

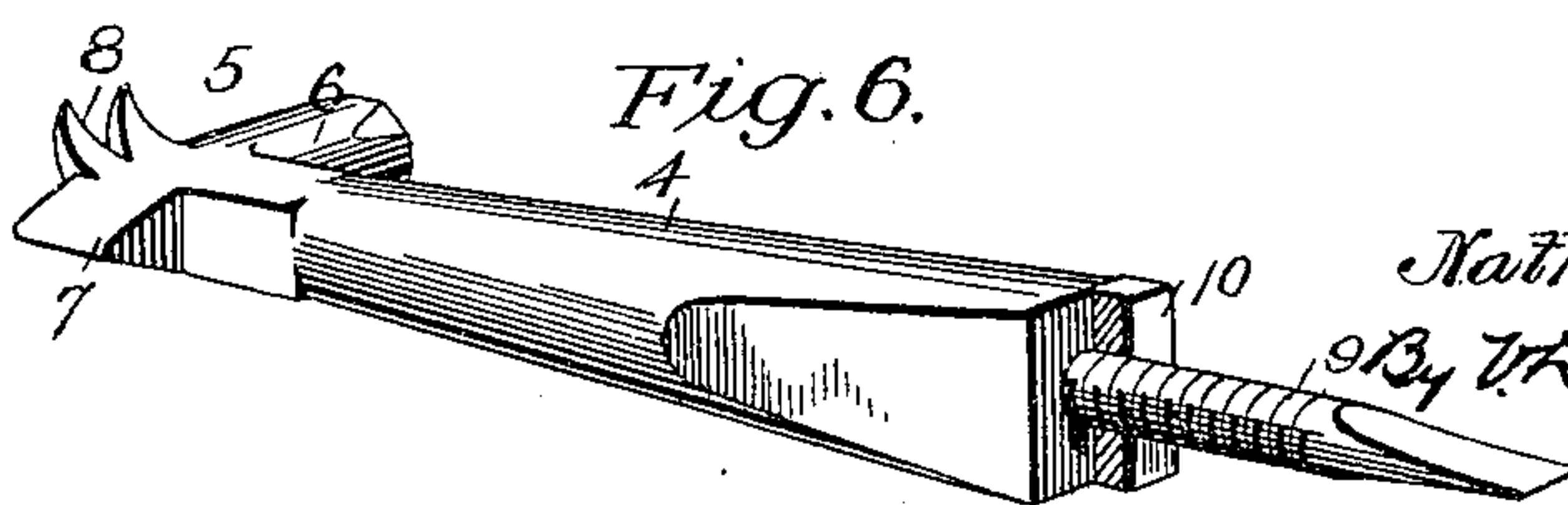
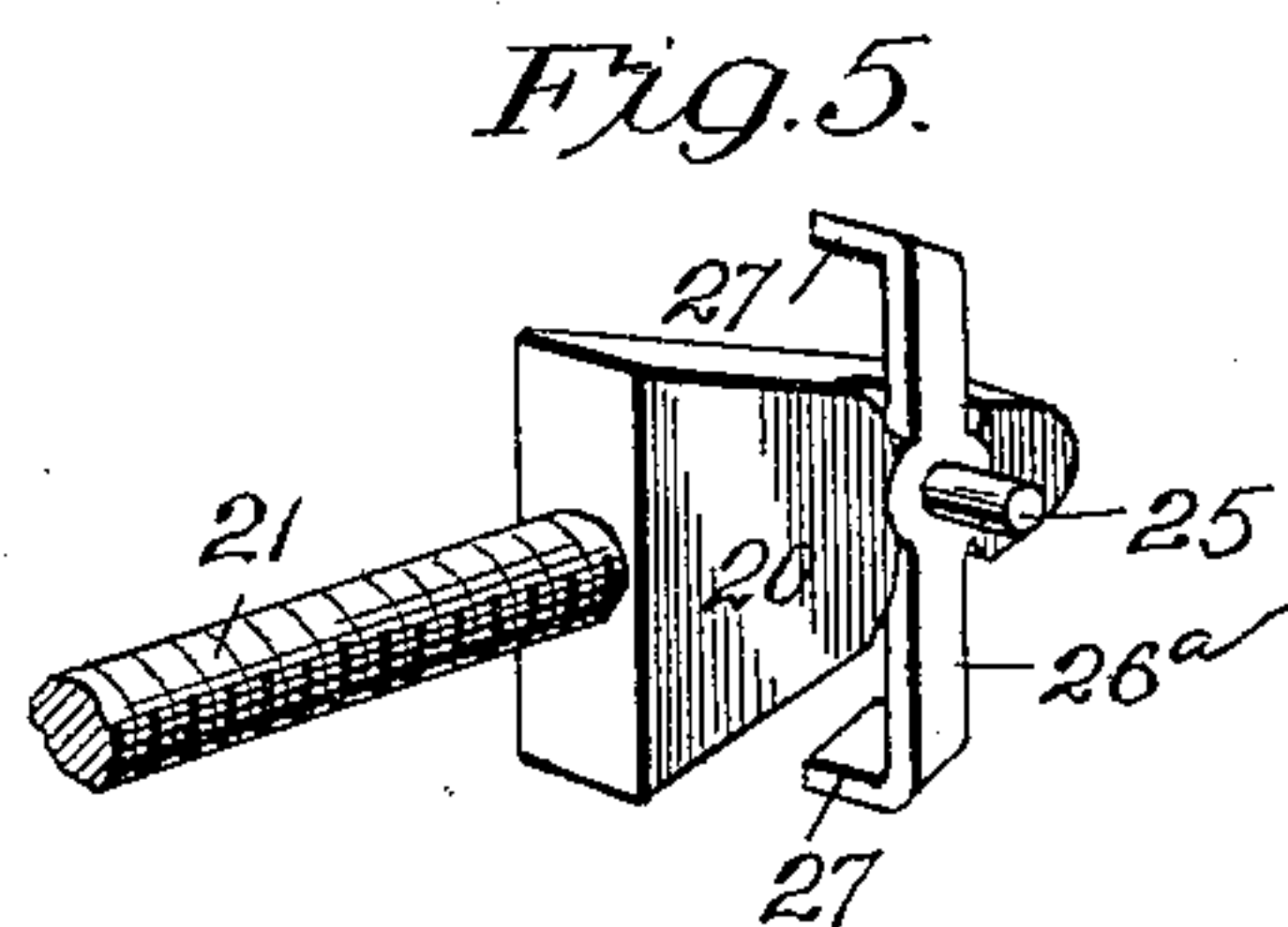
