

No. 691,883.

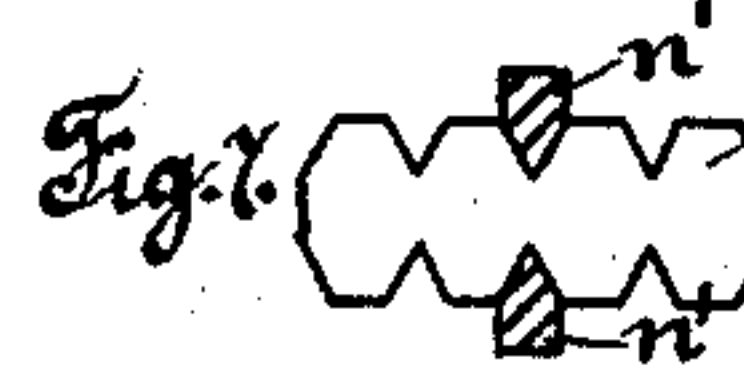
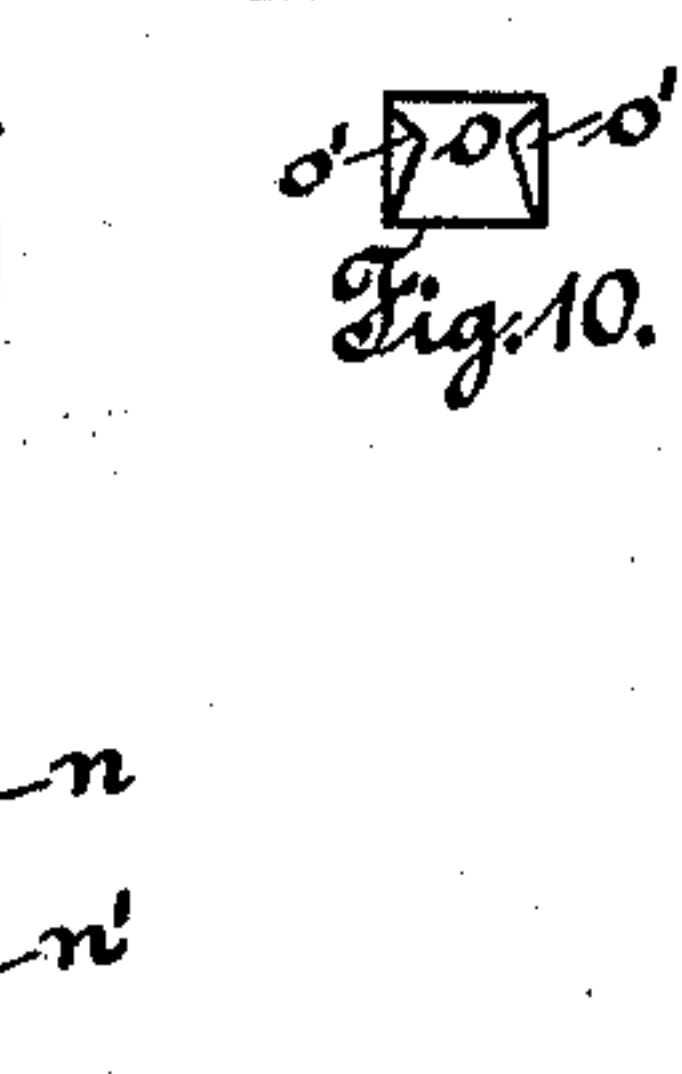
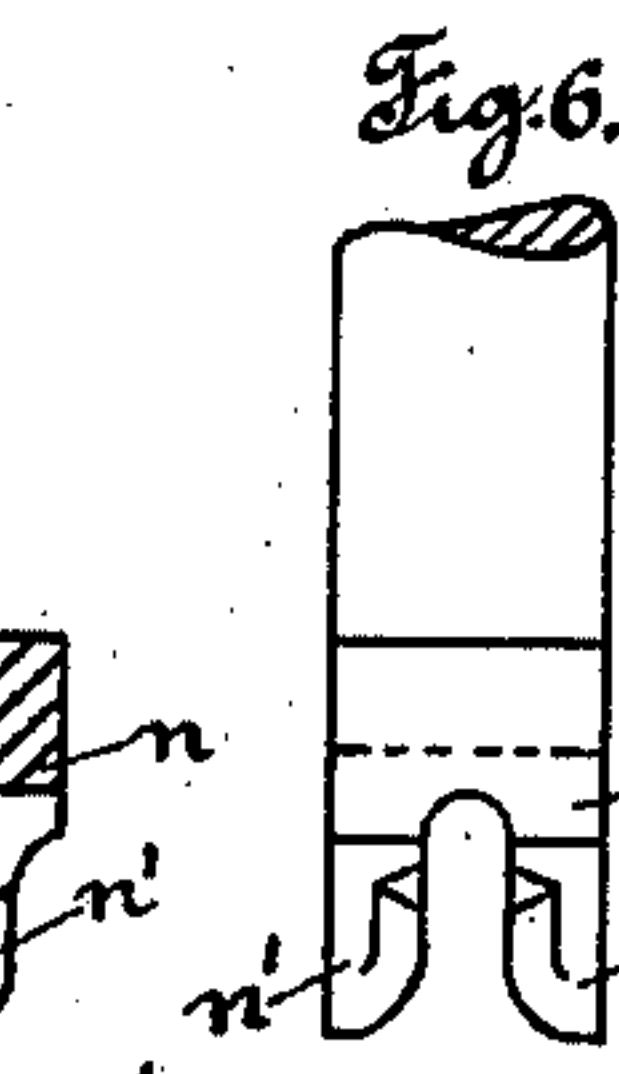
