J. R. BAILEY.

WRENCH.

APPLICATION FILED DEC. 16, 1907. RENEWED AUG. 11, 1908.

914,629. Patented Mar. 9, 1909.

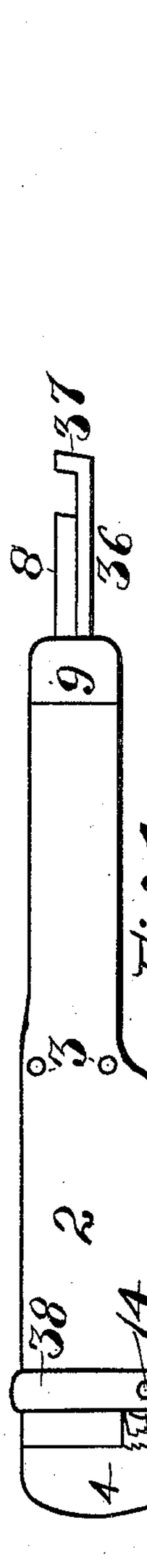

Fig. 1

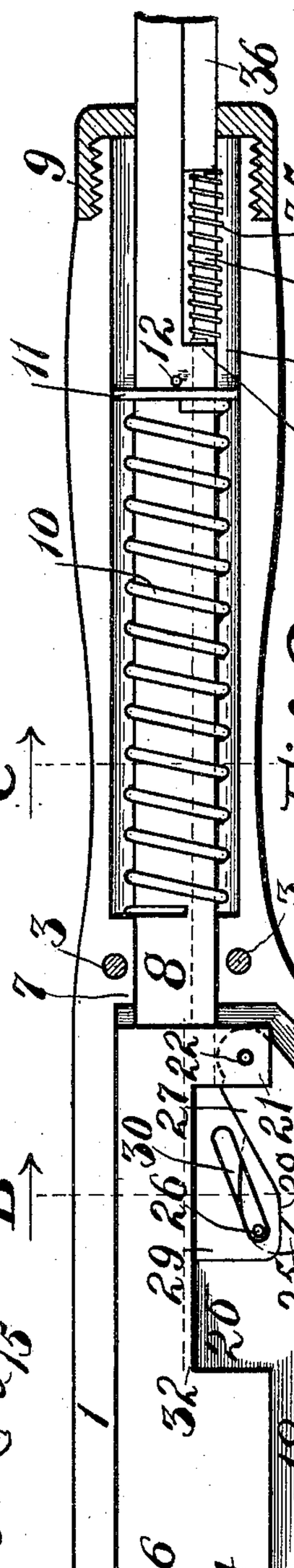

Fig. 2

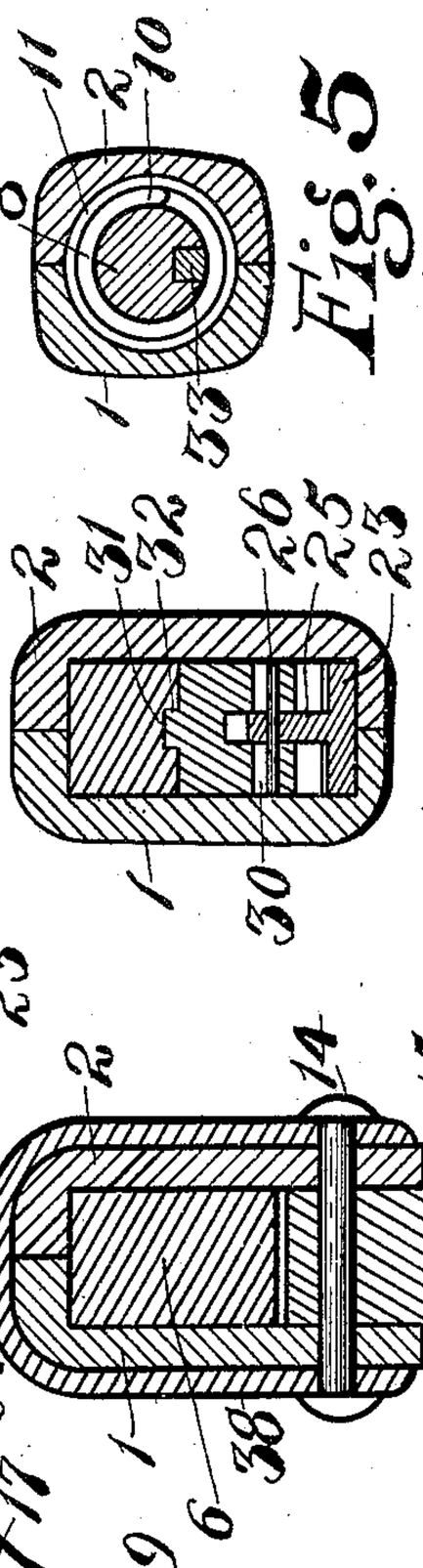

Fig. 5

Fig. 4

Fig. 3

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WRENCH.

