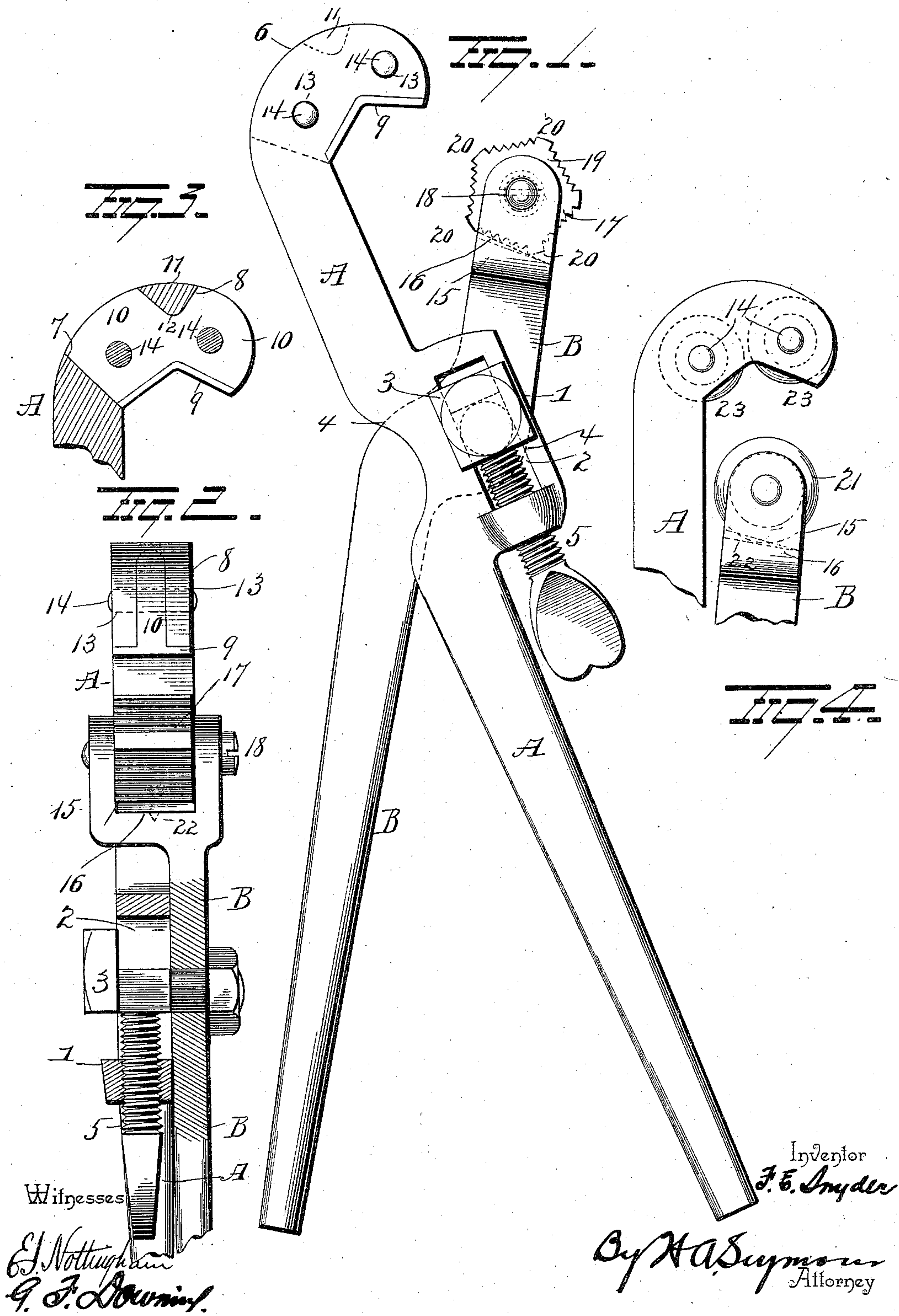


(No Model.)

F. E. SNYDER.  
WRENCH.

No. 580,429.

Patented Apr. 13, 1897.





# UNITED STATES PATENT OFFICE.

FRANK EDWARD SNYDER, OF MASSILLON, OHIO.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 580,429, dated April 13, 1897.

