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Patented Dec. 30, 1902.

H. M. McCall.
KEY REMOVER.

(Application filed Oct. 6, 1902.)

(No Model.)

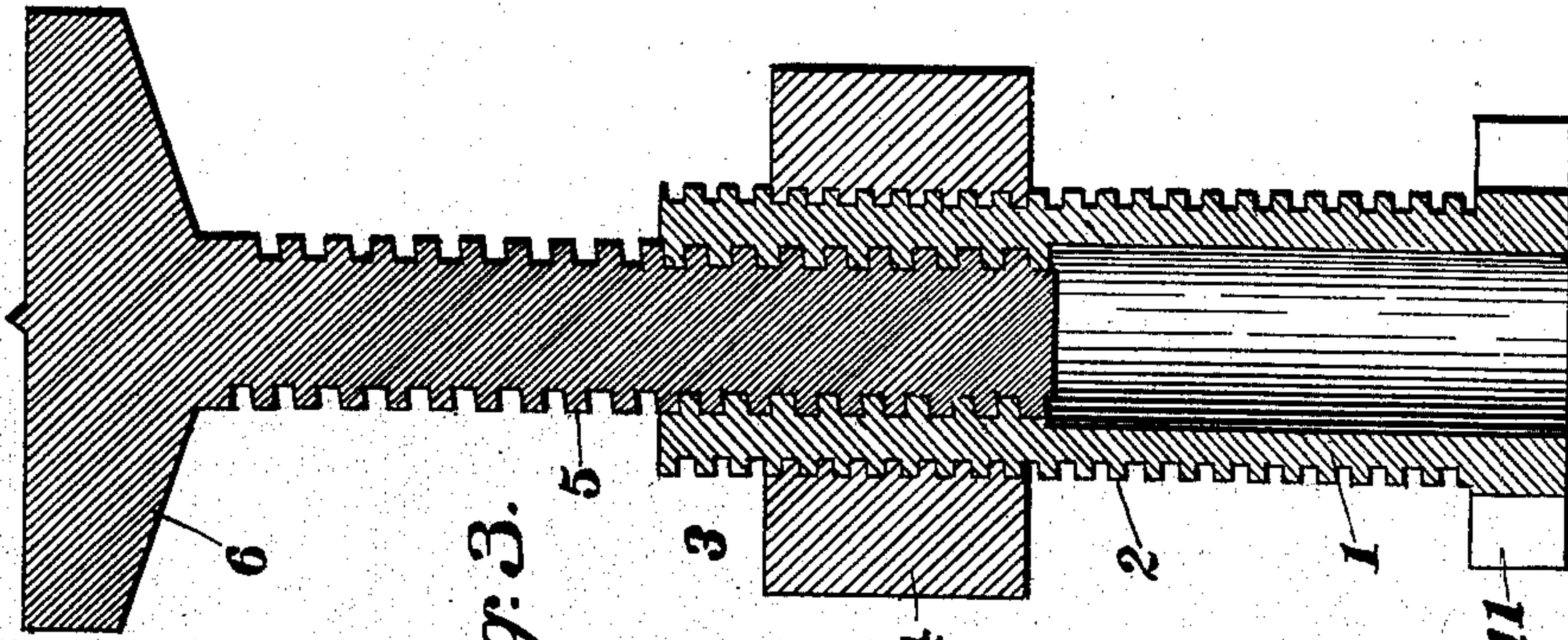


Fig. 3.

