

(No Model.)

H. A. SMITH.
WRENCH.

No. 584,019.

Patented June 8, 1897.

Fig. 1.

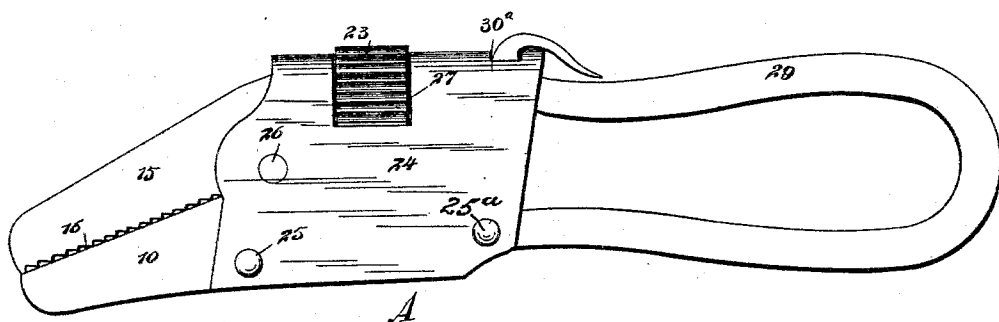


Fig. 2.

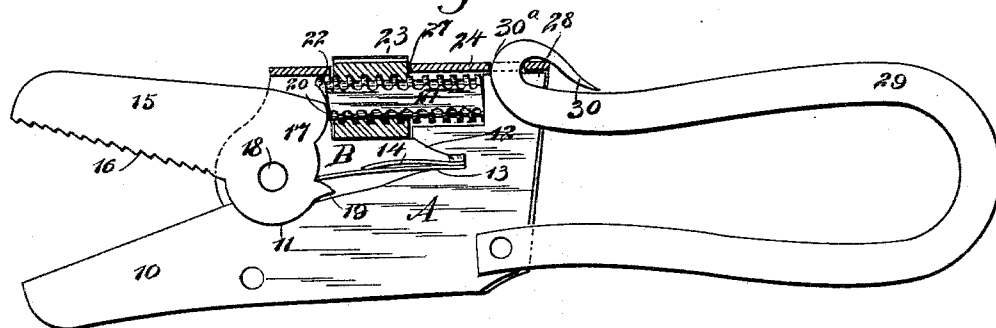
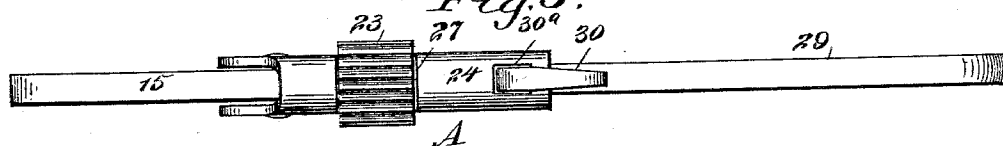


Fig. 3.



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WRENCH.

SPECIFICATION forming part of Letters Patent No. 584,019, dated June 8, 1897.

Application filed August 11, 1896. Serial No. 602,394. (No model.)

To all whom it may concern:

Be it known that I, HENRY ADALBERT SMITH, of Elgin, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Wrenches, of which the following is a full, clear, and exact description.

My invention relates to an adjustable wrench of the style known as "alligator," designed for a mechanical range of adjustment, and which may be manufactured economically and durably and be of minimum weight.

The object of the invention is to construct a wrench of the above type capable of use in any way in which a monkey-wrench may be applied, but being particularly adapted for holding round objects.

Another object of the invention is to provide for a closing adjustment of the movable jaw through the medium of a nut and screw, both of which are entirely disconnected from the jaw, and to provide for an opening movement of the jaw when released from the tension of the screw through the medium of a spring, and to so combine all the parts that the entire wrench will be flat and of such dimensions that it can be used to the best advantage and with certainty of operation, and rendering it particularly a convenient and handy tool where pocket-carrying is required, and a universal tool of its class.

