

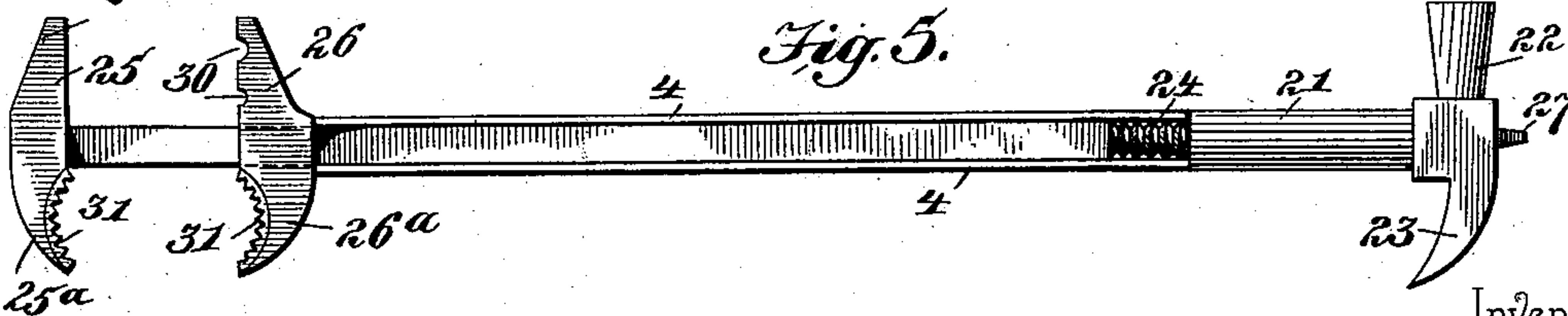
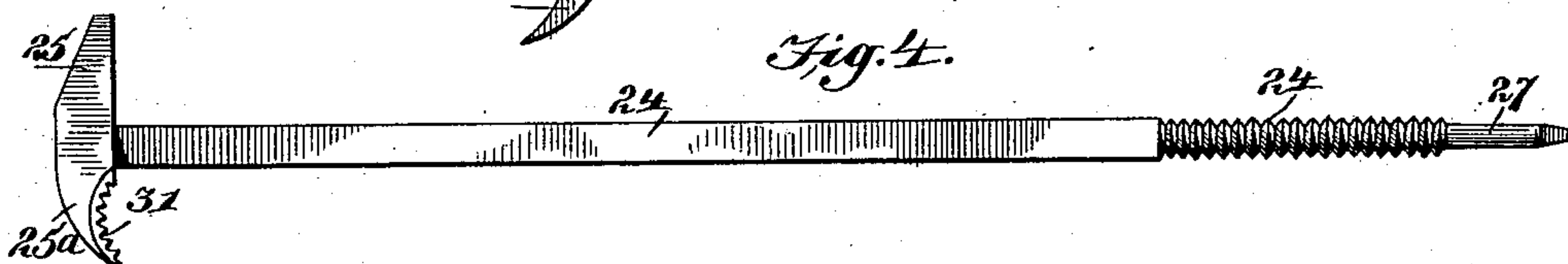