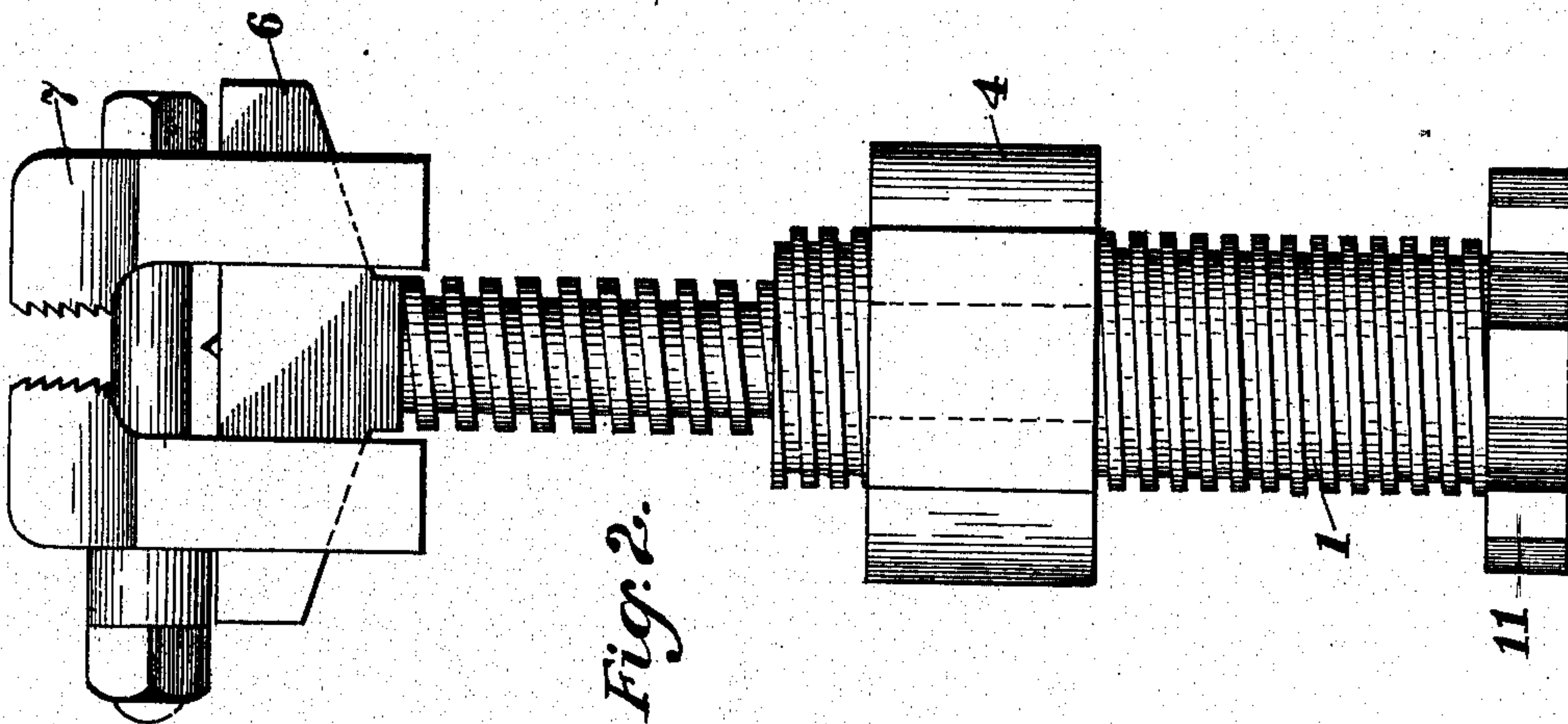


Fig. 2.

