

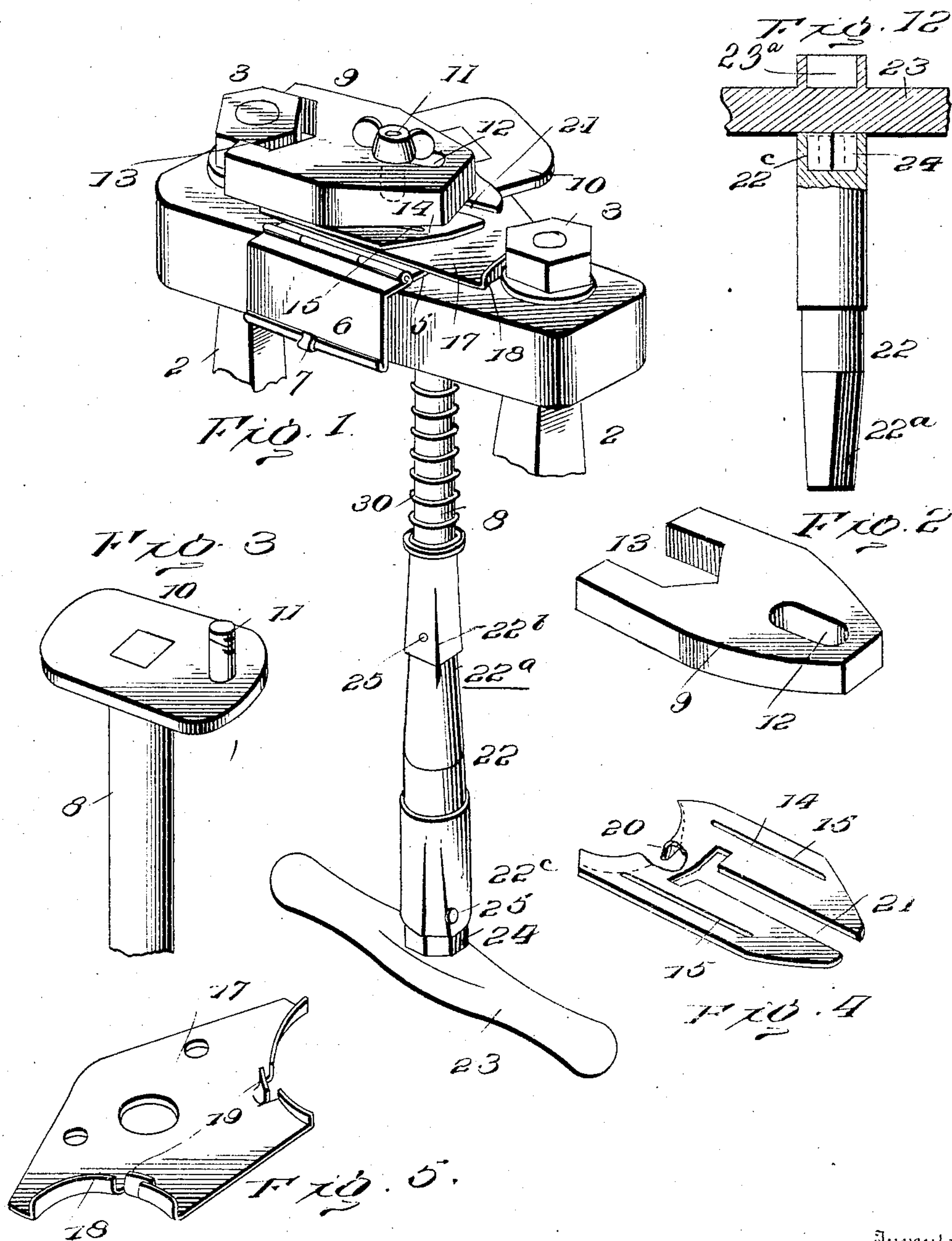
No. 785,930.

PATENTED MAR. 28, 1905.

A. C. ANDERSON.  
MACHINE WRENCH.

APPLICATION FILED APR. 14, 1904.

