

M. W. PITNER,
HANDLE.
APPLICATION FILED JUNE 29, 1912.

1,060,856.

Patented May 6, 1913.

Fig. 1.

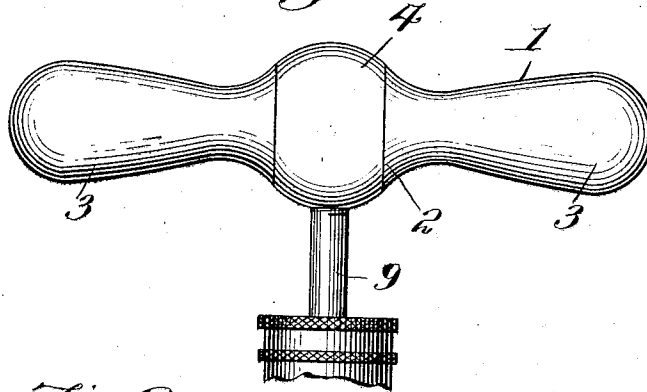


Fig. 2.

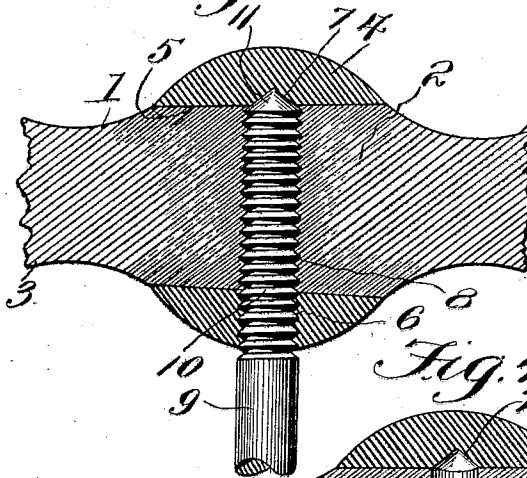


Fig. 3.

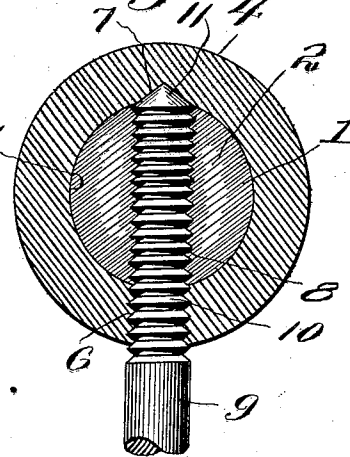
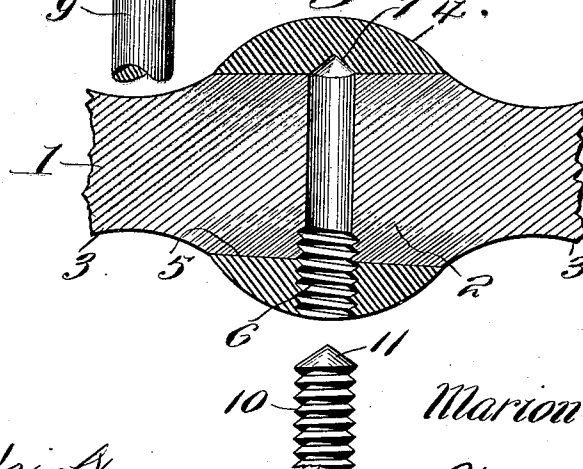


Fig. 4.



Witnesses

J. L. Wright

C. C. Hines

Inventor

Marion W. Pitner

By

Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

MARION W. PITNER, OF CHICAGO, ILLINOIS.

HANDLE.

1,060,856.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed June 29, 1912. Serial No. 706,683.

To all whom it may concern:

Be it known that I, MARION W. PITNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Handles, of which the following is a specification.

This invention relates to handles for the piston rods of air pumps and other tools or devices operated by hand power, and particularly to handles of that type having a central reinforcing band or sleeve, the primary object of the invention being to provide a novel construction of handle and sleeve and mode of connecting the same with the piston or other connecting rod, whereby the handle is rendered absolutely rigid against displacement and prevented from working loose.

