

No. 770,941.

PATENTED SEPT. 27, 1904.

C. F. STONE.
FLANGE WRENCH.

APPLICATION FILED MAR. 21, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

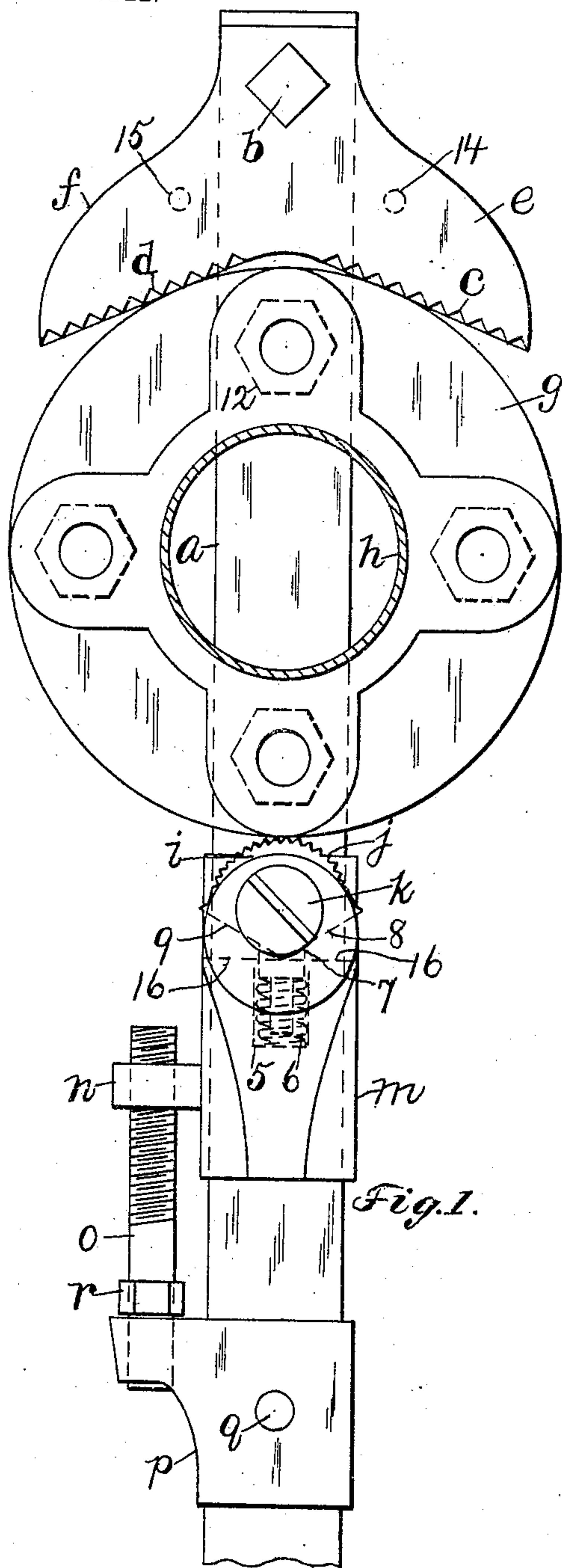


Fig. 1.

