(No Model.)

R. F. STAHL.

TAP FOR BARRELS OR CASKS.

No. 600,501. Patented Mar. 8, 1898.

Fig. 1.

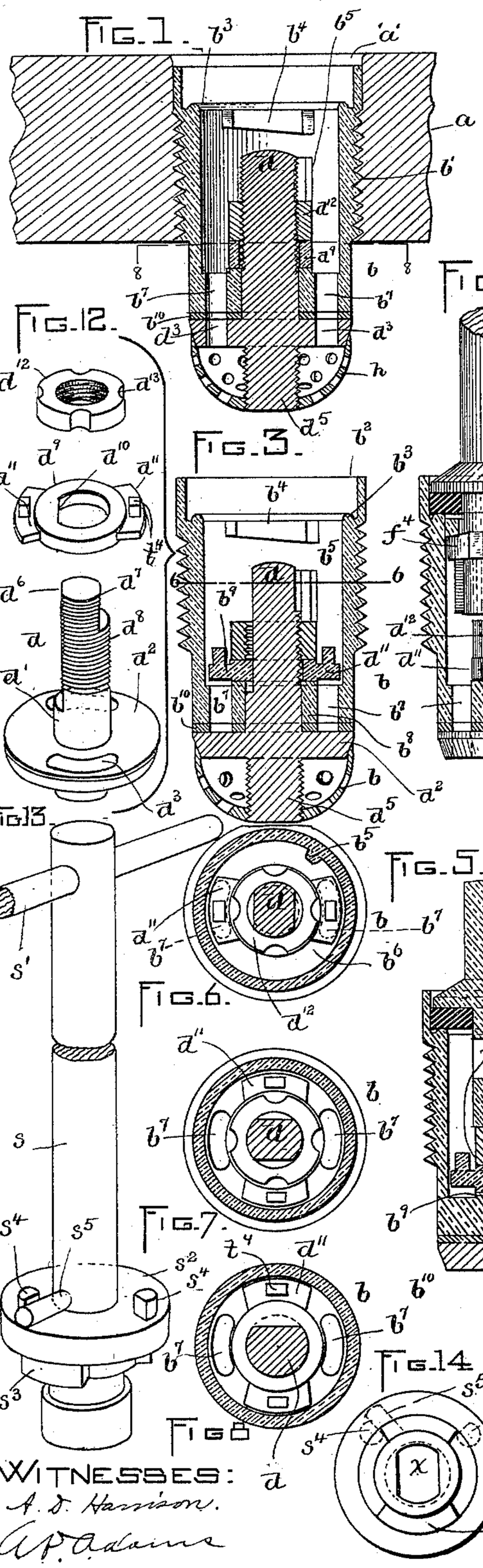

Fig. 2.

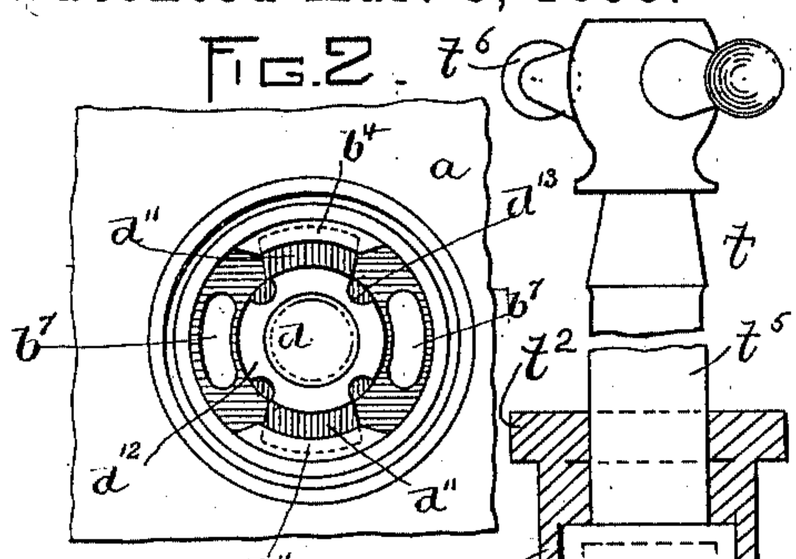

Fig. 4.

