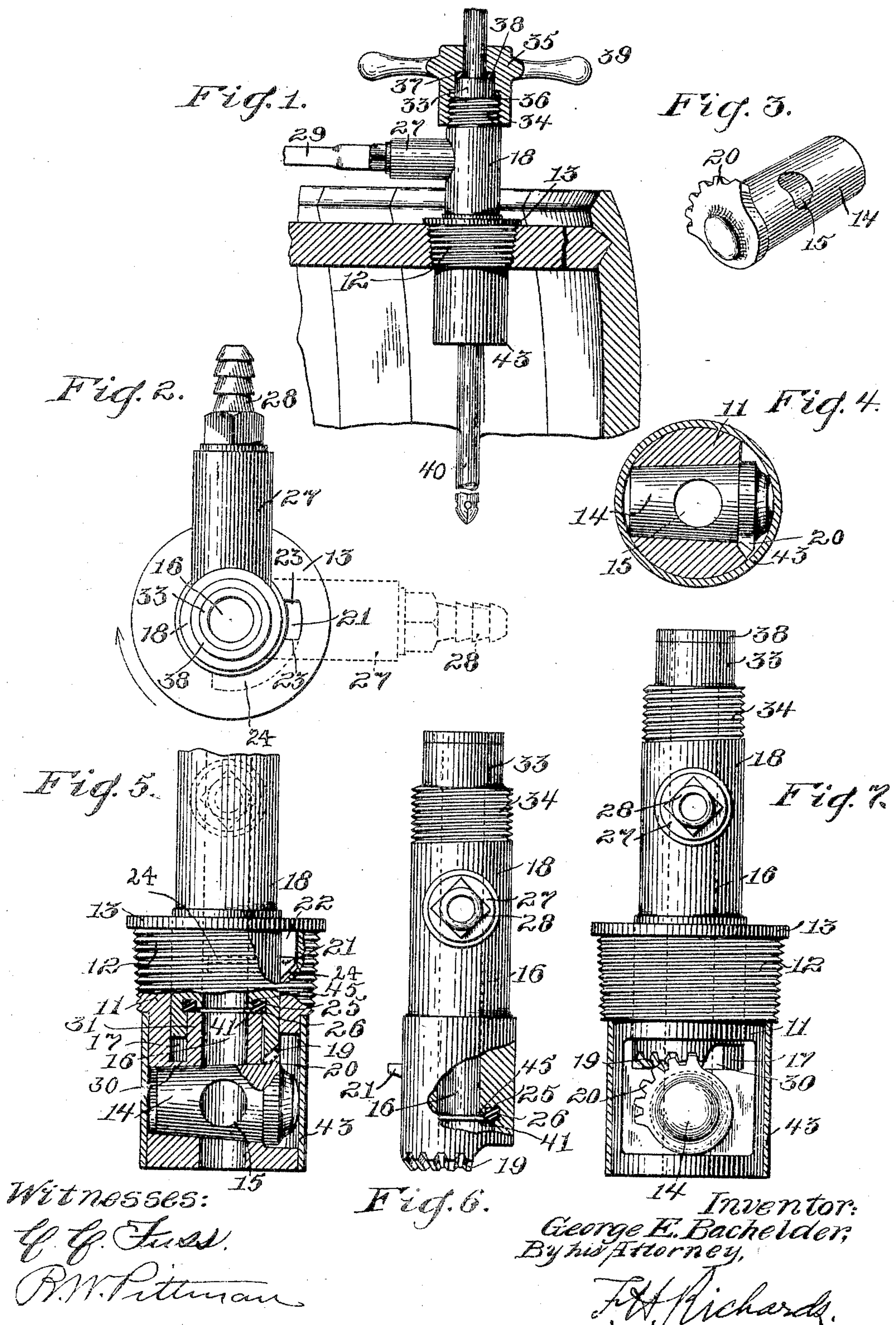


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PATENTED AUG. 22, 1905.

G. E. BACHELDER.  
TAPPING BUNG.  
APPLICATION FILED JAN. 23, 1904.





# UNITED STATES PATENT OFFICE.

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## TAPPING-BUNG.

No. 797,547.

Specification of Letters Patent.

Patented Aug. 22, 1905.

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*To all whom it may concern:*

Be it known that I, GEORGE E. BACHELDER, a citizen of the United States, residing in Norwich, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Tapping-Bungs, of which the following is a specification.

This invention relates to and has for an object to furnish a tapping-valve or tapping-bung of superior reliability and convenience of operation, which shall permit the introduction of the draft tube or pipe in direct alinement with the bung, and may be manufactured of such proportions and with such strength and simplicity of detail that it can be successfully employed in large numbers and with low cost of maintenance.

In the drawings accompanying and forming a part of this specification, an embodiment of my invention is illustrated, wherein—

Figure 1 shows a portion of the head and staves of a keg or barrel with the device in position therein, the same being shown in side view with a portion broken away to reveal the parts within. Fig. 2 is a top view of the device as seen in Fig. 1 without the gland and draft-tube. Fig. 3 is a perspective view of a valve-plug which may be employed in the device. Fig. 4 is a horizontal section through the bung, showing a top view of the plug. Fig. 5 is a side view of the bung, partly shown in central vertical section. Fig. 6 is a side view of the stem removed, and Fig. 7 is a view similar to Fig. 5, the bung portion being partly broken-away and at about right angles to Fig. 5, and the stem portion shown from the opposite side shown in such figure.

