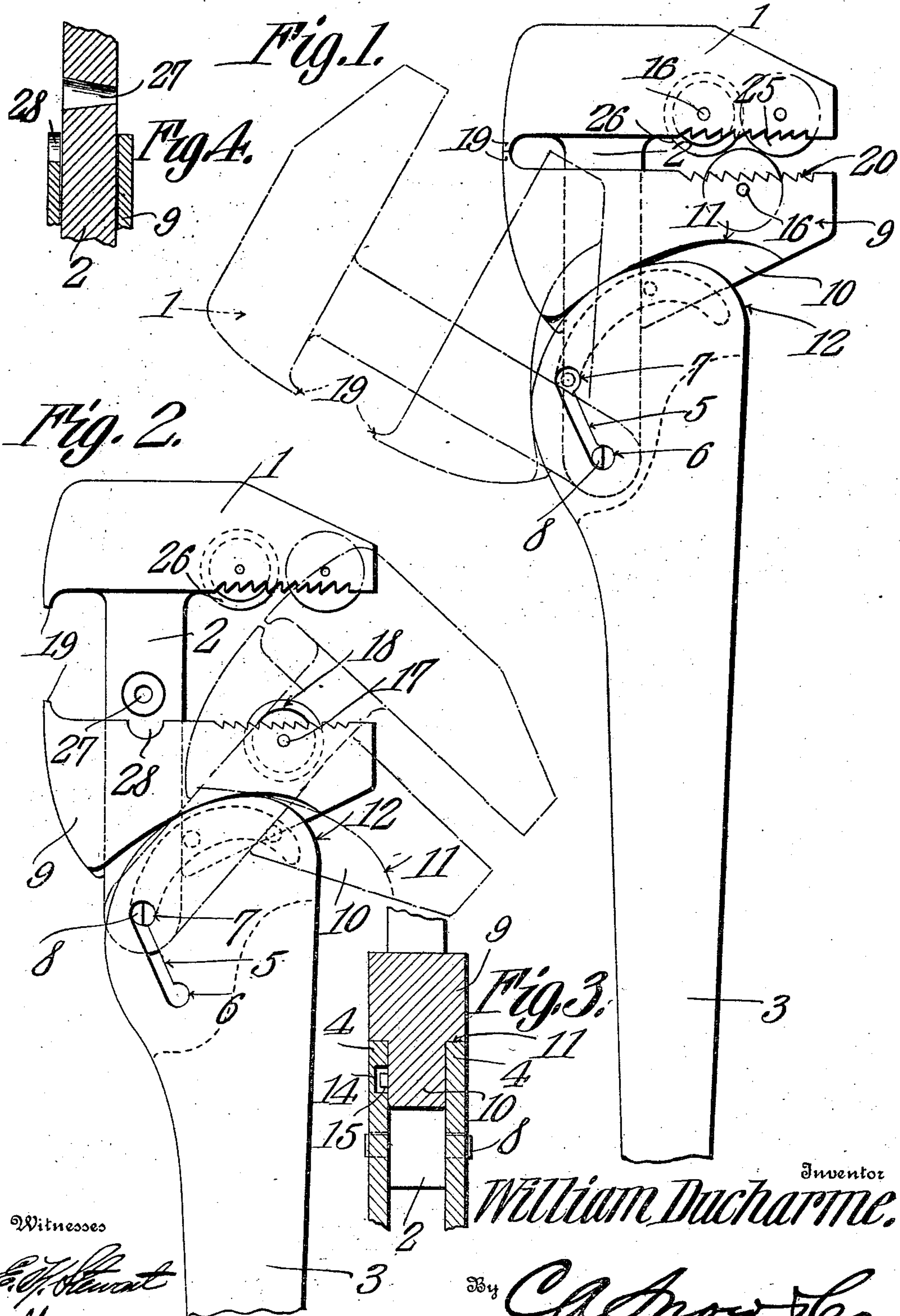


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COMBINATION TOOL.

APPLICATION FILED APR. 21, 1909.

951,367.

Patented Mar. 8, 1910.



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UNITED STATES PATENT OFFICE.

WILLIAM DUCHARME, OF JOHNSTOWN, PENNSYLVANIA.