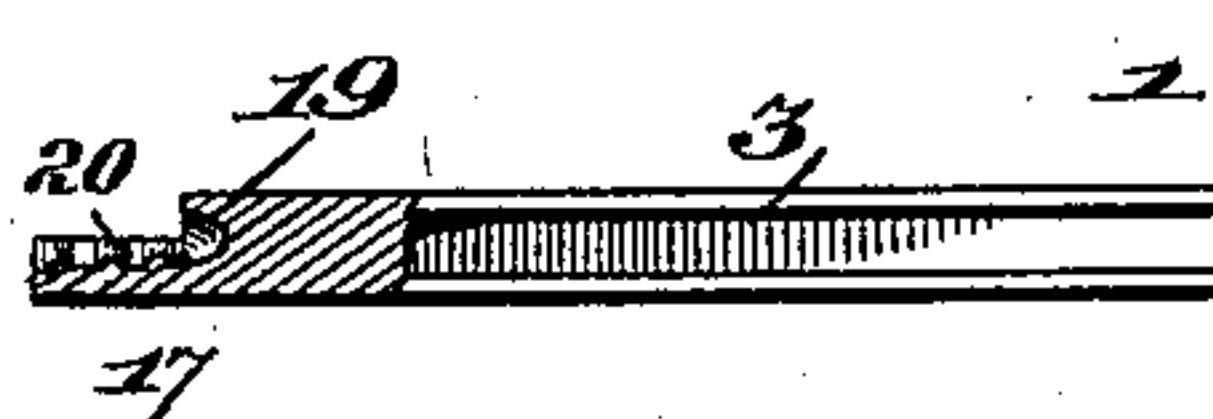
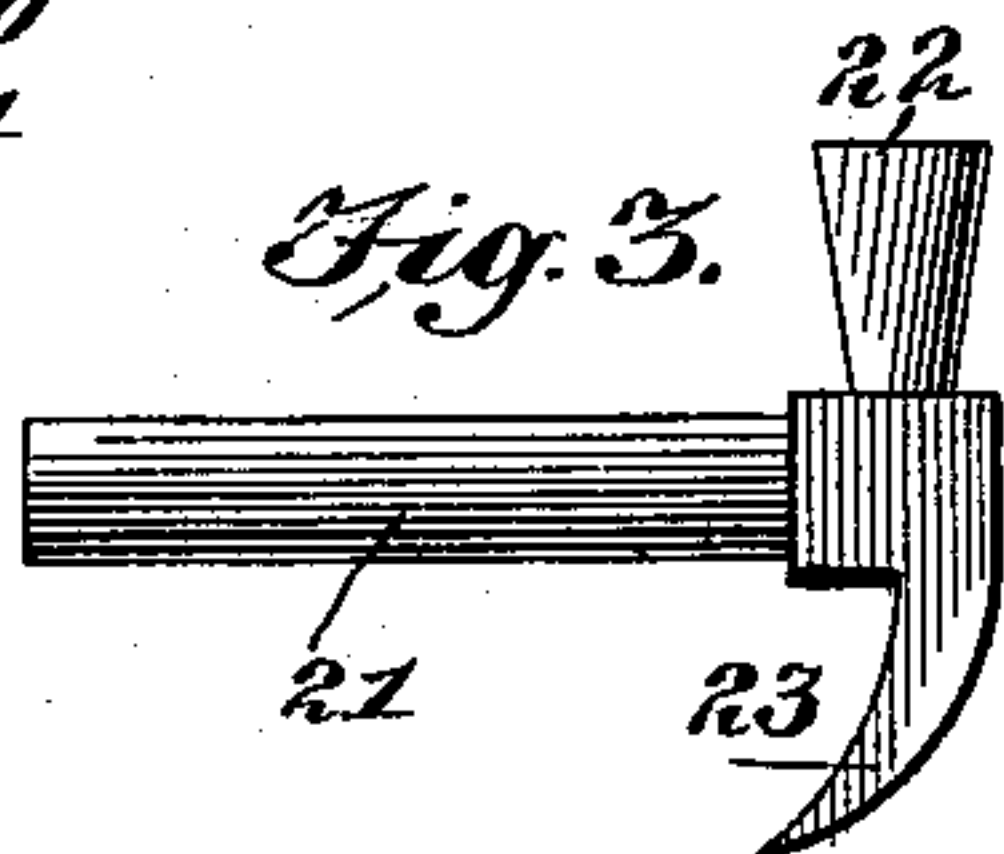
