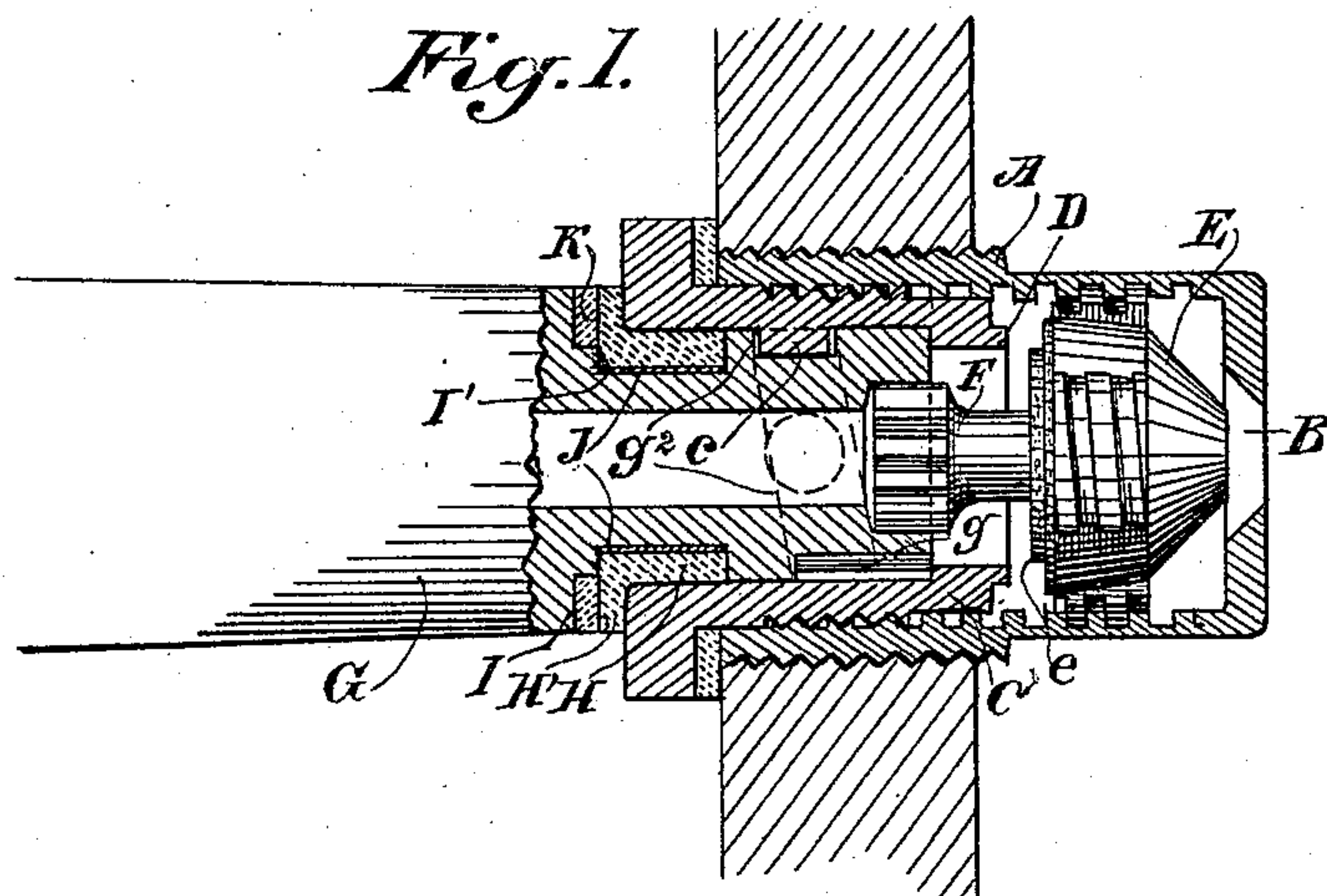


(No Model.)

