Jan. 10, 1933. E. M. GODFREY, JR 1,893,645

HOLDER SUPPORT FOR HAND ASSEMBLING VALVE STEMS AND PNEUMATIC TUBES

Filed Dec. 2, 1931

FIG. 1.

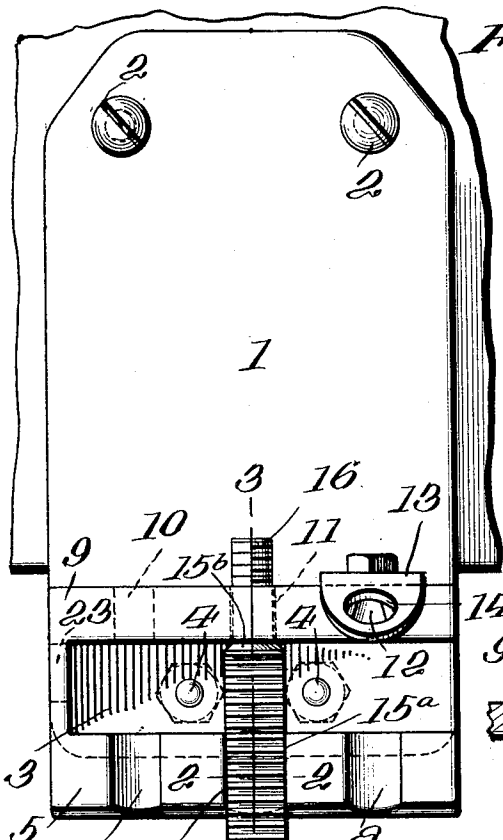


FIG. 2.

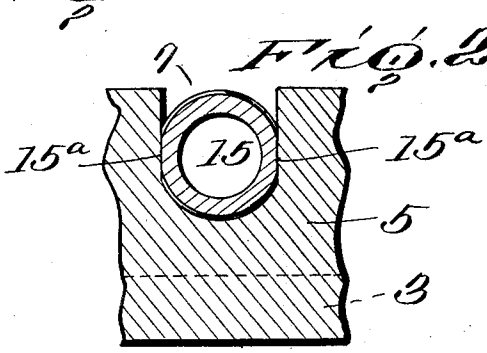


FIG. 3.

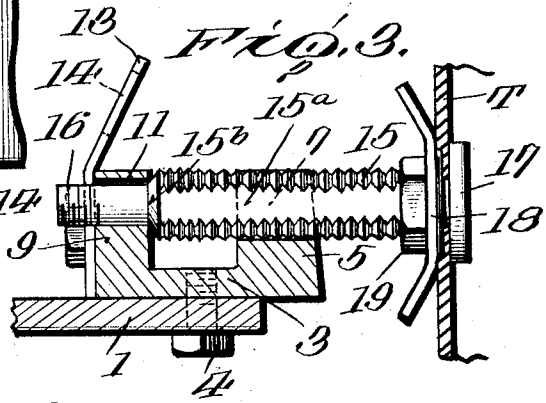


FIG. 4.

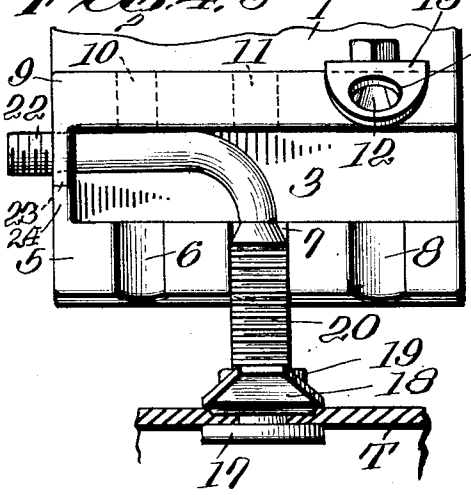
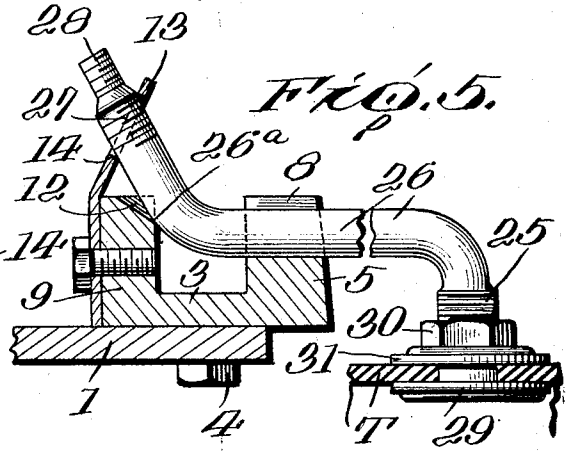


