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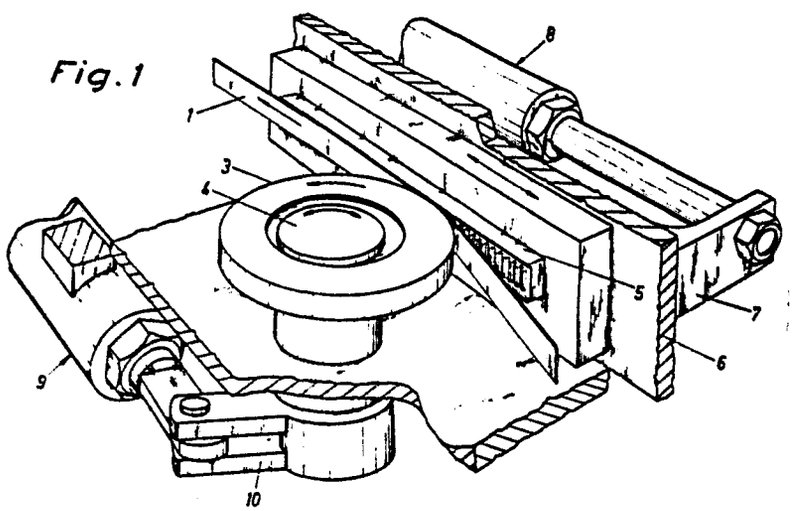
(54) Apparatus for producing stamped sections in continuously advanced strip blank.

(57) An apparatus for producing stamped sections in a strip blank (1) which is advanced continuously lengthwise past a stamping tool (5) positioned at one side of the strip. The apparatus comprises a support roll (3) which is eccentrically mounted on a shaft (4) positioned on the side of the strip (1) opposite the stamping tool (5) in parallel with the plane of the strip and perpendicularly to the direction of advancement of the strip. The shaft is arranged to be turned between two end positions. The support roll (3) is arranged by turning the shaft (4) to one of its said end positions to press the strip (1) against the stamping tool (5) and by turning the shaft in the opposite end position thereof, to allow the strip to pass past the stamping tool without contacting the latter.

Fig. 1



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BACKGROUND OF THE INVENTION

The present invention concerns an apparatus for producing stamped sections in a strip blank which is advanced continuously lengthwise past a stamping tool positioned to one side of the strip and arranged to cooperate with a support roll. The support roll is mounted on a shaft positioned on the side of the strip opposite the stamping tool in parallel with the plane of the strip and perpendicularly to the direction of advancement of the strip.

Stamping operations of the kind defined above are used for instance to produce threads in the strip of hose clamps of the type wherein the strip passes through a screw-worm sleeve in engagement with a screw-worm positioned therein.

The threads are usually produced through stamping in a large eccentric-shaft press which in a single operation forms all the thread grooves in a section of the strip. The stamped section is subsequently severed off the strip blank and shaped into the strip of the hose clamp. During the stamping operation in the eccenter press some flow of material occurs transversely relative to the lengthwise extension of the strip. This material flow increases the width of the strip by approximately 5%, with the result that the screw-worm sleeve tolerances need to be comparatively large. The difference in width

between stamped and unstamped sections of the continuously advanced strip blank also is disadvantageous in that it makes it complicated to guide the strip, causes increased wear on the tools as well as operational disturbances.

The purpose of the present invention is to effect the stamping of the strip blank without causing noticeable differences in width between the stamped and unstamped sections of the strip blank while at the same time making it possible to effect the stamping at a high rate of production.

SUMMARY OF THE INVENTION

The apparatus in accordance with the invention is characterised in that the shaft is arranged to be turned between two end positions and in that the support roll is eccentrically mounted on the shaft and arranged by turning said shaft to one of the end positions, to urge the strip against the stamping tool and, by turning the shaft to the opposite end position thereof, to allow the strip to pass past the stamping tool out of contact with the latter.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in closer detail in the following with reference to one embodiment thereof illustrated in the accompanying drawings, wherein

Fig. 1 is a perspective view of a stamping apparatus in accordance with the invention, and

Figs. 2 and 3 are lateral views of the apparatus, illustrating the latter in two different operational positions.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

A strip blank 1 which is to be stamped along its length with thread-groove sections and which in a subsequent operation is to be severed and shaped into a hose clamp strip, is continuously advanced by a pair of rollers 2 past a support roll 3. The support roll 3 is mounted on an eccentric shaft 4 which is positioned in parallel with the plane of the strip and perpendicularly to the direction of advancement of the latter.

A stamping tool 5 the stamping face of which is formed to give the desired thread profiles is positioned on the opposite side of the strip 1 and is attached to a slide member 6 which is mounted for displacement in a plane which is essentially parallel to the plane of advancement of the strip. A bracket 7 mounted on the slide member 6 supports the piston rod of a piston-and-cylinder unit 8 arranged to displace the slide member to and fro. A second piston-and-cylinder unit 9 is secured to the eccentric shaft 4 via a lever 10. When the shaft 4 is turned with the aid of the lever 10 and the piston-and-cylinder unit 9 the support roll 3 may be displaced transversely relative to the direction of advancement of the strip 1 towards or away from the stamping tool 5 between two end positions.

