

No. 742,071.

PATENTED OCT. 20, 1903.

S. SCHLANGEN.
BUNG BUSHING AND BUNG.
APPLICATION FILED OCT. 31, 1902.

NO MODEL.

Fig. 1.

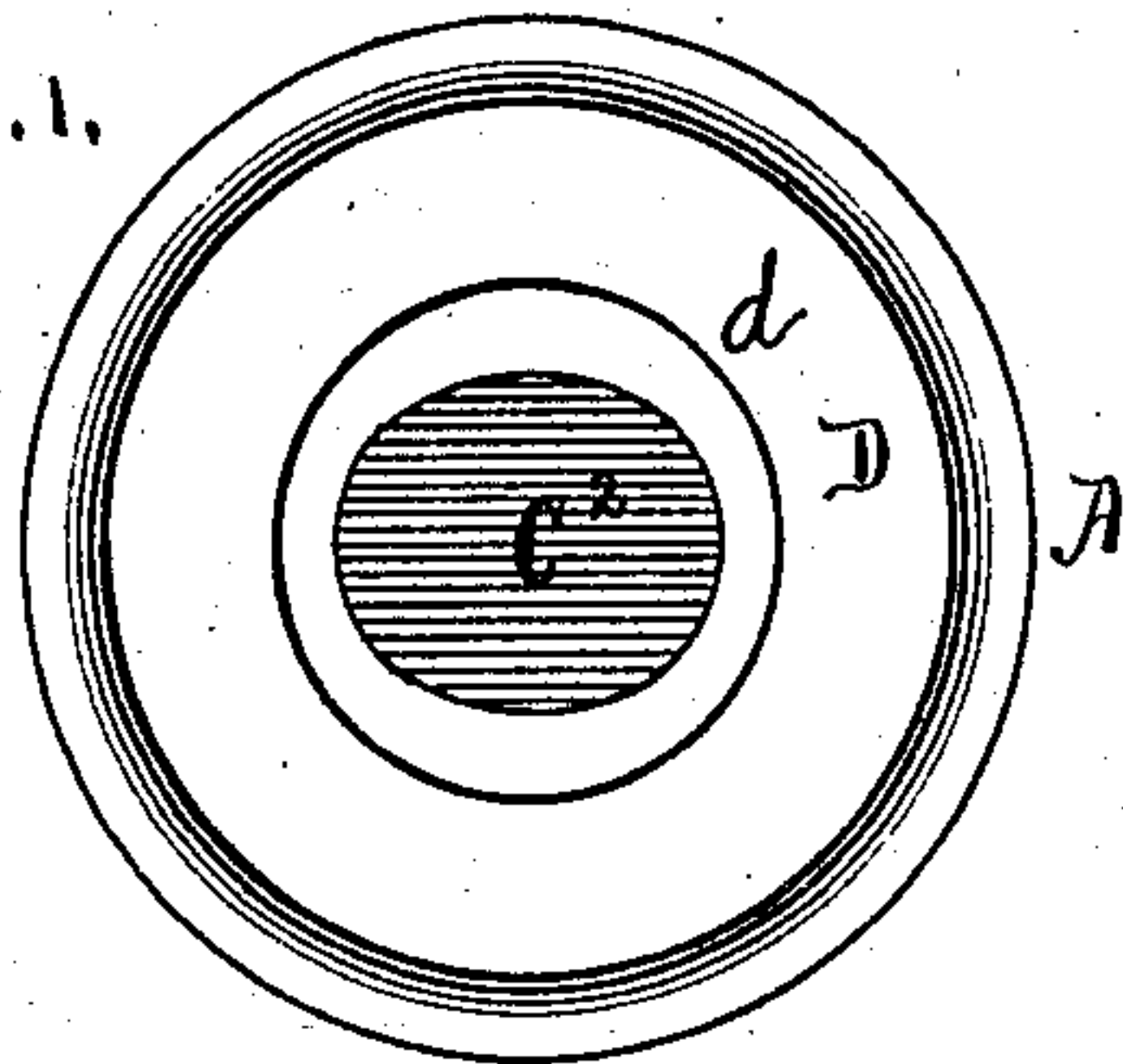


Fig. 2.

