

UNITED STATES PATENT OFFICE.

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WRENCH.

No. 910,737.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE W. STENZ, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Wisconsin, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to a wrench of the quick-adjusting type, and more particularly to a wrench having a shank provided with serrations with which a cam-actuated clamping block is adapted to engage for holding the movable jaw in set position.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively easy and inexpensive to manufacture, of durable and substantial design, and composed of few parts.

Another object of the invention is the provision of a wrench having a serrated shank with which a serrated clamping block mounted on the movable jaw is adapted to engage for holding such jaw in fixed position, the block being operated by a pivoted cam that is held in locking position by a spring and is adapted to be retracted by a lever connected therewith when it is desired to adjust the movable jaw.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention, Figure 1 is a side elevation of the wrench with the movable jaw in section. Fig. 2 is a transverse section on line 2—2, Fig. 1. Fig. 3 is a perspective view of the clamping block.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawing, 1 designates the shank of the wrench on which is a relatively fixed jaw 2, the jaw having a socket for the reception of a tongue 3 on the extremity of

the shank for reversibly and removably holding the jaw in position, there being a screw or other fastening 4 passing through the fixed jaw and tongue for rigidly securing the parts together. On opposite sides of the shank are longitudinal grooves 5 for receiving inwardly-extending ribs or tongues 6 formed on the opposed walls 7 of the movable jaw 8 that slides on the shank 1. One side of the shank is formed with serrations 9 extending substantially the full length thereof and with which is adapted to cooperate a clamping block 10 carried by the movable jaw and having serrations 11 for engaging those on the shank. The clamping block is fitted between the spaced side plates 12 of the movable jaw to move back and forth and the block is prevented from moving longitudinally by means of shoulders 13, Fig. 3, that engage under the side plates 12, and by means of a removable cap piece 16, the ends of which engage over the top of the side walls 12, the said cap piece being held in place on the clamping block by screws 17 or equivalent means.

Projecting from the outer face of the clamping block are spaced lugs 18 that have opposed projections 19 with which the operating cam engages. This cam 20 is mounted on a movable jaw disposed between the side plates 12 and turns on a bolt 21 as a pivot, there being a sleeve 22 fitted on the shank of the bolt and extending through the opening 23 of the cam. The cam has its opposite sides chambered to form cam-shaped flanges 24 that engage under the projections 19 of the clamping block so that as the cam is turned, the clamping block will be retracted or disengaged from the shank 1 of the wrench so that the movable jaw can be adjusted. The portion of the cam designated *a* is concentric with the opening 23 and is adapted to engage on the connecting portion or web 25 between the side plates 12 of the movable jaw, the inner face of the said web being also concentric with the pivot 12 so that a large bearing surface is provided for the cam for the purpose of preventing strain and excessive wear on the pivot 21. The portion *b* of the cam is eccentric to the pivot

and is adapted to engage the outer surface of the clamping block so as to hold the latter in locking position. On the pivot 21 is a torsional spring 26 that has one end 27 seated in a notch 28 on the movable jaw and the other end 29 attached to the cam so as to move the latter into locking position, the said spring being disposed in one of the chambers provided in the sides of the cam. The cam is provided with a lever 30 which has a set screw 31 adapted to bear on the lower end of the clamping block 10 for the purpose of holding the lower end of the lever away from the shank 1 of the wrench to enable the lever to be more readily grasped, and also for the purpose of permitting the cam to be adjusted from time to time to take up wear.

In order to adjust the wrench, the lever 30 is grasped by the fingers and moved outwardly from the shank 1 so as to turn the cam against the tension of the spring, whereby the cam-shaped flanges 24 that engage the projections 19 of the clamping block cause the latter to move laterally away from the serrations of the shank 1, and while the lever is held in this position, the movable jaw can be shifted away from or toward the relatively fixed jaw 2. When the proper adjustment is effected, the lever 30 is released so as to permit the cam to return automatically to locking position by means of the spring 26. If it is desired to use the wrench on round stock such as pipe, the jaw 2 is reversed so as to arrange the serrated portion 31^a of such jaw in cooperative relation with the gripping face 32 of the movable jaw.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim is:—

1. In a wrench, the combination of a shank having serrations at one side provided with a longitudinal groove, a fixed jaw secured to the shank, a movable jaw slidably mounted on the shank and having a rib engaging in the said groove, a clamping block having serrations engaging those of the shank, a cam mounted on the movable jaw to move the block in clamping position, a cam-shaped flange on the cam, a member on the clamping block engaging the said flange to retract the

clamping block by the movement of the cam, and a wall on the movable jaw with which the cam engages for receiving the thrust exerted by the block through the said cam.

2. The combination of a shank having serrations, a relatively-fixed jaw removably and reversibly mounted on the shank, a slidable jaw, a clamping block provided with serrations arranged to engage those of the shank, a cam mounted on the movable jaw for locking and releasing the block, a pivot for the cam, and a wall on the movable jaw with which the cam engages for receiving the thrust from the cam and preventing excessive strain on the pivot.

3. In a wrench, the combination of a serrated shank, a slidable jaw having side walls engaging opposite sides of the shank and provided with a connecting web between the said side walls, a clamping block disposed between the side walls and having serrations arranged to engage those of the shank, means on the block for engaging the side walls of the movable jaw to prevent longitudinal movement of the block, a cam bearing on the said web and arranged to move the clamping block into and out of locking position, and a pivot on which the cam turns and securing the cam to the movable jaw.

4. In a wrench, the combination of a fixed jaw, a shank having serrations, a movable jaw provided with side walls and an arcuate connecting wall, said side walls having apertures concentric with the said connecting wall, a clamping block provided with serrations arranged to engage those of the shank and having shoulders engaging under the side walls, a removable cap piece secured to the block for engaging the said walls at the top thereof, a pivot in the said apertures, a cam on the pivot having a concentric portion engaging the said connecting wall and an eccentric portion bearing on the clamping block for locking the latter by movement of the cam in one direction, a connection between the block and cam for retracting the block by movement of the cam in the opposite direction, and a spring engaging the cam for holding the latter in locking position.

5. In a wrench, the combination of a fixed jaw, a shank having serrations, a movable jaw provided with side walls and an arcuate connecting wall, said side walls having apertures concentric with the said connecting wall, a clamping block provided with serrations arranged to engage those of the shank and having shoulders engaging under the side walls, a removable cap piece secured to the block for engaging the said walls at the top thereof, a pivot in the said apertures, a cam on the pivot having a concentric portion engaging the said connecting wall and an eccentric portion bearing on the clamping block for locking the

latter by movement of the cam in one direction, a connection between the block and cam for retracting the block by movement of the cam in the opposite direction, a spring engaging the cam for holding the latter in locking position, a lever connected with the cam, and a set screw carried by the lever and adapted to bear on a suitable part of the wrench for

adjusting the set of the cam and for holding the lever spaced from the shank of the wrench. 10

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

GEORGE W. STENZ.

Witnesses:

JAMES McCULLY,
FRANK S. MOULTON.