A. MASZCZYK.

OPERATING MEANS FOR HINGED TOOLS.

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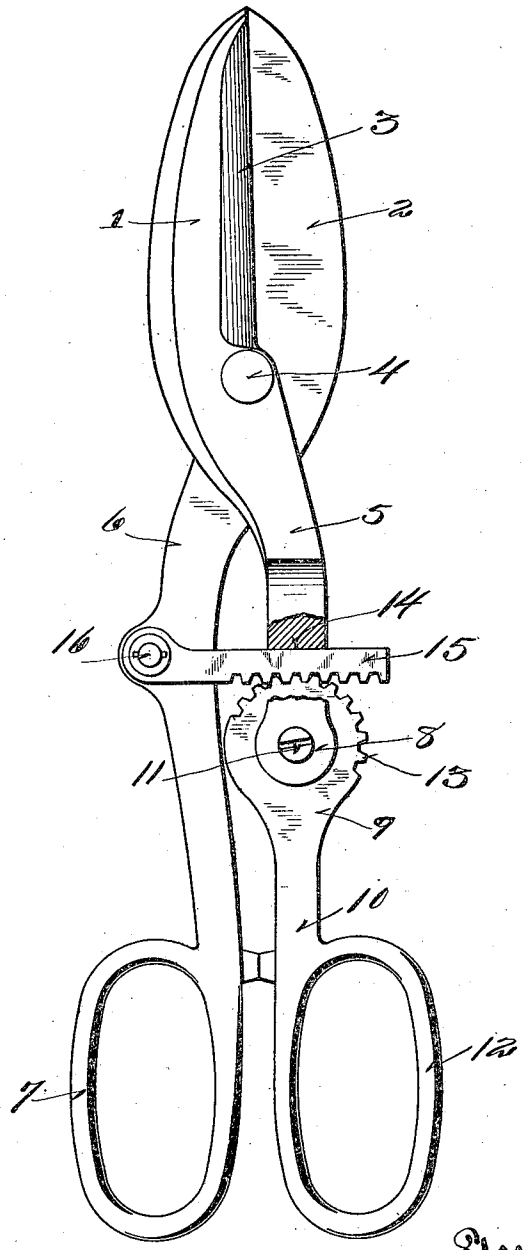
1,395,758. Patented Nov. 1, 1921.



Inventor

Alexander Maszczyk

Witness

Robert Weber

By Young & Young

Attorneys

UNITED STATES PATENT OFFICE.

ALEXANDER MASZCZYK, OF MILWAUKEE, WISCONSIN.

OPERATING MEANS FOR HINGED TOOLS.

1,395,758. Specification of Letters Patent. Patented Nov. 1, 1921.

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To all whom it may concern:

Be it known that I, ALEXANDER MASZCZYK, a citizen of Poland, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Operating Means for Hinged Tools; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in hinged tools, such as shears, pincers and the like having pivoted jaws, and particularly pertains to the actuating means thereof.

One important object of the present invention is to provide means for adjusting the handles of a hinged tool with respect to each other so that varying degrees of leverage may be imparted to the pivoted jaws or work engaging faces thereof.

An additional object of the invention is to provide a device of this character with means for changing the relative positions of the handles thereof to enable the pivoted jaws to be moved a greater or a lesser distance apart.

Still another object of the invention is to so incorporate the primary features in a pair of shears, whereby the blades thereof may be arranged to cut predetermined amounts.

The drawing illustrates a face view of a shears embodying the features of my invention, parts being broken away and in section to more clearly illustrate structural features.

With these general objects in view the invention resides in the novel features of construction, combination and arrangement of parts which will be hereinafter more particularly described and claimed and shown in the accompanying drawing in which the figure represents a plan view, partly in section, of a pair of metal cutting shears constructed in accordance with the invention.

