R. H. BERKSTRESSER.

APPARATUS FOR REMOVING A WHEEL, PULLEY, OR THE LIKE FROM A SHAFT, AXLE, OR THE LIKE.

APPLICATION FILED MAY 22, 1915.

1,172,761.

Patented Feb. 22, 1916.

2 SHEETS—SHEET 1.

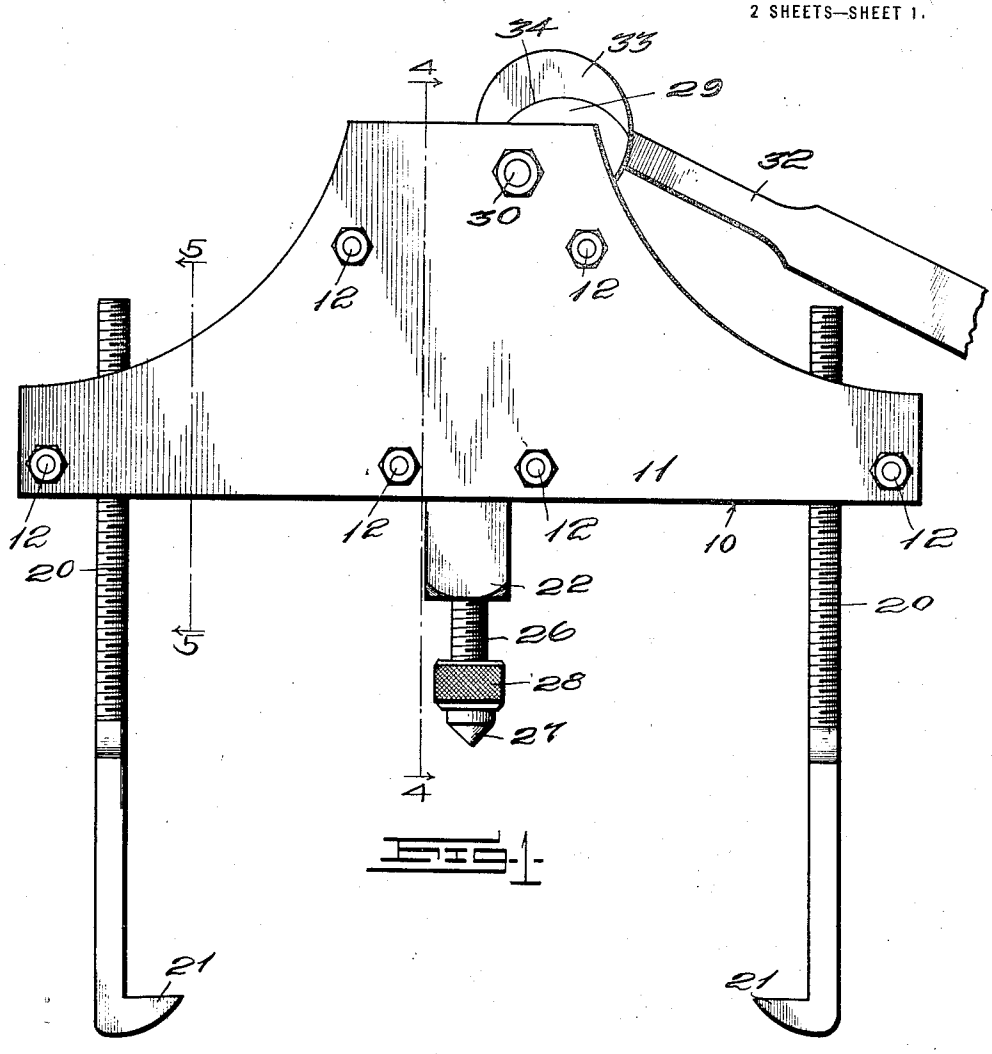


FIG. 1.

