

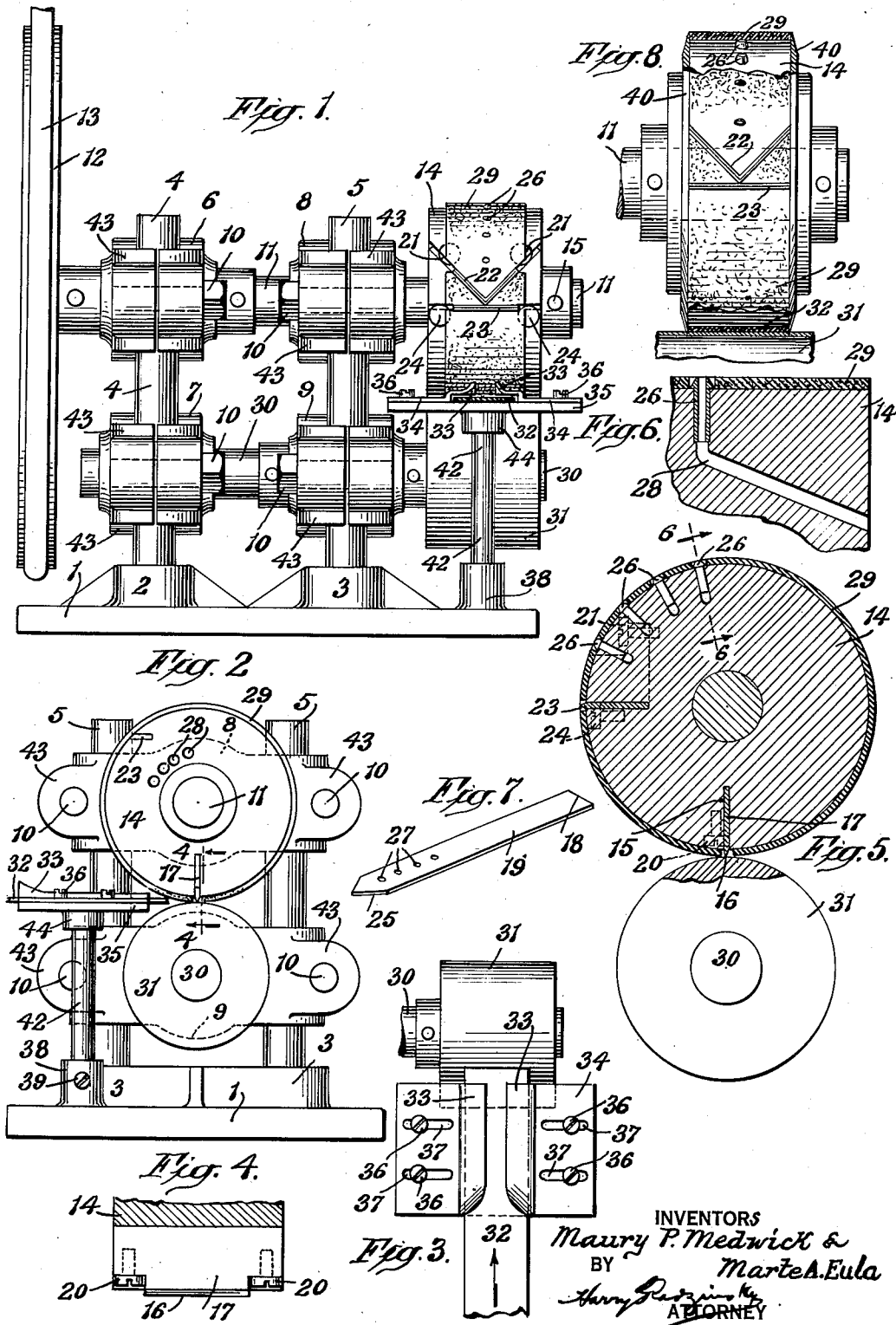
June 25, 1940.

