

1,255,261.

The drawing consists of a main cross-sectional view and a detail view labeled 'Fig. 2'.

Main View:

- 1:** The main body or housing of the device.
- 2:** A central vertical shaft or rod passing through the body.
- 3:** A curved, bowl-shaped component at the top of the shaft.
- 4:** The upper part of the main body, above the bowl.
- 5:** A horizontal section or flange on the right side.
- 6:** A small circular feature or hole on the right side.
- 7:** A small circular feature or hole on the left side.
- 8:** A small circular feature or hole on the right side.
- 9:** A horizontal section or flange on the left side.
- 10:** A horizontal section or flange on the right side.
- 11:** A small circular feature or hole on the left side.
- 12:** A small circular feature or hole on the right side.
- 13:** A small circular feature or hole on the right side.
- 14:** A small circular feature or hole on the right side.
- 15:** A small circular feature or hole on the right side.
- 16:** A small circular feature or hole on the right side.
- 17:** A small circular feature or hole on the right side.
- 18:** A small circular feature or hole on the right side.
- 19:** A horizontal section or flange on the left side.
- 20:** A horizontal section or flange on the right side.
- I and II:** Roman numerals indicating different sections or views of the device.

Fig. 2:

- A circular detail view showing a cross-section of a component.
- 6:** A small circular feature or hole.
- 12:** A small circular feature or hole.
- 13:** A small circular feature or hole.
- 14:** A small circular feature or hole.
- 15:** A small circular feature or hole.

Fig. 1

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UNITED STATES PATENT OFFICE.

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EXTENSION-HANDLE CONSTRUCTION FOR PNEUMATIC TOOLS.

1,255,261.

Specification of Letters Patent.

Patented Feb. 5, 1918.

Application filed September 22, 1916. Serial No. 121,560.

To all whom it may concern:

Be it known that I, RUSSELL H. WILHELM, a citizen of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented a certain new and useful Improvement in Extension-Handle Constructions for Pneumatic Tools, of which the following is a specification.

10 This invention relates to an improved handle construction for use with hand held pneumatic tools or similar machines which in use cause discomfort to the operator because of the failure to adequately compensate for the vibration of the machine.

15 Hand held pneumatic tools of the class for which the present invention is adapted may be operated by a single hand hold of the operator, using simply the central handle portion with which such machines are provided, without lateral extensions. When, however, an easier means for holding the tool to its work is desired the T handle construction is employed, providing a two hand 20 grip. It is the object of the present invention to provide a T or an extension handle construction which will effectually overcome the inherent defects of previous types of such handles by eliminating the undesirable features accompanying loosening and movement of the handle parts.

25 The above object has been accomplished by the invention, a practical embodiment of which is represented in the accompanying drawings, in which,

30 Figure 1 shows a view partly in vertical section and partly in elevation of a portion of a hand held pneumatic tool provided with a handle construction embodying my invention, and,

35 Fig. 2 is a transverse vertical section, partly in elevation, on the line II—II of Fig. 1.

40 The device is shown as applied to a hammer drill of ordinary construction, it being sufficient for the present purpose to illustrate but a portion of the cylinder 1 of such a drill. Superimposed on the cylinder 1 is the back head 2 which terminates in a central handle portion 3. The grip portion 4 of this central handle portion 3 has a bore 5 axially therethrough and in this bore is fitted a bolt 6 of ordinary construction and considerable length, having a head 7 and a 55 threaded portion 8. Situated on this bolt

6, one abutting against each extremity of the central handle portion 3, are a pair of longitudinal bushings 9 and 10, and abutting against the outer ends of these longitudinal bushings 9 and 10 are, respectively, disk 60 shaped end bushings 11 and 12, (which end bushings may, however, be constructed as integral parts of the longitudinal bushings 9 and 10, respectively, if desired), the bushing 11 bringing up against the inner end of the 65 bolt head 7. The end bushing 12 has internal longitudinal recesses 13 and 14 and through the bolt 6, adjacent to its threaded extremity, is a diametrical hole 15 for the reception of a pin or key 16 the ends of 70 which extend into the recesses 13 and 14 of the end bushing 12 and constitute a positive lock against relative rotative movement of the end bushing 12 with respect to the bolt 6. This end bushing 12 is of sufficient width 75 to permit of a slight longitudinal movement with respect to the pin or key 16 as the parts are brought tightly together and to allow for possible stretching of the bolt. The threaded end of the bolt 6 is provided with the 80 usual nut 17 and between this nut 17 and the end bushing 12 is interposed a split lock washer 18, which lock washer may, however, be of any desired locking construction. Surrounding the longitudinal bushings 9 and 10 are grip portions 19 and 20, 85 which may be constructed of rubber or any other desired material possessing resiliency.

The intention of the present construction will at once be understood. When the parts 90 have been assembled as described the nut 17 is tightened up, compressing the lock washer 18, thus effectually locking the handle parts together and forming a practically unified structure. It will be seen that by reason of 95 the engagement of the lock washer with the abutting faces of the nut 17 and end bushing 12, the nut, lock washer and bushing are positively locked against rotation with respect to each other, and the bushing 12, being non-rotatable with respect to the bolt 6 100 because of the positive lock provided by the pin 16 as above described, serves to maintain the non-movable relationship between the bolt 6, bushing 12, lock washer 18 105 and nut 17. Should the resilient grip portions 19 and 20 be caused to rotate on the longitudinal bushings, for any reason, this rotative movement can not be communicated to the lock washer 18 and thence to the nut 110

17, thereby loosening the parts of the handle, because of the non-rotatability of the end bushing 12 with respect to the bolt 6. It will therefore be apparent that when once the nut 17 is screwed up to the limit of its movement against the lock washer, it will be unaffected by the vibration of the tool, no possible rotative movement of the grip portions on the longitudinal bushings being communicable thereto, so that none of the handle parts can work loose, as has been the case with previously constructed handles of this type in which no positive means has been provided for preventing rotative movement of the bolt and the nut with respect to each other.

