

No. 680,927.

Patented Aug. 20, 1901.

S. R. KROM.
LEATHER WORKING MACHINE.

(Application filed Feb. 27, 1900.)

(No Model.)

3 Sheets—Sheet 1.

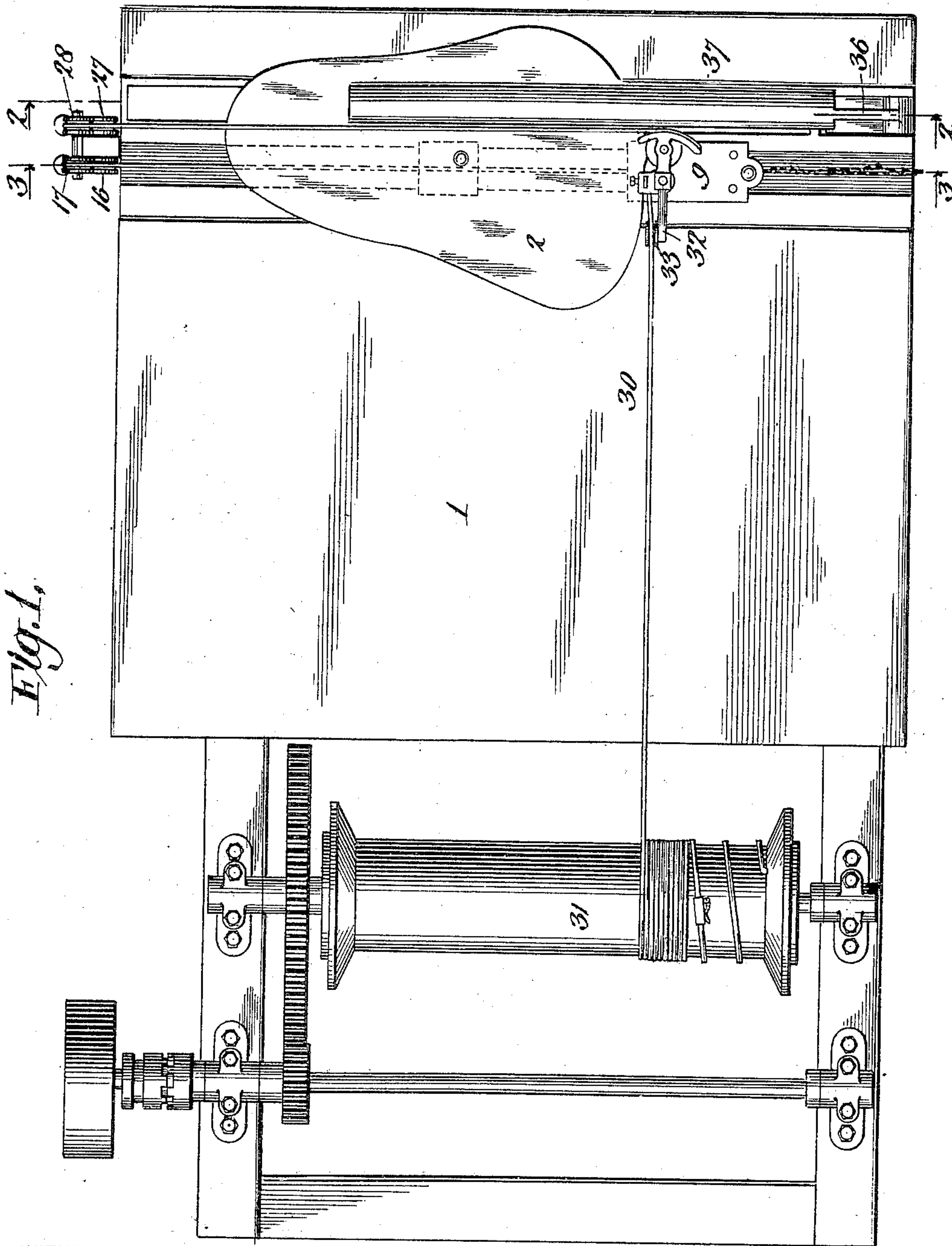


Fig. 1.