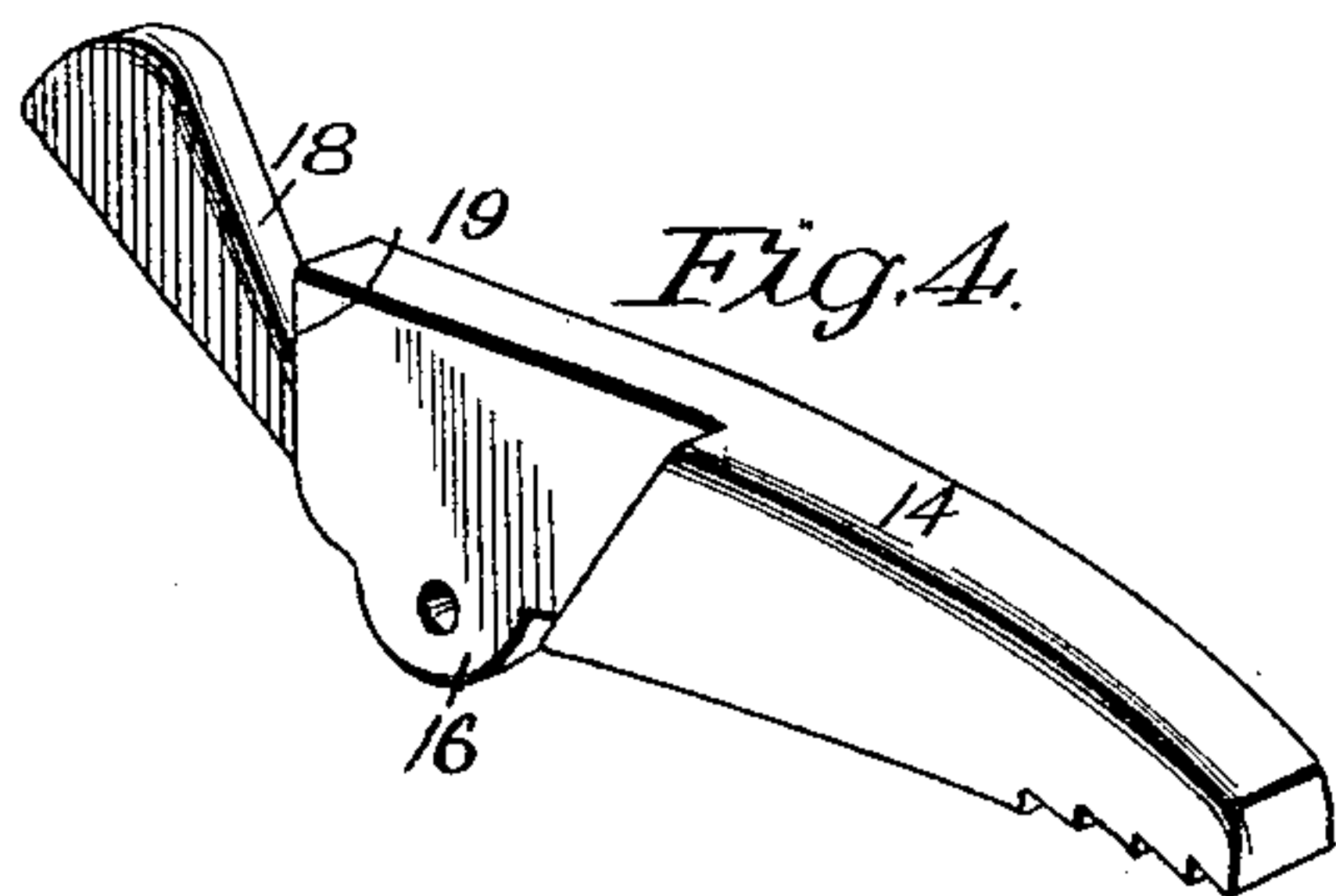