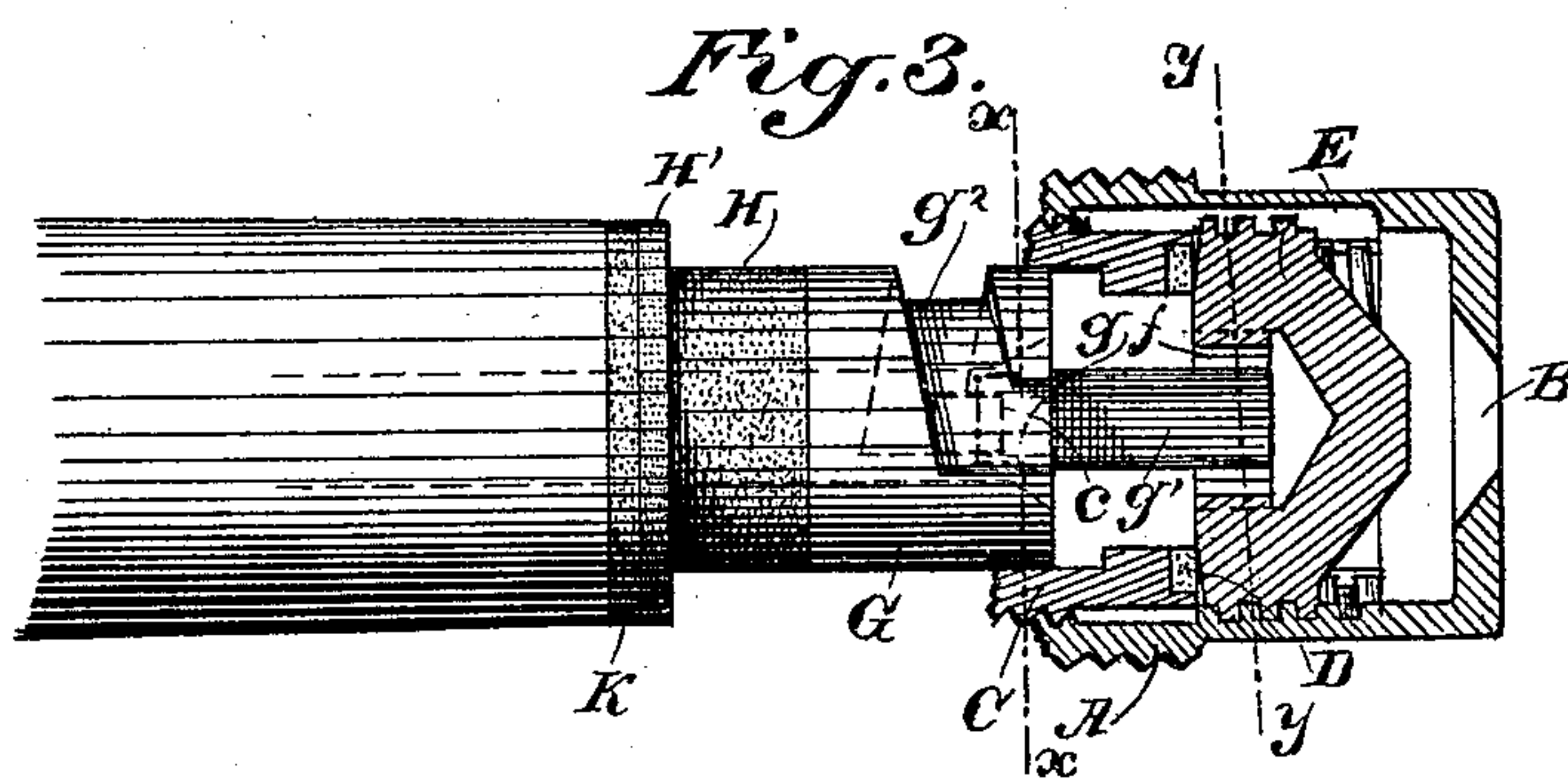
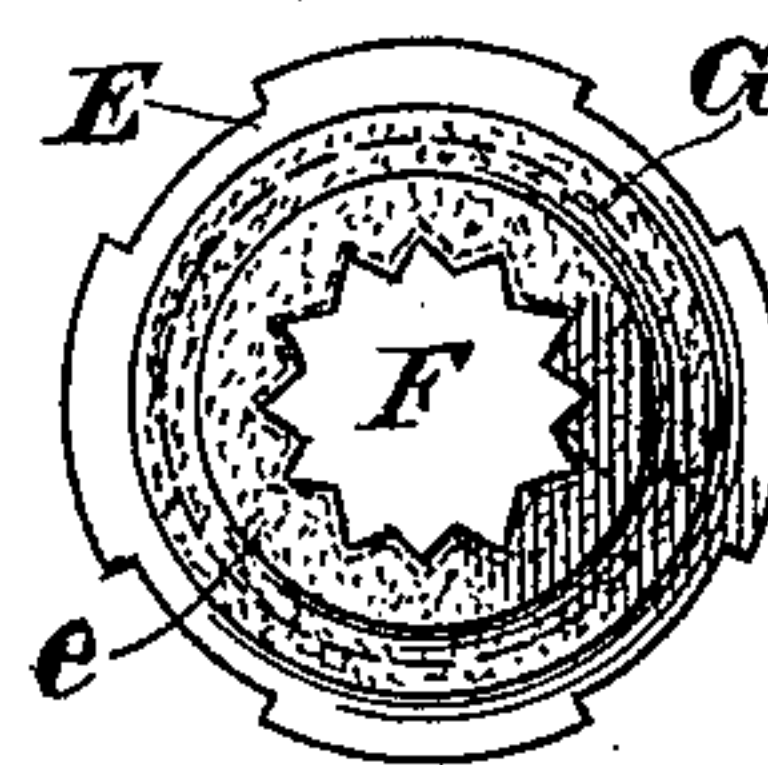
M. S. NORTON.  
BUSHING AND FAUCET FOR BARRELS.