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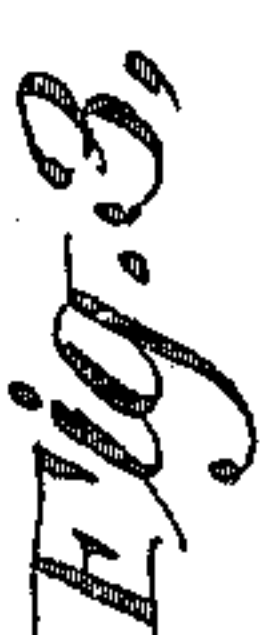
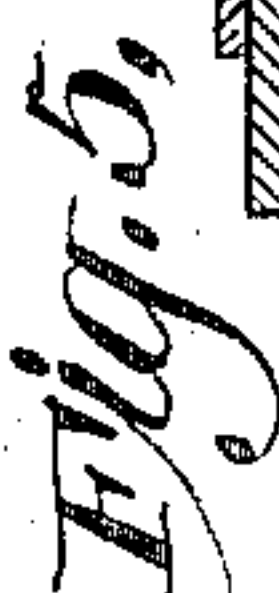
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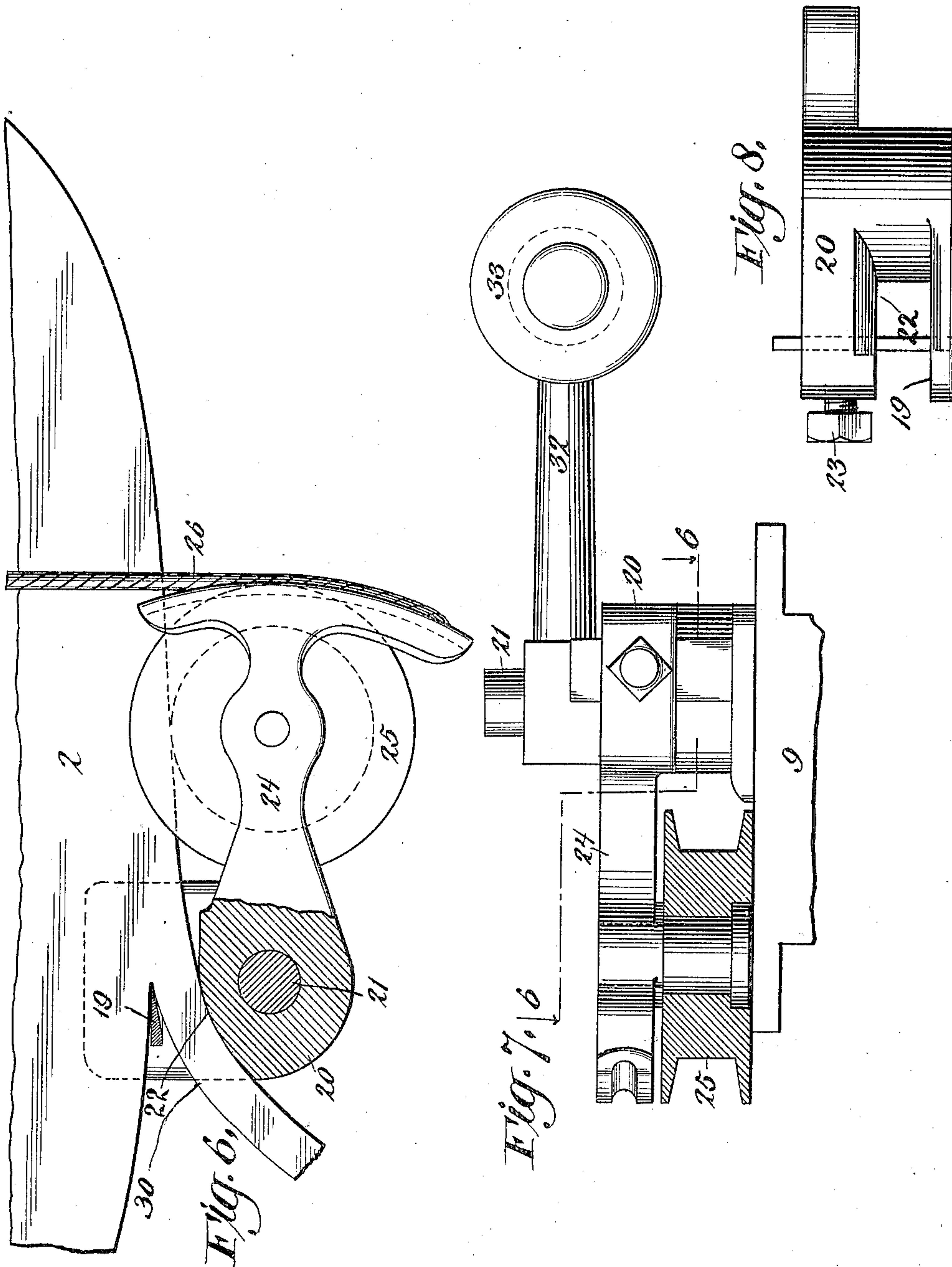
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3 Sheets—Sheet 3.



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LEATHER-WORKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 680,927, dated August 20, 1901.

Application filed February 27, 1900. Serial No. 6,696. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN R. KROM, a citizen of the United States, and a resident of Plainfield, Union county, State of New Jersey, have invented certain new and useful Improvements in Leather-Working Machines, of which the following is a specification.