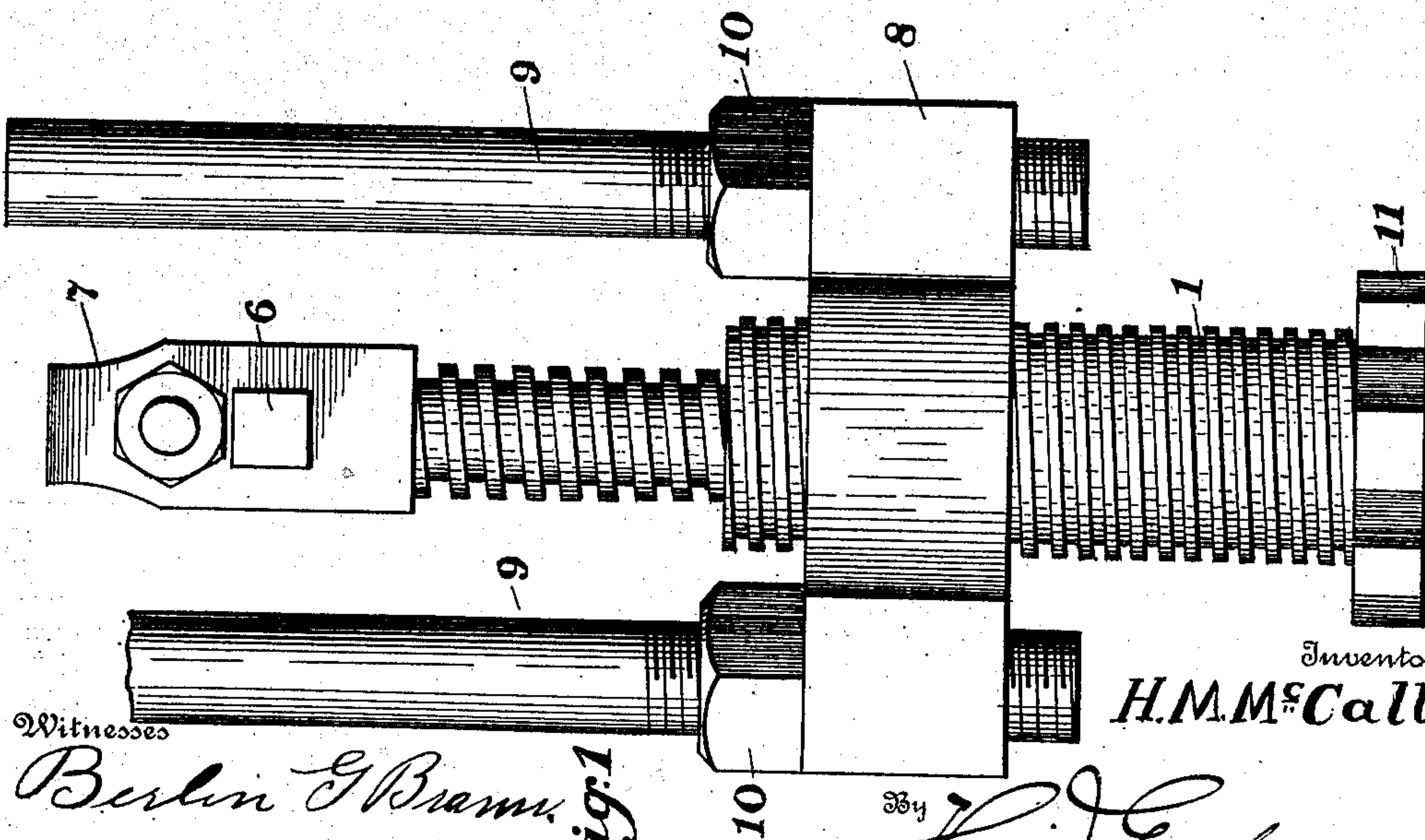


Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

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KEY-REMOVER.

SPECIFICATION forming part of Letters Patent No. 717,438, dated December 30, 1902.

Application filed October 6, 1902. Serial No. 126,155. (No model.)

To all whom it may concern:

Be it known that I, HARRY M. McCALL, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Key-Removers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to key-removers adapted to exert great power in pushing or pulling; and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

The key-remover, as shown in the accompanying drawings, is especially adapted for pulling keys from the shaft of a fly-wheel; but the same principles as are involved in the implement shown may be used to advantage in punches, jacks, brakes, and other devices.