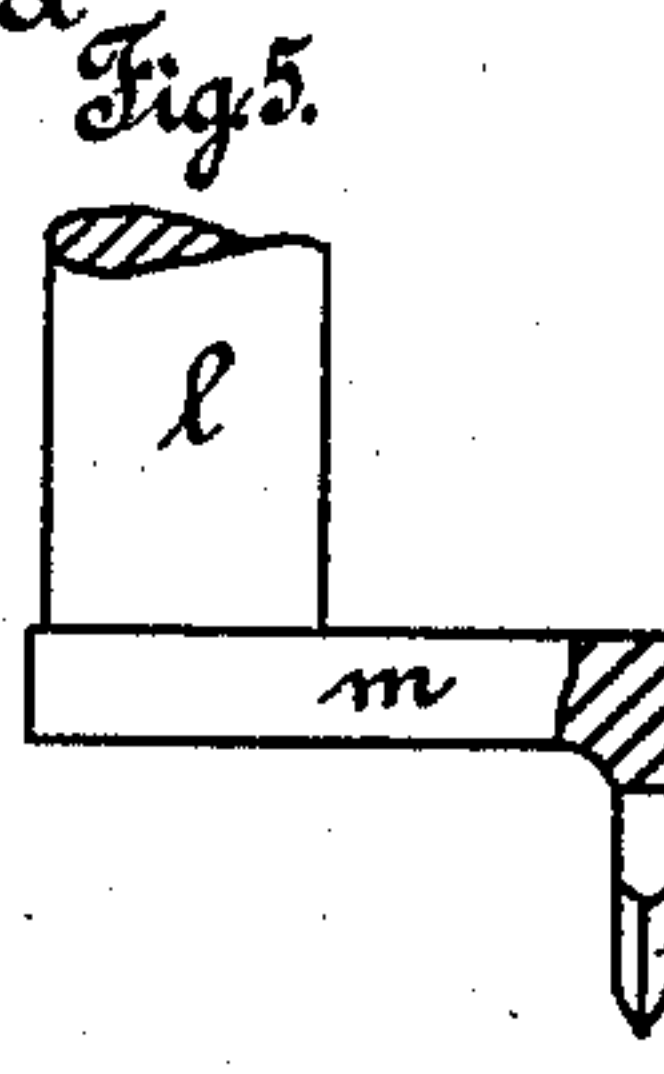
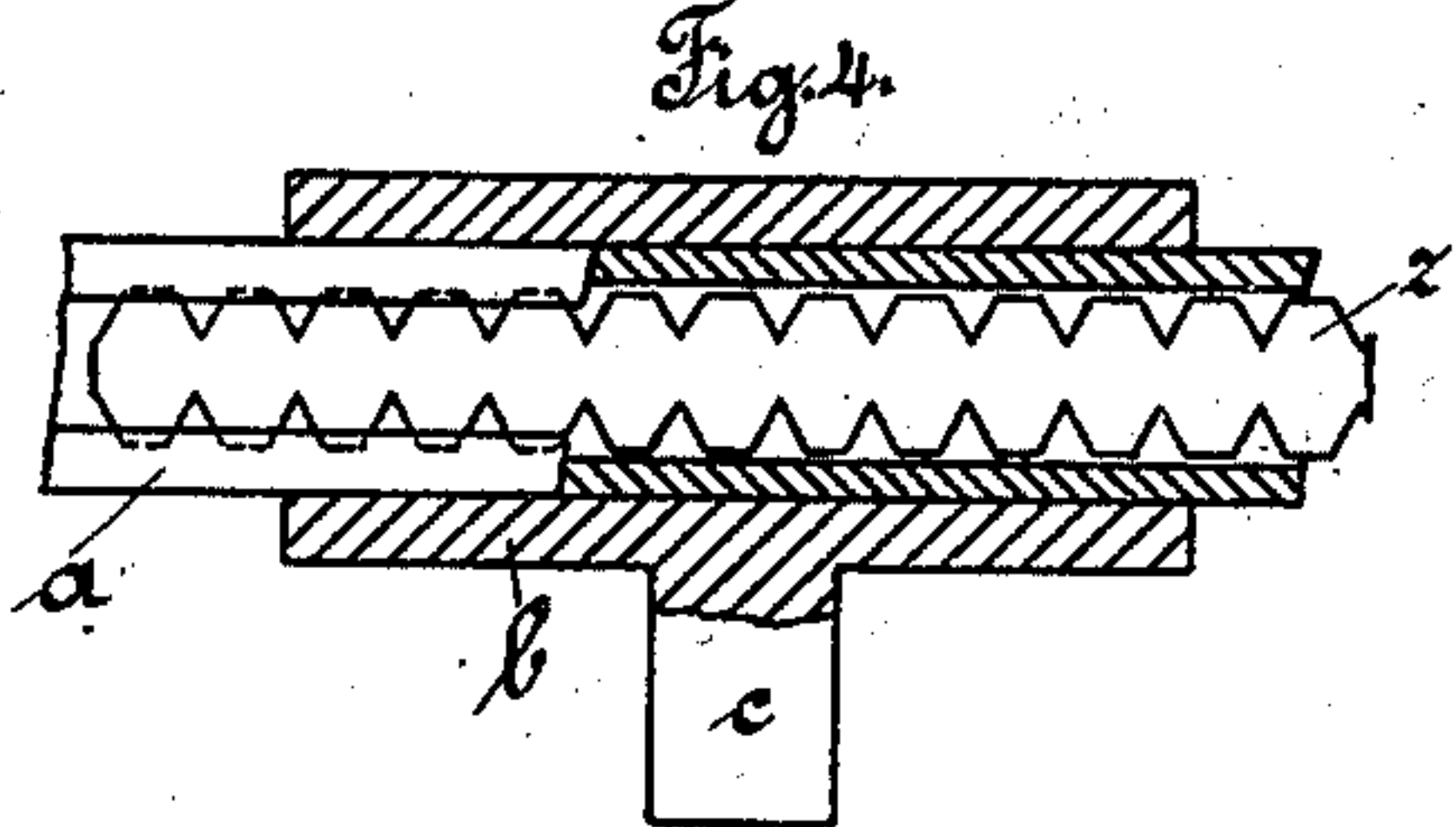