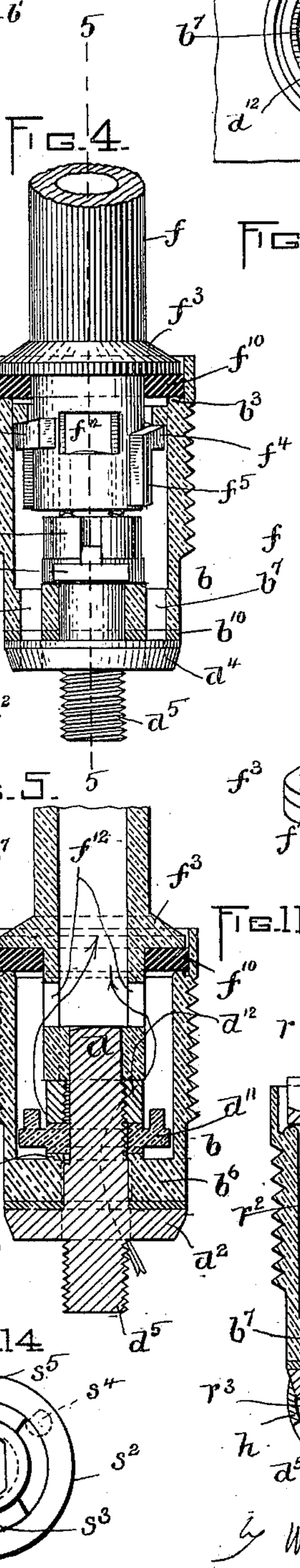

Fig. 12.

Fig. 3.

Fig. 9.

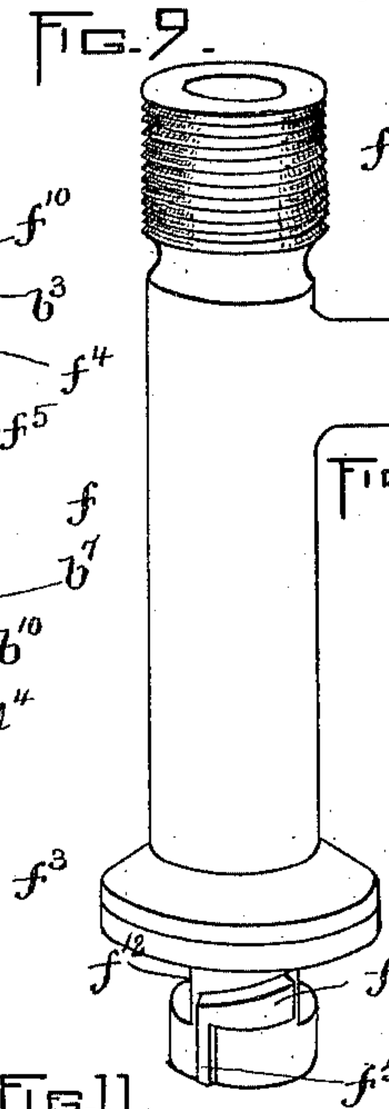

Fig. 15.

Fig. 10.

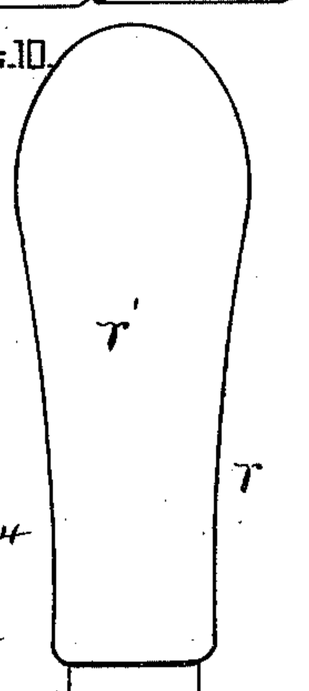

Fig. 13.

