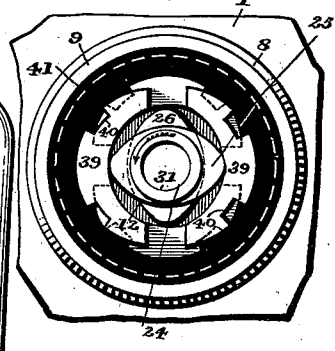
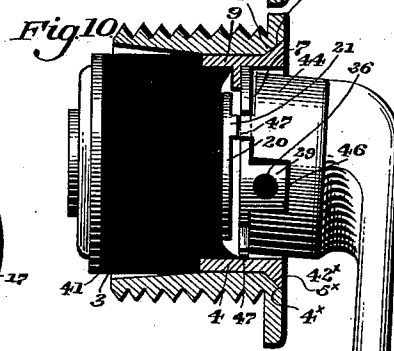
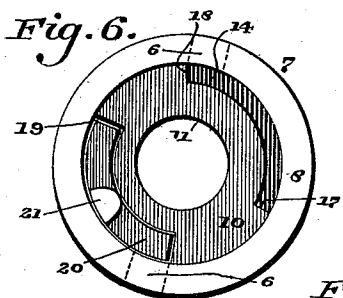
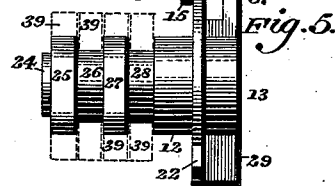
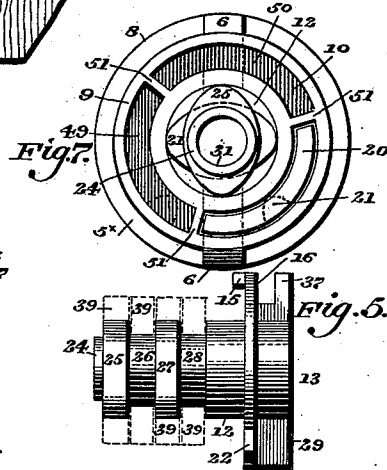
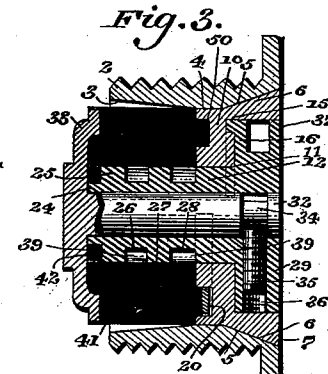
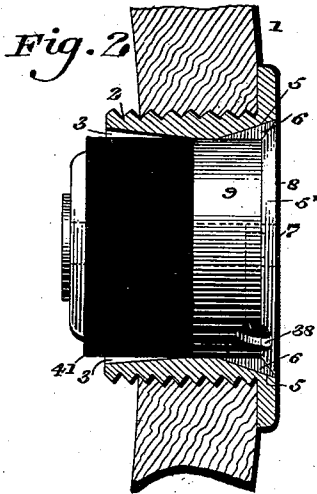
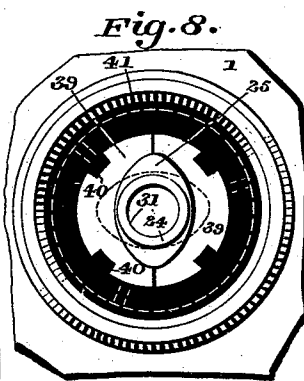
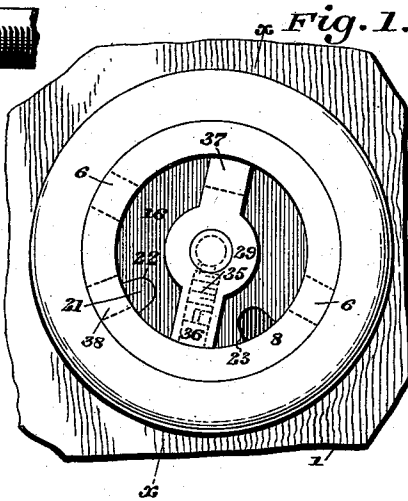
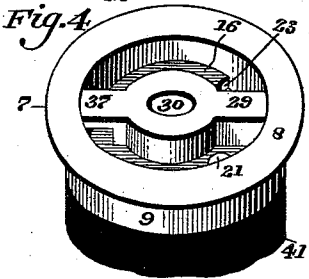
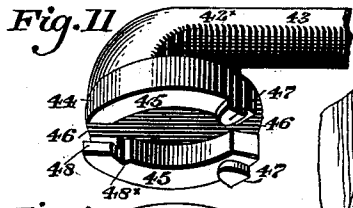


(No Model.)

