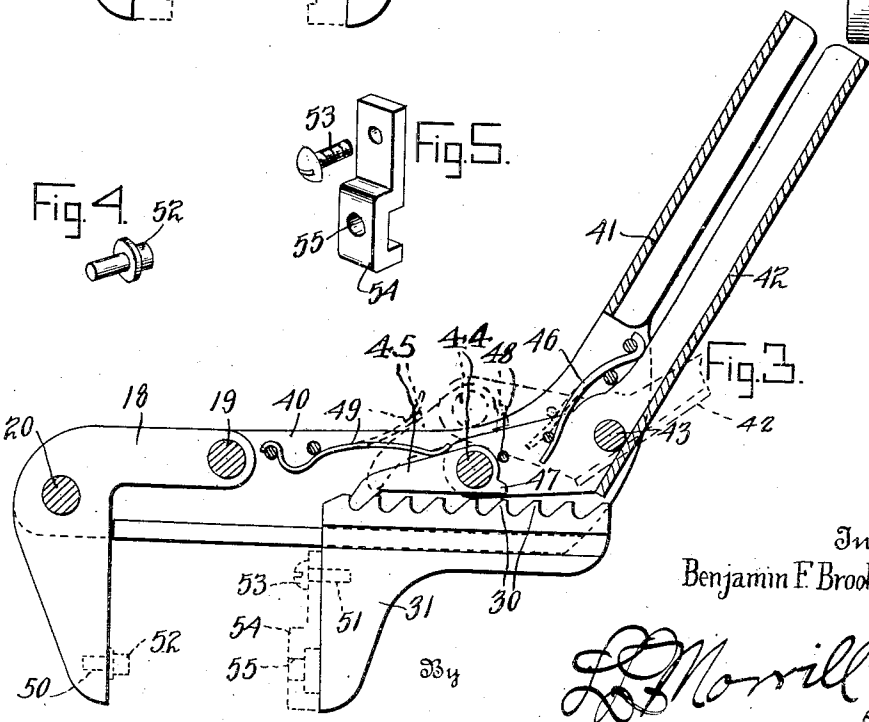
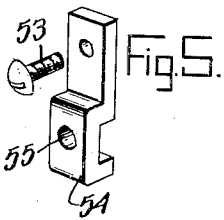
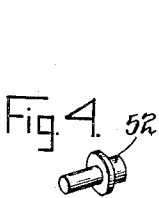
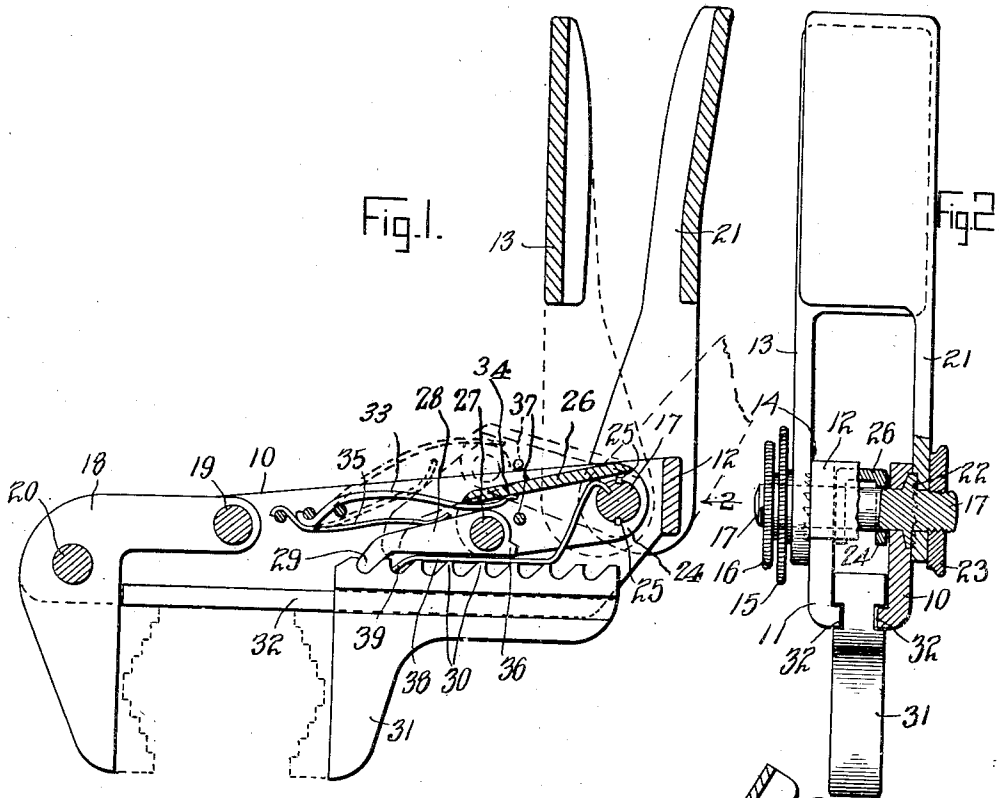