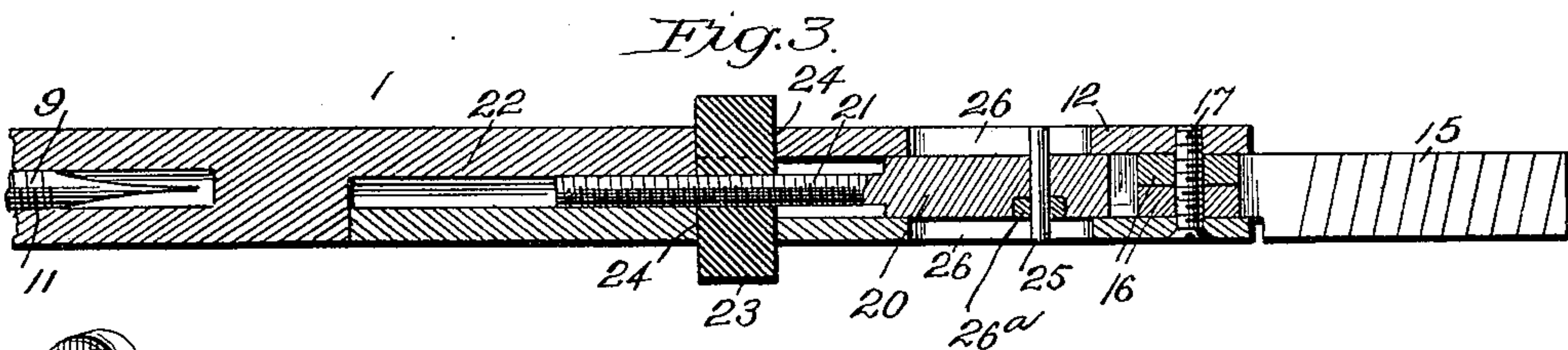
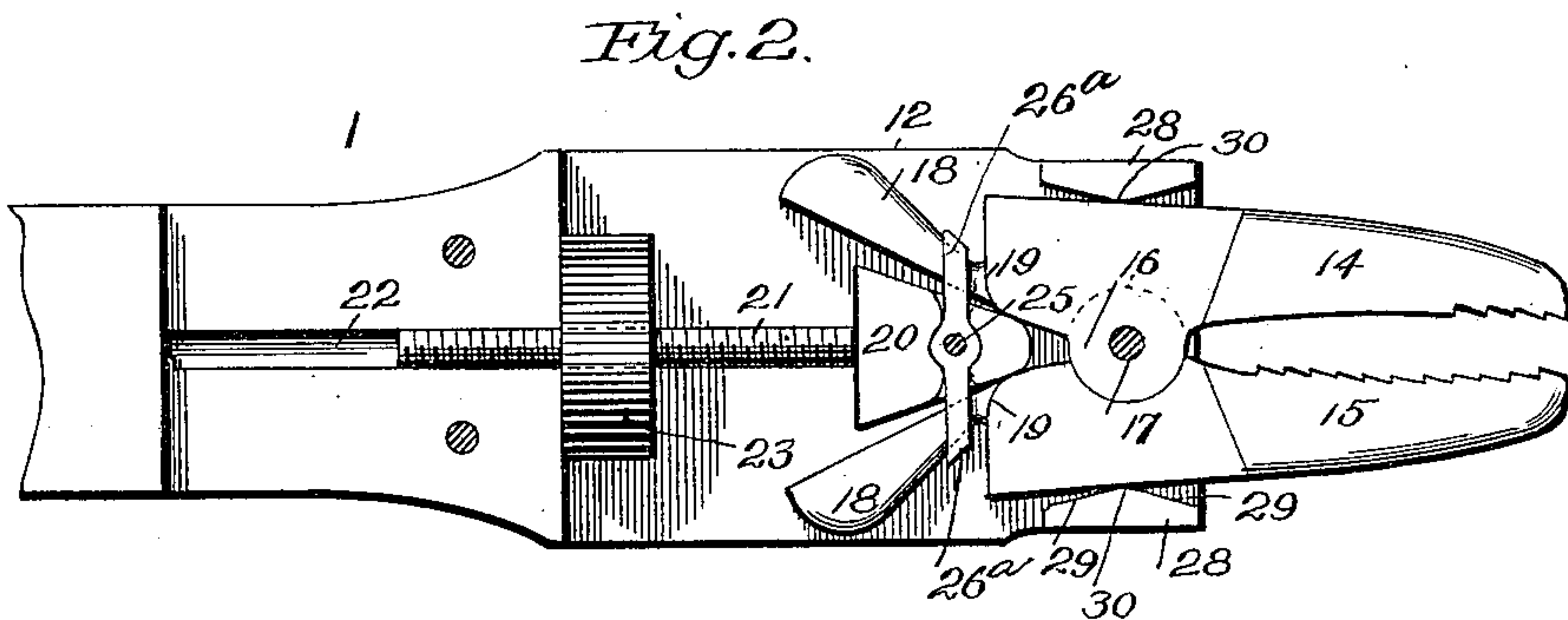
