H. F. MANN.

POWER WRENCH.

APPLICATION FILED MAR. 23, 1918. RENEWED MAR. 22, 1920.

1,355,239.

Patented Oct. 12, 1920.

2 SHEETS—SHEET 1.

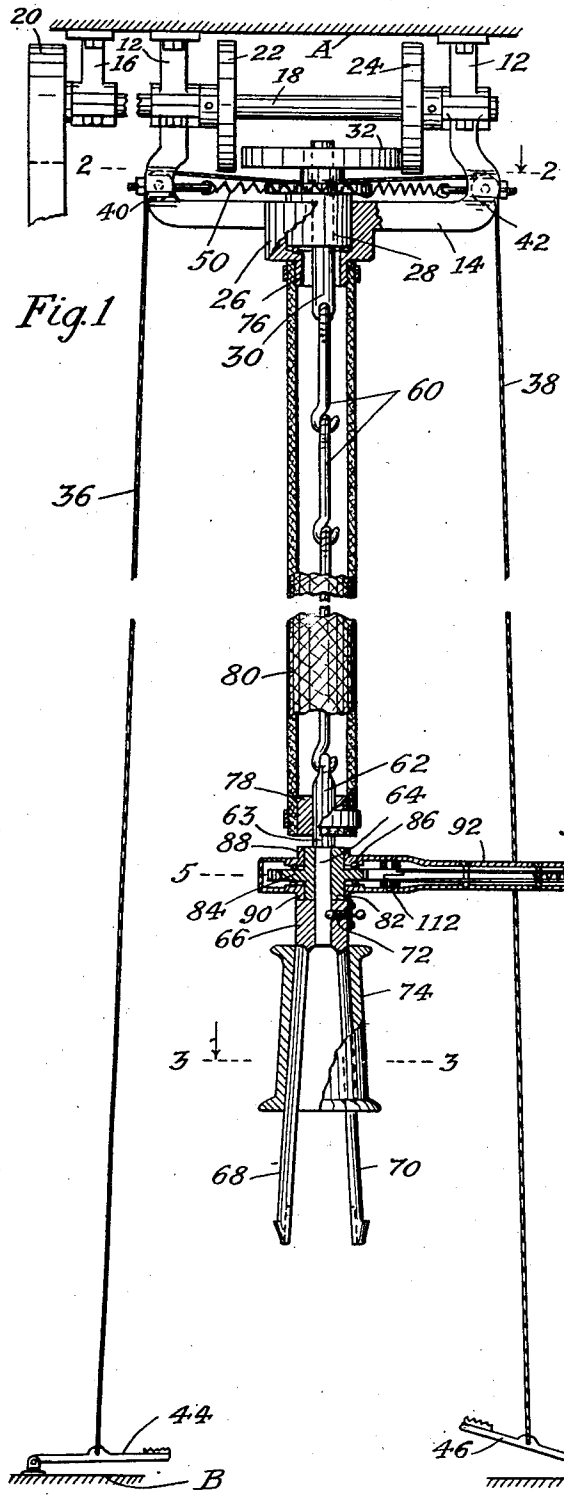


Fig.1

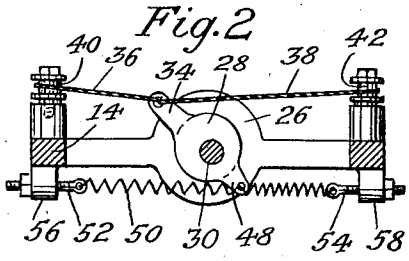


Fig.2

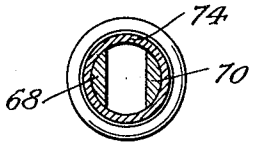


Fig.3

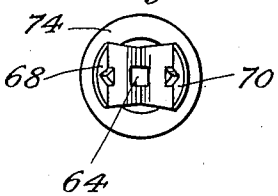


Fig.4

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2 SHEETS—SHEET 2.

