April 7, 1931. B. C. TRAVIS 1,799,876

TOOL FOR HANDLING PLUG CLOSURES

Filed May 29, 1928

Fig. 1.

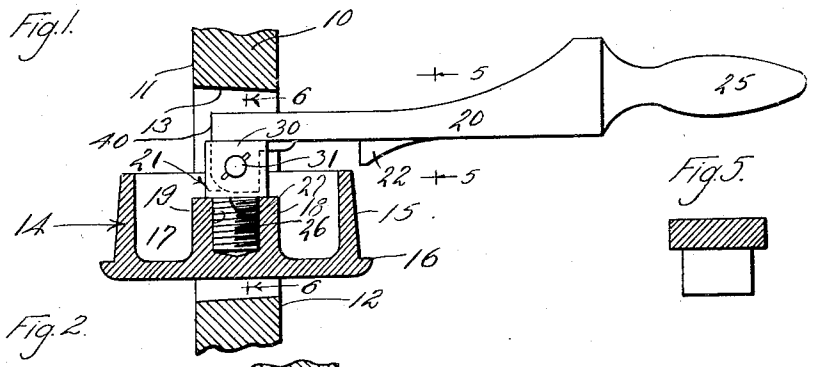


Fig. 2.

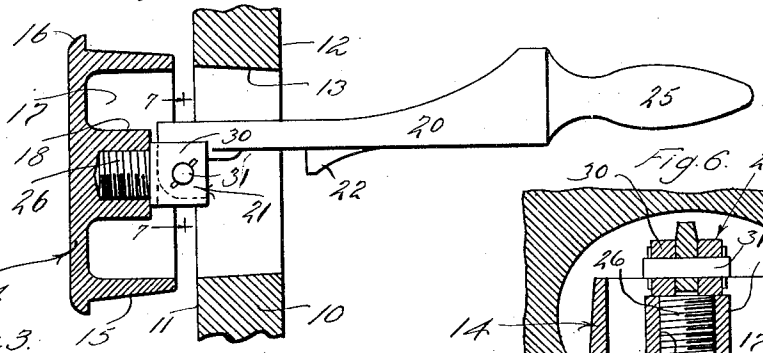
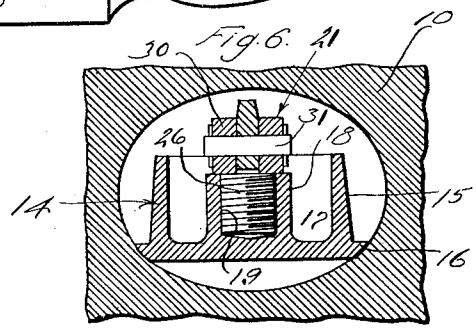


Fig. 3.

Fig. 5.

Fig. 6.



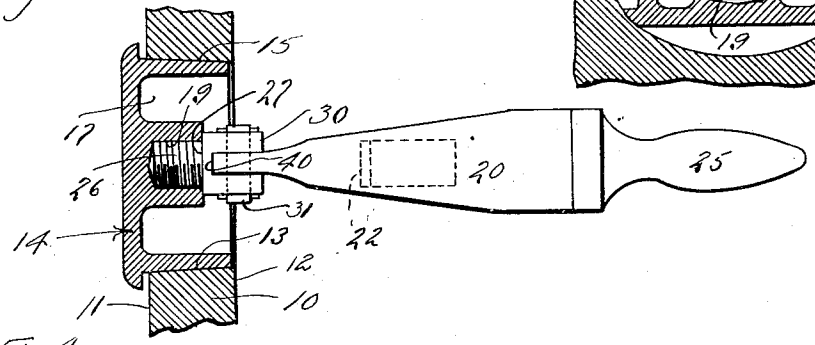


Fig. 4.

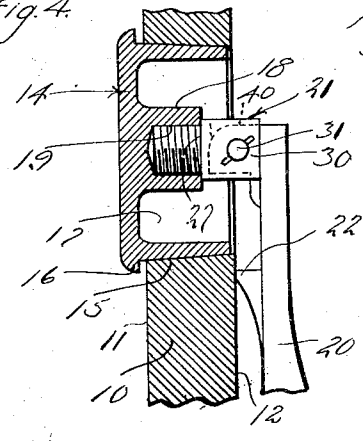
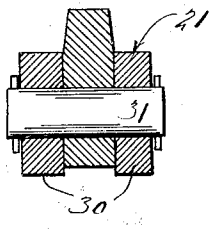


Fig. 7.