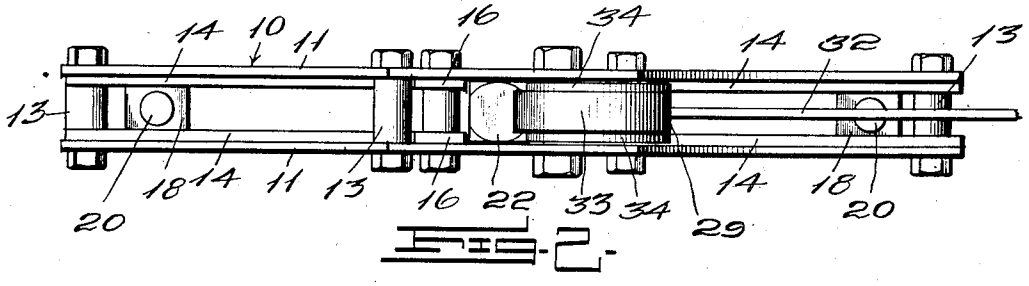


FIG. 2.

Witness
F. M. Lyles
Pauline Wrinkrimer

Inventor
Robert H. Berkstresser,
By William D. Deane
his Attorney

R. H. BERKSTRESSER.

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2 SHEETS—SHEET 2.

Fig. 2.

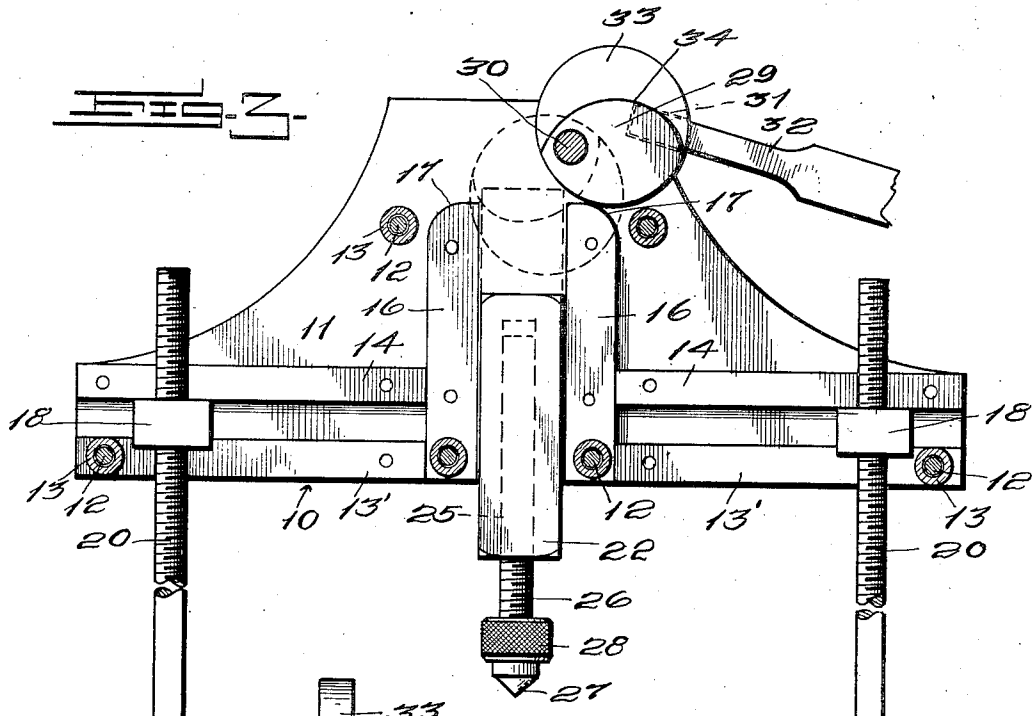
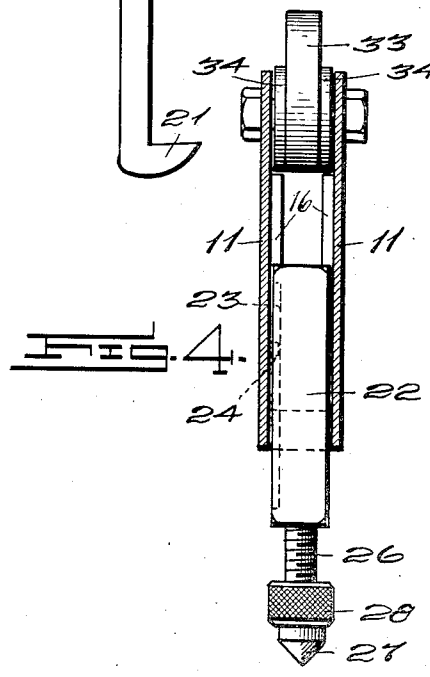


Fig. 4.