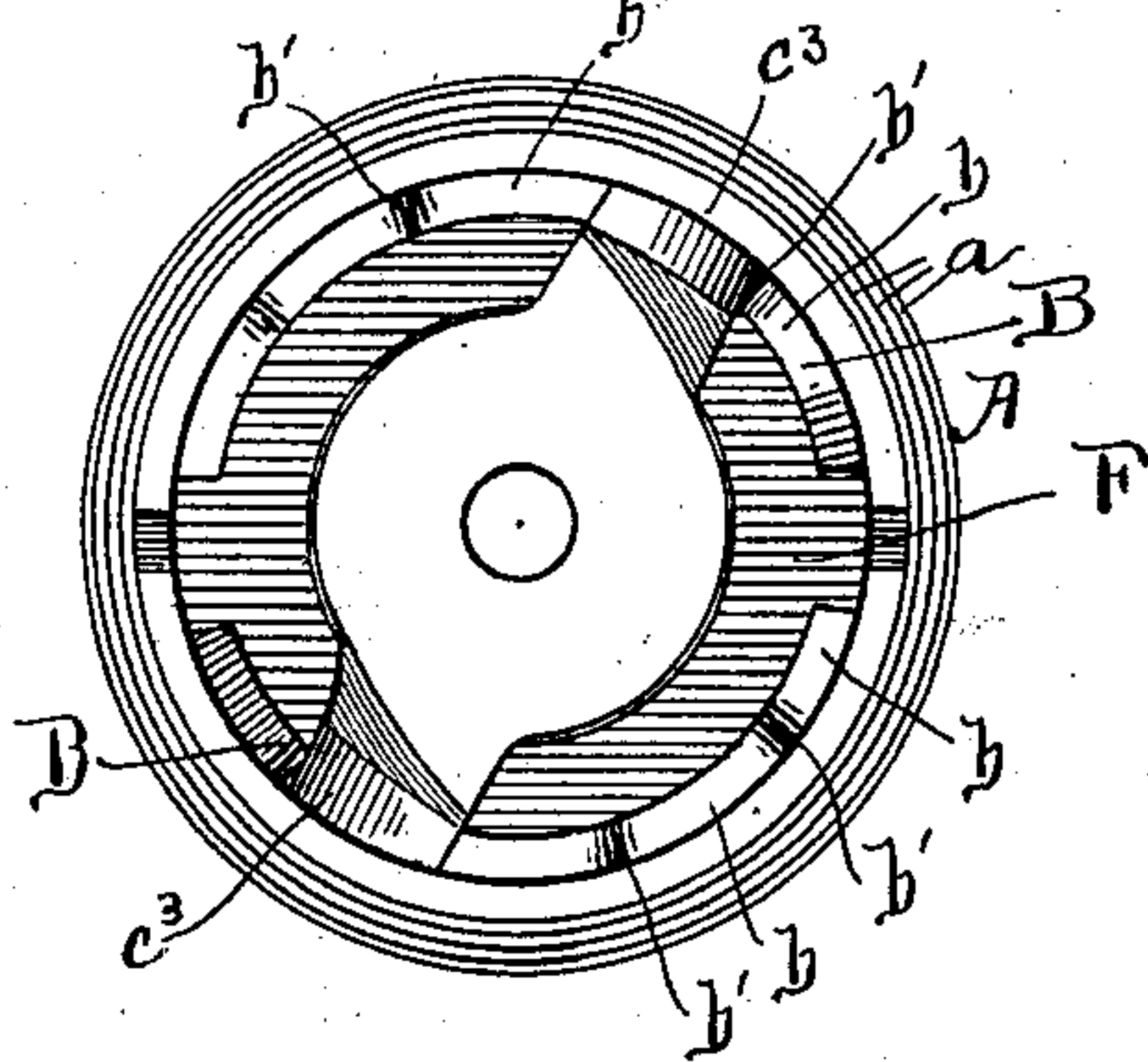


Fig. 3.