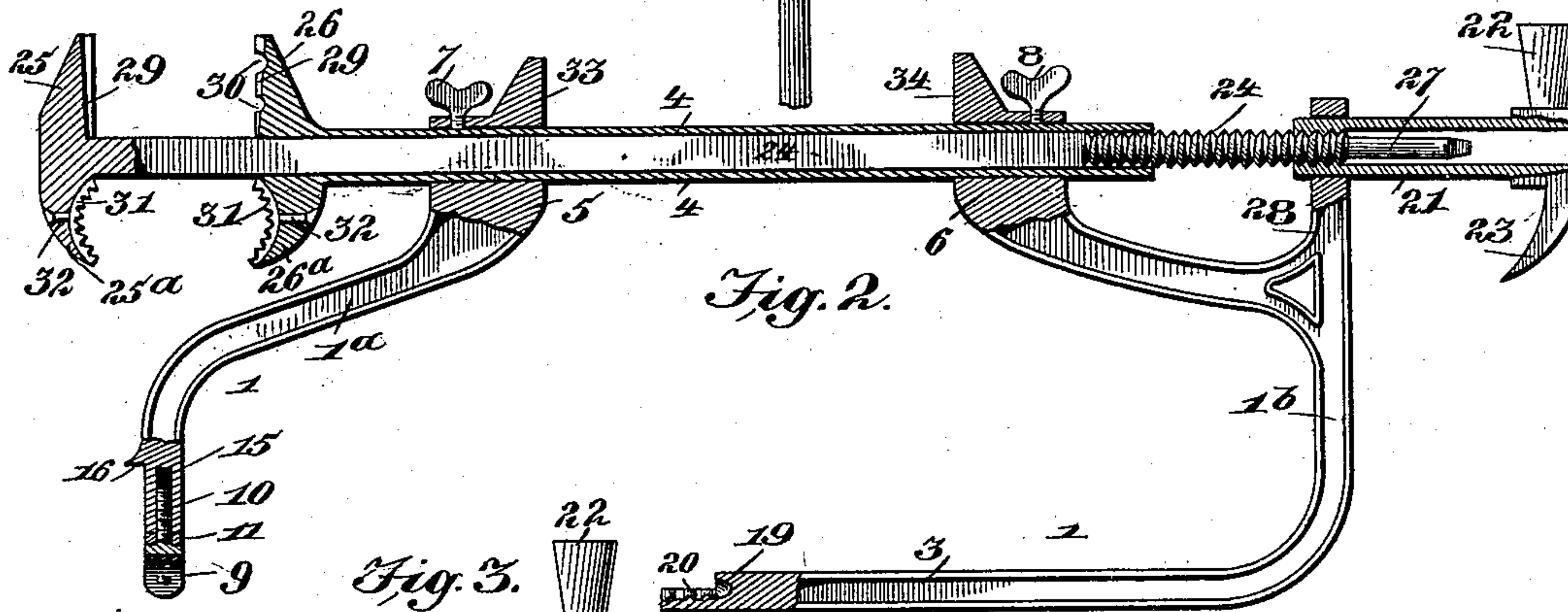
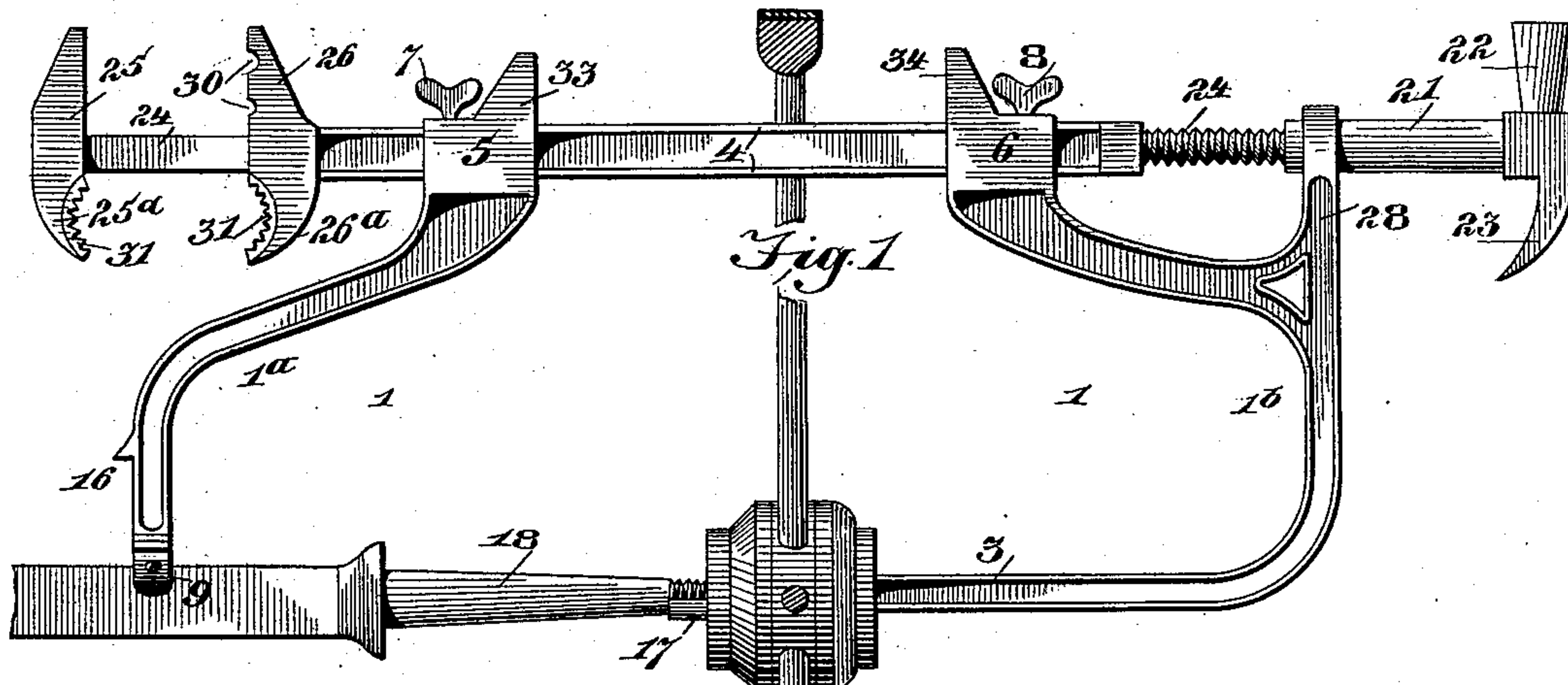
(No Model.)

