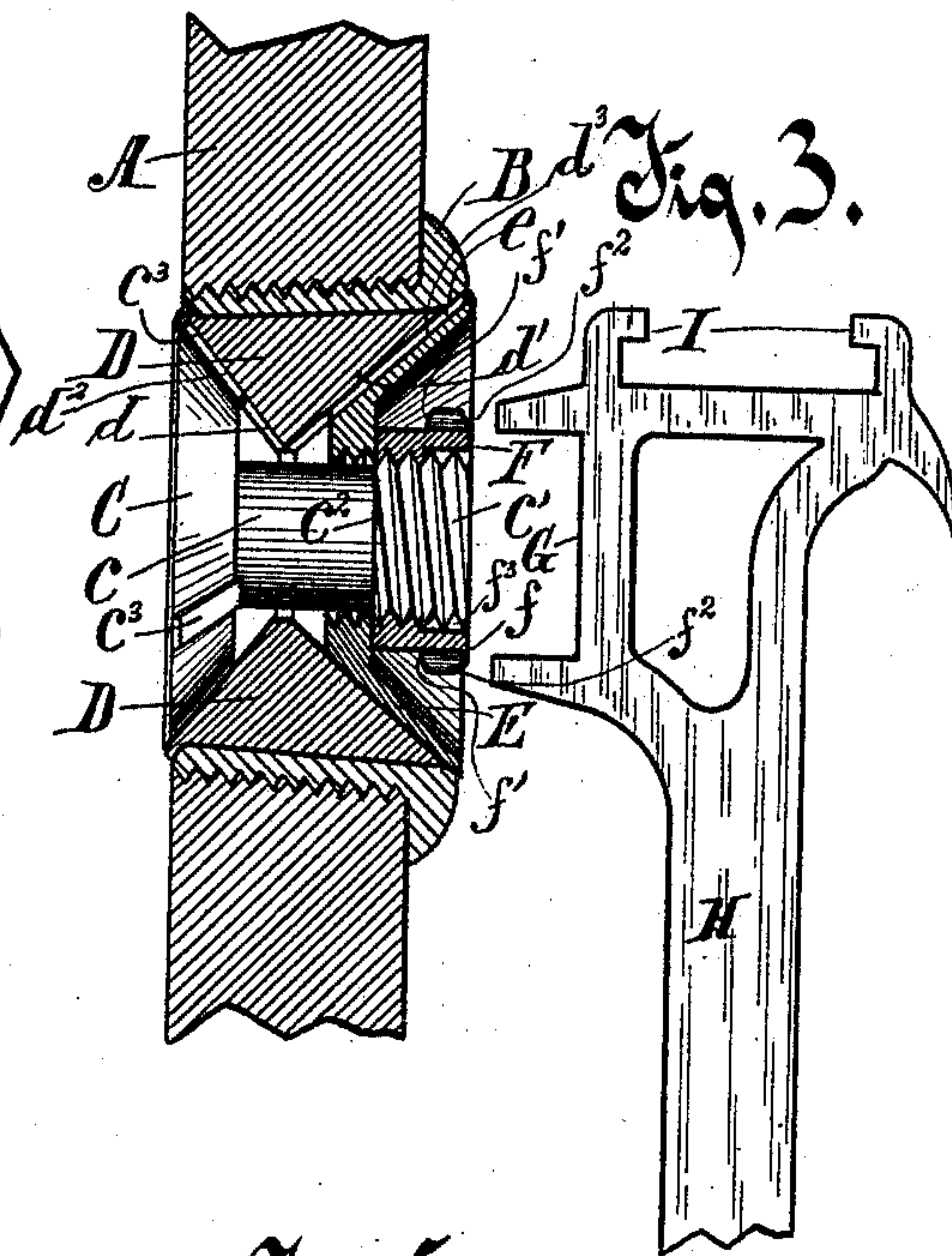


Fig. 3.

Fig. 4.