2 SHEETS—SHEET 1.



Witnesses

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Inventor

A. C. Anderson

By

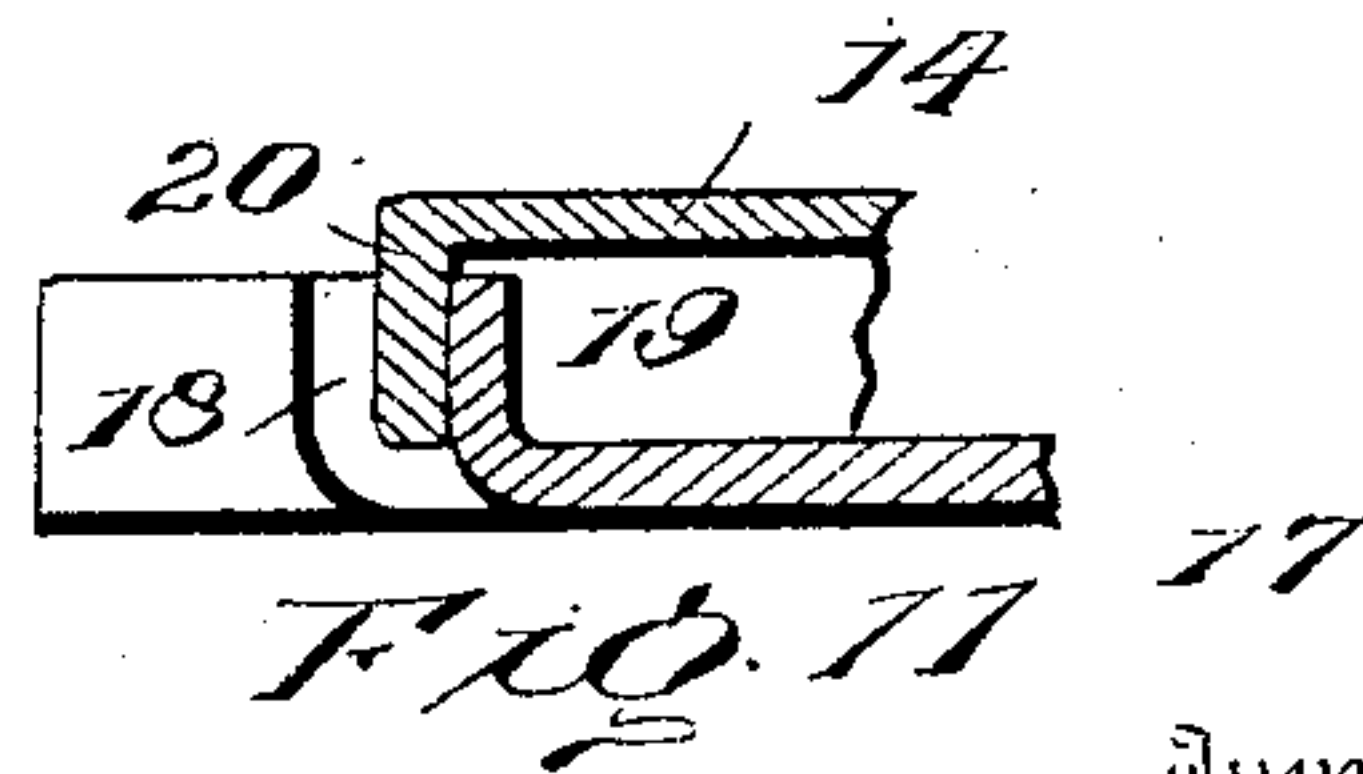
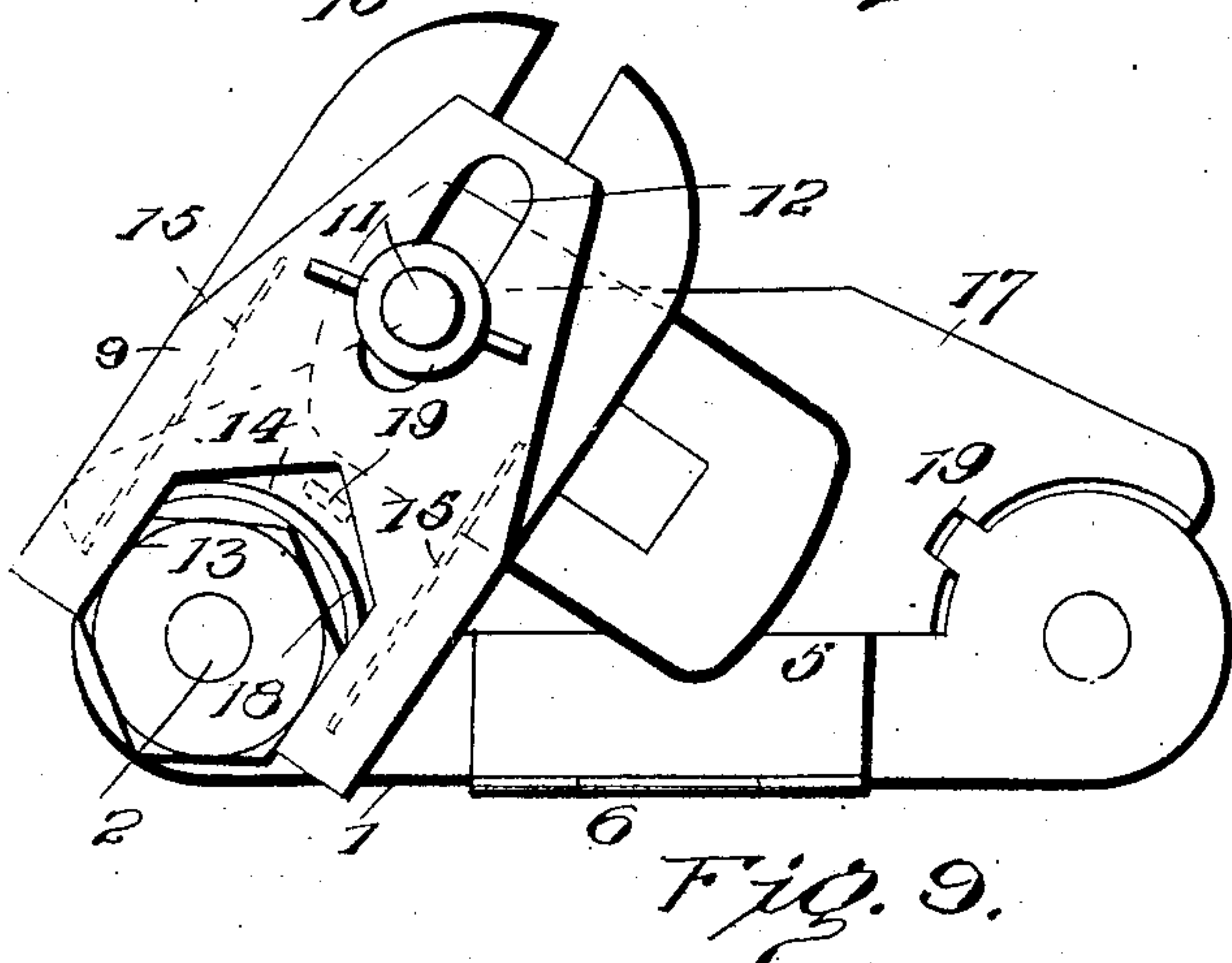