2 Sheets—Sheet 1.

S. J. JOHNSTON.
WRENCH JACK.

No. 601,147.

Patented Mar. 22, 1898.



Inventor

Samuel J. Johnston

Witnesses

H. G. Dietrich
C. E. H. H.

By his Attorneys,

C. A. Snow & Co.

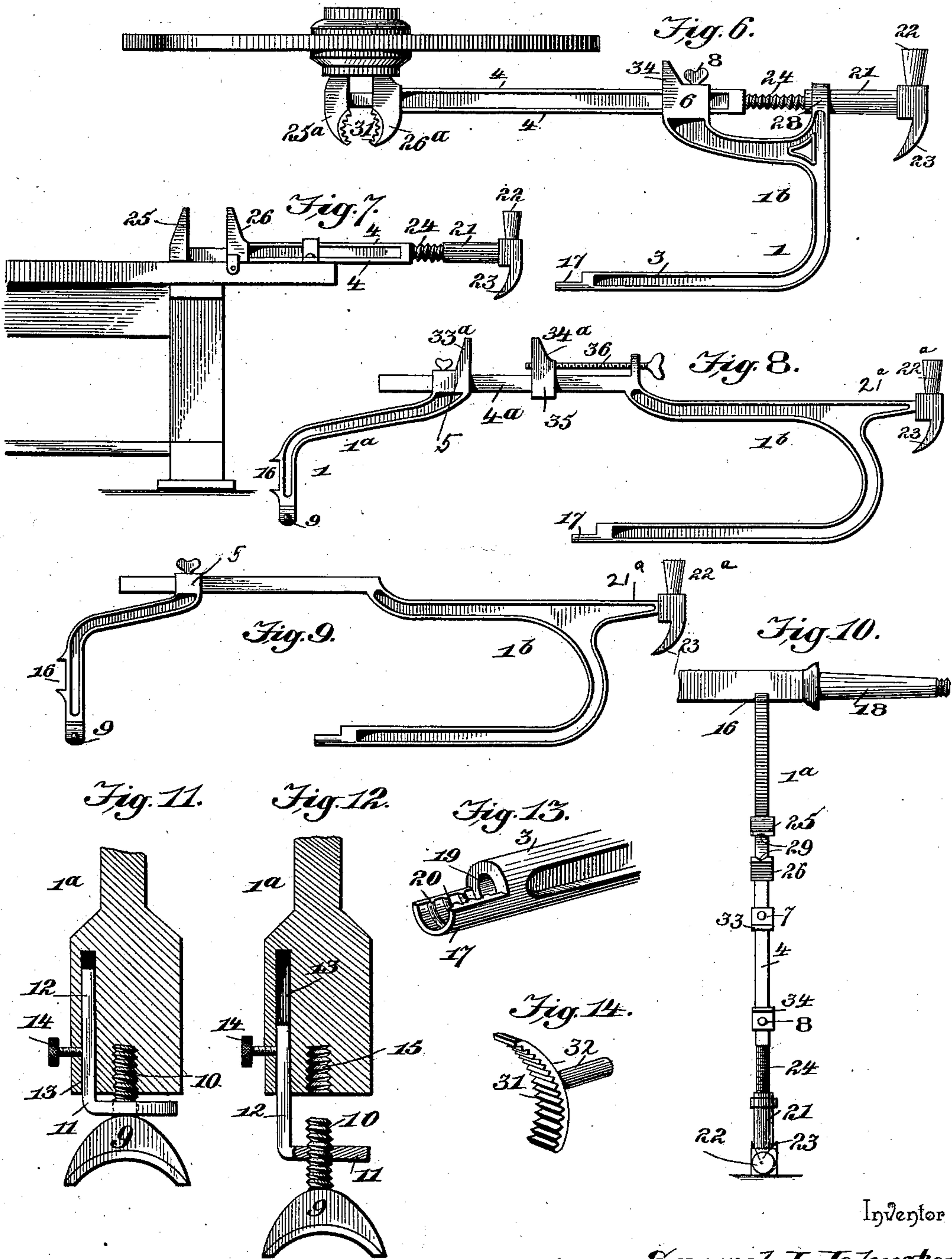
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2 Sheets—Sheet 2.

