

Dec. 16, 1952

B. TUTTLE

2,621,679

HIGH-PRESSURE TEST PLUG

Filed March 3, 1949

3 Sheets-Sheet 1

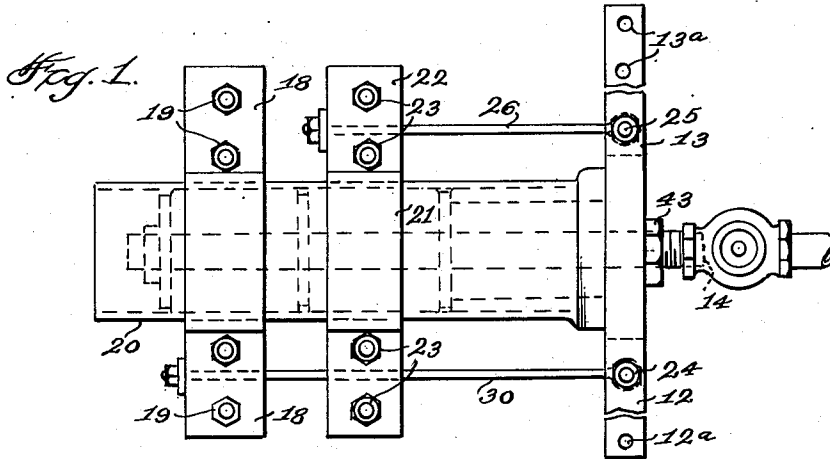
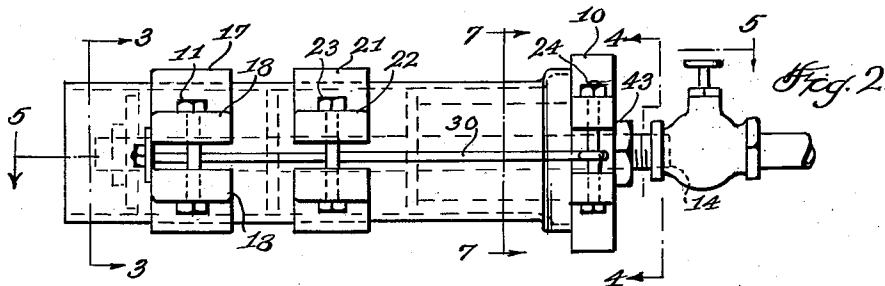
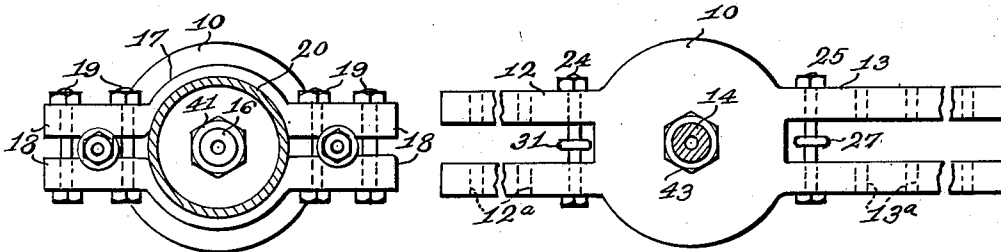


Fig. 3.

Fig. 4.

INVENTOR.

Bert Tuttle

BY

Patrick J. Beamer
ATTY.