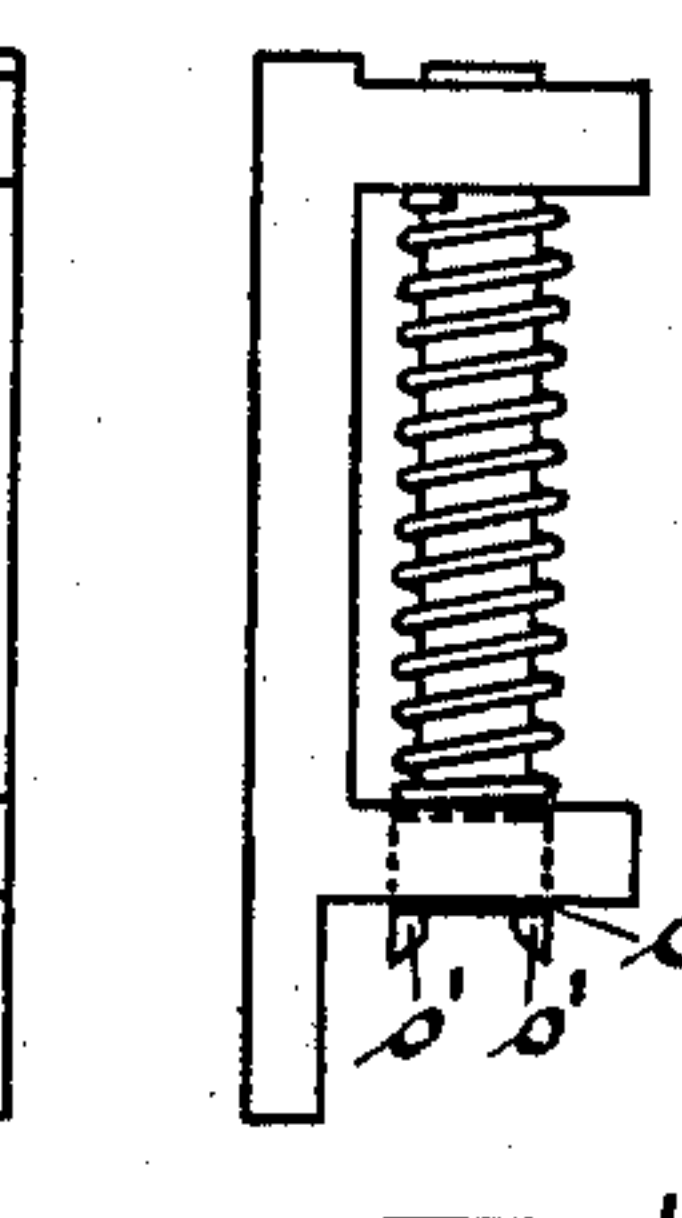
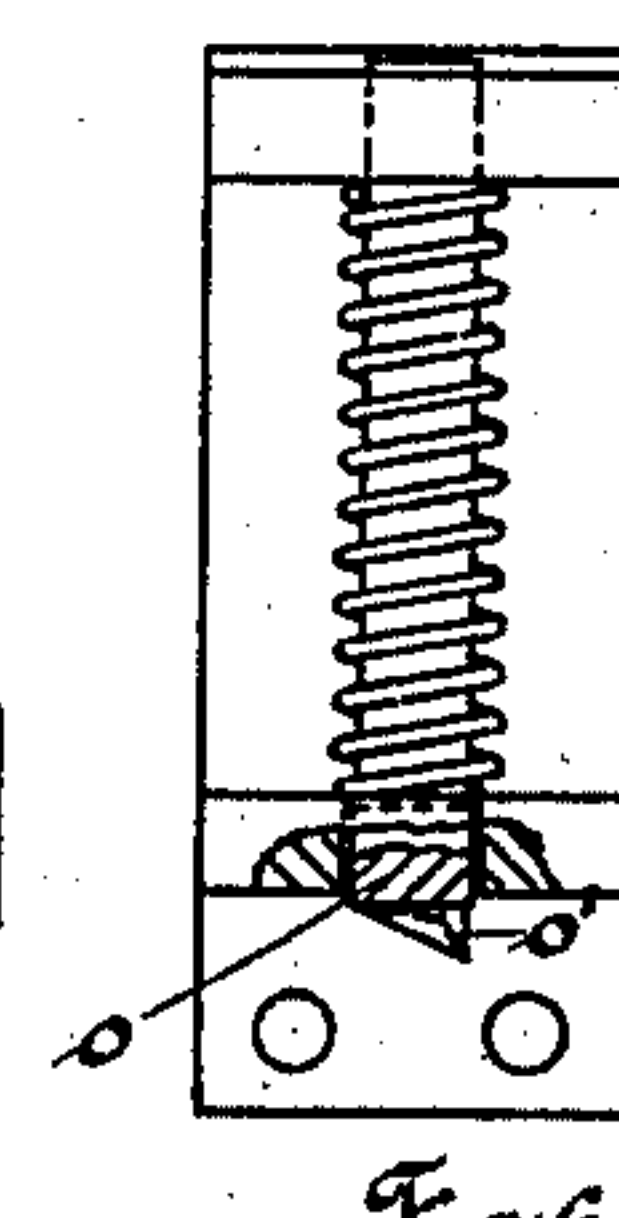