FIG. 5.



Inventor
Elmore M. Godfrey Jr.
By Sturtevant, Mason & Porter
Attorneys

Patented Jan. 10, 1933 1,893,645

UNITED STATES PATENT OFFICE

ELMORE M. GODFREY, JR., OF KNOXVILLE, TENNESSEE

HOLDER SUPPORT FOR HAND ASSEMBLING VALVE STEMS AND PNEUMATIC TUBES

Application filed December 2, 1931. Serial No. 578,563.

The invention relates to new and useful improvements in a holder support for hand assembling valve stems and pneumatic tubes.

An object of the invention is to provide a supporting bracket having means for loosely engaging and supporting a valve stem in a horizontal position and for preventing rotation of the valve stem during turning of the nut to clamp the tube to the valve stem.

A further object of the invention is to provide a supporting bracket of the above type with a stop for positioning the valve stem so that the clamping valve stem base is spaced from the supporting means for rendering accessible the clamping nut so that it may be forcibly turned for the clamping of the tube to the valve stem.

A still further object of the invention is to provide a supporting bracket which is provided with means for loosely engaging and supporting valve stems of different types to aid in the attaching of the pneumatic tube to the valve stem.

In the drawing:

Figure 1 is a plan view of a holder support embodying the improvements and showing a valve stem of one type supported thereby for the clamping of a tube to the valve stem.

Figure 2 is a sectional view on the line 2—2 of Figure 1.

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Figure 4 is a plan view of the holder support showing a different type of valve stem supported thereby.

Figure 5 is a vertical sectional view of the holder support showing a still further type of valve stem supported thereby.

The invention is directed to a holder support for hand assembling valve stems and pneumatic tubes, said support comprising a bracket which may be clamped to a bench, table or the like so that it is rigidly supported in an overhanging position at the edge thereof. The bracket support includes a device for loosely engaging and supporting a valve stem so as to hold the valve stem rigidly in a substantially horizontal position when the tube is attached thereto and supported thereby. The holder support also includes means for positioning the valve stem so that the clamping base thereof is spaced away from the support and renders accessible the clamping member so that a wrench may be applied thereto for turning the outer clamping member or spreader firmly against the walls of the tube and the walls of the tube against the base of the stem. The holder support includes two spaced members, one of which has recesses therein while the other is provided with an opening therethrough, the center of which is in line with the centered recess. The opening is so proportioned as to receive the small portion of the valve stem while the recess is so proportioned as to engage the flat sides of the valve stem for preventing the same from turning. The part for the recess and the part having openings cooperate to rigidly support the valve stem and to prevent said valve stem from turning. The openings and associated recesses are provided for valve stems of different sizes and lengths and also for valve stems of different shapes.

It is thought that the invention will be better understood by a detail description of the illustrated embodiment. The holder support includes a supporting bracket 1 having openings therethrough, one of which is indicated at 2. Clamping bolts are inserted through these openings for firmly attaching the bracket to a bench or table and preferably so that the outer end of the bracket is away from the edge of the table so as to provide a free space beneath the bracket and the parts carried thereby for the handling of the tube. Fixed to the bracket 1 is a holder 3. Said holder is secured to the bracket by clamping bolts 4. Said holder is pro-

vided with an upstanding member 5 at the front edge thereof. Said upstanding member 5, as shown in the drawing, is provided with three recesses 6, 7 and 8. Spaced from this holding member 5 is a second holding member 9 which is formed as an integral part of the holder and this holding member 9 has apertures or openings therethrough. The opening 10 is associated with the recess 6. The opening 11 is associated with the recess 7. Associated with the recess 8 is a chamfered recess 12 in the front upper edge of the holder member 9. Attached to this holder member 9 is an upstanding arm 13 having the end thereof bent upward and provided with an opening 14 therethrough. The purpose of this bracket and the chamfered portion 12 will be described later.

