Oct. 7, 1930. V. T. HOHAUS 1,777,753

RETURN BEND

Filed March 23, 1929

Fig. 1

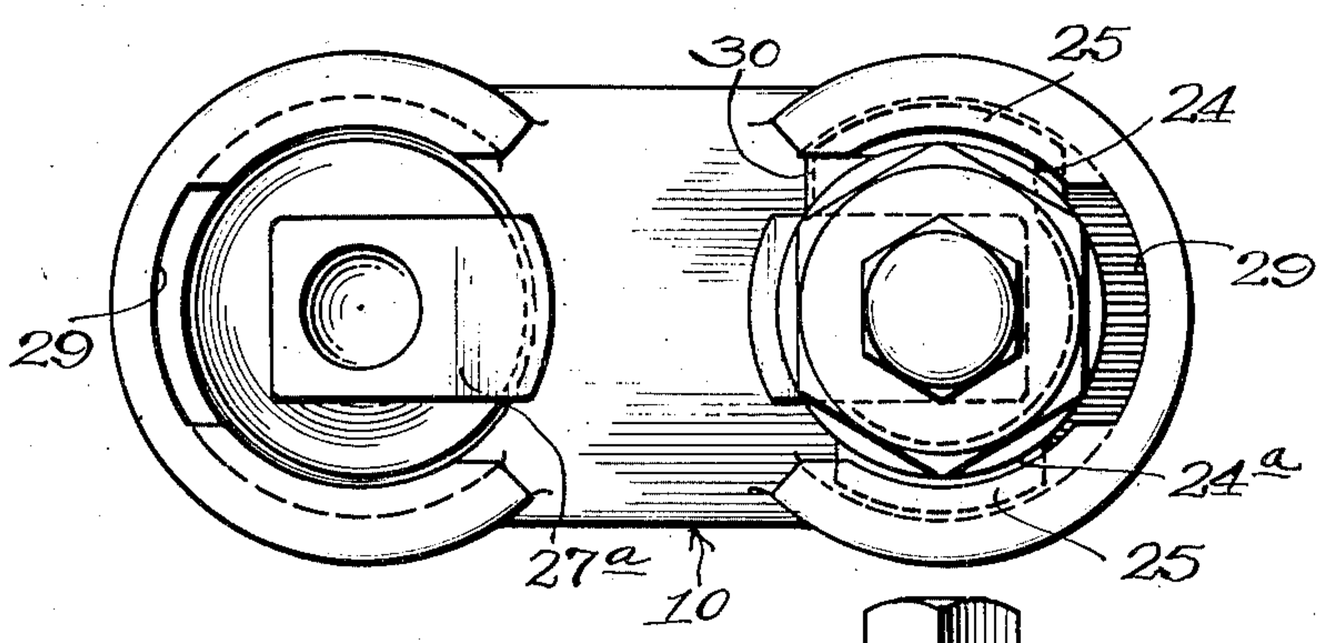


Fig. 2

