C. P. BROCKWAY.

GEAR PULLER.

APPLICATION FILED OCT. 5, 1917.

1,436,081. Patented Nov. 21, 1922.

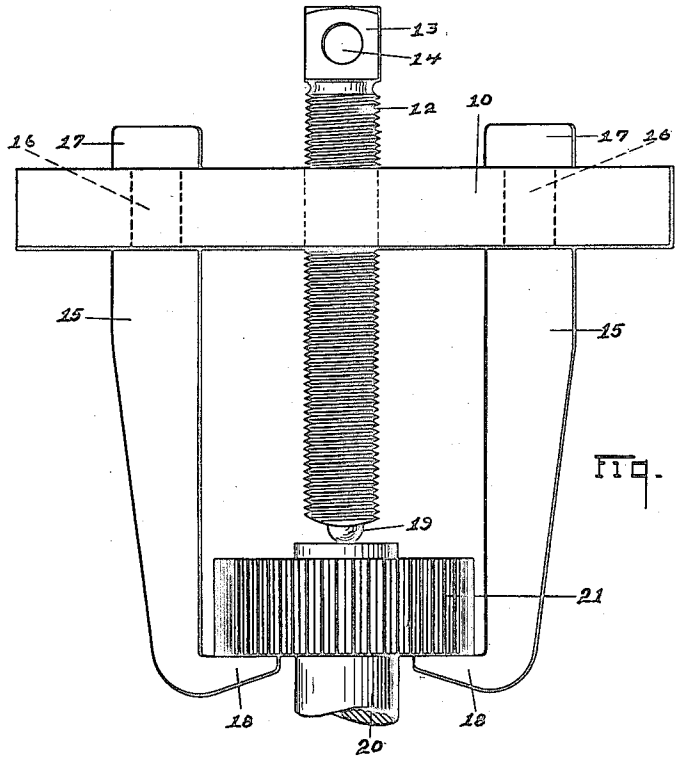


Fig. I.

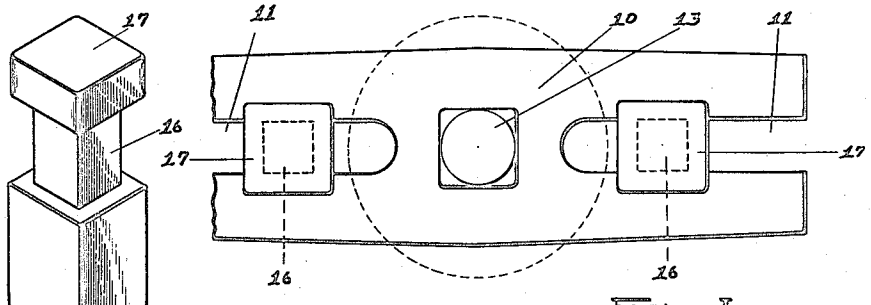


Fig. I.

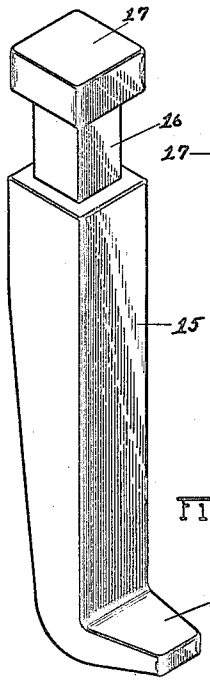


Fig. II.

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UNITED STATES PATENT OFFICE.

CARL P. BROCKWAY, OF TOLEDO, OHIO, ASSIGNOR TO THE WILLYS-OVERLAND COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

GEAR PULLER.

Application filed October 5, 1917. Serial No. 194,805.

To all whom it may concern:

Be it known that I, CARL P. BROCKWAY, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Gear Pullers, of which I declare the following to be a full, clear, and exact description.

This invention relates to an improved tool for removing gears from shafts.

The principal object of this invention is to provide an improved tool for use in removing a gear from the shaft, to which it has been splined, which tool can be readily adjusted to take care of gears of different diameters and thicknesses and either external or internal gears.

A further object of my invention is to provide a simple and convenient tool by means of which gears or similar elements can be conveniently removed from the shaft or rod to which they are splined.

Further objects, and objects relating to economies of manufacture and details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. My invention is clearly defined and pointed out in the appended claims.