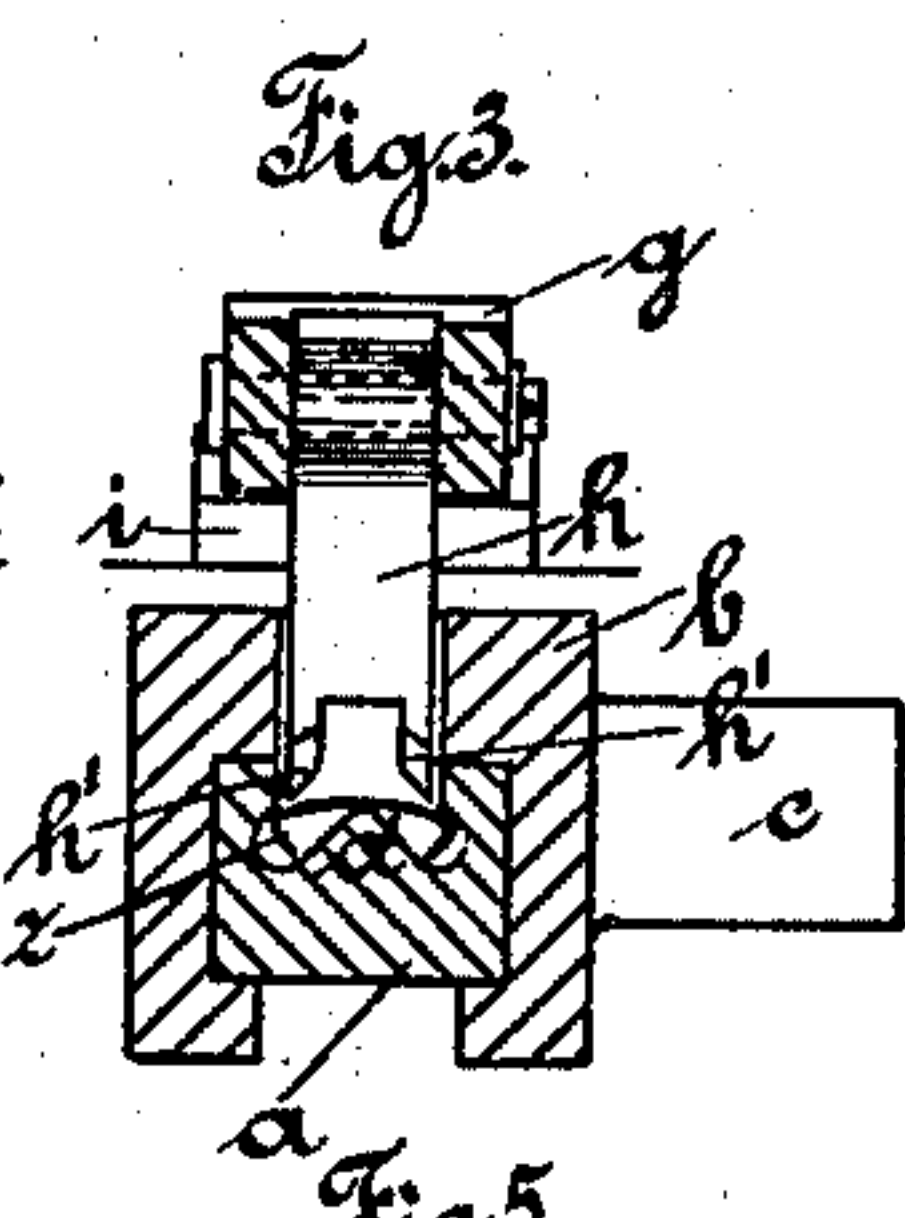
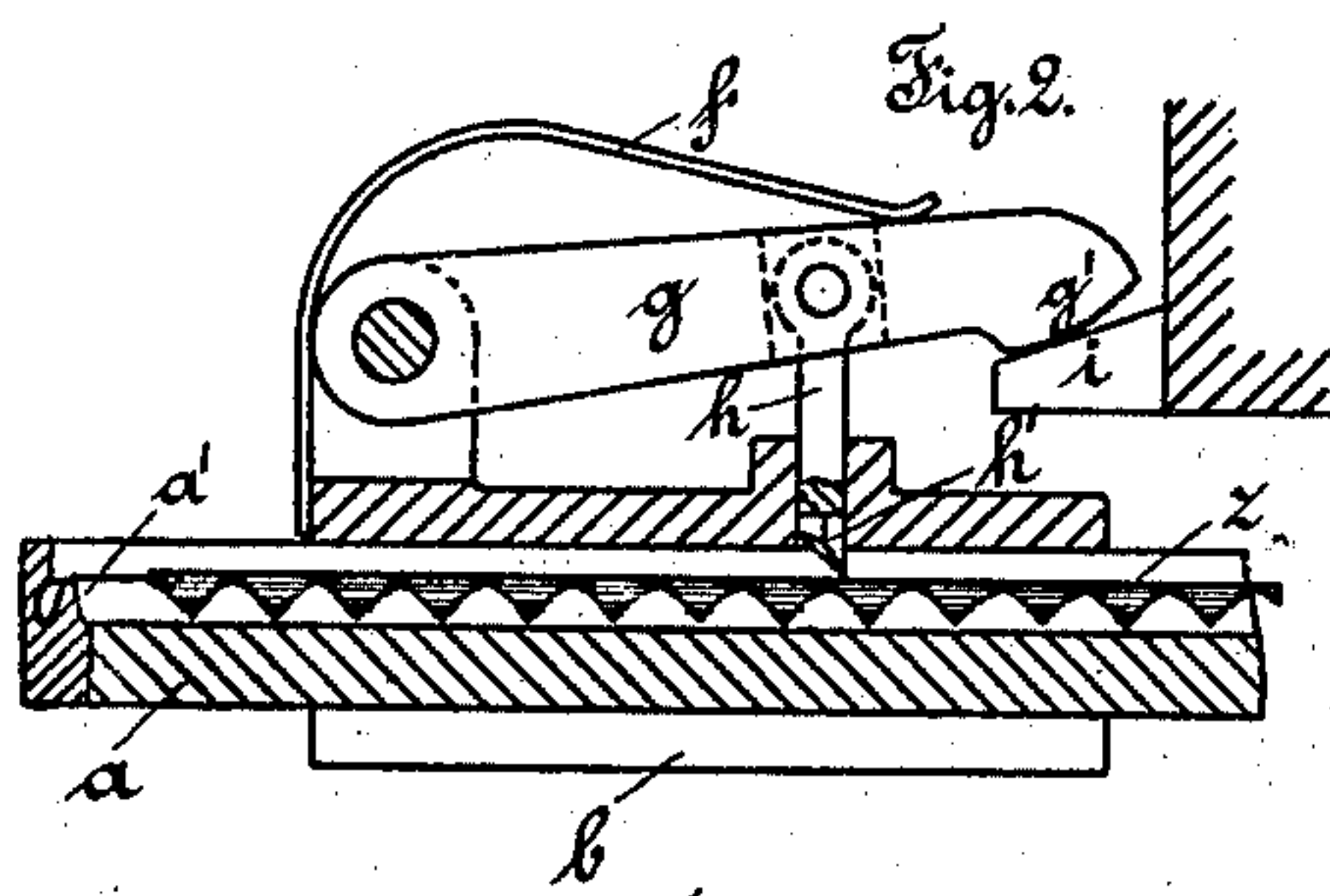