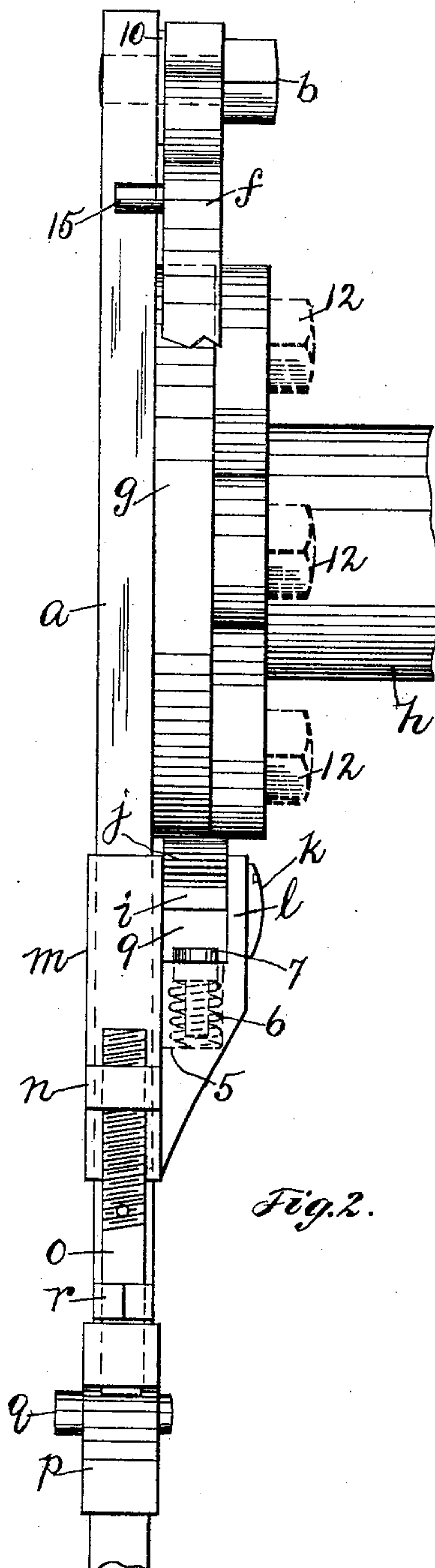


Fig. 2.

Witnesses.

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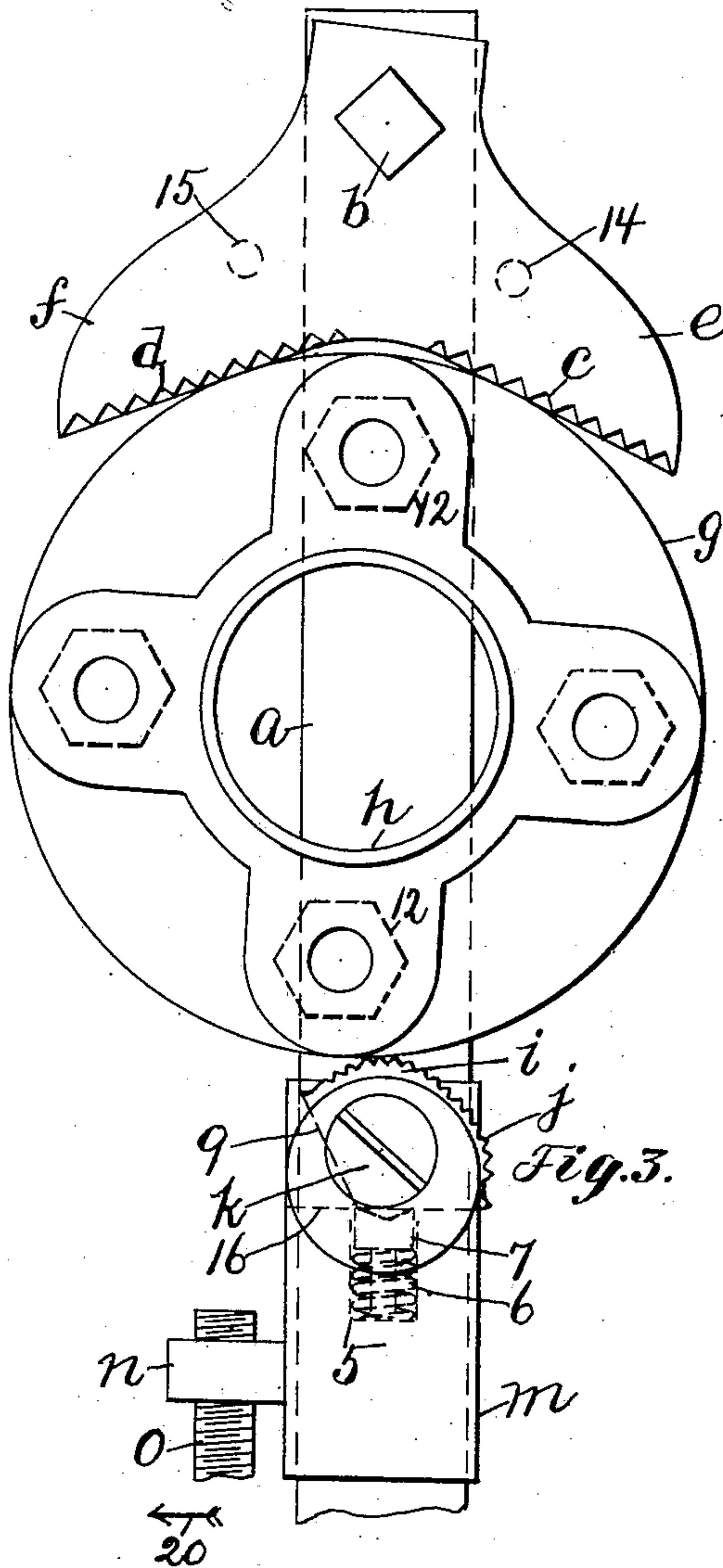
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UNITED STATES PATENT OFFICE.