A further object of the invention is to provide a handle of the character described which embodies in general the customary elements, which are constructed and combined in such manner as to mutually cooperate toward securing a strong and rigid coupling connection, whereby a handle of superior strength, durability and resisting capacity to strains is obtained without increasing the number of parts or the cost of production.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a side view of the handle shown applied to the piston rod. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is a vertical transverse section taken centrally through the handle and sleeve. Fig. 4 is a view similar to Fig. 2, showing the handle and sleeve as combined and constructed prior to the application of the rod, the latter being disposed in position for application.

In carrying my invention into practice, I provide a handle 1, preferably made of a single piece of hard wood, said handle comprising a central portion 2 and handle-ends or grips 3, all integral with each other. Inclosing the central portion 2 of the handle is a substantially spherical collar or sleeve 4, formed of brass or other suitable material, and having a transverse bore or passage 5 to receive said central portion of

the handle. The bore is made of a diameter slightly exceeding the diameter of the grips 3, so that the handle may be inserted at one end through the bore and the portion 2 forced into the bore with a driving fit. As shown, the part 2 of the handle and the bore are preferably longitudinally tapered, whereby the parts are firmly bound together.

In practice, the central portion of the handle and bore of the collar or sleeve are made of such relative dimensions as to require the handle to be driven into the collar by considerable force, by which the wood is compacted in the bore of the collar to a sufficient degree or in such an absolutely tight manner that any slight variations in the dimensions which may occur through contraction of the wood or expansion of the collar, will not impair the efficiency of the binding connection. The handle, in fact, is driven so tightly into the collar that it would split but for the reinforcing action due to the wedging engagement of the tapered surfaces. An absolutely tight connection is thus obtained against any possibility of relative movement of the parts, while at the same time the part 2 of the handle is so sustained and reinforced that it cannot possibly split or break.

The lower portion or base of the collar is provided with an internally threaded opening 6, while the top portion of the collar is provided in line therewith with a conical recess 7 communicating with the bore of the handle is a threaded passage 8 which registers at its opposite ends with said opening and recess. The piston rod 9 has a threaded end 10 which passes through and engages the threads of the opening 6 and passage 8 and terminates in a conical extremity 11 which tightly fits within the recess 7, by which construction the handle and collar are further bound and mechanically fastened together and the threaded end of the rod reinforced in a simple and effective manner.

In the process of manufacturing and assembling the parts, the handle 1, made of selected and thoroughly seasoned hard wood, is carefully turned down to an exact size and driven into the collar 4 by a powerful machine. The handle thus far completed is then placed in another machine in

which the opening 6 is drilled and threaded, the threads being cut only through the bottom of the collar and slightly into the part 2 of the handle as shown in Fig. 4. The piston rod 9, whose end portion 10 has been carefully and accurately threaded, is then firmly held in a chuck and threaded through the opening 6 and passage 8, the said threaded end of the rod thus forcing its way and cutting its own thread through the wood, until its conical end binds against the wall of the recess 7. By this construction, the passage 8, which is primarily of smaller diameter than the rod, is expanded and compacted, so that its fibers on which the threads are formed will have a binding engagement, in addition to the locking engagement afforded by the threads, against the surface of the rod, whereby the handle is additionally strengthened.

It will be observed that the spherical form of the collar enables an opening 6 of some depth to be made, by which a threaded engagement of sufficient length between the base of the collar and rod is afforded to prevent any possibility of a tilting or canting motion of the handle on the rod, and that this anchoring engagement is further promoted by having the end of the rod impinge against the top of the collar and seat within the recess 7, which is also formed in a portion of the collar of sufficient thickness to prevent play or motion of the parts under strain. Furthermore, by forcing the top of the rod firmly against the top of the collar, the collar is distended or elongated slightly in a vertical direction and its sides correspondingly contracted, to further promote the binding engagement between the collar and handle and prevent any possibility of independent motion of either of these parts. The binding engagement of the threads of the passage 8 with the threaded end of the rod further prevents any tendency of the rod to turn and become loose.

