

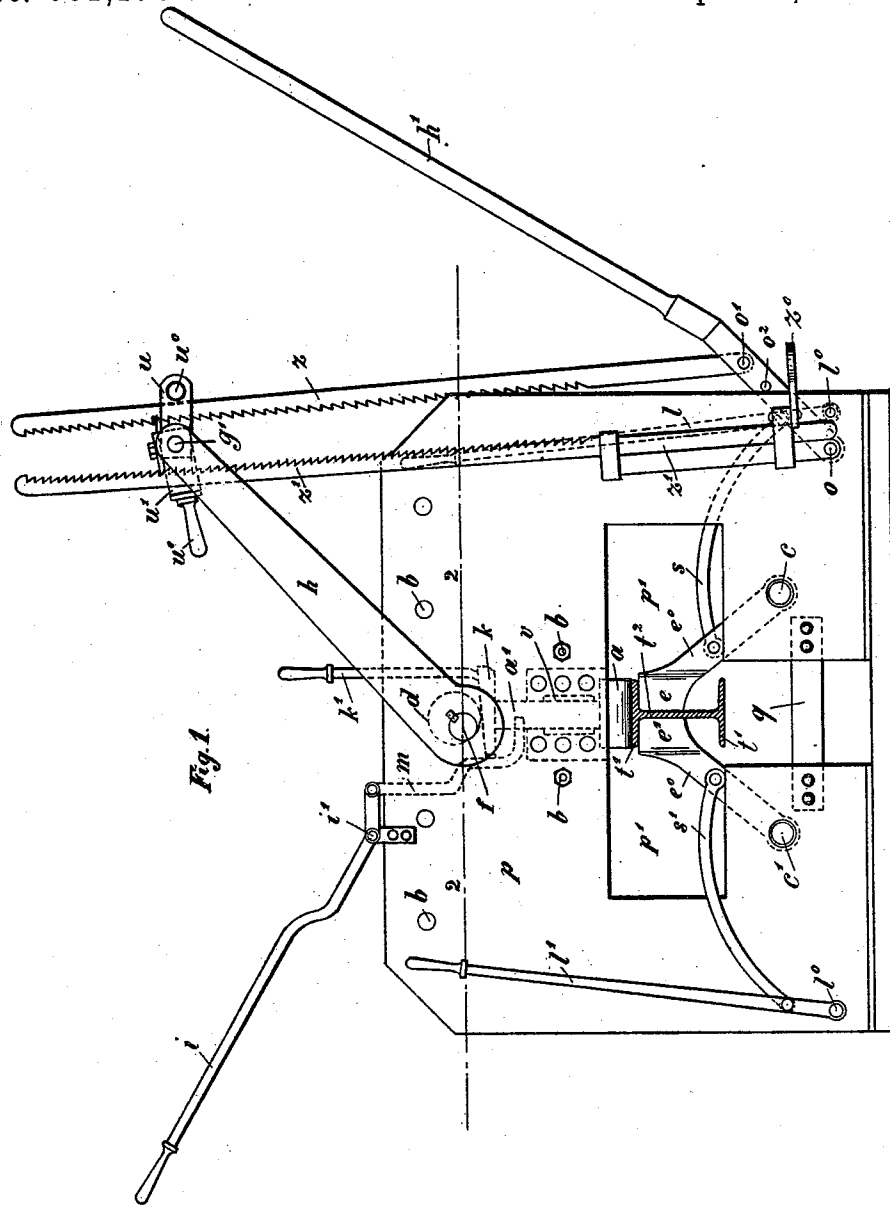
(No Model.)

2 Sheets—Sheet 1.

W. SCHULZE.
T-IRON SHEARS.

No. 581,176.

Patented Apr. 20, 1897.



Witnesses
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E. A. Best.