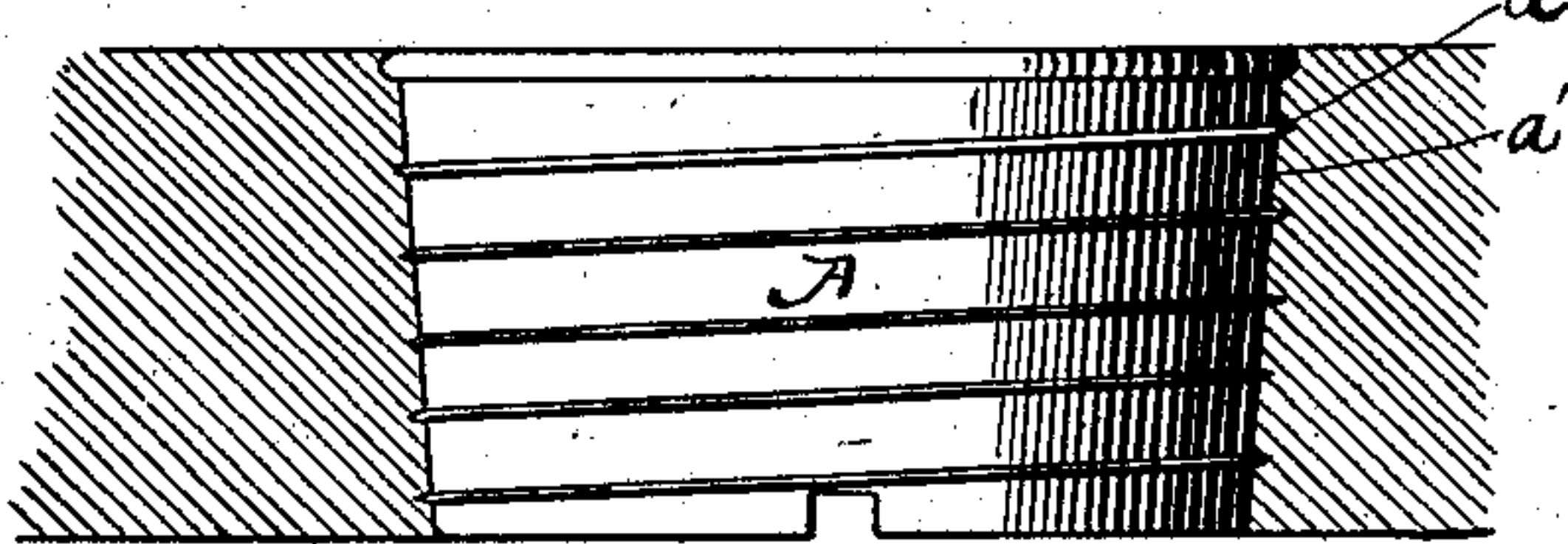


Fig. 4.