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2,205,573

STRAP CUTTING MACHINE

Filed Jan. 5, 1939



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2,205,573

STRAP CUTTING MACHINE

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Application January 5, 1939, Serial No. 243,390

1 Claim. (Cl. 164—16)

This invention relates to machines for cutting leather, imitation leather, fabric, or other suitable sheet or strip material into straps or similar elongated sections of predetermined length. The primary object of the invention is to provide a simple, speedily operating machine of this character by means of which either elongated strips or sections of sheet material or material of other shape may be severed into straps of desired length and width and simultaneously provided with a tapered end and a straight end and also, if desired, formed with a plurality of spaced holes to receive the tongue of a buckle.

In the accompanying drawing, wherein an embodiment of the invention is shown, Fig. 1 is a machine made in accordance with the invention; Fig. 2 is an end view of the machine; Fig. 3 is a plan view of the lower portion of the machine, and particularly of the guide by means of which the material to be cut is directed between the rolls; Fig. 4 is a sectional view on the line 4—4 of Fig. 2, looking in the direction of the arrows; Fig. 5 is a sectional view through the cutting roll; Fig. 6 is a sectional view on the line 6—6 of Fig. 5, looking in the direction of the arrows; Fig. 7 is a perspective view of a strap as formed by the machine; and Fig. 8 is a front elevation, with parts broken away and other parts in section, of a modified structure wherein rotary cutters are employed to cut sheet material into straps of the proper width.

With reference to the structure disclosed in Figs. 1 to 6, 1 indicates the base member of the machine, the same being adapted for attachment to a table or other suitable support. The base member 1 is formed, or otherwise provided, with four upstanding bosses, two of which are indicated at 2 and the remaining pair shown at 3. The bosses 2 each support a vertical rod 4, while the bosses 3 support similar rods 5. Adjustably secured upon the two rods 4 is an upper bearing 6, while a similar bearing 7 is mounted below it on the same rods. Adjustably secured on the rods 5 is an upper bearing 8, and a similar bearing 9 is located on the same rods below it. All of the bearings are arranged to be clamped on the rods by means of the clamping screws 10 extending through lugs 43. Through the arrangement shown, it will be apparent that the upper bearings 6 and 8 may be raised or lowered to or from the lower bearings 7 and 9. Mounted for rotation in the bearings 6 and 8 is a shaft 11 carrying a pulley 12 at one end, over which a belt 13 extends, the belt being driven from an electric motor or other suitable source of power not

shown. Mounted at the opposite end of the shaft 11 is a cutting roll 14, the same being pinned to the shaft by the pins 15, or else being secured thereto in any of the conventional ways.

The cutting roll 14 is transversely slotted inwardly from its periphery as indicated at 15 in Fig. 5, and fixed in said slot with its sharpened edge 16 projecting slightly beyond the periphery of the roll, is a cutting blade or knife 17. Blade 17 extends straight across the roll 14 and acts to produce a straight end, as indicated at 18 in Fig. 7, on strap 19 cut by the machine. Screws 20 or other suitable means are employed for securing the knife 17 in position in the roll 14, the heads of the screw overlying parts of the edge of the blade and holding the blade in position in the slot.

Similarly secured in the roll 14, by means of screws 21 or the like in the manner explained, is a V-shaped knife 22, and secured at the apex of the knife 22 is a straight knife 23 held in place by means of the screws 24. The cutting blades or knives 22 and 23 co-operate in the formation of the angular or tapered end 25 on one end of the strap 19. Secured in the roll 14 is a plurality of spaced punch members 26, utilized for the formation of the spaced holes 27 in the strap 19. These punch members 26 are tubular and are secured in bores 28 in the roll 14 which extend laterally as shown in Fig. 6 and open at one side of the roll 14. Thus, the waste material punched out of the strap by means of the punches 26 will be forced through the punch members and through the passages 29, and be ejected out of the open end of the lateral portions of said passages.

To facilitate the feeding of the leather or other sheet material to be cut into the straps, the periphery of the cutting roll 14 between the knives and punches is covered with a suitable non-slip material 29, such as soft rubber or the like.

