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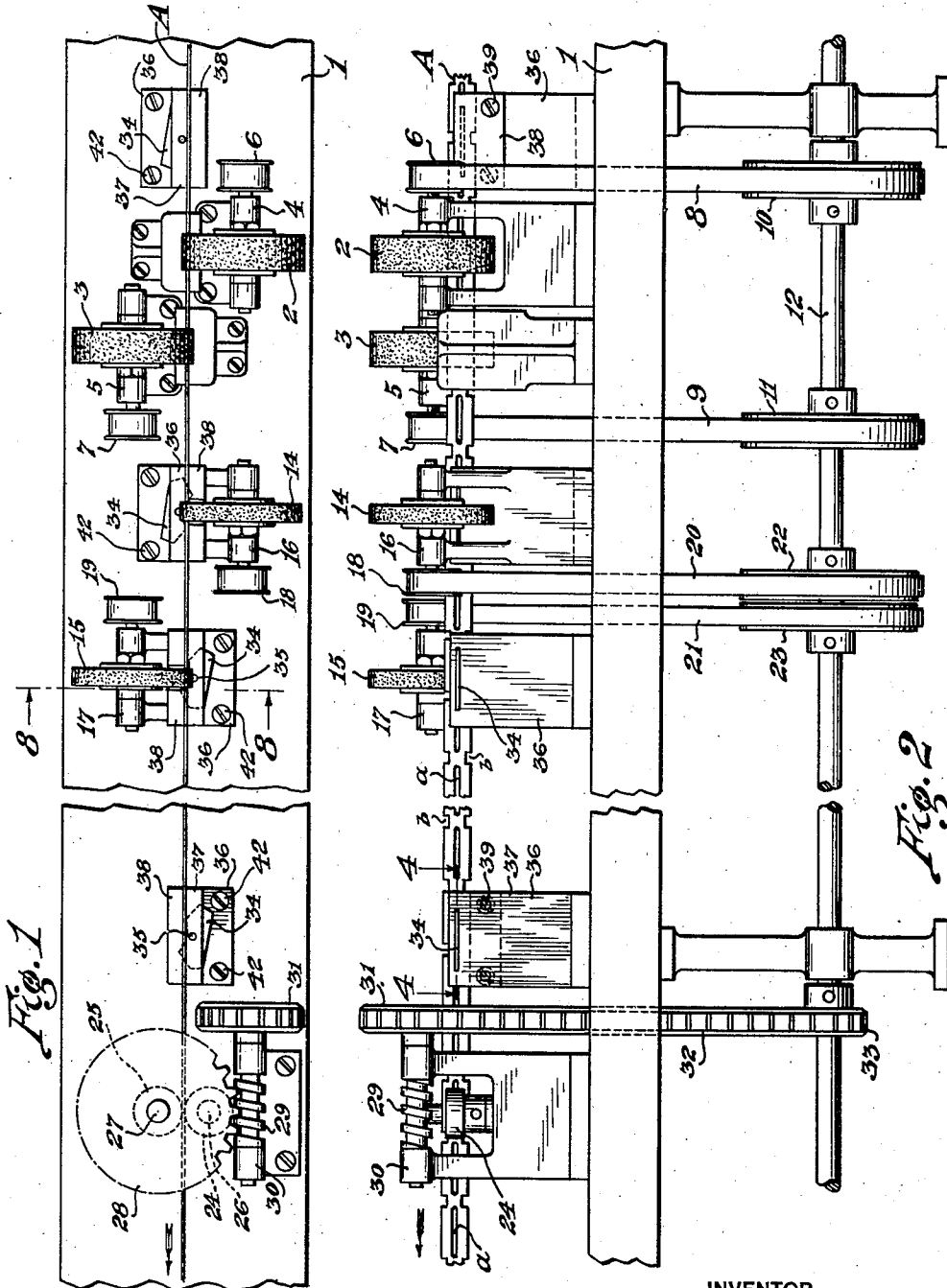
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STRIP SUPPORTING MECHANISM

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STRIP-SUPPORTING MECHANISM

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In grinding the edges of continuous strips of metal, such as steel, as for the production of safety razor blades, it is important to support the strip in proper relation to the sharpening devices and to keep the sharpened edges of the strip out of contact with any parts of the machine, to prevent dulling of the sharpened edges of the strip.

An object of the invention is to provide simple and effective means to support a perforated strip of metal in relation to a sharpening device during travel of the strip in relation to said device for a sharpening edge of said strip, whereby the edge to be sharpened will be maintained accurately with respect to the sharpening device and without coming in contact with any parts of the machine.

The invention comprises a pivoted support having spaced projections on one side provided with inclined edges adapted to enter spaced perforations in a continuous strip of metal, means to propel the strip with respect to said support whereby the projections of the latter may enter and recede from the perforations in the strip and will be caused to rock by engagement with the strip for entering and leaving the successive perforations, and sharpening devices adapted to operate on appropriate edges of the strip that is maintained in position by said support. Any desired number of said supports may be provided in a machine in spaced relation with respect to the sharpening devices.