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Application filed December 16, 1907, Serial No. 406,714. Renewed August 11, 1908. Serial No. 448,005.

To all whom it may concern:

Be it known that I, JOHN RUSSELL BAILEY, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrenches, especially that type known as pipe wrenches, and the objects thereof are to produce one wherein the shiftable member thereof may be instantly moved to a definite position and there be locked against further movement, capable of effectually grasping the object on which it is to be used and releasable therefrom promptly upon the application of pressure to the releasing mechanism.

A further object is to produce a simple, effective, strong and serviceable wrench provided with suitable mechanism to permit instant adjustment and release of the jaws with respect to an object.

Other advantages constituting objects of this invention will more fully appear in the subjoined description.

A practical embodiment of my invention is illustrated in the accompanying drawings, in which similar reference numerals indicate like parts in the different figures.

In the drawings, Figure 1 is a view in side elevation of my improved wrench; Fig. 2 a longitudinal, sectional view of the same showing the internal mechanism of the wrench; Fig. 3 a sectional view of a complete wrench on line A of Fig. 2; Fig. 4 is a view similar to Fig. 3 on line B; and, Fig. 5 a view similar to Figs. 3 and 4 on line C.

The body of the wrench consists of two cooperating hollow members 1 and 2 adapted to be clamped together by means of pins or bolts 3 with two cavities therein, referred to in the drawings by the reference numerals 18 and 19 for containing the mechanism by which the manipulation of the wrench is accomplished. The shiftable member of the wrench comprises a jaw 4 provided with a serrated working edge 5 and made integral with a preferably rectangular bar 6 positioned in the cavity 18. Adjacent the inner end of the bar 6 the members 1 and 2 are provided with inwardly-extending partitions 7 having registering grooves therein, which, when the members 1 and 2 are clamped together form an opening and constitute a bearing for a longitudinally-shiftable bolt 8. This bolt 8 is also steadied by passing through an opening constituting a bearing in an interiorly-threaded cap 9 engaging with the handle end of the wrench which is threaded for this purpose. The bolt 8 extends outwardly through the opening in the cap 9 for a purpose to be later described. Mounted on the bolt 8 in the cavity 19 is a spring element 10 adapted to bear against the partitions 7 at one end and against a collar 11 on the bolt 8 held from movement by means of a pin 12.

On the forward ends of the members 1 and 2 are circularly-formed integral ears 13 provided with openings to receive a bolt or pin 14 extending therethrough and constituting a pivot for a jaw 15 designed to be capable of a slight rocking movement thereon but otherwise constituting the fixed jaw of the wrench. The jaw 15 is provided with lateral recesses 16 to receive the ears 13 so that the sides thereof will be flush with the members 1 and 2. This jaw 15 is provided with a notch or shoulder 39 constituting an abutment adapted to engage a depending shouldered portion 17 of the members 1 and 2 and be arrested from further rearward movement thereby. Movement of the jaw 15 in the opposite direction is limited by the engagement of the upper face of the jaw with the under surface of the bar 6 which constitutes an abutment for that purpose. The bar is provided on its under face with a recess 20 in which is mounted the mechanism for temporarily locking the shiftable jaw 4 in a fixed position and which consists of the following mechanism: The position of the recess 20 is such as to leave a narrow depending portion 21 of the bar 6 existing between the rear end thereof and the recess, and this portion 21 is provided with a central upwardly-extending groove (not shown in the drawings) and in which is pivoted on a pin 22 a forwardly-extending dog 23 having a toothed under face adapted to engage teeth 24 formed in the floor of the cavity 18. The forward portion of the dog 23 is provided with a central upwardly-extending fin 25 having near its top a laterally-pro-