CHARLES F. STONE, OF WOONSOCKET, RHODE ISLAND.

FLANGE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 770,941, dated September 27, 1904.

Application filed March 21, 1903. Serial No. 148,817. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. STONE, a citizen of the United States, residing in Woonsocket, in the county of Providence and State of Rhode Island, have invented an Improvement in Flange-Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a wrench of that class commonly known as "flange-wrenches," which are used for screwing the flanges of steam, water, or other pipes on or off of said pipes.

The invention has for its object to provide a simple and efficient wrench for the purpose specified.

The particular features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is an elevation of a sufficient portion of a flange-wrench embodying this invention to enable it to be understood, the wrench being shown as applied to a flange of a pipe; Fig. 2, a side elevation of the wrench shown in Fig. 1; and Fig. 3 a front elevation showing the jaws in their gripping or operative position.

Referring to the drawings, *a* represents a bar of steel or other suitable metal, to one end of which is secured, as by bolt *b*, a substantially V-shaped piece of metal, preferably of forged cast-steel, provided with oppositely-arranged teeth *c* *d*, the two arms *e* *f* of the V-shaped piece constituting two jaws, one of which is adapted to engage the periphery of the flange *g* when the latter is to be screwed onto the pipe *h* and the other jaw of which is adapted to engage the periphery of the flange when the latter is to be screwed off of the said pipe. The jaws *e* *f* have cooperating with them a rotatable jaw, preferably made as herein shown and consisting of a segment of a wheel *i*, provided on its periphery with teeth *j*. For sake of distinction the double jaw, consisting of the arms *e* *f*, may be referred to as the "upper" jaw and the toothed segment *i* as the "lower" jaw. The toothed segment *i* is mounted to turn on a bolt or

screw *k*, inserted through an offset portion *l* (see Fig. 2) of a slide or carrier *m*, which is fitted to slide longitudinally on the bar *a*. The slide or carrier *m* is provided with a lug *n*, having a screw-threaded opening through it, which is engaged by the threaded portion of an adjusting screw or bolt *o*, which is stepped at its lower end in a collar or housing *p*, affixed to the bar *a* by a pin *q* or otherwise. The adjusting screw or bolt *o* may and preferably will be provided with a collar or flange *r*, which is adapted to be engaged by a wrench to turn the adjusting-screw, and thereby move the carrier or slide *m* for the lower jaw longitudinally on the bar *a* to adjust the lower jaw with relation to the upper jaw, which has a fixed position relatively to the lower jaw.

The offset portion *l* of the carrier *m* is provided, as herein shown, with a socket 5 (see dotted lines, Fig. 1) for the reception of a spiral spring 6, which engages a plunger or centering device 7 for the lower jaw. The plunger 7 is provided, as shown, with a substantially V-shaped notch in its upper portion, which engages the substantially straight lower surfaces 8 9 of the movable lower jaw, as clearly shown in Fig. 1.

The upper jaw may and preferably will be offset from the face of the bar *a* by a washer 10, and the lower jaw may be similarly offset by the slide *m*, as clearly shown in Fig. 2. In this manner the teeth of the jaws engage the periphery of the flange away from the edge of what may be termed the "front" face of the flange, thereby avoiding injury to the front face of the flange, and consequently enabling the flange to be brought in close contact with the companion flange, to which it is secured in the usual manner by the bolts, the heads 12 of which are represented by dotted lines. The double upper jaw is adapted to turn on the bolt *b* as a pivot, and the movement of this jaw may be limited by pins 14 15, projecting from the jaws into line with the bar *a*.