A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawing, forming a part of this specification, in which—

Figure I is a view in side elevation of a tool constructed in accordance with my invention, showing the tool applied in removing the gear from the end of the shaft.

Figure II is a top plan view of the tool shown in Fig. I, and

Figure III is a detail, perspective view of one of the fingers for engaging the gear.

In the drawings, similar reference numerals refer to similar parts throughout the several views.

Considering the numbered parts of the drawings, I have shown a tool comprising a base member 10, provided at each end thereof with longitudinally extending slots or notches 11, which are open at the end. A screw 12 is threaded through the central part of the base 10, between the inner ends of the notches 11, and the upper end of said screw 12 is provided with a square head 13, by means of which the screw may be operated. An opening 14 extends transversely through the head 13, and a pin may be inserted through the opening 14 to aid in turning the screw. A pair of downwardly depending fingers 15 are provided, each of which has a reduced portion 16, near its upper end, of polygonal cross section, and a head 17. The reduced portion 16 is disposed in the slot 11, with the body of the finger 15 below the base 10, and the head 17 above. It will thus be seen that each finger 15 can be moved longitudinally of the base 10 but the polygonal cross section of the reduced portion 16 prevents the finger turning or twisting relative to the base, and movement longitudinally of the finger is prevented by the engagement of the finger 15, and of the head 17 with the base.

Each finger 15 is provided at its lower end with an inwardly turned end 18, which is adapted to engage beneath gear 21, when it is desired to remove the same from the shaft 20. In using the tool to remove a gear from the shaft to which it has been splined, the tool is applied as shown in Fig. I, with the laterally turned ends of the fingers 15 engaging beneath the gear 21, and the end 19 of the screw 12 engaging the end of the shaft 20 on which the gear 21 is splined. With the tool thus applied, it will be seen that, when the screw 12 is rotated, the pressure exerted by the screw 12 against the end of the shaft will tend to move the base 10 away from said shaft, and the engagement of the fingers 15 with the gear will pull said gear from the end of the shaft to which it is splined.

By providing a base 10 having the slots 11, and the fingers 15 having the reduced portions 16, which are so mounted in the base that they may slide longitudinally thereof, it will be seen that the tool can be instantly adjusted for gears of different diameter. Furthermore, in case it is desired to remove an internal gear, the fingers can be turned so that the laterally turned ends 18 project in the opposite direction from each other and the tool can be used in the same manner as described above, to remove an internal gear or a gear in which it is not feasible to cause the fingers 15 to pass on the outside of the gear.

I am aware that the particular embodi-

ment of my invention, which I have here shown and described, is susceptible of considerable variation, without departing from the scope of the appended claims.

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

1. A device of the class described, comprising the combination of a base provided with an open ended slot in each end thereof, extending longitudinally thereof, a screw threaded through the central portion of said base between the inner ends of said slots, a finger mounted in each slot and extending substantially parallel with said screw, each finger being provided with a reduced portion forming shoulders and adapted to fit within one of said slots, said shoulders bearing against the upper and lower surfaces of the base, and an inturned end portion remote from the point of connection of the finger with the base.

2. A device of the class described comprising a bar having an opening in each end thereof, a screw threaded through the bar between said openings and fingers disposed substantially parallel with the screw and having at their free ends laterally projecting portions and shoulders at their opposite ends to engage one side of said bar, said fingers having polygonal portions disposed within the openings with heads thereon engaging the opposite side of the bar from that engaged by the shoulders, said shoulders and heads serving to prevent lateral displacement of the fingers upon the bar.

3. A device of the class described comprising a bar having an opening through each end thereof, a screw threaded through the bar intermediate said openings and having its free end adapted for engagement with a shaft provided with a removable member frictionally held thereon, fingers extending substantially parallel with the screw and having at their free ends portions adapted to engage said removable member on the side farthest from the screw, said fingers having shoulders at their opposite ends engaging the side of the bar nearest said removable member, and having reduced portions projecting into said openings, and means co-operating with said shoulders to prevent lateral displacement of the fingers upon the bar.

4. A device of the character described, comprising a bar having an opening in each end thereof, a screw threaded through said bar between said openings, and a finger disposed in each of said openings having shoulders engaging opposite sides of said bar, each finger having a lateral projection at its free end.

In testimony whereof I affix my signature.

CARL P. BROCKWAY.