No. 587,157.

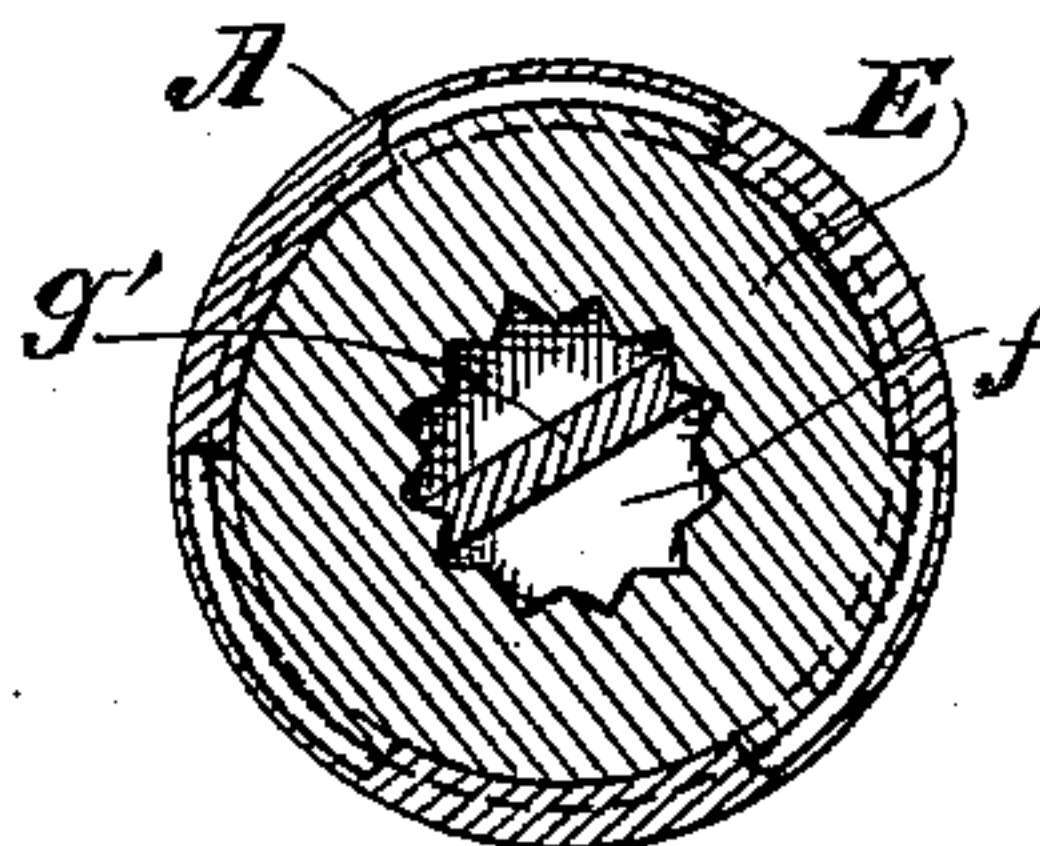
Patented July 27, 1897.