Dec. 16, 1952

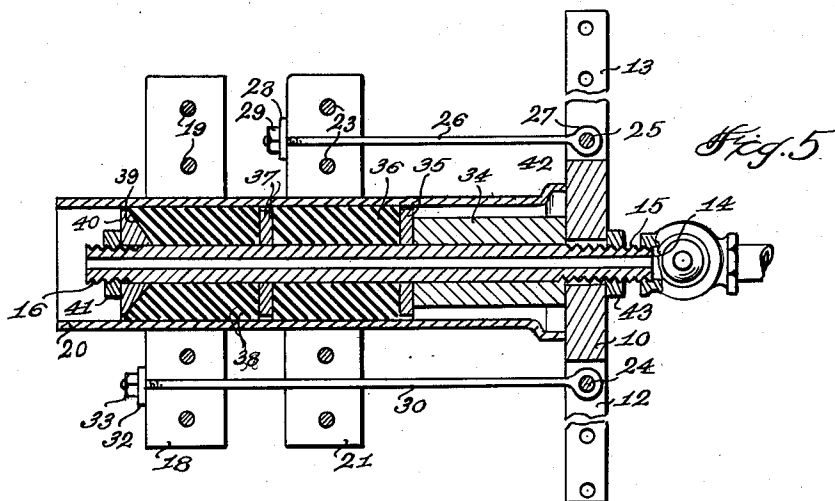
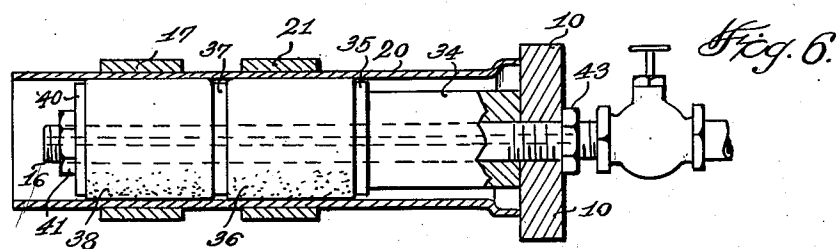
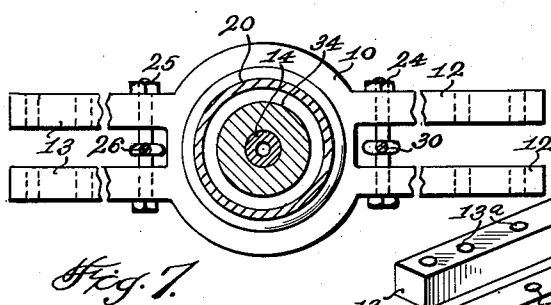
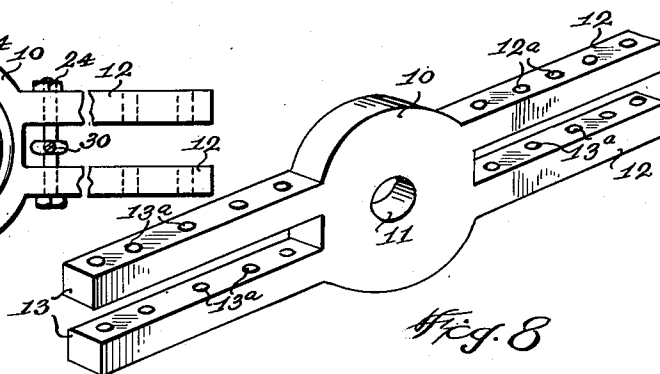
B. TUTTLE

2,621,679

HIGH-PRESSURE TEST PLUG

Filed March 3, 1949

3 Sheets-Sheet 2



INVENTOR.

Bert Tuttle

BY

Patrick J. Beaver

ATTY.

Dec. 16, 1952

B. TUTTLE

2,621,679

HIGH-PRESSURE TEST PLUG.

Filed March 3, 1949

3 Sheets-Sheet 3

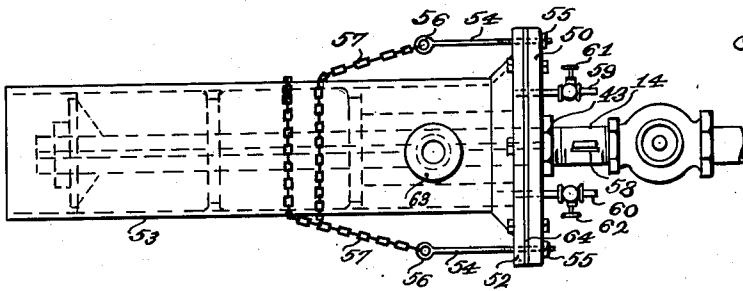


Fig. 9.

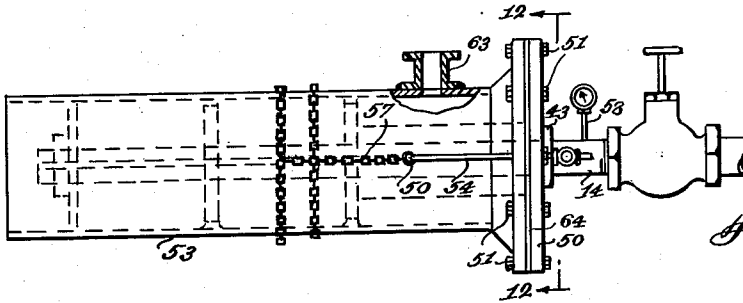


Fig. 10.