Another object of the invention is to so place the adjusting-screw with relation to the movable jaw that the said screw will in a great measure serve as a brace for the movable jaw, enabling the wrench to be used upon very heavy objects within the range of its adjustment without the liability of the wrench becoming unduly strained or broken.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improved wrench. Fig. 2 is a side elevation of the wrench with the saddle in section, the adjusting-nut being also in section; and Fig. 3 is a plan view of the said wrench.

It is the prime intent of the invention to

provide a wrench having a V-shaped opening formed by a fixed and a movable jaw, the latter radiating from a pivoted center at its base, one side of the interior of the V-shaped opening having teeth projected inwardly therefrom in such manner that when an object is forced in between the sides of the V-shaped opening and the wrench is turned in the direction and with the angle of the projecting teeth the object inserted is firmly fastened and held, rendering it possible to hold a nut, bolt, or a rod.

The invention is not confined to any particular form of movable jaw forming one side of the V-shaped opening or to any particular form of a hinged jaw that will in connection with a fixed jaw provide a V-opening.

In carrying out the invention the body A of the wrench is flat, and a jaw 10 is projected forwardly from its lower edge, the upper face of the said fixed jaw being downwardly and forwardly and outwardly inclined. A recess B is made in the upper edge of the body A, extending from the base of the fixed jaw to a point near the rear of the body, and where the fixed jaw at its upper edge connects with the base-wall of the aforesaid recess B a concavity 11 is produced, and from the rear wall of the said main recess B a tongue 12 is forwardly projected, the under edge whereof is ordinarily curved, and a pocket 13 is formed between the bottom wall of the recess B and the said tongue 12, as shown in Fig. 2, and in this pocket one end of a spring 14 is securely fastened, the said spring extending outwardly in direction of the concavity 11. A movable jaw 15 has its under face so shaped as to close upon the upper inclined surface of the fixed jaw, so that when the two jaws are carried apart the opening between them will be substantially V-shaped. In the under face of the movable jaw 15 teeth 16 are formed, having a rearward inclination, and in the base 17 of the said movable jaw a pivot-opening 18 is about centrally formed, and the bottom of the base is convexed in order that it may turn readily in the concavity 11 of the body, which forms a seat for the said base of the movable jaw.

At the rear lower portion of the base of the pivoted jaw a rearwardly-extending lip 19 is constructed, upon which the free end of the

spring 14 has constant bearing, and the tendency of this spring 14 is to force the movable jaw upward from the fixed jaw, and at the upper rear portion of the base of the movable jaw a convex bearing-surface 20 is formed, which has constant contact with the downwardly and rearwardly inclined head 22 of an adjusting-screw 21, the inclined surface of the said head 22 having a concavity which corresponds to the convexity of the bearing-surface 20 of the movable jaw.

The sides of the screw 21 are preferably flat, and this screw is located in the top portion of the body-recess B, and when the screw is in its innermost position, admitting of the full opening of the movable jaw, the rear end of the screw will bear against the end wall of the aforesaid recess B, as shown in Fig. 2. An adjusting-nut 23 is mounted on the said screw, and this nut is prevented from traveling laterally, but is capable of free rotary movement, but causing the nut to be located within an opening 27, formed in the top of a saddle 24, which saddle is placed over the top portion of the body and extends over the base of the movable jaw and thence downward along the sides of the body A of the wrench, completely covering the said body, as illustrated in Figs. 1 and 3.

The saddle is held firmly in position by rivets 25 and 25^a and by pivot-pins 26 or their equivalents, passed through the side portions of the saddle and corresponding portions of the body of the wrench, while the pivot-pin 26, which is passed through the pivot-opening 18 in the base of the movable jaw, has its bearing in the sides of the aforesaid saddle.

The handle 29 of the wrench is preferably made independent of the body A, and a lug 28 is formed upon the upper rear edge of the body at one side, as shown in Fig. 2, and the upper extremity of the handle is given a hook formation 30, bearing against this lug and passing outward through an opening 30^a in the top of the saddle, while the lower extremity of the handle is carried within the lower rear portion of the saddle and is held fast within the saddle and to the body, which may be accomplished by simply making a recess in the body to receive the handle, a pin or rivet not being necessary.