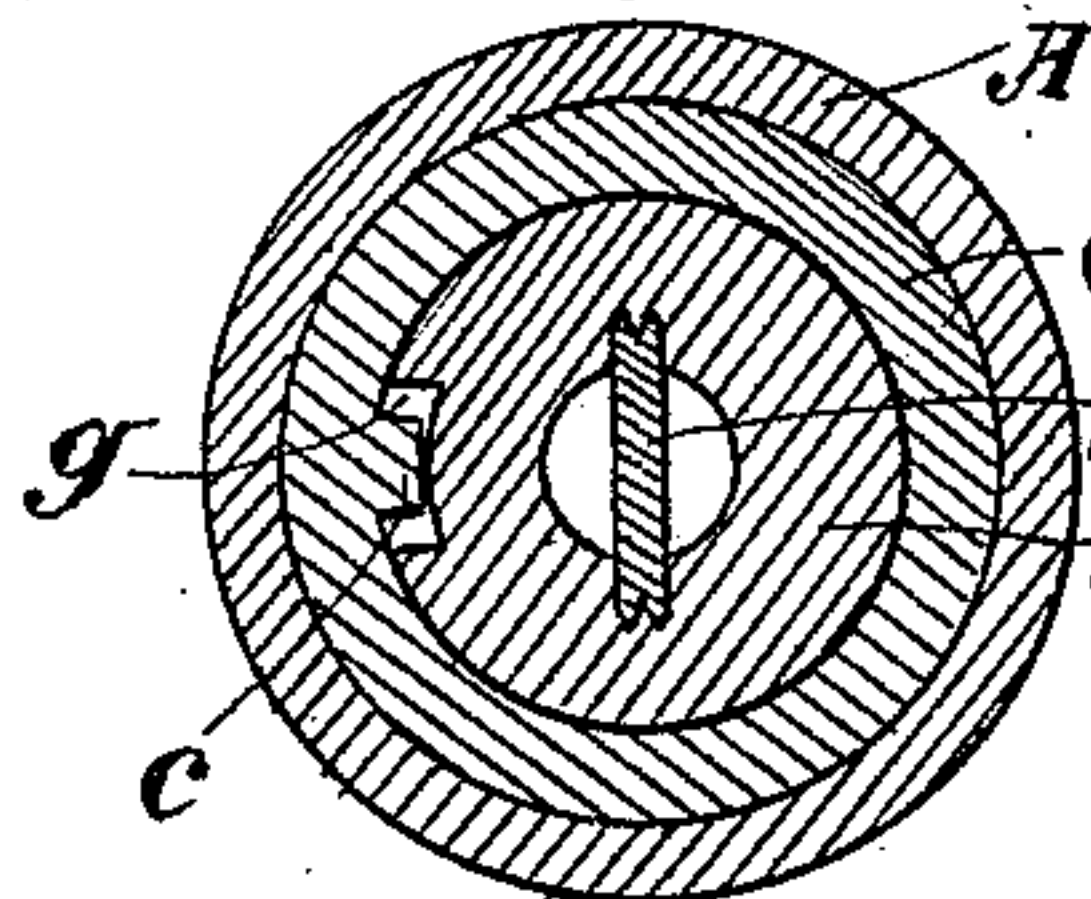
*Fig. 2.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

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## BUSHING AND FAUCET FOR BARRELS.

SPECIFICATION forming part of Letters Patent No. 587,157, dated July 27, 1897.

Application filed August 27, 1896. Serial No. 604,145. (No model.)

*To all whom it may concern:*

Be it known that I, MASON S. NORTON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Bushings and Faucets for Barrels; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in bushings for barrels and casks and like devices.

It consists, essentially, of a longitudinally-moving double-acting valve operated by a faucet or key to open and close upon turning the faucet axially and to remain locked when the faucet is removed, in improvements in the construction of the faucet, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my device and its connections. Fig. 2 is an end view of the valve. Fig. 3 is a modification of my device. Fig. 4 is a cross-section on line *y y* of Fig. 3. Fig. 5 is a cross-section on line *x x* of Fig. 3.

In the application of my invention I employ a bushing A, which is adapted to fit into the opening in the barrel or cask and which in the present instance is shown as provided with screw-threads, so that it may be screwed in and permanently secured in the cask. The inner end of this bushing which projects into the cask is closed and continuous, with the exception of a central opening B in the smooth surface of the end, which opening serves for the passage of the liquid when the valve is opened, as will be hereinafter more fully explained. The inner face around this opening forms a seat for the inner end of the valve.

C is the second sleeve or bushing, which fits into the first-named one by means of screw-threads, which allow it to be screwed thereinto. The inner end of this bushing C has a seat D, with a central opening around which the seat is formed.