The bung portion 11 is shown as having a substantially solid body screw-threaded at 12 for engagement with the head or staves of a keg or cask, as the case may be, and may, if desired, be provided with a flange 13 to limit the insertion of the same, the bung being substantially flush with the surface by which it is carried. The peculiar organization of the present improvements is such that the body of the bung may be made solid or heavy, whereby the shrinkage of the wood of the cask or the compression thereof due to various causes will not be sufficient to crush or bend the body of the bung, which bending would have a tendency to either injure the

parts within or impede them in their proper work.

As a valve for the bung I preferably employ a plug-cock, such as 14, and locate this near the inner end of the bung. By "inner end" is meant the end which will be toward the inside when the bung is in place in the barrel or cask. The plug-valve has its transverse opening 15 in line with the centrally-located bore 16 of the bung, and this bore coincides substantially with the cylindrical bore 17, into which the removable valve-actuating stem 18 is fitted to turn closely, but freely.

The removable stem 18 is provided on its inner end with a gear segment or section 19, which is adapted for engaging the corresponding teeth 20, which in the present instance are shown formed on one end of the said valve-plug 14. The teeth upon the stem are organized for direct contact or engagement with the teeth upon the plug, and after the removal of the stem from the bung there remains no movable part within the bung except the valve-plug, the operating or actuating mechanism therefor being removed upon the removal of the stem.

As a means for insuring the proper engagement and coöperation of the stem-segment and the valve-segment said stem is provided with a projection 21, located thereon and in proper position for sliding down through the passage or space 22, formed in the outer end of the bung, so that when the stem is slid into place said projection thereon slides down said passage-way and thereby prevents the stem from turning until such time as the actuating-teeth of the stem and the valve are in proper engagement. At this time the said projection on the stem passes below the shoulder at 23 on the inner surface of the bung, and thereby the stem may be turned forwardly, (in the direction of the arrow in Fig. 2,) the extent of this movement being limited by the length of the groove or channel 24, the length of said groove and the extent of such movement being suitable for turning the plug-valve through about one-quarter of a revolution—as, for instance, from the closed position indicated in Fig. 5 to the open position indicated in Fig. 7.

The stem has for its guidance and securement to the bung merely this projection and groove connection and is free from screw-threads and other means of engagement, and



it will also be observed that the bung has only a screw-thread for engagement with the cask, so that after the bung is secured in place in the cask where it will remain permanently there is not exposed any screw-thread or delicate fastening device for the removable parts.

The projection 21 on the actuating-stem is shown located approximately directly over the point where the working engagement between the stem and the valve-segment is first effected. By means of this feature of the preferred organization of my improvement the upward pressure due to the resistance of the valve and the consequent tendency of the segment-teeth to force the stem outwardly is taken directly above the point where such resistance occurs, and in this way the opposing forces are more effectively provided for. By using only a single abutment or projection 21 on the stem the workman is able to see at once in what position to insert the stem into the bung whenever it is required to tap a barrel or cask.

Another feature of my present improvement relates to the construction whereby the stem 18 is packed around the central opening of the stem and between the stem and the body of the bung when the stem is inserted into the bung preparatory to opening the plug-valve thereof. For these purposes the stem has a central chamber 25, at the inner end of which there is inserted a packing-ring 26, preferably of rubber or other elastic material of suitable toughness and consistency for being compressed to a full bearing between the walls of the stem and a corresponding portion of the body of the bung. The packing-chamber may be made in the form illustrated, whereby a portion 45 of the stem overhangs the packing and thereby prevents the packing when compressed from encroaching upon the space between the inner bore of the bung and the draft-pipe, such organization being to prevent any accidental closing up of such passage and thereby preventing the air or gas which is admitted through the inlet 27 from finding access to the inside of the cask. The inlet is shown as having a nipple 28, upon which a flexible pipe 29 may be carried and supplied by compressed air or gas from some suitable source of supply (not shown) in a well-known or suitable manner.

Extending over the plug-valve is a portion 30 of the bung-body, and on this there is an upwardly-extending portion 31, which enters the chamber of the stem, preferably before the gear-teeth of the stem-segment begin to mesh with the gear-teeth of the valve-segment, and this upwardly-extending portion 31 operates on the complete insertion of the stem as a tubular piston, so to speak, for forcibly compressing said packing-ring 26, so as to completely fill the space remaining between said tubular projection 31 and the stem and thereby to effectively pack the joint-surfaces

between the body of the bung (on the upper surface of said tubular projection 31) and the opposing surface 32 of the packing-chamber in the stem. The free end of the stem is shown as having a reduced portion 33 and a screw-threaded portion 34 therebeyond which will form an engaging face having a gland, (designated in a general way by 35,) which here has a screw-threaded portion 36 to engage the screw-threads on the stem and a plain portion 37 to engage such reduced portion and carries within its chamber a packing 38, the body of the gland carrying suitable handles 39, whereby the packing may be tightly clamped upon the draft-pipe after its insertion and the packing may be eased for the ready withdrawal of the draft-pipe.

