A. M. STOCK.

BARREL CLOSURE.

APPLICATION FILED APR. 5, 1909.

991,663. Patented May 9, 1911.

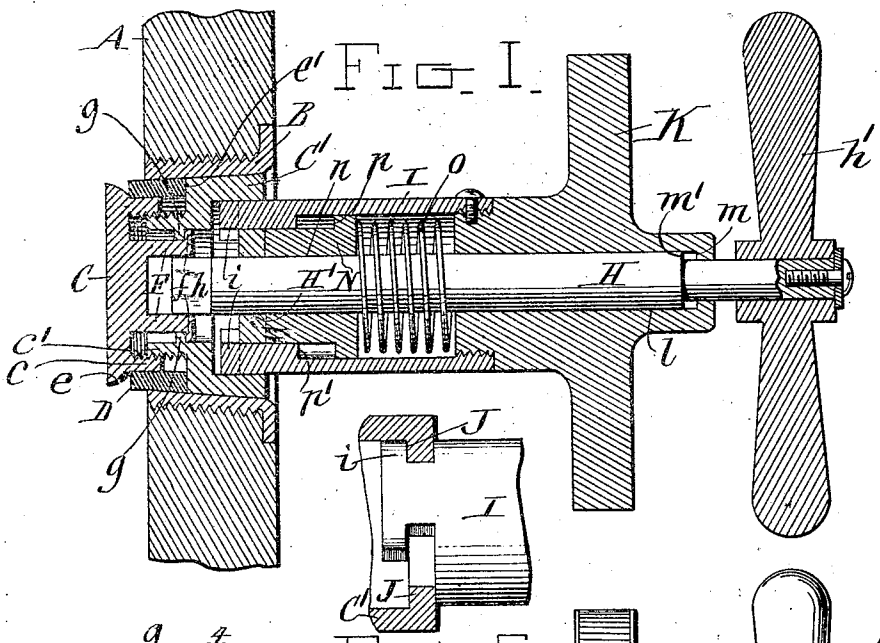

FIG. 1.

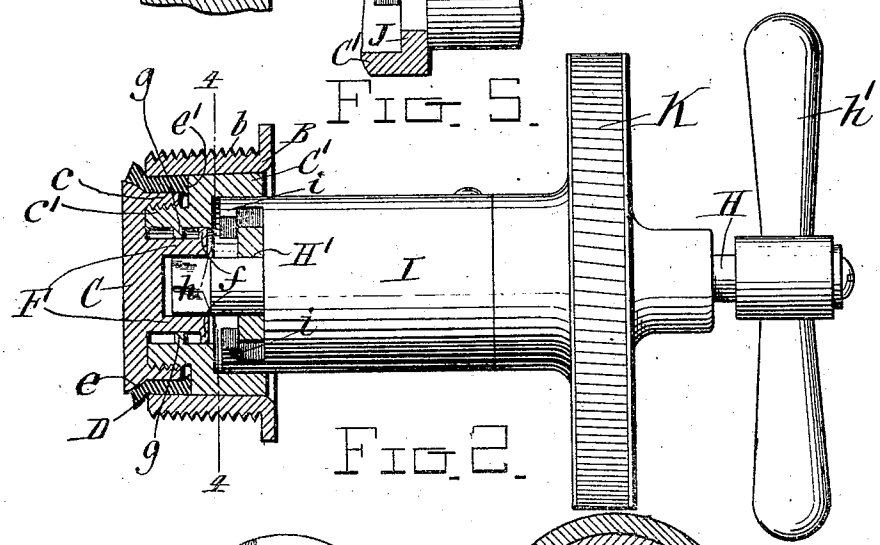

FIG. 2.

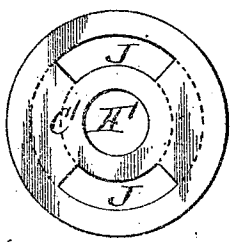

FIG. 3.

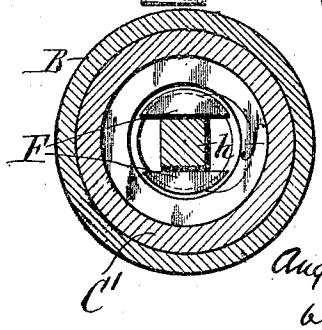

FIG. 4.

Witnesses.
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UNITED STATES PATENT OFFICE.

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BARREL-CLOSURE.

991,663. Specification of Letters Patent. Patented May 9, 1911.

Application filed April 5, 1909. Serial No. 487,923.

To all whom it may concern:

Be it known that I, AUGUSTA M. STOCK, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Barrel-Closures, of which the following is a specification.

This invention relates to a barrel closure and has the object to provide a closure of this character whereby the barrel may be securely and reliably closed, which can be easily and conveniently manipulated and which can be produced at comparatively low cost.

In the accompanying drawings:—Figure 1 is a longitudinal section of my improved barrel closure showing the parts assembled preparatory to tightening the closure. Fig. 2 is a similar view but showing the holding device in elevation and the closure tightened. Fig. 3 is an end view of the outer section of the bung. Fig. 4 is a cross section in line 4—4, Fig. 2. Fig. 5 is a fragmentary longitudinal section showing the manner of interlocking the holding device and the outer bung section.

Similar letters of reference indicate corresponding parts throughout the several views.

A represents a barrel or similar vessel or article having an opening in which is secured a circular bushing B having an external screw thread *b* and an inwardly or forwardly tapering bore. Within this bushing is arranged a bung having inner and outer sections C, C^1 which are movable axially relatively to each other and which are adapted between them to expand a packing ring D within the bushing.