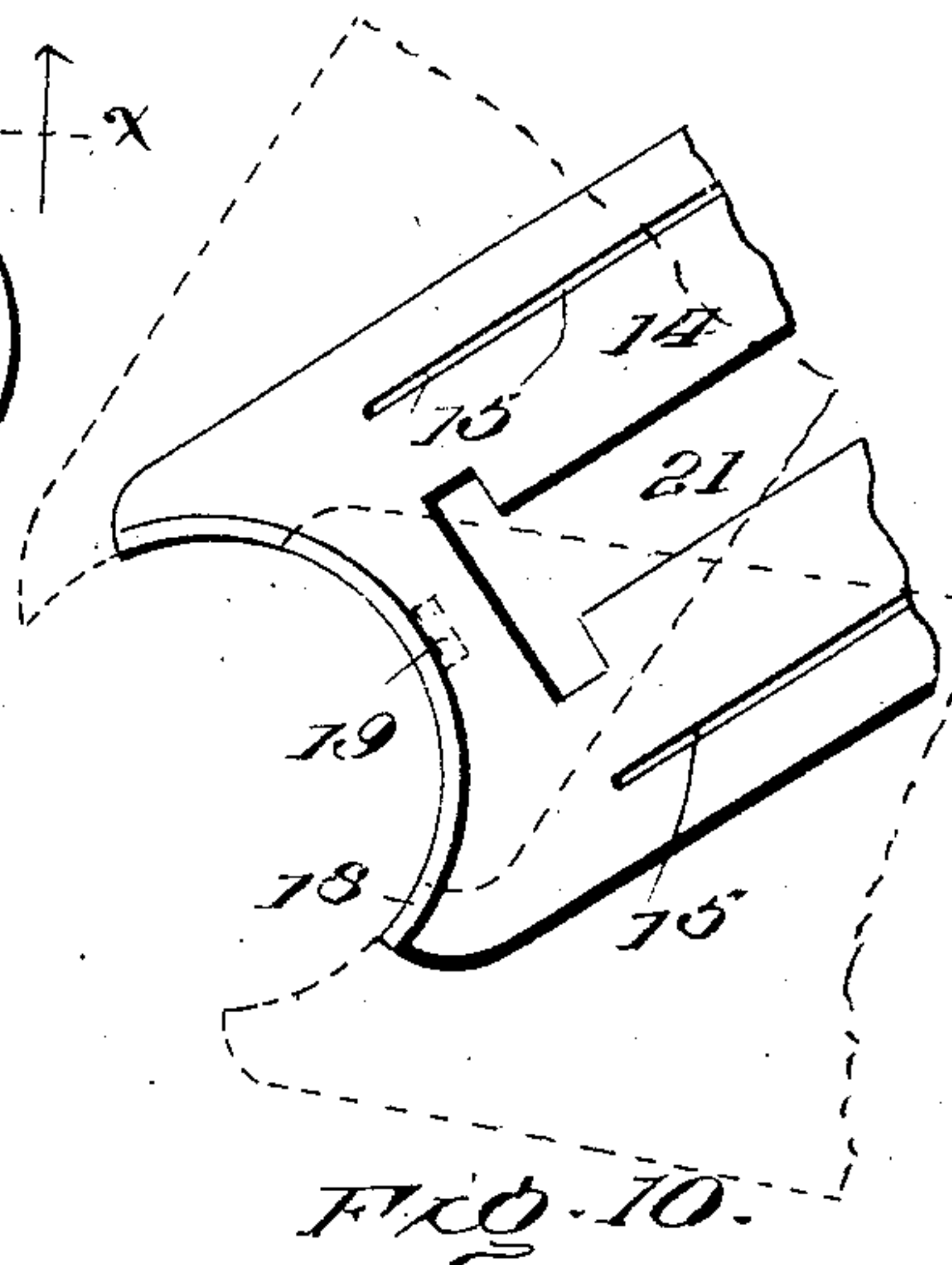
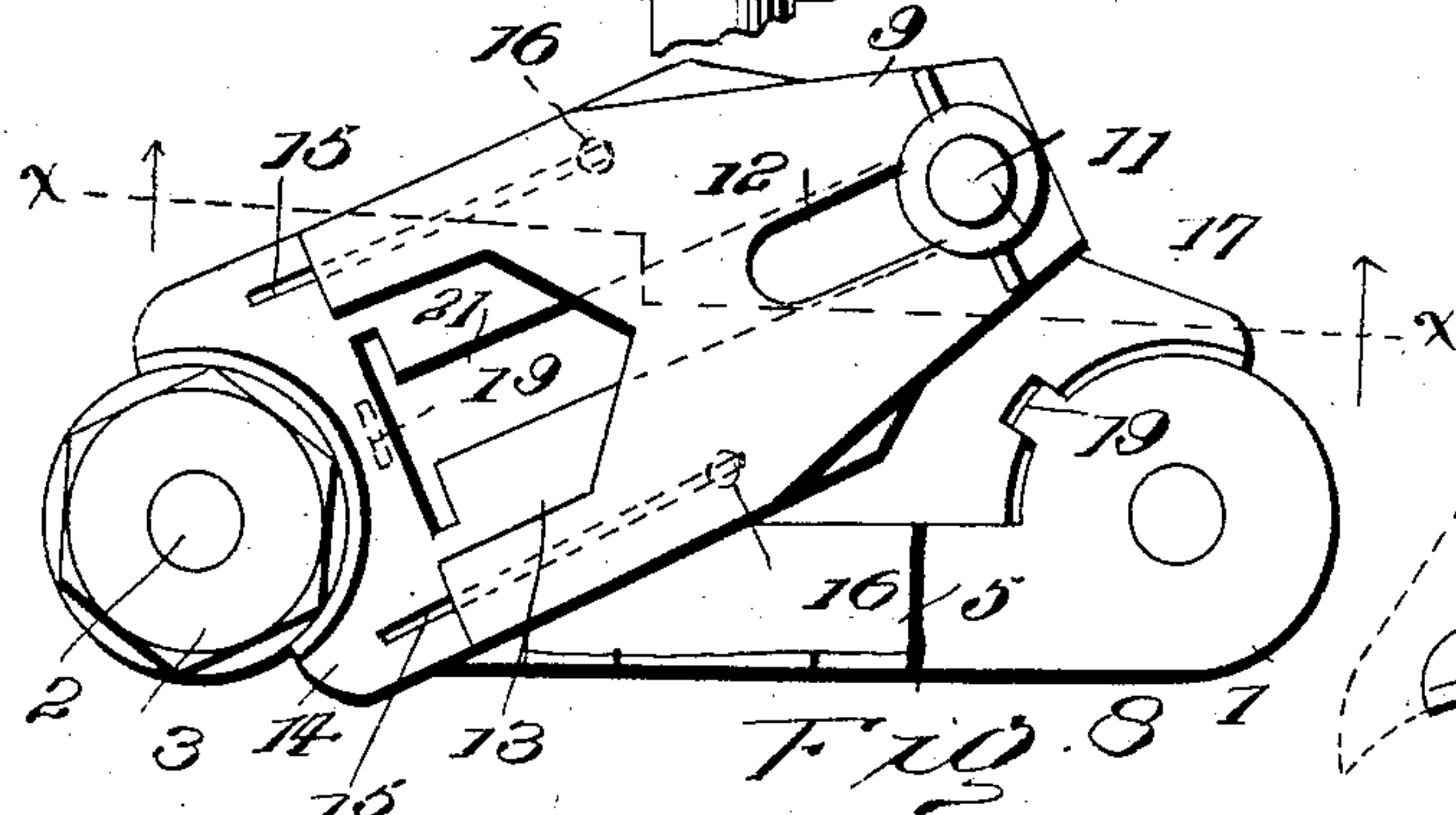