In the inner end position of the tool illustrated in Fig. 2 the support roll 3 presses the strip 1 hard against the stamp tool 5. At the same time the slide member 6 is displaced by the piston-and-cylinder unit 8 in synchrony with the advancement of the strip by the pair of rollers 2, the stamping action being effected in the press nip between the support roll 3 and the stamping tool 5.

When one thread section has been stamped, which is sensed by means provided to sense the movements of the slide member 6, by a time relay or by means arranged to sense the advancement of the strip, the second piston-and-cylinder unit 9 is activated, which by turning the shaft 4 in the opposite direction effects displacement of the support roll 3 away from the stamping tool 5. As a result the strip 1 is no longer pressed against the stamping tool and the tool is allowed to complete its movement forwards out of contact with the strip 1. The stamping tool is then brought back to its original position by the piston-and-cylinder unit 8 to effect another stamping operation. The strip 1 is advanced continuously at a constant rate and when one strip section having a length corresponding to the desired gap between two threaded sections has moved past by the support roll 3 the piston-and-cylinder unit 9 is again activated and serves to press the support roll against the stamping tool 5 to effect another stamping operation.

The length of the stamped sections and the length of the unstamped sections separating them are easily varied by controlling the operation of the piston-and--cylinder 9 in such a manner that the support roll 3 when abutting against the stamping tool at one end position of the stamping tool provides the desired length of the stamped section whereas the desired interruption between the stamped sections is effected in the other end position.

Because the stamping operations are effected successively over a short section of the length of the strip 1 most of the flow of the material will take place in the lengthwise direction of the strip whereas the difference in width will be minimal.

The invention is not limited to the embodiment described in the aforegoing but modifications thereof are possible within the scope of the appended claims. The means for advancement of the stamping tool 5, for example, are not essential, it being possible to shape the tool as a round stamping cylinder mounted on a shaft which is driven in synchrony with the speed of advancement of the strip. Other means than piston-and-cylinder units may be used to effect the movements of the slide member 6 and to operate the shaft 4.

C l a i m s

1. An apparatus for producing stamped sections in a strip blank (1) which is advanced continuously lengthwise past a stamping tool (5) positioned to one side of the strip and arranged to cooperate with a support roll (3), said roll being mounted on a shaft (4) positioned on the side of the strip (1) opposite the stamping tool (5) and in parallel with the plane of the strip perpendicularly to the direction of advancement of the latter, c h a r a c t e r i s e d i n t h a t the shaft (4) is arranged to be turned between two end positions and in that the support roll (3) is eccentrically mounted on said shaft and arranged, by turning said shaft to one of the end positions thereof, to urge the strip (1) against the stamping tool (5) and, by turning the shaft (4) to the opposite end position thereof, to allow said strip to pass past the stamping tool out of contact with the latter.

2. An apparatus as claimed in claim 1, c h a r a c - t e r i s e d i n t h a t the stamping tool (5) is elongate and straight and is provided with means (6, 7, 8) to advance said tool in synchrony with the advancement of the strip (1) during the stamping of a section of said strip and to return said tool to the original position thereof after completion of the stamping of the section.