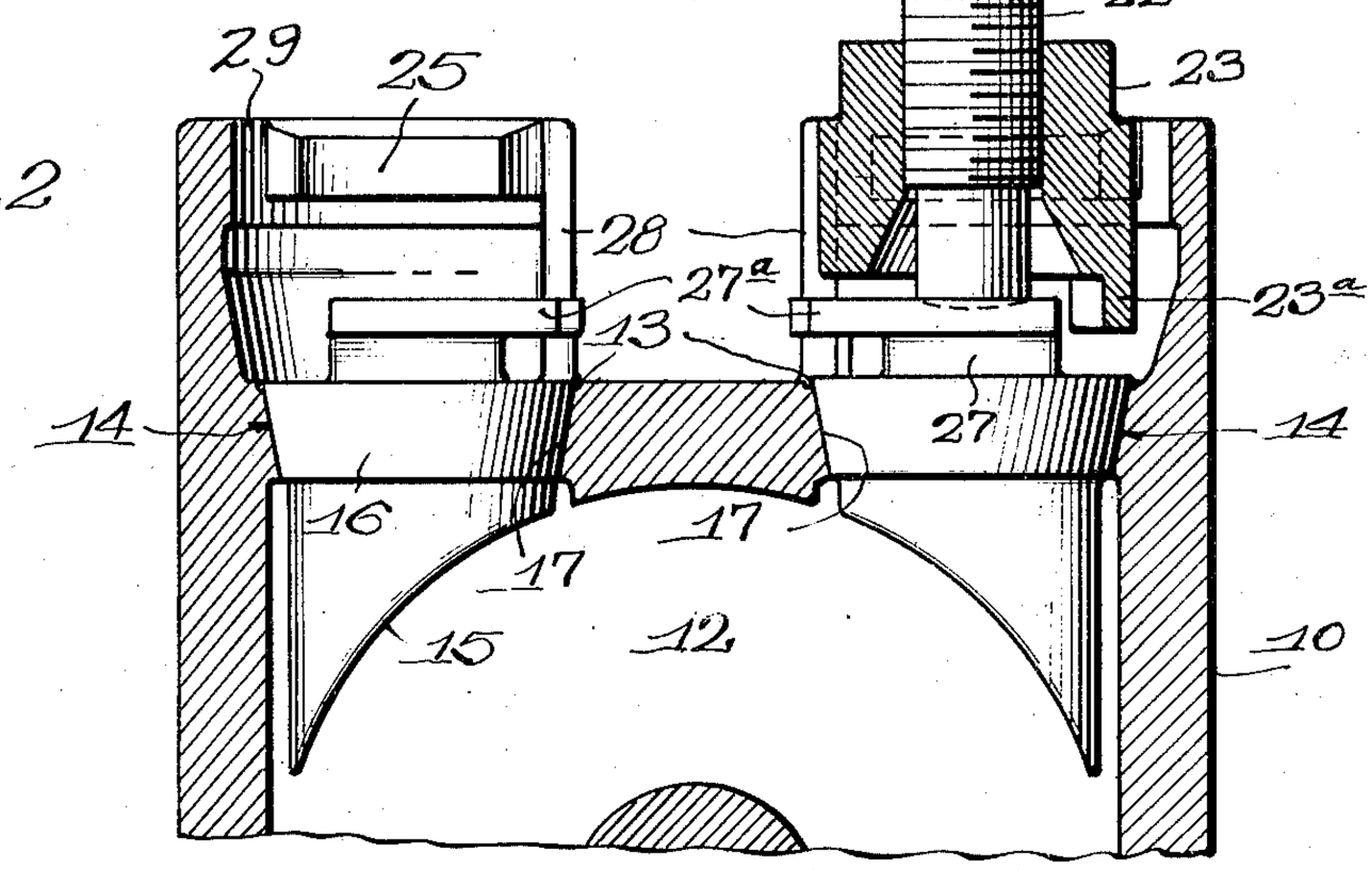
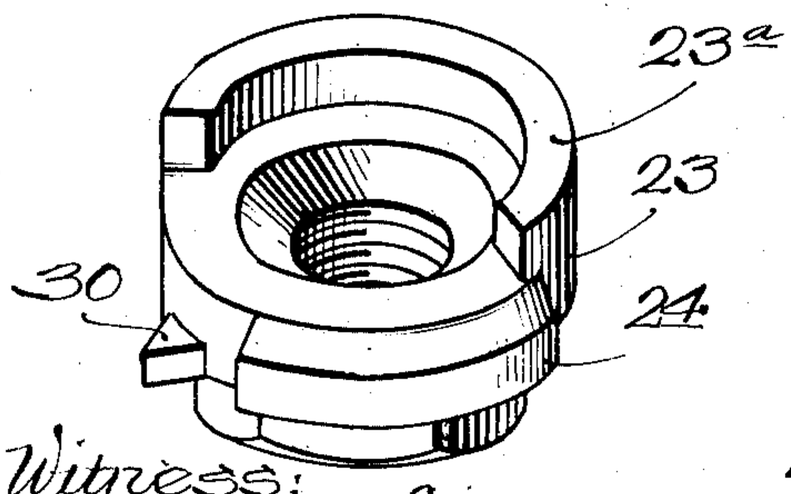
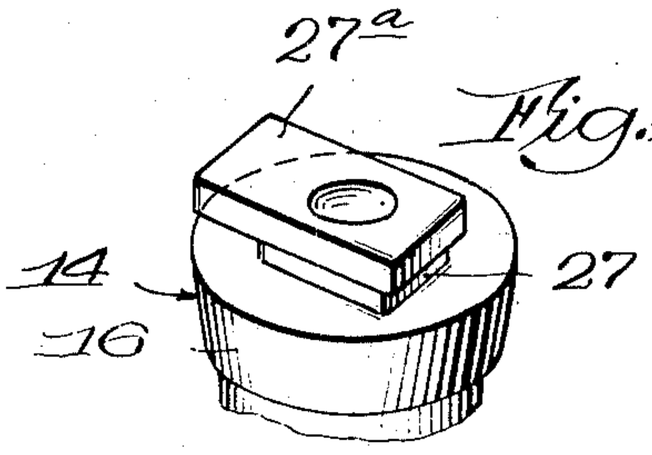