COMBINATION-TOOL.

951,367.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed April 21, 1909. Serial No. 491,304.

To all whom it may concern:

Be it known that I, WILLIAM DUCHARME, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Combination-Tool, of which the following is a specification.

The objects of the invention are, generally, the provision in a merchantable form of a device of the class above mentioned which shall be inexpensive to manufacture, facile in operation, and devoid of complicated parts; specifically, the provision of a device of the class above mentioned in which the handle whereby the lower jaw is operated, may be moved into parallelism with the shank of the upper jaw without altering or disturbing the position of the lower jaw; the provision of a wire cutter, pincers, and a pipe cutter arranged to be used in connection with the handle and the jaws specified; other and further objects being made manifest hereinafter as the description of the invention progresses.

The invention consists in the novel construction and arrangement of parts hereinafter described, delineated in the accompanying drawings, and particularly pointed out in that portion of this instrument wherein patentable novelty is claimed for certain distinctive and peculiar features of the device, it being understood that within the scope of what hereinafter thus is claimed, divers changes in the form, proportions, size, and minor details of the structure may be made, without departing from the spirit or sacrificing any of the advantages of the invention.

Similar numerals of reference are employed to denote corresponding parts throughout the several figures of the drawings.

In the accompanying drawings Figure 1 shows my invention in side elevation; Fig. 2 shows my invention in side elevation, the jaws being disposed in different positions from those shown in Fig. 1; Fig. 3 is a longitudinal section through a portion of the handle and the lower jaw; and Fig. 4 is a longitudinal section through the shank, designed to show the action of the wire cutting means.

In carrying out my invention, I provide an upper jaw 1, having a shank 2 projecting from its lower face intermediate its ends. At this point it may be stated that in the following description the wrench is sup-

posed to be in the position shown in the drawings, the terms "upper" and "lower" being selected accordingly. I further provide a handle 3 which at its upper end is slotted to form arms 4. These arms 4 adjacent one edge of the handle are provided with longitudinally disposed slots 5, each of said slots terminating at one end in a lower seat 6 and at its other end in an upper seat 7, the said seats being formed by enlarging and rendering approximately circular in outline, the extremities of the slots 5. Slidably mounted in the slots 5 is a pivot member 8 which is passed transversely through the lower extremity of the shank 2 of the upper jaw. This pivot member 8 is approximately semi-circular in cross section, and is so disposed in the shank of the upper jaw, that, when the said upper jaw is thrown backward into a position slightly lower than the one shown in dotted line in Fig. 1, the shorter dimension of the pivot member 8 will be disposed transversely of the slots 5, so that the upper jaw may be moved in the slots 5 from the position shown approximately in dotted lines in Fig. 1 to the position shown in solid line in Fig. 2, the said pivot member 8 traveling in the slots 5, from the lower seats 6 in the first instance, to the upper seat 7 in the second instance. Supposing, that the upper jaw 1 stands in a position slightly lower than the dotted position of Fig. 1, it will be seen, that, as soon as the upper jaw 1 is raised to a slight degree, that is, into the position shown in dotted line in Fig. 1, the pivot member 8 will be rotated in the lower seats 6 to bring the longer dimension of said pivot member into transverse relation with the slots 5 so that the pivot member 8 cannot move upward in the slots 5 from the lower seats 6 into the upper seats 7.

Slidably mounted upon the shank 2 of the upper jaw is a lower jaw 9 having an aperture to receive the shank 2. The lower portion of the lower jaw 9 is narrowed as denoted by the numeral 10, and this narrowed portion results in the formation of a shoulder 11 arranged to engage the upper edges of the arms 4. The curved portion 12 of the handle acts as a cam, which, engaging the shoulder 11 of the lower jaw 9, will advance the said lower jaw 9 as the handle moves pivotally upon the member 8. In order to retract the lower jaw 9 from the upper jaw 1, one of the arms 4 is provided with

a curvilinear groove 14 in its inner face, the portion 10 of the lower jaw 9 being provided with a laterally extending stud 15 arranged to register in the groove 14 and to move therein.