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No. 601,147.

Patented Mar. 22, 1898.



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UNITED STATES PATENT OFFICE.

SAMUEL J. JOHNSTON, OF LEESBURG, VIRGINIA.

WRENCH-JACK.

SPECIFICATION forming part of Letters Patent No. 601,147, dated March 22, 1898.

Application filed June 16, 1896. Renewed September 14, 1897. Serial No. 651,678. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. JOHNSTON, a citizen of the United States, residing at Leesburg, in the county of Loudoun and State of Virginia, have invented a new and useful Wrench-Jack, of which the following is a specification.

My invention relates to wagon-jacks, and has for its object to provide in combination therewith a wrench construction whereby axle-nuts may be removed and whereby other operations in connection with the care of carriages and wagons may be performed.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view of a tool embodying my invention applied in the operative position to an axle. Fig. 2 is a longitudinal section of a portion of the same. Fig. 3 is a view of the jaw-adjusting screw detached, the same being adapted to form a hammer. Fig. 4 is a detached detail view of the detachable wrench-jaw and shank adapted to perform the functions of a screw-driver. Fig. 5 is a detached detail view of the wrench adapted to be used independently of the jack. Fig. 6 is a view of the detachable wrench having one of the sections of the bowed jack-arm applied thereto to form a grip. Fig. 7 is a view of the device employed as a bench-vise. Fig. 8 is a view of a simplified form of my invention in which the independent or detachable wrench is omitted and only the intermediate wrench between the extremities of the bowed jack-arm is employed. Fig. 9 is a view of a still further simplified form of the device in which the intermediate wrench is omitted. Fig. 10 is a view of the device arranged as a prop for a wagon-axle. Fig. 11 is a detail sectional view of the combined foot and clamp which is employed to engage the axle, the same being shown folded. Fig. 12 is a similar view showing the foot extended. Fig. 13 is a detail view of the extremity of the jack-spindle. Fig. 14 is a detail view of the replaceable toothed plate in the wrench-jaw.

Similar numerals of reference indicate cor-

responding parts in all the figures of the drawings.

1 designates a sectional bowed jack-arm similar to that shown and described in my former patent, No. 530,109, granted December 4, 1894, and having the separable curved members 1^a and 1^b, which are adjustably connected to vary the interval between the rest 2, which is formed at the extremity of the member 1^a, and the jack-spindle 3, which is carried by the member 1^b. The contiguous extremities of these members are connected by a guide 4, upon which the member 1^a is mounted to slide by means of an eye or keeper 5, and in the construction illustrated in Fig. 1 the member 1^b is also fitted with an eye or keeper 6 to slide upon said guide, both eyes or keepers being provided with set-screws 7 and 8.

In the construction illustrated in Figs. 8 and 9 only the member 1^a of the bowed jack-arm is provided with an eye or keeper 5 to slide upon the guide 4^a.

The rest, with which the member 1^a of the jack-arm is provided, consists of a fork 9, provided with a threaded shank 10, which engages an adjustable foot 11, having a stem 12, which is fitted in a cored guide 13 in the contiguous extremity of the member. This foot is adapted to be secured at the desired extension by means of a set-screw 14, and a threaded socket 15 is provided for the reception of the upper extremity of the threaded shank 10 when the foot is retracted, as shown in Fig. 11. When the foot is extended, it forms the lower jaw of a clamp, between which and the extremity of the arm 1^a is adapted to be arranged an axle when the latter is cross-sectionally square, and hence is not adapted for the proper seating of the rest 9. After fitting the axle between the jaws of the clamp thus formed the rest, which, with its shank, forms a thumb-screw, should be tightened to firmly engage the axle. A seat 16 is formed on the outer side of the member 1^a to bear against the under side of an axle when the device is arranged to form a prop, as in Fig. 10, and it will be understood that the elevation of this seat may be varied by the adjustment of the eye or keeper 5 upon the slide 4 in either of the forms of my in-

vention illustrated, respectively, in Figs. 1, 8, and 9.