Fig. 3



Witness:
Chas. L. Komush.

Fig. 4



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UNITED STATES PATENT OFFICE

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RETURN BEND

Application filed March 23, 1929. Serial No. 349,292.

This invention relates to improvements in locking closures for pressure systems, and more particularly to return bend fittings, such as used in oil tube stills or cracking units, although not limited to such use.

The principal object of the invention is to provide an improved and simplified construction of plug locking means for the type of fittings above described, whereby the proper position of said plug is always assured, and means are provided for assisting in the removal of said plugs.

Other objects of invention will appear from time to time as the following description proceeds.

Figure 1 is a top plan view of a pipe bend constructed in accordance with my invention, but with one of the set locks removed.

Figure 2 is a view in part section of the pipe bend shown in Figure 1.

Figure 3 is a perspective view showing the under side of the set lock.

Figure 4 is a perspective view of the plug head.

Referring to details of the drawings, 10 indicates the body of a 180° pipe bend fitting of the type used in tube stills, or the like, adapted to have a pair of tubes attached thereto in parallel relation, as by rolling them into the lower end of the fitting (not shown). The body of the head is provided with a semi-circular passage 12 of uniform circular cross sectional area, excepting where communicating with two circular plug openings 13, 13 at the upper end of the fitting, as shown.

Closure plugs 14, 14 fit in the openings 13, 13 each plug having a curved deflector face 15 conforming to the shape of the passage 12 when said plug is in place. The two sets of plugs and their locking devices shown herein being similar, a description of one set will suffice for the understanding of both.

The upper end of plug 14 is closely fitted in the opening 13, as by an enlarged bearing 16 engaging a seat 17. In order to insure a pressure-tight joint, the bearing 16 is usually ground in its seat.

The plug 14 is provided with a neck 27 and an elongated head 27^a projecting in one direction, as shown in Figure 4. When said plug is seated in place, as in Figure 1, said head extends laterally through a side opening 28 in an upstanding part 26, as shown.

The locking means for the plug comprises a set lock 23 in which a set screw 22 is threaded axially. The set lock has two projecting lugs 24, 24^a arranged to be rotated beneath projecting locking flanges 25, 25 carried on the circular upstanding part 26 of the casing 10. One of the projecting lugs 24 on the set lock is preferably longer circumferentially of the set lock than is the opposite lug 24^a, and the opening 29 between two outer ends of the locking flanges 25, 25 is relatively narrow so that only the smaller lug 24^a can be fitted therein. The circular part 26 between the opposite inner ends of flanges 25, 25 is relatively wider to receive the larger lug 24, said part being also cut away to form the side opening 28, already mentioned above.