The invention also comprises novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

In the accompanying drawings,
Fig. 1 is a plan view of a machine embodying this invention;

Fig. 2 is a front elevation of Fig. 1;

Fig. 3 is an enlarged face view of a perforated strip to be sharpened;

Fig. 4 is an enlarged sectional detail on line 4, 4 in Fig. 2, showing the strip and support in one position;

Fig. 4a is a perspective view showing the strip and support in the same position as in Fig. 4;

Figs. 5, 6, and 7 are detail views illustrating the strip and the support in different positions, and

Fig. 8 is an enlarged section on line 8, 8 in Fig. 1.

Similar numerals indicate corresponding parts in the several views.

The numeral 1 indicates a main frame which may be of any desired construction. At 2 and 3 are grinding disks or wheels rotatively carried by bearings 4 and 5 on the main frame, on opposite sides of perforated strip A to be sharpened or ground, such as rough grinding, on opposite sides of and along an edge of the latter. The disks 2 and 3 are shown provided with pulleys 6 and 7 to be driven by belts 8 and 9 from drive pulleys 10 and 11 on a drive shaft 12 journaled in suitable bearings on the main frame, whereby said disks may be driven in required directions with respect to the strip A. Any suitable or well-known means may be provided for guiding the strip with respect to the disks 2 and 3. Spaced from the disks 2 and 3 are other disks 14 and 15 shown located on opposite sides of the strip A adapted to further sharpen the previously ground edges of the latter, such as for fine grinding or finishing, or stropping. The disks 14 and 15 have shafts journaled in bearings 16 and 17 on the main frame, and the shafts of said disks are shown respectively provided with pulleys 18 and 19 receiving belts 20 and 21 from pulleys 22 and 23 on drive shaft 12, whereby the disks 14 and 15 may be rotated with respect to the corresponding edge portions of strip A. The grinding disks set forth are well known in the art and any desired number of said disks in suitably spaced relation may be provided in the machine. The strip A may be propelled along the sharpening disks in any desired or well-known way. In the example illustrated, spaced feeding rollers, at 24 and 25, are supported by shafts 26 and 27 journaled on the main frame in a well-known way, whereby said rollers will grip the strip and feed the same. For rotating roller 25, the shaft 27 is shown provided with a gear 28 in mesh with a worm 29 journaled in bearings, at 30, on the main frame and provided with

a sprocket-wheel 31 receiving a drive chain 32 from a sprocket 33 on the drive shaft 12.

The strip A is shown provided with regularly spaced perforations, at *a*, shown in the form of slots centrally disposed in the longitudinal axis of the strip, and with recesses, at *b*, in spaced relation, on opposite sides of the strip, between adjacent perforations *a*, whereby the strip may be severed transversely between recesses, at *b*, on opposite sides of the strip for the production of safety razor blades. A pivoted support for strip A is indicated at 34, shown supported by a pivot 35, centrally disposed, whereby the support may rock with relation to strip A. The support 34 is shown in the form of a relatively thin, elongated flat plate carried by a standard 36 secured to the main frame by screws 42. The standard 36 is shown comprising two adjacent members 37 and 38, secured together by screws 39. The member 37 carries the pivot 35 and is provided with a transversely disposed recess or seat 40 which rockably receives and guides the support 34, (Figs. 4, 4*a* and 8). The member 38 has a recess 43 opposite the recess 40 to permit entrance of portions of the support 34. Between the members 37 and 38 is located a groove 44 for the free passage of the lower edge of strip A (Figs. 4*a* and 8). The support 34 is provided, on one side or edge portion, with projections 34*a* and 34*b* in spaced relation on opposite sides of pivot 35, adapted to enter the perforations *a* of the strip as the latter travels in the direction of the arrow in Fig. 1. The outer edges of the projection 34*a* are inclined, respectively, toward the pivot 35, at 34*c*, and toward the adjacent outer end of the support, at 34*d*, and the edges of the projection 34*b* are inclined, respectively, toward the pivot 35, at 34' and toward the adjacent end of the support, at 34''. Said inclined edges are adapted to be engaged by material *c* of the strip at ends of the perforations *a* to cause rocking or tilting of the support 34 as the strip travels, so that one or more of the projections 34*a*, 34*b*, will be in one or more perforations of the strip at all times. The inclined edges 34*d* and 34' extend substantially in the same relative direction with respect to the pivot 35. The inclined edges 34*c* and 34'' extend substantially in the same relative direction with respect to the pivot 35. A space *d* is provided along the edge of support 34 between the edges 34*c* and 34' thereof, adapted to receive the portions *c* of the strip as in Fig. 5, and the edge 34*c* will clear the portions *c* of the strip, (as in Fig. 4), and the edge 34'' will clear a portion *c* of the strip as in Fig. 7.

