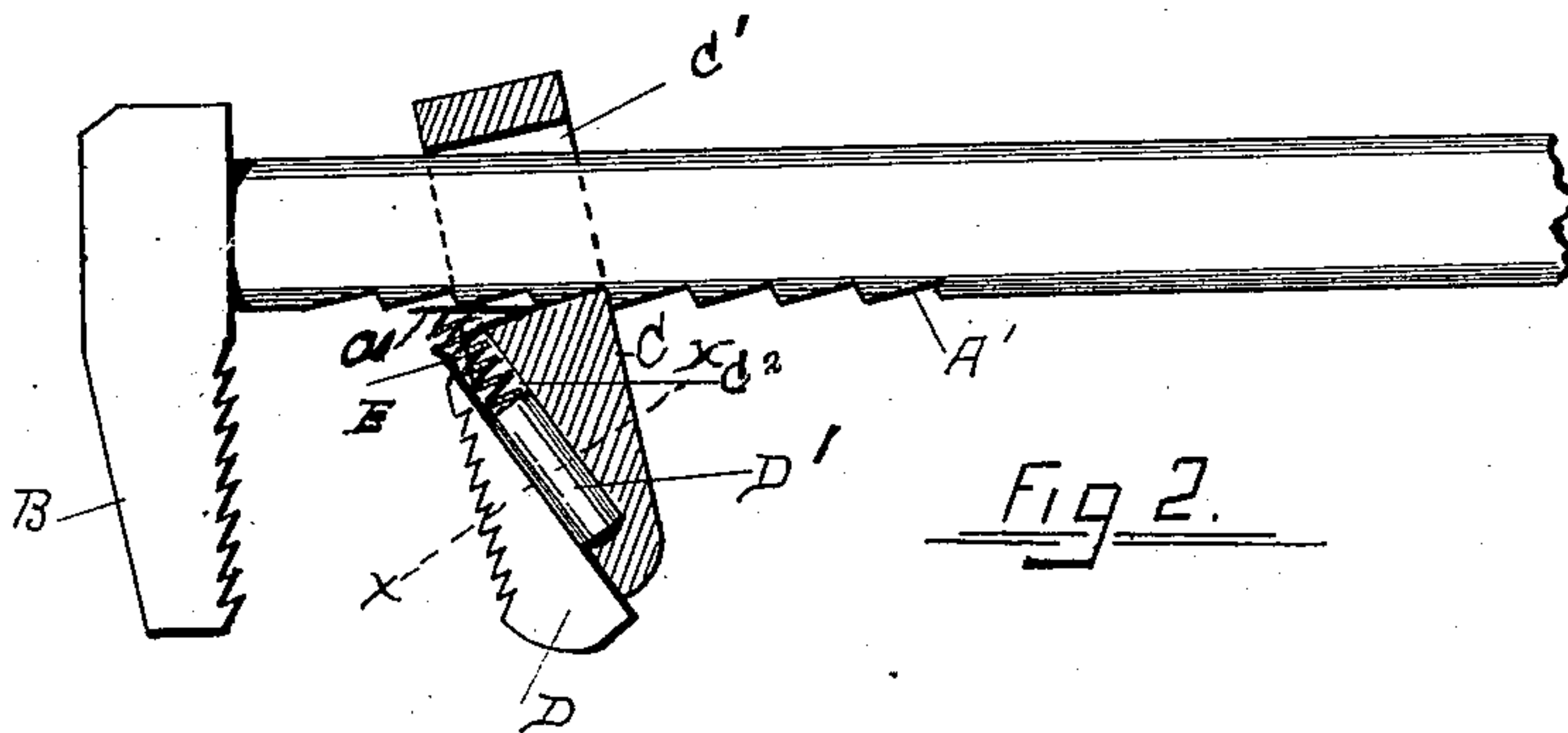
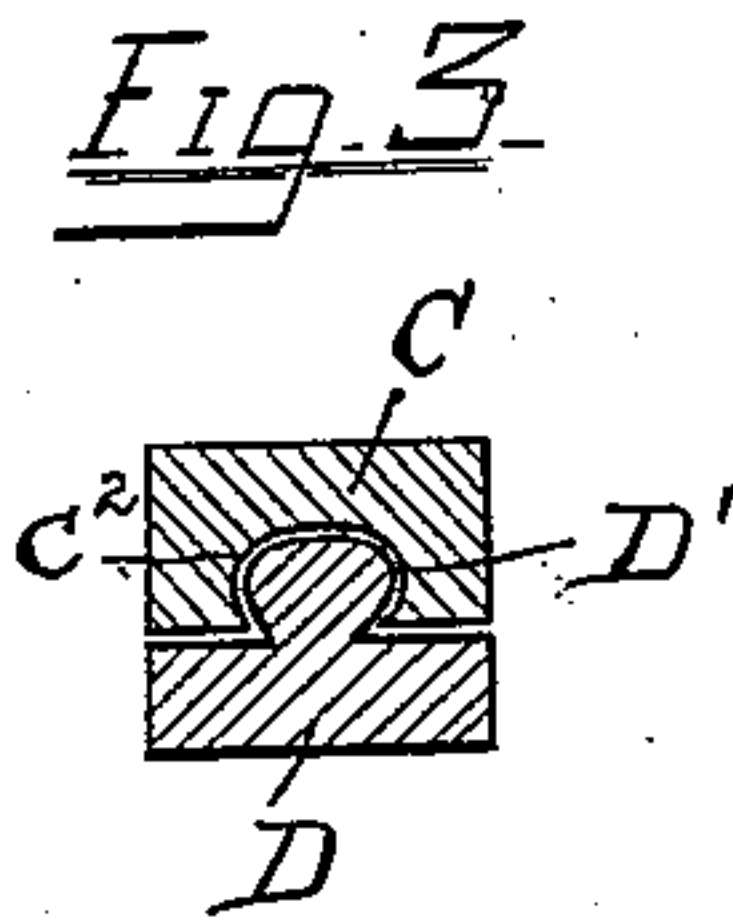