Although I have illustrated my invention as forming part of a pair of metal cutting shears, it is obvious that the principles thereof may be readily incorporated in any substantially similar tool having a pair of pivoted handles each having a work engaging jaw. In other words the invention is applicable to any tool whose work engaging jaws are movable toward and away from each other by corresponding and reverse movement of the tool handles. Furthermore various changes may be made in the different details of construction of the several parts of the invention without departing from the principles thereof or sacrificing any of the advantages.

Referring more particularly to the depicted embodiment of the invention, the reference characters 1 and 2 denote similar jaws having coöperating shear blades 3, which jaws are hinged together at one end by means of a relatively fixed pivot 4. The jaw 1 is carried by and forms an extension of a comparatively short handle 5, whereas the jaw 2 projects from a handle 6 of normal length, the free end of this handle having a hand receiving loop 7.

The free end of the handle 5 is recessed to form ears 8 between which the circular head 9 of a handle extension 10 is pivoted; a screw or the like 11 extends through said furcations and the head to connect the same together. The length of the handle 5 and the handle extension 10 is approximately the same as that of the handle 6, and said handle extension is provided with a hand receiving loop 12 corresponding to and for coöperation with the loop 7.

A part of the periphery of the circular head 9, especially that portion normally disposed within the bifurcated end of the handle 5, is provided with a series of teeth 13 whereby a toothed sector is formed. It will be noted that these teeth are located equi-distant from the pivot 11 and are spaced from the bottom 14 of the recess formed by the ears 8. This space is normally occupied by the free end of the toothed portion of a transversely disposed straight rack bar 15, the teeth of which engage the teeth 13. The other end of the rack bar 15 is pivoted as at 16 to the handle 6 in such a position that the longitudinal axis of the bar is substantially at right angles to the similar axis of the tool.

It will thus be observed that the space between the bottom of the ear recess and tooth head 9 forms a guide throat for the reception of the rack bar, and furthermore simplicity in the manufacture of the device is added, due to the fact that the jaw members are pivoted in the ordinary manner, and that each of them have extending therefrom a normal link actuating handle, one of which handle is interrupted by pivot connection in the form of a tooth segment for

meshed engagement with the rack bar or transversely disposed link, which is simply pivoted to the rigid handle of the seat.

When it is desired to operate the tool to move the jaws 1 and 2 toward and away from each other, the handle loops 7 and 12 are moved toward and away from each other as is customary in devices of this character. However, the movement of the handle extension 10 is imparted through the toothed sector to the rack bar 15 with the result that the jaws are moved with respect to each other, and owing to this engagement between the sector and the rack bar, the force applied to the loops 7 and 12 is very materially multiplied in the jaws 1 and 2. By entirely disengaging the rack bar 15 from the teeth 13 and then reëngaging the teeth of the former with different teeth of the head 9, various changes in leverage is possible. Likewise by relatively shifting the rack bar and head 9 with respect to each other, the amount of opening and closing movement of the jaws 1 and 2 is variable. This is quite important in changing the position of the jaws with respect to each other after the shear blades 3 have been sharpened, and especially after considerable metal thereof has been removed through much grinding. Although the different parts of the tool are very simply constructed and easily assembled or disassembled it is obvious that they will be retained in effective coöperating relationship when in use, the sliding engagement between the bottom 14 and the straight edge of the rack bar 15 efficiently retaining the parts in contact.

I claim:

A tool of the character described comprising a pair of jaw members, one of which has a comparatively long handle extension terminating with a grip, and the other a handle extension terminating with a recess forming ears, a pivot connection between the jaw members, a handle extension having a grip at one end associated with the long handle grip, and terminating at its inner end with a circular tooth head mounted between the ears, a pivot connection between the head and ears, the said tooth head being spaced from the bottom of the ear recess to form a rack guide, and a transversely disposed straight rack in pivotal union with the long handle, the same being extended into the guide formed by the ear recess and adapted to be adjustably meshed with the teeth of the aforesaid head, whereby the opening and closing movement of the jaws will be predeterminingly regulated.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

ALEXANDER MASZCZYK.