

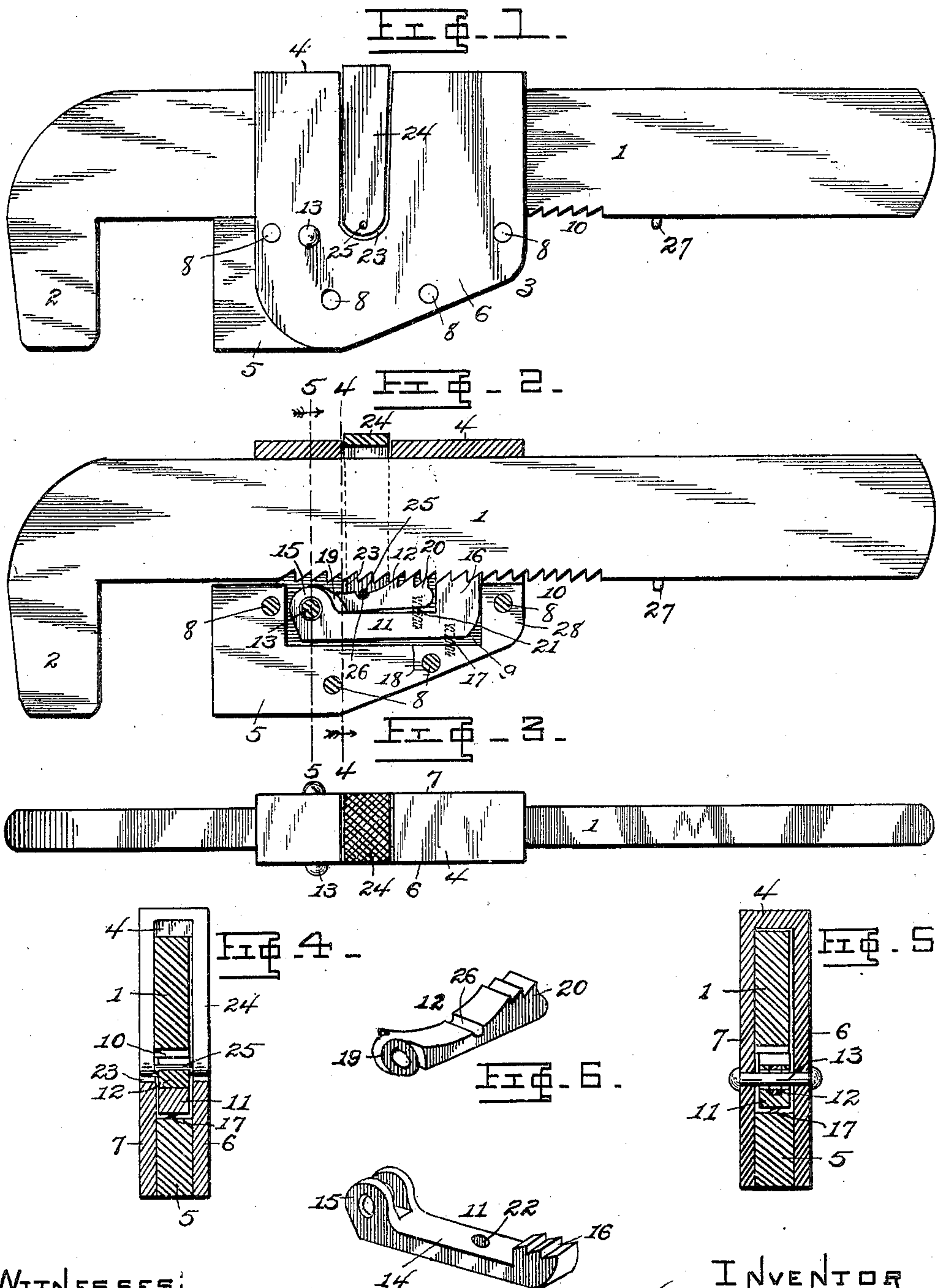
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PATENTED JULY 31, 1906.

H. B. SHAVER.

WRENCH.

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WITNESSES:

Robt F. Wilworth

E. H. Lusk

INVENTOR

Hustead B. Shaver

By

A. E. Lusk
ATTORNEY

UNITED STATES PATENT OFFICE.