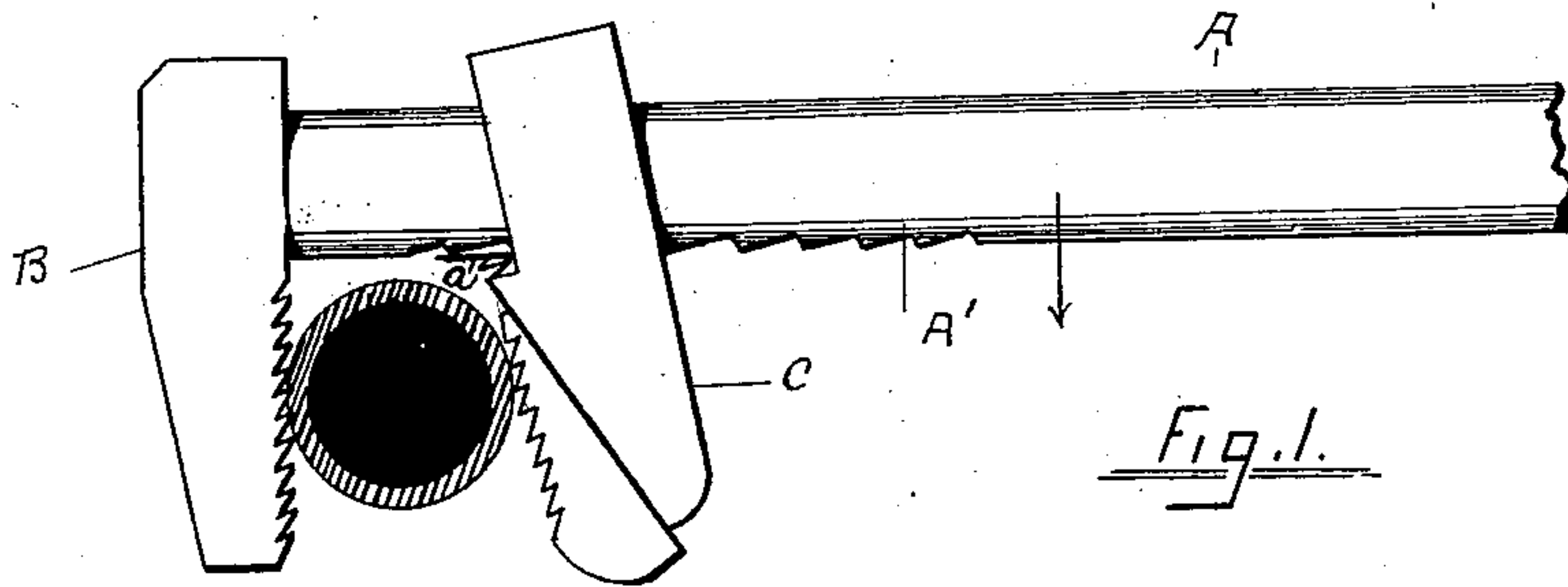