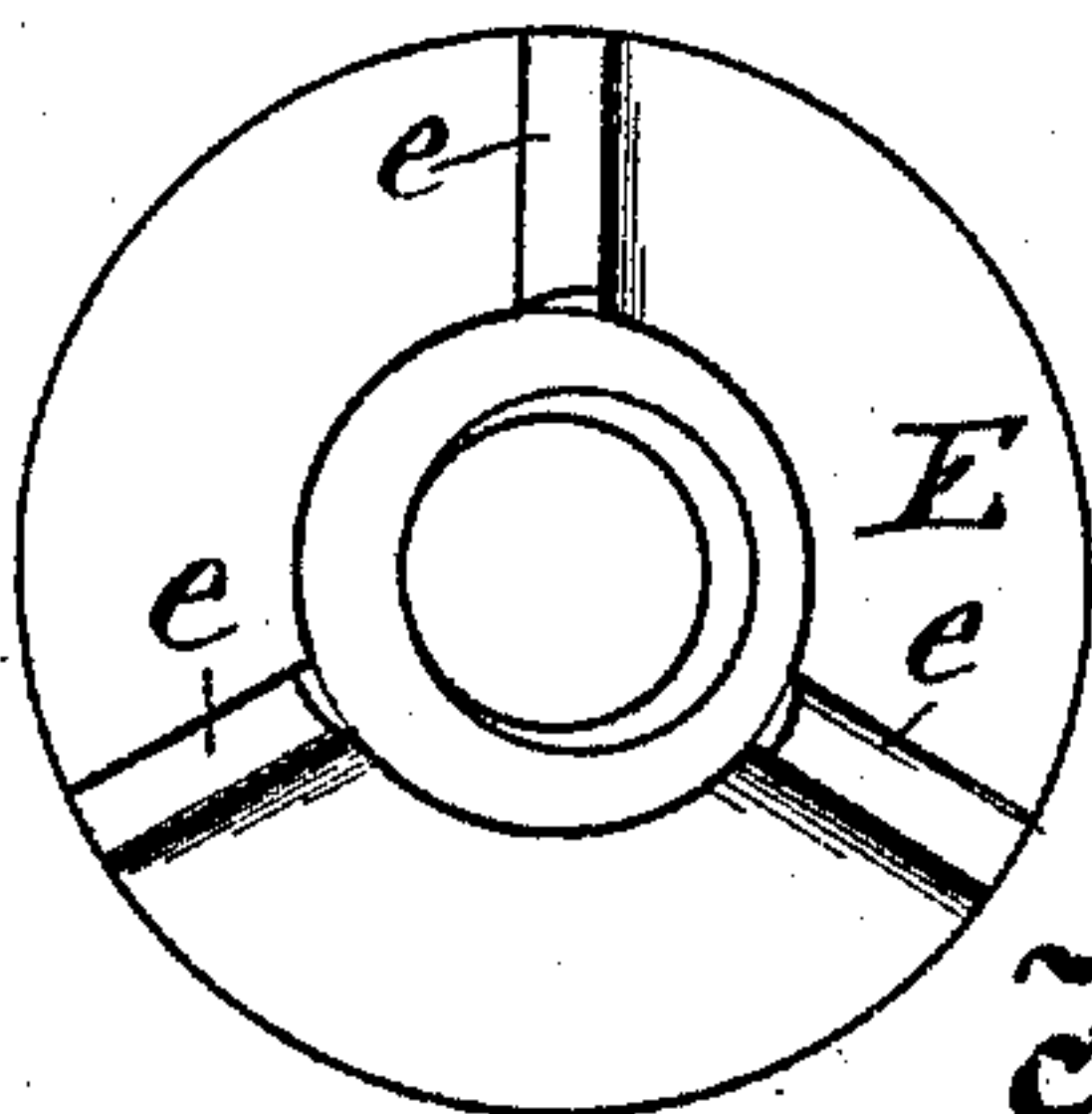


Fig. 5.