The offset portion *l* of the slide *m* is provided with a bottom wall 16, with which the lower faces 8 9 of the segmental jaw are adapted to make contact to obtain a firm

bearing and rendering the movable jaw stationary when the wrench is turned to obtain an effective bite upon the flange. The plunger 7 is normally held elevated by the spring 6, as represented in Fig. 1, and acts to automatically turn the lower jaw back into its normal position (represented in Fig. 1) when the wrench is not in use.

The face of the bar *a*, to which the double jaw is secured, is made substantially flat, so as to be brought in close contact with the flat face of the flange, as represented in Fig. 2.

In operation with the flange-wrench herein shown the lower jaw is moved down away from the upper jaw by turning the adjusting-screw *o* to afford an opening sufficient to permit the wrench to be adjusted to the flange to be screwed upon the pipe. The operator then brings the upper jaw into engagement with the flange and thereafter moves the carrier for the lower jaw toward the upper jaw until the toothed periphery of the lower jaw engages the flange, as represented in Fig. 1. If now it is desired to turn the flange onto the pipe, the bar *a*, which is made of sufficient length to constitute not only the support for the jaws, but also the handle for the wrench, is turned in the direction indicated by the arrow 20, Fig. 3, thereby tilting the upper jaw and rotating the toothed lower jaw until the face 8 is brought into engagement with the bottom wall 16 of the carrier *m*, and thereafter the continued movement of the handle in the direction indicated by the arrow 20 causes the flange *g* to be turned upon the pipe *h*. Movement of the handle in a direction opposite to that indicated by the arrow 20 carries the jaws back into substantially their normal position (shown in Fig. 1) and into a position to obtain a new bite or grip upon the flange. If it is desired to turn the flange in the opposite direction, the handle is moved to the right, (shown in Fig. 1,) thereby bringing the flat face 9 of the movable jaw into engagement with the bottom wall 16 of the carrier.

I claim—

1. In a flange-wrench, in combination, a bar adapted to extend across the face of the flange, a substantially V-shaped double jaw pivoted to the said bar and provided with oppositely-inclined teeth, a slide or carrier movable longitudinally on the said bar and provided with

an offset portion, a rotatable toothed segment pivotally mounted between said slide and its offset portion, and having substantially straight lower faces adapted to engage the bottom wall of the space formed by said slide and its offset portion, and means cooperating with the lower faces of said segment to automatically restore the toothed segment into its normal position, substantially as described.

2. In a flange-wrench, in combination, a bar adapted to extend across the face of the flange, a substantially V-shaped double jaw pivoted to the said bar and provided with oppositely-inclined teeth, a slide or carrier movable longitudinally on said bar, a lug on said slide, an adjusting-screw extended through said lug, a collar having a fixed position on said bar and in which said adjusting-screw is stepped to rotate therein, a toothed segment pivoted to said slide, and a yielding plunger having a substantially V-shaped notch at its upper end in engagement with the lower faces of said toothed segment, substantially as described.

3. In a flange-wrench, in combination, a bar adapted to extend across the face of the flange, an upper jaw pivoted to said bar, a slide or carrier, a toothed segment pivotally mounted in said slide or carrier, a yielding plunger in engagement with said toothed segment, and means to move said slide or carrier on said bar, substantially as described.

4. In a flange-wrench, in combination, a bar adapted to extend across the face of the flange, an upright jaw pivotally secured to said bar, means interposed between said bar and jaw, a sliding carrier mounted on said bar to move longitudinally thereon, a lower segmental jaw having straight lower faces and provided with a plurality of teeth on its circumference said jaw being pivoted to said sliding carrier with its inner face out of contact with the said bar, whereby the flange is engaged on its circumference away from the edge of its face, and means to adjust said sliding carrier on said bar, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES F. STONE.

Witnesses:

R. G. RANDALL,
HERMANGILDE BESSETT.