

(No Model.)

G. PICKEL.
PNEUMATIC TIRE.

No. 500,944.

Patented July 4, 1893.

Fig. 1.

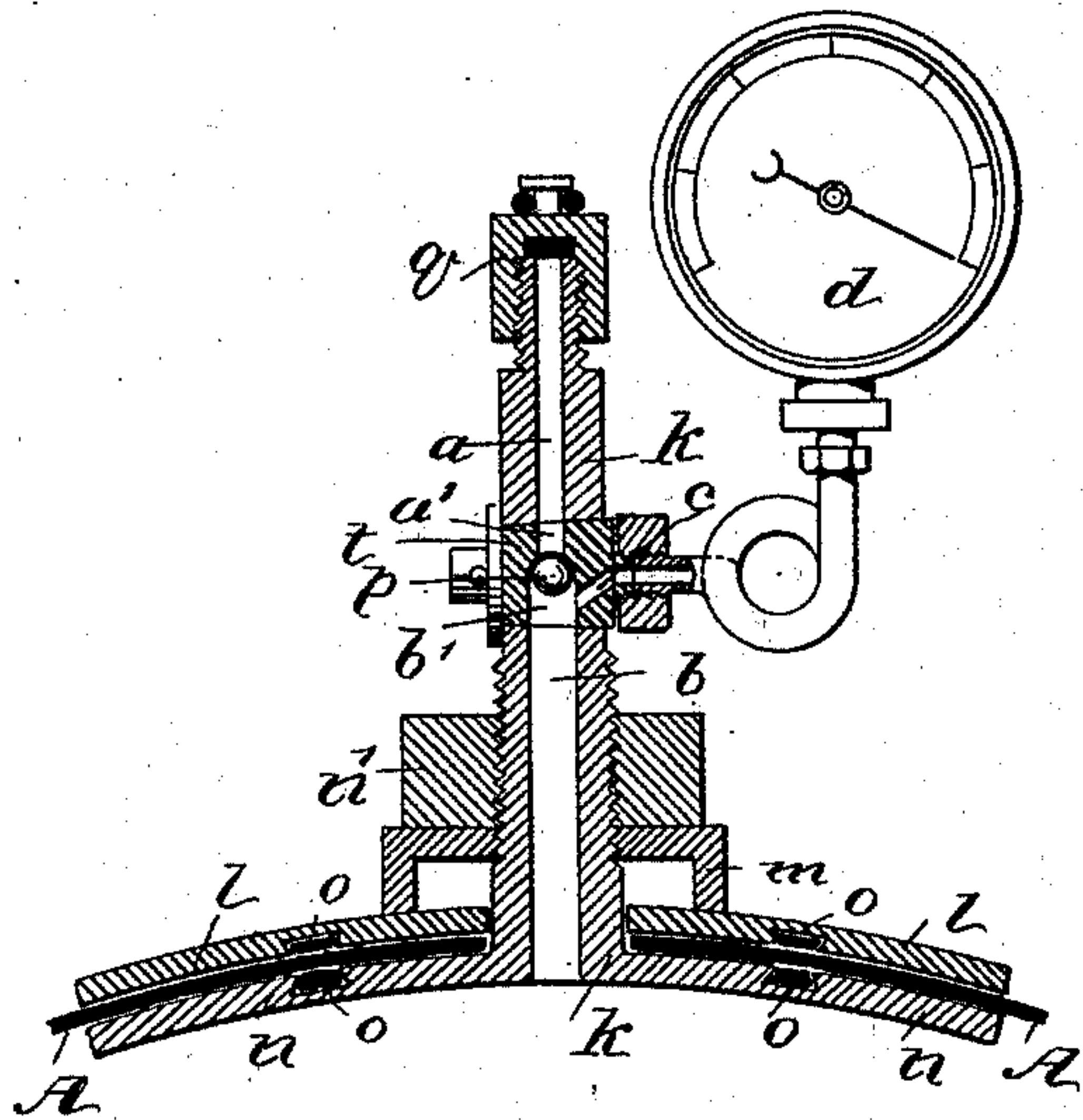
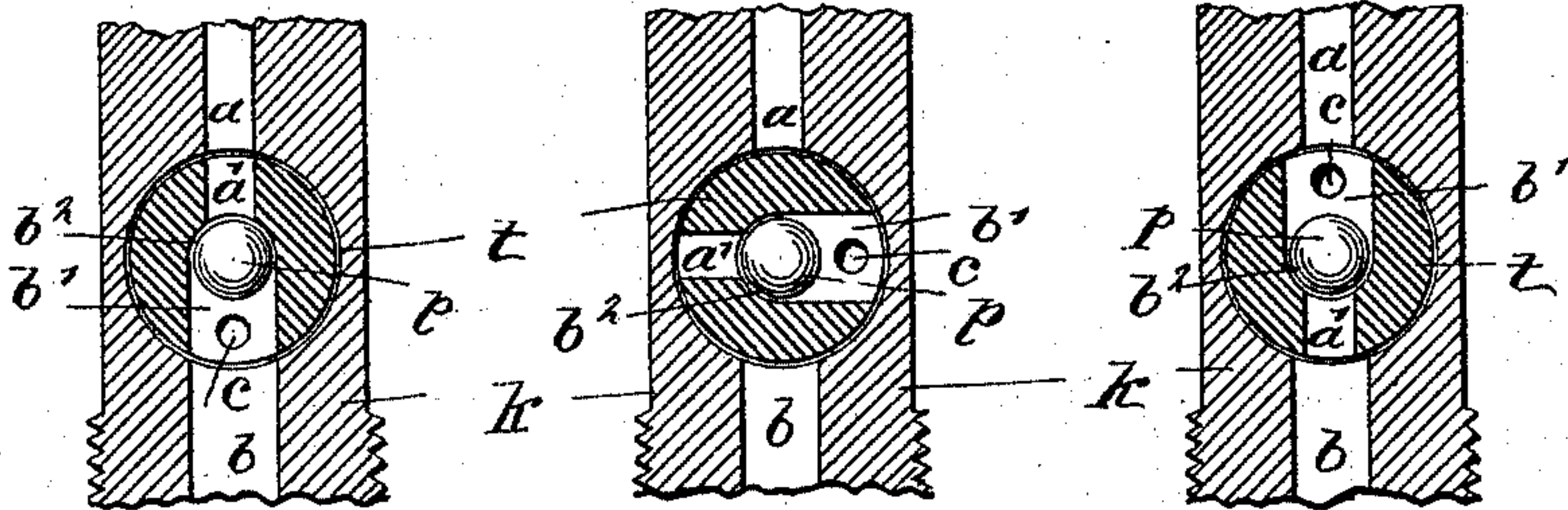