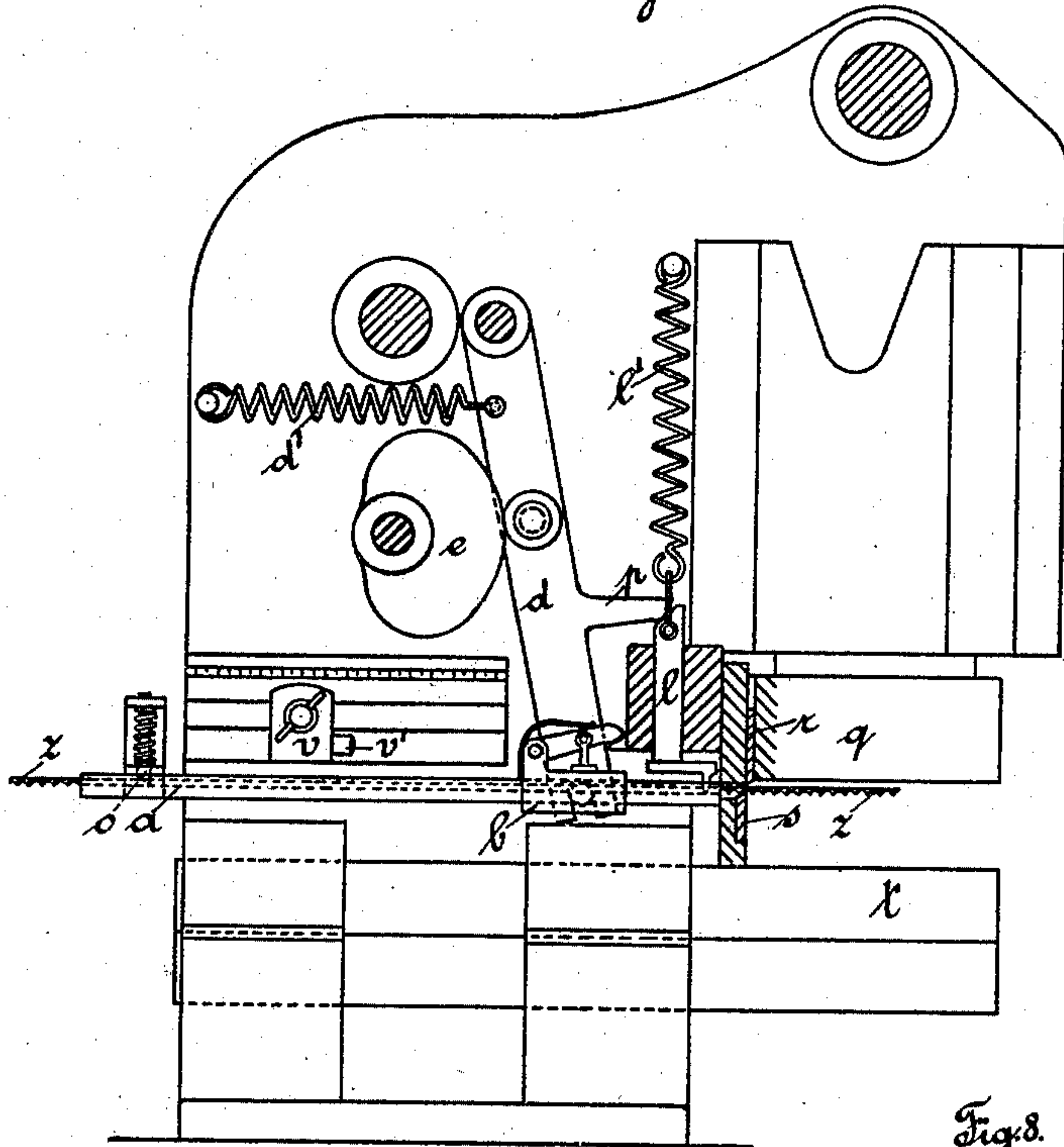
Patented Jan. 28, 1902.

