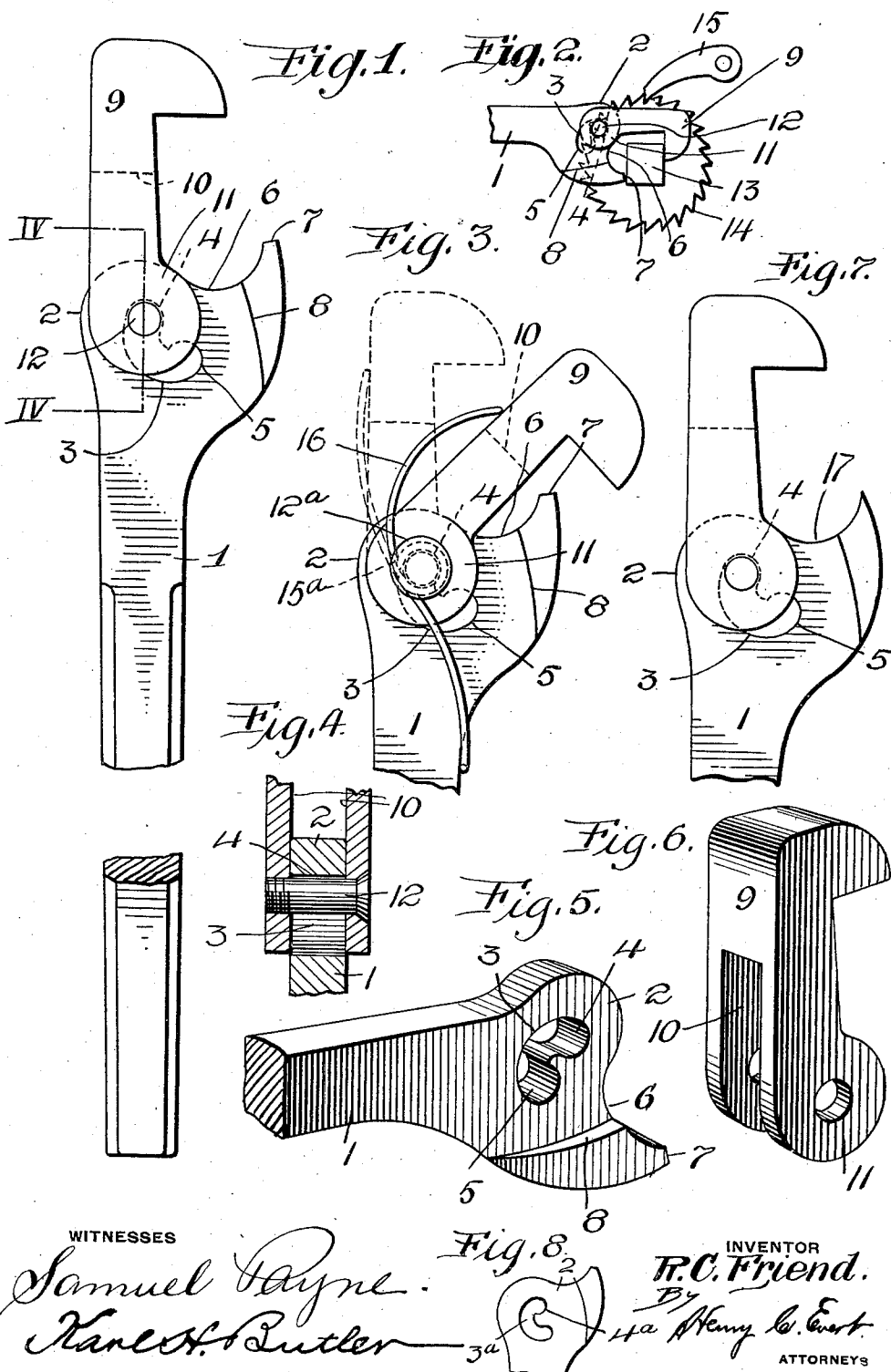


R. C. FRIEND.
WRENCH.

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WITNESSES

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Fig. 8.
3a

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WRENCH.