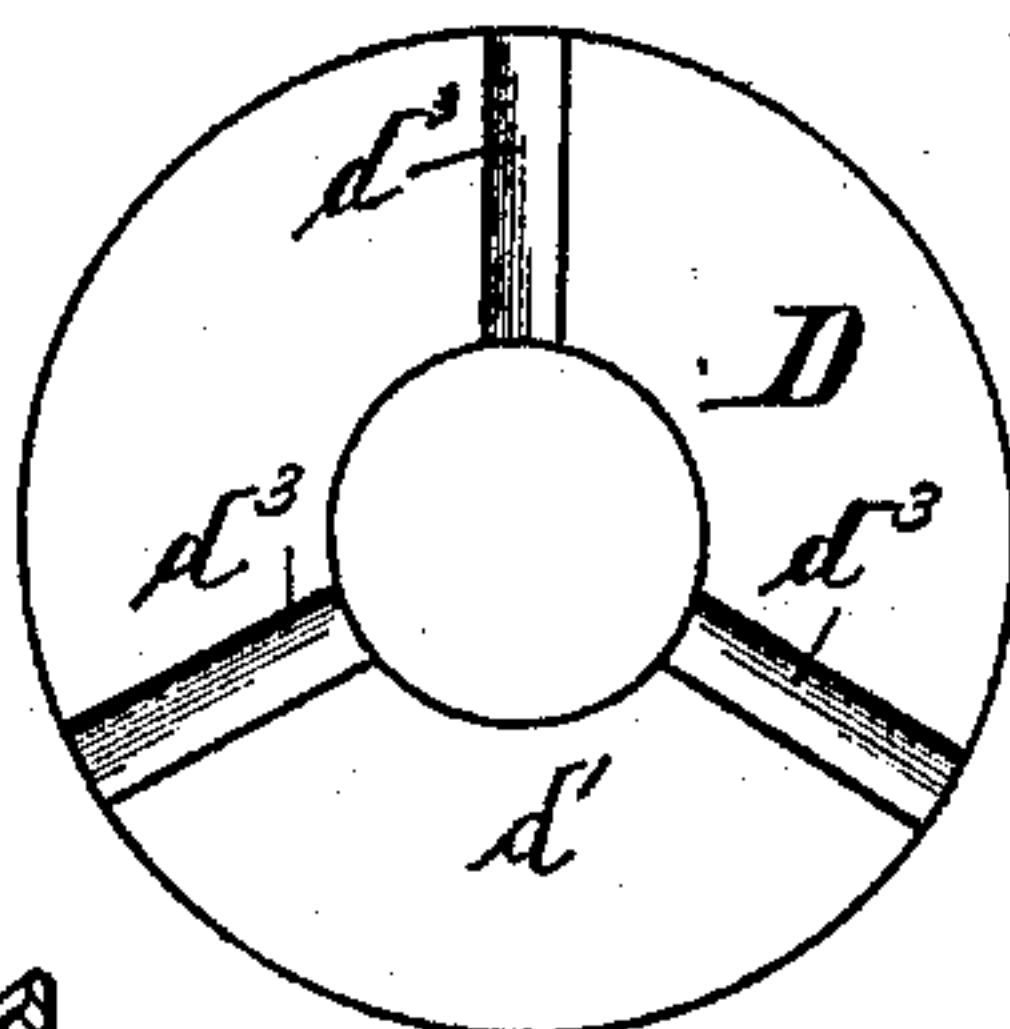
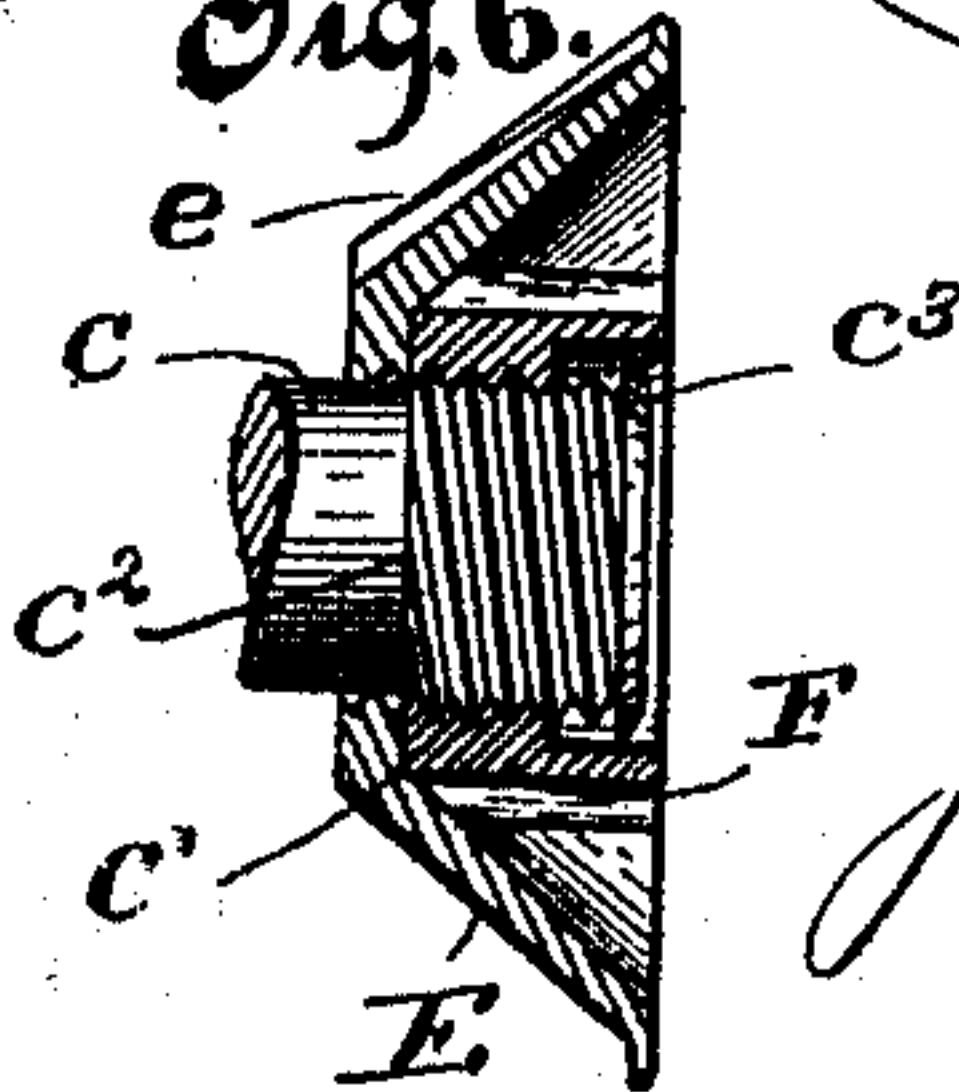


