Dec. 27, 1927. 1,653,715

C. W. LYNCH

KEY PULLER

Original Filed Aug. 27, 1925 2 Sheets-Sheet 1

Fig. 1.

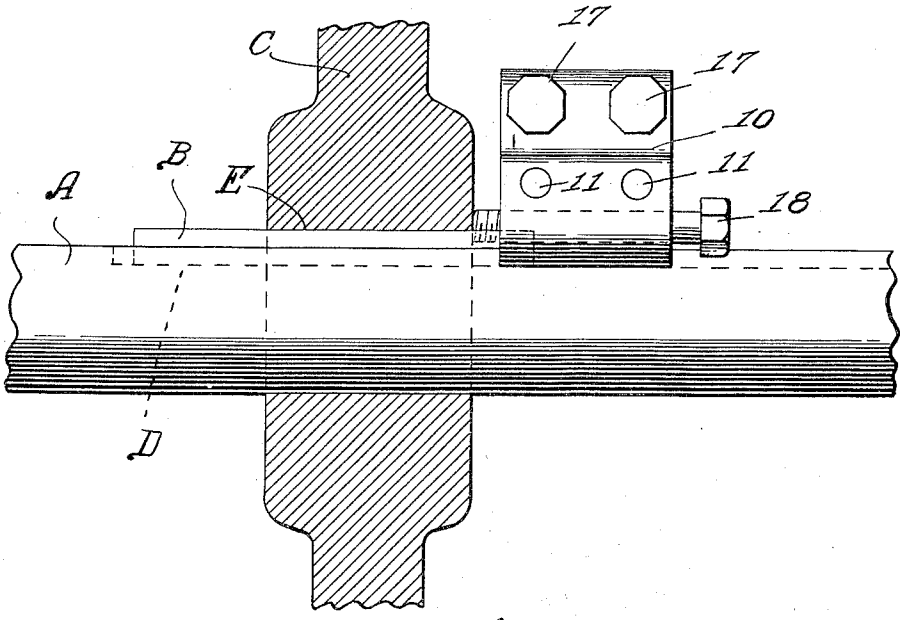
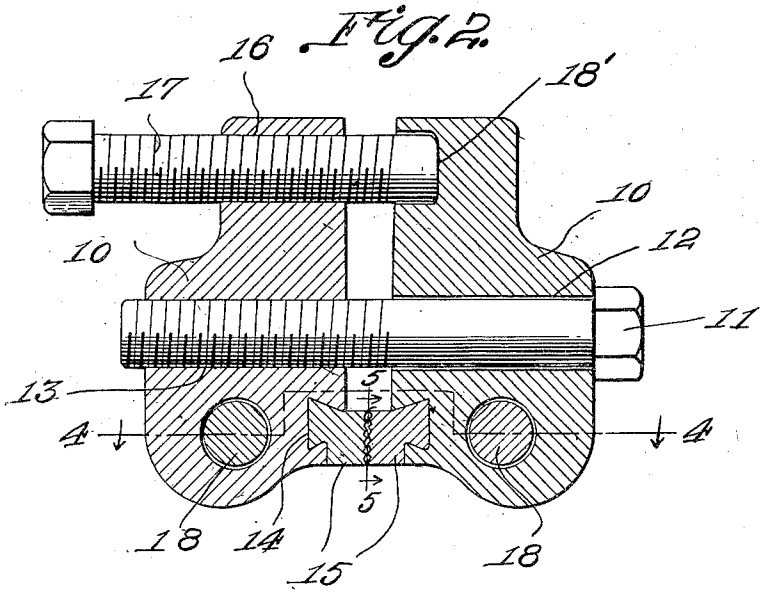


Fig. 2.



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Fig. 3.