When the strip is in the position shown in Fig. 4 the projection 34*b* will be in a perforation *a* of the strip and the projection 34*a* will be out of an adjacent perforation, the portion *c* of the strip being in the space *d* between the edges 34*c* and 34', for supporting

the strip. As the strip travels toward the left in Fig. 4, the material *c* of the strip, between two perforations *a*, will engage the edge 34' of support 34 and will cause said support to rock, whereby when the strip has reached the position indicated in Fig. 5, the projection 34*a* will have entered a perforation *a* in the strip and the projection 34*b* will still be in the first named perforation *a*, with part *c* of the strip in the space *d*, for supporting the strip. Continued travel of the strip causes the first named portion *c* thereof to slide along the edge 34' to further rock the support 34, whereupon the projection 34*b* will be moved free from the strip and the projection 34*a* will be advanced through a corresponding perforation *a*, of the strip as indicated in Fig. 6, to support the strip. As the strip continues to travel, the edge 34*d* of the support 34 will be located in register with the corresponding portion *c* of the strip as indicated in Fig. 6. Continued travel of the strip causes engagement of the last-named portion *c* thereof with the edge 34*d* of support 34, whereby said support will be rocked in the direction of the arrow in Fig. 6 to cause projection 34*a* to begin to recede from the perforation *a* and the projection 34*b* to enter said perforation, as indicated in Fig. 7. Continued travel of the strip causes the said portion *c* to continue to rock the support 34 in the direction of the arrow in Fig. 7 and to return said support to the position shown in Fig. 4, with the projections 34*a* free from the strip and the projection 34*b* within a perforation in the strip. The aforesaid rocking motions of the support 34 occur successively as the strip travels, while at all times one or both of the projections 34*a* and 34*b* will be within one or two perforations *a* of the strip, thereby supporting the strip in a definite aligned position with respect to an associate sharpening disk to maintain the adjacent edge or marginal portion of the strip in position to be sharpened, as for sharpening of the appropriate facet along the strip.

Any desired number of the supports 34 may be arranged along the strip A in desired spaced relation, on the desired side of the strip, as illustrated in Fig. 1. An advantage of the improvement described is that the support 34 may be located in transverse register with and close to a sharpening disk or wheel to retain the strip in position to be ground or honed in a positive manner, to resist vibration or movement of the strip in a vertical or edge-wise direction, as illustrated in Fig. 8. The member 38 of the standard 36 is shown provided with a recess, at 38*a*, to admit the adjacent sharpening disk for engagement with the appropriate edge portion or facet of strip A. Where the strip passes between the members 37 and 38 the latter are suitably recessed or grooved as a guide at 45, (Figs. 4 and 4*a*), adjacent to the recess 44 and

in communication therewith, whereby the strip is guided and is backed up, as by the member 37, to resist side-thrust or pressure of the sharpening disk. The sharpening disks may be located along one or both edge portions of strip A, in connection with supports 34.

The improvement described is simple in construction, and effective in use in supporting the strip in various positions during travel. The support 34 is not liable to get out of order, is not required to travel with the strip to support it, and the support 34 is particularly useful in supporting strips having spaced longitudinally extending perforations in the form of slots, as indicated in the drawings, since some portion of the support will at all times be in one or another perforation and some portion of the strip will be in position to co-operate with the support substantially at all periods of the progress of the strip.

This invention is not limited to the particular details of construction and relative arrangement of parts set forth, as the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having now described my invention, what I claim is:

1. A machine of the character described comprising means to propel a perforated continuous strip, and a support for the strip pivotally supported adjacent said strip, said support having projections spaced on either side of the pivot to enter perforations in the strip, said projections having inclined edges on opposite sides of the pivot adapted to be engaged by material of the strip between perforations for rocking the support.

2. A machine of the character described comprising means to propel a perforated continuous strip, and a support for the strip pivotally supported adjacent said strip, said support having spaced projections to enter perforations in the strip, said support having a recess between said projections to receive portions of the strip between perforations therein, said projections having inclined edges to be engaged by said portions of the strip for rocking the support during travel of the strip, an inclined edge of one projection extending toward an end of the support and an inclined edge of the other projection extending toward the pivot.

3. A machine of the character described comprising means to propel a continuous perforated strip, a standard, and a support for the strip pivotally carried by the standard adjacent to the strip, said support having projections spaced on opposite sides of the pivot to enter spaced perforations in the strip and provided with inclined edges on either side of its pivot to be alternately engaged by material of the traveling strip between perfora-

tions for rocking the support during travel of the strip.

4. A machine as set forth in claim 3 in which an edge of one projection extends toward an end of the support and an edge of the other projection extends toward the pivot for alternate engagement with material of the strip.

5. A machine as set forth in claim 3 in which the standard is provided with a guide for the strip adjacent to the support.

6. A machine as set forth in claim 3 in which the standard is provided with a guide for the strip adjacent to the support, the standard also having a recess in communication with said guide to receive an edge portion of the strip.

7. A machine of the character described comprising means to propel a perforated continuous strip, and a support for the strip pivotally supported adjacent said strip, said support having spaced projections to enter perforations in the strip, said support having a recess between said projections to receive portions of the strip between perforations therein, said projections having inclined edges to be engaged by said portions of the strip for rocking the support during travel of the strip, inclined edges of the support extending toward the pivot and other inclined edges extending toward adjacent ends of the support.

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