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To all whom it may concern:

Be it known that I, RICHARD C. FRIEND, a citizen of the United States of America, residing at Clairton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to wrenches, and the object of my invention is to provide a simple, durable and inexpensive wrench consisting of comparatively few parts that are easy to assemble and adjust for the purposes for which the wrench is intended. It is in this connection that my wrench has been especially designed as a substitute for ratchet wrenches, cranks and other devices ordinarily used by pitmen and workmen in releasing the drop doors of cars containing dumpable material. It has been the practice and is at the present time, so far as I am aware, to use a ratchet wrench to partially rotate the operating shaft of the mechanism that retains drop doors in a closed position. A wrench is applied to the shank of the operating shaft and the shaft partially rotated until the locking dog can be swung out of engagement with the ratchet wheel forming part of the shaft. When the dog is released the load is assumed by the pitman holding the ratchet, and very often the load is too great or the wrench slips, with the result that the pitman is injured in a great many instances and killed in a few instances. It is therefore apparent that a wrench that can be safely used is a desideratum to pitmen and with this end in view I have devised the wrench shown in the accompanying drawing, which will be hereinafter specifically described and then claimed.

Reference will now be had to the drawing, wherein:—

Figure 1 is a side elevation of the wrench with the handle broken away, Fig. 2 is a similar view on a smaller scale showing its position relatively to the door locking mechanism of a car, Fig. 3 is a side elevation of a portion of the wrench shown in Fig. 1, illustrating the spring pressed adjustable jaw, Fig. 4 is a longitudinal sectional view of the wrench taken on the line IV—IV of Fig. 1, Fig. 5 is a perspective view of a portion of the handle of the wrench, Fig. 6 is a perspective view of the adjustable jaw

of the wrench, Fig. 7 is a side elevation of the wrench designed for other purposes than that of the preferred form, and Fig. 8 is an elevation of a portion of a handle or lever illustrating a slight modification that is applicable to the construction shown in Fig. 3.

Further describing my invention in detail with reference to the accompanying drawing, wherein like numerals denote corresponding parts throughout: 1 denotes a handle or lever of the wrench which may be of any desired length and cross sectional area and the outer end of the handle has a head 2 provided with a C-shaped slot 3 forming two seats 4 and 5, the former being concentric relatively to the head 2 and the latter eccentric. The head 2 has the front side thereof provided with an offset portion terminating in a curved jaw 6 having a flat surface 7. The sides of the jaw 6 are provided with enlargements 8 to increase the bearing surface of the flat surface 7.

9 denotes an adjustable jaw that has the inner end thereof bifurcated, as at 10 and provided with apertured ears 11. The bifurcation of the jaw 9 receives the head 2 of the handle 1 and extending through one of the ears, the slot 3 and tapped into the other ear is a screw or pivot pin 12 that retains the adjustable jaw in engagement with the head 2.

Now, before describing the modified forms of my invention, it is thought best to consider the use of the wrench thus far disclosed and consider Fig. 2 of the drawing. 13 denotes the shank of a shaft that controls the drop doors of a car and this shaft has a ratchet wheel 14 engaged by a gravity dog or pawl 15 that prevents the shaft from unwinding. I will assume that the shaft and the doors controlled thereby support a load. The wrench has been applied to the shank whereby, by swinging the wrench in one direction, the shaft can be moved and the dog or pawl shifted out of engagement with the ratchet wheel 14. When accomplishing this operation the jaws of the wrench are firmly held in engagement with the shank of the shaft, but after the dog has been released, a slight reverse movement of the handle 1 allows the shank of the shaft to throw the pivoted adjustable jaw 9 out of engagement therewith, consequently the wrench is released and the shaft can freely unwind.