Fig. 6.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN BAEUMLE, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-FOURTH  
TO MICHAEL POETZEL, OF SAME PLACE.

## BUNG.

SPECIFICATION forming part of Letters Patent No. 482,713, dated September 20, 1892.

Application filed January 27, 1892. Serial No. 419,453. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BAEUMLE, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Bungs, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has reference to improvements in bungs for barrels, casks, and the like; and its general object is to provide a strong and durable bung adapted to be readily inserted in and removed from a bung-hole, and so constructed as to be capable of being expanded or packed air-tight against the bushing, together with means for inserting, tightening, and removing the bung readily and in a convenient manner.

With the above object and others in view the invention consists in the improved construction and combination of parts, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 represents a fragment of a stave of a barrel in which my improved bung is inserted. Fig. 2 is a transverse section through the center of Fig. 1. Fig. 3 is a view of a portion of the spanner and hook used with my bung for tightening or releasing it in the bung-hole and for removing it therefrom. Fig. 4 is a view of the inner end or face of the collar. Fig. 5 is a view of the outer end of the expansible ring, and Fig. 6 is a sectional view through the frusto-conical collar and the nut, showing only a fragment of stem *c* and clearly illustrating the outer overturned end of the latter.

Like letters of reference indicate corresponding parts throughout the several views. Referring to the drawings, the letter A indicates a stave of a barrel in which an ordinary metallic bushing B is inserted in the screw-threaded bung-aperture thereof.

My improved bung consists of a disk C, having its outer surface of substantially truncated conical form and extending centrally and outwardly therefrom a stem *c*, said stem being provided at its outer end with screw-threads *c'*. These threads, however, extend inwardly only a short distance, so as to leave the greater portion of the stem non-screw-threaded. It

will be noticed that this plain portion between the screw-threaded outer end and the truncated cone is less in circumference than said screw-threaded end, whereby an annular shoulder *c<sup>2</sup>* is formed, the function of which will hereinafter appear.