jecting pin 26 fixedly positioned therein. The upper surface of the dog 23 is provided with an inclined portion 27 and a horizontal portion 28 on both sides of the fin 25. Positioned between the upper surface of the dog 23 and the top of the recess 20 is a combined releasing and locking member 29 having its lower face so formed as to fit the upper surface of the dog 23 and provided with a central groove arranged to receive the fin 25. This member 29 is also provided with a pair of parallel slots 30 formed transversely therein and inclined at an angle to the longitudinal axis of the wrench and adapted to receive the laterally-projecting portions of the pin 26 and constitute ways therefor. The member 29 is provided with a ridge 31 on its upper surface adapetd to engage in a corresponding groove 32 in the upper surface of the recess 20 in the bar 6, constituting thereby a tongue and groove arrangement for properly guiding the member 29 when it is shifted longitudinally of the recess 20. The member 29 is moved by means of a rod 33 which is freely slidable in a suitable groove in the under surface of the bolt 8. Within the cavity 19 the under portion of the bolt 8 is recessed, forming a shoulder 34, through which projects the rod 33 and the shoulder 34 forms an abutment for a spring element 35 mounted on the rod 33. The outer end of the rod 33 is provided with an enlarged portion 36 preferably made integral therewith and of a curvilinear exterior corresponding to the curvature of the bolt 8, so that when combined the two make a true cylinder where they pass through the opening in the cap 9. The enlarged portion 36 is provided at its outer end with an upwardly-extending head 37 which is positioned at a considerable distance from the end of the bolt 8 but is adapted to engage the same when the head 37 is pushed forward a sufficient distance.

In order to strengthen the front portion of the wrench and assist the ears 13, I inclose the members 1 and 2 within a strap 38 having near its ends suitable openings to receive the bolt or pin 14, for the reason that the danger of breakage of the ears 13 is thereby materially decreased by means of this strap 38.

The operation of the device is as follows: Assuming the parts to be in the position shown in Fig. 2 and that the operator desires to employ this wrench upon a pipe, for example, he preferably grasps the handle with one hand and with his thumb presses inward on the head 37 which causes the rod 33 to shift longitudinally toward the front end of the wrench. This movement of the rod 33 causes the member 29 to move forward in the recess 20 and as it does so the sides of the slots 30 engaging the projecting portions of the pin 26, raise the fin 25 and dog 23 out of engagement with the teeth 24 until the bar 6 is free to move by reason of the disengagement of the dog with the teeth. By the time the movement of the member 29 has raised the dog 23 to inoperative position the head 37 encounters the end of the bolt 8 and pushes the same forward in unison with itself overcoming the influence of the spring element 10 in doing so and forcing the jaw 4 outward from the jaw 15 until sufficient space intervenes between them to receive the pipe or other object on which the same is to be used. A release of the pressure of the operator's hand on the head 37 causes the jaws 4 and 15 to clamp the pipe or nut under the influence of the spring element 10, which would otherwise normally return the parts to their original position. As soon as the jaws 4 and 15 have engaged the object, the spring member 35 forces the rod 33 rearwardly which brings the member 29 into the operative position shown in Fig. 2, thus causing the dog 23 to operatively engage the teeth 24 of the cavity 18 thereby locking the jaw 4 and bar 6 against further movement in either direction. In order to return the parts to the position shown in Fig. 2, sufficient pressure is exerted on the head 37 by the operator to release the dog 23, as already described, and unless the inward movement of the jaw 4 is interrupted sufficiently to permit the head 37 to separate from the end of the bolt 8 the parts will spring back to their original position. It will be noted that as long as the head 37 is in abutting relation with the end of the bolt 8 and the head 37 pushed in sufficiently to release the dog 23 from engagement with the teeth 24, a free shifting movement of the bar 6 and jaw 4 is obtainable.

What I claim and desire to secure by Letters Patent, is:—

1. A wrench of the kind described comprising a pair of coöperating hollow members, a fixed jaw carried by said members, a shiftable bar provided with a jaw mounted in said members, a bolt extending from said bar through the end of said wrench, a resilient element for moving said bar in one direction, engaging means carried by said bar for locking it against movement and releasing means for actuating said engaging means provided with an extension projecting through the end of said wrench capable of being moved into releasing position upon the application of pressure.