B. F. B. SEWELL.  
 QUICK ACTING MULTIPLE PURPOSE IMPLEMENT.  
 APPLICATION FILED JULY 28, 1920.

1,412,293.

Patented Apr. 11, 1922.

2 SHEETS—SHEET 1.



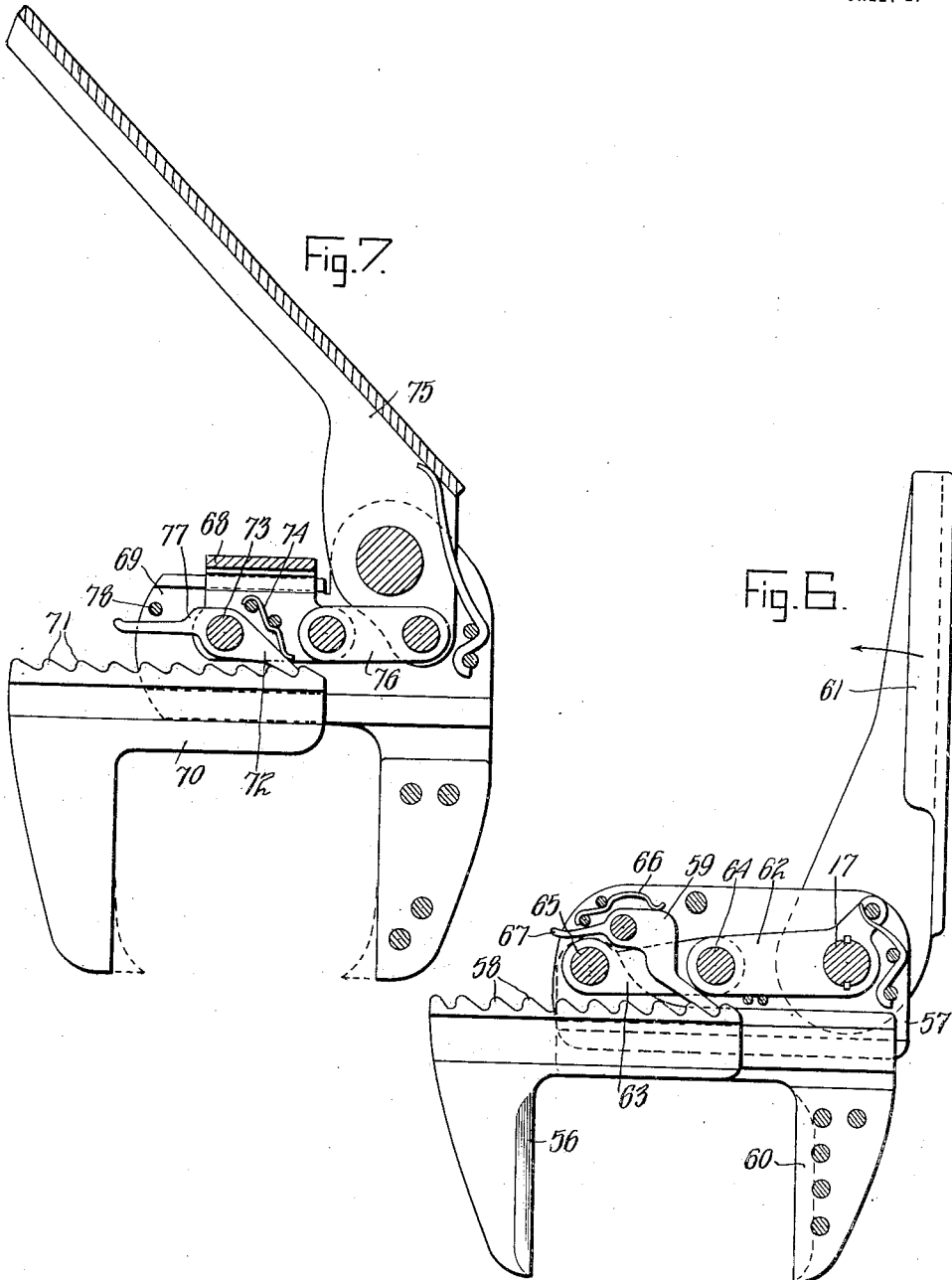
Inventor  
 Benjamin F. Brooke Sewell.