Adapted to be supported upon the disk C and to partly surround stem *c* is a ring D of rubber or other elastic material, of a form substantially cylindrical upon its outer surface, and its inner surface beveled from the ends inwardly, forming tapering portions *d* and *d'*, the former of which registers with disk C.

The letter E indicates a collar of frusto-conical shape, the truncated apex of which being provided with a screw-threaded aperture, which is adapted to engage the screw-threaded end of the stem until passing clear of the same, when it fits loosely around said stem and is then capable of a slight play between the shoulder *c<sup>2</sup>* and the conical surface *d'* of the ring D. A nut F turns on the threaded portion of the stem and bears against the outer surface of the truncated apex of collar E, said collar being recessed or countersunk, so as to admit the nut G into the recess a sufficient distance that the outer surface thereof is normally within the plane of the outer edge of the collar. This nut is provided at diametrically-opposite points with longitudinal grooves *f f*, adapted to receive therein the prongs of a spanner G, forming part of a tool H, by which the nut may be rotated on the stem. Said nut is also provided with recesses or under-cuts *f' f'*, the continuity of the recesses being broken by the intersecting grooves *f f*. These under-cuts form semicircular ears or shoulders *f<sup>2</sup> f<sup>2</sup>*, adapted to be caught by hooks I of the tool H, whereby the bung may be drawn from the bushing when the pressure of the expansible ring D against the same is relieved by the unscrewing of nut F. The recesses or under-cuts *f' f'* are of course provided for the passage of the hooks I and the reception of the prongs of the spanner. The countersunk recess in collar E is of such greater diameter laterally than the nut and the ear thereon as to provide ample annular space about the nut for the shanks of the hooks I to pass



around the ears on the outside thereof when the hooks are below and in engagement with the ears on the nut. When the nut is in engagement with the threaded extremity of the stem  $c$ , it is desirable that some means should be provided against the nut working outwardly off the threads. To this end, therefore, I provide the head of said nut with an annular recess  $f^3$ , into which the extremity of the stem is overturned or upset, as indicated at  $c^3$ , Fig. 6. The ring D is of such size as normally to fit easily in the bushing B, while the disk C is slightly less in diameter than the diameter of the ring. The collar E is of metal, and its outer edge is preferably slightly greater in diameter than the diameter of the aperture of the bushing B, so that when the bung is in place the collar will rest at its outer edge slightly on the bushing, and will thus cover the rubber completely at its outer edge. This flaring form of the collar adapts it to fit into the ordinary metal bushing in common use, having a central circular aperture of uniform diameter through the bushing, and even to fit bushings of varying sizes as commonly constructed. The tapering form of this collar E and its diameter greater than the aperture of the bushing, whereby it is adapted to fit on the latter and make a tight joint therewith at the external end of its orifice, overcome a serious and expensive difficulty that exists in using bungs having an annular shoulder or flange arranged to enter a corresponding annular recess in the bushing, which difficulty is that in coating and recoating the inner surface of the cask or barrel with pitch, as is commonly done in pouring the excess of liquid hot pitch from the cask or barrel through the aperture of the bushing, the pitch enters and sets in the annular recess in the bushing in which the annular flange on the collar of the kind referred to should seat itself when applied to the bushing, thus preventing the collar from coming to its seat until the recess of the bushing is cleared of the pitch, and it requires the use of a special tool therefor and much labor to remove the clinging and hardened pitch from this recess. The tapering form of my collar adapts it for and renders it capable of being brought to its seat even in the presence on the bushing of a limited amount of pitch, or at most after the use on the bushing of the common tapering reamer or clearing-tool put quickly into the bushing without care and turned quickly around thereon without the aid of the tool adapted for and to be used with the care and exactness required for clearing an annular recess of difficult access when full of pitch even by a tool adapted therefor.