Fig. 5.

Fig. 11.

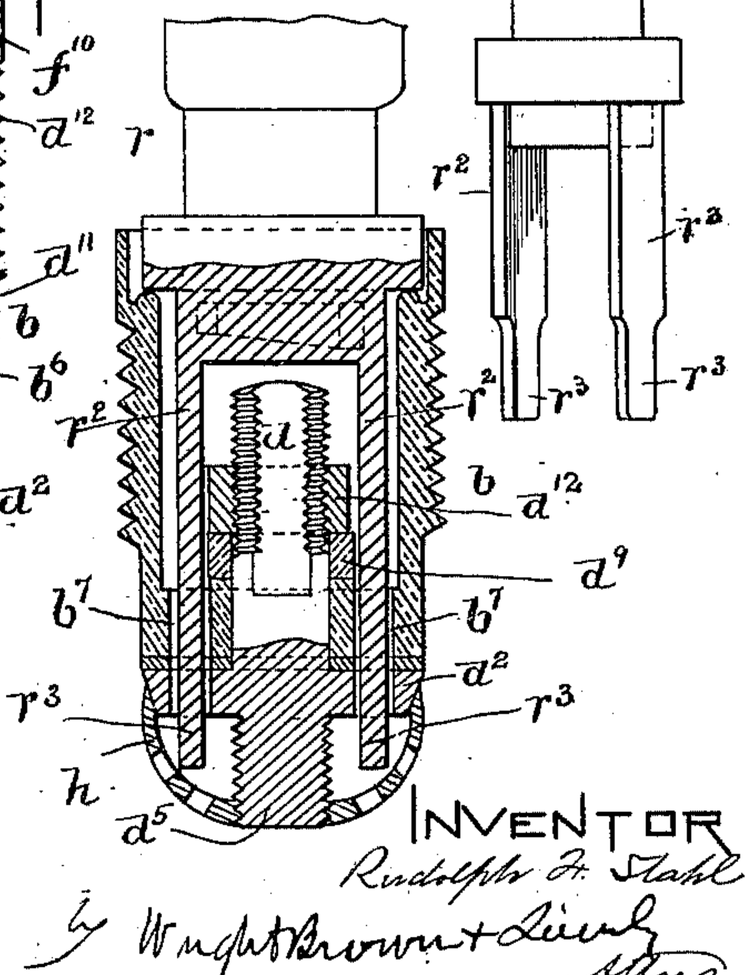

Fig. 6.

Fig. 7.

Fig. 14.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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TAP FOR BARRELS OR CASKS.

SPECIFICATION forming part of Letters Patent No. 600,501, dated March 8, 1898.

Application filed April 10, 1896. Serial No. 586,916. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH F. STAHL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Taps for Barrels or Casks, of which the following is a specification.

This invention relates to a new and improved tap for barrels or other packages; and it consists in the novel features of construction and relative arrangement of parts hereinafter fully described in the specification, clearly illustrated in the drawings, and particularly pointed out in the claims.

Reference is to be had to the accompanying one sheet of drawings, forming a part of this application, in which like characters indicate like parts wherever they occur.

Figure 1 represents in vertical section a tap constructed in accordance with my invention, a portion of the keg or cask being also shown in section. Fig. 2 represents a top plan view thereof. Fig. 3 is a view similar to Fig. 1, the valve being shown closed. Fig. 4 is a view similar to Fig. 3, showing the delivery-tube in engagement with the tap. Fig. 5 represents a vertical sectional view on the line 5 5 of Fig. 4. Fig. 6 represents a cross-sectional view on the line 6 6 of Fig. 3, the valve being shown as closed. Fig. 7 represents a similar view, the valve being shown open. Fig. 8 represents a cross-sectional view on the line 8 8 of Fig. 1. Fig. 9 represents a front elevation of the delivery-tube. Fig. 10 represents a front elevation of the valve-port tool. Fig. 11 represents a view similar to Fig. 1, showing the tool in place. Fig. 12 represents a detached view of the valve stem, nut, and washer. Fig. 13 represents a front elevation of the wrench for opening and closing the valve. Fig. 14 represents a bottom plan view of the wrench. Fig. 15 represents a front elevation of the spanner for operating the nut.