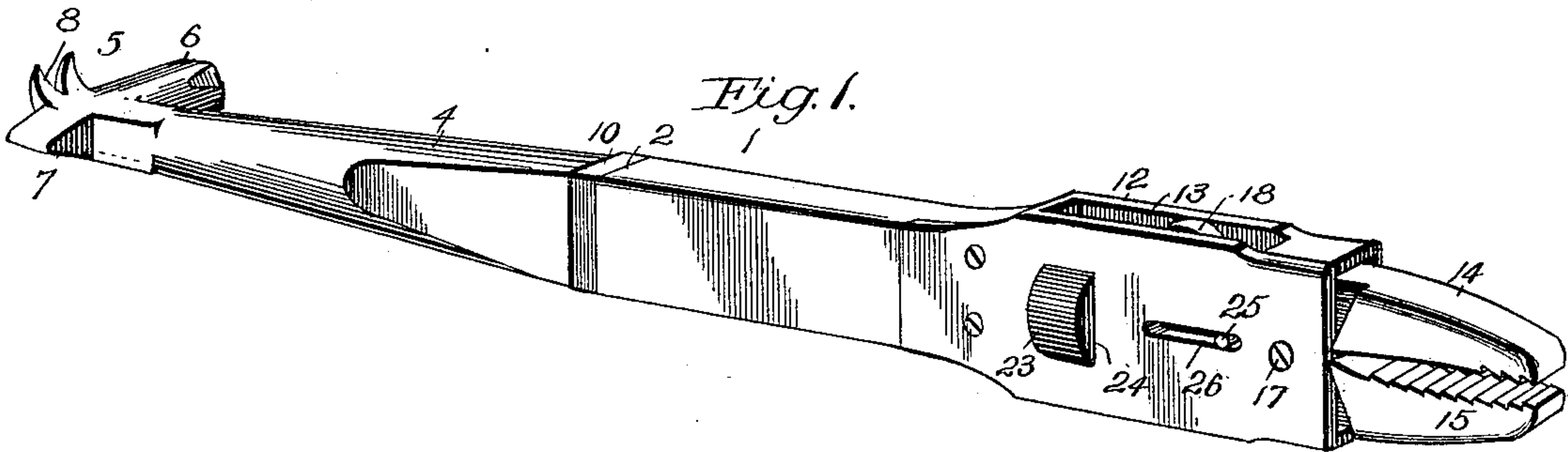
No. 636,648.