HUSTEAD B. SHAVER, OF FLEMINGTON, WEST VIRGINIA, ASSIGNOR OF
ONE-HALF TO JOHN W. DAVIDSON, OF FLEMINGTON, WEST VIRGINIA.

WRENCH.

No. 827,672.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HUSTEAD B. SHAVER, a citizen of the United States of America, and a resident of Flemington, county of Taylor, and State of West Virginia, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to new and useful improvements in wrenches, and more particularly to a novel construction of wrench of the "sliding-jaw" type; and it has for its object to produce a wrench having a rack-bar or toothed shank the teeth of which are sufficiently coarse to withstand any strain to which a wrench of this class is ordinarily subjected and at the same time to provide a wrench having means whereby a close adjustment of the movable jaw may be secured.

As is well known, with most wrenches in common use either the strength of the teeth must be sacrificed to secure a close adjustment of the movable jaw or the close adjustment of said jaw must be dispensed with in order to secure great strength to the teeth.

By my invention a simple, durable, and comparatively inexpensive wrench is provided in which neither the strength of the teeth nor the fine adjustment of the movable jaw need be sacrificed.

A further object of the invention is to provide a wrench the movable parts of which work with extreme ease and freedom.

With these and other objects in view the invention finally consists in the particular construction, arrangement, and combination of parts, which will hereinafter be fully described, reference being herein had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of the invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a rear face elevation of the same. Fig. 4 is a cross-section on the line 4 4, Fig. 2. Fig. 5 is a similar section on the line 5 5, Fig. 2. Fig. 6 is a perspective view of one of the dogs or detents, and Fig. 7 is a similar view of the other dog or detent.

Referring to said drawings, in which like reference-numerals designate like parts throughout the several views, 1 indicates the stem or shank, having an integral jaw 2 upon its front end.

3 designates the movable jaw, comprising a yoke 4, which straddles the shank 1, and a jaw proper, 5, secured between the ends of the members 6 and 7 of said yoke by means of rivets 8. Said jaw proper, 5, has a longitudinal substantially rectangular recess 9 provided in the edge thereof, which lies adjacent to the toothed face 10 of the shank. Two dogs or detents 11 and 12 are mounted within said recess 9 upon a pin 13, which extends transversely through the front end of said recess and has its ends rigidly mounted in the members 6 and 7 of the yoke.

The detent 11 consists of a longitudinal bar 14, rectangular in cross-section, having its pivoted end 15 bifurcated and bearing upon its opposite end an integral toothed jaw 16, adapted for engagement with the teeth of the shank 1. The said detent 11 is normally held with its toothed jaw in engagement with the teeth of said shank by means of a light coil-spring 17, having its ends, respectively, mounted in registering sockets provided in the horizontal face 18 of the jaw proper, 5, and in the under face of said detent. The detent 12 overlies said detent 11 and is relatively shorter than the latter, having its tongue-like end 19 pivoted between the lugs of the bifurcated end 15 of the detent 11 upon the pin 13, while its toothed end 20 is normally held in engagement with the rack-bar in front of the jaw 16 by a light coil-spring 21, which has its ends, respectively, mounted in a socket 22, provided at a suitable point in the upper face of the detent 11, and in a corresponding registering socket in the under face of said detent 12.

It will be noted that the detents 11 and 12 lie substantially parallel to the shank 1 and that consequently the line of pressure upon said detents when the wrench is in use is substantially parallel with said shank, thus preventing canting or cramping of the movable jaw upon said shank. Furthermore, the strain upon said detents is lengthwise of the same, and said detents are therefore adapted for withstanding a much greater strain than if disposed at an angle to the line of pressure.

The yoke 4 is provided with a slot 23, which extends across its top and down its opposite sides or members to a point below the rack-bar. Vertically movable in said slot is a stirrup 24, the extremities of which are

joined by a pin 25, which normally lies in a transverse groove 26, provided in the upper face of the detent 12. Said stirrup is normally held in an elevated position, as shown in Fig. 2, by the spring-pressed detent 12. To disengage the detents from the teeth of the rack-bar, the stirrup is depressed by means of a thumb or finger, thus forcing said detents downward against the tensions of the springs 17 and 21. Holding said stirrup depressed, the movable jaw may be freely moved in either direction upon the shank 1.

