J. F. BRONOSKY.

WRENCH.

APPLICATION FILED SEPT. 24, 1914.

1,142,929.

Patented June 15, 1915.

2 SHEETS—SHEET 1.

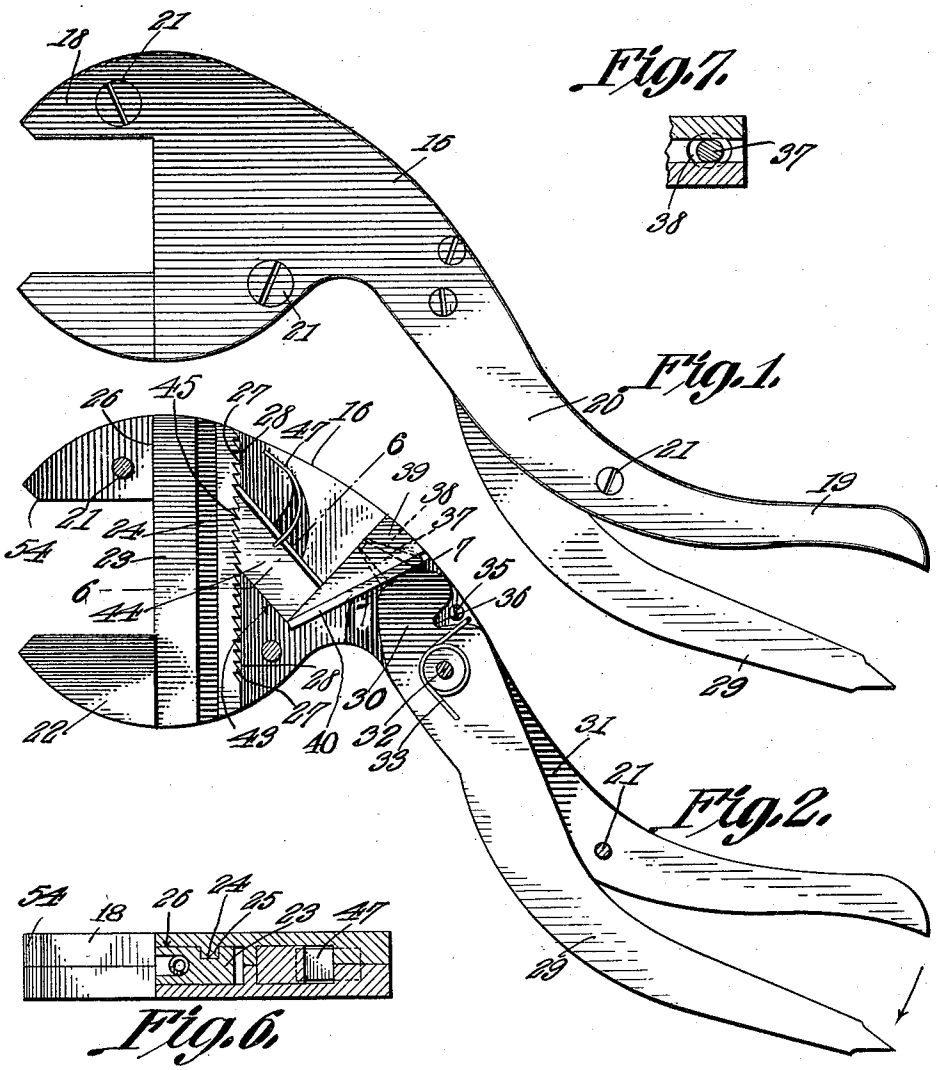


Fig. 1.

Fig. 7.

Fig. 2.

Fig. 6.