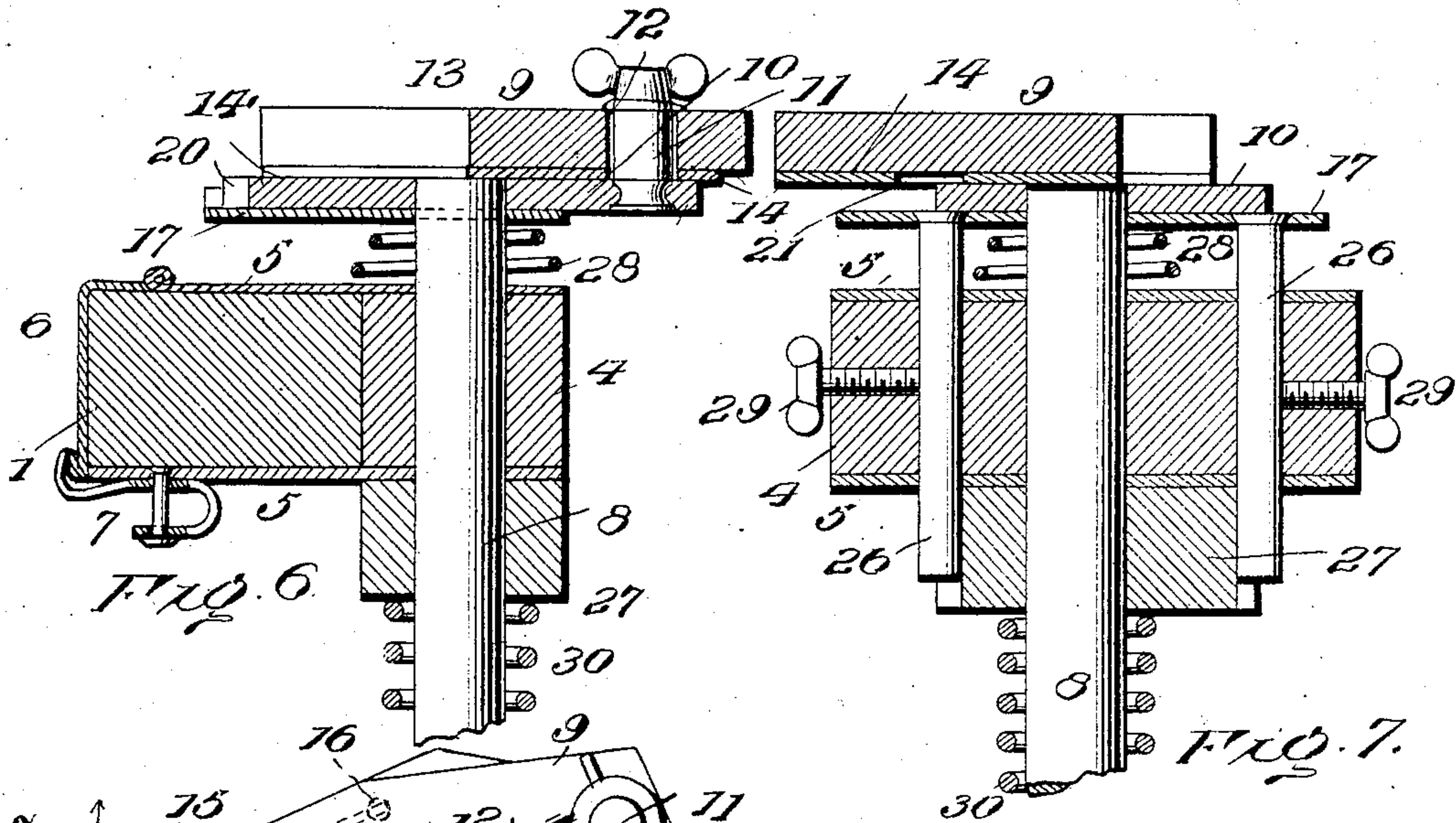
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Witnesses

