

July 28, 1925.

1,547,443

H. A. PORTER
COMBINATION WRENCH

Filed June 16, 1924

Fig. 1.

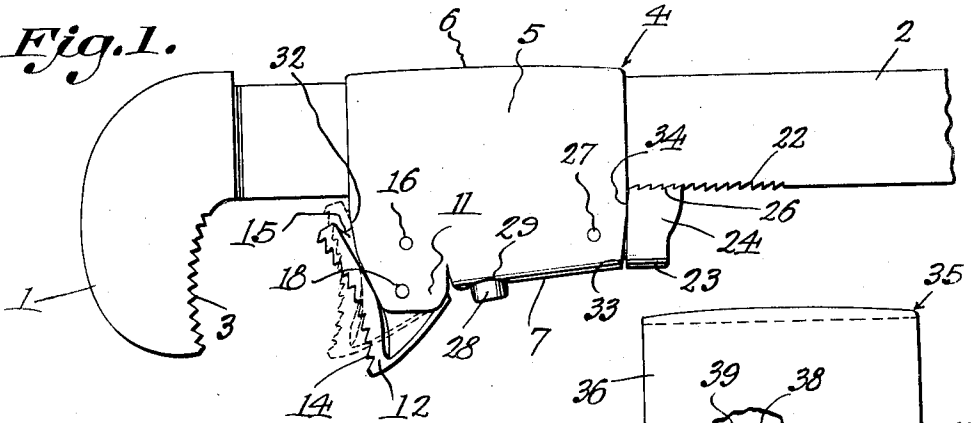


Fig. 5.

Fig. 2.

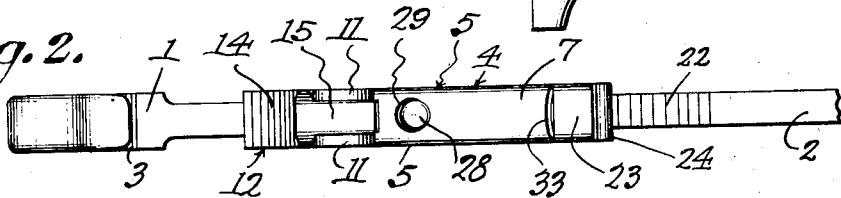


Fig. 3.

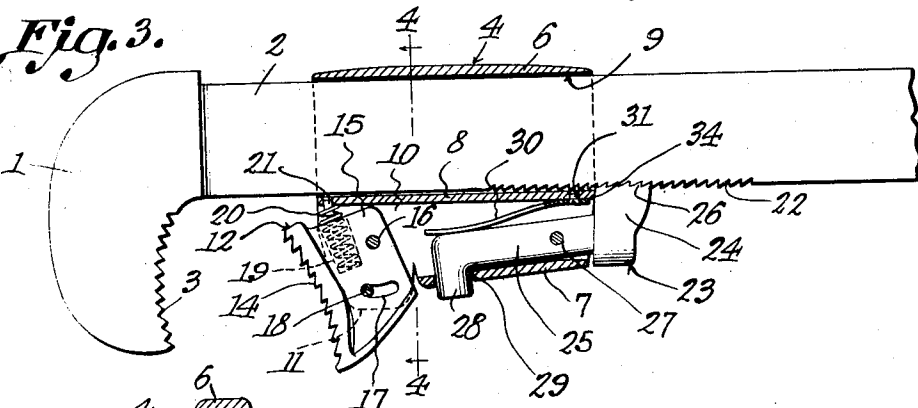
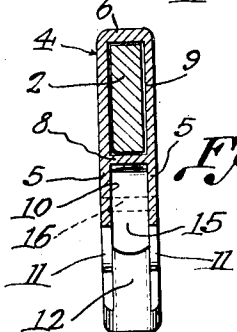


Fig. 4.



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UNITED STATES PATENT OFFICE.

HORATIO A. PORTER, OF SOUTH HADLEY FALLS, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO WALTER J. PORTER, OF SPRINGFIELD, MASSACHUSETTS.

COMBINATION WRENCH.

Application filed June 16, 1924. Serial No. 720,264.

To all whom it may concern:

Be it known that I, HORATIO A. PORTER, a citizen of the United States, residing at South Hadley Falls, in the county of Hampshire and State of Massachusetts, have invented a new and useful Combination Wrench, of which the following is a specification.

This invention aims to provide a wrench which at the will of an operator, may be used for turning either nuts or pipes and other round objects, the wrench being so constructed that it will not crush the pipe, and novel means being provided whereby the operator may secure a rapid adjustment of the rider and the movable jaw with respect to the fixed jaw.

It is within the province of the disclosure to improve generally and to enhance the utility of the devices of that sort to which the invention appertains.

Although preferred embodiments have been shown in the drawings, it will be understood that a mechanic, working within the scope of what is claimed, may make changes, without departing from the spirit of the invention.

In the drawings:—

Figure 1 shows, in side elevation, a wrench constructed in accordance with the invention, parts being broken away; Fig. 2 is an elevation wherein the wrench is viewed edge-wise; Fig. 3 is a longitudinal section, wherein parts, appear in elevation; Fig. 4 is a cross section on the line 4—4, of Fig. 3; Fig. 5 is an elevation showing a modified rider carrying a modified movable jaw.

