March 4, 1958 E. J. ROBERTS 2,825,252

MOTOR DRIVEN SPROCKET ACTUATED MACHINE WRENCH

Filed Feb. 18, 1957 2 Sheets-Sheet 1

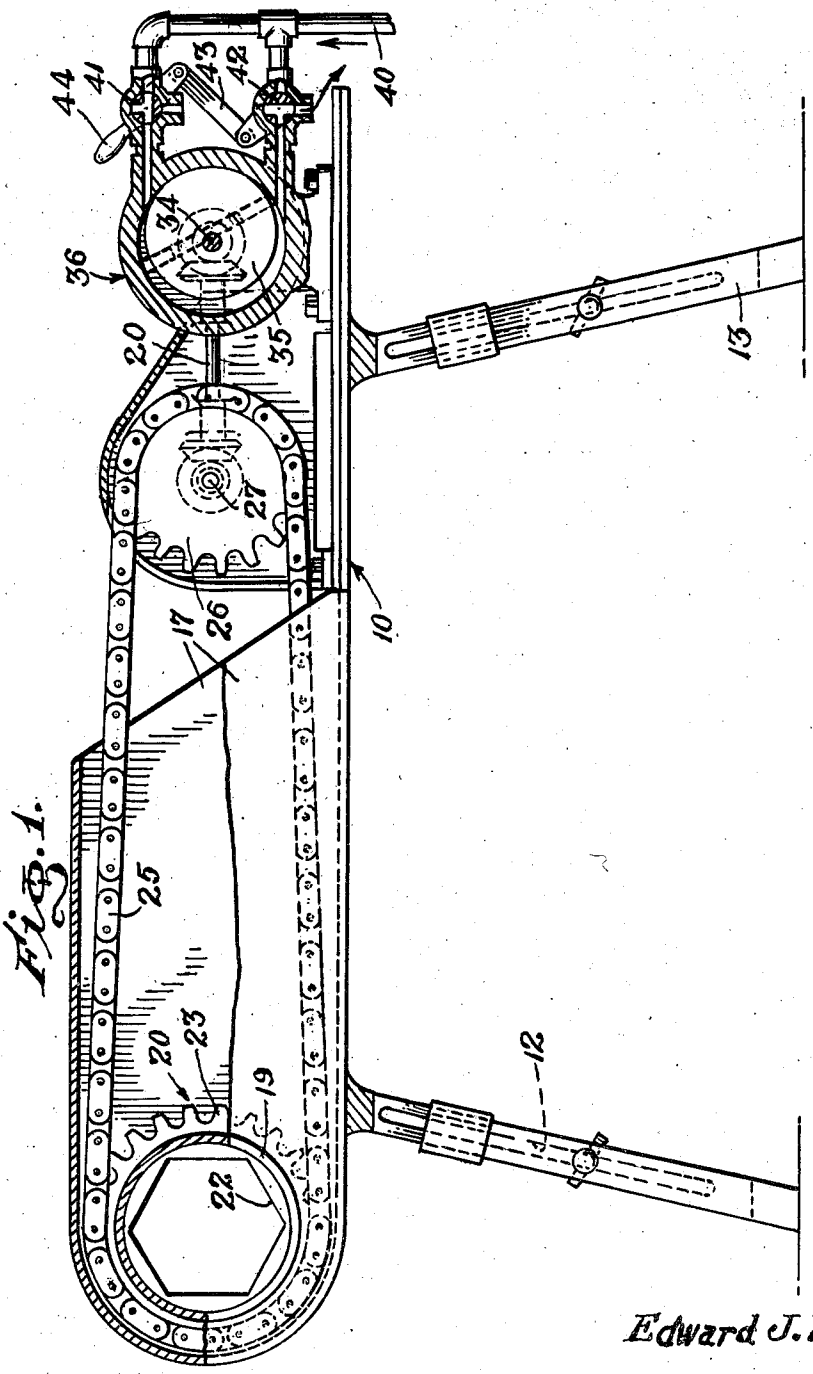



Fig. 1.

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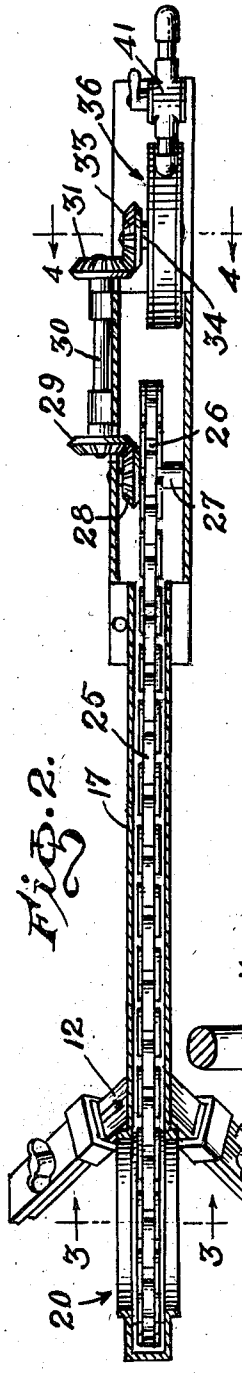



Fig. 2.

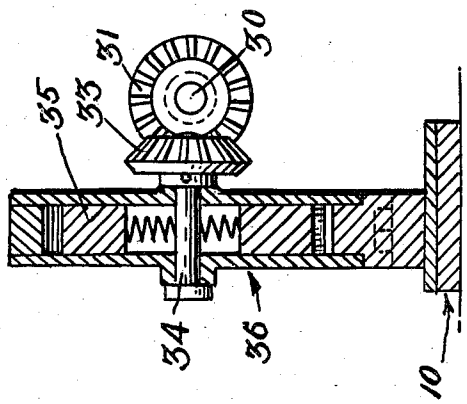



Fig. 4.