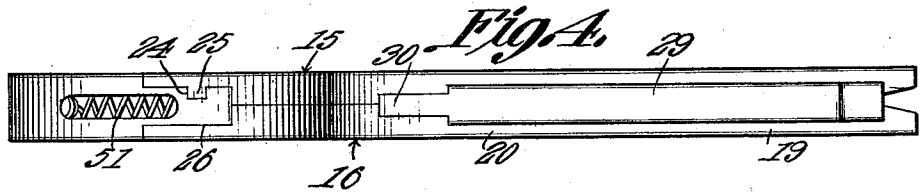


Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

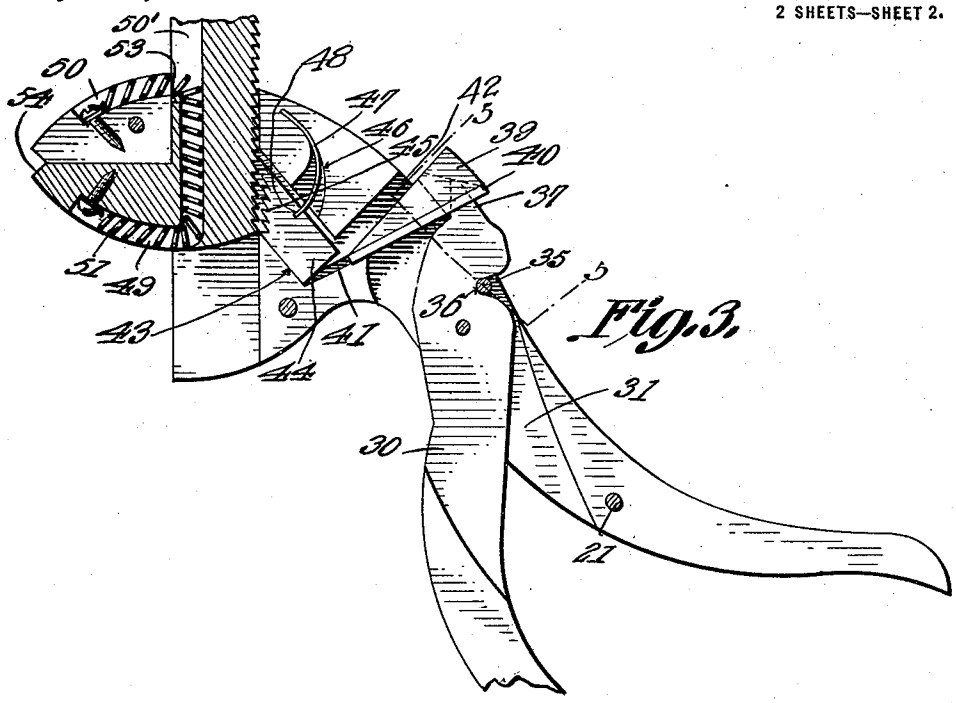


Fig. 3.

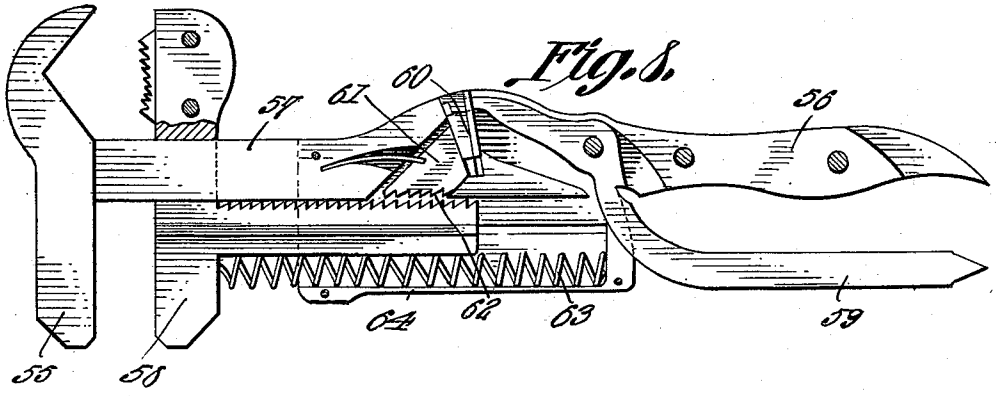


Fig. 4.

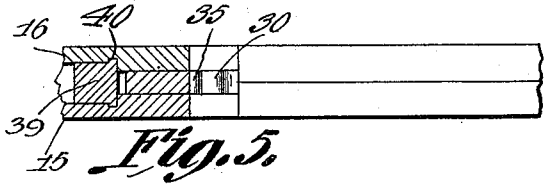


Fig. 5.

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UNITED STATES PATENT OFFICE.

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WRENCH.

1,142,929. Specification of Letters Patent. Patented June 15, 1915.

Application filed September 24, 1914. Serial No. 863,416.

To all whom it may concern:

Be it known that I, JOSEF FERDINAND BRONOSKY, a subject of the Austro-Hungarian Emperor, residing at Minden, in the county of Fayette and State of West Virginia, have invented a new and useful Wrench, of which the following is a specification.

This invention relates to certain new and useful improvements in wrenches.

The invention aims primarily to provide a wrench with movable and stationary jaws and with means carried by the stationary jaw so that the movable jaw may be instantly locked in any desired position.

A further object is to provide a wrench requiring only one hand for its entire manipulation, including the forcing of the jaws apart so as to engage a nut or wrench engageable surface and for the locking of the jaws in such position.

Another object is to provide a wrench with a jaw locking mechanism so arranged that a force tending to separate the jaws during the turning of a nut will not operate to release the locking mechanism but will be taken up by a suitable wedge member whose faces are inclined and which is moved to rigidly hold the lock against movement.

A further object is to provide a wrench having the aforementioned characteristics which will be of simple structure and arrangement and may thus be economically manufactured, and although the movable jaw is provided with a finite number of teeth it may assume and be locked at an infinite number of positions.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the drawings accompanying this specification and forming a part thereof, the preferred embodiment of my invention has been illustrated.