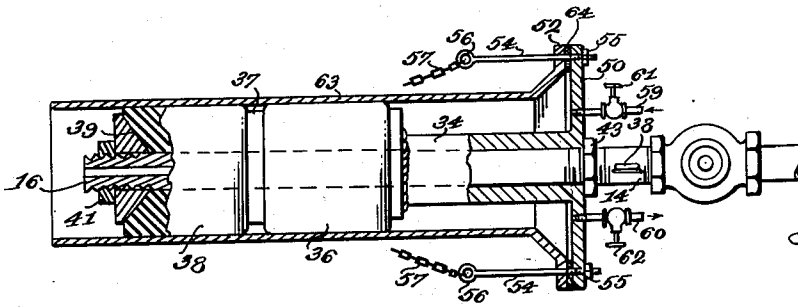


Fig. 11.

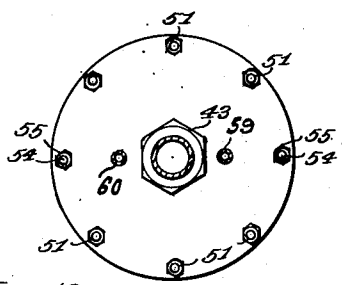


Fig. 12.

Inventor

Bert Tuttle

By

Patrick J. Deavers

Attorney

UNITED STATES PATENT OFFICE

2,621,679

HIGH-PRESSURE TEST PLUG

Bert Tuttle, Orange, Tex.

Application March 3, 1949, Serial No. 79,377

1 Claim. (Cl. 138—90)

1

The present invention relates to high pressure test plugs and it consists in the combinations, constructions and arrangements of parts herein described and claimed.

It is an object of the present invention to provide a high pressure test plug which is capable of insertion into one end of a pipe to be tested and quickly and easily clamped into position thereon.

Another object of the invention is the provision of a device of the character set forth which is provided with means whereby pressure within a pipe to be tested contributes to the holding of the device within such pipe.

Another object of the invention is the provision of a device of the character set forth which is simple in construction and operation and yet effective and efficient in use.

Another object of the invention is the provision of novel compressible means for gripping the interior surface of a pipe to be tested.

Another object of the invention is the provision of a novel arrangement of clamps and anchor rods for gripping the exterior of a pipe to be tested.

Other and further objects of the invention will become apparent from a reading of the following specification taken in conjunction with the drawings, in which:

Figure 1 is a plan view of an embodiment of the invention,

Figure 2 is a side elevational view of Figure 1,

Figure 3 is a sectional view taken along line 3—3 of Figure 2,

Figure 4 is a sectional view taken along line 4—4 of Figure 2,

Figure 5 is a sectional view taken along line 5—5 of Figure 2,

Figure 6 is a vertical sectional view, partly in elevation, of the device shown in Figure 2,

Figure 7 is a sectional view taken along line 7—7 of Figure 2,

Figure 8 is a perspective view of an element of the invention,

Figure 9 is a plan view of a modification of the invention,

Figure 10 is a side elevational view of Figure 9,

Figure 11 is a view similar to Figure 9 but partly broken away to show interior details, and

Figure 12 is a sectional view taken along line 12—12 of Figure 10.

Generally there is provided a test plug for the testing of sections of pipe, particularly heavy duty pipe. The plug consists essentially of a spider adapted to be placed against the bell of a section

2

of pipe to be tested, a pair of clamps adapted to surround the exterior of the pipe, an anchor rod interconnecting each of the clamps with the anchor, a hollow tubular member extending through the anchor into the pipe to be tested and provided with a series of washers having compressible members inserted therebetween. A spacer member surrounds the tubular member and bears against the inner face of the spider and the outermost of the washers. The device is used for testing the critical pressure of pipe and eliminates many steps heretofore considered conventional in such cases. A modified form of the invention provides a simple and safe means for welding outlet members to sections of pipe.

Referring more particularly to the drawings, there is shown therein a high-pressure test plug comprising a spider 10 having a generally circular body and provided with a centrally disposed aperture 11. The spider is also provided with a pair of laterally disposed ears 12 integrally formed with the body thereof and a like pair of ears 13 diametrically opposed to the ears 12.

A hollow tubular member 14 extends through the aperture 11 and is exteriorly threaded at its outer end, as indicated at 15, and at its inner end, as indicated at 16.

A two-part inner clamp 17 is provided with outwardly extending ears 18 interconnected by means of bolts 19 and is provided for encompassing a pipe 20 to be tested. A like clamp 21 is provided with ears 22 and bolts 23.

The ears 12 have a bolt 24 selectively extending through vertical openings therein and the ears 13 have a like bolt 25 selectively extending through vertical openings 13a formed therein. A relatively short anchor rod 26 is provided with an eye 27 adapted to surround the bolt 25 and extends rearwardly between one pair of ears 21 and is provided with a washer 28 and a nut 29 at its inner end. A relatively long anchor rod 30 is provided at its forward end with an eye 31 surrounding the bolt 24 and extends through the other pair of ears 21 and thence through a pair of ears 18 and is provided with a washer 32 and a nut 33.