The jack-spindle terminates, as in the construction illustrated in my said former patent, in a lip 17 to bear against the under side of the threaded extremity of an axle-spindle 18, and in order to strengthen this lip I find it desirable to core the contiguous extremity of the jack-spindle, as shown at 19, this cavity serving to allow the uniform cooling of the lip and the adjacent portion of the jack-spindle, whereby the material is not strained as when cooled unequally. Furthermore, in order to adapt the lip to bear against the threaded reduced portion of the axle-spindle without injuring the threads and at the same time adapt it to engage with either right or left hand threads, according to the side of the vehicle upon which the jack is being used, I provide said lip upon its upper concave face with directly transverse threads or ribs 20, which mesh with the threaded portion of the spindle.

The grip 21, with which the member 1^b of the jack-arm is provided, preferably terminates at its outer end in a hammer-head 22 and claw 23, and in the construction illustrated in Figs. 1 to 7, inclusive, the grip is hollow and is interiorly threaded to engage the threaded shank 24 of an adjustable wrench-jaw 25, said shank being mounted to slide in the guide 4, which is hollow and which at its extremity contiguous to the jaw 25 is provided with a similar jaw 26. The shank 24 terminates in a screw-driver bit 27, which is received within the socket in the grip 21. The inner extremity of the grip, which forms an adjusting-screw for the wrench, bears against a rigid arm 28, through which said threaded shank 24 extends, said arm 28 being integral with the member 1^b of the jack-arm.

From the above description it will be seen that when it is desired to adjust the movable jaw 25 with relation to the fixed jaw 26 it may be accomplished by means of the adjusting-screw formed by the hollow grip 21, whether the guide 4 and shank 24 are attached to the members of the jack-arm, as shown in Fig. 1, or are independent thereof, as shown in Fig. 5, and it will be seen, furthermore, that when an additional purchase is required in heavy work, for which purpose a two-handed grip is desired, the member 1^b may be allowed to remain in connection with the guide and shank, as illustrated in Fig. 6. The faces of the jaws 25 and 26 are preferably longitudinally grooved, as shown at 29, to adapt the jaws for engaging angular nuts of any ordinary construction, as square, hexagonal, or octagonal, and in addition thereto the jaw 26 is provided with transverse grooves or seats 30 of different depths for holding fine rod or wire, this portion of the device being especially adapted for use in forming wire staples or clips.

In addition to the nut and bolt-jaws 25 and 26 I may also employ pipe-wrench jaws 25^a

and 26^a, (illustrated in Figs. 1, 4, 5, and 6,) said jaws being provided with replaceable hard-metal gripping-faces 31, having stems 32, which are swaged or riveted to the outer surfaces of the jaws. The outer surface of the combined jaws 25 and 25^a is convexly rounded to form a suitable bearing for the hand of the operator in using the shank 24 as a screw-driver.

In the construction illustrated in Fig. 7, in which the device is arranged for use as a bench-vise, the pipe-wrench jaws are omitted.

In addition to the above-described construction I preferably employ a mid-arm wrench having jaws 33 and 34, which in the construction illustrated in Fig. 1 are carried respectively by the members of the jack-arm and are adapted to be adjusted to engage an axle-nut by means of the adjusting-screw 21, the jaw 33 being fixed to the guide 4 by means of the set-screw 7. When the stem 24 has been adjusted to bring the face of the jaw 25 into contact with the face of the jaw 26, the continued rotation of the adjusting-screw 21 after the loosening of the set-screw 8 will draw the jaws 33 and 34 toward each other. Obviously the length of the stem 24, as shown in the drawings, is not sufficient to draw the jaws 33 and 34 together when arranged at such an interval as shown in Figs. 1 and 2; but the broad or approximate adjustment of the jaws may be accomplished manually, while the accurate adjustment thereof may be secured by means of said stem and adjusting-screw.

