No. 840,329. PATENTED JAN. 1, 1907.

J. W. HIELSCHER.

WRENCH.

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Fig. 1.

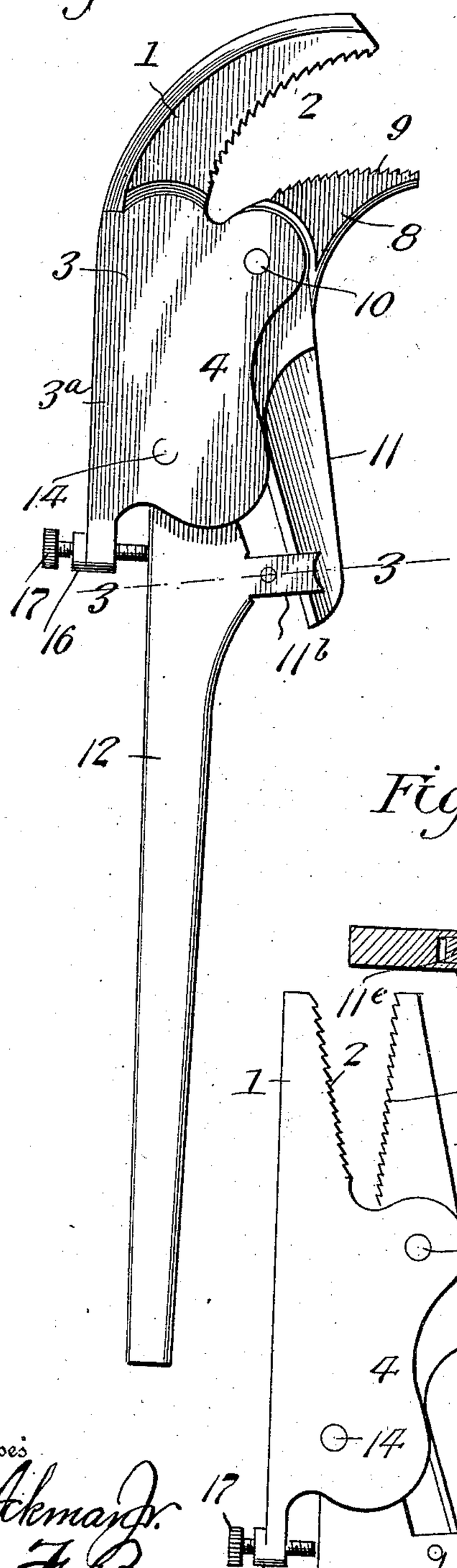

Fig. 2.

