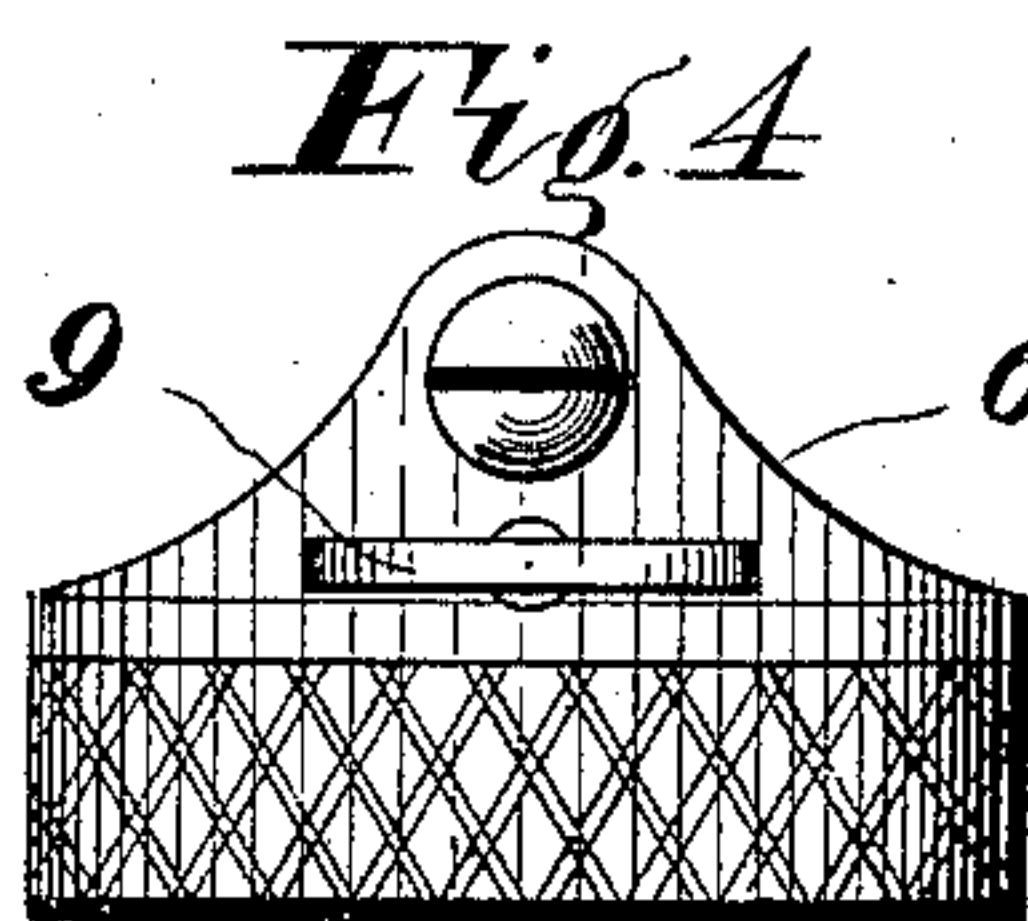