The valve E is adapted to move between the seats B and D. When it is closed to prevent the escape of the contents of the cask, it closes against the seat D. When it is

opened, it stands at a point intermediate between the valve-seat B and D, and passages are provided for the escape of the liquid through the opening at B, thence around or through the valve, and thence through the opening interior to the valve-seat D.

When the valve is forced inward, so as to seat at the inner end and close the opening at B, it places the bung or bushing in condition for the pitching of the barrel or cask by preventing any ingress of the pitch through the opening B. As soon as this pitching has been completed the valve may be again returned to its normal position, so as to close upon the seat D or to be opened therefrom for the escape of the liquid, which can thereafter always flow through the opening at B.

The valve has a stem F extending into the interior of the sleeve or bushing C and having its inner end provided with a head of any suitable description which will allow the key or faucet to engage with it when introduced into the sleeve C, and when the key or faucet is turned the valve may be moved to or from its seat.

It will be understood that the stem or head of the valve may be formed in any well-known or desired form, either triangular, rectangular, or star-shaped, with any number of points, preferably multiples of the smallest number, which may be formed upon the opposing coupling or connection, and the inner end of the key or faucet G is provided with a correspondingly-shaped plug or socket, which will fit the end of the valve whenever the key or faucet is introduced.

Figure 1 shows the male portion of the coupling upon the valve-stem and the female portion upon the key or faucet. Fig. 3 shows these parts reversed.

This key or faucet has a longitudinal channel *g* upon one side which engages a corresponding lug *c* in the interior of the sleeve C, and the faucet has a spirally-disposed slot *g*<sup>2</sup> connecting with this channel, so that when the faucet is turned the action of the lug upon the spiral will cause the faucet to be drawn inward, the screw-threads upon which the valve turns being approximately the same pitch as that of the spiral channel.



In the construction previously referred to I have shown the head of the valve-stem star-shaped with a certain number of points, as four, eight, sixteen, or other number, and the key or faucet end has a corresponding socket which will engage with these points.

If the corrugated socket *f* be formed in the valve, as shown in Fig. 3, it may have sixteen teeth, in which case the corresponding end or key *g'* may have two, four, or eight points. Now as the seat *D* upon which the valve closes is elastic it will be manifest that when the valve is closed by a key it may be turned a little, more or less, to make a tight joint, and this would change the position of the teeth or corrugations. It is therefore necessary, in order to allow the faucet end to engage with the valve under these conditions, that the longitudinal channel *g* be wide enough to allow a rotary movement between it and the lug *c* equal to the pitch of the teeth, and this allows the faucet end and valve to be engaged at all times. In order to make a tight joint between the faucet and the sleeve *C*, I employ a soft flexible washer or collar *H*, surrounding the faucet barrel or key and having a flange *H'* fitting against a shoulder formed at the point where the barrel is enlarged, as shown at *I*. A difficulty to be avoided in this construction is the rapid wear of the washer by reason of the friction caused by the rotation of the faucet within the collar and when the flange is seated upon the shoulder while the faucet is being still rotated a little further, thus causing a twist and drag upon the washer, which soon destroys it. In order to overcome this difficulty, I have fitted the washer or collar *H* upon a thin interior sleeve *J*, which is turnable in an annular channel upon the faucet-barrel, so that this barrel may be turned inside of the sleeve without any frictional action upon the washer or collar after the latter becomes seated upon the bushing or sleeve *C*.

A hard-surfaced washer *K* is introduced between the flange *H'* and the shoulder on the faucet, and this washer moves in unison with the collar, its opposite surface making the frictional contact with the shoulder and thus protecting the soft joint forming collar or washer *H* from injury. This collar and washer act to form a joint in two ways. First, the cylindrical portion *H* enters the chamber of the part *C* and fits therein like a plunger or piston, and this prevents any leakage at that point while the faucet is being turned to open the valve until the outwardly-projecting flange *H'* becomes seated upon the shoulder of the faucet, when the compression of this flange between the shoulder and the end of the part *C* completes the joints.

There is still a chance for leakage between the sleeve *J* and the faucet-barrel and thence around the washer *K*, and to prevent this there is a step made in the faucet-shoulder of a depth approximately equal to the thickness

of the washer *K*, which leaves a narrow seat *I'* interior to the washer upon which a part of the soft-rubber flange *H'* presses when the joint is closed, but it does not have enough bearing-surface to be worn by the action of opening and closing.