Fig. 5

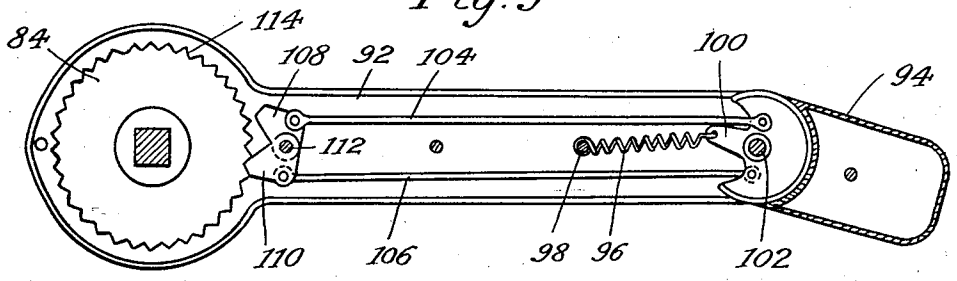


Fig. 6

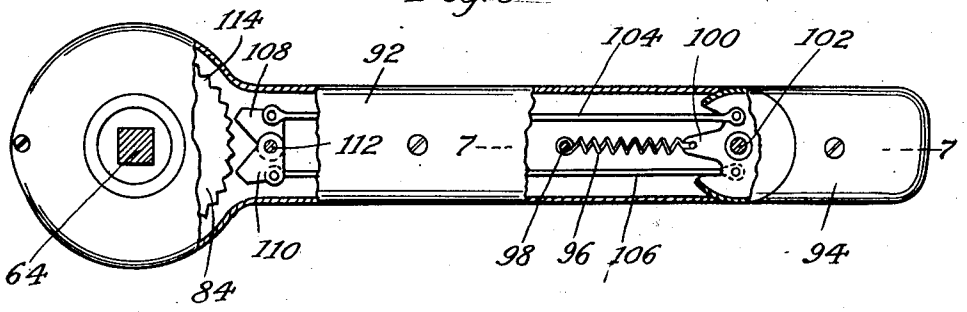


Fig. 7

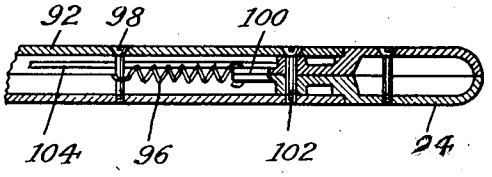


Fig. 8

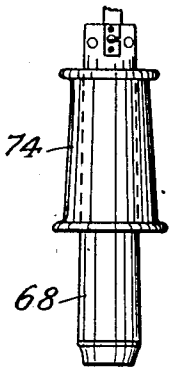
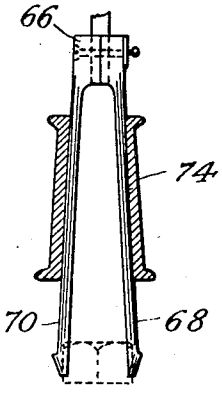


Fig. 9



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UNITED STATES PATENT OFFICE.

HORACE F. MANN, OF ONAMIA, MINNESOTA.

POWER-WRENCH.

1,355,239. Specification of Letters Patent. Patented Oct. 12, 1920.

Application filed March 23, 1918, Serial No. 224,092. Renewed March 22, 1920. Serial No. 367,891.

To all whom it may concern:

Be it known that I, HORACE F. MANN, a citizen of the United States, residing at Onamia, in the county of Millelacs and State of Minnesota, have invented certain new and useful Improvements in Power-Wrenches, of which the following is a specification.

My invention relates to power wrenches and has for its object to provide a device of this kind which shall be effective in operation and at the same time have a minimum number of parts so that the device may be economically constructed and will not occupy any considerable floor space. Another object is to provide a power wrench which can be readily installed in any room having a ceiling and provided with a source of power.

The full objects and advantages of my invention will appear in connection with the detailed description thereof and are particularly pointed out in the claims.

In the drawings, illustrating the application of my invention in one form,—

Figure 1 is a side view, partly in vertical section. Fig. 2 is a horizontal section on line 2—2 of Fig. 1. Fig. 3 is a horizontal section on line 3—3 of Fig. 1. Fig. 4 is a bottom plan view of the wrench jaws. Fig. 5 is a horizontal section on line 5—5 of Fig. 1. Fig. 6 is a top plan view, partly broken away, of the portion of the device shown in Fig. 5. Fig. 7 is a section on line 7—7 of Fig. 6. Fig. 8 is a side view of the wrench jaws. Fig. 9 is a view taken at right angles to Fig. 8 and partly in section.

As shown in the drawings, the device is suspended from the ceiling A by brackets 12 having half bearings at their lower ends, to which are secured half bearings on a casting 14. Rotatably mounted in these bearings and a bearing formed in a bracket 16 is a shaft 18 having a belt pulley 20 secured on its end. Secured to the shaft 18 just inside the two brackets 12 are two friction wheels 22 and 24. On the lower end of the casting 14 is a socket 26 in which is mounted an eccentric bearing 28 for a shaft 30. On the upper end of this shaft is secured a horizontal frictional wheel 32 which may be made to engage either of the wheels 22 or 24 by the means now to be described.

