Jan. 19, 1926. 1,569,895

S. H. SVENSSON ET AL

HOLDER FOR THE BLANK IN MACHINES FOR MAKING RIVETS, SCREW BLANKS, AND THE LIKE, AND IN OTHER UPSETTING MACHINES

Filed May 8, 1923

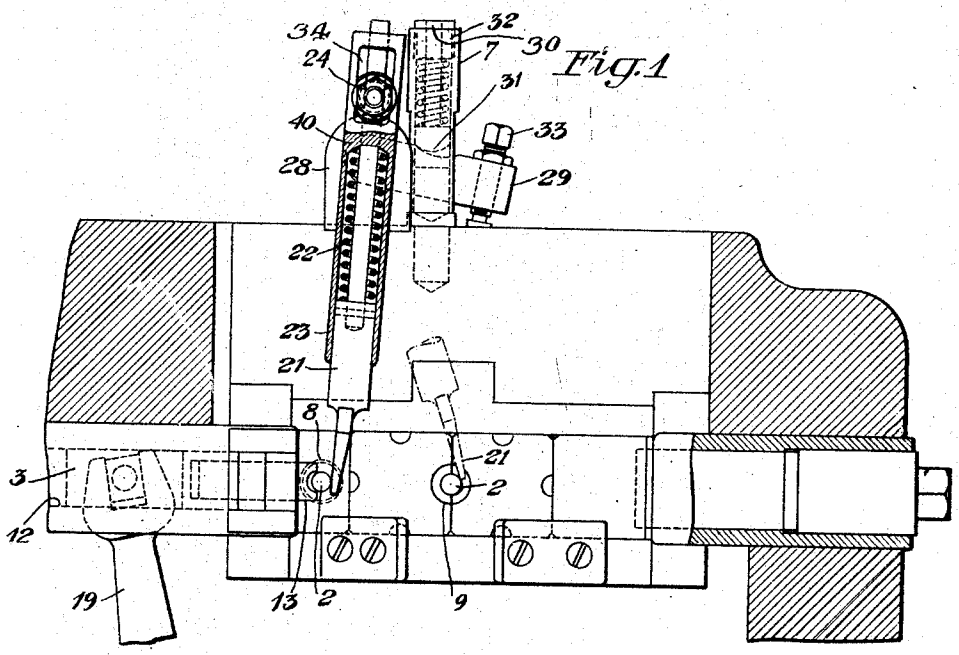


Fig. 1

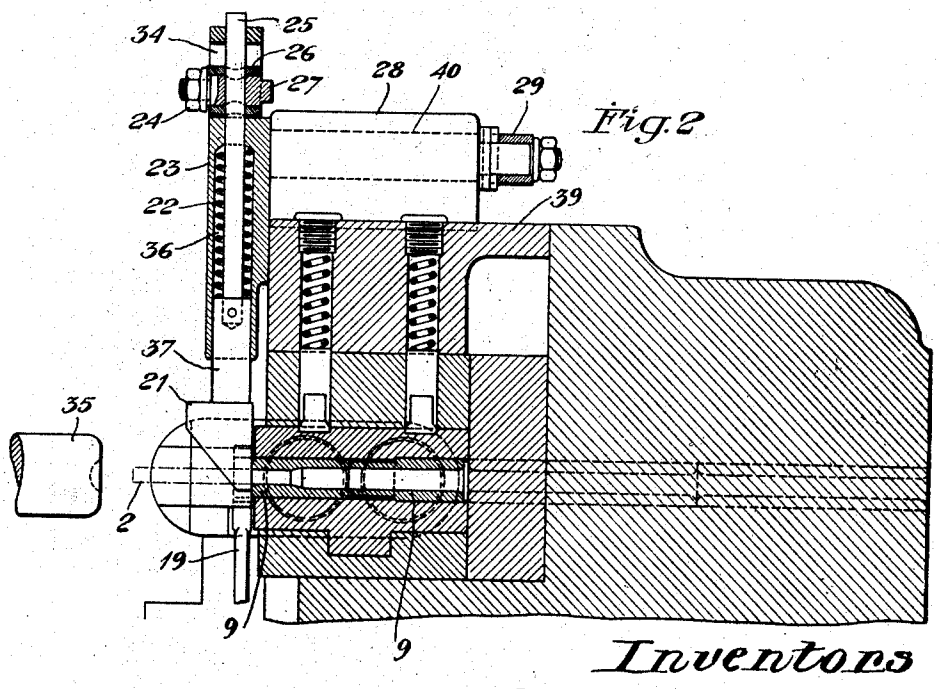


Fig. 2

Inventors
S. H. Svensson
K. O. Engkvist
By Marks & Clerk
Attys.

