Oct. 21, 1924. 1,512,478

H. B. NELSON

PUMP JACK

Filed May 29, 1922

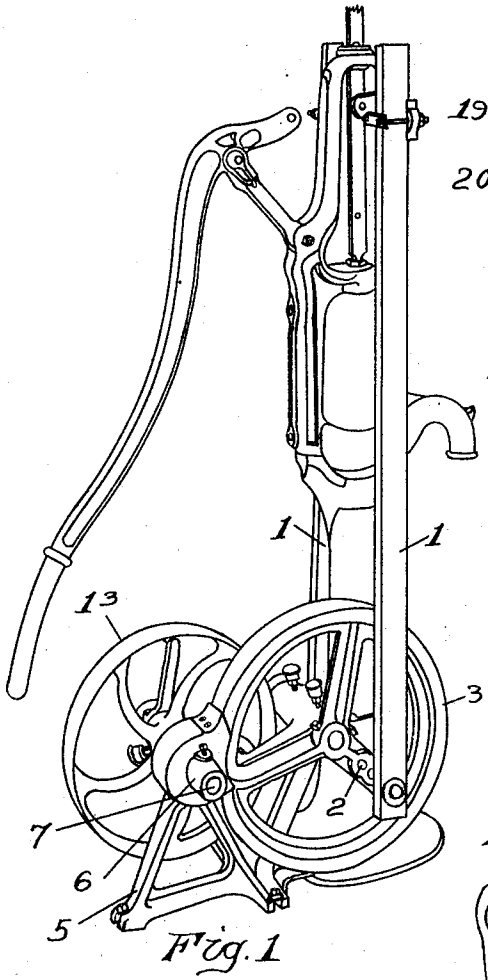


Fig. 1

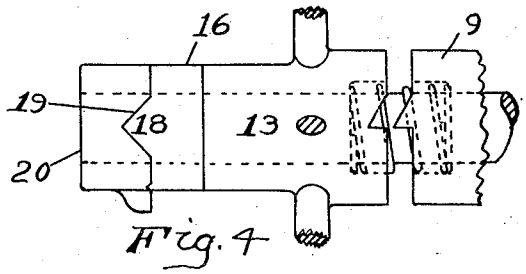


Fig. 4

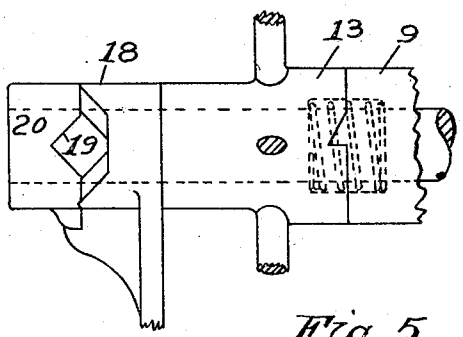


Fig. 5

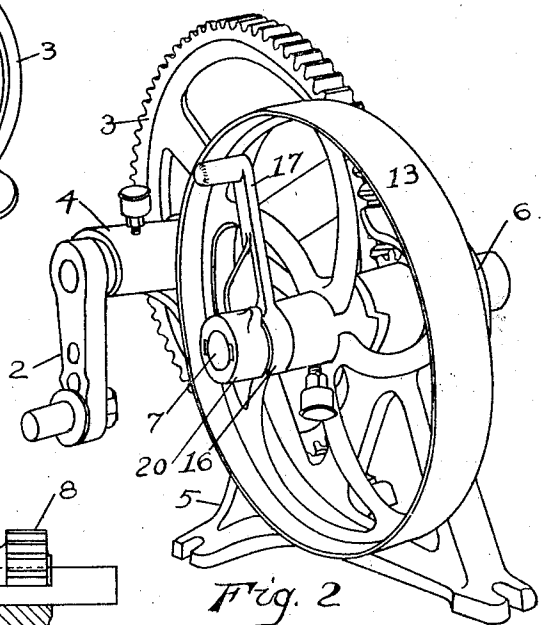


Fig. 2

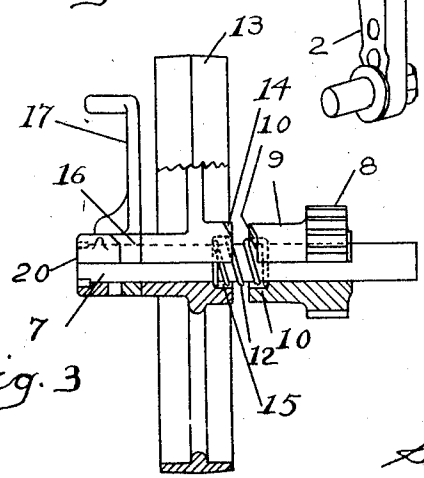


Fig. 3

INVENTOR

Harry B. Nelson

BY

Geo. B. Wilcox

ATTORNEY

Patented Oct. 21, 1924. 1,512,478

UNITED STATES PATENT OFFICE.