An arm 34 extends from the eccentric bearing 28 and to this arm are secured the ends of the two cords 36 and 38, which pass over rollers 40 and 42 and then extend downwardly and are secured to pedals 44 and 46 which are fastened to the floor B. Secured to the eccentric bearing 28 diametrically opposite the arm 34 is another arm 48 to which is secured the center of a coiled spring 50, the ends of which are attached to bolts 52 and 54 adjustably mounted in lugs 56 and 58 depending from the casting 14. The eccentric bearing 28 is turned in its socket 26 by depressing either of the pedals 44 or 46, as desired, and the frictional wheel 32 is thus brought into engagement with either of the friction wheels 22 or 24 according to the direction of rotation which it is desired to impart to the shaft 30. When neither of the pedals is depressed the wheel 32 is held in neutral position by the spring 50. Connected to the shaft 30 are a number of links 60 connected together in the manner of a chain, the lower link being connected to a shaft member 63, which has a round portion 62 and a square portion 64. The lower end of the portion 64 is adapted to receive a collar 66 having the depending flexible wrench jaws 68 and 70. The collar 66 is held in place by a spring pressed bolt 72 which enters a depression in the portion 64. The collar 66 may be made in two parts secured together by screws, as shown in Figs. 8 and 9. Slidably mounted on the jaws 68 and 70 is a conical sleeve 74 by means of which the jaws may be forced toward each other. On the lower end of the socket 26 is an annular flange 76, while on the shaft portion 62 is a bearing member 78. The flexible tube 80 is secured to the flange 76 and to the bearing 78 and completely incloses the links 60. On the shaft portion 64 is a sleeve 82 having a square opening to accommodate this shaft portion. The sleeve 82 is provided with a flange 84 and ball bearings 86 are placed between the two sides of this flange and two annular portions 88 and 90 have a handle member 92 which is hollow, as shown in Fig. 1. The sleeve 82 is rotatably mounted in the annular portions. To the outer end of the handle member 92 is pivoted an oscillatable member 94 normally held in alinement with the member 92 by a spring 96 extending between a screw 98 passing through the member 92 and an arm 100 on the ends of the member 94, these latter ends being bent toward each other and extending around the pivot 102, as best shown in Fig. 7. Pivoted to these ends at

each side of the pivot 102 are a pair of links 104 and 106. The inner ends of these links are pivoted to a pair of dogs 108 and 110, both of which are mounted on a pivot 112 which extends through the member 92. The periphery of the flange 84 is notched at 114 and when the member 94 is deflected, as shown in Fig. 5, the dog 110 will engage the notched periphery of flange 84 and in this manner the shaft section 64 and the wrench jaws 68 and 70 may be turned by hand. By deflecting the member 94 in the opposite direction the dog 108 will engage the notched flange 84 and the jaws may be turned in the opposite direction. It is therefore apparent that the jaws 68 and 70 may be turned by hand in either direction when desired. This is obviously of advantage, particularly in starting to thread nuts upon bolts, since if the threads of the nut should not be properly engaged with those of the bolt and the nut be started by power the threads would be damaged before the machine could be stopped.

The advantages and operation of my device will be obvious from the foregoing description thereof. The handle member 92 serves as a holding member to keep the jaws properly positioned with relation to the work, while the links 60 form a yielding connection between the shaft 30 and the shaft 63. The flexible tube 80 constitutes a guard and prevents the operator coming in contact with the link connections. While the device may be used for various purposes and the jaws may be used as a holder for different tools, the device is particularly adapted for use in tightening and unscrewing nuts.

I claim:

1. A power wrench comprising a rotatable shaft, jaws secured thereto, a power operated shaft, connections between said shafts including a pair of friction wheels secured to said power operated shaft, a friction wheel between said pair of wheels and the shaft to which said friction wheel is secured, an eccentric bearing for said shaft, a spring connected to said bearing for holding said friction wheel out of engagement with said pair of wheels, a pair of flexible connections secured to said bearing for turning the same to bring said friction wheel into engagement with one or the other of the pair of friction wheels, and treadles to which said flexible connections are secured.

2. A wrench comprising a rotatable shaft, jaws secured thereto, a hand operated support rotatably mounted upon said shaft, a member pivoted to said support, a spring for normally keeping said member in alinement with said support, a sleeve mounted on said jaw shaft to turn therewith, said sleeve having a notched periphery, a pair of dogs mounted on the support adjacent said notches, and a pair of links connecting said dogs with said pivoted member whereby said dogs are normally held out of engagement with said notched periphery and said jaw shaft can be turned in either direction by operating said pivoted member by hand.

In testimony whereof I hereunto affix my signature.

HORACE F. MANN.