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# UNITED STATES PATENT OFFICE.

ANDREW C. ANDERSON, OF JACKSON, MINNESOTA, ASSIGNOR OF ONE-HALF TO HANS H. ANDERSON, OF JACKSON, MINNESOTA.

## MACHINE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 785,930, dated March 28, 1905.

Application filed April 14, 1904. Serial No. 203,169.

*To all whom it may concern:*

Be it known that I, ANDREW C. ANDERSON, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Minnesota, have invented certain new and useful Improvements in Machine-Wrenches, of which the following is a specification.

This invention provides a special construction of wrench which is especially devised for use in connection with threshing-cylinders for removal of the teeth thereof or for securing said teeth in position.

As is well known, the proximity of the teeth of threshing-cylinders makes it very difficult to remove the nuts from the teeth or to screw the said nuts upon the teeth with an ordinary wrench or like implement.

It is therefore the essential object of this invention to secure a wrench device which will quickly remove the nut from the tooth of a threshing-cylinder, as well as facilitate the screwing of the nut upon said tooth.

In the preferred contemplation of my invention the same comprises a support which is adapted to be quickly attached to the cylinder-bar which carries the teeth which are to be placed in position or removed, and this support is provided with peculiar operating means in the form of a movable actuator for engagement with the nut or a tooth by which the said nut is operated upon for the desired purpose.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a wrench device embodying my invention. Fig. 2 is a detail view of the movable actuator. Fig. 3 is a broken perspective view of the shaft and adjacent crank parts. Fig. 4 is a perspective view of the guide member cooperating to di-

rect the movement of the movable actuator. Fig. 5 is a detail perspective view of the engaging member carried by the support and cooperating with the guide member which directs the movement of the nut-actuator. Fig. 6 is a vertical sectional view. Fig. 7 is a second vertical sectional view taken about on the line *xx* of Fig. 8. Figs. 8 and 9 are plan diagrammatic views showing the relative positions of the movable actuator in engaging and disengaging from the nut. Fig. 10 is another diagrammatic view illustrating the range of movement of the movable actuator in its engagement with the nut. Fig. 11 is a broken sectional view showing the engagement of the flange of the guide member with the engaging member of the support. Fig. 12 is a broken view, partially in section, showing more clearly the form of the handhold and the handle member adapted to be reversed relative thereto.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In the drawings a portion of the cylinder-bar 1 is illustrated, the cylinder-teeth 2 being secured thereto in the usual manner by means of the nuts 3. My invention comprises, essentially, a head or support 4, adapted to be detachably mounted upon the cylinder-bar 1, which head or support constitutes the means for carrying the operating device which contacts with the nut 3 of a cylinder-tooth. This support preferably comprises a block of substantial form, and secured to the upper and lower sides of this head or support 4 are clamp-plates 5, the uppermost of which has pivoted thereto a latch-plate 6, which is adapted to prevent displacement of the support from the bar 1. The latch-plate 6 when closed engages a side of the cylinder-bar, and the latter is thus inclosed and clamped in such a manner as to rigidly hold the support 4 in position, a spring-catch 7 being secured to the lower or under clamp-plate 5 for engagement with the latch-plate 6 to lock same closed. To remove the support 4 from the bar 1, it is only necessary to disengage the catch 7 from



the latch-plate 6 in a manner which will be readily comprehended.

The operating means carried by the support 4 consists, primarily, of a shaft 8 mounted therein, and a movable actuator 9, which is operably connected with the shaft 8. A crank 10 is carried by one end of the shaft 8, and a crank-pin 11, projected from the crank 10, is received by a slotted opening 12 in the actuator 9 aforesaid. The actuator 9 is provided with a jaw 13, which latter is adapted to engage the nut which is being operated upon in the movement of the actuator. The actuator 9 is adapted for an oscillatory movement, having a pin-and-slot connection, virtually, with the crank-shaft 8, and this oscillatory movement, which is imparted by revolution of the shaft 8, causes the member 9 to move toward and from the shaft, so as to alternately engage and disengage therewith. When the actuator 9 is engaged with the nut at an ascertained point in its oscillatory movement, it rotates this nut to a certain extent in a direction dependent, of course, upon the direction of revolution of the shaft 8, and hence it will be seen that the actuator 9 may be utilized to either remove the nut 3 with which it coöperates or screw the same into proper position. In order that the movable actuator 9 may be properly directed in its movement, so as to engage the nut at the proper time and with certainty, special guide means have been designed which are particularly adapted for use in connection therewith. This guide means consists of a guide member 14, disposed beneath the actuator 9 and provided with longitudinal slots 15. The slots 15 receive guide-pins 16, which are projected from the under side of the actuator 9, and these pins moving longitudinally in the slots 15 guide the movement of the actuator with reference to the guide member 14 aforesaid. The guide member itself is movably mounted also, being held, however, in an ascertained position with reference to a certain nut by means of an engaging plate 17, which is carried by the support 4, this engaging plate being provided adjacent opposite end portions with upwardly-projecting flanges 18. The flanges 18 are formed integral with the plate 17, and slightly in rear of each of the flanges 18 of this plate is a projection 19, extended upwardly therefrom, between which projection and the adjacent flange 18 is received a pendent flange 20, carried by the guide member 14, as shown most clearly in Fig. 11 of the drawings. The flanges 20 and 18 of the members 14 and 17, respectively, are formed on the arc of a circle in order that the guide member when the actuator 9 is being oscillated may itself have a slight rotatory movement.

In the movement of the guide member 14 above indicated the end portion of this member, which is disposed adjacent to the nut, so that the actuator will always be directed

toward the nut, is held in this position by means of the engaging coöperation of its flange 20 with the flange 18 and the projection 19 at one end of the engaging plate 17. The engaging plate 17 is provided with an opening through which the shaft 8 passes, the crank-arm 10 of this shaft being located upon the plate 17. The guide member 14, in addition to the corresponding slots 15, is also provided with an open slot 21 of somewhat larger formation within which the crank-pin 11 moves in the actuation of the movable member thereby. In the construction herein described it is necessary that the crank-pin have a slidable engaging relation as regards both the actuator 9 and the guide member 14 for reasons which will be obvious.