O. ZUCKER.
CUTTING MACHINE.

(Application filed Oct. 3, 1901.)

(No Model.)

Fig. 1.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CUTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 691,883, dated January 28, 1902.

Application filed October 3, 1901. Serial No. 77,457. (No model.)

To all whom it may concern:

Be it known that I, OTTO ZUCKER, a citizen of the Empire of Austria-Hungary, residing at Loschwitz, near Dresden, in the German Empire, have invented a new and useful Improvement in Machines for Cutting and Fixing Metal Cramps, of which the following is a specification.

This invention relates to an arrangement in machines for cutting and fixing sheet-metal cramps by means of which a portion of a long strip or band of sheet metal for making cramps is automatically pushed forward, to be then cut off and fixed to the edges to be joined.

The object of this invention is the arrangement of mechanism in such a manner that the portion of strip pushed forward is placed automatically, so that the cut which separates the cut portion from the strip passes exactly through the bottom of a recess between two projecting teeth of the said strip to avoid the production of cramps which have at their ends parts of teeth or serrations only.

A further object of this invention is to construct the machine so that all parts designed to grip the piece of strip are visible and easily accessible to the operator in order that he may be able to ascertain quickly and remove with ease the cause of any interruption in the working of the machine and to permit of the removal of defective parts without entirely dismantling the machine.

In order that this invention may be the better understood, I now proceed to describe the same, reference being had to the accompanying drawings and to the letters marked thereon.

Like letters refer to like parts in the various figures.

Figure 1 is a side view of the upper part of a machine provided with my improvements. Fig. 2 is a sectional view of the shoe and adjacent parts, some of the parts being in elevation. Fig. 3 is a cross-sectional view of the shoe and adjacent parts. Fig. 4 is a sectional plan view of the shoe, the guide-bar being shown partly in section. Fig. 5 is a side view of the bolt for adjusting the strip. Fig. 6 is a front view of Fig. 5. Fig. 7 is a plan view of part of the strip, showing in section the teeth in engagement therewith. Figs.

8, 9, and 10 are details of another bolt to act on the strip.

