

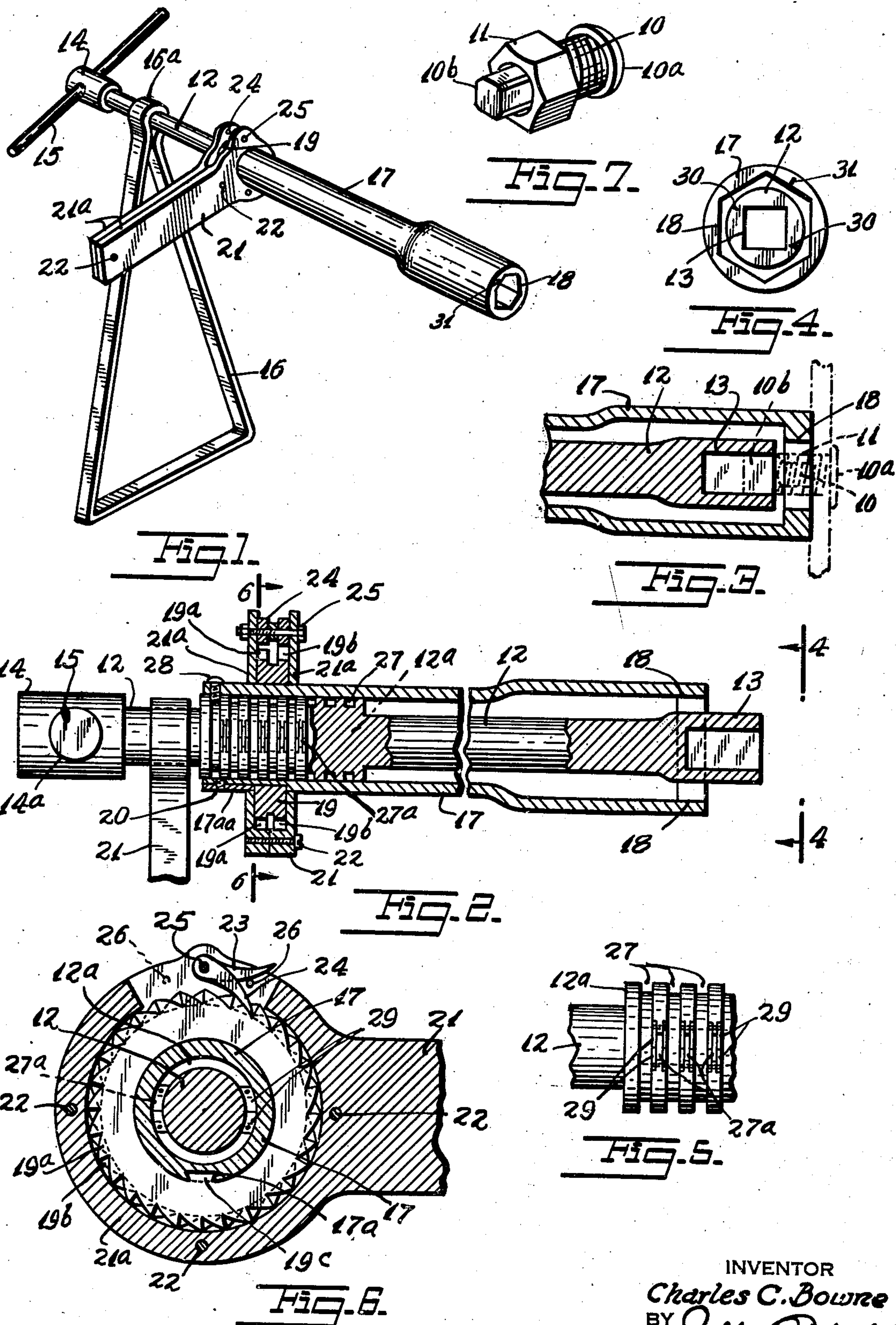
Dec. 23, 1941.

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2,267,012

DUAL WRENCH FOR REMOVING DUAL WHEELS

Filed Feb. 7, 1940



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2,267,012

DUAL WRENCH FOR REMOVING DUAL WHEELS

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Application February 7, 1940, Serial No. 317,640

3 Claims. (Cl. 81—55)

This invention relates to new and useful improvements in a dual wrench for removing dual wheels.

More specifically, the invention proposes the construction of a dual wrench for removing dual wheels of the Budd type, and more particularly for removing the nuts and bolts of these wheels.

It is proposed to characterize the dual wrench by a rod having a socket opening on its front end for engaging a complementarily formed projection on the bolt in a manner for permitting this bolt to be held against rotation, or rotated as desired.

A further object of this invention is the provision of a tubular member rotatively mounted on said rod and having a socket opening on its front end for engaging the nut in a manner to permit the nut to be tightened or loosened relative to the bolt while the bolt is being held against rotating.