In operation when it is desired to close the jaws of the wrench the movable jaw may be carried as near as desired to the fixed jaw and held in such position by simply turning the thumb-nut 23 in a suitable direction, or in a direction to cause the screw to travel outward, whereupon the head of the screw pressing against the bearing-surface 20 of the movable jaw will force the latter downward, and when the thumb-nut 23 is turned in a direction to carry the screw 21 rearward the spring 14 will act to increase the space between the two jaws by forcing the movable jaw upward. The end of the screw or bolt 21 which is in contact with the shoulder 17 upon the jaw has a slight up-and-down motion or adjust-

ment as the jaws are opened or closed. It is thus enabled to accommodate itself to the different positions of the jaw, so as to always have a firm bearing thereon.

The wrench is exceedingly simple, durable, and economic, as heretofore stated, and may be used with certainty and with convenience in places where many other wrenches of a like type would fail to give satisfaction, or where other wrenches having adjustment cannot enter these jaw-like fingers, forming a movable opening V-shaped, can pick or bite a hold upon the smallest exposure of a bolt, nut, or rod in the most effective way, so that such bolt, nut, or rod can be firmly held and turned.

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

1. In a wrench, the combination of a fixed jaw, a movable jaw pivoted to cooperate therewith and provided with a shoulder having a convex bearing-surface at one side of its pivot, with a screw or bolt bearing against said shoulder and constrained against rotation, and a nut upon said bolt having bearing against the body of the wrench, substantially as described.

2. In a wrench, the combination of a fixed jaw, a movable jaw pivoted relative thereto and provided with a shoulder having a convex bearing-surface at one side of its pivot, with a screw or bolt constrained against rotation and having one end bearing against said shoulder, a nut upon said bolt, and thrust-supports therefor which will permit a slight radial adjustment of the bearing end of the bolt, substantially as described.

3. In a wrench, the combination of a fixed jaw, a movable jaw pivoted relative thereto and provided with a shoulder having a convex bearing-surface at one side of the pivot, and further provided with a point of engagement for a spring, with a spring attached to the fixed jaw and engaging the said point on the movable jaw to open the same, a screw or bolt constrained against rotation and by one end engaging the shoulder upon said bolt, and thrust-supports for the same carried on the fixed jaw, substantially as described.

4. In a wrench, the combination, with a movable jaw radiating from a pivot-center and provided at its rear end above the said center with a bearing-surface, and at its rear end adjacent to the said center with a lip, of a saddle in which the pivoted portion of the movable jaw is contained, an adjusting-screw held to travel within the said saddle, having constant engagement with the bearing-surface above the pivot of the movable jaw, a nut held to turn within the saddle on the said screw and held against lateral movement, and a spring exerting downward pressure on the lip projected from the said movable jaw, as and for the purpose set forth.

5. In a wrench of the alligator type, the combination, with a body provided with a fixed jaw, a saddle extending over the body of the

wrench, and a movable jaw, the base whereof is contained and pivoted within the said saddle, the said base portion of the pivoted jaw having a convexed bearing-surface above and rearward of its pivot and an extension rearward of the said pivot and near the lower edge of the base of the said movable jaw, of an adjusting-screw having end movement within the said saddle and provided with a head having its outer face concaved to receive the convexed bearing at the base of the movable jaw, an adjusting-nut mounted on the said screw and held to turn in an opening in the saddle, and a spring secured to the body, the free end of which spring exerts downward pressure on the extension from the base of the movable jaw, as and for the purpose set forth.

6. In a wrench, the combination of a fixed jaw, a saddle consisting of a plate, bent in U shape and having the fixed jaw secured between the separated ends thereof and provided with a slot at the bend for reception of

an adjusting-nut, with a movable jaw pivoted to the saddle between the fixed jaw and the bend thereof, a bolt having flattened sides lying in the bend of the saddle and engaging the movable jaw to close the same, and a nut upon said bolt and within the slot in the saddle, substantially as described.

7. In an alligator-wrench, a body provided with a fixed jaw, a pivoted jaw spring-controlled in its upward movement, and an adjusting nut or screw controlling the downward or closing movement of the said movable jaw, a handle constructed independently of the body but connected therewith, and a saddle recessed to receive the adjusting-nut, preventing lateral movement thereof, the said saddle likewise serving as a medium for locking the handle to the body, as specified.

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Witnesses:

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