Patented Jan. 19, 1926. 1,569,895

UNITED STATES PATENT OFFICE.

SVENING HILMER SVENSSON AND KARL OSKAR ENGKVIST, OF BOFORS, SWEDEN, ASSIGNORS TO AKTIEBOLAGET BOFORS, OF BOFORS, SWEDEN.

HOLDER FOR THE BLANK IN MACHINES FOR MAKING RIVETS, SCREW BLANKS, AND THE LIKE, AND IN OTHER UPSETTING MACHINES.

Application filed May 8, 1923. Serial No. 637,603.

To all whom it may concern:

Be it known that we, SVENING HILMER SVENSSON and KARL OSKAR ENGKVIST, subjects of the King of Sweden, both residing at Bofors, Sweden, have invented certain new and useful Improvements in Holders for the Blank in Machines for Making Rivets, Screw Blanks, and the like, and in Other Upsetting Machines, of which the following is a specification.

A great number of constructions are known for holding the blank in machines for making nails, screw blanks and the like, as also in other upsetting machines, after such blank has been severed from the wire and displaced in front of the punch.

All these known constructions, however, have the drawback that tensioning of the spring of the blank holder can be effected only when the machine is standing still, besides which the blank holder rod, which must necessarily be of a comparatively great length, gives to the device a large mass which renders quick movements difficult, particularly when in punching short rivets the blank holder is pressed higher up by the punch, so that the holder can surely move down in position for keeping the next blank, only with the aid of special means in the form of resilient abutments or the like. Such means, however, always lessen the rate of production, more or less, in that the blank holder has to be swung aside to provide ready access for inspecting and adjusting the remaining tools.

The above mentioned drawback is avoided by the arrangement forming the object of the present invention.

An embodiment of the invention is illustrated on the accompanying drawing, the parts being shown in the position in which the severing of the blank is to commence. Fig. 1 is a front view and partial section of the device, and Fig. 2 shows the same viewed from the side and in section.

The apparatus consists of a T-shaped attachment 23, 40, the one horizontal shank 40 of which forms the pivot of the attachment, in that the same is pivotally mounted in a bearing 28 attached to the cover 39 of the space in the machine frame wherein the die is inserted together with its attachments. The vertical front part 23 of the blank holder attachment is preferably of square cross section, and is provided in its lower part with a large bore hole 36 forming a guide for the lower, comparatively thick shank part 37 of the blank holder blade 21, as well as for a helical spring 22 abutting with its lower end against the upper end surface of the shank part 37, and with its other end against the upper wall of the bore hole 36. Provided in the upper portion of the part 23 is a slot 34 extending therethrough, said slot 34 having a slide block 26 slidably fitted therein. Inserted in a bore hole of the slide block is a screw stud 27 which is provided with passage holes for the guide rod 25, the same as the slide block 26, the said guide rod forming the upper narrow portion of the shank of the blank holder blade 21. As will be understood, the locking of the guide rod 25 and thus of the blank holder blade in the desired position at the slide block 26 is rendered possible by the arrangement described, by means of the nut 24. In this way an easily adjustable, vertically resilient blade holder is obtained, said blade holder permitting of easy and pliant movements.

Pivotally attached to the outer end of the horizontal shank 40 of the attachment is an arm 29 serving as a brace and adapted to be pressed downwardly by a plunger 31 actuated by a spring 32, the said plunger being arranged in a tubular casing 7. When the blank holder blade is in the position shown with full-drawn lines in Fig. 1, it is pressed by the spring-actuated plunger 31 against the side of the blank 2 just about to be severed from the blank wire extending through the die 8 by the cut-off tool 13, and on the severing, when the cut-off tool continues its movement to the right Fig. 1, the blank is kept resting steadily in the seat of the cut-off tool 13. The cut-off tool is attached to the slide 3 which is movable in the guide 12, the slide 3 obtaining its motion from a suitable driving device through the medium of the arm 19. By the continued movement of the cut-off tool in the said direction, the blank is fed into position for the punch 35 arranged in alignment with the die 9, the blank holder blade having then the position shown with chain-dotted lines in Fig. 1. On account of the position of the pivot 40 of the attachment the blank holder blade will slide upwards

on the blank during its movement onto the position shown with chain-dotted lines, so that, when the punch is then moving toward the blank for pressing same into the die 9, the blank holder will be displaced further upwards by the punch on account of the contact of the latter with the oblique surface of the blank holder, so that the latter will return to the initial position under the influence of the spring 32, such movement being limited by the set screw 33 attached in the arm 29 abutting against the cover 39. This limitation is necessary to make the blank holder blade adjust itself so as to leave space for the feeding of the blank wire to the position for severing a further blank. When the blank holder is to be moved aside for facilitating inspection or exchange of tools, the blank holder will be lifted manually by means of the screw stud 27, until the lower end of the same slides up on the cut-off tool 13, where it remains by reason of the spring pressure, until the cut-off tool 13 assumes the cut-off position, the blank holder then sliding down again into its working position.