The wrench embodies a fixed jaw 1 carried by a handle 2 provided along one edge with a rack 22, the jaw 1 being supplied with a concaved edge 3 having teeth.

A tubular rider 4 is mounted for reciprocation on the handle 2, and includes sides 5, edge walls 6 and 7, and an intermediate longitudinal partition 8. The sides 5, the partition 8 and the edge wall 6 form a passage 9 wherein the handle 2 of the wrench is received slidably. The partition 8, the sides 5 and the edge wall 6 form a chamber 10 wherein certain of the working parts of the wrench are located. The edge wall 7 is shorter than the edge wall 6, and that the forward end of the rider 4, the sides 5 are extended to fashion ears 11.

The numeral 12 marks a movable jaw hav-

ing a concaved edge 14 provided with teeth, the edge 14 of the movable jaw being adapted to cooperate with the edge 3 of the fixed jaw 1 to grip a pipe or other round object. The movable jaw 12 has a reduced flange 15 extended into the chamber 10 and mounted to swing on a pivot element 16 carried by the sides 5 of the rider 4. In order to limit the swinging movement of the jaw 12, the flange 15 thereof is supplied with an arcuate slot 17 wherein is mounted a pin 18 carried at its ends in the ears 11 of the rider 4. The flange 15 of the jaw 12 is supplied with a recess 19, and in the recess, is seated loosely, one end of a helical compression spring 20, the other end of which abuts against the partition 8 of the rider 4, and is held thereon by a stud 21.

The numeral 23 designates a latch including a head 24 and a reduced shank 25, the head 24 being located at the rear end of the rider 4 and being provided with teeth 26 adapted to cooperate with the rack 22 of the handle 2 of the wrench. The shank 25 of the latch 23 extends into the chamber 10 of the rider 4 and is mounted, intermediate its ends, to swing on a pivot element 27 carried by the sides 5 of the rider. At its inner end, the shank 25 of the latch has a button 28 extended slidably through an opening in the edge wall 7 of the rider 4. A leaf spring 30 is disposed in the chamber 10 and is connected at one end by a securing element 31 with the partition 8 of the rider 4, the opposite end of the spring bearing against the shank 25 of the latch 23 to hold the teeth 26 of the latch engaged with the rack 22 of the handle 2.

In practical operation, the latch 23 may be tilted on its fulcrum 27, by means of the button 28, to disengage the head 24 of the latch from the rack 22 on the handle 2, and, then, the rider 4 may be shifted rapidly along the handle 2 to adjust the position of the movable jaw 12 with respect to the fixed jaw 1. When the edge 3 of the jaw 1 and the edge 14 of the movable jaw 12 cooperate to grip a pipe or other round object, the movable jaw 12 tilts on the pivot element 16 into the position shown in dotted lines in Fig. 1, the spring 20 being compressed, and the inner end of the jaw 12 bearing at 32 against the forward edge of the rider 4, some of the strain thus being taken off the pivot element 16. The rear end of the rider 4 is cut away

as at 33 to permit swinging movement of the latch 23, but the inner portion of the head 24 of the latch bears at 34 against the rear end of the rider 4, when the head of the latch is engaged with the rack 22, and, owing to this construction, some of the strain is taken off the pivot element 27 which carries the latch.

As above described, the wrench is adapted to handle round objects. The wrench, however, is not confined to the use specified, and, indeed, is a combination wrench, since it may be used to rotate bolts, nuts and the like, which are not of circular cross section.

When the wrench is to be used for turning nuts and the like, the rider 4 is slid off the handle 2, and the rider 35 of Fig. 5 is placed on the handle 2, the said rider including a tubular body 36 carrying a jaw 37 disposed at right angles to the handle 2. The rider 35 has a partition 38 corresponding to the partition 8, and is supplied with a longitudinal chamber 39, corresponding to the chamber 10. The latch, as a whole is denoted by the numeral 40 and is constructed like the latch 23, the pivotal mounting for the latch 40 being designated by the numeral 41.

What is claimed is:—

A wrench comprising a handle having a rack and provided with a fixed jaw, a rider mounted for reciprocation on the handle and carrying, at that end which is adjacent to the fixed jaw, a movable jaw cooperating

with the fixed jaw, the rider having a longitudinal chamber which opens through that end of the rider which is remote from the fixed jaw, a spring tongue in the chamber and extended longitudinally thereof, a securing element connecting that end of the tongue which is remote from the fixed jaw to the rider, the securing element being located so close to the last specified end of the rider that the securing element may be mounted in place through the last-specified end of the rider, a latch in the rider, a fulcrum for the latch, an enlarged head on the latch, externally of the rider, and forming an external closure for the last-specified end of the rider, the head cooperating with the rack, the latch being operated at that end which is adjacent to the fixed jaw by a button slidable in the rider and accessible from a point outside the rider, the tongue bearing on the latch at a point closely adjacent to the button, the location of the head on the outside of the rider permitting the latch to be of a maximum length between the fulcrum and the button, and permitting the spring tongue to be of a maximum length.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HORATIO A. PORTER.

Witnesses:

J. E. STROBEL,
MASON B. LAWTON.