Referring to the drawings, in the embodiment of my invention therein shown and selected by me for the purpose of illustrating my invention, *a* represents a portion of the cask or barrel provided with the usual opening *a'* for the insertion of the tap *b*. This tap is composed of a cylindrical-shaped body provided upon its exterior intermediate its ends with screw-threads *b'* for engaging the side walls of the opening *a'* in order to secure the tap in place, as is usual. The inner wall of the upper end of the tap is recessed to form an upwardly-projecting flange b^2 and a shoulder b^3, the latter being adapted to engage a washer f^{10}.

b^4 represent cams on the inner wall of the tap, adapted to engage the complemental cams in the tube *f*, hereinafter described.

b^5 represents a rib below one of the cams b^4, adapted to engage a complemental rib on the delivery-tube, hereinafter described. The inner end of the delivery-tube, or the end that protrudes from the cask or barrel *a*, is closed by a web b^6, integral with the stem, and is formed with apertures b^7, arranged to communicate with complemental apertures in the valve, hereinafter described, when the latter is opened. This web is also formed with a central valve-stem aperture b^8, the inner walls of which are extended in order to form an upwardly-projecting flange b^9.

d represents a valve-stem having a cylindrical portion *d'*, arranged in the aperture b^8. This stem carries a valve-disk d^2, arranged to engage the lower face of the web b^6, or a packing-ring b^{10}, composed of tin or other material, applied to said face. The valve-disk is provided with apertures d^3, adapted to register with the apertures b^7. This disk upon its periphery is preferably beveled, as at d^4, to make a tight fit between said periphery and the edge of the strainer *h* when the latter is employed. This form is also advantageous in connection with the swelling of the wood of the cask or barrel, giving the latter a chance to press about the end of the periphery of the valve-disk.

The valve-stem is provided with a screw-threaded extension, as at d^5, below the valve-disk d^2. When the strainer *h* is employed, the latter is screwed upon this extension, as shown in Figs. 1 and 2. This extension is also convenient for the manipulation of the valve-stem in the lathe while the several parts are being fashioned. The valve-stem or the cylindrical portion *d'* is cut away, making a flat face d^6. A like face d^7 is formed upon the stem at its upper end opposite the end of

the face d^6. A portion of the valve-stem or the cylindrical portion d' is screw-threaded, as at d^8. d^9 represents a washer having a flat face d^{10}, adapted to engage the face d^6 when the washer is in place on the stem, whereby said washer and stem rotate together. This washer is provided with wings d^{11}, adapted to stand over the ports b^7 when the ports d^3 b^7 do not register, thus preventing a tool from being inserted in the bushing to mutilate the surface of the valve-disk d^2 through the port b^7. When, however, the valve-stem is turned, as hereinafter described, to make the ports d^3 b^7 communicate, these wings are turned away from the ports b^7, or the position as shown in Fig. 3, to their position when the said ports d^3 b^7 register, as illustrated in Fig. 1.

d^{12} represents a nut arranged to be screw-threaded upon its interior, adapted to be screwed down on the stem against the washer d^9 and to draw the valve-disk against its seat under any desired tension or pressure. This nut is provided upon its periphery with one or more recesses d^{13}, adapted to be engaged by a suitable tool for turning the nut to adjust the pressure between the valve-disk and the seat.