Patented Nov. 7, 1899.

N. M. FARMER.
WRENCH.

(Application filed Mar. 23, 1899.)

(No Model.)



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WRENCH.

SPECIFICATION forming part of Letters Patent No. 636,648, dated November 7, 1899.

Application filed March 23, 1899. Serial No. 710,217. (No model.)

To all whom it may concern:

Be it known that I, NATHAN M. FARMER, a citizen of the United States, residing at Burr, in the county of Otoe and State of Nebraska, 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.

This invention relates to wrenches; and the object in view is to provide a wrench of novel construction useful either as a nut or pipe wrench and having combined therewith a number of useful articles adapted to be used separately and independently.

The detailed objects and advantages of the invention will appear more fully in the course of the ensuing description.

The invention consists in a wrench embodying certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a wrench constructed in accordance with the present invention. Fig. 2 is an enlarged plan view of one end of the stock and casing, with the adjacent side removed to show the jaws and operating devices under their relative arrangement. Fig. 3 is a longitudinal section taken centrally and at right angles to Fig. 2, showing the guide-slots, the pin, &c. Fig. 4 is a detail perspective view of one of the jaws complete. Fig. 5 is a similar view of the wedge and yoke. Fig. 6 is a similar view of the separable portion of the stock, showing the screw-driver.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

The wrench stock or shank (indicated at 1) is made in two parts, being separable at the point 2, leaving a detachable part 4, which is made tapering, as shown, and provided at its outer end with a head 5, comprising two polls 6 and 7, 6 constituting an ordinary hammer, while 7 forms a wedge-shaped head or extension used as a riveting-hammer. The part 4 terminates at its extremity in a claw or tack-puller 8 and at its inner end is extended to form a screw-driver 9, the shank of which is

threaded to receive a jam-nut 10, the shank 9 being received in a threaded opening 11 in the stock and being securely held by tightening up the jam-nut 10. As no special claim is made to these parts, however, further description is unnecessary.