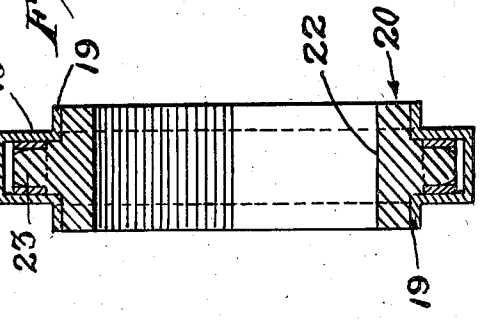



Fig. 3.

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United States Patent Office 2,825,252
Patented Mar. 4, 1958



2,825,252

# MOTOR DRIVEN SPROCKET ACTUATED MACHINE WRENCH

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Application February 18, 1957, Serial No. 640,888

2 Claims. (Cl. 81—57)

This invention relates to machine tools and more particularly to a wrench for use on freight class types of locomotives.

It is an object of the present invention to provide a wrench for slacking off and taking up on the brake adjusting screw of locomotive brake shoes.

It is another object of the present invention to provide an automatic wrench of the above type for removing the brake shoes of various types of locomotives efficiently and effectively with a minimum amount of manual labor.

Other objects of the invention are to provide an automatic wrench bearing the above objects in mind which is of simple construction, has a minimum number of parts, is inexpensive to manufacture and efficient in operation.

For other objects and for better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawing, in which:

Figure 1 is a side elevational view, with parts broken away, of an automatic wrench made in accordance with the present invention;

Figure 2 is a top plan view of the device shown in Figure 1;

Figure 3 is an enlarged cross sectional view taken along line 3—3 of Figure 2; and

Figure 4 is an enlarged cross sectional view taken along line 4—4 of Figure 2.

Referring now to Figure 1 of the drawing, an automatic wrench made in accordance with the present invention is shown to include a substantially rigid base frame **10** that is supported in a horizontal position upon a pair of downwardly diverging adjustable legs **12** at one end and a downwardly depending single leg **13** at the opposite end. A housing **15** having an upwardly extending carrying handle **11** is integrally secured to the base frame **10** and includes a longitudinally extending shield **17**.

As is more clearly shown in Figure 3, the shield **17** is provided with a pair of oppositely and outwardly extending circular flanges **19** that rotatably support a sprocket wheel **20**. This sprocket wheel **20** has a plurality of sprocket teeth **23** and defines a central hexagonal opening **22** that is adapted to removably receive the nut or bolt head of a locomotive device. A sprocket chain **25** is trained about the sprocket wheel **20** at one end and is in driven engagement with a drive sprocket **26** at the opposite end. The drive sprocket is secured to a rotatable shaft **27** that has a bevel gear **27** secured at one end. An intermediate idler shaft **30** has a bevel gear **29** at one end in meshing engagement with the bevel gear **28** upon the sprocket shaft and another bevel gear **31** at the opposite end in meshing engagement with a similar bevel gear **33** secured to the rotor shaft **34** of the rotor **35** of a pneumatic motor **36**.

The pneumatic drive motor **36** is supplied with pressure fluid through a supply line **40** and directional control valves **41, 42**, that control the direction of rotation of the rotor **35**. A connecting link **43** is operatively secured to both valves **41, 42**, so as to synchronize their movement, in response to actuation of the operating handle **44**.



Thus, in operation, the nut to be driven is engaged by the driven sprocket **20**, whereupon the operating handle **44** is moved so as to open the associated valves **41, 42**, so that fluid enters the motor housing **36** to drive the rotor **35** in a predetermined direction, depending upon whether the nut is to be tightened or loosened. Rotation of the rotor **35** is operative to effect rotation of the sprocket **26** which in turn, drives the sprocket wheel **20** through the sprocket chain **25**. All of the legs are adjustable so as to permit the device to be used on various types of equipment, and is provided with the carrying handle **11** so as to facilitate the adjustment thereof.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What I claim as new and desire to protect by Letters Patent of the United States is:

1. A motor operated gearing controlled wrench for driving nuts comprising, in combination, a base frame having a pair of spaced parallel guard plates, a circular opening in each one of said guard plates, a circular flange extending outwardly from the opening defining portions of each of said circular openings defining circular bearings, a driven sprocket wheel having a centrally located nut socket with outwardly extending shoulders in rotatable engagement with said circular flanges, a driving sprocket wheel, a sprocket chain drivingly connecting said driving sprocket wheel to said driven sprocket wheel, and a pneumatic motor supported upon said base frame in driving engagement with said driving sprocket wheel, adjustable support means for said base frame including a pair of downwardly diverging legs at one longitudinal end of said frame and a downwardly extending leg at the opposite longitudinal end of said frame, said driven sprocket wheel and said driving sprocket wheel together with said pneumatic motor being mounted in spaced longitudinal alignment upon said base frame, said pneumatic motor comprising pneumatic supply means, a valve for supplying pneumatic pressure from said supply means to drive said motor in one direction, a valve for supplying pneumatic pressure from said supply means to drive said motor in a reverse direction, linkage connecting said valves for selectively controlling the direction of flow to said motor, and bevel gears drivingly connecting said motor to said driving sprocket.

2. The combination according to claim 1, wherein said linkage is operative to simultaneously operate both of said valves to drive said motor in either direction in response to actuation of said linkage in a single predetermined direction.

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