The adjacent faces of the jaws 1 and 9 are longitudinally slotted and the said jaws are provided with transversely aligned apertures 16 which communicate with the slots. These apertures 16 are arranged to receive pintles 17 upon which are journaled for rotation in the slots in the faces of the jaws, cutting disks, 18, 25 and 26. Of these disks, which are adapted to serve as pipe cutting elements, two are located in the upper jaw 1 and one in the lower jaw 9, the several disks being disposed in a common plane. The adjacent faces of the jaws are transversely serrated as denoted by the numeral 20 and these serrations adapt the jaws to grasp and to hold firmly any object which may be introduced between them.

The jaws 1 and 9 are extended beyond the shank 2 and in their extended portions are diminished and inbent toward each other as denoted by the numeral 19 to form a pair of shearing edges adapted to serve as a pair of pincers, nail extractors or the like. These elements 19 serve not only the purposes last above pointed out, but at the same time perform the office of coöperating lugs adapted to prevent the pipe cutting elements which are assembled with the jaws from moving into contact with each other to their mutual damage. In the drawings, the elements 19 are shown in side elevation only, but it is to be understood that they extend transversely across the entire width of the jaws 1 and 9, the specific illustration of the point last above described being considered unnecessary.

The device is adapted to be used as a wrench, or, when the cutting disks 18, 25 and 26 are mounted in their places in the respective jaws, as a pipe cutter, it being understood that the pintles upon which the disks are journaled for rotation, are removably assembled with the jaws of the device.

As shown to best advantage in Figs. 4 and 2, the shank 2 is provided intermediate its ends with a transversely disposed tapering aperture 27. The jaw 9, directly below the aperture 27 in the shank 2, is cut away as denoted by the numeral 28. A wire may be inserted through the aperture 27, and, upon the operation of the handle 3, the jaw 9 will move upward, engaging the protruding wire and shearing the same off neatly. The aperture 28 in the jaw 9 spaces one edge of said jaw away from the wire, so that the said wire will be cut off by the jaw 9, at one point only. The tapering form given to the aperture 27 makes the insertion of a wire into the device relatively easy, the small extremity of the tapered aperture posi-

tioning the wire and securing it in the path of the jaw which is adapted to move upward and to shear it away.

In order to facilitate the description of the device it will be presupposed that the same is in the position shown in Fig. 1, the cutting disks being removed, however, and the device being adapted to be used as a wrench, it being evident that the description of the operation of the tool will apply with equal propriety when the cutting disks are mounted in place, as shown in Fig. 2.

When the device is in the position shown in Fig. 1, in solid lines, the jaws 1 and 9 are at their points of nearest approach. When the handle 3 is moved pivotally upon the shank 2 of the upper jaw, the stud 15 moving in the groove 14 in the arm 4 will retract the lower jaw 9 into the position shown in broken lines in Fig. 1. A nut or bolt-head being introduced between the jaws 1 and 9 and the handle 3 being moved pivotally in a direction opposite to that in which it was moved to open the jaws, the curved portion 12 of the handle engaging the shoulder 11 of the lower jaw 9, will cause the said jaw 9 to move upward, firmly embracing the nut or bolt head which is included between the jaw 9 and the jaw 1. Supposing, however, that the handle 3 has been moved pivotally to throw the jaw 1 into a position slightly lower than that shown in Fig. 1, that is, to an extent sufficient to bring the shorter dimension of the pivot member 8 transversely of the slot 5, it will be seen, that without disturbing the position of the lower jaw 9, the pivot member 8 will traverse the slot 5 permitting the handle 3 to be brought, as shown in Fig. 2 into substantial parallelism with the shank 2 of the upper jaw. Thus the handle of the wrench may be so shifted, relative to the other parts of the device, as to exert a longer leverage upon the nut or bolt-head which is to be rotated. It is obvious, that if the dimensions of the nut which is being rotated are sufficient to fill exactly the space between the jaws 1 and 9 when the pivot member 8 is in a position to traverse the slot 5, the handle 3 may be shifted into exact parallelism with the shank 2. In other cases, the relation between the handle 3 and the shank 2 will be determined by the dimensions of the nut which is being rotated, but in any instance, the pivot member 8 may be made to traverse the slot 5 from the seat 6 to the seat 7 to bring the handle 3 more nearly into parallelism with the shank 2 than would otherwise be possible.