Inventor
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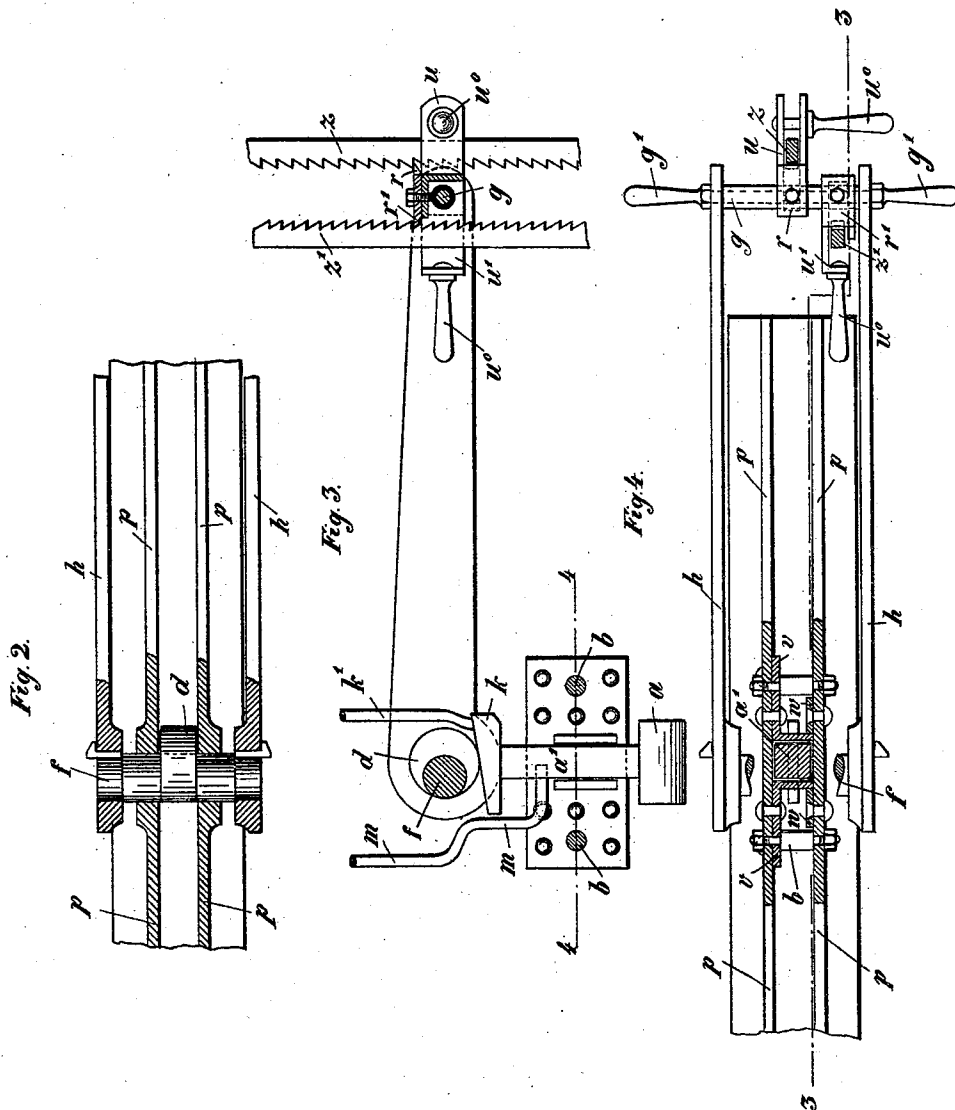
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UNITED STATES PATENT OFFICE.

WILHELM SCHULZE, OF KÖTHEN, GERMANY, ASSIGNOR OF ONE-HALF TO
EDUARD NAUMANN, OF SAME PLACE.

T-IRON SHEARS.

SPECIFICATION forming part of Letters Patent No. 581,176, dated April 20, 1897.

Application filed April 17, 1896. Serial No. 588,036. (No model.) Patented in Germany March 13, 1895, No. 84,960; in Austria January 2, 1896, No. 13/46; in Belgium May 26, 1896, No. 121,583, and in England September 28, 1896, No. 21,424.

To all whom it may concern:

Be it known that I, WILHELM SCHULZE, a subject of the Emperor of Germany, residing at Köthen, in the Duchy of Anhalt, German Empire, have invented new and useful T-Iron Shears, of which the following is a specification.

The invention has been patented in Germany, No. 84,960, dated March 13, 1895; in Belgium, No. 121,583, dated May 26, 1896; in England, No. 21,424, dated September 28, 1896, and in Austria, Vol. XIII, fol. 46, dated January 2, 1896.

My present invention relates to machine-tools for cutting off iron bars of T, I, and similar sections; and it consists in an arrangement of two auxiliary side blades each adapted to fit into one of the two angular spaces which are formed by the flange and the web of the bar, so as to touch the surfaces of both parts and to support the bar during the cutting operation. These side blades are pivoted to the frame at such points that the pressure exerted on the bar by pressing the main blade against the outer surface of the flange not only forces the side blades into the flange from its innerside, but forces them into the web. If an I-iron is to be cut, the shears are first made to operate on one T and the bar is reversed for the other T to be cut.