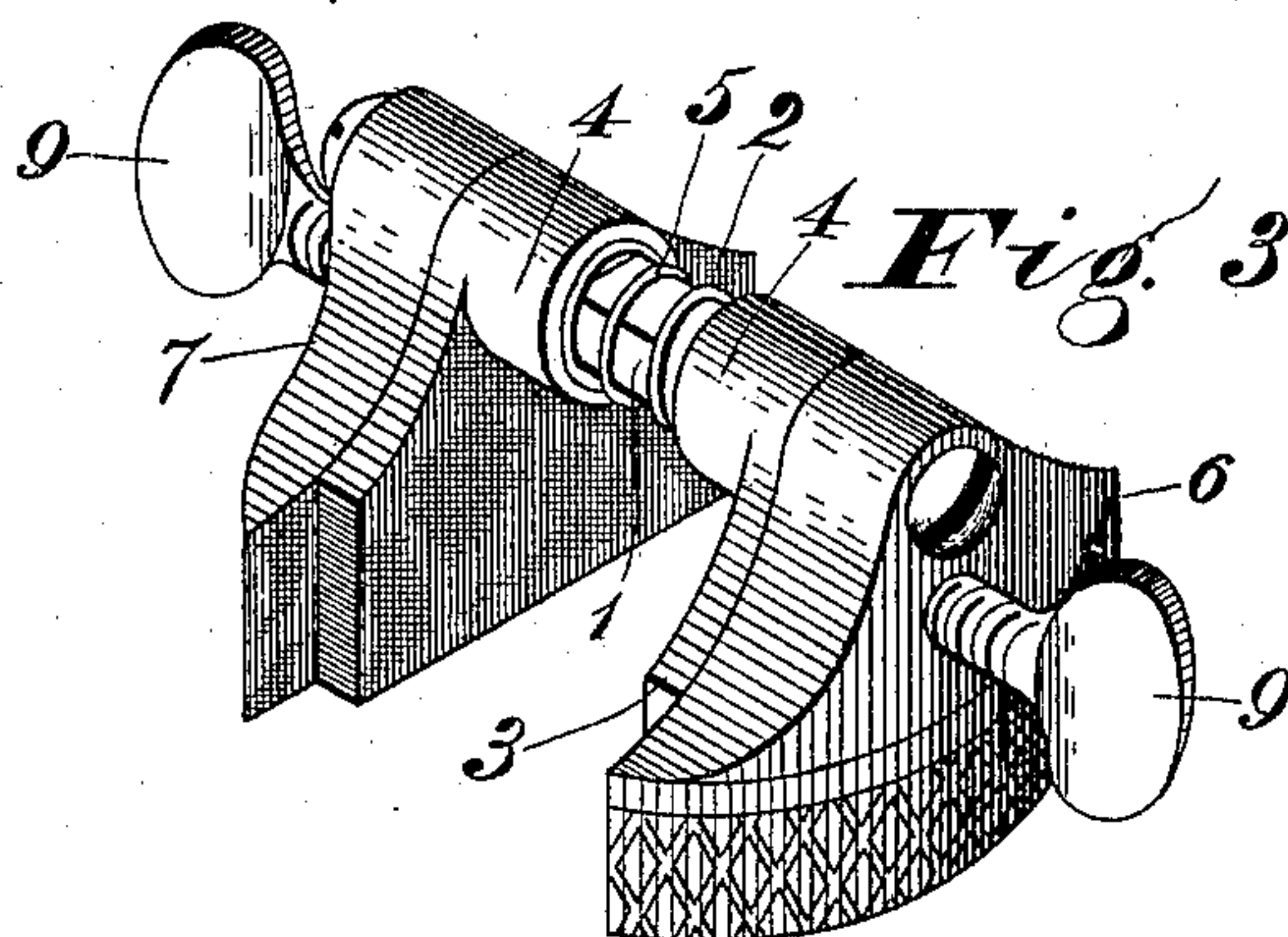
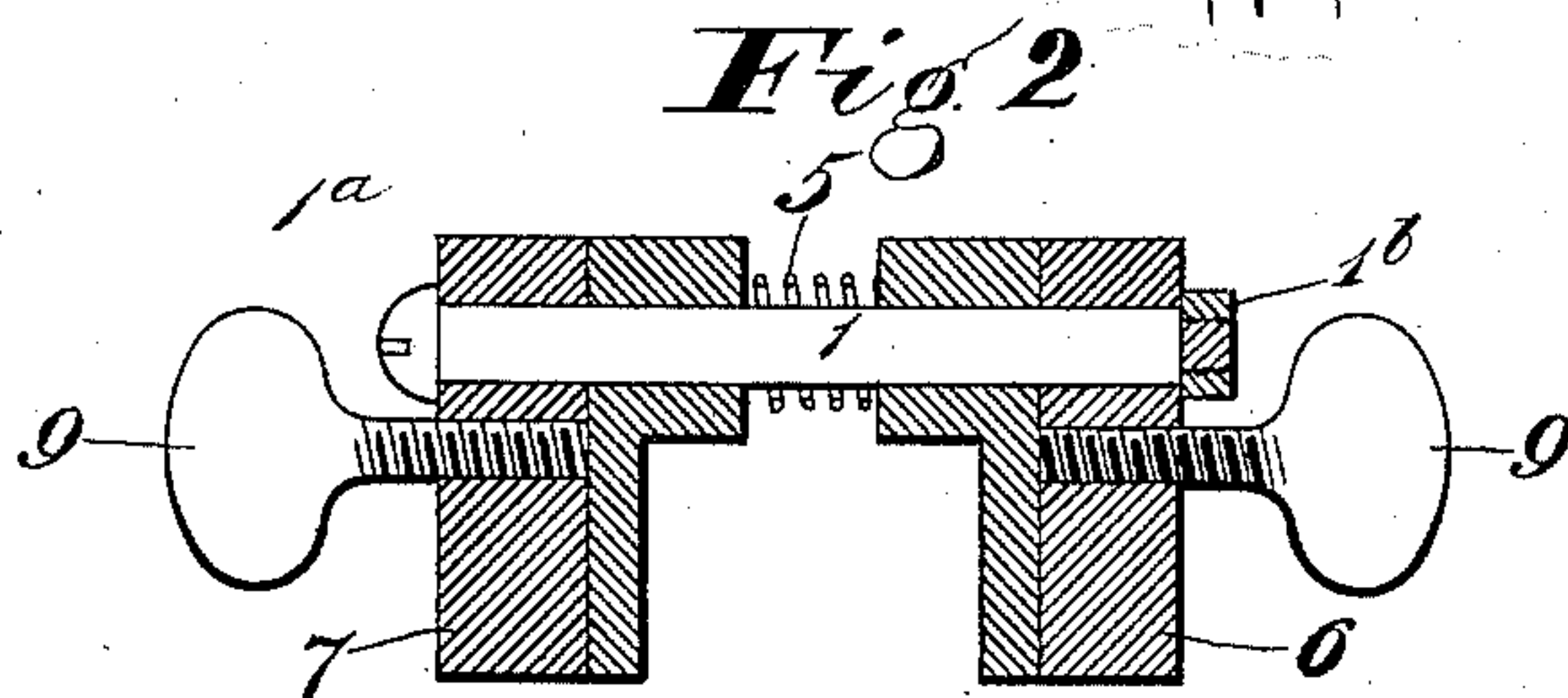