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Patented Apr. 7, 1931

1,799,876

UNITED STATES PATENT OFFICE

BERTRAM C. TRAVIS, OF LOS ANGELES, CALIFORNIA, ASSIGNOR OF ONE-HALF TO PACIFIC COPPER AND BRASS WORKS, INCORPORATED, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA

TOOL FOR HANDLING PLUG CLOSURES

Application filed May 29, 1928. Serial No. 281,576.

This invention has to do with a tool for handling plug closures, and it is a general object of the invention to provide a simple, convenient and effective tool for handling tapered elliptical plugs, or the like.

Openings in boilers and like structures are, in some cases, made elliptical in cross section and tapered longitudinally so that they are inwardly divergent. Tapered elliptical plugs or closures are used to close these openings, the openings and plugs being proportioned so that the plugs are passed through the openings edgewise and are turned at the inner end of the openings and then drawn outwardly into seated engagement in the openings.

It is a general object of this invention to provide a simple, effective and convenient tool for handling or manipulating a plug of the character mentioned in the course of applying it to an opening.

A further object of this invention is to furnish a tool of the character mentioned whereby a plug can be conveniently and securely held so that it can be passed through a hole and then turned or manipulated to be drawn outwardly into the hole.

It is another object of this invention to supply a tool of the character mentioned whereby a plug can be conveniently and tightly drawn or pulled outwardly into seated engagement in an opening.

A further object of the invention is to provide a tool of the character mentioned which can be used in driving a plug inwardly out of an opening without injuring the plug and without losing control of the plug.

The various objects and features of the invention will be best and more fully understood from the following detailed description of a typical form and application of the invention, throughout which description I refer to the accompanying drawings, in which:

Fig. 1 is a view showing the tool provided by this invention being used in the course of passing a plug through an opening. Fig. 2 is a view showing the plug after it has passed through the opening and has been turned parallel with the plate in which the opening is formed. Fig. 3 is a view illustrating the plug after it has been turned from the position shown in Fig. 2 and drawn outwardly into the opening in the plate. Fig. 4 is a view illustrating the tool in position for drawing the plug tightly into the opening. Fig. 5 is a detailed sectional view taken as indicated by line 5—5 on Fig. 1. Fig. 6 is a view taken as indicated by line 6—6 on Fig. 1, and Fig. 7 is a sectional view taken as indicated by line 7—7 on Fig. 2.

In handling a tapered elliptical plug to place it in or remove it from a boiler plate, or the like, where the taper of the opening in the plate is inwardly divergent it is difficult to hold and manipulate the plug at the inner side of the plate as the reach of the operator is practically confined to the exterior of the plate. This invention is intended primarily to provide a tool whereby a tapered elliptical plug such as I have referred to can be handled easily, quickly and effectively, and, further, without danger of dropping or losing control of the plug.

In the drawings I have illustrated a plate 10 that may be considered a boiler plate, or the like, having an inner side 11 and an outer side 12. An opening 13 is formed through the plate, the opening being elliptical in cross section and being tapered so that it is inwardly divergent. I have shown a tapered elliptical plug 14 designed to fit and close the opening 13 from the inner side of the plate, the plug having a peripheral face 15 corresponding in shape and proportioning to the wall of the plate opening 13 and having a safety flange 16 projecting from its large end. The outer end or side of the plug 14 is made concave or is recessed at 17 to make the plug as light and inexpensive as possible. The plug illustrated is provided in the recessed part 17 with a central projection 18 having a screw-threaded socket 19. It will be obvious, of course, that the plug might be made solid in which case the socket 19 could be formed directly in the end of the plug instead of in a projecting part as shown in the drawings.

The tool provided by this invention includes, generally, a main part or body 20, a head 21 pivotally connected to the inner end

of the body and adapted to be connected with the plug 14, and a fulcrum 22 on the body for use when tightening the plug in the opening 13 in the plate.

The body 20 of the tool is preferably an elongate part finished at its inner end for making connection with the head 21. The body may be furnished at its outer end with a suitable handle 25 to make it convenient to use.

The head 21 is adapted to be connected to the plug 14. The form of connecting means illustrated includes a screw-threaded lug or projection 26 on the head to screw thread into the socket 19 in the plug. The head is provided with a shoulder 27 adapted to bear against the face or end of the plug, for instance against the end of the projection 18, when the head is applied to the plug as shown in Figs. 1 to 4 of the drawings.