Mounted to rotate freely in the bearings 7 and 9 is a shaft 30 upon one end of which is secured the roll 31, said roll co-operating with the cutting roll 14 in producing the strap. Roll 31 is an idle roll and rotates together with the shaft 30 on which it is fixed, freely within the bearings 7 and 9 and it is preferably composed of a soft material, such as a soft brass or some other similar material which will not damage the cutting edges of the several knives 17, 22 and 23. By adjustment of the bearings 6 and 8 to or from those shown at 7 and 9, the roll 14 may be moved to or from idler 31.

The structure thus far described is adapted for

use in cutting sheet material of a predetermined width into relatively short lengths. The material to be cut may thus be in the form of a lengthy strip 32, a portion of which is shown in Fig. 3. The strip 32 to be cut into the strap lengths is guided between the cutting roll 14 and the idle roll 31 by means of any suitable guide means such as that shown which has a pair of adjustable, spaced flanges 33 which are set the required distance apart to suit the width of the strip 32 being directed between them, said flanges being preferably integrally formed on the plates 34 resting upon a base plate 35, on which they are adjustably secured by means of the set screws 36, which pass through the slots 37 formed in the plates 34. Plate 35 is provided with a boss 44 secured on the upper end of a supporting post 42 having its lower end anchored in a boss 38 formed on the base 1, by means of the set screw 39.

Briefly the operation of the machine is as follows:

With shaft 11 in rotation, the section of strip material 32 is either manually or mechanically fed between the guides 33 and inserted between the rolls 14 and 31 which move the material forwardly. Knife 17 cuts a straight end 18 on the strap; knives 22 and 23 cut the angular or tapered end 25 on it and the punches 26 form the strap with the spaced holes 27 and the strip so formed is ejected from between the rolls. It will of course be understood that the length of the strap, the spacing of the holes 27 therein and their positions relative to the ends of the strap, are merely matters of spacing according to the dimension of the particular strap to be formed. Accordingly, the cutting roll may, if desired, be provided with a plurality of spaced knife-receiving slots and punch-receiving apertures so that both the knives and punches may be shifted accordingly and placed in any desired position to meet requirements. The section of the strip that is severed between the knife 17 and the knife 22 is waste as far as the present machine is concerned, although it is usually employed for trimmings in shoe manufacture and is thus not really wasted.

While we have herein stated that the improved machine is especially adapted for cutting the straps from elongated sections or strips of leather or the like of a predetermined width, the device can also be readily employed for cutting the straps from scraps or other small pieces of leather or from irregularly shaped sections of almost any width greater than that of the finished

strap. For example, in Fig. 8 is shown a structure modified to include rotary cutters 40 properly spaced apart to cut a strap of the proper width from any suitable width of material that is fed between the rolls 14 and 31. In the structure there shown, the other features of the cutting roll previously described are incorporated, so that with such structure a strap is cut to the selected width and length; is punched with the holes 27 at the selected points, is tapered at one end as indicated at 25 and is cut straight across at the other end as indicated at 18. Other modifications may be readily made in the structure without departing from the spirit of the invention.

While we have herein described the invention as being particularly adapted for the formation of straps from leather or similar material, it will be understood that the same is not limited to the use of that particular material since the device disclosed will efficiently operate upon almost any suitable flexible and thin sheet material as will be clearly understood by those skilled in this art.

What we claim is:

A machine for cutting straps from sheet material comprising, a base, two pairs of spaced vertical shafts arising therefrom, each pair of vertical shafts carrying a lower bearing, a horizontally disposed rotatable shaft mounted in said bearings, each pair of vertical shafts carrying an upper bearing, a horizontally disposed upper shaft supported in the upper bearings, a cutting roll secured on one of the horizontal shafts, an idler roll secured on the second horizontal shaft and co-operating with the cutting roll in severing a section of sheet material fed between the rolls into predetermined lengths, spaced knives mounted in the cutting roll, one of said knives being V-shaped to thereby produce a tapered end on the strap cut by it, the other knife extending straight across the roll to thereby produce a straight, transverse cut across the strap at a distance from the tapered end thereof, punch means mounted between the knives in the cutting roll for forming a plurality of spaced holes in the strap adjacent to the tapered end thereof, said punch means consisting of tubular elements located in passages formed in the cutting roll, said passages having open ends located at one of the ends of the roll whereby waste material cut out by said punch means may pass out of said open ends.

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