*L. Morrill*  
 Attorney

B. F. B. SEWELL.  
QUICK ACTING MULTIPLE PURPOSE IMPLEMENT.  
APPLICATION FILED JULY 28, 1920.

1,412,293.

Patented Apr. 11, 1922.  
2 SHEETS—SHEET 2.



Inventor  
Benjamin F. Brooke Sewell

334

*L. L. Morrill*  
Attorney

# UNITED STATES PATENT OFFICE.

BENJAMIN F. BROOKE SEWELL, OF CHULA, VIRGINIA.

QUICK-ACTING MULTIPLE-PURPOSE IMPLEMENT.

1,412,293.

Specification of Letters Patent.

Patented Apr. 11, 1922.

Application filed July 28, 1920. Serial No. 399,503.

To all whom it may concern:

Be it known that I, BENJAMIN F. BROOKE SEWELL, a citizen of the United States, residing at Chula, in the county of Amelia and State of Virginia, have invented certain new and useful Improvements in Quick-Acting Multiple-Purpose Implements, of which the following is a specification.

This invention relates to quick acting multiple purpose implement, and has for its object to provide a hand implement or tool adapted for use for various purposes, such as a wrench for nuts or pipes, a shear, a punch, pliers, a vise, or for various other purposes where great stress in limited space is required.

A further object of the invention is to provide an organization having a great range of adjustability, with movable jaws and means for applying a great degree of stress to the jaws by the application of manual power to the levers.

A further object of the invention is to provide a device having interchangeable jaws and parts whereby the implement, as an entirety, may be quickly, and conveniently changed from performing one utility to another.

With these and other objects in view, the device comprises certain novel units, elements, parts, combinations, mechanical movements and functions as will be hereinafter more fully described and claimed.

In the drawings Figure 1 is a view of one embodiment of the invention shown in section.

Figure 2 is a view of the embodiment shown at Figure 1 seen in end elevation, as indicated by arrow 2 at Figure 1, certain parts being broken away to show the construction.

Figure 3 is a view of a different embodiment shown in section.

Figure 4 is a view in side elevation of a punch unit adapted to be associated with jaws such as shown at Figure 3.

Figure 5 is a view in side elevation of a mandrel adapted to be associated with jaws such as shown at Figure 3, and to co-act with the punch unit such as shown at Figure 4.

Figure 6 is a view of a different modification shown in section, the jaws here being shown as shears.

Figure 7 is a view of a different modifica-

tion shown in section, the jaws showing in dotted lines its utility as a pipe wrench.

Like characters of reference indicate corresponding parts throughout the several views.

In the type of implement shown at Figures 1 and 2, the body portion comprise side plates 10 and 11, which are preferably, though not necessarily, joined in a unitary structure by a cross bar 12. To this body, comprising the side bars 10 and 11, a handle, 13, is secured rigidly but adjustably. The adjustability is accomplished by means of a rosette connection shown at 14 in Figure 2, nuts 15 and 16 mounted upon the pintle 17, which pintle rotates in the body and carries therewith the nuts 15 and 16, but the compression of the nuts upon the handle 13 by reason of the rosette joint maintains such handle in rigid connection with the body.

Between the side bars 10 and 11 a jaw member 18 is removably secured by the bolts 19 and 20, whereby the said jaw member 18 may be removed and replaced by a jaw for a different purpose.

The pintle 17, extending as it does through the side bars 10 and 11, is provided at the side opposite the handle 13 with the lever 21 connected to the pintle by a rosette joint 22, a nut 23 being employed for securing the necessary compression.

Between the side bars 10 and 11 a link 24 is rigidly secured to the pintle 17 in any approved manner as by the keys 25 forming with the lever 21 an adjustable bell-crank lever. This link is preferably of channel formation as indicated by the web 26 in Figure 1, but it is to be understood that the link is not limited to such channel structure.

The link 24 is provided with a pintle 27 upon which is pivoted a pawl 28. The pawl 28 is provided with a nose 29 proportioned and positioned to engage the rack 30 of the movable jaw 31, which is slidable relative to the side bars 10 and 11 by the tongued and grooved formation indicated at 32.