From the foregoing it will be seen that the valve-disk may be adjusted from the outside without removing the bushing from the cask, and that the stem, with its valve and nut and washer, can be turned without affecting this adjustment. It follows from this construction that the nut and washer d^9 move with the valve-stem, thus preventing the accidental movement of the nut by engagement with a surface or part not moving in unison with the nut, as would be the case if the nut engaged the web, its flange b^9, or the valve-disk.

f represents a delivery-tube formed with the usual handle f' and at one end provided with screw-threads f^2 in order to connect said tube with a suitable pipe, as is common. At its lower end this tube is formed with a projecting flange f^3 of a size to fit within the projecting flange b^2 of the bushing.

f^{10} represents a washer arranged upon the tube below the flange and adapted to be forced into engagement with the rib b^3.

f^4 represent cams on the lower end of the delivery-tube situated a sufficient distance below the flange f^3 to permit said cams to engage complemental cams b^4 of the bushing, whereby the tube is securely locked in the bushing and the washer f^{10} forced against the flange b^3, as shown in Figs. 4 and 5.

f^5 represents a rib which, as shown in Figs. 4 and 9, depends from the smaller end of one of the cams f^4 and is adapted to engage the rib b^5 on the interior of the bushing in order to limit the movement of the tube in one direction—that is, the direction which it is turned when the valve-disk is moved to establish communication between the ports d^3 b^7. It is prevented from movement in the opposite direction when necessary or when the communication between these ports is broken by the arrangement of the cams b^4 f^4, the larger end of one cam on the tube engaging the larger ends of the cams on the bushing when this reverse movement is attempted. In other words, the tube when inserted can only be moved in one direction, and its movement in this direction is limited by the complemental ribs b^5 f^5. When the tube is turned to close the communication between the ports d^3 b^7, its movement is limited by the larger ends of the complemental cams striking each other. The rib and cams are so spaced that a quarter-turn or a turn sufficient to open and close the valve may be given to the valve-stem. The construction and arrangement of parts are such that when the delivery-tube is removed the valve-ports will in all cases be closed.

Casks and barrels are usually pitched after the bushing is inserted therein, and this pitch is found in practice to fill up the ports on the inside of the cask in the form here shown, the ports d^3 thus retarding and sometimes preventing the liquid being drawn off when the valve is open. To overcome this difficulty, I have provided a tool r, having a suitable handle r' and fingers r^2, reduced at their lower ends, as at r^3. The width of the main portion of the fingers is such as to fit snugly between the cams b^4 of the bushing, while the reduced or working ends r^3 of the fingers are constructed of a width to pass through the ports b^7 d^3. By this construction the tool is guided accurately, so that its working ends will clear the ports of foreign matter without scratching the walls of the ports or any of the mechanism. This is an important feature, since it permits the free use of the tool, while at the same time guarding against carelessness of workmen. When the valve is closed, the wings d^{11} cover the mouth of the ports d^7, as shown in Fig. 6, and it is necessary to provide some means for opening the valve and preferably in so doing to give said valve the same amount of movement that is given it by the delivery-tube, so that the ports d^3 b^7 will exactly register. Otherwise the ends r^3 of the fingers may be forced against the face of the valve-disk, thus scarring the same. To this end I employ a wrench s, provided with a suitable handle s'. This wrench has loosely arranged upon it near its lower end a collar s^2, formed on its lower face with projections s^3 upon either side of a size to fit snugly between the cams b^4, so that when the wrench is inserted in the bushing the said collar is firmly held against movement. On its upper face this collar is provided with two stops s^4.

s^5 represents a pin projecting from the wrench s above the collar s^2 and arranged between the stops s^4, whereby the amount of movement of the said wrench when the tool is inserted in the bushing is limited, the stops s^4 being arranged a distance apart corresponding to the distance through which the deliv-

ery-tube is moved to open and close the valve. By this construction the valve-stem can be given the same amount of movement as that given by the delivery-tube, thus turning the wings d^{11} from the position they occupy when the communication between the ports $d^3 b^7$ is closed, or the position shown in Fig. 6, to the position occupied by the ports when these ports are open, to the position shown in Figs. 7 and 11. The wrench s is then removed and the fingers r forced down through the ports, as shown in Fig. 11.