The invention consists, primarily, of a sleeve threaded both externally and internally, an internally-threaded collar adapted to engage the external thread of the said sleeve, an externally-threaded bar adapted to engage the internal thread of the sleeve, said bar having at its end a suitable cross-head and a means attached thereto for gripping the article to be pulled, the collar having suitable perforations adapted to receive adjustable legs, which bear at their ends against stationary objects. The external thread of the bar is at a greater pitch than the external thread of the sleeve, and must necessarily be so in order to attain the desired results.

In the accompanying drawings, Figure 1 is a side elevation of the key-remover. Fig. 2 is a side elevation of the key-remover at right angles to the view shown in Fig. 1. Fig. 3 is a longitudinal central section of the key-remover, taken on a plane parallel to the cross-head 6.

The sleeve 1 is provided on its exterior with the thread 2, on its interior with the thread 3, the interior thread being at a greater pitch than the exterior thread. The internal thread of the collar 4 is adapted to engage the external thread 2 of the said sleeve. The bar 5 is externally threaded and is adapted to enter the interior of the sleeve 1, the thread of the

said bar engaging the internal thread of the said sleeve. One end of the bar 5 is provided with the cross-head 6, upon which is located suitable jaws 7, which are adapted to grip a key (not shown in the drawings) or other article to be drawn. The collar 4 is provided on opposite sides with the lugs 8, which are provided with perforations extending transversely therethrough. The ends of the legs 9 are adapted to enter the perforations in the said lugs 8, the said ends of said legs being screw-threaded and each having a nut 10, adapted to engage the under surface of the lugs 8. The opposite ends of said legs 9 are adapted to bear against stationary objects. The end of the sleeve 1 is provided with suitable serrations 11, between which may be applied the end of a spanner-wrench.

In operation the device works as follows: Presuming that a key is to be drawn from the end of a fly-wheel shaft, the head of the said key is placed between the jaws 7. The ends of the legs 9 are placed against the hub or spoke of the wheel. The operator applies a spanner-wrench to the serrations 11 of the sleeve 1 and revolves the said sleeve. The collar 4 being thus made substantially stationary and the threaded sleeve 1 engaging the internal thread of the said collar as the said sleeve is revolved, it moves toward the cross-head 6 of the bar 5, and at the same time said bar 5 moves up into the sleeve. Owing to the fact that the thread 2 of the sleeve 1 is pitched at a lesser angle than the thread of the bar 5, the sleeve 1 will move toward the cross-head 6 faster than the said cross-head will move toward the said sleeve. Consequently a great gain in leverage is attained, and the implement can be made to exercise great drawing power.

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

1. In a device of the character as described, an externally and internally threaded sleeve, a collar internally threaded and located upon said sleeve, a means for making said collar substantially stationary, a bar externally threaded and engaging the internal thread of the sleeve, said bar having a means adapted

to engage the article to be operated upon, the thread of said bar being pitched at a greater angle than the external thread of the sleeve.

2. In a device of the character as described,
5 a sleeve having an external and internal thread, a collar internally threaded and adapted to engage the external thread of said sleeve, adjustable legs adapted to engage the said collar, a threaded bar adapted to engage the internal thread of said sleeve, said bar having
10 a means for engaging the article to be operated upon, the pitch of the thread of the said bar being at a greater angle than the pitch of the external thread of the said sleeve.

15 3. A device of the character as described, consisting of a sleeve having external and internal threads, a collar internally threaded and adapted to engage the external thread of the said sleeve, a threaded bar adapted to

engage the internal thread of said sleeve, said 20 bar having a suitable means for engaging the article to be operated upon, said collar having perforated lugs, legs having threaded upper ends adapted to enter perforations in said lugs, bolts engaging the threads of said legs 25 and adapted to bear against the lower surfaces of the said lugs, the lower ends of said legs adapted to bear against stationary objects, the thread of said bar being pitched at a greater angle than the external thread of the 30 said sleeve.

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

HARRY M. McCALL.

Witnesses:

CHAS. F. HATCH,

GEORGE CALVERT.