A spring 33 is secured between the side bars 10 and 11, and has its end 34 bearing under the web 26 of the link 24, tending to raise such link from the position shown at Figure 1. A spring 35 is also secured between the side bars 10 and 11 and bears upon the pawl 28. The pawl 28 is provided

with a finger 36 positioned to engage a pin 37 when the link 24 is swung up to dotted line position, thereby flexing the spring 35 and lifting the pawl out of engagement with the rack 30. In this type the spring 33 may be much heavier and exerts more stress than the spring 35, whereby when the lever 21 is released the spring 33 tends to move the link 24 and lever 21 as an organized structure about the fulcrum 17 to dotted position, and by reason of the engagement of the finger 36 with the pin 37 to disengage the pawl 28 from the rack 30. So that with the return movement the jaw 31 may be moved with a step-by-step movement by the oscillation of the lever 21 and link 24. A spring 38 is secured in any approved manner to the pintle 17 as by being inserted through said pintle, and is provided with a nose 39 normally engaging the teeth of the rack 30 until the lever 31 has been swung to its disengaging limit, whereupon the nose 39 is also released from the teeth of the rack, the rack then being entirely free to be manually removed and replaced.

As shown at Figure 3, the side plates 40 engage the jaw 18 by the use of the same bolts 19 and 20. The handle 41 of this embodiment is not adjustable, being permanently secured and preferably integral with the side plates 40. The bell crank lever 42 is pivoted between the side plates 40 at 43, and at 44 pivotally connected to the pawl 45. The spring 46 tends to move the lever 42 to such position as to release the pawl 45 from engagement with the rack 30, a finger 47 and pin 48, corresponding to the finger 36 and pin 37, being employed. A spring 49 holds the pawl 45 normally to its work, but is adapted to be released by the movement of the lever 42 to its dotted line position either manually or under the stress of the spring 46, the relative tension of the springs 46 and 49 being such that the spring 46 overstresses the spring 49.

In the type shown at Figure 3, the jaw 18 is provided with a socket 50 and the jaw 31 with a socket 51. Either one of these sockets 50 or 51 is adapted to receive the punch unit 52 shown at Figure 4, while the other receives the screw 53 of the mandrel unit 54 shown at Figure 5. The spacing between the screw 53 and the perforation 55 of the mandrel unit corresponds to the spacings provided by the sockets 50 and 51, whereby when the mandrel unit 54 is in position the perforation registers with the punch unit 52, permitting the device to be used as a punch.

In the modification shown at Figure 6 a more compact organization is provided.

The jaw 56 here shown is a shear jaw, but capable of taking any of the other forms shown in any of the other figures as slidable between the side plates 57. A rack 58 is

carried by this jaw member and a pawl 59 is pivoted between the side plates 57 for holding the jaw member 56 in adjusted position. The jaw member 60 is connected with and operated by the lever 61 by means of the arm 62 forming therewith a bell-crank lever fulcrumed upon the pintle 17 and the link 63, which is pivoted to the arm 62 at 64, and to the sliding jaw member 60 at 65. The movement of the lever 61 in the direction indicated by the arrow forces the arm 62 toward the jaw opening, thereby forcing the movable jaw 60 to slide between the side plates 57, the jaw 56 being held rigid by the pawl 59. A spring 66 holds the pawl normally to position, which is manually operable by means of a tongue 67. The formation of the pawl is such, however, that when the pivot 65 moves forward opposite the direction of the arrow to open the sliding jaw 60 such pivot engages back of the pawl 59 and moves such pawl against the tension of the spring 66 to release its engagement with the rack 58. Thus when the lever 61 is moved opposite the direction of the arrow to its inoperative limit, the pawl is automatically released, releasing thereby the jaw 56 for manual adjustment or replacement.

In the embodiment shown at Figure 7, a block 68 is slidably mounted between the side plates 69. A jaw 70 is also slidably mounted between the side plates and provided with a rack 71. The sliding block 68 carries a pawl 72 pivoted thereto at 73 with a spring 74 for holding such pawl yieldingly in engagement with the rack. The lever 75 through the medium of the link 76 reciprocates the block 68 and therewith the pawl 72 advancing the jaw 70 with a step-by-step movement, or when the jaw has come into engagement with a body between such jaw and the stationary jaw 76 exerting stress thereon. The pawl 72 is provided with a cam shoulder 77 in position to engage a pin 78 when the lever has been moved to its inoperative limit, thereby releasing the pawl 72 from engagement with the rack 71.