When punching short rivets or bolts, the punch 35 having then to be moved near the die 9 to press the blank into the bore hole of the die, the tapering shape of the blade 21 effects a displacement upwards thereof by the punch, out of the way of the latter, in known manner, but inasmuch as the various parts have a small weight and the spring 22 can be adjusted to a suitable pressure, the danger of the blade 21 being caught by the punch and crushed is eliminated. It is also evident that the blank holder blade may be easily lowered and rotated so that it will bear properly on the blank and so that it will be held securely when being fed toward the punching center. This blank holder can also be used in machines having a solid die; and in such cases the blank holder may be attached to the die attachment, where such an attachment is used in small machines.

It is obvious that all requisite adjustments can be effected during the operation of the machine.

What we claim as new and desire to secure by Letters Patent of the United States of America is:—

1. The combination of a die, a mechanism for cutting blanks from stock and delivering the same to said die, said mechanism including a cutter, a blank holder, a carrier for said holder, said carrier being pivotally suspended above the die at a part, not moving in the operation of the machine and yielding means for moving the blank holder downwardly in relation to the carrier and for permitting the blank holder to perform a resilient movement with respect to said carrier in the opposite direction.

2. The combination of a die, a space above said die, a cover for said space, a mechanism for cutting blanks from stock and delivering the same to said die, said mechanism including a cutter, mounted in a reciprocating part, a blank holder, a carrier for said holder, said carrier being pivotally mounted in the said cover, the blank holder being movably fitted in a bore in the blank carrier and being actuated by a spring, which tends to move the blank holder downwardly in respect to the said carrier.

3. The combination of a die, a mechanism for cutting blanks from stock and delivering the same to said die, said mechanism including a movable cutter and a movable blank holder, between which the blank is jammed during its displacement from the cut off position to the punching position, a carrier for said blank holder, said carrier being suspended above the die on the lines of a pendulum and including a vertical oscillating part, having a vertical bore, which is opened at the lower end, and receives the holder, which is guided in said bore and projects downwardly beyond the said oscillating part of the carrier, a coil spring inserted into said bore so as to abut with its lower end against a shoulder on the holder and at its upper end against a shoulder on the carrier.

4. The combination of a die, a mechanism for cutting blanks from stock and delivering the same to said die, said mechanism including a movable cutter and a movable blank holder, between which the blank is jammed during its displacement from the cut off position to the punching position, a carrier for said blank holder, said carrier being suspended above the die on the lines of a pendulum and including a vertical oscillating part, having a vertical bore, which is opened at the lower end and receives the holder, which is guided in said bore and projects downwardly beyond the said oscillating part of the carrier, a coil spring inserted into said bore so as to abut with its lower end against a shoulder on the holder and at its upper end against a shoulder on the carrier, the blank holder extending upwardly through a slide, which can have a limited movement relative to the carrier in the direction of the bore axis, and means for securing the blank holder to said slide.

5. The combination of a die, a mechanism for cutting blanks from stock and delivering the same to said die, said mechanism including a movable cutter and a movable blank holder, between which the blank is jammed during its displacement from the cut off position to the punching position, said blank holder having an inclined face, adapted to be engaged by the punch as this latter approaches the limit of its way towards the die.

6. The combination of a die, a space above said die, a cover for said space, a mechanism

for cutting blanks from stock and delivering the same to said die, said mechanism including a cutter, mounted in a reciprocating part, a blank holder, a carrier for said holder, said carrier being pivotally mounted in the said cover, the blank holder being movably fitted in a bore in the blank holder and being actuated by a spring, which tends to move the blank holder downwardly in respect to the said carrier and means for adjusting and securing the blank holder in the required position in the carrier, said means including a slot in the upper part of the carrier, a slide movable in said slot, a screw bolt, passing through the slide transversely to the direction, into which the holder can yield with respect to the carrier, passages for the blank holder in said slide and screw-bolt.

In testimony whereof we affix our signatures.

SVENING HILMER SVENSSON.
KARL OSKAR ENGKVIST.