In accordance with my invention the head 21 is pivotally connected to the inner end of the body about an axis extending transverse of the longitudinal axis of the body. In the construction illustrated the head is yoked to have spaced side parts 30 which receive the end portion of the body. A pivot pin 31 extends between the side parts 30 of the head and through the end portion of the body pivotally connecting the body and the head. The head is preferably related to the end 40 of the body so that the end of the body bears directly against the head when the head is positioned with reference to the body, as illustrated in Fig. 2.

The fulcrum 22 projects from one side of the body at a point spaced somewhat from the inner end of the body, the spacing of the fulcrum from the inner end of the body being such as to allow the fulcrum to engage the outer side 12 of the plate 10 when the parts are positioned as shown in Fig. 4. In practice the fulcrum 22 may be of any suitable shape and may be formed on the body in any suitable manner. I have shown the fulcrum integral with the body.

In using the tool the screw-threaded projection of the head is arranged in the socket 19 of the plug until the shoulder 27 of the head is seated against the plug. The head is then positioned to project laterally from the body causing the plug to be carried in a position such as is shown in Fig. 1 in which position it can be readily passed through the opening 13 to the inner side of the plate 10. When the plug has reached the inner side of the plate it is a simple matter to turn or manipulate the body of the tool causing the head to project in a direction substantially parallel with the longitudinal axis of the body, as shown in Fig. 2, whereupon the body can be turned to bring the plug into position to seat outwardly in the opening 13, as shown in Fig. 3. The body 20 is then turned or swung to bring the fulcrum 22 into engagement with the outer side 12 of the plate 10. Pressure or blows applied to the outer end or handle portion of the body will then cause the body to act about or through the fulcrum 22 and thus cause the plug to be drawn tightly into the opening 13. When the plug has in this manner been made tight the handle can be turned or rotated to disengage the projection 26 from the socket 19. The plug, having been made tight through the action just described, will remain in place ready to receive pressure from the inner side of the plate. When it is desired to remove the plug the head can be reapplied to the plug by applying the projection 26 to the socket 19, and when the shoulder 27 has seated against the plug the body 20 can be arranged to project outwardly at right angles to the plate 10 so that blows can be applied to the outer end of the body and thus cause the plug to be driven from the opening 13. During this driving action the end 40 of the body is preferably seated against the head so that the driving force is transmitted directly from the body to the head. When the plug has been dislodged through the driving action it can be easily manipulated from the body 20 to be withdrawn through the opening 13.

Having described only a typical preferred form of my invention, I do not wish to limit myself to the specific details set forth, but wish to reserve to myself any changes or variations that may appear to those skilled in the art or fall within the scope of the following claims.

Having described my invention, I claim:

1. A tool of the character described including, a body, and a head pivotally connected with the body and having a threaded part adapted to be threaded into an opening in an object to be handled by the tool.

2. A tool for handling plug closures and the like including, a body, and a head pivotally connected with the body operable between a position where it is in line with the body and a position where it is transverse of the body, and adapted to be connected with an object to be handled, and a screw threaded pin on the head adapted to be threaded in an opening in an object to be handled, the body having a shoulder for directly engaging the head when the head is positioned in line with the body.

3. A tool of the character described including, a body, a head connected with the body, a screw threaded part on the head adapted to be threaded in an opening in an object to be handled, and a fulcrum on the body at a point removed from the head.

4. A tool of the character described including, an elongate body, a head connected to one end of the body, a screw threaded part on the head adapted to be threaded into an opening in an object to be handled, and a

fulcrum on one side of the body at a point removed from the head.

5. A tool of the character described including, an elongate body, a head pivotally connected to one end of the body, a screw threaded part on the head adapted to be threaded into an opening in an object to be handled, and a fulcrum on one side of the body at a point removed from the head.

6. A tool of the character described including an elongate body, having a handle portion, a head connected to one end of the body, a screw threaded part on the head adapted to be threaded into an opening in an object to be handled, and a fulcrum on one side of the body at a point removed from the head and located between the handle and head.

7. A tool for handling plug closures including, an elongate body having a handle portion, a head movable between a position where it is in line with the body and a position where it is transverse of the body, the head having a screw-threaded part to be threaded into an opening in an object to be handled, the handle having a part at one end overlapping a part of the head, a pivot pin connecting the overlapping parts, the body having a shoulder to engage the head when the head is positioned in line with the body, and a fulcrum projection on one side of the body between the head and handle portion.

In witness that I claim the foregoing I have hereunto subscribed my name this 17th day of May, 1928.

BERTRAM C. TRAVIS.