Application filed August 25, 1896. Serial No. 603,884. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK EDWARD SNYDER, of Massillon, in the county of Stark and State of Ohio, have invented certain new and  
5 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.

10 My invention relates to an improvement in pipe wrenches and cutters, one object of the invention being to so construct a pipe-wrench that the screw for adjusting the same for different-sized pipes will be so disposed  
15 as to be out of the way and thus allow full sweep of the wrench when used in a corner or close to a wall, and so that when the wrench is used in a ditch the screw will not become embedded in the dirt.

20 A further object is to so construct a pipe-wrench that it can be quickly and easily transformed into a pipe-cutter.

25 A further object is to produce a pipe wrench and cutter which shall be simple in construction, comparatively cheap to manufacture, and effectual in all respects in the performance of its functions.

30 With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a wrench embodying my improve-  
35 ments. Figs. 2, 3, and 4 are detail views.

40 A represents one lever of the wrench, and B the other. The lever or bar A is provided between its ends with an enlargement 1, in which there is an elongated slot 2, the latter being parallel with the longitudinal axis of the said bar or lever. A headed bolt 3 passes through and fits loosely in the slot 2, the free end of said bolt being made round (in cross-sections) and serving as a pivot for the lever  
45 B of the wrench, said lever being made with a shoulder 4 where the bolt passes through it. The enlargement 1 is made at its inner or upper end with a screw-threaded hole for the accommodation of an adjusting-screw 5, the forward end of which is adapted to bear  
50 against the square portion of the bolt 3, whereby to adjust the jaws of the wrench relatively to the pipe to be operated upon.

The forward end of the lever A is made

with a lateral enlargement or jaw 6, adapted 55 (when the two levers are parallel) to project over the forward end of the lever B and the jaw carried thereby. The enlargement of jaw 6 is bifurcated to form recesses 7 8, the dividing-wall 11 of said recesses being made 60 V-shaped. The inner face of the enlargement of jaw 6 is made V-shaped for the reception of a similarly-shaped gripping-plate 9. The gripping-plate 9 is provided on its back with perforated lugs 10, which enter the re- 65 cesses 7 8, the V-shaped dividing-wall 11 entering the similarly-shaped recess 12 between said lugs 10. The enlargement or jaw 6 is made with holes 13, adapted to aline with the holes in the lugs 10, and through said holes 70 removable pins 14 are passed, whereby to hold the gripping-plate 9 in place.

The forward end of the lever R is made with an enlargement 15, having a recess 16, said recessed enlargement thus forming, in 75 effect, a yoke, in which a multifaced jaw 17 is mounted by means of a screw or pin 18. Each face of the jaw is preferably made somewhat concave and provided with sharp teeth or serrations 19, the portions of the jaw 80 or block between said serrated faces forming shoulders 20. When the wrench is in use, at least two of the teeth or serrations on the face which is in operative position will en- 85 gage the pipe and prevent the latter from slipping. When these two teeth shall have become dull from constant use, the pin 18 can be removed and the block or jaw reversed end for end, so as to bring hitherto unused teeth into play. When all the teeth of one 90 of the serrated faces shall have become worn, the block or jaw can be turned (after having first removed the pin 18) so as to bring another face into operative position. If desired, the serrated faces of the jaw 17 could 95 be made of varying sizes, but this is not essential. The hole through the block or jaw 17, through which the pin 18 passes, is of such size relatively to that of the pin that said block or jaw can have a slight play on 100 the pin, and the depth of the recess 16 is not sufficient to permit the block or jaw to be turned on the pin 18 without the engagement of one of the shoulders 20 with the bottom of said recess 16. Thus it will be seen that 105 when the wrench is in use the engagement of the jaw or block 17 with the pipe will cause one of the shoulders 20 to bear firmly against



the bottom of the recess 16 and thereby relieve the pin 18 of strain.

