

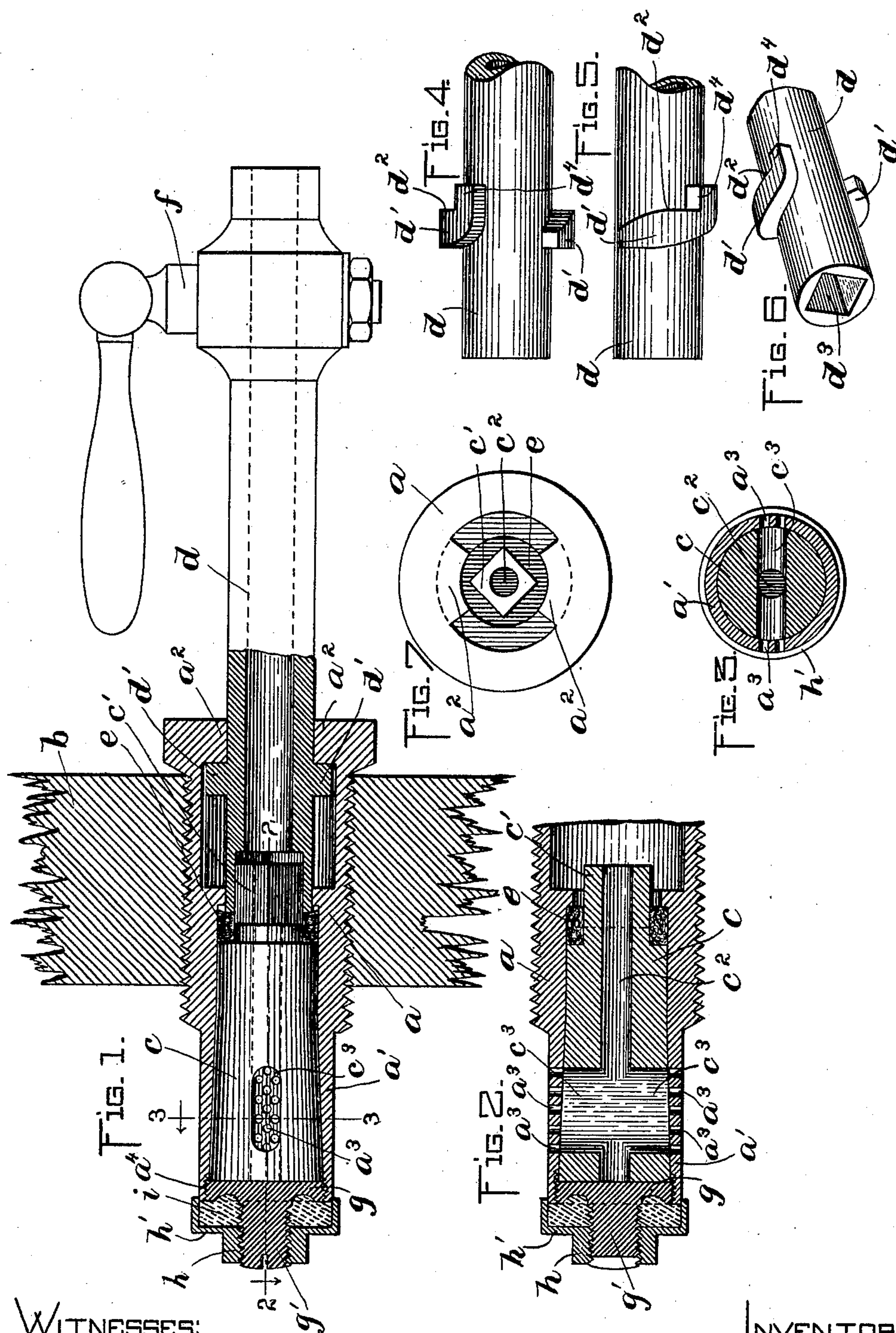
No. 682,797.

Patented Sept. 17, 1901.

H. GRAYSON.  
BARREL TAP.

(Application filed Nov. 21, 1900.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## BARREL-TAP.

SPECIFICATION forming part of Letters Patent No. 682,797, dated September 17, 1901.

Application filed November 21, 1900. Serial No. 37,274. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE GRAYSON, of Providence, in the county of Providence and State of Rhode Island, have invented certain  
5 new and useful Improvements in Barrel-Taps, of which the following is a specification.

This invention relates to means for tapping barrels containing liquids under high pressure—such as beer, ale, &c.—and has for its  
10 object to provide a simple and effective device for this purpose adapted to be readily opened to permit the withdrawal of liquid from the barrel and to be tightly closed to prevent leakage.

15 The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, Figure 1 represents a side elevation, partly in section, of my improved barrel-tap. Fig. 2 represents  
20 a section on line 2 2 of Fig. 1. Fig. 3 represents a section on line 3 3 of Fig. 1. Figs. 4 and 5 represent elevations of a portion of the tubular key. Fig. 6 represents a perspective view of the portion of the key shown in Figs.  
25 4 and 5. Fig. 7 represents an end view of the bushing looking from the outer end.

The same letters of reference indicate the same parts in all of the figures.

In the drawings, *a* represents a casing or  
30 bushing which is externally screw-threaded and adapted to be engaged by its screw-thread with the head *b* of the cask or barrel, the said bushing having an extension *a'* at its inner end projecting into the barrel and provided  
35 internally with a tapering seat for a tapering plug-valve *c*. The outer end of the bushing *a* is provided with segmental abutments *a<sup>2</sup>a<sup>2</sup>*, formed and relatively arranged as shown in Fig. 7.