This invention relates to leather-working machines adapted to trim off the margin of a blank.

The invention may be employed for any use to which its construction and arrangement is designed, but it is more particularly at present intended for use in cutting a leather blank into a long strip from which round belting may be made. Heretofore this work has been done by hand, and so far as I am aware no machine has been in practical use capable of accomplishing the work in a satisfactory manner.

In carrying out the invention a sheet or blank is secured in the machine so as to be rotatable, and the blank is rotated in contact with a knife, the blank and knife bearing against each other with yielding pressure. In the best form of the machine the knife is made to automatically adjust itself to the contour of the blank, so that the cutting direction of the knife will be kept parallel with the edge of the blank. I may employ any suitable means for rotating the blank, but I preferably accomplish this operation by means of the ribbon or strip being cut from the edge of the blank, said strip or ribbon being wound for the purpose upon a suitable drum, and thus rotating the blank as the strip is being wound on the drum. I preferably mount the knife upon a carriage movable toward and from the center upon which the blank rotates, so that the knife may be kept to its work against the edge of the blank and under suitable pressure. I prefer to make the knife movable for the purpose of keeping it against the blank under suitable pressure during the cutting operation, but in some cases I may arrange the blank so as to be movable for the purpose of keeping it pressed against the knife instead and still obtain some of the advantages of the invention.

In the accompanying drawings, forming part of this specification, and in which like

numerals designate corresponding parts in the various views, Figure 1 is a plan view of a machine embodying the invention. Fig. 2 is a sectional elevation on the line 2 2 of Fig. 1. Fig. 3 is a sectional elevation on the line 3 3 of Fig. 1. Fig. 4 is an end view of a casting located in the table of the machine and carrying the knife-carriage and certain guide-rollers. Fig. 5 is a sectional elevation on the line 5 5 of Fig. 3. Fig. 6 is a plan view, partly in section, of the knife-block and taken on the line 6 6 of Fig. 7. Fig. 7 is a front elevation, partly in section, of the knife-block. Fig. 8 is a side elevation of the guiding device for the knife-block looking toward the left of Fig. 7.

Referring now to the particular embodiment of the invention as shown in the drawings and to the detailed construction thereof, 1 is the table of the machine, upon which the blank 2 is centered to rotate. Across this table extends a casting 3, whose upper surface lies flush with the table and which is provided with a channel 4. In this channel is a block 5, which may be and preferably is movable, as by the chain 6, adapted to engage with or disengage from the pin 7. The blank 2 is centered on the block 5, and this I accomplish by thrusting the pin 8 through a hole cut in or near the center of the blank, the pin entering a corresponding hole or socket in the block 5. The knife-carriage 9 is movable to and fro in the channel 4, having two pairs of wheels 10 running on tracks 11 and 12, and having also four wheels 13 at the corners of the carriage and bearing against the sides of the channel 4, so as to keep the carriage steady and free in its movement. A cord 14 is attached to the front of the carriage and passes through a channel 15 in the block 5, and thence over the pulleys 16 and 17 to the weight 18. By this arrangement the knife on the carriage 9 will be held by a yielding but constant pressure against the edge of the blank 2. In order that the knife borne by the carriage 9 may continue in proper cutting engagement with the blank 2 as the different curves of its edge are presented to the knife, the knife is pivotally mounted on the carriage, so as to be capable of varying its cutting direction. For this purpose the knife 19 is set

in a block 20, which is secured to the carriage 9 by the pivot 21. The knife is arranged on one side of the channel or gage 22, formed on the block 20, passing removably into a recess therefor, in which it is secured in place by the said screw 23, so that the knife may be removed for repair. Extending from one side of the block 20 is an arm 24, carrying a guide-wheel 25, adapted to bear against the edge of the blank in advance of the knife. Secured to the outer end of the arm 24, which may have the form of a segment, as shown, is a cord 26, which passes across the table 1 of the machine and over pulleys 27 and 28 to the weight 29. As the knife cuts the strip or ribbon 30 from the blank the strip 30 passes behind the knife and through the gage 22 and is thence led to a drum 31, driven by suitable mechanism. This drum by pulling on the strip 30 operates to rotate the sheet 2, thus constantly feeding the blank against the knife. Loosely mounted on the pivot 21 is an arm 32, carrying a grooved roller 33, over which the strip 30 passes after leaving the knife and on its way to the drum 31. The roller 33, it will be seen, rises above the gage 22 and causes the blank strip 30 when under the strain of the drum 31 to bear against the upper side of the gage 22. This prevents the blank from curling up in the gage 22, which it otherwise is liable to do when in a spongy condition, as is sometimes the case.