The teeth carried by the face of the shank or rack-bar are made coarse in order to give great strength thereto, and the teeth of the spring-pressed detents 11 and 12 are made coarse to correspond with the teeth of said rack-bar. Said detents are, however, arranged with relation to each other, or rather the teeth of said detents are so arranged that the teeth of but one detent will stand in operative engagement with the teeth of the rack-bar at a time, the teeth of the other detent being half withdrawn from the teeth of the rack-bar. Consequently, as is clearly apparent, the length of the movement necessary to withdraw one of the detents from operative engagement with the rack-bar and to cause the other detent to drop into operative engagement therewith is just one-half the length of the space between the teeth of the rack-bar. The width of each of the detents is substantially equal to the width of the shank. Thus the length of the teeth carried by the detents is substantially the same as that of the teeth carried by the shank, and as a consequence the strength of the teeth is the same in both the detents and shank, and the danger of chipping off portions of the teeth of the shank when under a strain, which frequently results when a series of detents of relatively small width are employed, is eliminated. A stud 27 is suitably located on the front face of the shank, the same being adapted to be engaged by the heel 28 of the movable jaw to prevent the accidental withdrawal of the movable jaw from the shank.

I have described my invention more or less in detail and in what I consider to be its simplest form. It is obvious, however, that various slight changes may be made in the construction and arrangement of some of the parts composing the invention without departing from the spirit or scope thereof—as, for instance, flat metal springs may be employed instead of the coil-springs herein illustrated. Hence I do not desire to limit myself to the precise construction and arrangement of parts herein shown and described.

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

1. In a wrench, the combination with a toothed shank, of a sliding jaw on said shank, a pair of spring-pressed detents carried by said

jaw, one of said detents being mounted directly over the other, the teeth of one of said detents being adapted for operative engagement with the teeth of the shank while the other is half withdrawn from such engagement, and vice versa, and means whereby both detents may be simultaneously disengaged from the teeth of the shank.

2. A wrench comprising a coarse-toothed shank having an integral jaw, a jaw slidable upon said shank, two spring-controlled dogs pivotally mounted in said slidable jaw, one of said dogs being mounted directly over the body of the other and engaging the toothed shank at a point in advance of the other, each of said dogs having coarse teeth corresponding with the teeth of the shank, said dogs being adapted to ride on the teeth of the shank and so arranged in relation to each other that they will alternately fall into operative engagement with the teeth of the shank as moved forward thereon, and means whereby said dogs may be simultaneously disengaged from the shank.

3. A wrench comprising a coarse-toothed shank having a fixed jaw, a jaw slidably mounted on the shank, a pair of dogs pivoted within the movable jaw, each dog being of a width substantially the same as that of the shank and having coarse teeth corresponding with the teeth of the shank, one of said dogs being mounted directly over the body of the other and engaging the shank in advance of the other, said dogs being so arranged in relation to each other that but one dog is in operative engagement with the shank at a time, a slot extending across the top and down the sides of said movable jaw, and a stirrup movably mounted in said slot with a pin connecting its extremities directly over the upper of said dogs whereby said dogs may be depressed out of engagement with the shank.

4. A wrench comprising a coarse-toothed shank, a sliding jaw on said shank, a pair of spring-controlled detents carried by the jaw, one over the body of the other, and coöperatively engaging the toothed portion of the shank, one in advance of the other, said detents being mounted upon a common pivot and adapted to ride on and to alternately drop into operative engagement with the teeth of the shank, the teeth of each detent corresponding with the teeth of the shank, and one of said detents normally standing half withdrawn from engagement with the teeth of the shank when the other detent is in operative engagement therewith, and means operatively mounted over said detents whereby the latter may be simultaneously depressed and held out of engagement with the shank.

5. A wrench comprising a toothed shank, a fixed jaw carried by said shank, a movable jaw upon said shank, a pair of detents carried by said movable jaw, said detents being

5 mounted upon a common pivot and both lying substantially parallel to said shank with their toothed portions in engagement with said shank, one in front of the other, said detents being so arranged relatively that the teeth of one is half withdrawn from the teeth of the shank while the other is in operative engagement therewith, and vice versa, and

means whereby said detents may be forced out of engagement with the shank. 10

Signed by me in presence of two subscribing witnesses.

HUSTEAD B. SHAVER.

Witnesses:

L. B. NIXON,
H. WYCKOFF