When it is desired to tighten or loosen the nut d^{12}, the spanner t is employed. (See Fig. 11.) This spanner consists of a shell t', adapted to fit the bushing and provided with projections t^2, adapted to fit between the cams b^4 to keep the shell from turning. This shell at its lower end is provided with fingers t^3, adapted to engage lugs t^4, extending from the upper side of the wings d^{11}, and thus holding the washer d^9 stationary.

t^5 represents a rod, mounted to rotate within the shell t', provided at one end with a handle t^6 and at its lower end with spurs t^7, adapted to engage the recesses d^{13} of the sides of the nut. By this construction it will be seen that the nut can be tightened and loosened whenever required.

The path taken by the liquid in leaving the cask through the delivery-tube is indicated by arrows in Fig. 5, the tube being formed at its lower end with ports f^{12}, by which communication between the interior of the tube and the space in the bushing surrounding said tube is established. The lower end of the wrench and delivery-tube are provided with a suitable opening x, the walls of which have the same relative arrangement as the sides of the upper end of the valve-stem, so that the stem can be rigidly engaged thereby.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. A tap comprising in its construction a bushing formed with a web provided with one or more ports, and a valve-stem aperture, a valve-stem arranged in said aperture, a disk carried by said stem, and arranged to seat against the inner face of said web, and means upon said valve-stem upon the opposite side of said web for adjustably holding said valve against its seat, said means comprising a member arranged to turn with the valve-stem, and to engage the web, or some part of the bushing, and a nut to engage said member to force the latter against its support, and the valve against its seat.

2. A tap, comprising in its construction, a bushing formed at its lower end with a web provided with one or more ports and a valve-stem aperture, the walls of said aperture being extended to form an upwardly-projecting flange, a valve-stem arranged in said aperture and provided with an apertured valve-disk adapted to seat against the lower face of said web, a winged washer locked on said stem and resting on said flange, and a nut on said stem adapted to engage said washer and to force said valve against its seat, said wings being adapted to stand over the ports when said disk is turned to close communication into the cask.

3. The combination with a bushing having cams on its inner face, and recessed at its upper end, terminating in an upwardly-projecting rib, a projecting stop-rib arranged below one of said cams, a valve mechanism arranged in the lower end of said bushing, comprising a nut having wings adapted to protect the ports in said valve mechanism when the latter are closed, combined with a delivery-tube having a washer adapted to engage the rib b^3, and complemental cams and rib adapted to engage the cams, and a stop-rib in the interior of the bushing.

4. A tap comprising a bushing, formed at its outer end with a web, provided with one or more ports, and a valve-stem aperture, a valve-stem arranged in said aperture, a disk carried by said stem, and adapted to seat against said web, a winged washer locked on said stem, or said web, and formed with wrench-engaging means, as lugs t^4, and means for holding said disk against its seat.

5. A spanner comprising a shell having radial lugs or projections t^2, and axial lugs or projections t^3, a rod arranged to rotate in the said shell, and provided at one end with a nut-engaging means, and provisions on said rod for turning the latter.

6. A tap comprising a bushing, formed at its lower end with a web, provided with one or more ports, and a valve-stem aperture, a valve-stem arranged in said aperture, a disk carried by said stem, and adapted to seat against the lower side of said web, and a winged washer locked on said stem, or said web, and formed with wrench-engaging means, as lugs t^4, a nut on said stem adapted to engage said washer to force said valve against its seat, said nut being accessible from the exterior of the cask.

7. A cleaning-tool for the ports of taps for casks or barrels, comprising one or more fingers shaped at their working ends to enter said ports; the main body of the finger or fingers being shaped to engage lugs or other members of the interior walls of the tap to guide said fingers and cause the working ends to properly register with the said ports.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 7th day of April, A. D. 1896.

RUDOLPH F. STAHL.

Witnesses:
A. D. HARRISON,
A. D. ADAMS.