In said drawings:—Figure 1 is a view in side elevation of my improved wrench with transversely adjustable jaws. Fig. 2 is a similar view with one, of the two members which form the wrench body, removed. Fig. 3 is a view similar to Fig. 2 with the stationary and movable jaws illustrated in section, and with the jaws released and in an unlocked position. Fig. 4 is a bottom plan view of the wrench illustrated in Fig. 1. Fig. 5 is a cross sectional view taken on the line 5—5 of Fig. 3. Fig. 6 is a cross sectional view taken on the line 6—6 of Fig. 2. Fig. 7 is a cross sectional view taken on the line 7—7 of Fig. 2. Fig. 8 is a side view of a wrench including longitudinally adjustable jaws embodying the underlying principles of my invention, a portion of the body of the wrench being removed in the said figure.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, the body of the wrench is formed of the plate-like members 15 and 16, each of which includes the stationary jaw 18, and handle 19 with the shank 20 there-intermediate.

The body members are rigidly secured together by the screws or bolts 21 and thus while holding the members in their assembled position and wrench-forming relation, the bolts permit the body members to be quickly detached should it be necessary.

A movable jaw 22 is provided with the shank 23 along which latter extends the groove 24. A tongue 25 projects inwardly from one wall of a channel 26 which is inclosed transversely between the said members 15 and 16. The movable jaw is thus slidably secured to the wrench body and moves transversely of the axis thereof. The shank of the movable jaw is provided with the serrated edge or teeth 27 which contact with or slide along the bottom wall 28 of the channel.

In order to lock the movable jaw in definite and fixed, as well as adjusted relation, with respect to the stationary jaw, the following locking mechanism is employed. A locking lever 29 is provided with the reduced portion or end 30 of such size as to fit within a slot 31 provided in the wrench body. A pivot 32 extends through the plates of which the wrench body is formed and movably secures the locking lever therein. A spring 33 is coiled about the pivot and engages the locking lever and adjacent walls of the wrench body and resiliently

moves the locking lever in the direction indicated by the arrow in Fig. 2.

In order to prevent excessive movement of the locking lever, a stud 35 and coöperating notch 36 are provided. The reduced extremity of the locking lever is provided with the bill 37 which projects within and engages the side walls of an opening 38 provided in the wedge-shaped member 39. The wedge-shaped member 39 has its faces so inclined that a normal force exerted upon one face will not produce a force in any direction sufficient to move the member, due to the friction prohibiting such motion. The wedge-shaped member is provided with the outstanding tongues 40 engaging and slidably mounted within suitable grooves 41 provided therefor. The wrench body is provided with the wedge-shaped aperture 42 in which the wedge-shaped member seats. As the locking lever is resiliently moved in the direction indicated by the arrow in Fig. 2, the wedge-shaped member is moved laterally and out of the aperture 42 and assumes the position illustrated in Fig. 3. The wedge-shaped aperture 42 formed in the wrench body communicates with and extends substantially at right angles to a second aperture or slot 43, the latter communicating with the channel 26 aforementioned.

The slot 43 is provided with substantially parallel side walls which receive the pawl 44 slidably therebetween. The pawl is provided with the teeth 45 interengaging and coöperating with the teeth 27 of the movable jaw shank. In this connection it is to be noted that the slot 43 is slightly wider than the pawl 44, thus providing for a limited transverse movement thereof. The excess width in question of the slot is slightly greater than the spacing of one of the teeth with which the pawl is provided. This allows the sliding jaw to be locked in a number of positions, thus allowing it to tightly engage a nut regardless of size, provided that it falls within the limits of movement of the jaws.

In order to resiliently retract the pawl 44 and to effect its automatic disengagement from the movable jaw, the resilient bow spring 47 is provided and moves within a suitable slot 46 provided therefor. The bow spring is secured at one extremity to the slot 46 and at its other extremity to the pawl, as will be noted by the reference numeral 48. As the wedge-shaped member 39 is moved out of and away from its receiving aperture, the pawl is retracted and assumes the position illustrated in Fig. 3, allowing for the free and unobstructed movements of the movable jaw. The size and arrangement of the pawl, and wedge-shaped member are such that even though the pawl be in its most retracted position, the extremity of the wedge-shaped member is adapted to pass behind the rear extremity thereof for its forward projection, resulting in its forced contact and engagement with the movable jaw. This is clearly illustrated in Fig. 3.