A cylindrically shaped spacer member 34 surrounds the tubular member 14 and abuts the inner face of the spider 10. A washer 35 surrounds the tubular member 14 in contact with the inner end of the spacer 34 and, in consecutive order inwardly on the member 14, there is placed a cylindrically shaped compressible member 36, preferably formed of rubber, a washer 37, a com-

3

pressible member 38 similar to the member 36 but countersunk in its outer end, as indicated at 39, a washer 40 having a conical face adapted to fit the outer end of the member 38 and a nut 41.

In operation, it will be apparent that when it is desired to test a pipe, as, for example, the pipe 20, the member 14 and its attendant parts are inserted into the pipe until the inner face of the spider 10 comes into contact with the bell 42 of the pipe. Thereafter the clamps 17 and 21 are positioned upon the outer sides of the pipe and the anchor rods 26 and 30 are arranged upon opposite sides of the pipe in such manner that their inner ends are positioned upon the ears 22 and the ears 18 respectively. Pressure may be applied then through the member 14 to the interior of the pipe 20. Such pressure will cause a force to be exerted against the washer 40 thereby to compress the members 36 and 38 between the washer 40 and the washers 37 and 35 resulting in an increase in the diameter of the compressible members 36 and 38 and hence effectively sealing the pipe 20 against the escape of pressure therefrom. It will also be apparent that the nut 41 is used for holding the washers and compressible members together with the spacer member 34 in position upon the member 14 and that a nut 43 threadably mounted upon the member 14 is adapted to hold the spider 10 and the various members surrounding the member 14 in proper position. Furthermore, since but one anchor rod interconnects the spider and each of the clamps, tightening of the nuts 29 and 33 will cause a warping action of the clamps 17 and 21 upon the pipe 20 to thereby more securely hold the same in position thereon. It will further be seen that the spacer 34, being of smaller diameter than the interior diameter of the pipe 30, makes certain that the compressible members 36 and 38 will act only upon the interior of the face of the pipe proper and not upon the inner walls of the bell 42.

In the modified form of the invention shown in Figures 9 to 12, inclusive, there is shown a plate 50 whose outer edge is provided with a plurality of spaced openings for the reception of bolts 51 for fastening the same to a flange 52 of a pipe 53 and also for the reception of a pair of rods 54 which are provided with nuts 55 at their outer ends and with eyes 56 at their inner ends.

To the eyes there is affixed in each case a chain 57 and the chains are adapted to be wound about the pipe 53 and hooked together at their free ends.

The remainder of the device is identical with that heretofore described with the exception that a gauge 58 is positioned in the member 14 and the plate 50 is provided with a steam inlet pipe

4

59 and a steam outlet pipe 60 which are respectively provided with valves 61 and 62.

In the operation of the device shown in Figures 9 to 12, inclusive, air under pressure may be introduced through the member 14 as heretofore described, the gauge 58 serving to advise the operator of the pressures utilized at all times. If it is desired, for example, to weld a fitting 63, to the pipe 53, the plate 50 is clamped to the flange 52 of the pipe, a gasket 64 being interposed therebetween to prevent leakage and the chains 57 are then wound upon the pipe and hooked together at their free ends. Steam is now introduced into the pipe between the member 34 and the inner walls of the pipe by opening the valve 61 and allowing the escape of air and dangerous fumes through the pipe 60 by opening the valve 62. The cutting and welding operation may then take place in safety and the device thereafter removed.

While but two forms of the invention have been shown and described herein, it will be readily apparent to those skilled in the art that many minor modifications may be made without departing from the spirit of the invention or the scope of the appended claim.

What is claimed is:

A device for use with a pipe having a bell and an opening located therein; a hollow cylindrical member threadably mounted in said opening and adapted to be inserted into the pipe, a plurality of washers on said cylindrical member, a plurality of compressible members on said cylindrical member between said washer, locking means for holding the device upon the pipe, a valved steam inlet for said plate and a valved steam outlet for said plate, said locking means including bolts interconnecting the bell of the pipe and the plate and a pair of chains connected at one end with the plate and adapted to be wound upon the pipe and hooked together at their free ends.

BERT TUTTLE.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
739,589	Clifford	Sept. 22, 1903
775,124	Christman	Nov. 15, 1904
821,223	Coleman	May 22, 1906
1,155,820	Kennedy	Oct. 5, 1915
1,242,769	Chamberlain	Oct. 9, 1917
2,477,663	Sexton	Aug. 2, 1949