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(54) IMPROVEMENTS IN OR RELATING TO BAR FEED
DEVICES FOR AUTOMATIC LATHES

(71) I, WILHELM SEWING, a German citizen of Hagedorner Strasse 151, D 4983 Kirchlengern 3, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:

5 This invention relates to bar-feeding devices of automatic screw-cutting machines.

10 A disadvantage of known devices is that they are noisy in use, particularly when feeding bar of polygonal cross-section.

15 The object of the present invention is to provide a quieter form of bar-feeding devices for screw-cutting machines.

20 According to the invention there is provided apparatus for damping noise in bar-feeding devices of automatic screw-cutting machines, especially for bars with a polygonal profile, the apparatus comprising at least one group of rollers composed of an upper pair of laterally spaced upright rollers and a lower pair of laterally spaced upright rollers, 25 means supporting all of the rollers with their axes parallel to one another, an endless belt extending around each pair of rollers, the lower length of the upper belt and the upper length of the lower belt being adapted to engage the top and bottom of a rotating and axially moving bar between them, whereby to support the bar, and resilient means urging the rollers in each pair laterally away from each other to maintain said belts taut.

30 It is known, for reducing noise, for metal spirals to be placed into the feed channels or for the feed channels to be enclosed in concrete or rubber. These measures have not been found to offer sufficient protection against noise, particularly in the case of polygonal profile bar materials. Further, a damping device is known in which the bar stock is guided by a plurality of rollers which are in contact with a circumference of the workpiece and are covered with a resilient

sound-damping material. These roller guides are resiliently mounted in groups of three or more rollers along the guide channel on cross bearings, being resilient in the direction of the centre of the channel and are pressed against the bar by their outer contact surface.

50 Such known feed guides, in which the bar stock is guided by rollers which are encased in impact resisting material, such as natural or synthetic rubber material, has the defect that, in guiding profile bar materials, particularly of large section, the corner dimensions must be received by the rubber coating of the roller or by the resilient suspension of the roller, so that the casing of the roller is very highly stressed. This has an adverse effect on the useful life of the roller. Further, if the corner dimensions of the bar stock are large, so that they cannot be received by the covering, the roller itself must effect a movement at each corner. These movements involve vibrations which in turn result in noises. Furthermore, the rollers must be able to adjust to the smallest and the greatest radius of the polygonal bar stock.

55 A further disadvantage is that the bar material guide does not adjust itself automatically to the diameter of the rod material to be fed, because the rollers are pressed directly by means of springs or other resilient means centrally towards the middle of the bar. If the friction becomes excessive, the bar will not be displaced in the feed direction because of the excessive friction. The friction is so great because the covering of the roller must be of very elastic material to permit of accommodating the corners of profiled bar material. If alternatively, rollers having a hard and smooth covering are used, the noise rises considerably, so that there can then be no question of a reduction of noise.

60 As stated above, the object of the present invention is to remove the above disadvantages and to guide the bar material so that it does not vibrate or strike against obstruction,

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thereby producing a noise.

The advantages achieved by the present invention reside particularly in the feature that the bar material can be mounted quietly, at any desired speed of rotation, when being machined on automatic lathes and an adjustment of the mounting of the bar material to the diameter concerned is unnecessary.

In order that the invention may readily be carried into practice, one embodiment thereof will now be described in detail, by way of example, with reference to the accompanying drawings, in which:—

Fig. 1 shows a cross-section through a bar stock supply device suitable for attachment to automatic lathes having their own material feed; and

Fig. 2 is a perspective view of the bar stock feeding device in relation to an automatic lathe.

As may be seen from Figs. 1 and 2, each group of rollers provided by the apparatus comprises an upper and a lower belt 1 which each pass over two rollers 2, respectively. The facing sides of the belt 1 receive the bar 3 of stock which is being fed to the lathe for machining. The tension of the belts 1 and the removal of vibration is effected by compression springs 4, which oppositely abut the carriers of each pair of the reversing rollers 2.

Secured to a supporting structure 5 is a lower roller support 6, on which an upper roller support 7 is mounted to swivel, by means of a cardan shaft 8. The cardan shaft 8 is arranged on the lower roller support 6, so that the centre of gravity of the upper roller support 7 is disposed, in its closed position, on the left and, in its open position, on the right of the pivotal axis 8. As a result, the upper roller support 7 is stable in both positions. It is proposed that the opening angle should amount to about 30°.