It is through the medium of the C-shaped

slot 3 that the adjustable jaw can be set whereby shanks of various sizes can be gripped. In other words the adjustable jaw has two positions and either one of these positions will permit of the wrench being used in connection with the shanks of operating shafts at present in use.

Referring now to Fig. 3 of the drawing the pivot pin 12 is prolonged and provided with heads 12^a, and a spring 15 is coiled about the pivot pin with the convolutions between the ears 11 of the adjustable jaw 9 and the sides of the head 2. The spring 15 has a looped portion 16 engaging the rear side of the adjustable jaw 9 and the ends of the spring are bent to engage the front side of the handle 1. The looped portion 16 is consequently under tension and retains the adjustable jaw 9 in a closed position, as clearly illustrated. The adjustable jaw 9 can be easily snapped upon a shank.

In Fig. 7 of the drawing the handle 1 has a jaw provided with a concave seat 17 to accommodate a pipe, whereby the wrench can be used for rotating a pipe or object having rounded or cylindrical surfaces.

In Fig. 8, the head 2 is provided with a pronounced C-shaped slot 3^a, one end of said slot terminating in a pocket 4^a that prevents the pivot pin from becoming accidentally displaced relatively to the end of the slot in which it is placed. In other words, the pin is housed in a manner that it cannot slip from one end of the slot to the opposite end thereof.

It is thought that the operation and utility of the wrench will be apparent without further description and while in the drawing there are illustrated the preferred embodiments of the invention, it is to be understood that the structural elements are susceptible of such variations and modifications as fall within the scope of the appended claims.

What I claim is:—

1. A wrench of the type described comprising a handle, a head carried thereby and provided with a C-shaped slot forming a pair of seats, one of said seats being concentric to the head and the other eccentric with respect to the head, a fixed jaw projecting laterally from said head, an inverted L-shaped adjustable jaw bifurcated to receive the head of said handle, and a pivot pin connecting said adjustable jaw to said head, said pin extending through the C-shaped slot of said head and capable of engaging in either one of said seats to change

the position of said adjustable jaw with respect to the fixed jaw.

2. A wrench of the type described comprising a handle, a head carried thereby and provided with a C-shaped slot forming a pair of seats, a fixed jaw projecting laterally from said head, an inverted L-shaped adjustable jaw bifurcated to receive the head of said handle, a pivot pin connecting said adjustable jaw to said head, said pin extending through the C-shaped slot of said head and capable of engaging in either one of said seats to change the position of the adjustable jaw with respect to the fixed jaw, and means carried by said pivot pin and engaging said handle and said adjustable jaw for holding said adjustable jaw normally closed.

3. A wrench of the type described comprising a handle terminating at one end in a head, said head provided with a C-shaped slot forming a pair of seats, one of said seats arranged concentric with respect to the head and the other of said seats eccentric with respect to the head, a fixed jaw projecting laterally from said head and including a gripping face formed of a curved portion terminating in a flattened portion, an inverted L-shaped adjustable jaw straddling said head, and a pivot pin connecting said adjustable jaw to said head and capable of being mounted in either one of said seats to change the position of the adjustable jaw with respect to the fixed jaw.

4. A wrench of the type described comprising a handle terminating at one end in a head, said head provided with a C-shaped slot forming a pair of seats, one of said seats arranged concentric with respect to the head and the other of said seats eccentric with respect to the head, a fixed jaw projecting laterally from said head and including a gripping face formed of a curved portion terminating in a flattened portion, an inverted L-shaped adjustable jaw straddling said head, and a pivot pin connecting said adjustable jaw to said head and capable of being mounted in either one of said seats to change the position of the adjustable jaw with respect to the fixed jaw, said fixed jaw having its outer portion reinforced.

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

RICHARD C. FRIEND.

Witnesses:

MAX H. SROLOVITZ,
KATHERINE ERRETT.