In Figure 3 of the drawing the holder support is shown as supporting a valve stem which is indicated at 15. This valve stem 15 includes the usual threaded portion which extends through the rim of the wheel, also a reduced threaded portion 16 containing the valve and its seat and a clamping base 17. The clamping base 17 is preferably circular and serves as the inner clamping member against which the wall of the tube is clamped. Mounted on this valve stem 15 is an outer clamping plate or spreader 18. Threaded on the valve stem 15 is a clamping nut 19. This valve stem is one of the standard forms of valve stems. It is shown placed in the holder support and in order to accomplish this the small end 16 of the valve stem is inserted in the opening 11 and the body portion of the valve stem is laid in the recess 7. The valve stem is turned so that the flat side walls 15*a*, 15*a* thereof are parallel with the side walls of the recess 7. This recess 7 is so proportioned that when the valve stem is placed therein the walls of the recess engaging these flat walls of the valve stem prevent any possible turning of the valve stem. The shoulder 15*b* between the main portion of the valve stem and the reduced portion 16 thereof engages the front face of the holder member 9 which serves as a stop to limit the inward movement of the valve stem. The parts are so positioned that when the valve stem is in place the clamping base 17 is spaced some little distance from the holder member 5 and thus renders the nut 19 readily accessible so that a wrench may be applied thereto and it may be turned to cause the outer spreader clamping member 18 to clamp the wall of the tube indicated at T firmly against the base of the valve stem 17. In the placing of the valve stem in the holder support, this is accomplished without manipulating any clamping devices. The reduced end 16 fits loosely in the opening 10 and therefore the threads on the valve stem will not in any way be injured. It may be inserted in the opening without making any threaded connection therewith. Likewise, the body portion of the valve stem fits loosely but firmly in the recess 7 and thus does not in any way injure the threads of the valve stem. Furthermore, the extreme outer end of the valve stem extends well through the supporting member 9 and any strain on the valve stem during the clamping of the tube thereto will not distort the valve stem so as to interfere with the valve seat which is located adjacent the outer end of the valve stem. The valve stem is so firmly supported that the weight of the tube may be carried by the valve stem and this leaves the operator free to manipulate the clamping nut for clamping the parts.

The recess 6 is smaller than the recess 7 and is for the purpose of receiving a valve stem of smaller dimensions. The placing of the valve stem in this part of the holder has not been illustrated, but said recess and cooperating opening may be used in precisely the same manner as has been described in connection with the valve stem 15 and the recess 7 and opening 11.

In Figure 4 of the drawing, a valve stem of different type is shown. This valve stem includes a main portion 20 and a right angle reduced portion having a thread 22 at the outer end thereof. When it is desired to support a valve stem of this type, the reduced portion is inserted through an opening 23 in a cross member 24 carried by the holder and the main shank portion 20 is placed in the recess 7 in the holder member 5. The base 17 of the valve stem is well out from the holder and this gives free access to the nut 19 for turning the same against the inner clamping member or spreader 18 for forcing the same against the wall of the tube indicated at T. The opening 23 is elongated and the inner wall thereof together with the inner wall of the supporting member 9 serves as a stop for positioning the valve stem in the holder support.