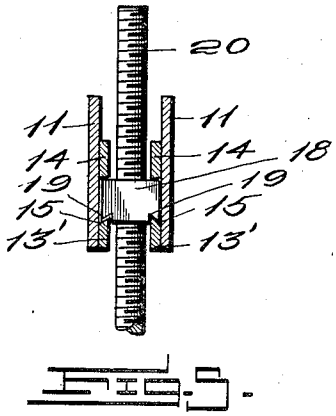


Fig. 5.

Witness
J. M. Lyles
Pauline Weinheimer

By

Inventor
Robert H. Berkstresser,
William W. Deane
his Attorney

UNITED STATES PATENT OFFICE.

ROBERT H. BERKSTRESSER, OF YORK, PENNSYLVANIA.

APPARATUS FOR REMOVING A WHEEL, PULLEY, OR THE LIKE FROM A SHAFT, AXLE, OR THE LIKE.

1,172,761. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed May 22, 1915. Serial No. 29,768.

To all whom it may concern:

Be it known that I, ROBERT H. BERKSTRESSER, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Removing a Wheel, Pulley, or the like from a Shaft, Axle, or the like, of which the following is a specification.

My invention relates to improvements in apparatus for removing a wheel, pulley or the like, from a shaft, axle or the like.

An important object of the invention is to provide means of the above mentioned character, which are simple in construction, inexpensive to manufacture, and convenient in use.

A further object of the invention is to provide apparatus of the above mentioned character, formed of few and simple parts which may be readily separated and assembled.

A further object of the invention is to provide apparatus of the above mentioned character, embodying novel and simple cam actuated means, to move the pulley or the like with relation to the shaft.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a side elevation of apparatus embodying my invention, Fig. 2 is a plan view of the same, Fig. 3 is a side elevation of the apparatus, with one frame plate removed, and the connecting means in section, Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1, and, Fig. 5 is a similar view taken on line 5—5 of Fig. 1.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates a supporting frame or body portion as a whole, comprising oppositely arranged frame plates 11, preferably tapered toward their outer ends, as shown. These frame plates are detachably connected by means of bolts 12, and spacing sleeves 13 surround the bolts between the frame plates, for retaining the frame plates suitably spaced.

Disposed upon the inner side of each frame plate 11, adjacent its inner end, are pairs of guide strips or rails 13 and 14, rigidly attached thereto by means of rivets, or any other suitable means. These guide strips or rails extend transversely of the apparatus, as shown. The lower guide strips or rails 13′ are preferably provided with beveled or under cut faces or edges 15, as more clearly shown in Fig. 5. The inner ends of the pairs of guide strips or rails 13′ and 14, are spaced as shown, and guide strips or rails 16 are arranged between these inner ends and secured to the inner side of each frame plate 11, by means of rivets or other suitable means. The guide strips 16 extend longitudinally of the apparatus and their outer ends are preferably rounded, as shown at 17.

Slidably mounted between the guide strips or rails 13′ and 14 are carriages 18, the lower sides of which are preferably provided with grooves 19, to receive the beveled faces or the guide strips or rails 13′, as more clearly shown in Fig. 5. These carriages are provided with preferably centrally arranged screw-threaded openings for receiving the screw-threaded end of attaching rods or members 20, having preferably hooked or laterally bent ends or heads 21, for engagement with the spokes of a wheel, the rim of a pulley or the like.

Arranged between the guide strips or rails 16 is a slide or cross-head 22, provided upon one side with an exterior longitudinal groove 23, receiving a stop pin or element 24, which positively limits the longitudinal movement of the slide or cross-head in opposite directions, thus preventing it from moving entirely from between the guide strips or tracks 16. This slide or cross-head 22 is provided with an axial screw-threaded opening 25, receiving a screw-threaded punch or plunger 26, having a head 27 to contact with the axle or shaft carrying the wheel or pulley and an enlarged preferably milled portion 28, by means of which the punch may be conveniently rotated. It is thus apparent that the punch 26 may be longitudinally adjusted with relation to the slide or cross-head 22, and these two elements constitute longitudinally extensible and contractible punching means.