In the construction illustrated in Fig. 8 similar mid-arm jaws 33^a and 34^a are employed, the former being carried by the eye or keeper of the jack-arm member 1^a, while the jaw 34^a is provided with a slide 35 and is adjusted by means of a screw 36, which takes the place in this form of my invention of the screw 21. Furthermore, in the construction illustrated in Figs. 8 and 9 the grip 21^a is preferably integral with the member 1^b of the jack-arm and terminates, as in the construction illustrated in Fig. 1, in a hammer-head 22^a.

The special advantage of the mid-arm wrench resides in the fact that it is particularly useful in removing axle-nuts, the nut being allowed to remain in engagement therewith while the jack is introduced and applied to the axle to support the latter, as indicated in Fig. 1.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A wagon-jack having a sectional bowed jack-arm consisting of adjustably-connected members, one of which terminates in a jack-spindle and the other of which is provided with an adjustable rest consisting of a foot

having a stem mounted to slide upon the member, a fork having a threaded shank mounted in said foot, and means for securing the foot in its retracted position, substantially as specified.

2. A wagon-jack having a sectional bowed jack-arm consisting of adjustably-connected members, one of which terminates in a jack-spindle and the other of which is provided with an adjustable rest consisting of a foot mounted to slide upon said member, and a fork having a shank threaded in an opening in said foot and adapted to engage a threaded socket in the extremity of the member when the foot is retracted, substantially as specified.

3. A wagon-jack having a sectional bowed jack-arm consisting of adjustably-connected members provided, respectively, with a rest and a jack-spindle, the connection between said members including a guide which is detachably secured thereto, and adjusting devices for varying the interval between the members, said devices including a revoluble grip connected to and detachable with the guide, projecting in longitudinal alinement therewith and terminating in a hammer-head, whereby when detached the guide is adapted to form a handle for the hammer-head, substantially as specified.

4. A tool of the class described having a sectional bowed jack-arm consisting of adjustably-connected curved members provided respectively with a terminal rest and a jack-spindle, the connection between said members including a guide upon which one of the members is adjustably mounted, a mid-arm wrench having jaws formed on and carried respectively by the contiguous portions of said members, and means for adjusting the movable jaw, substantially as specified.

5. In a tool of the class described, the combination of a sectional bowed jack-arm consisting of separate adjustably-connected members provided respectively with a rest and a jack-spindle, the adjustable connection between the members including a guide upon which one of the members is slidably mounted, a longitudinally-disposed threaded shank arranged parallel with said guide, and a hollow adjusting-screw threaded upon said shank and bearing against one of the members, said slidable member of the jack-arm being provided with a set-screw to engage the guide, substantially as specified.

6. In a tool of the class described, the com-

bination with separate jack-arm members, of a guide upon which said members are adjustably mounted, said members being provided at their ends contiguous to the guide with facing mid-arm wrench-jaws, set-screws for securing the members in the desired relative positions upon the guide, and means including an adjusting-screw for moving one of the members toward the other, substantially as specified.

7. In a tool of the class described, the combination with jack-arm members, of a hollow guide by which said members are connected, said guide terminating in a wrench-jaw, a co-operating wrench-jaw having a shank mounted in the hollow guide, and an adjusting-screw engaging a threaded portion of said shank, substantially as specified.

8. In a tool of the class described, the combination of jack-arm members, and detachable means for connecting the members, said means including a hollow guide, a shank mounted to slide in the guide, wrench-jaws carried respectively by the shank and guide, and adjusting means for varying the interval between said jaws, substantially as specified.

9. In a tool of the class described, the combination of jack-arm members, and detachable means for connecting the members, said means including a hollow guide, a shank mounted to slide in said guide, said shank and guide being provided with coacting wrench-jaws, a screw-driver bit carried by the shank, and a hollow adjusting-screw engaging a threaded portion of the shank and forming a socket for the screw-driver bit, substantially as specified.

10. In a tool of the class described, the combination of jack-arm members, and detachable means for connecting the members, said means including a hollow guide, a shank mounted to slide in said guide, coacting wrench-jaws carried by the shank and guide, a screw-driver bit carried by the shank, and a grip provided with a terminal hammer-head and having a threaded socket to receive said bit and engage the contiguous threaded portion of the shank, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL J. JOHNSTON.

Witnesses:

H. A. THOMPSON,
C. E. TIFFANY.