It will be observed that the adjusting-screw 5 and slot 2 in lever A are disposed parallel with the length of the wrench, thus being down out of the way, giving full sweep of the wrench when used in a corner close to a wall, or when used in a ditch does not penetrate nor embed said screw so readily in the dirt, all of these being of material advantage, as in wrenches of this kind as heretofore constructed the adjusting-screw projects at an angle to the length of the wrench, being continually in the way and obstructing, in most cases, considerable sweep of the wrench. Each face of the toothed block or jaw has a number of teeth and is of suitable shape to adapt itself to the pipe firmly, without any tendency or chance to slip, requiring but little pressure on the handles or levers, thus making it sure, easy, and convenient to manipulate.

In order to transform the tool into a pipe-cutter, it only requires the removal of the toothed block or jaw and the insertion in its stead of the large revoluble cutter 21. The wrench is so constructed that when closed the center of cutter-wheel will be just above the center of the V-shaped groove 22 in the bottom of the recess 16. Thus when set to cut any-sized pipe to which the wrench is suited said cutter will draw itself easily into the cut, and requires scarcely any pressure on the handles—merely a little to start it—as the operation of cutting draws the handles together, and as the cutting proceeds it is to be followed up by turning the thumb-screw as occasion requires. As this form of cutter could not be used to cut off a pipe entirely, close to a wall or ceiling or wherever it is impossible to swing or turn the tongs entirely around the pipe, the device can readily be made into a three-wheeled cutter suitable for the latter purpose by removing the V-shaped gripping-plate 9 and inserting the two small wheels or cutters 23 23, using the same pins to hold them which previously held said gripping-plate 9.

When the wrench is used for gripping and turning a pipe, the said V-shaped plate 9 serves as a durable bearing for the pipe, protects the jaw or enlargement 6 from injury, and keeps dirt, &c., out of the slots, which would otherwise interfere with the placing and operation of the small cutters.

My improved wrench possesses many advantages and is simple in construction, comparatively cheap to manufacture, and is effectual in all respects in the performance of its functions.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pipe-wrench, the combination with a lever having an elongated slot between its ends and parallel with its length, of a pin passing transversely through said slot, an-

other lever pivotally connected between its ends to said pin, said last-mentioned lever having a recess in its forward end, a toothed jaw mounted in said recess, a jaw at the forward end of the first-mentioned lever, and a set-screw disposed parallel with the length of the first-mentioned lever and adapted to bear against said pin and move it in the elongated slot, substantially as set forth.

2. In a pipe-wrench, the combination with two levers pivotally connected together between their ends, one of said levers having a rigid jaw at its forward end and the other lever having a recess at its forward end, of a multifaced block or jaw mounted in said recess, each face being concave and provided with a series of teeth or serrations, and means for adjusting said jaws relatively to each other, substantially as set forth.

3. In a pipe-wrench, the combination with two levers pivotally connected together, one of said levers having a rigid jaw at its forward end and the other lever having a recess at its forward end, of a multifaced block or jaw mounted in said recess by means of a pin, each face of said jaw being concave and provided with teeth and shoulders between the several faces, said block or jaw being so mounted in said recess that when the wrench is in use, one of said shoulders will engage the bottom of the recess in the lever and take the strain off of the pin by which the block or jaw is supported, substantially as set forth.

4. In a wrench, the combination with two levers pivotally and adjustably connected together, an integral jaw at the forward end of one of said levers, said jaw being bifurcated to form recesses, and having a V-shaped inner face, of a V-shaped gripping-plate disposed on the similarly-shaped inner face of said jaw, said plate having lugs to enter the recesses in the jaw, removable pins passing transversely through the jaw and lugs, and a multifaced, toothed jaw mounted in the forward end of the other lever.

5. In a wrench, the combination with two levers, one of said levers having a parallel enlargement having an elongated slot parallel with the length of the lever, of a pin passing through said slot and having a pivotal connection with the other lever, a screw passing through one end of said enlargement and engaging said pin, a slotted jaw at the free end of the lever having the slotted enlargement, a tool mounted in said slotted jaw, a yoke at the forward end of the other lever and a tool mounted in said yoke and adapted to cooperate with the tool in the said jaw, substantially as set forth.

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

FRANK EDWARD SNYDER.

Witnesses:

JOHN C. LOWE,

JOHN O. GARRETT.