A further object of this invention is the provision of a ratchet controlled handle mounted on said tubular member in a manner to permit said tubular member to be conveniently turned in one direction or the other for tightening or loosening the nut.

Still further the invention proposes the provision of a means for holding the tubular member in various extended longitudinal adjusted rotated positions upon said rod in a manner to permit the socket opening of said tubular member to be engaged upon said nut while the socket member of said rod is engaging the projection of said bolt.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of the dual wrench constructed according to this invention.

Fig. 2 is a longitudinal sectional view of the dual wrench.

Fig. 3 is a view similar to Fig. 2 but illustrating an adjusted position of the parts.

Fig. 4 is a view looking in the direction of the line 4—4 of Fig. 2.

Fig. 5 is an enlarged detailed view of a portion of Fig. 2.

Fig. 6 is an enlarged sectional view taken on the line 6—6 of Fig. 2.

Fig. 7 is a perspective view of the bolt per se

to which this dual wrench is adapted to be applied.

The dual wrench for removing dual wheels of the Budd type is particularly adapted for tightening and loosening the bolts of these wheels which consist of a bolt member 10 provided with threads and having an enlarged head 10^a and a reduced square projection 10^b. The head 10^a is formed at one end of the bolt 10 and the reduced projection 10^b is formed at the other end thereof. A nut 11 preferably having a hexagonal periphery is adapted to be passed over the square projection 10^b and threadedly engaged with the threaded shank of the bolt 10.

The dual wrench, according to this invention, includes a rod 12 having a square socket opening 13 at one end which is adapted to be engaged over the square projection 10^b of the bolt 10. This rod 12 is formed of a solid piece of metal and at its other end is provided with an enlarged head 14. This head 14 is provided with an opening 14^a through which a rod 15 is adapted to be passed in a manner to permit the rod to be conveniently held against rotating or for rotating the rod, as desired.

A means is provided for turnably supporting the rod and consists of metallic bracket 16 preferably of triangular shape and which is formed at the apex of its sides with a tubular portion 16^a through which the rod 12 slidably extends. This triangular bracket 16 is adapted to rest upon the ground or other surface, while the square socket opening 13 is engaged upon the square projection 10^b of the bolt 10.

Similarly, the wrench is provided with a means for engaging the nut 11 and consists of a tubular member 17. This tubular member 17, adjacent the end of the rod 12 which is formed with the square socket opening 13, is formed with a hexagonal socket opening 18 which is adapted to be engaged over the nut 11 while the square socket opening 13 is engaged upon the square projection 10^b. The operative position of these socket openings is illustrated in Fig. 3 in which the bolt 10 and the nut 11 are shown in dot and dash lines. A means is provided for turning the tubular member in one direction or the other for tightening or loosening the nut 11 relative to the bolt 10. This means includes a wheel 19 having a dual set of ratchet teeth. One set of ratchet teeth 19^a extend in one direction and the other set of teeth 19^b extend in the other direction.

A means is provided for removably but non-rotatively supporting the wheel 19 upon the tubu-

lar member 17. This means comprises a dove-tailed projection 19^a formed on the wheel 19 which engages a complementary dove-tailed cut-out 17^a extended inwards from the end of the tubular member 17. A portion of the metal 17^{aa} removed from the tubular member 17 for forming the dove-tailed cutout 17^a is engaged into the end of the cutout from the face of the wheel 19 to the end of the tubular member 17 (see Fig. 2). This piece of metal 17^{aa} is held in position by means of a set screw 20 and when it is desired to remove the wheel 19 it is merely necessary to remove the set screw 20 and the piece of metal 17^{aa} and slip the wheel off the end of the tubular member 17^a.

A handle portion 21 is cooperative with the wheel 19 for permitting the tubular member 17 to be turned. This handle 21 is formed of adjacent halves 21^a which are held together by means of a plurality of screws 22. The top portion of that part of the handle which engages around the tubular member 17 is provided with a pair of oppositely directed pawls 23 and 24 which are adapted to cooperate with the oppositely directed teeth 19^a and 19^b of the wheel 19. These pawls 23 and 24 are pivotally supported upon a bolt 25 and are adapted to be selectively engaged with the teeth 19^a and 19^b.

The pawl 24 is cooperative with the teeth 19^a for permitting the tubular member 17 to be turned clockwise and the pawl 23 is cooperative with the teeth 19^b for permitting the tubular member 17 to be turned counter-clockwise. When the pawls 23 and 24 are pivoted to the inoperative position they are adapted to be maintained out of contact with the teeth 19^a and 19^b by means of pins 26 which extend from their respective side walls of the handle 21.