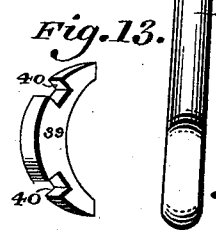
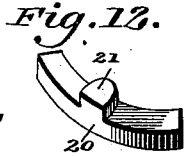
J. P. BAUMGARTNER.
BUNG AND BUSHING.

No. 541,651.

Patented June 25, 1895.



Witnesses
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BUNG AND BUSHING.

SPECIFICATION forming part of Letters Patent No. 541,651, dated June 25, 1895.

Application filed April 6, 1895. Serial No. 544,720. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH PARRISH BAUMGARTNER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Bungs and Bushings, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a novel construction of bung, and a bushing to which the same is applicable, provision being made for readily expanding the desired portions of said bung against its bushing, and means being also provided for limiting the movement of the expanding device.

It also consists of a novel construction of wrench.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a plan view of a bung and bushing embodying my invention, and a portion of a cask or barrel to which the same is applicable. Fig. 2 represents a partial section on line *x x*, Fig. 1, the bushing being shown in section and the bung in elevation. Fig. 3 represents a section of the bung on line *x x*, Fig. 1. Fig. 4 represents a perspective view of the top of the bung. Fig. 5 represents a side elevation of the hollow rotatable expanding sleeve and the cams thereon. Fig. 6 represents a plan view of the bung seen in Fig. 4, with the expanding sleeve removed. Fig. 7 represents a plan view of the under side of the bushing with the rings and central stem removed. Fig. 8 represents a plan view similar to Fig. 7, showing the rings and expanding devices in assembled position. Fig. 9 represents a plan view similar to Fig. 8, but showing the rings, &c., in expanded position. Fig. 10 represents a partial section similar to Fig. 2, showing a wrench employed and the manner of application of the same. Fig. 11 represents a perspective view of the face of said wrench. Fig. 12 represents a perspective view of a curved bar employed, to be hereinafter referred to. Fig. 13 represents a perspective view of one of the cam plates.

Similar numerals of reference indicate corresponding parts in the several figures.

Referring to the drawings: 1 designates a portion of a cask or barrel, and 2 a flanged

bushing which is adapted to be secured thereto, said bushing having its inner portion 3 tapering, the widest portion being within, and the portion 4 thereof being of uniform diameter, said bushing having also the bevel 4^x at its outer portion.

5 designates inclined slots in said bushing which are located preferably diametrically opposite each other, and adapted to receive the lugs 6, which are in the present instance inclined, and attached to the outer wall of the cup shaped receptacle 7, the same consisting of the top portion or flange 8, the circular wall 9 attached thereto, and the diaphragm or partition 10 attached to said wall, the same having the hole 11 therethrough, in which the enlarged portion 12 of the hollow expanding sleeve 13 is nicely fitted, so as to turn freely therein, said bung having a beveled portion 5^x which contacts with the face 4^x of the bushing.

14 designates a curved recess in the upper surface of said diaphragm 10, which is adapted to receive the lug 15, which is attached to the inner side of the flange or disk 16 which is mounted on the hollow sleeve 13, the walls 17 and 18 of said recess 14 limiting the movement of said lug 15, which latter thus serves as a stop, as will be hereinafter explained.

The diaphragm 10 has a curved slot 19 therethrough, in which is adapted to be placed the curved bar 20 the shape of which will be clear from Fig. 12, a face of said bar having attached thereto the lug 21, which is adapted to enter either the recess 22 or 23 of the disk 16, as will be explained.