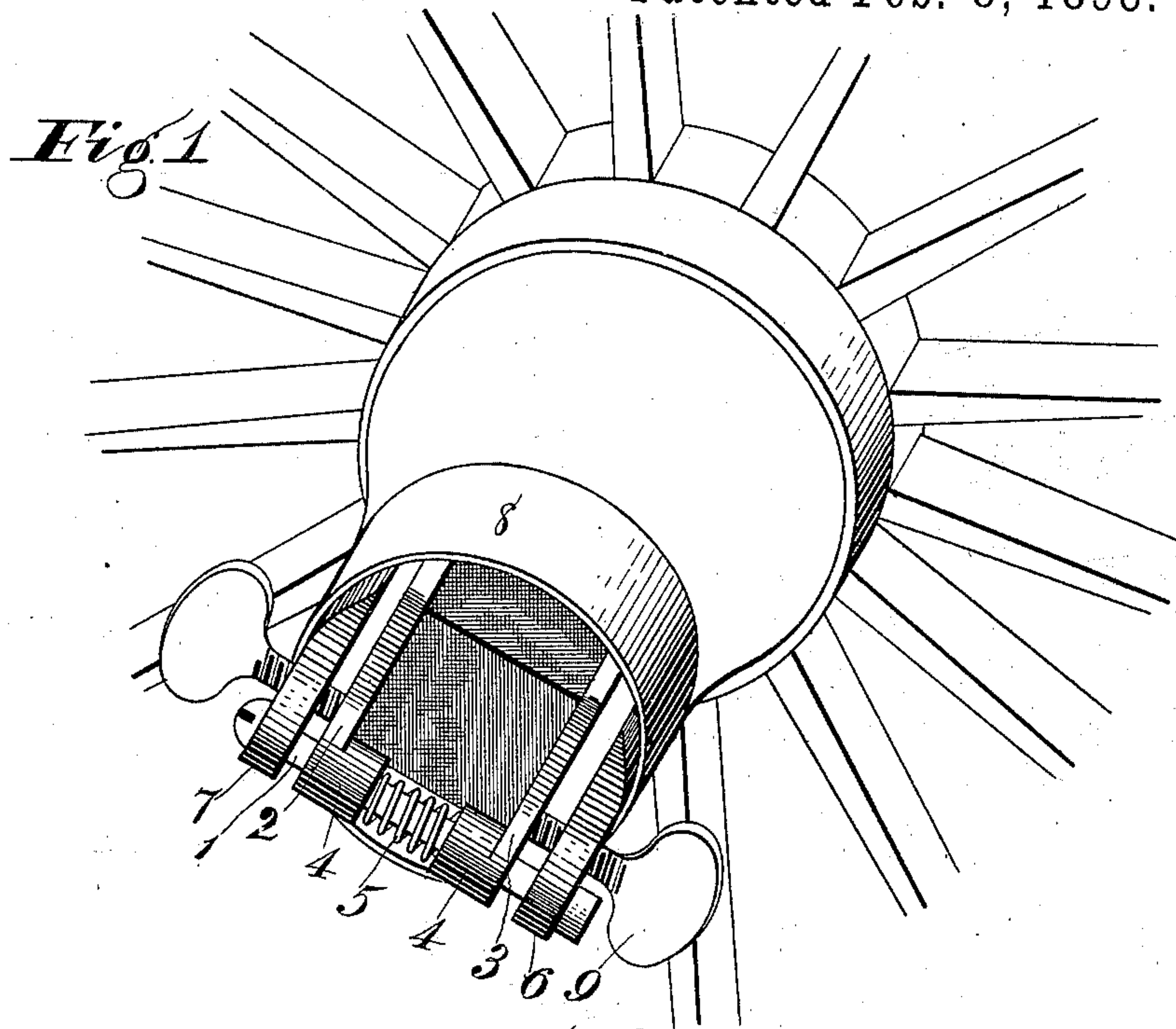


