H. DOTZER AND S. G. BARNARD.

DEVICE FOR REMOVING WHEELS AND THE LIKE FROM SHAFTS.

APPLICATION FILED DEC. 19, 1919.

1,361,316. Patented Dec. 7, 1920.

Fig. 1.

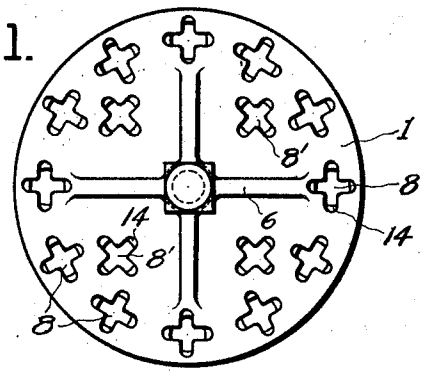
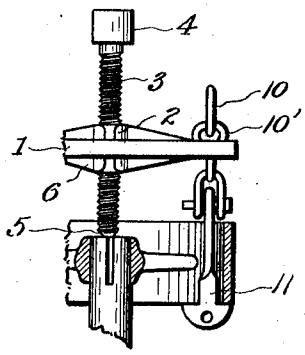


Fig. 2.



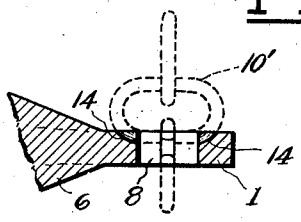
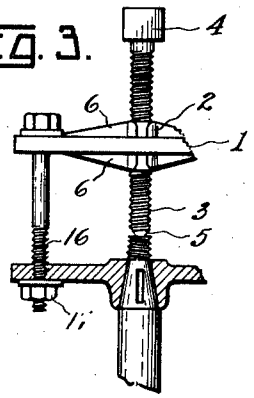


Fig. 4.

Fig. 3.



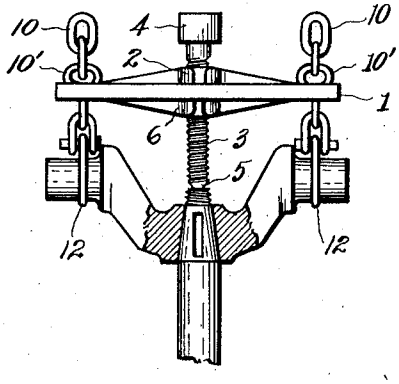


Fig. 5.

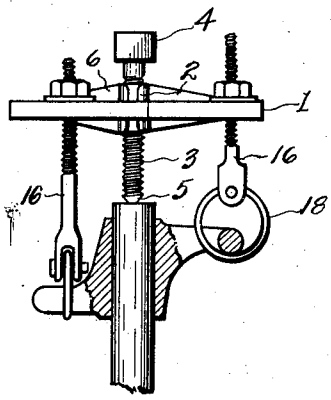


Fig. 6.

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DEVICE FOR REMOVING WHEELS AND THE LIKE FROM SHAFTS.

1,361,316. Specification of Letters Patent. Patented Dec. 7, 1920.

Application filed December 19, 1919. Serial No. 345,985.

To all whom it may concern:

Be it known that we, HUGO DOTZER and SAMUEL G. BARNARD, a citizen of Germany and of the United States, respectively, and residents of the city of Seattle, county of King, and State of Washington, have invented certain new and useful Improvements in Devices for Removing Wheels and the like from Shafts, of which the following is a specification.

Our invention relates to improvements in devices for removing wheels, pulleys, etc., from the shafts, or hubs, on which they are mounted, and has for its principal object to improve upon devices of this character as formerly employed to do similar work by providing a puller plate of novel construction which will afford a plurality of suspension points, or points of connection, which may be used in various balancing combinations about a centrally located pressure screw so that an even pulling pressure may be exerted on the object being removed and tipping or displacing of the pressure screw from alinement is avoided.

In accomplishing this, and other objects of the invention, we have provided improved details of construction, the preferred forms of which are illustrated in the accompanying drawings, wherein:

Figure 1 is a plan view of a puller plate constructed according to the present invention.

Fig. 2 is a partial elevation of the device as used for removing a wheel from a shaft.