In the annexed drawings, Figure 1 is a front view of a machine-tool constructed according to my invention for cutting bars of T, I, and similar sections. Fig. 2 is a horizontal section on line 2 2 in Fig. 1. Fig. 3 shows in a vertical section on line 3 3 in Fig. 4 the operating device of the machine. Fig. 4 is a horizontal section on line 4 4 in Fig. 3.

The frame of the machine consists of two plates *p p*, which are connected by stays *b*. An aperture *p'* in either plate allows the bar to be introduced, the bar being represented as of I section, having two flanges *t' t'* and a web *t*. A cross-piece *q* in the lower part of the aperture may serve as a support for facilitating the introduction and the reversal of the I-bar. The angular side blades *e e'* form the ends of arms *e⁰ e⁰*, which are pivoted to the frame at *c c'*. As will be seen from the drawings, the pivot of either side blade is

situated beneath and outwardly form the angular cutting edges of the blade when in operative position, so that both blades by a downwardly-directed pressure on their upper edges will be directed toward each other, so as to cut the web *t* from both sides. For moving the side blades into and out of their working position their arms *e⁰ e⁰* are connected by links *s s'* with hand-levers *l l'*, pivoted to the frame at *l⁰ l⁰*.

The main blade *a* is by means of its stem *a'* vertically guided between a pair of flanges of two angular bars *v v*, the other flanges of which are riveted to one of the plates *p*, while two flat bars *w w*, riveted to the other plate *p*, prevent the guiding-flanges from being bent outwardly. The blade *a* is pressed down by the action of a cam *d*, (shown as an eccentric disk,) which is arranged on a short shaft *f*, mounted in the plates *p*. The cam *d* is preferably at such a distance from the stem *a* that a wedge *k* with a handle *k'* may be interposed. In this case when the blades have been operated the blade *a* may be raised (for which purpose a rod *m* is connected with the stem *a'* of the blade and adapted to be managed by means of a hand-lever *i*, pivoted to the frame at *i'*,) without previously lifting the levers *h* as soon as the intermediate wedge *k* has been removed. Moreover, the I-bar may be more easily introduced into the machine and reversed therein, if a greater space between the main blade and the side blades is provided for than is required by the thickness of the flanges *t*.

The cam *d* may be operated by any suitable means. In the construction shown two levers *h h*, provided with handles *g' g'*, are for this purpose secured to the ends of the shaft *f* and immovably connected to each other by a rod *g*, which carries two rocking brackets *u u'*, provided with handles *u⁰ u⁰* and ratchet-dogs *r r'* and embracing racks *z z'*. Of these racks *z'* is pivoted to the frame at *o* and provided at its lower part with a foot-step *z⁰*, by means of which it may be swung outwardly to engage the dog *r'*. The rack *z*, which is adapted to engage the dog *r*, is pivotally connected at *o'* or *o²* with a hand-lever *h'*, pivoted to the frame at a suitable point—

for instance, as shown, at the same point *o* where the rack *z'* is fulcrumed. The pitch of rack *z'* is smaller than that of rack *z*.

The operation of the mechanism for moving the cam *d* is as follows: By pressing down the lever *h'* the rack *z* is lowered, and as it is connected by means of dog *r*, bracket *u*, rod *g*, and levers *h h* with shaft *f* the cam *d* on this shaft is turned over an angle corresponding to the downward stroke of the lever *h'* toward the wedge *k*, so as to operate the cutting-blades. During this movement the dog *r'* slides downward over the teeth of the rack *z'* and engages this rack at the end of the movement. This engagement may be secured by using the foot-step *z⁰*, while the lever *h'* is raised for another stroke and the teeth of the rack *z* slide over the dog *r*, the rocking bracket *u* swinging slightly upwardly to allow this sliding movement.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In combination in a machine for cutting T-irons, a pair of side cutters having right-angular cutting edges arranged to fit into the corners of the iron and against the web and

flange forming said corners, a main cutter operating on the outer face of said flange against which the side cutters bear and means for operating the main cutter, said side cutters being pivoted to press toward each other under the thrust of the main cutter, said side cutters coöperating with the main cutters to cut the flanges and being also pressed inwardly to cut the web, substantially as described,

2. In combination in a machine for cutting T-iron, a pair of side cutters arranged to fit into the corners formed by the flange and web, said cutters extending upwardly and inwardly from their pivot-points to support the T-iron, and a main cutter with means for operating the same vertically toward the pair of side cutters, said side cutters being adapted to be pressed inward under the thrust of the main cutter, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILHELM SCHULZE.

Witnesses:

CARL ROBERT GRUMENT,
ERWIN RAABE.