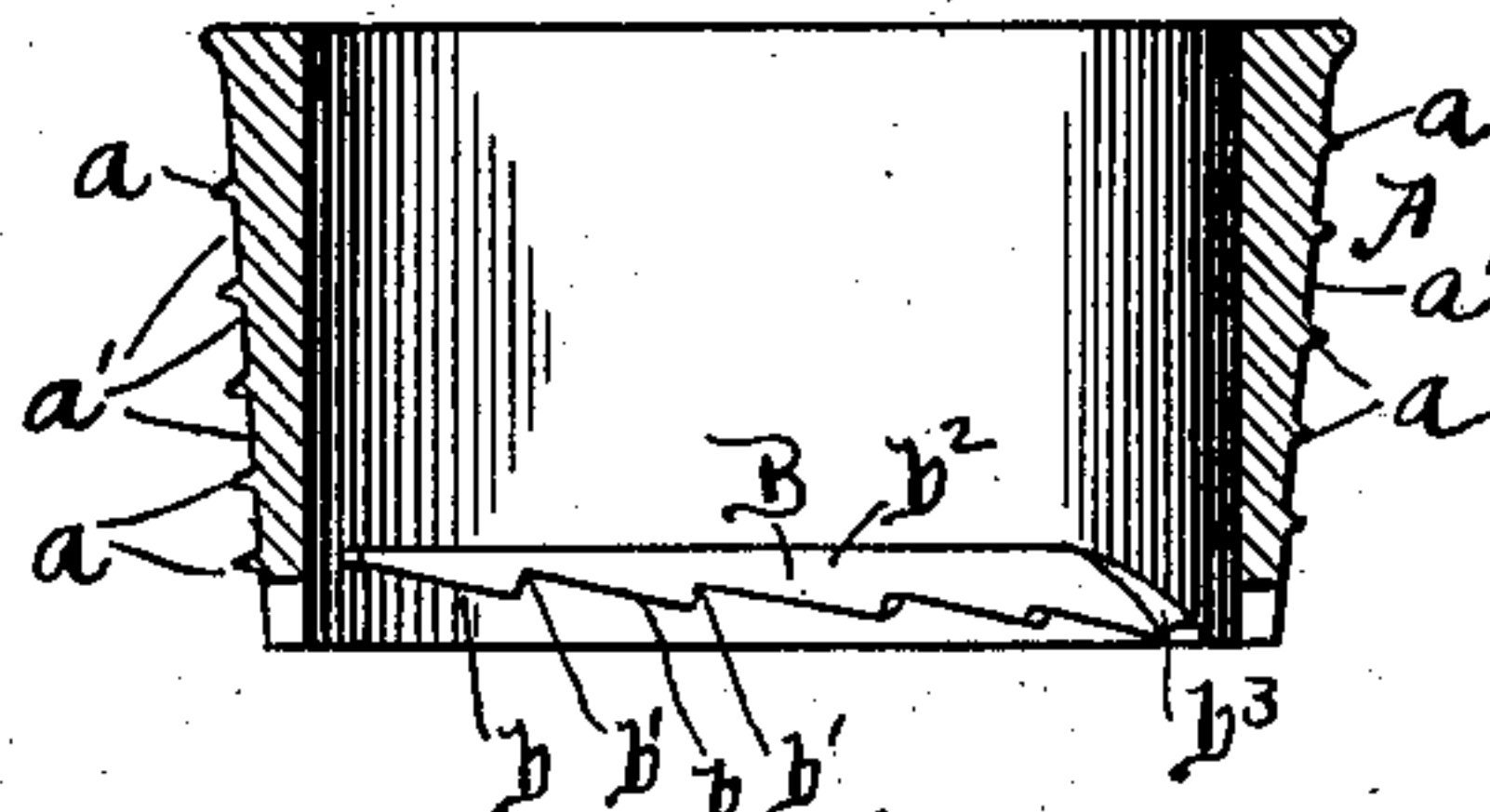


Fig. 6.