Disposed between the outer ends of the frame plates 11 is a cam 29, eccentrically pivotally connected therewith by means of a transverse bolt 30. This cam is provided in its periphery with a radially extending opening 31, to receive the end of a lever 32,

which turns it. When the cam is in the inactive position, as shown in Fig. 3, it is supported by the curved ends 17 of one pair of guide strips 16, which accordingly serve as a stop to limit its movement in that direction. This cam 29 has a reduced portion 33, forming shoulders 34 upon opposite sides thereof. When the cam is swung inwardly, the reduced portion 33 passes between the pairs of guide strips 16, and slidably contacts with the slide or cross-head 22, thus advancing or moving it inwardly.

The operation of the apparatus is as follows: When applying the apparatus to a wheel for removing it the attaching elements or bolts 20 are transversely adjusted so that their ends 21 may engage with the spokes, the carriages 18 sliding upon the tracks. These holding or attaching elements may also be longitudinally adjusted by rotating them, if desired. The punch 26 is rotated to longitudinally adjust it, so that when it contacts with the axle or shaft, the slide or cross-head 22 will be in the outermost position. The lever 32 is now swung toward the active position, swinging the cam 29 in the same direction. When the cam is thus moved, its reduced portion 33 passes between the pairs of guide strips 16, slidably contacting with the outer ends of the slide or cross-head 22, shifting or moving it inwardly, whereby a relative movement is effected between the wheel or pulley and the axle or shaft. It is thus apparent that upon the complete active stroke of the lever 32, the slide 22 is moved a given distance, and when at the end of this movement, the cam 29 is returned to the inactive position, and the punch 26 rotated to return the slide 22 to the outer starting position. Upon the active movement or stroke of the cam, the slide 22 is again moved inwardly. This operation may of course be repeated, within the range of the adjustability between the punch 26 and slide 22.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described the invention, I claim:

1. In apparatus of the character described, a pair of spaced frame plates, means detachably connecting the frame plates, transverse and longitudinal guide devices carried by the inner sides of the frame plates, carriages slidably mounted upon the transverse guide devices, attaching members having screw-threaded engagement with the carriages, a slide arranged between the longitudinal guide devices, a punch longitudinally adjustably mounted upon the slide, and a cam arranged between the frame plates and pivotally connected therewith and adapted to contact with the slide to move it.

2. In apparatus of the character described, a pair of connected spaced frame plates provided upon their inner sides with transverse and longitudinal guide means, carriages slidably mounted upon the transverse guide means, attaching members having screw-threaded engagement with the carriages, a slide arranged between the longitudinal guide means and having a screw-threaded axial opening, a screw-threaded punch rotatably mounted in the axial opening of the slide and projecting outwardly beyond the inner end thereof and having means for turning it, a cam arranged between the frame plates and pivotally connected therewith to contact with the slide to move it, and means to turn the cam.

3. In apparatus of the character described, a pair of connected spaced frame plates provided upon their inner sides with longitudinal spaced guide strips, a slide mounted to operate between the guide strips, a cam having a reduced portion adapted to travel between the two sets of guide strips and providing shoulders upon opposite sides of the cam, means eccentrically pivotally connecting the cam with and between the frame plates nearer one pair of guide strips whereby one side of the cam contacts with the upper end of such pair of guide strips when the cam is in the inactive position and the shoulders contact with the upper ends of the opposite pair of guide strips when the cam is in the active position, means to turn the cam, and attaching means connected with the frame plates.

4. In apparatus of the character described, a pair of spaced connected side plates, a longitudinally extensible punching means mounted to reciprocate between the side plates and adapted to be manually operated to vary its length, a cam pivotally mounted between the side plates adjacent one end of the punching means to contact with such end and effect the longitudinal movement thereof, a lever connected with the cam to turn it, and attaching elements connected with the side plates.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT H. BERKSTRESSER.

Witnesses:
CALVIN HEIGES,
M. J. RAFFENSBERGER.