The construction of the expanding sleeve 13, which is best seen in Fig. 5, will now be described, the same consisting of the hollow shell 24, on which are mounted the cams 25, 26, 27 and 28, which are arranged relative to each other, at substantially angles of ninety degrees in the present instance, as will be understood from Figs. 5 and 7 to 9, the longest axis or diameter of each of the above cams being, it will be noticed, substantially the same as the diameter of the enlarged portion 12 so that the sleeve 13 can be readily slipped through the hole 11 in the diaphragm 10. The top or outer face of the disk 16 has attached thereto the bar 29, which has the hole 30 therethrough, which is in alignment with the hole

31, which extends clear through the shell 24, and has inserted therein when the parts are in assembled position, the stem 32, one end of the latter being attached to a disk 33, whose structure will be evident from Fig. 3, the other end of said stem having a groove 34 therein, which is adapted to be engaged by an end of the threaded stud 35, which is screwed into the hole 36 of the solid portion of the bar 29, it being noticed that the other end of said bar has a portion cut out from under the same, thus forming the lip 37.

38 designates a hole in the wall of the cup 7, through which the stud 35 is inserted in assembling the parts.

39 designates the cam plates employed, whose construction will be understood from Fig. 13, the same being applied to the faces of their respective cams in pairs, as will be understood from Fig. 8, the outer face of said cam plates thus forming a true circle when they are in their normal position, while their inner edges conform to the outline of the cams, 25, 26, &c., it being evident that two of the latter may be employed if desired, instead of four, as seen in Fig. 5, the number of said cams to be increased or diminished according to requirements. The said plates 39 are provided in the present instance with the recesses 40, which engage projections on the ring or rings 41, a washer 42 seen in Fig. 3, being employed to fill in the space between the cam 25 and the disk 33.

42^x designates the wrench employed, the same consisting of the handle 43, and the head 44, said head having on the bottom thereof the annular projection or ring 45, which has portions removed at the points 46, diametrically opposite to each other, the width of said portions being equal to the width of the bar 29, as will be understood from Fig. 10. 47 designates lugs attached to said ring 45 of substantially the same shape and distance apart as the openings 22 and 23 in the disk 16, it being noticed that one of said rings 45 has a cut-away portion forming the lip 48, which is adapted to be inserted under the lip 37 of the bar 29, the relative position of the above described parts being evident from Fig. 11.

The under side of the diaphragm 10 is provided with the recesses 49 and 50 and the ribs 51, which are in contact with the ring 41, as seen in Figs. 3 and 7.

The operation is as follows: The parts are assembled by first placing the hollow sleeve 13 within the cup 7, the lug 15 being within the recess 14. The curved bar or locking device 20 is now placed in the position seen in Fig. 6, whereupon it will be evident that the lug or projection 21 will enter either the hole 22 or 23, as seen in Fig. 1. The rubber ring or rings 41 are now placed in position against the under or inner face of the partition 10, the bar 20, being held in place by means of said rings and the cam plates 39 are placed

in position against their respective cams, a pair of plates in the present instance being applied to each cam, as stated. The stem 32 is then inserted through the sleeve 13, and the disk 33 thereon is brought up against said ring 41, after which the stud 35 is inserted through the hole in the wall 9, and screwed in until its end engages the groove in the stem 32, the end of the latter being flush with the outer face of the bar 29, the parts being now in the position seen in Fig. 3.

To expand the bung, the wrench 42^x is applied thereto, in the manner seen in Fig. 10, the lip 48 engaging the lip 37, the lugs 47 being now in alignment with the holes 22 and 23, and if now the handle is pressed down, as indicated in Fig. 10, one of the lugs 47 will be brought into contact with the lug 21, and the latter will be depressed below the face of the flange 16, as seen in Fig. 10, and the bar 29 and the expanding sleeve 13 can then be rotated into the position seen in Fig. 9, the relative position of the cams and cam plates being seen therein, the ring or rings 41 being now in their expanded position and tightly in contact with the bushing, the cup 7 being kept from rotating by the engagement of its lugs 6 therewith, and the extent of movement of the disk 16 being limited by the contact of the lug 15 with the walls 17 and 18 of the recess 14, said lug 15 reaching one or the other of said walls, when the cams and plates are in the position seen in Fig. 9, the lug 21 entering either the opening 22 or 23 in the partition 16 at the end of the movement of the latter.