Fig. 2.

Fig. 3.

Fig. 4.



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GEORG PICKEL, OF BERLIN, GERMANY.

PNEUMATIC TIRE.

SPECIFICATION forming part of Letters Patent No. 500,944, dated July 4, 1893.

Application filed December 3, 1892. Serial No. 453,979. (No model.)

To all whom it may concern:

Be it known that I, GEORG PICKEL, merchant, of 4 Rosenthalerstrasse, Berlin, in the Kingdom of Prussia and German Empire, have invented new and useful Improvements in and Relating to Pneumatic Tires, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved valve device to be used in connection with the inflating tube of pneumatic tires, and the object is to keep the air tube tightly closed when it is inflated, so as to prevent leakage, and yet to provide means for readily and rapidly emptying the air tube when desired.

The device whereby the above object is attained will be fully described hereinafter, and the features of novelty pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a central sectional elevation of the improved device, the plug of the valve being shown in the position it is given during the inflating operation. Fig. 2 is a cross sectional elevation of the central part of the device, in the same position as in Fig. 1; and Figs. 3 and 4 are views similar to Fig. 2, but showing two other positions of the valve plug.

As illustrated in the drawings, the device consists of an inflating tube k which is arranged substantially in the direction of the center of the wheel. This tube is apertured at about its center to receive the transverse rotatable plug t . The upper or outer portion of tube k is provided with a longitudinal central bore a , and the lower or inner portion of the tube is likewise provided with a longitudinal central bore b , the diameter of this bore being greater than that of the bore a . The bores a and b are continued in the plug t , as shown at a' and b' . The plug is further provided with an oblique bore c extending longitudinally from the bore b' of the end of the plug. At about the center of the plug, the bore b' terminates with a spherical portion, forming a shoulder b^2 . A ball valve p is lo-

cated within the bore b' of the plug t , and has its seat upon the spherical shoulder b^2 .

d is a pressure gage connected with the oblique longitudinal bore c and secured to the plug, preferably by the means of a screw and nut connection, or its equivalent, so that the pressure gage can be readily removed.

q is a cap for closing the outer end of tube k when the inflating pump is not connected with the said end, and the purpose of this cap is to prevent the entrance of dust and humidity.

