A. SHIRK.

WRENCH.

APPLICATION FILED MAR. 25, 1911.

1,021,272. Patented Mar. 26, 1912.

Fig. 1.

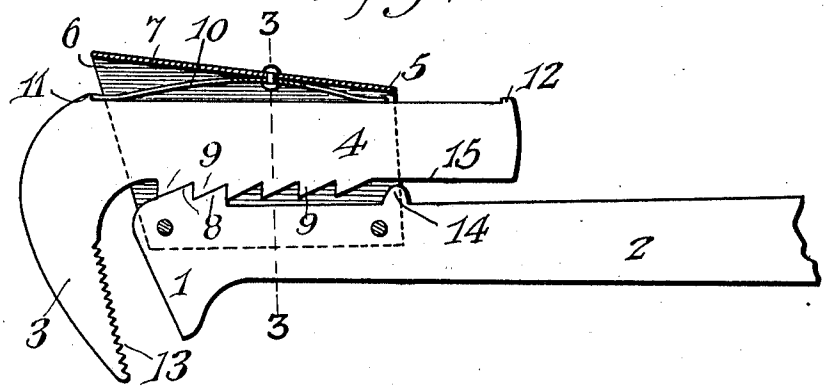


Fig. 2.

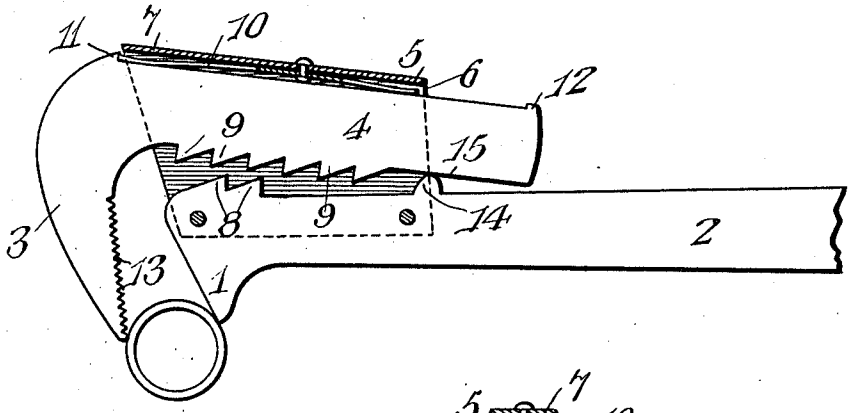
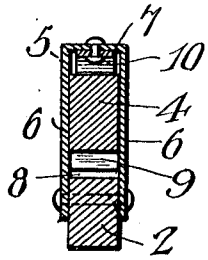


Fig. 3.



Witnesses

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WRENCH.

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To all whom it may concern:

Be it known that I, ABNER SHIRK, a citizen of the United States, residing at De Kalb, in the county of Dekalb and State of Illinois, have invented a new and useful Wrench, of which the following is a specification.

The invention relates to improvements in wrenches.

The object of the present invention is to provide a simple, strong and durable wrench, adapted to be rapidly and easily adjusted, and capable of operating on nuts, pipes and the like.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a longitudinal sectional view of a wrench, constructed in accordance with this invention, the jaws being in their engaging position. Fig. 2 is a similar view, the outer relatively adjustable jaw being pressed back to permit relative movement or adjustment of the jaws. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention, 1 designates the inner jaw of the wrench, formed integral with a main shank or stock 2 and coöperating with an outer relatively adjustable jaw 3, which is formed integral with a short shank 4. The short shank 4 extends through and is adjustable in a casing 5, constructed of sheet metal, or other suitable material, and composed of spaced sides 6 and a connecting back portion 7, which is arranged at an angle to the stock 2. The sides, which embrace the outer portion of the stock 2 are riveted or otherwise secured to the same, and the back 7 diverges outwardly from the stock to permit a limited swinging movement of the shank 4 and the adjustable jaw to engage the shank 4 with and disengage it from the stock 2. The casing may be formed integral with the stock, but it is preferable to construct the same, as shown, as it is not subjected to great strain during the operation of the wrench, as hereinafter fully explained. The stock 2 is provided at its inner side edge with a pair of teeth 8, shouldered at their inner sides and having inclined outer or front faces. The shoulders are arranged at right angles to the stock 2, and they are adapted to engage with corresponding shoulders of teeth 9 of the shank 4. The shank 4 is provided at its inner edge with a series of the teeth 9, which are shouldered at their outer ends and provided with inner inclined or angularly disposed faces, corresponding to the inclined or angularly disposed faces of the teeth 8. The teeth 8 of the stock 2 are adapted to engage with any of the teeth 9 of the shank 4, and the latter is normally maintained in engagement with the stock by means of a bowed spring 10, riveted or otherwise secured at an intermediate point to the inner face of the angularly disposed back 7 of the casing. By providing a plurality of teeth on the stock 2 of the jaw 1 to engage with the teeth of the shank 4 of the adjustable jaw, the latter is prevented from rocking and is maintained stationary in its adjustment and friction and wear of the teeth are prevented. The ends of the spring 10 bear against the adjacent edge of the shank 4 and forces the latter in the direction of the stock 2. The shank 4 is provided at its outer edge with inner and outer shoulders 11 and 12, adapted to limit the inward and outward adjustment of the shank 4. The outer shoulder 11 bears against the outer end of the spring 10 when the shank 4 is at the limit of its inward movement, and the inner shoulder 12 is adapted to engage with the inner end of the spring.