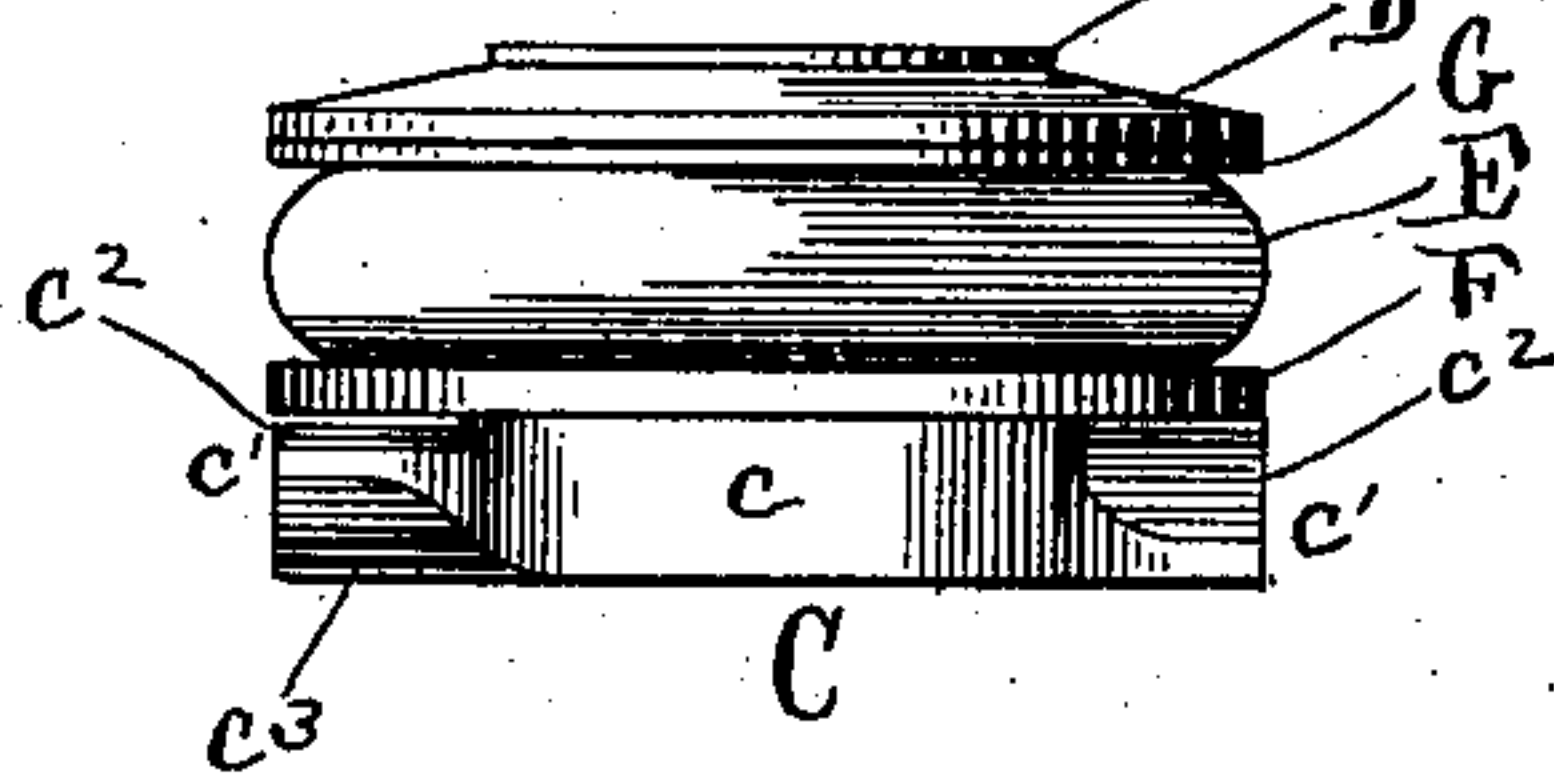
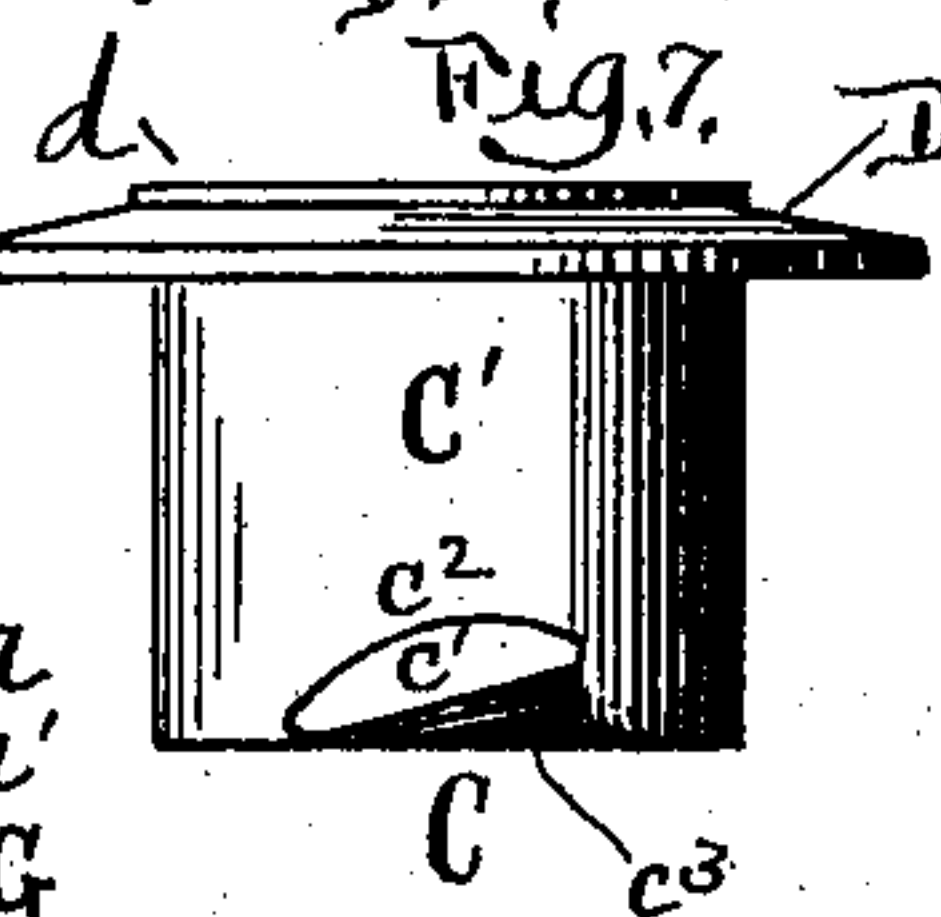