A means is provided for holding the rod 12 and the tubular member 17 in various longitudinal adjusted rotative positions with relation to each other for permitting the square socket opening 13 to be engaged upon the square projection 10^b and the hexagonal socket opening 18 upon the nut 11 regardless of the relative position of the nut 11 and the square projection 10^b. This means comprises an enlarged portion 12^a formed on the rod 12 adjacent the free end of the tubular member 17. This enlargement 12^a is formed with a plurality of circular grooves 27 extending completely therearound. A screw 28 is passed through the end of the tubular member 17 and is adapted to engage the grooves 27 for rotatively non-slidably supporting the tubular member 17 upon the rod 12. However, a means is provided for preventing the screw 28 to be moved from one groove 27 to another groove 27 to permit the longitudinal positions of the tubular member 17 and the rod 12 to be shifted.

This means comprises a plurality of connecting passageways 27^a extended between the grooves 27. Springs 29 are extended across the passageways 27^a on both sides thereof for retaining the screw 28 in position within its groove 27. When it is desired to shift the position of the tubular member 17 and the rod 12 it is merely necessary to align the screw 28 with the springs 29 and force the same through the connecting passageways 27^a to the desired groove 27 for holding the tubular member against further longitudinal movement with relation to the rod 12. These springs 29 are extremely flexible for permitting flexing when the screw is moved from one groove to the other, but are rigid enough to

prevent an accidental displacement of the screw 28 from one groove to the other.

The ends of the rod 12 and the tubular member 17 are formed with a means for permitting the screw 28 to be aligned with the passageways 27^a when it is desired to shift the position of the rod 12 and the tubular member 17. This means comprises a pair of marks 30 formed on the end of the rod 17 in aligned positions with the passageways 29. Likewise, the end of the tubular member 17 is formed with a mark 31 in aligned position with the screw 28 and which is adapted to be selectively aligned with either of the marks 30 for complementarily aligning the screws 28 with either of the diametrically opposite passages 27^a formed on the rod 12.

The operation of this invention is as follows:

The square socket opening 13 is engaged upon the square projection 10^b of the nut of the bolt 10 and the triangular bracket 16 is rested on the ground or other surface for maintaining the rod in a horizontal position. The mark 31 is aligned with either of the marks 30 for permitting the screw 28 to be shifted into a proper groove 27 for engaging the socket opening 18 of the tubular member 17 upon the nut 11. The rod 12 is then held against rotating by means of the rod 15 and the tubular member 17 is rotated by means of the handle 21 for tightening or loosening the nut relative to the bolt 10. To cause the tubular member 17 to be turned in a proper direction, to accomplish either the tightening or loosening, the proper pawl 23 or 24 is engaged with its respective teeth of the wheel 19 for properly locking the handle 21 to the tubular member 17.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. In a device of the class described, a rod having a socket opening on its front end, a tubular member rotatively mounted on said rod and having a socket member on its front end, and means for holding said rod and tubular member in various longitudinally adjusted rotative positions relative to each other, comprising an enlarged portion formed on said rod and located within said tubular member, and a plurality of adjacent peripheral grooves formed on said enlarged portion, and a screw extending from said tubular member and engaging said grooves for rotatively but non-slidably connecting said tubular member and rod, and means whereby said screw may be selectively moved from one groove to the other, comprising passageways extended between adjacent grooves on diametrically opposite sides of said enlarged portion, and resilient springs closing said passageways and through which said screw is adapted to be forced in the aligned position of said screw and passageways.

2. In a device of the class described, a rod having a socket opening on its front end, a tubular member rotatively mounted on said rod and having a socket member on its front end, and means for holding said rod and tubular member in various longitudinally adjusted rotative positions relative to each other, comprising an enlarged portion formed on said rod and located within said tubular member, and a plurality of

adjacent peripheral grooves formed on said enlarged portion, and a screw extending from said tubular member and engaging said grooves for rotatively but non-slidably connecting said tubular member and rod, and means whereby said screw may be selectively moved from one groove to the other, comprising passageways extended between adjacent grooves on diametrically opposite sides of said enlarged portion, and resilient springs closing said passageways and through which said screw is adapted to be forced in the aligned position of said screw and passageways, and means for indicating when said rod and member are in a position in which said screw will be aligned with either set of diametrically oppositely formed passageways on said enlarged portion.

3. In a device of the class described, a rod having a socket on its front end, a tubular member rotatively mounted on said rod and having a socket on its front end, an enlarged portion

5 formed on said rod and positioned within said tubular member, a plurality of adjacent peripheral grooves formed on said enlarged portion and connected together by passageways extended at right angles between adjacent grooves, means on said tubular member engageable with one of said grooves and selectively movable from groove to groove through said passageways for holding said rod and said tubular member in various longitudinal rotative shifted positions relative to each other, comprising a screw threadedly engaged through the wall of said tubular member with its inner end projected into said grooves, and means for releasably closing said passageways to retain said screw in its engaged position with a selected groove except when said screw is aligned with said passageways and said rod and tubular member are forced longitudinally relative to each other to cause said screw to move through said passageways.

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