The valve *E* is of such a length that it will not seat to close both the openings at *B* and *D* at one time, but it may be closed against either of said seats or openings by turning it in a proper direction. Its periphery is screw-threaded, and it fits in corresponding threads in the interior of the bushing *A*, so that when its end is engaged by the faucet or key to turn it it may be advanced or retracted to close against either of the seats. It is normally closed against the seat *D* to prevent the passage of liquid, and it is open when moved away from this seat and standing intermediate between *B* and *D*. The liquid enters freely through the passage *B* and thence passes around the valve *D* either by forming channels in the sides of the bushing or casing *A* through which the liquid may flow, or by slotting, cutting away, or forming channels in the sides of or through the valve itself, or in any other suitable or desirable manner, the object being simply to provide a space through which the liquid can pass around the valve and thence escape through the opening within the inner valve-seat and into the chamber of the sleeve *C*, whence it passes out through the faucet whenever the valve is opened. By this construction I am enabled to operate the valve to open or close the passage for the discharge of liquid in a very simple manner, and when the cask or barrel is to be pitched it is only necessary to turn the valve by the aid of a properly-shaped key, as previously described, until the inner face is closed against the seat at the inner end of the bushing, thereby entirely closing the opening *B* and preventing any pitch or material from the interior of the cask entering the valve.

As soon as the work is completed the valve may be withdrawn, leaving the opening free and the valve closed against the seat *D*.

It will be understood that the seat against which the valve closes at *D* may be formed of soft rubber or other suitable material, and it may either be affixed to the seat at *D* or it may be carried upon the valve by being properly vulcanized thereon, as shown at *e*, the object in either case being attained when the two faces are brought together.

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

1. A bushing for barrels having a closed inner end made smooth and continuous and provided with a central opening and an inwardly-facing seat, a second seat formed and facing toward the first named and having a central opening therethrough, a rotatable valve movable between the two seats having faces adapted to close alternately upon



one or the other of said seats, screw-threads formed upon the exterior of the valve, corresponding screw-threads formed in the interior of the chamber within which the valve is movable, and a means comprising an interengaging head-and-socket connection between the valve and a turnable key or faucet whereby the valve may be engaged and turned from the exterior of the cask, so as to close against either of the seats.

2. A bushing adapted to fit a cask or receptacle, having a closed inner end with a central opening and an interior valve-seat, a second sleeve or bushing fitting the interior of the first-named one having a seat formed upon its inner end and an interior chamber adapted to receive a key or faucet, a valve having faces adapted to close against either the inner or outer valve-seats, screw-threads formed upon the exterior of the valve, corresponding threads formed in the interior of the chamber in which the valve is movable, whereby it may be advanced in either direction when turned, a stem to said valve having a head extending into the interior of the sleeve so as to be engaged by the key or faucet, chambers or passages formed, through which liquid may pass the valve when the latter stands intermediate between the two valve-seats.

3. A bushing fitting a cask or receiver having a closed inner end with a central aperture and an interior valve-seat, a second sleeve or bushing fitting into the first named having a seat at its inner end and forming a space, a valve movable between the two seats, and passages through which liquid may pass when the valve stands intermediate between the seats, a cylindrical chamber within the inner sleeve or bushing adapted to receive

the inner end of a faucet, a head upon the valve-stem and a correspondingly-shaped formation upon the inner end of the faucet which will engage the head of the valve when the faucet is introduced, a lug in the interior of the sleeve, a spiral channel around the faucet-barrel adapted to engage the lug so as to lock and advance the faucet simultaneously with the movement of the valve when the faucet is turned, and a washer adapted to make a tight joint between the faucet and the sleeve or bushing, said washer having an interior sleeve turnable upon the faucet-barrel whereby the latter is movable within the washer after the latter has become seated.

4. A device for forming a joint between the bushing or valve-case and the faucet, consisting of a soft collar or washer, a sleeve upon which the collar is fixed, said sleeve being turnable upon the faucet-barrel, and a hard-surfaced washer interposed between the collar and the shoulder of the faucet against which contact and compression take place.

5. A bushing for casks having a valve-seat, a screw-threaded valve turnable and adapted to close upon the valve-seat or be opened for the passage of liquid, male and female coupling ends upon the valve and the inner end of the faucet, a lug in the bushing and a channel in the faucet sufficiently wider than the lug, through which the latter passes when the faucet is introduced, whereby the faucet may be turned and adjusted to enable the couplings to engage.

In witness whereof I have hereunto set my hand.

MASON S. NORTON.

Witnesses:

S. H. NOURSE,  
WM. F. BOOTH.