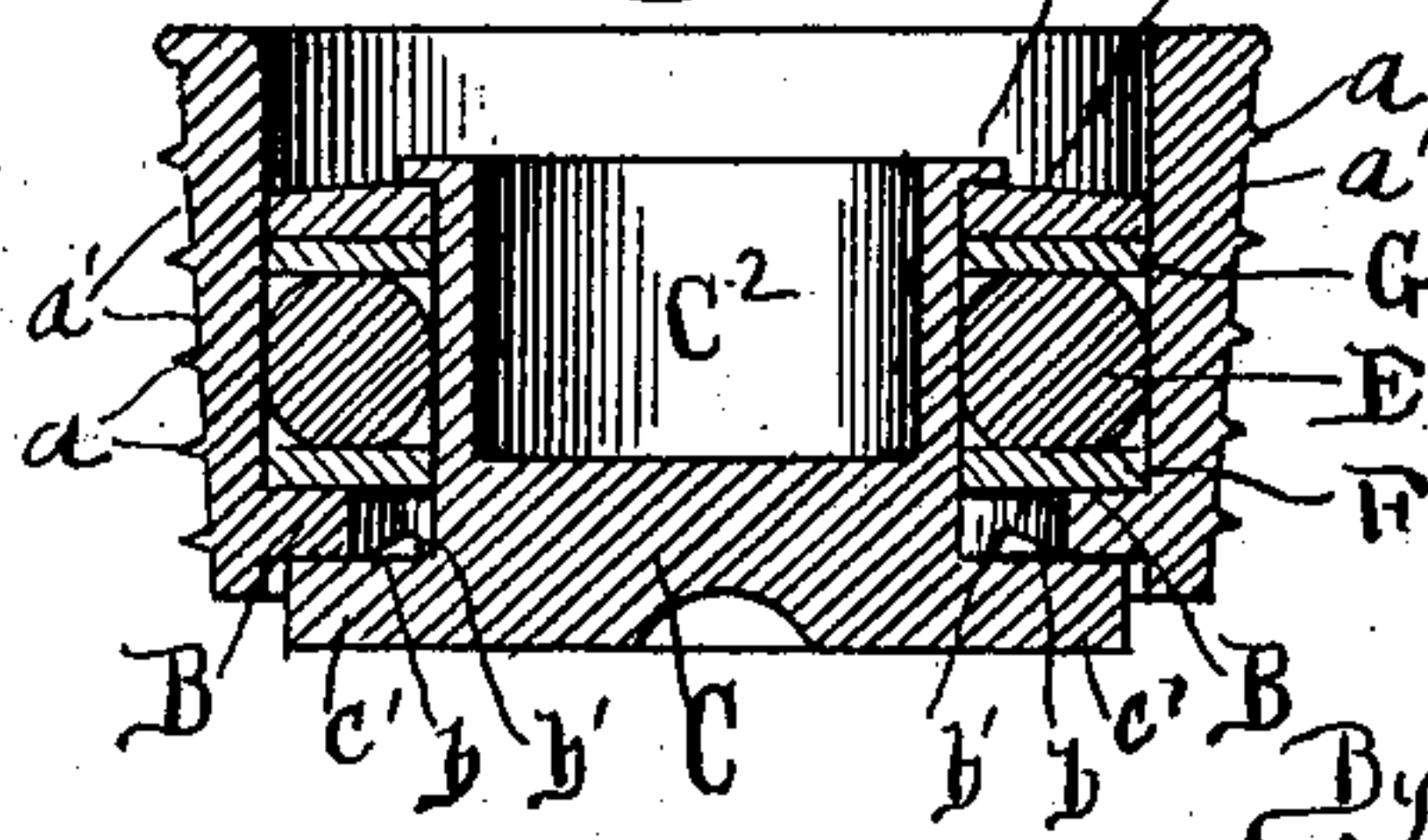