In Figure 5 of the drawing a valve stem of a different form is shown. In this form of the invention the valve stem includes a main shank portion 25, an angular reduced portion 26 which extends at right angles to the main shank portion and a deflected portion 27 which terminates in the still further reduced threaded portion 28 carrying the valve seat. The reduced portion 28 is inserted through the opening 14 in the bracket 13 and the curved portion 26*a* of the valve stem is placed in the recess 12. A portion 26 of the valve stem is placed in the recess 8. While the main portion of the stem is horizontal, the inner end thereof turns downwardly carrying at its lower end the valve stem base 29. A clamping nut 30 engages the outer clamping spreader 31 which is forced against the wall of the tube indicated at T. The main portion and the said stem,

as noted, is in horizontal position and is firmly held by the holder support so that the weight of the heavy tube may be carried thereby. The angular portion extending through the bracket prevents any possible turning of the valve stem during movement of the nut into clamping position. The recess 12 in the holder member 9 serves as a stop and positions the valve stem with the supporting base thereof well out from the holder support.

From the above it will be apparent that I have provided a holder support capable of use in the hand assembling of valve stems and pneumatic tubes wherein various forms of valve stems may be supported therein and in each instance the valve stem will not only be firmly supported, but will be supported in substantially horizontal position and will be positioned so that the valve stem base against which the tube is to be clamped will be well out from the support, rendering accessible the clamping nut so that it may be turned by a wrench into firm clamping engagement with the tube. While the valve stem is firmly supported, it is also held from rotation and this is all accomplished through a loose engagement of the holder support by the valve stem and without requiring any manipulation of clamping devices which might injure the threads of the valve stem or distort that portion of the valve stem carrying the valve seat.

It will be possible that minor changes in the details of construction and arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket, means carried thereby for loosely engaging and supporting the valve stem in a horizontal position and for preventing the valve stem from turning when a valve stem nut is turned to clamp the tube, said supporting means having a stop for positioning the valve stem so that the clamping valve stem base is spaced from the supporting means for rendering accessible the clamping nut for a turn of the same.

2. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket, means carried thereby for loosely engaging the valve stem adjacent the outer end thereof and intermediate ends thereof and for supporting the same in horizontal position and preventing the same from turning when the valve stem nut is turned to clamp the tube.

3. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket, means carried thereby for loosely engaging the valve stem adjacent the outer end thereof and intermediate ends thereof, and for supporting the same in horizontal position and preventing the same from turning when the valve stem nut is turned to clamp the tube, said supporting means having a stop for positioning the valve stem so that the clamping valve stem base is spaced from the supporting means for rendering accessible the clamping nut for the turning of the same.

4. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket, spaced inner and outer holder members carried thereby, said inner holder member having an opening therethrough adapted to receive the reduced portion of the valve stem, said outer holder member having a recess opening at the upper side thereof adapted to receive the shank portion of the valve stem intermediate the ends thereof so that the valve stem may be firmly supported in said holder with the clamping base spaced away from the outer holding member to render the clamping nut accessible for the turning of the same.

5. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket, spaced inner and outer holder members carried thereby, said inner holder member having an opening therethrough adapted to receive the reduced portion of the valve stem, said outer holder member having a recess opening at the upper side thereof adapted to receive the shank portion of the valve stem intermediate the ends thereof so that the valve stem may be firmly supported in said holder with the clamping base spaced away from the outer holding member to render the clamping nut accessible for the turning of the same, said recess being shaped so as to engage the flat side walls of the shank of the valve stem to prevent the same from turning.

6. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket having inner and outer spaced holding members, said outer member having a recess upon the top adapted to receive the angular portion of the valve stem, said inner holder member having a bracket attached thereto provided with an opening and adapted to receive the reduced outer end of the valve stem for positioning said valve stem with the main shank extending vertically and the clamping base thereof in a horizontal position, said holder serving to prevent said valve stem from turning when the nut is turned on the shank to clamp the tube to the valve stem.

7. A holder support for hand assembling valve stems and pneumatic tubes comprising a supporting bracket, a holder carried thereby and having a recess open at the upper side thereof, said recess being dimensioned so as

to receive the shank of the angular valve stem and engaging the flat sides thereof for preventing the same from turning, a cross member associated with said holder member having an opening therethrough adapted to receive the outer end of the valve stem for firmly supporting the same when the tube is attached to the valve stem.

In testimony whereof, I affix my signature.

ELMORE M. GODFREY, JR.