An angle bracket 9, serving to receive a supply of bars 3, is also provided on the support structure 5, at the opening side of the roller support 6 and 7. The apparatus is mounted on a stand 10, so as to be vertically adjustable at its free end.

50 WHAT I CLAIM IS:—

1. Apparatus for damping noise in bar-feeding devices of automatic screw-cutting machines, especially for bars with a polygonal profile, the apparatus comprising at least one group of rollers composed of an upper pair of laterally spaced upright rollers and a lower pair of laterally spaced upright rollers, means supporting all of the rollers with their axes parallel to one another, an endless belt extending around each pair of rollers, the lower length of the upper belt and the upper length of the lower belt being adapted to engage the top and bottom of a rotating and axially moving bar between them, whereby to support the bar, and resilient means

urging the rollers in each pair laterally away from each other to maintain said belts taut.

2. Apparatus according to Claim 1, in which said roller-supporting means include pivotally supported bearing members, and said resilient means are compression springs urging the bearing members for each pair of rollers away from each other.

3. Apparatus according to Claim 1, including a frame having a lower part supporting the lower pair of rollers and an upper part supporting the upper pair of rollers, and means pivotally connecting said frame parts together in such a way that the upper part can be swung upward and laterally from a position in which its centre of gravity is at one side of said connecting means to a position in which its centre of gravity is at the opposite side of said connecting means, whereby to open the frame.

4. Apparatus for damping noise in bar-feeding devices of automatic screw-cutting machines substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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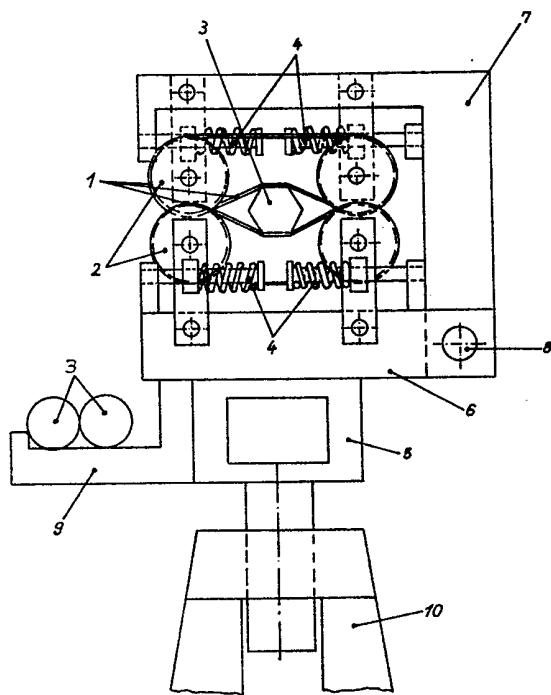


Fig.1

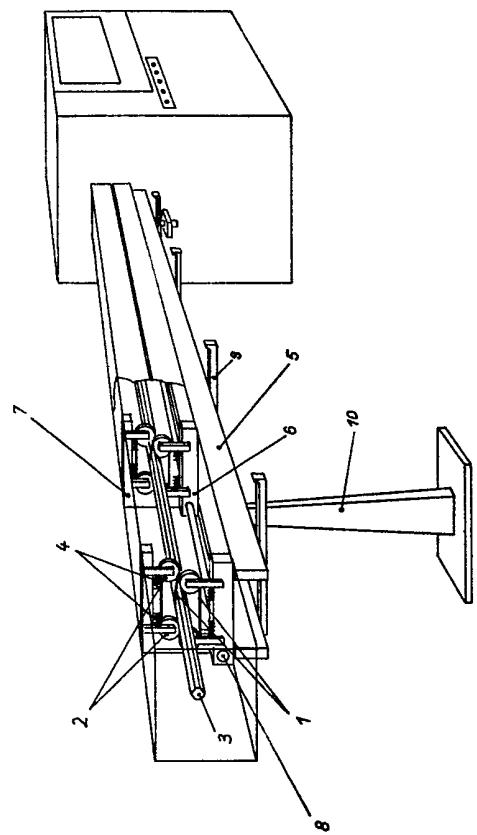


Fig.2