Fig. 5.



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UNITED STATES PATENT OFFICE.

SIMON SCHLANGEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO ECONOMICAL BEER BUNG COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

BUNG-BUSHING AND BUNG.

SPECIFICATION forming part of Letters Patent No. 742,071, dated October 20, 1903.

Application filed October 31, 1902. Serial No. 129,528. (No model.)

To all whom it may concern:

Be it known that I, SIMON SCHLANGEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bung-Bushings and Bungs, of which the following is a specification.

This invention relates to that type of bung-bushings and bungs shown and described in Letters Patent of the United States No. 526,464, dated September 25, 1894, and has for its objects to improve the construction of the bushing, more especially as to the form and arrangement of the interlocking ribs thereon, and dispensing with the flange around the upper end of the bushing, so as to enable the bushing to be inserted to its full depth, to improve the construction of the bung which coöperates with the bushing, more especially as to the compression of the packing in the bung, and to improve generally the construction and operation of the bushing and bung as a whole.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a top or plan view showing the bushing with the bung therein; Fig. 2, a bottom or under side view showing the bushing with the bung therein; Fig. 3, a side elevation of the bushing inserted in the stave of a barrel, the stave being in section; Fig. 4, a sectional elevation of the bushing; Fig. 5, a sectional elevation of the bushing and the bung in its locked position in the bushing; Fig. 6, an elevation of the bung; and Fig. 7, an elevation of the locking-bar of the bung, the socket thereof, and the upper retaining-plate.

The bushing A is preferably made of malleable iron, but could be made of other suitable metal or material. The wall of the bushing on the inside is straight and the exterior of the wall is tapered slightly from the top to the bottom and has thereon a screw formed of small threads or ridges a , with a wide space a' between the threads or ridges, making a screw which will draw the bung to place and at the same time not fracture or disrupt the fibers of the wood in entering the bushing into the stave, and by having a gradual ta-

per for the exterior of the bushing from the top to the bottom the bushing can be entered its full depth into the stave or other place of insertion for the top of the bushing to be flush with the top of the stave. The upper end of the bushing does not have a projecting flange, as in the usual construction of bushings, and by having the top unflanged, in connection with the taper of the exterior, the bushing, if it becomes loose in use, can be inserted farther into the opening therefor, so as to tighten the bushing in place, keeping a close joint against leakage around the bushing in use. At the lower end of the bushing on the inside are located opposite each other ledges B, each ledge having on its under face a series of depressions b and shoulders b' , forming, in effect, a stepped cam-face with the apex or narrow end of one ledge opposite the base or thick end of the other ledge with a space between the ends of the two ledges, and the base or thick end of each ledge is curved or inclined downwardly, forming a face b^3 , running from the straight face b^2 of the ledge, as shown in Fig. 4. The ledges at the lower end of the interior of the bushing are wholly within the bushing, so that the entering of the bushing to its full depth within the stave leaves the lower edge of the bushing without any projecting surface, as with a bushing having the cam-ledges below the end of the bushing proper.

The bung is constructed with a locking and draw bar C, having a central disk c , with projecting ends c' extending out from the center on opposite sides thereof, and each end c' has an upper round face c^2 and the under side of each projecting end is cut away, so as to form an inclined face c^3 , the faces standing in opposition relation to each other, as shown in Fig. 2. The bar C has formed therewith a hub C' , having a central opening C^2 and forming a support for the other elements of the bung as a whole and a socket by means of which and a suitable wrench the bung can be inserted and is forced into place, so as to tightly close the opening in the bushing. The hub C' at its upper end has fixedly secured thereto a retaining-plate D, and, as shown, the plate is attached to the hub by a flange d , but could be otherwise attached. The

bung has a packing E, preferably a rubber ring circular in cross-section, and this ring is located between a bearing-plate F and a washer G, the washer lying adjacent to and in contact with the under face of the retaining-plate. The parts composing the bung are assembled by placing the bearing-plate F on the hub C' and encircling the hub with the packing E, placing the washer G on the hub above the packing and then placing the retaining ring or plate D in position and securing it to the hub by flanging or riveting the end of the hub onto the retaining plate or ring, and when assembled the packing is located between the bearing-plate and the washer and the cross-locking and draw bar C is free to be turned without turning the packing by reason of the interposed washer between the retaining-plate and the packing. This feature of preventing the packing from turning in securing the bung in place is essential in the practical operation of the bung, as it prevents the packing from turning with the bung as a whole, and thereby becoming worn, abraded, or drawn apart, so as to destroy the packing for use.