From the drawings it will be seen that the outer face of disk C is provided with a series of radial ribs  $c^3$ , which are adapted to take into corresponding grooves  $d^2$  in the inner surface  $d$  of ring D. The collar E is likewise provided with similar ribs  $e$ , which take into

corresponding grooves  $d^3$ , arranged in the outer beveled surface  $d'$  of ring D. When the collar is being adjusted to place after it leaves the screw-threads, the radial ribs thereof are made to engage their complementary grooves. If preferred, these ribs may be beveled, as indicated in the drawings, so as to avoid all danger of their engaging the grooves before the collar leaves the screw-threads, and thus impeding the turning of said collar. The bevels of the ribs will ride freely past the grooves without engagement, and after the collar is clear of the threads the ribs and grooves may then be made to register.

Prior to applying my improved bung it will be understood that the nut is not screwed down upon the collar sufficiently tight to expand the elastic ring. In view of this no trouble is experienced in inserting the bung in place. After adjustment, however, the screw F is turned on the stem  $c$  against the collar E, which has the effect of drawing the conical surfaces of the disk C and the collar E toward each other, thus simultaneously exerting a pressure upon the elastic ring. The result of this is of course to spread the ring outwardly against the bushing, thus making a perfect liquid and air-tight closure of the bung-hole.

It is of course apparent that it would be undesirable for the disk carrying the stem  $c$  to revolve, inasmuch as should such occur during the rotation of the nut the latter will have no effect whatever upon the collar E, or, in other words, would fail to force the same tightly against the rubber ring. It is for this reason that I provide the radial ribs upon the disk C. I also provide the ribs upon the collar engaging the grooves  $d^3$  of the ring to hold said ring firm as the nut bears down upon the same.

It would frequently occur, if no means were provided for preventing the same, that after my improved bung had been applied to the barrel or cask the nut, either through failure to properly overturn or upset the end of the stem into the recess in the head of said nut or from various other causes, might become accidentally or designedly removed from the stem. In such a contingency the disk and stem, if the latter were of uniform diameter throughout, would immediately fall into the barrel or cask through the bung-aperture, and thus cause considerable trouble. The shoulder  $c^2$ , however, effectually prevents any liability of this kind, as should the nut in any manner work off or become removed from the threads of the stem the disk would only drop a slight distance until its movement was arrested by shoulder  $c^2$  engaging the bordering edge of the aperture of the collar.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a disk having a tapering peripheral edge provided with a rigid stem and a ring having tapering interior sur-



faces, of a collar loose on the stem, having a tapering periphery, the outer edge of which is adapted to bear on the bushing, and a countersunk tapering recess, a nut turning on the stem against the collar, and laterally-projecting substantially annular ears on the nut having recesses for a tool, the nut and the ears thereon being of less diameter than the countersunk recesses in the collar opposite thereto, so as to permit a hook-providing tool to be passed below and around into engagement with the ears for withdrawing the bung from the bushing, substantially as set forth.

2. In a bung, the combination, with a disk provided with a rigid stem and an elastic ring, of a collar loose on the stem, which collar is provided with a countersunk recess, a nut turning on the stem entirely within the countersunk recess of the collar, and an overturned head on the stem to prevent the removal of the nut therefrom, substantially as set forth.

3. In a bung, the combination of a disk having a central stem projecting from its interior face, said interior face provided with a series of ribs, an elastic ring seated upon said disk and provided with a series of complementary grooves to receive the ribs, a collar bearing against the outer side of the elastic

ring, and a nut turning upon the stem, substantially as set forth.

4. In a bung, the combination of a disk having its outer face of substantially truncated conical shape and provided with a stem extending centrally and outwardly therefrom, a frusto-conical collar surrounding loosely the stem and provided upon its interior surface with a series of ribs, an interposed elastic ring having tapering interior surfaces provided with grooves to receive the ribs of the collar, and a nut engaging the stem, substantially as set forth.

5. In a bung, the combination of a disk having a stem extending therefrom, said stem having its outer extremity enlarged and screw-threaded forming an annular shoulder, a collar loose on the stem below the annular shoulder, an elastic or yielding ring about the stem and interposed between the disk and collar, and a nut turning on the threaded extremity of the stem, substantially as set forth.

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

JOHN BAEUMLE.

Witnesses:

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C. T. BENEDICT.