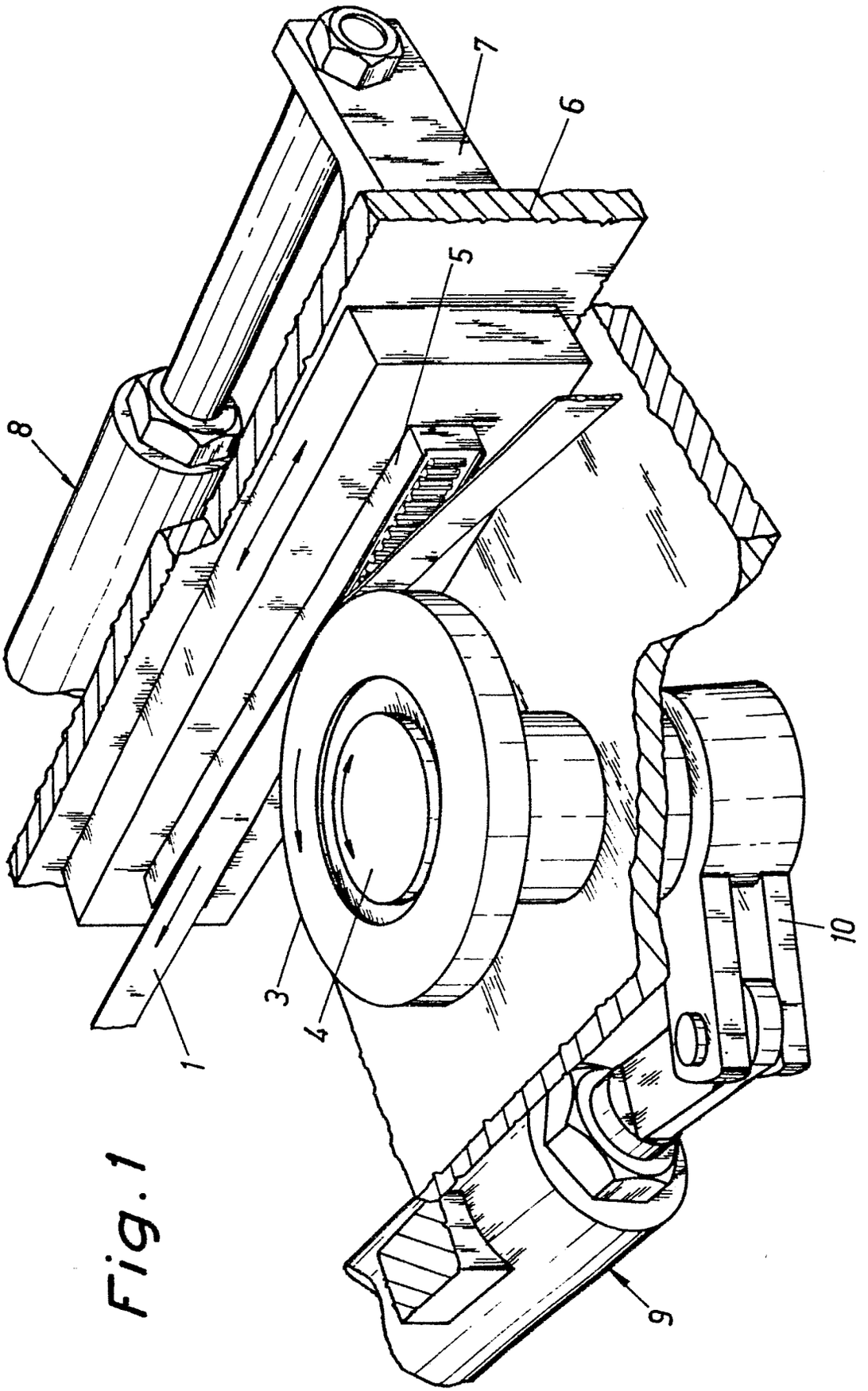

Fig. 1

Fig.2

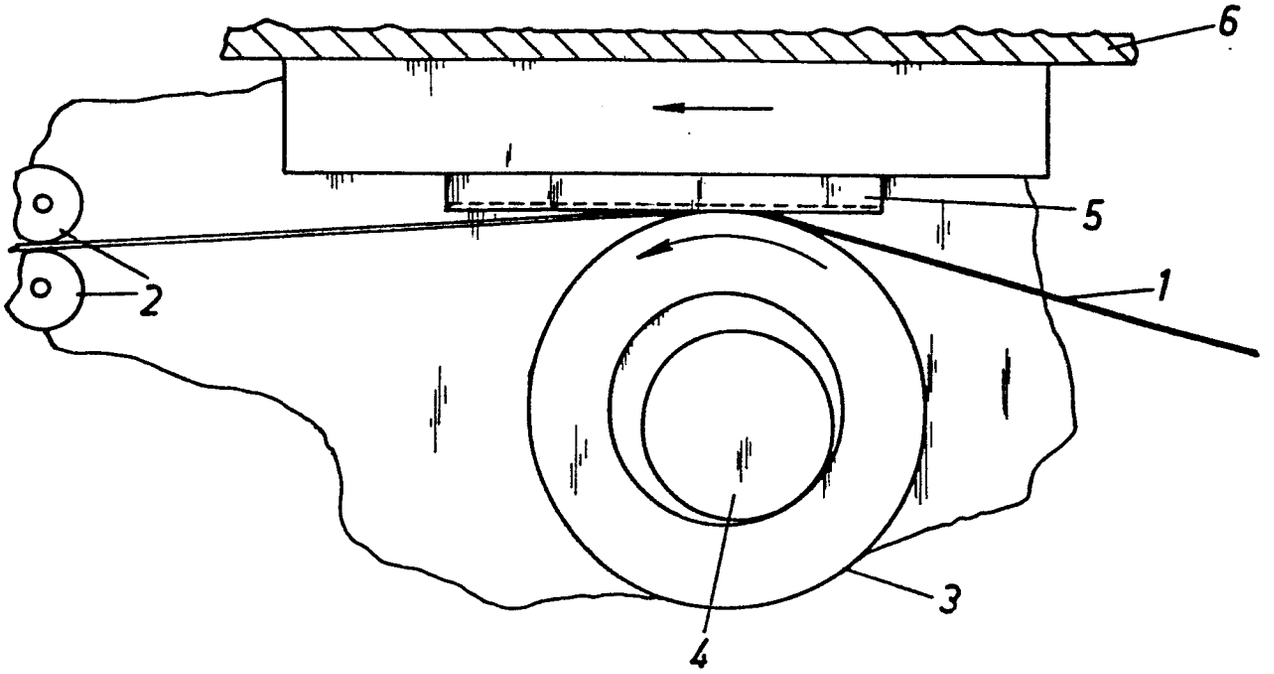

Fig.3