(No Model.)

W. L. MURPHEY.
WRENCH.

No. 560,298.

Patented May 19, 1896.



WITNESSES.
Baldwin Vale.
Chas. J. Ambruster

INVENTOR.
William L. Murphey
per Boone Muddock
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM L. MURPHEY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE CALIFORNIA WRENCH COMPANY, OF CALIFORNIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 560,298, dated May 19, 1896.

Application filed June 21, 1895. Serial No. 553,596. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. MURPHEY, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, 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 said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention relates to that class of wrenches of the monkey type in which the fixed or stationary jaw forms a part of the shank or handle-bar of the wrench, while the movable jaw is adapted to slide upon the shank and be set at any desired distance from the stationary jaw.

My invention consists in providing the face of one of said jaws with an angular sliding block or bit, which will serve as a gripping-die when the two jaws are closed upon a pipe or rod, whereby the act of turning the wrench in one direction will cause the die to slide toward the pipe or rod upon the face of the jaw and increase the grip upon the pipe or rod with a force corresponding to the pressure on the handle of the wrench, while a movement of the handle of the wrench in an opposite direction will move the die in an opposite direction and instantly release the pipe or rod.

Referring to the accompanying drawings, Figure 1 is a side view of the invention. Fig. 2 is a side view of the same, the adjustable jaw being cut away to show the construction. Fig. 3 is a cross-section taken on the line $x-x$ of Fig. 2.

Let A represent the shank or handle-bar of the wrench, and B the fixed or stationary jaw, which is preferably formed as an integral part of the shank by bending the end of the bar at a right angle and forging it to the desired shape.

C is the movable jaw, which is adapted to slide upon the shank A and be fixed at any desired distance from the fixed jaw B. Usually I make opening C' in the base of the movable jaw, corresponding to the shape of the handle or shank and just large enough to allow the shank to pass through it. The jaw can then be shifted on the shank, and at what-

ever point it is placed a pressure on the jaw itself will cause the shank to bind in the hole and cause a bite that will hold the jaw stationary as long as the pressure is continued. 55

Although I have shown the shank slightly serrated, as at A', on its inner side, so as to secure a more positive bite, ordinarily a smooth shank will answer every purpose.

The inner face of the movable jaw C is beveled or inclined outwardly from its base toward its point, as shown in the drawings, and a triangular sliding block or die D is fitted to move freely along this inclined face. This double inclination is preferable, as will be hereinafter shown; but good results could be obtained by applying a triangular sliding die-block to a rectangular face of a movable jaw. 60

Various means can be employed for attaching the die-block to the face of the jaw, so that it will slide freely but yet be retained in place; but I have shown a round dovetail-slide arrangement—that is, I have provided the angular face of the jaw with a longitudinal round groove C². On the under side of the sliding die I have provided a rib D', which fits easily in the groove. The head of the rib holds the block in place against the inclined face of the die, but the die can slide longitudinally along the face. The outer or gripping face of this die is serrated in the usual way of serrating the jaws of a pipe-wrench, and if desired the gripping-face of the stationary jaw may be serrated in the same way. If now these two jaws are closed upon a pipe or rod, the gripping-face of the stationary jaw will press against one side of the pipe or rod, while the gripping-face of the sliding die, which slides on the face of the movable jaw, will press it on the opposite side, and the gripping-point of the sliding die will be at the base opposite its thinnest part. It will then be evident that if the wrench be turned in one direction the pressure of the pipe on the face of the movable die, combined with the rotary action of the wrench, will cause the wider portion of the sliding die to move toward the pipe and bite or press it against the stationary die with a force corresponding to the rotary pressure applied to the wrench, thus making the wrench an automatic or self-gripping wrench, while a slight movement of the handle of the 100

wrench in an opposite direction will move the angular die outward and instantly release the pipe or rod.

By setting the face of the movable jaw at
5 an angle to the handle the gripping-face of
the movable die is brought more directly in
line with the line of pressure against the side
of the pipe and the gripping action rendered
more positive. In this condition the wrench
10 will answer wherever the wrench is used
with the jaws pointing downward, because
in this position the weight of the sliding die
will keep it thrown outward or in the open
position; but if it should be used with the
15 jaws projecting upward the angular die-
block would fall toward the base of the sta-
tionary jaw and render it useless as an auto-
matic grip. To remedy this difficulty, I em-
ploy a spring E to keep it pressed out to its
20 open position. This spring can be variously
applied; but I have shown a spiral spring
placed in the enlargement of the slot C², so
as to force the block outward and keep it in
that position until the rotary pressure of the
25 pipe against the die causes it to move toward
the shank. The upper end of the spring E
is confined by a plate *a*, suitably secured to
the movable jaw in the base of the opening
C' thereof, as seen in Fig. 2. I also prefer to
30 have the gripping-faces of the jaws made on
an incline outward, so that when their bases
are brought together the faces of the two jaws
will gradually recede from base to point,
somewhat like the well-known "alligator-
35 wrench." This adaptation renders it more
convenient. By this construction I provide

an exceedingly simple and effective pipe-
wrench that can also, if desired, be used as an
ordinary monkey-wrench.

I do not confine myself to the details of con- 40
struction herein set forth, as it will be appar-
ent to any mechanic that they can be varied
in many ways to produce the same result in
this general construction.

Having thus described my invention, what 45
I claim, and desire to secure by Letters Pat-
ent, is—

In a pipe-wrench, the combination of the
stationary jaw and its handled shank, the
normally-inclined movable jaw, having the 50
base of its face portion adapted to bodily im-
pinge on said shank and said face portion
inclined from said base outwardly and rear-
wardly toward its point, the triangular slid-
ing block or die having an outwardly and 55
rearwardly inclined back fitting the corre-
spondingly inclined face portion of the mov-
able jaw, a spring to normally hold said die
or block in its outer position, and a bearing-
plate projecting from, and secured to, the base 60
of the face portion of said movable jaw for
the inner end of said spring to hold said mov-
able jaw, with the die or block, in the out-
wardly and rearwardly inclined position, sub-
stantially as set forth. 65

In witness whereof I have hereunto set my
hand this 13th day of June, 1895.

WILLIAM L. MURPHEY.

Witnesses:

E. F. MURDOCK,
BALDWIN VALE.