(No Model)

L. HOLFORD.
WRENCH.

No. 598,783.

Patented Feb. 8, 1898.



Witnesses
E. E. Overholt
E. W. Sweet, Jr.

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UNITED STATES PATENT OFFICE.

LEE HOLFORD, OF NEBO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO PETER MARTIN, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 598,783, dated February 8, 1898.

Application filed April 20, 1897. Serial No. 632,977. (No model.)

To all whom it may concern:

Be it known that I, LEE HOLFORD, a citizen of the United States, residing at Nebo, in the county of Pike and State of Illinois, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in wrenches, and more particularly to a wrench of special adaptation, the object being to provide a securing device or wrench for so locking the nut upon the end of an axle that it will rotate with the wheel and be removed from its seat by the operation of moving the wheel for the purpose of oiling the axle or otherwise.

The details of my invention will be described in the following specification, pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my invention as applied to use upon a wheel. Fig. 2 is a longitudinal central section of the wrench. Fig. 3 is a perspective detail of the wrench complete, while Fig. 4 is a side view of the outer face of the frictional jaw.

Briefly stated, my invention consists in providing a pair of locking and frictional jaws, the first for engagement with the nut, while the latter are designed to bind against the inner face of the hub-rim and thus cause the entire device and the nut to rotate as the wheel is turned.