The device presents a tool which possesses at once the advantages incident to disposing the axis of the handle normal to the coöperating faces of the jaws and to disposing the said axis at an angle to the coöperating faces of said jaws.

When the pivot member 8 is in the seat 7 as shown in Fig. 2, the jaw 1 may be tilted forward until the shank 2 of the upper jaw 1 contacts with that portion of the handle which is disposed between the arms 4, the jaws in such instance being in the position shown in broken line in Fig. 2.

It is obvious that the device may be operated in a variety of positions to accommodate the limited space conditions which are incident to the construction of machinery.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. In a device of the class described, an upper jaw provided with a shank; a lower jaw slidably mounted upon the shank; a handle pivoted to the shank and arranged to operate the lower jaw; pipe-cutting means carried by the jaws; the jaws being provided with cooperating shearing edges arranged to limit the pipe-cutting means from contact with each other.

2. In a device of the class described, an upper jaw provided with a shank; a lower jaw slidably mounted upon the shank, the jaws being longitudinally slotted upon their adjacent faces; pintles removably mounted in the jaws transversely of the slots; cutting disks disposed in the slots and rotatably mounted upon the pintles; a handle pivoted to the shank and arranged to operate the lower jaw; the jaws being provided with cooperating shearing edges arranged to limit the pipe-cutting means from contact with each other.

3. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted upon the shank; pipe-cutting means carried by the jaws; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallelism with the shank, independently of the lower jaw.

4. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted upon the shank; the jaws being longitudinally slotted upon their adjacent faces; pintles removably mounted in the jaws transversely of the slots; cutting disks disposed in the slots and rotatably mounted upon the pintles; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallelism with the shank, independently of the lower jaw.

5. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted upon the shank; pipe-cutting means carried by the jaws; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallel-

ism with the shank, independently of the lower jaw, the jaws being provided with cooperating lugs to limit the pipe-cutting means from contact with each other.

6. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted upon the shank; pipe-cutting means carried by the jaws; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallelism with the shank, independently of the lower jaw; the jaws being provided with cooperating shearing edges arranged to limit the pipe-cutting means from contact with each other.

7. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted upon the shank, the jaws being longitudinally slotted upon their adjacent faces; pintles removably mounted in the jaws transversely of the slots; cutting disks disposed in the slots and rotatably mounted upon the pintles; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallelism with the shank independently of the lower jaw; the jaws being provided with cooperating lugs to limit the disks from contact with each other.

8. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted upon the shank, the jaws being longitudinally slotted upon their adjacent faces; pintles removably mounted in the jaws transversely of the slots; cutting disks disposed in the slots and rotatably mounted upon the pintles; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallelism with the shank independently of the lower jaw, the jaws being provided with cooperating shearing edges arranged to limit the disks from contact with each other.

9. In a device of the class described, an upper jaw having a shank; a lower jaw slidably mounted on the shank; a handle pivoted to the shank and arranged to operate by its pivotal movement, the lower jaw; the handle being slidable into parallelism with the shank independently of the lower jaw.

10. In a device of the class described, a handle having spaced, slotted arms; an upper jaw having a shank; means for mounting the shank in the slots of the arms; a lower jaw slidably mounted on the shank; the handle being pivotally movable in the slots to operate the lower jaw, and being slidably movable in the slots into parallelism with the shank independently of the lower jaw.

11. A device of the class described com-

prising a handle having arms provided with
slots terminally enlarged to form seats; an
upper jaw having a shank; a lower jaw
slidably mounted upon the shank; a pivot
5 member transversely mounted in the shank
and engageable by the seats to form a piv-
otal connection between the handle and the
shank, the handle being arranged in its
pivotal movement to advance the lower jaw
10 toward the upper jaw, the pivot member be-
ing slidable in the slots from one set of said

seats to the other set, whereby the handle
may be moved into parallelism with the
shank independently of the lower jaw.

In testimony that I claim the foregoing 15
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

WILLIAM DUCHARME.

Witnesses:

DON J. KELNER,
EPH. WIRICK.