It is to be understood that while the present showing and description disclose only one specific embodiment of the present invention, other forms and modifications are included within the spirit and scope of the same, as expressed in the appended claims.

What I claim is:

1. In an extension handle construction for pneumatic tools and the like, a handle portion, a bolt passing axially therethrough and projecting beyond the ends thereof, means for securing grip portions on the projecting ends of said bolt and means for maintaining the said grip securing means, handle and bolt in non-movable relationship.

2. In an extension handle construction for pneumatic tools and the like, a handle portion, a bolt passing axially therethrough and projecting beyond the ends thereof, means for securing grip portions on the projecting ends of said bolt, means for securing the handle, bolt, grip-securing means and grip portions in assembled relationship and means on the bolt for preventing unintentional displacement of said latter means.

3. In an extension handle construction for pneumatic tools and the like, a handle portion, a bolt passing axially therethrough and projecting beyond the ends thereof, bushings on the projecting ends of said bolt, grip portions on said bushings and means on the bolt for maintaining the said bushings in non-movable relationship with respect to said bolt.

4. In an extension handle construction for pneumatic tools and the like, a handle portion, a bolt passing axially therethrough and projecting beyond the ends thereof, grip portions on said projecting bolt ends, and a pin passing transversely through the bolt near one end for securing said grip portions against rotative movement with respect to the bolt.

5. In an extension handle construction for pneumatic tools and the like, a central handle portion having a bore axially therethrough, a bolt passing through said bore and projecting beyond the extremities of said handle portion, longitudinal bushings

on the projecting ends of said bolt, grip portions on said bushings, an end bushing at the outer end of one of the longitudinal bushings and means on the bolt for maintaining the said end and longitudinal bushings in non-movable relationship.

6. In an extension handle construction for pneumatic tools and the like, a central handle portion, having a bore axially therethrough, a bolt passing through said bore and projecting beyond the extremities of said handle portion, an end bushing adjacent to one end of the bolt and a pin passing transversely through the bolt near said end having its ends projecting into recesses in the bushing at said end for securing the said bushing against rotative movement with respect to the bolt.

7. In an extension handle construction for pneumatic tools and the like, a handle portion, a bolt passing axially therethrough, the said bolt having a head at one end and being threaded for the reception of a nut on the other, a longitudinal bushing on each of the projecting ends of said bolt, grip portions on said bushings, a nut on the threaded end of the bolt and an end bushing interposed between the nut and bushing adjacent to said threaded end, the said end bushing being non-movable rotatively with respect to the bolt for preventing the transmission of rotative movement to the nut.

8. In an extension handle construction for pneumatic tools and the like, a handle portion, a bolt passing axially therethrough and projecting beyond the ends thereof, bushings on the projecting ends of said bolt, grip portions on said bushings, and a pin passing transversely through the bolt near one end engaging the bushing at said end for securing said bushing against rotative movement with respect to the bolt.

9. In an extension handle construction for pneumatic tools and the like, a central handle portion, having a bore axially therethrough, a bolt passing through said bore and projecting beyond the extremities of said handle portion, longitudinal bushings on the projecting ends of said bolt, grip portions on said bushings, and a pin passing transversely through the bolt near one end having its ends projecting into recesses in the bushing at said end for securing the said bushing against rotative movement with respect to the bolt.

10. In an extension handle construction for pneumatic tools and the like, a central handle portion, a bolt passing axially therethrough and projecting beyond the ends thereof, bushings on the projecting ends of said bolt, resilient grip portions on said bushings, a pin passing transversely through the bolt near one end having its ends projecting into recesses in the bushing at said end, a nut on the threaded end of the bolt.

and a locking washer interposed between said nut and the bushing adjacent to the threaded end for positively locking the nut, lock washer, bushing and bolt against unintentional rotative movement with respect to each other.

11. In an extension handle construction for pneumatic tools and the like, a central handle portion having a bore axially there-
 10 through, a bolt passing through said bore and projecting beyond the ends of said handle, the said bolt having a head at one end and being threaded for the reception of a nut on the other, a longitudinal bushing
 15 on each of the projecting ends of said bolt, resilient grip portions on said bushings, a slot passing transversely through the bolt at the threaded end and a pin in said slot for securing the bushing at said end against
 20 rotative movement with respect to the bolt, a nut on the threaded end of said bolt and a locking washer interposed between the nut and bushings for securing the nut and bushings in assembled non-movable relationship.

12. In an extension handle construction 25 for pneumatic tools and the like, a central handle portion, a bolt passing axially there-through and projecting beyond the ends thereof, longitudinal bushings on the projecting ends of said bolt, grip portions on
 30 said longitudinal bushings, an end bushing abutting against the longitudinal bushing and grip portion adjacent to the threaded end of the bolt, a pin passing transversely
 35 through the bolt at said threaded end having its ends projecting into recesses in said end bushing for securing the end bushing against rotative movement with respect to the bolt, a nut on the threaded end of the
 40 bolt and locking means interposed between said nut and the bushing adjacent to the threaded end for positively locking the nut, bushing and bolt against unintentional ro-
 tative movement with respect to each other.

In testimony whereof, I have hereunto
 45 set my hand.

RUSSELL H. WILHELM.