In each of the embodiments either or both of the jaws are readily removable or replaceable by any of the several types of jaws shown in any of the several figures whereby the multiple purpose of the implement is made available.

It will be noted also that the toggle joint connecting the lever in the several types with the movable jaw is such that the power applied to the lever progressively increases upon the jaw as the lever approaches its operative limit, and that although the device may be made within very small compass, excessive pressure and compression may be secured by its oscillation.

I claim:

1. An implement comprising a body, a le-

ver pivoted relative to the body, a rack slidable relative to the body, and a toggle joint having one section rigid with the lever and the opposite section mounted to oscillate relative to, and exert stress upon the rack.

2. An implement comprising a body, a lever pivoted relative to the body, a rack slidable relative to the body, a pivoted pawl positioned to engage the rack, and an arm movable with the lever as a unitary structure and pivotally connected with the pawl.

3. An implement comprising a body, a lever pivoted relative to the body, a rack slidable relative to the body, a toggle joint having one section rigid with the lever and the opposite section mounted to oscillate relative to, and exert stress upon the rack, and yielding means tending to oscillate the lever to interrupt the said engagement with the rack.

4. An implement comprising a body, a lever pivoted relative to the body, a rack slidable relative to the body, a pivoted pawl positioned to engage the rack, an arm movable with the lever as a unitary structure and pivotally connected with the pawl, and yielding means tending to oscillate the lever to interrupt the said engagement with the rack.

5. An implement comprising a body, a plurality of jaws interchangeably rigidly connected with the body, a plurality of interchangeable jaws slidable relative to the body and co-acting with the rigid jaw, a lever, means connected with the lever to actuate the sliding jaw, and yielding means tending to actuate the lever to release the sliding jaw.

6. An implement comprising a body, including a fixed jaw, an opposed sliding jaw, a lever pivoted relative to the body, an arm movable with the lever as a unitary structure, a structure hinged to the arm and connected to the sliding jaw, and means to release said connection at its limit of travel.

7. An implement comprising a body, including a fixed jaw, an opposed sliding jaw, an oscillating handle, motion-reducing means hinged to and operated by the oscillating handle, said motion-reducing means being detachably connected to the sliding jaw, and yielding means pressing the oscillating handle, tending to oscillate the handle to disconnect the sliding jaw at the limit of movement.

8. An implement comprising a body, including a fixed jaw, a sliding handle, a spring fixed to the body and tending to move the handle in one direction, a sliding jaw, a uni-directional coupling between the oscillating handle and the sliding jaw, and means by which the oscillating handle re-

leases the said coupling at the end of its oscillation effected by the spring.

9. A hand tool comprising a body, including a fixed jaw, an oscillating handle, a spring tending to move the handle in one direction, a sliding jaw, motion-reducing means between the oscillating handle and the sliding jaw, a uni-directional coupling between the oscillating handle and the sliding jaw, and means to release the said coupling under the action of said spring.

10. An implement comprising a body, including a fixed jaw, an oscillating handle, a sliding jaw, a coupling between the oscillating handle and the sliding jaw, means by which the oscillating handle at one end of its oscillation releases said coupling, a spring tending to move the handle in the direction of release, and means causing a progressive step-by-step movement of the sliding jaw when the handle is repeatedly oscillated.

11. A hand tool comprising a body, including a fixed jaw, an oscillating handle, motion-reducing means between the oscillating handle and the sliding jaw, a coupling between the oscillating handle and the sliding jaw, means by which the oscillating handle releases said coupling at one end of its oscillation, and a spring tending to move the handle in the direction of release.

12. An implement comprising opposed jaws slidable relative to each other, a motion-reducing mechanism detachably connected to one of the jaws and operated from the oscillation of said lever, means adapted to detach said reducing mechanism from its connection with the jaw at the limit of oscillation of the lever, and a spring tending to move said lever in the direction of release.

13. An implement comprising a body, including a fixed jaw, an oscillating handle, a sliding jaw, a motion-reducing mechanism hinged to and operated by the oscillating handle, said mechanism being detachably connected to the sliding jaw, means adapted to detach the said mechanism from the sliding jaw at one limit of oscillation of the handle, and a spring tending to move the handle in the direction of release.

14. An implement comprising a body, including a fixed jaw, a motion-reducing mechanism hinged to and operated by the oscillating handle and detachably coupled to the sliding jaw, means governed by the position of the oscillating handle to free the sliding jaw, and a spring tending to move the handle in the direction of release.

In testimony whereof I affix my signature.

BENJAMIN F. BROOKE SEWELL.