The engaging plate 17 has been described as having independent engaging members or flanges 18 and projections 19 located adjacent opposite ends thereof. In the practical application and use of the invention it is contemplated that the support 4 be secured to the cylinder-bar 1 at points between proximal teeth 2. When thus disposed it will be apparent that it is of immense advantage that the movable actuator 9 be so mounted as to be adapted for ready reversal, so as to operate upon the adjacent nuts of the said teeth 2 without making necessary a detachment of the device and disposal of same in a new position. With the foregoing in view, therefore, the engaging plate is constructed as hereinbefore set forth in order that the actuator 9, after same has operated upon one nut, may be reversed and disposed so as to operate upon the next adjacent nut. The foregoing admits of operation of two nuts without moving the wrench, and therefore a saving of time is resultant, especially when it is known that threshermen usually have to repair their threshing-cylinders at night. To reverse the actuator 9, it is only requisite that the flange 20 of the guide member 14 be disengaged from one end of the engaging plate 17 and reversed in position, and engaging with the opposite end after this has been done said actuator will coöperate with the second nut in the same manner as with the first nut which has been already operated upon.

Describing the relative movement of the parts 9 and 14, it may be said that as the shaft 8 is rotated the crank-pin 11 thereof imparts an oscillatory movement, as well as a reciprocal movement, to the actuator because of the slidable connection of the pin 11 with the latter. The reciprocatory movement of the actuator 9 causes same to move into engagement and out of engagement with the nut, and the oscillatory movement of the actuator serves to rotate the nut during the movement of the same therewith, the movement of the actuator being in the plane of rotary movement of the pin 11. While the actuator is being moved as above described the guide-



member 14 has imparted thereto a rotatory movement, the crank-pin 11 moving longitudinally of the slot 21 through same. The relative movements are clearly illustrated in Figs. 8, 9, and 10. The shaft 8 is revolved by means of a handle member 22, and the latter comprises a shank which is squared at one end, as shown at 22<sup>a</sup>, so as to be received in a square socket 22<sup>b</sup> in the end of the shaft 8 aforesaid. The opposite end of the shaft 22 is provided with a hexagonal-shaped socket 22<sup>c</sup>. The handle member 22 when revolved will impart a like movement, of course, to the shaft 8, and said handle member 22 is actuated by means of a handhold 23. The handhold has projected from one side thereof a hexagonal-shaped extension 24, adapted to be received by the socket 22<sup>c</sup> of the handle 22, and upon the opposite side thereof this handle member is provided with a square socket 23<sup>a</sup>. The handle member 22 is adapted to be secured to the shaft and the handhold 23 by means of ordinary transverse pins 25, utilized for this purpose. The purpose of the construction of the handle member 22 is to admit of reversal of same when removed from the shaft 8, so as to form an ordinary rigid wrench, which may be utilized to screw nuts of hexagonal form, such as are used for holding the teeth upon the threshing-cylinder and the concave adjacent said cylinder. In unscrewing the nuts of the teeth of the concave the handle member 22 is removed from the shaft, and the squared end 22<sup>a</sup> is inserted into the square socket 23<sup>a</sup> of the handhold and secured in such position. The end of the handle member 22 provided with the hexagonal-shaped socket 22<sup>c</sup> is thus adapted to receive a nut, so as to screw or unscrew the same from the teeth of the concave. In other words, my wrench device can be readily utilized, and very advantageously so, for operation upon the nuts of the cylinder, and the operative means in the form of the handle member 22 and the handhold 23 may be also utilized to form an ordinary socket-wrench to operate upon the nuts of the teeth of the concave, the parts being all arranged in a single operative device.

The engaging plate 17 is mounted upon supporting-pins 26, which pass through openings in the head or support 4, engaging with a bearing-block 27 upon the side of the support or head 4 opposite to that adjacent which the actuating devices are located. The engaging plate is loosely mounted upon the pins 26, which are spaced from each other, and a spring 28 is interposed between the engaging plate and the upper clamp-plate 5, which is secured to the head or support 4.