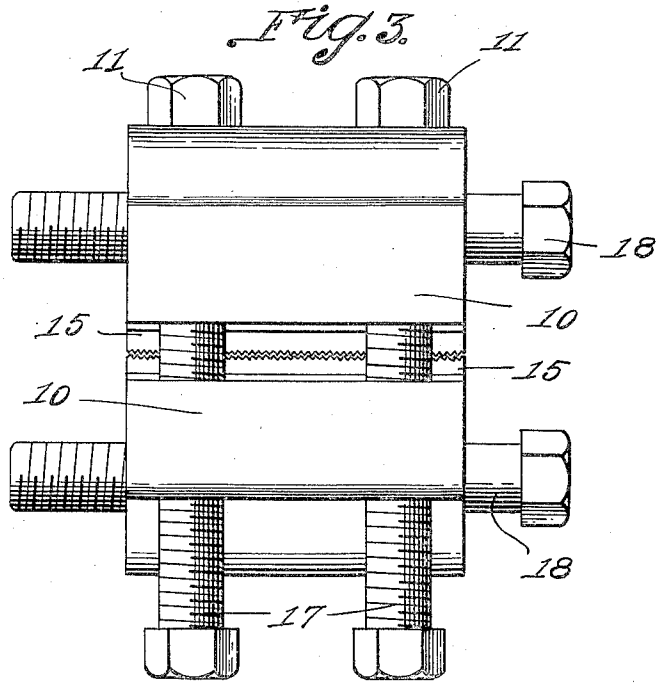


Fig. 4.

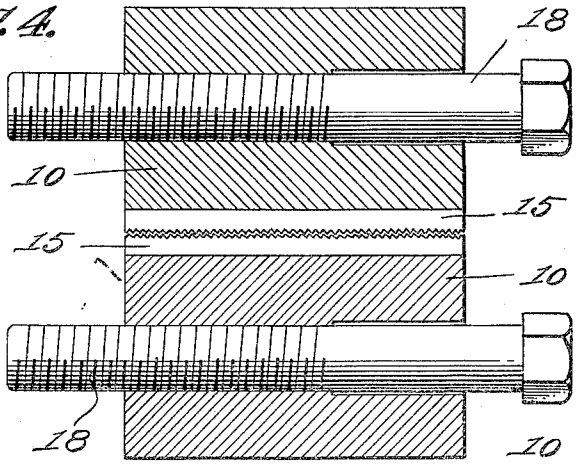
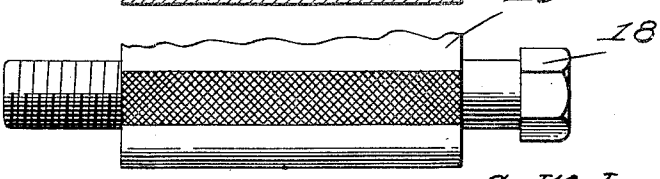


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHARLES WESLEY LYNCH, OF PERRY, OKLAHOMA, ASSIGNOR TO MARION MACHINE FOUNDRY & SUPPLY COMPANY, OF MARION, INDIANA.

KEY PULLER.

Application filed August 27, 1925, Serial No. 52,871. Renewed November 12, 1927.

This invention relates to tools used by mechanics, machinists and others, and has for its object the provision of a novel device by means of which a key for holding a pulley or other element may be quickly and easily removed.

An important object is the provision of a device of this character which is provided with screw operating means whereby great leverage may be exerted upon the key for effecting extraction thereof, the device embodying a peculiar clamping mechanism which will operate to hold a key firmly, regardless of the size or shape thereof and likewise regardless of whether the condition be good or bad, as for instance, resulting from battering or prolonged use.

Still another object is to provide a device of this character which will be easy to apply and adjust, positive in action, efficient and durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction and the arrangement and combination of parts to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the device showing it engaged upon a key and in the act of pulling the same, a shaft and pulley or other element being likewise represented.

Figure 2 is a cross sectional view through the device itself.

Figure 3 is a top plan view thereof.

Figure 4 is a cross section taken on the line 4—4 of Figure 2.

Figure 5 is a detail section taken on the line 5—5 of Figure 2.

Referring more particularly to the drawings, the letter A designates a supporting shaft upon which is mounted, by means of a key B, a pulley or other element C. As is well known, keys of this type fit within grooves D and E in the shaft and pulley or other element C, respectively.