The end z of the long ribbon or strip of sheet metal after it has been introduced into the machine rests in a grooved guide-bar a , Fig. 1, as shown also in Figs. 2, 3, and 4. According to these views the grooved guide-bar a has a rib a' at the bottom of the groove which supports the middle part of the sheet-metal strip, which is somewhat bent upward. The feed of the strip is effected by a shoe b , surrounding the grooved guide-bar a and having on its side a pin c , which engages with the forked end of a lever d , which is reciprocated by an eccentric cam e against the reaction of a spring d' . To the shoe b is pivoted a lever g , Fig. 2, which is subjected to the action of a flat spring f . To the lever g is hinged a bolt h , of rectangular section, which passes through a rectangular hole in the upper part of the shoe. The end of this bolt is forked. The prongs h' h' of the fork are beveled, so that the lower edge thereof is directed toward the front side of the machine. The lever g ends in a nose g' , which is rounded off at the front end and is so situated as to coact with a lug i on a sleeve k , fixed to the frame of the machine. A bolt is adapted to slide on this sleeve and consists of a rod l , a transverse piece m , and a fork n . The special form of this fork is illustrated by a side view, front view, and plan, Figs. 5 to 7. The prongs of this fork are rounded off at the ends toward the inner side, and the ends and the inner edges are sharpened like knives.

The machine is further provided at the rear end of the grooved guide-bar a with a third bolt o , which ends also in a fork below. The prongs o' of this fork are beveled toward the front and formed so that they engage in the recesses between the teeth of the strip; but in this case the prongs are considerably lower than in the case of the fork h .

The upper end of the rod l , subjected to the action of a spiral spring l' , is beveled. The oblique face thus formed is so situated as to coact with a rounded-off face on an arm p of the lever d .

In Fig. 1 the machine is shown at that stage at which a piece of the sheet-metal strip pushed forward to the right length is cut off.

At this moment an upper knife fixed to the driving or hammering stamp *g* is close over the sheet-metal strip. Further, the sheet-metal strip must be situated over a lower knife in such a manner that the cut is exactly at the middle of a recess between two projecting teeth of the strip. The fork *n* is designed to attain this object. The prongs *n' n'* of this fork have entered immediately before this stage into the recesses of the sheet-metal strip thereunder and have placed the latter into the right position in consequence of their beveled form. In order to permit of this, the sheet-metal strip must be free—*i. e.*, it must be disengaged from the shoe *b* effecting its movement. The lever *g* is designed to effect this purpose, which lever by meeting the lug *i* shortly before the completion of the forward movement is lifted by such lug, the bolt *h* passing out of the sheet-metal strip simultaneously. In order to effect the before-mentioned entrance of the prongs *n'*, the arm *p* of the lever *d* meets the oblique surface of the rod *l* immediately after the lifting of the bolt *h* out of the sheet-metal strip, and the rod *l* is depressed.

When the sheet-metal strip which has been pushed forward has been cut off, the lever *d* carries back the shoe, the bolt *h* sliding over the teeth of the sheet-metal strip. In order that the latter shall be firmly in position, the before-described third bolt *o* is provided, the prongs *o'* of which are made to allow the strip to be fed forward and to prevent the sheet-metal strip from sliding in a backward direction. Finally, in order to permit of the regulation of the length of the portion of sheet-metal strip to be pushed forward an adjustable block *v*, with a stop *v'*, is provided on the frame above the grooved guide-bar *a* and limits the backward travel of the lever *d* under the action of the spring *d'*.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination, a shoe *b*, a bolt *h* carried thereby, a swinging lever *d* for operating the shoe, means for disengaging the bolt before the completion of the forward movement of the shoe, a second bolt arranged to be engaged by the swinging lever after the first bolt is disengaged from the strip, said second bolt having knife-edged teeth *n'* to enter the recesses in the strip to adjust the same, substantially as described.

2. In a machine for automatically cutting off predetermined lengths of sheet-metal strips, in combination, a shearing device, a registering device, a feeding device, an oscillating arm adapted to operate the feeding and registering devices, a cam operated by the shearing mechanism adapted to oscillate the said arm on the forward oscillation, a yielding resistance against which the said arm operates adapted to make the arm oscillate on the return stroke, and an adjustable abutment against which the said arm can abut to regulate its stroke, substantially as described.

3. In a machine for automatically cutting off predetermined lengths of sheet-metal strips an oscillating arm, a feeding-forward device operated by said arm, a lever carried by the feeding-forward device adapted to operate the said device, and an inclined surface fixedly mounted on the frame of the machine adapted to coact with and operate the feeding-device lever in combination with a registering device slidably mounted in the framework of the machine, means for drawing back the registering device to normal position and an inclined surface on the said oscillating arm situated obliquely to the radial path of the arm adapted to operate the registering device, substantially as described.

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

OTTO ZUCKER.

Witnesses:

CARL KADEN,
JAMES HASTINGS.