The lower face of the set lock 23 is provided with a circular depending flange 23^a which is cut away for somewhat more than 90° of its circumference, as shown in Figure 3, so as to permit the plug head 27^a to extend through said cut-away portion when the set lock is applied in position, and thus permit the lugs 24, 24^a to be dropped between the ends of flanges 25, 25, and thereafter permit said set lock to be rotated through an arc of approximately 90° so as to be locked beneath said flanges. The set lock is preferably provided with a stop 30 which engages the open end of one flange 25 to limit rotation of said set lock at its fully locked position.

The arrangement above described permits the plug 14 to be dropped into place without especial care as to its angular position, excepting that the head 27^a extends through the side opening 28 (which it must do to become seated at all) and then, by applying the set lock in its only possible unlocked position and thereafter rotating it to locked position, the plug will be automatically moved to its desired final position, in which the set screw 22 is screwed down to complete the locking of the plug, as shown in Figure 1.

Among the advantages of the construction above described, aside from its manifest simplicity and the automatic positioning of the plug already mentioned, is the provision of a relatively large opening at one side of the projecting plug head so as to permit the use of a tool for prying the plug from its seat when necessary, for cleaning the tubes.

Although I have shown and described one particular embodiment of my invention, it will be understood that I do not wish to be limited to the exact construction shown and described, but that various changes and modifications may be made without departing from the spirit and scope of my invention.

I claim as my invention:

1. A plug lock for pressure systems comprising a casing having an aperture, a plug seated therein, upstanding walls on opposite sides of said aperture open at one side, opposed locking flanges on said walls, a set lock having locking projections adapted to be rotated into locking engagement beneath the latter, a set screw threaded in said set lock adapted to engage with said plug when said set lock is engaged with said locking flanges, and interlocking means on said plug and set lock operable by rotation of said lock to move said plug into a predetermined angular position relative to said casing.

2. A plug lock for pressure systems comprising a casing having an aperture, a plug seated therein, upstanding walls on opposite sides of said aperture open at one side, opposed locking flanges on said walls having openings of different circumferential lengths at opposite ends thereof, a set lock having locking projections of corresponding size so as to fit in but one angular position relative to said locking flanges and adapted to be rotated into locking engagement beneath said locking flanges, a set screw threaded in said set lock adapted to engage with said plug when said set lock is engaged with said locking flanges, and interlocking means on said plug and set lock operable by rotation of said lock to move said plug into a predetermined angular position relative to said casing.

3. A plug lock for pressure systems comprising a casing having an aperture, a plug seated therein, upstanding walls on opposite sides of said aperture open at one side, opposed locking flanges on said walls, a set lock having locking projections adapted to be rotated into locking engagement beneath said locking flanges, a set screw threaded in said set lock adapted to engage with said plug when said set lock is engaged with said locking flanges, and interlocking means on said plug and set lock operable when said set lock is in locked position beneath said flanges to maintain said plug in a predetermined angular position in said casing.

4. A plug lock for pressure systems comprising a casing having an aperture, a plug seated therein, upstanding walls on opposite sides of said aperture open at one side, opposed locking flanges on said walls providing openings of different circumferential lengths at opposite ends thereof, a set lock having locking projections of corresponding size so as to fit in but one angular position relative to said locking flanges and adapted to be rotated into locking engagement beneath the latter, a set screw threaded in said set lock adapted to engage with said plug when said set lock is engaged with said locking flanges, and interlocking means on said plug and set lock operable when said set lock is in locked position beneath said flanges to maintain said plug in a predetermined angular position in said casing.

Signed at Springfield, Ohio, this 19th day of March. 1929.

VERNE T. HOHAUS.