The relative axial movement of the bung sections is preferably effected by means of a screw joint between them so that upon turning the sections one with reference to the other the sections will approach or recede from each other. This screw connection, as shown in the drawings, consists of an internally threaded annular flange *c* on the outer end of the inner bung section receiving an externally threaded annular flange c^1 on the inner end of the outer bung section.

The inner bung section is smaller in diameter than the inner end of the tapered bore of the bushing and provided externally with an annular forwardly facing and beveled or tapered shoulder *e* while the outer bung section is of larger diameter than the inner end of the bore of the bushing, so that upon inserting the bung in the bushing the inner bung section will pass inwardly beyond the inner end of the bushing but the outer bung section will engage the bore of the same, as shown in Fig. 1. The packing ring D which consists of rubber or similar material surrounds the inner bung section and is engaged at its inner edge by the beveled shoulder *e* of the same while its outer edge is engaged by an opposing abrupt shoulder e^1 on the outer bung section.

While introducing the bung into the bushing the sections of the same are separated and the packing contracted. After these parts have been inserted in the bushing until the outer section engages the bore of the bushing and the inner section is arranged beyond the inner end of the bushing, as shown in Fig. 1, the inner section is turned, so that the screw connection between the same and the outer section causes the same to move outwardly, thereby expanding the packing at the inner edge of the bushing and tightly closing the barrel, as shown in Fig. 2. For opening the closure of the barrel the operation of the bung sections and packing just described is reversed, so as to separate the bung sections and permit the packing to contact.

The separation of the bung sections is limited by means of two parallel lugs F, F projecting outwardly from the central part of the inner bung section and each provided with a laterally projecting lip *f* forming an inwardly facing shoulder which is adapted to engage with an outwardly facing shoulder formed on an internal annular flange *g* within the bore of the outer bung section. The bung sections are coupled in this manner by inserting the lugs F, F outwardly through the central opening in the outer bushing section and then broaching, upsetting or swaging the ends of these lugs outwardly, so as to form the laterally projecting lips *f* thereon which overlap the flange *g*. The opposing inner sides of the lugs F, F of the inner bushing section are preferably flat sided and parallel, forming a socket which is adapted to receive the flat sided inner end *h* of a key rod H which passes through a central opening H^1 in the outer bung section and whereby the inner bung section may be turned when tightening or

loosening the closure. This key rod is provided at its outer end with a finger piece h^1 for operating the same.

While the inner bung section is being turned, the outer bung section is held against turning by a holding device which is constructed as follows:—I indicates a hollow cylindrical holder body surrounding the key rod and provided on opposite sides of its inner end with T-shaped coupling or locking heads i which are adapted to enter corresponding undercut sockets or recesses J—formed on the outer end of the outer bung section on opposite sides of its center. At its outer end the holder body is provided with a knurled finger piece K which contains an opening l through which the key rod passes and an inwardly facing shoulder m in its bore which coöperates with an outwardly facing shoulder m^1 on the periphery of the key rod for limiting the retracting movement of the rod in the holder.

In applying the bung to the bushing the same is first coupled with the holder and key by engaging the inner end of the key with the socket of the inner bung section and engaging the hooks on one side of the heads of the holder with the corresponding sides of the undercut sockets of the outer bung section. When the parts are thus coupled, the key is turned in a direction opposite to the interlocked sides of the holder heads, whereby the outer bung section is held against turning and the inner section is turned in the direction for causing it to approach the outer section, thereby expanding the packing in the bushing and closing the barrel. For opening the barrel the holder is turned in a reverse direction until the hooks on the opposite sides of the coupling heads engage under the opposite undercut parts of the sockets in the outer bung section and then the key is turned in the reverse direction. After the bung has been loosened the same is withdrawn from the bushing. By thus coupling the bushing with the holder while introducing the same into the bushing and removing the same therefrom, the same in the absence of any provision to prevent it, would be liable to drop off the holder, inasmuch as the hooks of the coupling heads are of less thickness than the depth of the sockets in the outer bung section. To prevent this, a yielding tension or pressure device is provided which draws the hooks outwardly against the undercut parts of the sockets therein and thus holds these parts frictionally in place relatively to each other. The preferred means for thus frictionally coupling the holder and outer bung section consists of a bearing or pressure sleeve N movable lengthwise in the inner part of the pocket in the hollow body of the holder and provided with a central opening n through which the key rod passes and a spring o surrounding the key rod and bearing at its opposite ends against the outer end of said pressure sleeve and the outer end of said pocket, the inward or forward movement of the bearing or pressure sleeve being limited by an inwardly facing shoulder p formed on the bearing sleeve and adapted to bear against an outwardly facing shoulder p^1 in the bore of said holder pocket. By this means the bung may be readily attached to and removed from the holder and freely manipulated without liability of dropping off, thus facilitating the work of applying the bungs and removing the same from the bushings.

I claim as my invention:

A barrel closure comprising a bushing adapted to be secured in an opening in a barrel, a bung arranged in said bushing and having inner and outer screw-connected sections provided with opposing external shoulders, an elastic packing ring arranged between said shoulders and adapted to be expanded within said bushing, said inner bushing section having a flat sided socket and said outer bushing section having an undercut socket, a handle for holding the outer bushing section against turning having a hollow body and a T-shaped head adapted to engage with said undercut socket of the outer bushing section, a key for turning said inner bushing section having a rod arranged centrally within said holding handle and having a flat sided inner end which is adapted to engage with the flat sided socket of the inner bushing section and a yielding pressure device for holding the holding handle in place comprising a sleeve movable lengthwise within the holding handle and adapted to engage with the outer side of the outer bushing section, and a spring arranged within the holding handle and pressing said sleeve inwardly.

Witness my hand this 30th day of March, 1909.

AUGUSTA M. STOCK.

Witnesses:
THEO. L. POPP,
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