Preparatory to the operation of assembling the parts, as indicated, for the purpose of afterward opening the plug-valve it will be understood that the draft-pipe 40 will have been inserted through the stem to a point beyond the packing-ring 38. Following this the stem is slipped into the socket 17 of the bung, is then pushed down to forcibly compress the packing-ring, and at the same time engage the two gear-segments 19 and 20, respectively, (this being done in the position indicated in Fig. 5,) whereupon the stem will then be turned, as already described, after which the draft-pipe 40 will be forced down by the workman either by hand or by suitable appliances therefor, as the case may require, through the opening 15 in the valve and to such depth in the cask or barrel as may be desired.

It will be observed that the flange 31, carried by the bung and affording a seat for the packing, extends a distance along the chamber for the draft-pipe and when the parts are in place completely shuts off communication between the point of operation of the gear-teeth and the interior of the cask and of the bung and also acts as a shield to protect the gear-teeth upon the valve from injury upon the insertion of the draft-pipe or any implement or object which may be accidentally or mischievously inserted into the bung.

The body of the bung may be surrounded by a shell 43, having for its object to assist in the formation of a chamber for the actuating mechanism and to protect or shield the ends of the valve-plugs, thereby preventing the contents of the cask finding access to the ends of the plug or to the actuating mechanism.

Having described my invention, what I desire to secure by Letters Patent is—

1. A tapping-bung comprising a body portion provided with holding means, and adapted to be removably secured to a barrel and having a portion provided with a bearing for a plug-valve, a valve-stem surrounding said portion, a packing between said valve-stem and portion, a valve-plug located in said bear-



ing and having an opening, means carried by said valve plug and stem for causing them to operate in unison.

2. A tapping-bung comprising a body portion adapted to be inserted into and held by the wall of a barrel, and having a portion provided with a bearing for a valve-plug, a valve-stem overhanging said portion, a packing between said valve-stem, and said portion, a valve-plug located in said bearing and having an opening, and means formed on said valve and stem by which they are adapted to operate in unison.

3. A tapping-bung, comprising a body portion adapted to be inserted into and held by the wall of a barrel, the body providing a bearing for a plug-valve, a member extending upwardly from said bearing, a valve-stem provided with an internal bore, adapted to conform with a bore in said member, and also having an enlarged chamber which overhangs said member, a packing located between the edge of said valve-stem and the upwardly-extending members, and means carried by said plug and said valve-stem whereby they may operate in unison.

4. A tapping-bung comprising a body portion having a slot, and which is screw-threaded and adapted to be inserted into and held by the wall of the barrel, and having openings transversely located to each other, a valve-plug movably mounted in one of said openings and having an opening in line with the other opening, turning means carried by said valve-plug, an upwardly-projecting portion on said bung, a valve-stem having an enlarged lower portion adapted to take over said upwardly-projecting portion, and having a packing-seat, a packing interposed between said upwardly-projecting portion and said valve-stem, means carried by said stem for retaining said packing in said stem, turning means carried by said stem and adapted to cooperate with the turning means on the plug, and a projection carried by said stem and adapted to fit in said slot whereby to insure the correlation of said turning means.

5. A tapping-bung comprising a slotted body portion adapted to be inserted in the

wall of a barrel, and having a bearing, a tubular member extending upwardly from said bearing, a valve-stem provided with an internal bore adapted to conform with the bore of the upwardly-extending member, and also having an enlarged chamber which overhangs said member, a packing located between the edge of said valve-stem and valve-plug, gear-teeth formed on said plug and said valve-stem, and means carried by said stem for positioning the same whereby to properly insure the intermeshing of the teeth.

6. A tapping-bung comprising a body portion having a slot, and which body is screw-threaded and adapted to be inserted into the wall of a barrel and having openings transversely located to each other, a valve-plug movably mounted in one of said openings and having an opening in line with the other opening, gear-teeth formed integrally on said valve-plug, an upwardly-projecting flange on said bung, a valve-stem having an enlarged lower portion adapted to take over said upwardly-projecting flange, and having a packing-seat, a packing interposed between said upwardly-projecting flange and said valve-stem, means carried by said stem for retaining said packing in said stem, gear-teeth formed integrally on said stem and adapted to mesh with the gear-teeth on the plug, and a projection carried by said stem and adapted to fit in said slot whereby to insure the intermeshing of said gear-teeth.

7. A tapping-bung comprising a body portion provided with holding means, and adapted to be removably secured in the wall of a barrel and having bearing for a plug-valve, a portion carried by said bearing, a valve-stem surrounding said portion, a packing between said valve-stem and portion, a valve-plug located in said bearing and having an opening, gear-teeth formed on said valve-plug and stem, and which are adapted to intermesh, and means to insure the intermeshing of said teeth.

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Witnesses:

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