The outer edges of the movable and stationary jaws are provided with the peripheral grooves 49 and 50 for the reception of a coiled spring 51 therein. The spring in question is fixedly secured at its extremities to and within the said grooves and extends through the aperture 50 within the movable jaw, which aperture is open at its rear extremity as at 53, allowing the securement in question to be effected. Thus the wrench when lightly grasped will immediately assume a position as illustrated in Fig. 3 and due to the beveled ends 54 of the jaws, allows the wrench to be readily secured to, so as to engage a nut, by bringing the beveled ends 54 into forced contact with the contiguous faces of a nut, which will result in the spreading of the jaws and the reception of the nut therebetween. The locking lever is then forcibly moved toward the handle 19 of the wrench, resulting in the pawl 41 being thrust into interlocking relation with the movable jaw shank and prohibiting further extension or movement thereof. The pressure exerted upon the pawl and wedge-shaped member incident to the usage of the wrench will not result in the moving of the locking lever or the disengagement of the locking parts due to the slight angularity of the surfaces of the wedge-shaped member and the frictional forces bearing thereon.

A somewhat different form of wrench, but embodying the same principles, is illustrated in Fig. 8 in which the wrench body in addition to including the stationary jaw 55 and handle 56, includes a shank 57 upon which the movable jaw 58 is slidably mounted. The movable and stationary jaws also project to both sides of the wrench shank 57 and are provided with suitable means whereby a polygonal or curved object may be rigidly grasped for its forced rotation. The body of the wrench includes the locking lever 59, wedge-shaped member 60, and resiliently retracted pawl 61. This locking mechanism is the same and operates similar to the locking mechanism hereinbefore described, the connection between the movable jaw and pawl being effected by suitable interengaging teeth 62.

A compression spring 63 is employed, bearing against a casing 64 carried by and forming a part of the wrench body portion and impinging at its opposite extremity upon the movable jaw. By these means, the jaws are normally maintained in closed relation for the quick and efficient reception and engagement of a nut.

The outer portion or covering has been removed from the wrench body portion in Fig. 8, but it is to be understood that it is of

such nature and characteristics as to properly house the locking mechanism therein and promote its successful operations.

Having thus fully described my invention, what I claim is:—

1. A wrench, including a shank having a fixed handle and a fixed jaw, a slidable jaw mounted for movement to and from the fixed jaw, said slidable jaw being provided with a shank having teeth upon one edge thereof, a locking block mounted in the handle and stationary jaw member and having a plurality of teeth for coöperation with the teeth of the slidable jaw, a spring for holding the block with the teeth out of engagement with the teeth of the slidable jaw, a pivoted handle connected to the fixed handle and provided with a reduced end, and a wedge slidably mounted in the fixed handle member and connected with said reduced end for coöperation with the toothed block to move the toothed block toward and in engagement with the teeth of the slidable jaw.

2. A wrench including a body portion, a stationary jaw, a handle, a movable jaw carried by said wrench body portion and cooperating with said stationary jaw, resilient means engaging said jaws for normally holding the same in closed position, locking mechanism engaging said movable jaw, carried by said wrench body portion, and including a locking lever, a wedge-shaped member actuated thereby, and a pawl contacting with and actuated by said wedge-shaped member, resilient means holding said pawl in position for contact with said wedge-shaped member, and resilient means engaging said locking lever holding said locking mechanism in a normally unlocked condition.

3. A wrench comprising a body formed of separable plates, each plate uniting to form a stationary jaw, a body portion, and a handle, said body portion provided with a slot extending therein, a locking lever pivotally mounted within said slot and resiliently limited in its movements therein, said wrench body provided with a second wedge-shaped slot, with a third slot communicating with said wedge-shaped slot, with a fourth slot extending beneath the stationary jaw and communicating with said third mentioned slot, a movable jaw including a shank slidably mounted within said fourth mentioned slot, a wedge-shaped member mounted within said second mentioned slot, a pawl mounted within said third mentioned slot and extending substantially normal to and contacting with the surface of said wedge-shaped member, said wedge-shaped member coöperating with and actuated by the said locking lever, said pawl interengaging with the said movable jaw shank and holding the same against extension.

4. A wrench comprising a body formed of separable plates, each plate uniting to form a stationary jaw, a body portion, and a handle, said body portion provided with a slot extending therein, a locking lever pivotally mounted within said slot and resiliently limited in its movements therein, said wrench body provided with a second wedge-shaped slot, with a third slot communicating with said wedge-shaped slot, with a fourth slot extending beneath the stationary jaw and communicating with said third mentioned slot, a movable jaw including a shank slidably mounted within said fourth mentioned slot, a wedge-shaped member mounted within said second mentioned slot, a pawl mounted within said third mentioned slot and extending substantially normal to and contacting with the surface of said wedge-shaped member, said wedge-shaped member coöperating with and actuated by the said locking lever, said pawl interengaging with the said movable jaw shank and holding the same against extension, and resilient means engaging said movable and stationary jaws, resiliently closing the same.

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

JOE. FERDINAND BRONOSKY.

Witnesses:
JOHN KOREN,
FRANK G. BRONOSKY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."