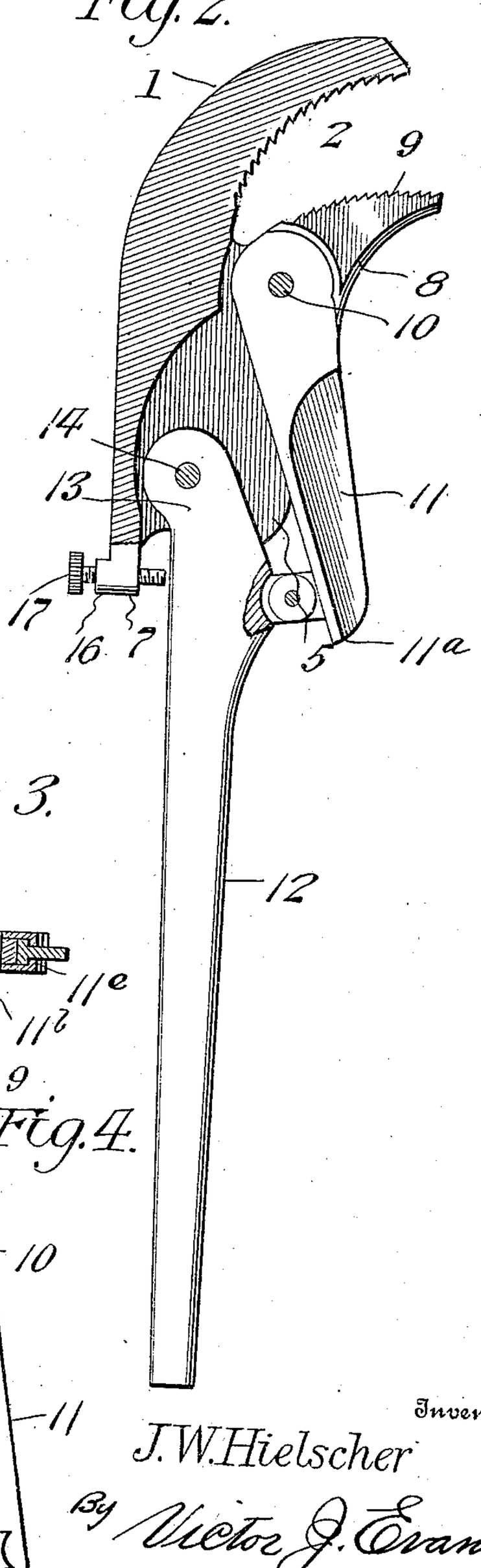

Fig. 3.

Fig. 4.

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WRENCH.

No. 840,329. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed April 17, 1906. Serial No. 312,151.

To all whom it may concern:

Be it known that I, JOHN W. HIELSCHER, a citizen of the United States, residing at Kniman, in the county of Jasper and State of Indiana, have invented new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to pipe-wrenches; and its primary object is to provide a novel and highly useful device of this character which is simple of construction, which is durable and efficient, which may be manufactured and sold at a comparatively low cost, and which affords a wide range of adjustment to grip objects of different sizes.

With the above and other objects in view the invention consists of the construction, combination, and arrangement of parts hereinafter fully described, claimed, and illustrated in the accompanying drawings, wherein—

Figure 1 is a view in side elevation of a wrench constructed in accordance with my invention, the jaws appearing in their normal or open position. Fig. 2 is a similar view, the fixed jaw and a portion of the operating-handle being in section to clearly show the construction of the parts. Fig. 3 is a sectional view on the line 3 3 of Fig. 1, and Fig. 4 is a side elevation of a modified form of the jaws.

Referring to the drawings by reference-numerals, 1 designates the fixed jaw of the wrench, which may have an arcuate form, as illustrated in Figs. 1 and 2, or which may be straight, as illustrated in Fig. 4 of the drawings. The jaw is provided with a toothed or serrated gripping-face 2 and is rigidly mounted upon a tilting carrier or support 3, which comprises an elongated body portion 3^a and spaced plates 4 and 5. These plates are unconnected except at their rear, where they are joined and spaced by the body portion 3^a, with which said plates are formed integrally. The gripping-face 2 of the jaw 1, as illustrated in Figs. 1 and 2 of the drawings, is concaved, while the gripping-face 2 of that form of the jaw illustrated in Fig. 4 of the drawings is on a straight line. The front side of the body portion 3^a terminates in advance of a projection 7, formed on the rear end of the body. Coöperating with the fixed jaw 1 is a movable or adjustable jaw 8, which has toothed or serrated gripping-face 9, which is constructed to conform to the construction of the fixed jaw. The jaw 8 is provided with a rearwardly-extending and integrally-formed shank 11, which extends outwardly at an angle in a direction away from the body portion 3^a of the fixed jaw 1.

An operating-handle 12 is provided for supporting and operating the jaws and is formed with an angularly-extending toe portion 13, which projects into the space between the plates 4 and 5 and lies between the extension 7 of the body 3^a and the shank 11 of the jaw 8. The handle is pivotally mounted upon a pin 14, carried by the plates 4 and 5. The shank 11 of the jaw 8 is reduced to provide on each of its vertical faces a longitudinally-extending shoulder 11^a, which extends from a point adjacent the pivot 10 to the rear end of the shank. The handle 12 is provided at a point adjacent its toe portion with spaced arms 11^b, which receive the shank 11 between them and have their upper ends bent inwardly to provide shoulder-engaging members 11^c, which have slidable connection with the shoulders 11^a. The engaging faces of the shoulders 11^c are curved to present as small a portion of the members 11^c to the shoulders 11^a as is possible, whereby to reduce the friction between the members of the shoulders to the minimum. A roller 11^e is journaled between the arms 11^b and upon which the shank 11 rests and moves during the operation of the wrench.