HARRY B. NELSON, OF SAGINAW, MICHIGAN, ASSIGNOR TO NELSON BROTHERS COMPANY, OF SAGINAW, MICHIGAN, A CORPORATION OF MICHIGAN.

PUMP JACK.

Application filed May 29, 1922. Serial No. 564,483.

To all whom it may concern:

Be it known that I, HARRY B. NELSON, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Pump Jacks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to pump jacks and pertains more particularly to certain novel features of construction applied to pump jacks as an article of manufacture, whereby the objects of my invention are attained.

These objects are, first, to provide a pump jack of simple design, capable of being manufactured in quantities at relatively small cost and by methods that do not require the service of skilled mechanics.

Heretofore it has been customary to make pump jacks of various designs and embodying various structural features, the jacks adapted to be attached to an ordinary pump, either by clamping to the barrel of the pump, or by bolting to the pump platform, or both, as the case may be. But jacks of this character have usually been so designed and constructed that their manufacture in quantities is relatively expensive and since articles of this character require not only to be well built, but also must be inexpensive, I have deviced the herein-described pump jack to accomplish these results.

With the foregoing and certain other objects in view which will appear later in the specification, my invention comprises the devices described and claimed and the equivalents thereof.

In the drawings, Fig. 1 is a side elevation of a pump jack made in accordance with my invention and applied to an ordinary force pump.

Fig. 2 is an enlarged perspective view showing the jack as it appears when viewed from the side opposite that shown in Fig. 1.

Fig. 3 is a part axial section through the driving pinion, the clutch, pulley and clutch-shifting mechanism.

Figs. 4 and 5 are enlarged views of the parts shown in Fig. 3, seen from below, Fig. 4 showing the clutch disengaged.

The jack includes the usual pitman 1 operated by the crank arms 2, 2, one of these arms being integral with the gear wheel 3. The gear wheel shaft is mounted in the bearing 4, formed integral with the frame 5 of the machine.

A similar out board bearing 6, also carried by the frame 5, has a fixed shaft 7 therein, and on this shaft is revolvably mounted a pinion 8 having a sleeve 9, one end of which is formed with a clutch member 10. The end of the sleeve is counterbored, to receive a compression spring 12. The pinion 8 meshes with the gear 3.

A belt pulley 13 is loosely mounted on shaft 7 and one end of its hub is provided with a clutch member 14 adapted to engage with clutch member 10 of sleeve 9. The clutch end of the pulley hub is also counterbored, as at 15, to receive the other end of spring 12. When the pulley 13 is revolving it can be thrown into engagement with sleeve 9 by being moved to the right in Fig. 3, lengthwise along shaft 7, and this movement is accomplished by means of a cam sleeve 16 revolvably and slidingly mounted on shaft 7 and provided with a suitable operating handle 17.

One end of the sleeve is formed, as shown in Fig. 4, with a V-shaped projection, or its equivalent, adapted to be removably received in a V-notch 19 formed in a sleeve 20 fixed to the end of shaft 7.

When cam sleeve 16 is turned by means of crank handle 17 the projection 18 rides out of the notch 19 and thereby forces sleeve 16 and wheel 13 to the right, as indicated in Fig. 5, thereby engaging the clutch ends of the hub of wheel 13 and sleeve 9 respectively, as shown in Fig. 5.

The frame 5, including the bearings 4 and 6, is formed of a single piece of cast metal and is so designed that the single casting may be easily and quickly made by comparatively unskilled labor, using molding machines, thus enabling the frames to be turned out in quantities very rapidly and accurately.

Since the shaft 7 is fixed in the frame 5 instead of being movable therein, running bearings in the frame 5 are eliminated. The pinion 8 with its sleeve 9 is made of a single casting and the pulley 13, as also the cam sleeve 16 and sleeve 20 are each made of a single casting, requiring practically no machine work except boring the hubs to receive shaft 7.

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

In a pump jack, the combination of a frame having a crank shaft bearing and a pulley shaft bearing integral therewith, a shaft in each bearing, an idle pulley slidable and rotatable on one of said shafts, one end of the hub of said pulley formed with a clutch member, a rotatable pinion on said shaft and having a second clutch member, the hubs of said pinion and pulley being recessed, a compressible spring enclosed within said recesses, a sleeve fixed to the end of said shaft and formed with a V-notch, a cam sleeve on said shaft formed with a V-shaped projection to engage said notch, and a handle for rotating said sleeve whereby to force the hub of said pulley into engagement with the hub of said pinion against the compression of said spring.

In testimony whereof, I affix my signature.

HARRY B. NELSON.