The bushing is inserted in a barrel by threading it into the bung-hole of the barrel by means of a suitable wrench, as usual, and when inserted the bushing will extend the full depth of the stave with no projection of the locking-ledges beyond the end of the bushing. The bung is dropped into the opening of the bushing for the ends c' of the cross locking and draw bar to pass through the space between the ends of the interlocking ledges. A suitable wrench or other instrument is inserted in the socket of the bung and the locking and draw bar is turned in the direction for the upper faces c² to mount the first incline of the cam-face on the under side of the interlocking ledges and pass the first shoulder for the ends c' to engage at opposite sides with the passed shoulder, locking the cross-bar against return, except by the application of force, in the reverse direction to that for drawing the bung to place. The passage of the end c' of the locking-bar over the first incline of the cam-face of the ledges onto the second incline of the cam-face acts to draw the retaining-plate down, compressing the packing between the washer and the bearing plate or ring, which rests on the flat face b² of the ledges, and the rubber will be compressed and be forced outwardly against the wall of the hub C' and the inner face of the wall of the bushing, making a tight joint around the bung, and in addition the packing exerts the necessary force to hold the ends of the locking-bar in engagement against ready return, making the locking of the bung in place automatic with the compression of the packing to make a tight joint. The engagement of the ends of the cross-draw and locking bar with the second step or incline of the cam-faces of the ledges will at first expand the packing, so as to make a tight joint,

but as the bung is used more or less wear takes place, and when the wear is so great that the engagement of the cross-draw and locking bar is not sufficient to compress and expand the packing and make a tight joint the ends of the cross-draw and locking bar can be turned to engage with the next succeeding step or incline and shoulder of the cam-face, which operates to draw the retaining-plate farther down and add additional pressure to increase the compression and expansion of the packing, and this interlocking of the draw and locking bar with an advance step or incline of the cam-face can be continued until the limit of the steps or inclines is reached, if necessary, to maintain a tight joint by compressing and expanding the packing. The bung as a whole is withdrawn by turning the cross-draw and locking bar in a reverse direction, and the continued turning of the bar carries the ends c' around for the inclined faces c³ to ride up on the inclined or curved ends b³ of the interlocking ledges B, initially forcing the bung as a whole outwardly and loosening the bung sufficiently to permit of its easy and ready removal.

The bung-bushing and the bung of the present invention present a construction by which assurance is had of a tight joint around both the bushing and the bung against leakage, as the bushing can be tightened by further insertion in case of loosening, and the bung can be tightened in the bushing as it becomes worn by increasing the engagement of the cross-draw and locking bar with the cam-ledges. The slightly-tapered exterior face of the bushing with no upper flange thereon allows the bushing to be inserted to its full depth in the stave without producing a draw on the fibers of the stave around the bung-bushing hole. The locating of the cam-ledges within the interior of the bushing at the lower end thereof presents the end face of the bushing for complete insertion without interference from the ledges. The locking-bar with its hub and retaining-plate, together with the bearing-plate and the washer, enables the bung to be turned to compress and expand the packing without injurious effects on the packing. The curved or inclined upper face at the end of each cam-ledge in connection with the inclined face on the under face of the ends of the cross-draw and locking bar enables the bung to be initially started and loosened for withdrawal by turning the bar, and the cross-draw and locking bar with its engaging ends in conjunction with the stepped cam-face of the interlocking ledges enables the packing to be compressed in case of wear, so as to maintain a tight joint between the bung and the bushing. All of these advantages are pertinent to the bushing and bung of this invention and add greatly to the utility in use.

What I regard as new, and desire to secure by Letters Patent, is—

1. The combination with a bung-bushing provided on its interior above the lower end

face with oppositely-located ledges each ledge having on its under side a stepped cam-face, of a bung-bushing consisting of a cross-draw and locking bar having a contact-face on its upper side at each end to engage the steps of the cam-faces of the ledges, a hub for the bar, a retaining-plate on the hub, a bearing-plate, a washer adjacent to the retaining-plate, and a packing between the bearing-plate and washer, substantially as described.

2. The combination with a bung-bushing provided on its interior above the lower end face with oppositely-located ledges, each ledge having on its under side a stepped cam-face and having at one end an inclined face, of a bung consisting of a cross-draw and locking bar having a contact-face on the upper side at each end engaging the steps of the cam-faces of the ledges and having a contact-face on the under side at each end engaging the inclined ends of the ledges, a hub for the

bar, a retaining-plate on the hub, a bearing-plate, a washer adjacent to the retaining-plate, and a packing between the bearing-plate and washer, substantially as described. 25

3. The combination of a bung-bushing provided on its interior above the lower end face with oppositely-located ledges each ledge having on its under side a stepped cam-face and having at one end an inclined face, of a bung having a cross-draw and locking bar and having a contact-face on the upper side at each end engaging the steps of the cam-faces of the ledges and having a contact-face on its under side at each end engaging the inclined end faces of the ledges, substantially as described. 35

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Witnesses:

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