The forward end of the stock 1 is widened or extended laterally to form a casing 12, between the side plates of which sufficient space is left to receive the operative parts of the wrench proper, the edges of the casing being left open, as at 13, to enable oil to be introduced to the working parts of the wrench. The wrench-jaws (indicated at 14 and 15) extend longitudinally beyond the end of the casing, and one of the jaws may be toothed on its inner active edge, while the other is left smooth, or both may be smooth or toothed, according to the desire of the manufacturer. The jaws are provided with inwardly-extending overlapping ears 16, through which passes a common pivot 17, which may consist of a screw for uniting the top and bottom or side plates of the casing in the event of its being desirable to make one of said plates or sides detachable for giving access to the working parts of the wrench. Each of the jaws is provided with a heel extension 18, and said heel extension is wedge-shaped, as clearly shown in Fig. 2, the rear end being wider, for a purpose which will hereinafter appear. The heel extension 18 is of less thickness than the jaw proper, thus forming a shoulder 19, which serves to limit the forward movement of the yoke and wedge, hereinafter described.

Operating between the heel extensions 18 is a wedge 20, which is provided with a rearwardly-extending screw-threaded stem 21, working in a longitudinal cavity 22 in the stock. Surrounding the stem 21 is an exteriorly-knurled nut 23, the periphery of which projects through openings 24 in the sides of the casing, where it may be operated by hand. The nut 23 may be freely rotated; but it cannot be moved longitudinally of the stock, simply serving to feed the stem 21 forward or backward for advancing or retracting the wedge 20. Passing through the wedge 20 and extending transversely through the side walls of the casing is a guide-pin 25, the ends of which project sufficiently beyond the wedge to enter and work in a longitudinal guide-

slot 26, thereby causing the wedge to travel in a rectilinear path, so that it may operate equally upon both jaws. The wedge works between the rearwardly-diverging inner edges of the heel extensions 18, and as it moves forward it forces said heel extensions apart and serves to close the jaws upon the nut, pipe, or other object to be clamped.

Mounted upon the pin 25 and let into a facial recess in the wedge 20 is a yoke 26^a, the central portion of which is enlarged to receive the pin 25, and the extremities of which are bent laterally, so as to embrace the extensions 18 and work against the outer edges thereof. When the wedge 20 is retracted, the yoke 26^a moves with it and its extremities 27 coöperate with the outer edges of the heel extensions and serve to draw said extensions together, and thereby open the jaws 14 and 15. The yoke 26^a may be oscillated on the guide-pin 25, and thereby accommodate itself to the extensions 18, thus insuring the proper coöperation between the extremities 27 and said heel extensions.

All strain is removed from the pivot 17 by means of cross-pieces or lugs 28, which are located outside of the jaws 14 and 15 and which have their inner bearing edges inclined in opposite directions, as shown at 29, thereby forming two inwardly-extending vertices 30, which lie in line with the pivot 17. By this construction and arrangement as the jaws are vibrated through the action of the wedge they fulcrum against the vertices 30 of the bearing-lugs 28, said lugs being admirably adapted to resist the outward pressure of the jaws, which would otherwise be brought upon the pivot 17.

By the construction hereinabove described a simple, convenient, and durable combination-wrench is provided, and in the absence of springs and other delicate parts there is little likelihood of the wrench getting out of order or the parts thereof becoming broken.

In addition to this the wrench is equipped

with other useful implements and attachments, which can be used independently and which do not interfere with the proper operation of the wrench itself.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a wrench, a pair of pivoted jaws having wedge-shaped heel extensions, a casing in which the jaws are mounted having oppositely-located longitudinal guide-slots, a wedge working between said extensions, means for advancing and retracting the wedge, a pin passing through the wedge with its ends working in said guide-slots, and a yoke mounted on said pin and having its ends in coöperative relation to said heel extensions, substantially as described.

2. In a wrench, the combination with a stock, of a pair of jaws mounted on a common pivot intermediate their ends and provided with heel extensions, a wedge working between the heel extensions, means for operating said wedge, and bearing-lugs on the stock on opposite sides of the jaws, said lugs having a fixed relation to the common pivot of the jaws, substantially as described.

3. In a wrench, the combination with a stock and casing, of a pair of jaws mounted on a common pivot and provided with heel extensions, means operating on said heel extensions for opening and closing the jaws, and oppositely-located bearing-lugs in the casing having reversely-inclined inner edges and inwardly-extending vertices or bearing-points located in line with the common pivot of the jaws, substantially as and for the purpose specified.

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

NATHAN M. FARMER.

Witnesses:

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B. FRANK NEAL.