I desire to call especial attention to the fact, that when the ring 41 is expanded, the same is prevented from rotation by the engagement of the ribs 51 with the adjacent face of said ring, said ribs and cup 7 being prevented from rotation as has been explained.

The wrench 42^x can be employed for lifting the bung from the bushing, when the same is applied as seen in Fig. 10, the lip 48 being inserted under the lip 37, a shoulder 48^x being formed adjacent said lip 48.

It will be evident that if desired, the notches 40 may be omitted from the cam plates 39, and I further reserve the right to make such other changes as will come within the scope of my invention, and I therefore do not desire to be limited in every instance to the exact construction I have herein shown and described.

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

1. A bushing having a portion of its inner bore tapering, and another portion of uniform diameter, said latter portion being provided with recesses opposite each other, and adapted to be engaged by the lugs of a suitable bung, substantially as described.

2. A bung consisting of a cup portion, a hollow sleeve passing therethrough, and hav-

ing cams thereon, cam plates, and rings and means for holding said rings in position substantially as described.

3. In a bung, a hollow sleeve, the same consisting of a shell having cams thereon, turned at an angle to each other, a flange or disk mounted on said shell, a lug on said disk, and means for rotating the latter, substantially as described.

4. In a bung, a hollow sleeve, the same consisting of a shell having cams thereon, turned at an angle to each other, a flange or disk mounted on said shell, a lug on a side of said disk, the latter being provided with recesses therein, and a bar attached to said disk opposite said lug, and having one end cut-away for the application of a wrench, substantially as described.

5. In a bung, a hollow sleeve, the same consisting of a shell having cams thereon turned at an angle to each other, a flange or disk mounted on said shell, a lug on a side of said disk, the latter being provided with recesses therein and a bar attached to said disk opposite said lug, and having one end cut away for the application of a suitable wrench, the other end of said bar being solid, and having a threaded hole therein, substantially as described.

6. In a bung, a cup consisting of a surrounding wall, a partition or diaphragm having a central hole therethrough, one face of said diaphragm having an arc-shaped recess therein, the walls of which serve as a stop, a curved slot extending through said diaphragm, the opposite face of the latter being adapted to contact with the rings of said bung, substantially as described.

7. In a bung, a disk adapted to hold the rings of said bung in place, a stem attached to said disk, and having near its upper extremity a notch or groove an expanding sleeve adapted to be mounted on said stem, and means for holding the above parts in assembled position, substantially as described.

8. A bushing having a portion of its inner bore tapering, and another portion of uniform diameter, said latter portion being provided

with recesses opposite each other, adapted to be engaged by the lugs of a suitable bung, said bushing being provided with a flange, and a bevel adjacent said flange, substantially as described.

9. A bushing, a bung adapted to engage therewith, the same consisting of a stem, an expanding sleeve mounted on the latter, a ring or rings held in position upon said expanding sleeve, and means for expanding said rings without rotating either them or the bung, substantially as described.

10. In a bung, the herein described locking device, consisting of the curved bar 20, the lug 21 on said bar, and means for supporting and actuating the same, substantially as described.

11. A bushing, a bung, means for preventing the latter from rotating in said bushing, said bung having a cup, provided with the ribs 51 on its inner face, a ring 41 adapted to contact with said ribs, means for holding said ring in position and means for expanding the same, substantially as described.

12. In a bung, the herein described cam plate 39, having curved faces, one of said faces being provided with the notches 40, substantially as described.

13. A bung consisting of the cup 7, the sleeve 13 provided with cams, cam plates adapted to contact with the latter, the ring 41, the bushing 2, and means for locking and limiting the movement of said sleeve, substantially as described.

14. A wrench having the head 44, the ring 45, the cut out portions 46, the lip 48, attached to one of said rings and the lugs 47 attached to each ring, substantially as described.

15. The wrench 42^x having the head 44, the rings 45, the cut out portions 46, the lip 48, the shoulder 48^x and the lugs 47, on said rings, said parts being combined substantially as described.

JOSEPH PARRISH BAUNGARTNER.

Witnesses:

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