Fig. 3 is a similar view illustrating the manner in which bolts may be employed as the connecting members between the puller plate and object being removed.

Fig. 4 is an enlarged sectional view of a portion of the puller plate, illustrating the manner of securing a chain in a plate opening.

Figs. 5 and 6 illustrate different applications of the device to irregularly shaped objects.

Referring more in detail to the drawings, 1 designates the preferred type of puller plate, which is circular in form and at its center is provided with a bearing 2 through which a screw 3, extending perpendicularly to the plate, is threaded.

This screw may be made of any length suitable to its use, and is provided at the upper end with a head 4 for the reception of a wrench, or other tool whereby the screw may be turned, and at its lower end has a point 5 which may bear against a shaft end or part from which a wheel or other object is to be removed.

Ribs 6 are extended radially from the hub on both sides of the plate to give it strength and stiffness.

Arranged about the circumference of the plate at equal distances from the center, are a series of equally spaced apertures 8, herein shown to be twelve in number, and within these is a set of four equally spaced apertures, 8′, all of said apertures being in the form of two crossed slots which provides for the passage of the crossed links of the ordinary link chain therethrough.

The preferred type or form of connecting member used with the device, comprises link chains 10 which may be provided at their lower ends with hooks 11, as shown in Fig. 2, or with rings 12, as shown in Fig. 5, or other means whereby the links of the chains may be attached to the object to be removed.

The manner of adjustably locking the chains to the plate is effected by turning a link, as is shown by the links 10′, in Figs. 2 and 4, so that one side of the link, which is longer than it is wide, will seat itself in grooves or seats, 14, formed in the upper ends of the crossed slots which form the apertures, and will, by these seats, be held against displacement.

Bolts 16 may be used in place of chains, as is shown in Figs. 3 and 6, and these bolts may be provided with various connecting devices, such as the nuts 17 or the rings 18, according as to which will best serve the object to be removed.

In using the device for removing a wheel or pulley from a shaft, the pointed end of the screw is placed against the end of the shaft from which the wheel is to be removed. If chains are to be used, these are attached by use of the hooks, rings, or other means, to the body or rim of the wheel about its circumference and the loose ends thereof are passed through apertures of the plate and are drawn tight and locked by turning links thereof, as is illustrated in Fig. 4.

In this operation any desired number of connecting chains may be used, but preferably there should be three or more, spaced equally apart or in such relation that a per-

fectly balanced pull will be exerted on the plate and wheel.

The screw may then be actuated inwardly by means of a wrench applied to the head thereof so that the plate is moved outwardly to dismount the wheel from the shaft.

It is apparent that by use of such a device, either bolts, rods, or chains, may be used as the connecting means and that they may be arranged in the apertures of the plate in such combination or relation that a straight axial pressure is exerted on the screw, and the object can be removed without binding, twisting, or damage thereto from uneven pressure.

What we claim as new, is:

1. A device of the character described comprising a puller plate having a plurality of openings therethrough arranged in similarly arranged groups on opposite sides thereof, a pressure screw threaded centrally and perpendicularly through said plate to engage against a mounting member and connecting members extended through said openings in locking relation with said plate.

2. A device of the character described comprising a puller plate having a plurality of openings therethrough arranged in similarly arranged groups on opposite sides thereof, a pressure screw threaded centrally and perpendicularly through said plate and connecting chains through apertures of said plate and adapted to be locked thereto by the disposition of any of their links crosswise of the openings.

3. A device of the character described comprising a substantially circular plate provided with a plurality of cross-shaped openings therethrough arranged in similarly arranged groups at equal distances about a central point thereof, a pressure screw threaded centrally and perpendicularly through said plate to engage against a mounting member, a series of connecting chains having means at their outer ends whereby they may be secured to a part to be removed from the mounting member, trained through a balanced combination of openings to be adjusted and locked relative to the plate by the disposition of any of their links crosswise of the openings.

4. In a device of the character described, a puller plate having a plurality of cross shaped openings therethrough and having paired seats registering with and leading into each of said openings, a pressure screw threaded centrally through the plate and connecting chains adapted to be trained through said openings and to be locked to said plate by the disposition of any one of the links thereof crosswise of the openings and their ends disposed in said seats.

Signed at Seattle, Washington, this 11th day of December, 1919.

HUGO DOTZER.
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