In carrying out the invention, I provide a puller which comprises a pair of similar block-like members 10 through which extend transversely arranged bolts 11 which pass through smooth bores 12 in one member and which are threaded into holes 13 in the other member, as clearly indicated in Figure 2. It is intended that there be sufficient play in the bore 12 to permit a certain amount of rocking movement of the members 10 with respect to each other, as will, of course, be necessary in actual practice.

Near one end or edge, the confronting faces of the members 10 are formed with grooves or channels 14, preferably dovetailed in cross section, within which are slidably engaged slips or wedge elements 15 which cooperate to provide clamping means for engaging the key B. It is preferable that the confronting faces of these slips or wedge members be corrugated or otherwise roughened, as clearly indicated in Figure 5, so as to insure a proper grip upon the key. Obviously, the slips 15 illustrated may be replaced by others which are smaller, or larger, as the case may be, depending upon the nature of the key or keys to be extracted by means of the device.

One member 10, preferably the one equipped with the threaded holes 13, is formed with other threaded holes 16 into which are screwed adjusting bolts 17 which have their ends engaging within sockets 18′ in the other member 10, so that by turning these bolts 17, the clamping action of the members 15 upon the key may be made very firm so that slippage even under the most adverse circumstances will be positively prevented.

Threaded longitudinally through the end portions of the members 10 are bolts or set screws 18 which are adapted to bear against the confronting face of the pulley C or other device held by the key, in order to provide the necessary purchase for effecting extraction of the key.

In the operation of the device, it is to be understood that the bolts 17 and 11 must be loosened or turned in a counter-clockwise direction in order that the members 15 will be spaced a sufficient distance apart that the key B may be located between them. The device is then placed upon the key with one end spaced slightly away from the pulley or other element C held by the key. It is then necessary that the bolts 11 and 17 be turned down or in, so as to draw the members 15 into firm clamping engagement with the key, subsequently to which the bolts 18, or set screws, as they may be termed, are screwed in until they engage against the pulley or other member C. These bolts may be turned off alternately or simultaneously, this detail being immaterial, and it is quite ob-

vious that as they bear against the member C, the entire device formed by the two members 10 will be moved away from the member C, carrying the key with it, so that the latter will be withdrawn from the grooves in which it is engaged.

From the foregoing description and a study of the drawings, it will be apparent that I have thus provided a very simply constructed and inexpensive and easily applied, adjusted and operated device for the purpose specified, which will efficiently perform all the functions for which it is intended, and which will be a great saver of time, labor and annoyance in facilitating the extraction of holding keys used in connection with various types of machine elements. It is believed that the construction, operation and advantages will be readily apparent to one skilled in the art without further explanation.

While I have shown and described the preferred embodiment of the invention, it should be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described the invention, I claim:—

1. Means for extracting a key holding a member upon a shaft, comprising a pair of similar members provided at their confronting faces with grooves, clamping members mounted within said grooves for engagement upon the key to be extracted, screw means holding said members together in immovable relation to the key and other screw means arranged at right angles to the first named screw means and engageable with the member through which the key passes whereby to apply pressure thereagainst for extracting the key.

2. A device of the character described, comprising a pair of similar block-like members one provided with a pair of smooth bores and the other being provided with a pair of threaded holes registering therewith, bolts passing through said smooth bores and threaded holes, one of said members being formed with sockets and the other being provided with other threaded holes, a second set of bolts threaded through said second named threaded holes and engaging within said sockets, the confronting faces of said members being grooved, clamping elements removably engaged within the grooves, and screws threaded longitudinally through said members and engageable with a relatively stationary abutment.

3. A device of the character described comprising a pair of similar members grooved at their confronting faces, clamping members detachably mounted within the grooves and adapted for engagement upon a key to be extracted from engagement with a shaft and a member carried thereby, a plurality of sets of screw members passing through and engaging said clamping members for effecting immovable relation thereof with respect to the key to be extracted, and a set of other screw members threaded longitudinally through the clamping members at right angles to the first named set of screw members and engageable with the member carried by the shaft.

In testimony whereof I affix my signature.

CHARLES WESLEY LYNCH.