My improved handle may be employed wherever handles of this type are commonly used, but is especially adapted for use in connection with hand-operated air pumps in which the handle is subjected to considerable strain on account of the unequal pressure to which the handle-ends 3 are frequently subjected, as well as the constant pounding and jarring action caused by the piston rod bumping against the bottom of the pump. Handles of ordinary construction are usually rendered short-lived or work loose and become useless as a result of these strains. My construction, however, provides a handle which cannot possibly work loose and which is firmly bound to the collar and rod with such force as to be equal in strength and efficiency to a handle integral with the rod, by which it is rendered practically indestructible and

will last as long as the pump is capable of use in active service.

I claim:—

1. The combination of a wooden handle having a bore, an inclosing sleeve, and a rod having a direct threaded engagement with a wall of the sleeve and the bore of the handle, the wall of said bore being expanded and compacted, whereby the threaded surfaces of the rod and handle are bound by the contractile tendency of the wall of the bore. 70 75
2. The combination with a handle, of an inclosing sleeve, and a rod having a threaded engagement with the base of the sleeve and extending through the handle and impinging against the top of the sleeve. 80
3. The combination with a handle, of a substantially spherical inclosing sleeve, and a rod extending through and having a threaded engagement with the handle and base of the sleeve and impinging against the top of the sleeve. 85
4. The combination with a sleeve having a tapered bore, of a handle having a tapered portion fitted in said bore, and a rod having a threaded engagement with the sleeve and inclosed portion of the handle. 90
5. The combination of a wooden handle having a transverse bore, an inclosing sleeve provided with an opening in its base in line with the bore, and a rod having a threaded engagement with said bore and opening, the wall of the bore being expanded and compacted from an initial diameter less than that of the opening and rod and formed with threads cut by the threads of the rod on the insertion of the latter, whereby the threaded surfaces of the handle and rod are bound by the contractile tendency of the wall of the bore. 95 100 105
6. The combination of a sleeve, a handle with a driving fit in said sleeve and a rod having an end portion in threaded engagement with the sleeve and inclosed portion of the handle. 110
7. The combination of a handle having a central portion and grips integral therewith, a collar about said central portion and with which the latter is engaged with a driving fit, and a rod having a direct threaded engagement with said collar and inclosed central portion of the handle. 115
8. The combination of a handle having a tapered central portion, a sleeve provided with a tapered bore into which said tapered portion of the handle is seated with a driving fit, and a rod having an end portion threaded through the base of the sleeve and into said tapered portion of the handle. 120 125
9. The combination of a sleeve having a transverse tapered bore, a wooden handle having a central portion and end grips integral therewith, said central portion of the 130

handle being tapered and engaging said tapered bore with a driving fit, and a rod threaded through the base of the sleeve and tapered portion of the handle and impinging against the top of the sleeve.

10 10. The combination of a sleeve having a tapered bore, a handle having a central portion and end grips integral therewith, said central portion of the handle being tapered and forced into said bore with a driving fit, and a rod having an end threaded through the base of the sleeve and into the tapered portion of the handle, the threaded surfaces of the rod and handle having a binding fit.

15 11. The combination of a sleeve provided with a passage having respectively a threaded opening and a recess in opposed walls thereof, a handle fitted in said passage, and a rod having a threaded end portion engaging the threaded opening of the sleeve and passing through and in threaded

engagement with the handle and terminally interlocking with said recess.

12. A handle having a tapered portion, a substantially spherical sleeve provided with a tapered passage receiving said tapered portion of the handle, the lower wall of said sleeve being provided with a threaded opening and the upper wall of said sleeve with a recess, and a rod having a threaded end portion engaging the threaded opening in the bottom wall of the sleeve and extending through and having a threaded engagement with said tapered portion of the handle, and terminally interlocked with said recess in the top wall of the sleeve.

In testimony whereof I affix my signature in presence of two witnesses.

MARION W. PITNER.

Witnesses:

R. V. JONES,

F. P. COCHRAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."