2. A wrench of the kind described comprising a pair of coöperating hollow members, a fixed jaw carried by said members, a shiftable bar provided with a jaw mounted in said members, a bolt extending from said bar outwardly through the end of said wrench, a resilient element for moving said

bar in one direction, a dog carried by said bar for locking it against movement, releasing means for said dog, and means extending from said releasing means through the end of said wrench movable into releasing position upon the application of pressure and provided with means for engaging said bolt when said dog is out of locking position.

3. A wrench of the kind described comprising a pair of coöperating hollow members, a fixed jaw carried by said members, a shiftable bar provided with a jaw in said members, a bolt carried by said bar extending outwardly through the end of said wrench, a locking dog carried by said bar, a releasing member therefor, an operating rod extending from said releasing member through the end of said wrench provided with means for engaging the end of said bolt, said last named means being so positioned as to engage and operate said bolt and bar when said releasing member is moved into releasing position.

4. A wrench of the kind described comprising a pair of coöperating hollow members, a fixed jaw carried by said members, a shiftable bar provided with a jaw mounted in said members, a spring-actuated bolt carried by said bar extending through the end of said wrench, a locking dog carried by said bar, a releasing member for disengaging said dog, a rod carried by said releasing member extending outwardly from the end of said wrench, means to normally keep said dog in locking position, said rod being provided with means for shifting said bolt and bar when said releasing member has been moved to disengaging position.

5. A wrench comprising in combination a pair of coöperating hollow members provided with a fixed jaw, a perforated cap for securing the opposite ends of said members together, a spring actuated shiftable bar mounted in said members provided with a head constituting a jaw, a bolt extending from said bar through the perforation in said cap, a locking dog carried by said bar, a releasing member therefor, and an operating rod for said releasing member extending through said cap movable into releasing position upon the application of pressure.

6. A wrench comprising in combination a pair of coöperating hollow body members provided with a fixed jaw, a spring actuated shiftable bar mounted in said body members having a head constituting a jaw, said bar provided with a recess, a dog carried by said bar, and a releasing member for said dog positioned within said recess, said releasing means provided with an extension projecting through the end of said wrench capable of being moved into operative position upon the application of pressure.

7. The combination in a wrench of the kind described comprising a pair of coöperating hollow body members provided with registering transverse partitions for dividing the interior thereof into two cavities, said members provided with a fixed jaw, a shiftable bar mounted in said body members provided with a head constituting a jaw, a bolt carried by said bar extending through one of said cavities and the end of said wrench, a spring positioned in one of said cavities for actuating said bolt and bar, a dog adapted to engage the inner faces of said body members pivotally mounted on said bar, a releasing member for moving said dog, and means extending through the end of said wrench for actuating said releasing member capable of being moved into operative position upon the application of pressure.

8. The combination in a wrench of the kind described comprising a pair of coöperating hollow body members provided with registering transverse partitions for dividing the interior thereof into two cavities, said members provided with a fixed jaw, a shiftable bar mounted in said body members provided with a head constituting a jaw, a bolt carried by said bar extending through one of said cavities and the end of said wrench, said bolt provided with a groove, a spring element in one of said cavities adapted to actuate said bolt and bar, a dog adapted to engage the inner faces of said body members pivotally mounted on said bar, a shiftably mounted locking and releasing member connected with said dog, and means mounted in the groove in said bolt for moving said locking and releasing member to releasing position upon the application of pressure.

9. A wrench of the kind described comprising a pair of coöperating hollow members, a fixed jaw carried by said members, a spring actuated bar shiftably mounted in said members provided with a head constituting a jaw, a locking dog pivotally mounted on said bar engaging said members, a combined releasing and locking member for operating said dog, means attached to said last named member extending through the end of said wrench for actuating said member, and a resilient element for causing said means to move said combined releasing and locking member normally into locking position, said combined locking and releasing member movable to releasing position upon the application of pressure to said actuating means.

10. A wrench comprising in combination a pair of coöperating hollow body members provided with a fixed jaw, a spring actuated shiftable bar mounted in said body members having a head constituting a jaw for coöperation with said fixed jaw, a dog carried by said bar, a combined releasing and locking member for said dog positioned in the interior

of said members, and means connected with said releasing and locking means extending through the end of said wrench arranged to normally hold said member in locking position and to move said member to inoperative position upon the application of pressure thereto.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN R. BAILEY.

Witnesses:
C. E. HUMPHREY,
GLENARA FOX.