In certain instances it is desirable that the actuator 9 be adapted for adjustment toward and from the support 4, so as to cooperate with nuts, which may be a greater or less distance from the cylinder-bar 1. To admit of the foregoing, the plate 17 is adjustably

mounted as regards the support 4, and in order to adjust same in an ascertained position relative to the support set-screws 29 are secured to the support and are adapted to engage and clamp against the supporting-pins 26, so as to fixedly position these pins relative to the support. The normal position of the engaging plate 17, however, is adjacent the support 4, and said plate is held in this position by means of a mainspring 30 of the coil type, which is disposed about the shaft 8 and which bears against the bearing-block 27, so as to hold the engaging plate and actuating devices which cooperate with the nut in compact and closed arrangement as regards the head 4. The spring 30 overcomes normally the tension of the spring 28, so as to hold the plate 17 adjacent the head or support 4. When it is desired to move the engaging plate a greater distance from the support than that which it assumes when in its normal position, said plate is forced outward, the tension of the spring 30 being overcome to accomplish this. When the plate 17 has been adjusted to its proper position, so that the actuator 9 will cooperate with the nut, the set-screws 29 are manipulated so as to engage the supporting-pins 26 and the shaft 8. The plate 17 is now held hard against the outer ends of the supporting-pins by the action of the coil-springs 28. To cause the parts to assume their normal positions, the set-screws 29 are turned so as to disengage from the pins 26 of the shaft, whereupon the tension of the spring 30 forces the shaft and the actuator 9 and adjacent parts so as to move the latter toward the head 4, the tension of the spring 28 being overcome, as before premised.

Having thus described the invention, what is claimed as new is—

1. In a wrench of the class described, the combination of a head or support, a shaft mounted thereon, a crank extending from said shaft, a crank-pin carried by the crank, and a nut-engaging actuator connected with the crank-pin and movable in the plane of rotary movement of said pin.

2. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, and an oscillatory actuator adapted to engage the nut and operated by the crank-shaft aforesaid.

3. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, and a movable actuator provided with a nut-engaging jaw or like part and slidably connected with the crank of the shaft aforesaid.

4. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator provided with a nut-engaging jaw, and a pin-and-slot connection between the actuator and the crank-arm of the shaft aforesaid.

5. In a wrench of the class described, the



combination of a head or support, a crank-shaft mounted thereon, a movable actuator operably connected with the crank-shaft, and independent guide means directing the movement of said actuator.

6. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator operably connected with the crank-shaft, and guide means carried by the head or support and cooperating with the actuator to direct the movement of the latter.

7. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted on said head or support, an engaging member carried by the support, a movable actuator operably connected with the crank-shaft and adapted to engage a nut, and guide means cooperating with the engaging member and movable actuator.

8. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted on said head or support, an engaging member carried by the support, a movable actuator operably connected with the crank-shaft and adapted to engage a nut, and a movable guide member cooperating with the engaging member and movable actuator.

9. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted on said head or support, an engaging member carried by the support, a movable actuator operably connected with the crank-shaft and adapted to engage a nut, and a movable guide member engaging the movable actuator and the engaging member aforesaid to direct the movement of said actuator.

10. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging member carried by the head or support, guide means cooperating with said engaging member, and a reversibly movable actuator operably connected with the crank-shaft and adapted to engage a nut.

11. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging plate carried by the support, independent engaging members projected from the engaging plate aforesaid, a guide member cooperating with the engaging members of the engaging plate aforesaid, and a reversibly-mounted nut-actuator operably connected with the crank-shaft.

12. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging plate carried by the support, independent engaging members projected from the engaging plate aforesaid, a guide member cooperating with the engaging members of the engaging plate aforesaid, and a reversibly-mounted nut-actuator cooperating with the independent engaging members of the engaging plate.

13. In a wrench of the class described, the combination of a support or head, a crank-shaft mounted thereon, a guide member, an adjustable guide member cooperating with the engaging member, and a movable nut-actuator actuated with the guide member and operably connected with the crank-shaft aforesaid.

14. In a wrench of the class described, the combination of a head or support, an oscillatory actuator mounted upon said head or support and provided with an opening therein, and a crank-shaft having a crank-pin received by the said opening of the actuator for actuation thereof.

15. In a wrench of the class described, the combination of a head or support, an engaging plate mounted upon said head or support and movable toward and from the same, a movable actuator, means for fixing the position of the actuator relative to the engaging plate aforesaid, and means for operating said actuator.

16. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, a movable actuator operably connected with the crank-shaft, and detachable clamp members secured to the head or support.

17. In a wrench of the class described, the combination of a support or head, an engaging plate carried by said head or support, a movable guide member cooperating with the engaging plate, and a movable nut-actuator cooperating with the guide member aforesaid and operably connected with the crank-shaft.

18. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted thereon, an engaging plate carried by the head or support, a guide member cooperating with said engaging plate, and a nut-actuator slidably engaging the guide member aforesaid and operated by the crank-shaft.

19. In a wrench of the class described, the combination of a head or support, a crank-shaft mounted upon said head or support, an engaging plate carried by said head or support, engaging members projected from the engaging plate, a guide member movably engaging the engaging members of the engaging plate, a movable nut-actuator slidably connected with the guide member aforesaid and directed in its movement thereby, the crank-shaft being operably connected with the actuator and guide member aforesaid.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW C. ANDERSON. [L. s.]

Witnesses:

D. F. CARSON,

A. B. CHEADLE.