The engaging face 1 of the inner jaw is smooth and is arranged at an acute angle to the stock 2 and extends outwardly and backwardly, its outer end being located in rear of its inner end. The outer relatively adjustable jaw 3 is preferably provided with serrations or teeth 13 to prevent it from slipping, when engaging a pipe or other round object, and the engaging face of the said jaw 3 diverges slightly from the engaging face of the inner jaw 1, but is located at an acute angle to the stock 2. This particular arrangement of the engaging face of the in-

ner and outer jaws results in a downward or lateral pull or strain on the parts when gripping a pipe or nut, the said lateral or downward strain serving to retain the teeth 8 and 9 in engagement with each other and relieving the spring and the casing of strain.

The wrench is readily engaged with a pipe, or other object by placing it upon the same and exerting a slight downward pressure to force the shank 4 upwardly from the stock 2, as illustrated in Fig. 2 of the drawing. The shank 4 will then slide outwardly and as soon as the jaws 1 and 3 are spread sufficiently, the spring will force the jaw 3 downward over the pipe or other object, which will be securely gripped by the wrench. After the adjustable jaw slides out the proper distance to catch a pipe or nut, it remains stationary and the pipe or nut slides on the jaw 3 until it is gripped tight enough to be turned, consequently there is no friction on the teeth 8 and 9. In order to facilitate this adjustment, the stock is provided at its inner edge with a fulcruming lug 14, rounded at its front and rear edges and arranged to receive the inner smooth portion 15 of the shank 4. It also forms a smooth bearing or support and facilitates the adjustment of the shank when the same is forced out of engagement with the teeth 8 of the stock. The wrench is capable of easy and rapid adjustment, and it may be handled and carried in the pocket with the same facility as the ordinary wrench. When the teeth 9 of the shank 4 are in engagement with the teeth 8 of the stock 2 and the smooth portion 15 of the shank is is contact with the fulcruming lug 14, the shank 4 and the stock 2 are in substantial parallelism. The spaced contacting or supporting portions, viz., the teeth 8 and 9 and the lug 14 and smooth portion 15, assist in maintaining the inclined or angularly disposed engaging faces of the jaws in proper relation.

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

1. A wrench of the class described including a stock having a jaw at its outer end and provided at its inner longitudinal edge with a tooth and having a fulcruming lug at the said edge in spaced relation with the said tooth, a casing carried by the stock and extending from the same at the inner longitudinal edge thereof adjacent to the tooth and the fulcruming lug, a relatively adjustable jaw coöperating with the said jaw and provided with a shank extending through the casing and having at its inner longitudinal edge a series of teeth co-acting with the tooth of the stock, said shank being also provided with a smooth inner portion to bear against the fulcruming lug, and a spring mounted within the casing and bearing against the shank for holding the same in engagement with the stock.

2. A wrench of the class described including a stock provided at its outer end with a jaw having an inclined engaging face arranged at an acute angle to the stock, the latter being also provided at its inner longitudinal edge with a tooth, a casing carried by the stock, a relatively adjustable jaw provided with a shank extending through the casing and having teeth to co-act with the teeth of the stock, said adjustable jaw being provided with an angularly disposed engaging face also arranged at an acute angle to the stock and diverging outwardly from the engaging face of the jaw of the stock, said inclined or angularly disposed engaging faces of the jaws producing a lateral pull or strain on the shank and maintaining the teeth in engagement when the wrench is operating on a pipe or nut, and a spring arranged within the casing and bearing against the shank for holding the same normally in engagement with the stock.

3. A wrench of the class described including a stock provided at its outer end with a jaw having an inclined engaging face arranged at an acute angle to the stock, the latter being also provided at its inner longitudinal edge with a tooth and having a fulcruming lug at the said edge in spaced relation with the tooth, a casing carried by the stock, a relatively adjustable jaw provided with a shank extending through the casing and having at its inner edge a series of teeth to co-act with the tooth of the stock and provided with a smooth inner portion to bear against the fulcruming lug, said adjustable jaw having an angularly disposed engaging face arranged at an acute angle to the stock and diverging outwardly from the engaging face of the jaw of the stock, said inclined or angularly disposed face producing a lateral pull or strain on the shank and maintaining the teeth in engagemet when the wrench is operated on a pipe or nut, the shank and the stock being in substantial parallelism when the teeth are in engagement and the lug is in contact with the smooth surface of the shank to maintain the engaging faces of the jaws in their angular or inclined positions, and means for normally maintaining the shank and the stock in parallel relation.

4. A wrench of the class described including a stock provided at its outer end with a jaw having an inclined engaging face arranged at an acute angle to the stock, the latter being also provided at its inner longitudinal edge with a plurality of teeth located at the outer end of the stock, a casing carried by the stock, a relatively adjustable jaw provided with a shank extending through the casing and having at its inner

edge a series of teeth to co-act with the teeth of the stock and engaging each of the same, whereby the adjustable jaw is prevented from rocking and is maintained stationary in its adjustment, said adjustable jaw having an angularly disposed engaging face arranged at an acute angle to the stock and diverging outwardly from the engaging face of the jaw of the stock, and said inclined or angularly disposed face producing a lateral pull or strain on the shank and maintaining the teeth in engagement when the wrench is operated on a pipe or nut, and means for normally holding the teeth in engagement with each other.

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

ABNER SHIRK.

Witnesses:
G. S. CHENY,
F. B. POUST.