In carrying out my invention I provide the shaft 1, which is preferably square in cross-section, though any preferred form may be employed, and upon said shaft I loosely mount the locking-jaws 2 and 3, each being provided with the inward collar 4 for more reliably seating the jaws in position. Interposed between said jaws is the coil-spring 5, the office of which is to hold said jaws normally extended. Movably mounted upon the ends of the shaft 1 are the frictional jaws 6 and 7, having the straight or parallel internal faces and the convex or rounded outer faces, the latter being designed for frictional contact with the inner surface of the hub-rim 8, as shown in Fig. 1.

The outer faces of the jaws 6 and 7 are preferably roughened in order that a more reliable frictional grasp may be set up between them and said rim. By reference to Fig. 2 it will be seen that the jaws 6 and 7 are held in operative combination with the inner jaws by the shaft 1, having the head 1^a and the securing-nut 1^b, and that while said jaws may be forced inward against the tension of the spring 5 their outer movement will thus be circumscribed.

Seated in a threaded aperture provided in the jaws 6 and 7 and extending entirely through the same into engagement with the outer faces of the locking-jaws 2 and 3 are the adjusting or thumb screws 9, by means of which the locking-jaws are brought firmly into engagement with the nut, while the frictional jaws by the same operation are brought to bear firmly against the inner face of the rim 8.

It will be seen that the jaws 6 and 7 have an inward and outward play upon the shaft 1 and that the act of binding the inner jaws against the nut will result in an outward movement of the frictional jaws, thus binding all the parts securely into engagement with the wheel to the end that the wrench will rotate therewith and thus cause the nut to be removed from the end of the axle by the simple act of rotating the wheel.

By the construction I have just described it will be apparent that the principal advantages arising from the use of my improved wrench resides in the fact that the act of removing the wheel is made a cleanly operation, as it is unnecessary for the operator to come in contact with the nut, as any of the spokes provide a sufficient leverage for removing the wheel.

The operation of my improved wrench may be stated to be as follows: The frictional jaws are pressed toward each other sufficiently to cause them to freely enter the rim 8, when the tension of the spring 5 will tend to hold the parts in position. By properly rotating the thumb-screws 9 the locking-jaws will be forced tightly against the nut, while the frictional jaws will be brought into engagement with the rim, when the wheel may be turned sufficiently to release the nut from the axle and then removed for the purpose of lubrica-

tion. After the oiling process has been completed the wheel is again placed in position upon the axle, when it will be found that the nut is still in readiness to receive the threaded
5 end of said axle, when a reverse rotation of the wheel will reliably seat the nut in position, when the wrench may be removed by releasing the pressure induced by the thumb-screws 9.

10 It will be seen that I have produced a wrench of great simplicity which may be cheaply manufactured and supplied at a comparatively small cost, and believing that the advantages, construction, and use of my invention will be made fully apparent from the
15 foregoing description further reference to the details is dispensed with.

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

1. As an improvement in nut-wrenches, the combination of a pair of inner jaws, a pair of outer jaws, each pair being movably mounted upon a holder or shaft; individual set-screws
25 seated in the outer jaws and taking through

the same into contact with the outer surface of the inner jaws, and a spring mounted upon said shaft or holder and interposed between the inner pair of jaws, whereby said jaws will be normally in an open or extended position, 30 all operatively combined in the manner and for the purpose set forth.

2. As a new article of manufacture, the herein-described wrench, consisting of an inner pair of jaws movably mounted upon a holder or shaft, an outer pair of jaws inclosing said inner jaws and movably mounted upon the same shaft and carrying adjusting-screws, designed to bear against the inner jaws, and a spring interposed between the inner jaws and designed to hold them normally extended, substantially as described and for the purpose set forth. 40

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

LEE HOLFORD.

Witnesses:

PETER MARTIN,
JOHN L. ZUMMALT.