40 *d* represents a tubular key which has segmental ears *d' d'*, said ears having cam-shaped outer sides *d<sup>2</sup>*. The ears *d'* are formed to enter the spaces between the abutments *a<sup>2</sup>*, so that the cam-faces *d<sup>2</sup>* of the ears can be caused  
45 by the partial rotation of the tubular key to bear upon the inner faces of the abutments *a<sup>2</sup>*, this partial rotation causing the cam-faces of the abutments to cooperate in imparting an inward endwise movement to the tubular  
50 key for the purpose hereinafter specified.

The inner end of the valve *c* is provided with an extension *c'*, which constitutes a liquid-conduit and a key-engaging shank, said extension being squared externally to engage  
55 a squared socket *d<sup>3</sup>* of the shank and provided internally with a passage *c<sup>2</sup>*, which communicates with ports *c<sup>3</sup> c<sup>3</sup>*, extending through the periphery of the valve *c*. The extension  
60 *a'* of the bushing is provided with ports arranged to register with the ports *c<sup>3</sup>* when the valve is in its opened position, each port being preferably a group of orifices *a<sup>3</sup>*, said orifices being sufficiently small to prevent the  
65 entrance into the valve of floating pieces of sufficient size to obstruct the valve and the passage therethrough. Hence the ports in the extension *a'* act to a certain extent as  
strainers.

*e* represents a compressible annular packing which surrounds the shank *c'* and is inter-  
70 posed between the outer end of the body portion of the valve *c* and the inner end of the tubular key *d*. As shown in Figs. 1 and 2, the bushing or casing *a* is provided with an  
75 internal annular rib, which retains the packing *e* in position, even when the key *d* is removed.

When the tubular key is inserted in the bushing and engaged with the shank *c'* of the valve, the partial rotation of the key which  
80 causes the cam-faces *d<sup>2</sup>* to bear on the inner sides of the abutments *a<sup>2</sup>* and imparts an inward endwise movement to the key above described also turns the valve to bring its ports  
85 *c<sup>3</sup>* into register with the ports in the extension *a'* of the bushing. The opening of the valve is therefore accompanied by a compression of the packing *e*, caused by the inward  
90 endwise movement of the key, so that a tight joint is formed between the valve and the key, preventing any leakage of liquid between the outer surface of the key and the  
bushing and causing the liquid to flow through the passage *c<sup>2</sup>* and the interior of the key *d*, the latter constituting the outlet of the barrel  
95 and being provided with a suitable faucet *f*. When the key is turned in the opposite direction to bring its ears *d'* out of engagement with the abutments *a<sup>2</sup>* and permit the withdrawal of the key, the valve is at the same  
100



time turned to disconnect its ports with the ports in the extension of the bushing, the valve being thus closed.

The extension  $a'$  is provided at the outer end  
5 of the seat for the valve  $c$  with an internal screw-thread  $a^4$ .

$g$  represents an externally-threaded head formed to engage the thread  $a^4$ , said head when screwed into the thread  $a^4$  bearing  
10 against the larger end of the valve  $c$  and pressing the latter firmly against its seat, provision being thus made for maintaining a slight connection between the valve and its seat and compensating for wear of the valve. The head  
15  $g$  is provided with a screw-threaded stem or stud  $g'$ , with which is engaged a nut  $h$ , having a flange  $h'$ .

$i$  represents an annular compressible packing, one side of which bears against the head  
20  $g$  and the outer end of the extension  $a'$ , its other side bearing against the flange  $h'$  of the nut  $h$ , said packing covering the joint between the head  $g$  and the extension  $a'$  and preventing leakage through said joint. The  
25 packing  $i$  may be compressed by rotating the nut  $h$  upon the stem or stud  $g'$ .

It will be seen that the improved tap above described is of an extremely simple construction and that it is adapted to operate effectively and without liability of getting out of  
30 order.

The key  $d$  is preferably provided with stops  $d^4$  at the rear ends of the cam-faces  $d^2$  to arrest the rotation of the key when the valve  
35 has been fully opened.

I claim—

1. A barrel-tap comprising a bushing adapted for engagement with the head of a barrel and having inwardly-projecting segmental  
40 abutments at its outer end, an internal annular rib at a distance from its outer end and an extension at its inner end containing a valve-seat and liquid-ports, a rotary valve fitted in said seat and having a key-engag-  
45 ing shank projecting into the bushing and

ports adapted to register with the ports in the extension, the said valve having a liquid-passage extending from the ports through said shank, a tubular key formed internally at its inner end to fit over and engage said  
50 shank and having segmental cam-shaped ears formed to engage said abutments, the ears and abutments being formed and arranged so that a rotation of the key which opens the valve engages the ears with the abutments  
55 and gives the key an endwise inward movement, and a compressible packing interposed between a shoulder located near the outer end of the valve and the said internal rib of the bushing, and surrounding the shank of  
60 the valve, said packing being compressed by the inward movement of the key and forming a liquid-tight joint, the packing being adapted to be retained in place by the said rib when the key is withdrawn. 65

2. A barrel-tap comprising a bushing adapted for engagement with the head of a barrel and having an extension at its inner end, containing a tapered valve-seat, liquid-ports, an internal screw-thread at the larger end of  
70 the valve-seat, a tapered plug-valve fitted to said seat and having ports adapted to register with the ports in the extension, and a shank projecting from the smaller end of the valve into the interior of the bushing, a  
75 screw-threaded valve-adjusting head or abutment engaged with the internal thread of the extension, said head having a screw-threaded shank projecting from its outer side, a nut formed to engage said shank, and a com-  
80 pressible packing interposed between said nut and the outer end of the extension, said packing covering the joint between the extension and the valve-adjusting head.

In testimony whereof I have affixed my signature in presence of two witnesses. 85

HORACE GRAYSON.

Witnesses:

JOHN KEENAN,

WILBUR A. SCOTT.