The device is secured to the air tube A of the tire by means of an annular extension n of the inflating tube k , said extension being located within the tube A , and by means of a washer l , adapted to be pressed against the outside of tube A by the aid of a nut m , which is locked by means of a check nut n' . Rubber rings $o o$ are preferably inserted into recesses provided in the adjacent faces of the annular extension n and the washer l respectively.

The operation of the device is as follows: When it is desired to inflate the tire, the cap q is removed and the inflating pump connected with the outer end of the tube k . The plug t is turned to the position shown in Figs. 1 and 2. It will be obvious that the internal pressure will force the ball p on its seat b^2 , and that each time the pump pressure exceeds the internal pressure, the ball p will be removed from its seat, thus permitting air to pass from the bore a to the bore b and to the air tube A of the tire. When the tire is sufficiently inflated, which can be ascertained by the aid of the pressure gage d , the plug t is turned through an angle of ninety degrees, as shown in Fig. 3. It will be observed that in this position of the plug the bore c does not communicate with the bore b of the inflating tube k , so that the pressure gage d can be removed without any danger of the air escaping from the tire. It will be understood that this position of the plug is preferably maintained as long as the tire is to be kept inflated. If the plug is allowed to remain in the position shown in Figs. 1 and 2, the escape of air will be effectively prevented by the ball valve p , but it will be impossible to remove the pressure gage d without causing the air to

escape through the bores *b* and *c*. When it is desired to empty the tire, the cap *q* is removed, and the plug *t* again turned through an angle of ninety degrees in the same direction it was turned after the inflation of the tire. The plug is thus brought into the position illustrated in Fig. 4, when the internal pressure will lift the ball *p* off its seat *b*², and the air will be free to escape through the bores *b a' b' a*, and also through the bore *c*, if the pressure gage *d* has been removed previously.

It will be obvious that certain details of the device may be varied without departing from the nature of the invention. For instance, a cylindrical valve provided with a conical head, may be employed instead of the ball valve *p* and the shoulder *b*² will be shaped accordingly. The bore *c* need not be oblique, though this is preferable, the essential point being that the inner orifice of the bore *c* should be below the valve *p*, or its equivalent, when the plug *t* is in the position illustrated by Figs. 1 and 2.

I am aware that ball valves have been used in connection with the inflating tubes of pneumatic tires; but I am not aware that the valve has been located within a plug transverse to the inflating tube, and that this plug has been provided with a longitudinal bore, as in my above described invention.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In combination with a pneumatic tire, an inflating tube secured to the tire, a transverse rotatable plug constructed to fit into a suitable aperture of the inflating tube, and a valve constructed to move in a transverse bore of the plug, the said plug being provided with a shoulder adapted to form a seat for the valve, substantially as shown and described.

2. In combination with a pneumatic tire, an inflating tube secured to the tire, a transverse plug capable of being turned within a suitable aperture of the said inflating tube, the

bore of the inflating tube being of different diameters on opposite sides of the said transverse plug, and the bore of the plug being likewise made in two portions of different width, corresponding with the width of the bore of the inflating tube, and a valve freely movable in the wider portion of the bore of the transverse plug, the said plug being provided with a shoulder adapted to form a seat for the valve, substantially as described.

3. In combination with a pneumatic tire, an inflating tube secured to the tire, a transverse rotatable plug constructed to fit into a suitable aperture of the said inflating tube, the plug having a transverse bore and a longitudinal bore communicating therewith, a valve freely movable in the transverse bore of the plug, and a pressure-gage communicating with the longitudinal bore of the plug, the said plug being provided with a shoulder adapted to form a seat for the valve, substantially as described.

4. In combination with a pneumatic tire, an inflating tube secured to the tire and having its longitudinal bore made in two portions of different diameters, a transverse plug capable of being turned within a suitable aperture of the said inflating tube, the plug having a transverse bore made in two portions corresponding in width with that of the bore of the inflating tube, and a longitudinal bore communicating with the wider portion of the transverse bore, a valve freely movable in the wider portion of the said transverse bore, the plug being provided with a shoulder adapted to form a seat for the valve, and a pressure gage communicating with the longitudinal bore of the plug, the said plug being provided with a shoulder adapted to form a seat for the valve, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GEORG PICKEL.

Witnesses:

PAUL FISCHER,
W. H. EDWARDS.