In operation the wrench is adjusted to bring the object to be clamped between the serrated faces of the jaws 1 and 8, after which the handle 12 is rocked on its pivot to the right in Fig. 1, thus moving the roller 11^e to ride upon the shank 11 of the jaw 8. This movement of the handle 12 causes the jaws to approach each other and grip firmly the object between them, after which the handle may be moved in the same direction to turn the object as desired.

To separate the jaws 1 and 8 to permit an object to be gripped and to permit the removal of the wrench from the object, the handle 12 is moved on its pivot to the left in Fig. 1. This movement of the handle causes the jaw 8 to move from the jaw 1 by virtue of the engagement of the members 11^c with the shoulders 11^a. It should be understood that when the handle 12 is moved to cause the jaw 8 to approach the jaw 1 the members 11^c move toward the pivot 10, while during the reverse movement of the handle 12 the members 11^c move upon the shoulders 11^a in a di-

rection away from the pivot 10. By the construction described it will be seen that the action of the roller 11^e will cause the jaw 8 to be moved with sufficient force to clamp the object securely between it and the fixed jaw 1, but not with sufficient force to crush or otherwise injure the object, as the pressure of the jaws will be distributed over a maximum surface or area.

In order to render the wrench capable of gripping small objects with a minimum adjustment of the movable jaw 8, it is desirable to provide means whereby the body 3^a may be adjusted or rocked upon the pivot 14 relative to the handle 12 to effect an inward movement of the jaw 8 relative to the jaw 1, and thereby diminish the space between them. To this end the extension 7 of the body 6 is formed with a head 16, having a threaded bore for the reception of a thumb or adjusting screw 17, the shank of which is arranged to impinge at its inner end against the outer surface of the toe 13. By adjusting this screw the body 3^a may be rocked upon the pivot 14 to vary the position of said body relative to the handle and to thereby cause the roller 11^e to force the shank 11 outward to a greater or lesser extent, thus bringing the jaw 8 closer to the jaw 1.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of the invention will be understood without a further extended description.

Changes in the form, proportions, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages.

Having fully described and illustrated my invention, what I claim is—

1. A wrench comprising a body, a fixed jaw carried by the body, a movable jaw pivotally secured to the body and having a shank provided with a longitudinally-extending shoulder, a handle pivotally secured to the body and provided with an arm adapted to engage the shoulder, and a roller journaled upon the handle and adapted to engage the shank of the movable jaw.

2. A wrench comprising a body, a fixed jaw carried by the body, a movable jaw pivotally secured to the body and having a shank provided with a longitudinally-extending shoulder, a handle pivotally secured to the body and provided with an arm adapted to engage the shoulder, and a roller journaled upon the arm and adapted to engage the shank.

3. A wrench comprising a body, a fixed jaw carried by the body, a movable jaw pivotally secured to the body and having a shank provided with a longitudinally-extending shoulder, a handle pivotally secured to the body and provided with an arm having its upper end bent for engagement with the shoulder, and a roller journaled upon the handle and adapted to engage the shank.

4. A wrench comprising a body, a fixed jaw carried by the body, a movable jaw pivotally secured to the body and having a shank provided with longitudinally-extending shoulders, a handle pivotally secured to the body and provided with arms having their upper ends bent to provide curved shoulder-engaging members, and a roller journaled upon and between the arms, said roller being adapted to engage the shank.

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

JOHN W. HIELSCHER.

Witnesses:
A. A. BROWN,
G. G. BROWN.