The strip 30 cut from the blank 2 is of predetermined uniform width. The width is determined by the depth of the gage 22, and the uniformity of this width is maintained by reason of the fact that the knife 9 is kept accurately in a cutting direction parallel with the outer edge of the blank 2. If it were not for this ready adjustability of the knife to the varying curves of the blank 2, the knife would be unable to maintain its proper distance from the edge of the blank. There are various ways by which adjustment of the knife may be effected without departing from the scope of my invention. It will be noted, however, that in the present instance these means are automatic, the knife being guided by the wheel 25 under the pressure of the cord 26. In some cases I may obtain some of the advantages of the invention by the use of hand means to guide the knife.

In order that the blank 2 may be kept level with the table 1, I provide an arrangement of rollers between which the blank 2 passes in its rotary movement and by which it is kept down even with the table. In this arrangement of rollers I employ a shaft 34, fixed in a recess in the casting 3 and having loosely mounted thereon a series of conical rollers 35, all independent of one another and so that each is free to turn without reference to another. A bracket 36 is pivoted to the casting 3 and carries an arm 37, which supports the outer end of a shaft 38, whose inner end is supported by the bracket 36. This shaft 38 carries a series of conical-shaped rollers 39,

similar to and lying immediately above the roller 35. As the blank 2 rotates it passes between the rollers 35 and 39, the latter of which are of such weight as to keep the blank pressed down upon the rollers 35 on a level with the table 1. The rollers 35 and 39, which are farthest from the center of the blank 2, will of course turn faster than those which are nearer the center, and this they are able to do because the rollers are mounted for independent movement on their shaft. The conical shape of the rollers is important, because it enables the blank 2 to move around without clogging or binding against the ends of the rollers.

40 is a handle on the carriage 9, by means of which the operator will draw the carriage back against the pull of the weight 18 and by which he may steady the carriage, if required.

By means of this invention it will be seen that a continuous strip or ribbon of leather of predetermined uniform width may be cut from a sheet of leather and the work heretofore done by hand accomplished automatically, economically, and with despatch.

It is not always essential to the employment of my invention that the knife be kept parallel with the edge of the blank while in operation. If it is desired to cut a strip of tapering width, then the knife would be canted accordingly, and this could be done by hand or otherwise during the operation of the knife, the movability of the knife permitting this to be done. The most important use of the machine as at present contemplated will be in cutting strips from blanks of leather; but of course blanks of other material may be cut as well.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a leather-working machine, the combination of means for rotating the blank, a knife movably mounted so as to be capable of changing its cutting direction while in operation, and means for causing the knife and leather to bear against each other with yielding pressure, said knife being stationary with reference to the rotary movement of the blank.

2. In a leather-working machine, the combination of means for rotating the blank, a knife bearing against the edge of the blank and so as to feed toward the center on which the blank rotates, the knife being mounted movably so as to be capable of changing its cutting direction while in operation, said knife being stationary with reference to the rotary movement of the blank.

3. In a leather-working machine, the combination of a center of rotation for a blank, means for rotating such blank on said center, a knife-carriage movable to and from said center, a knife movably mounted on said carriage, and means for automatically adjusting the knife on the carriage to the contour of the blank so as to cut a continuous strip therefrom.

4. In a leather-working machine, the com-

5 combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife movably mounted on said carriage, and means connected with the knife and adapted to bear against the edge of the blank in advance of the knife, and thereby regulate the cutting direction thereof.

10 5. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife-block pivotally mounted on said carriage, said knife-block having a bearing-point adapted to press against the edge of the blank in advance of the knife to regulate the cutting direction of the knife.

20 6. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife-block pivotally mounted on said carriage, said knife-block having a bearing-point adapted to press against the edge of the blank in advance of the knife to regulate the cutting direction of the knife, and means for keeping the blank flat on the table as it approaches the knife.

25 7. In a leather-working machine, the combination of a table, means for rotating a blank on said table about a central point, a knife-carriage movable to and from said central point, means tending to force the carriage toward said central point, a knife-block pivotally mounted on said carriage, said knife-block having a bearing-point adapted to press against the edge of the blank in advance of the knife to regulate the cutting direction of the knife, and upper and lower rollers between which the sheet may travel, for keeping the blank flat on the table as it approaches the knife.

30 8. In a leather-working machine, a pivoted knife-block provided with a knife and having an arm projecting in advance of the knife,

said arm having a bearing-point adapted to bear against the edge of a rotating blank to guide the knife.

9. In a leather-working machine, a pivoted knife-block provided with a knife, and having an arm projecting in advance of the knife, said arm having a bearing-point adapted to bear against the edge of a rotating blank to guide the knife, and a cord and weight adapted to hold said bearing-point against the edge of said blank.

10. In a leather-working machine, the combination of a knife-carriage, a knife-block provided with a knife and pivoted on said carriage and having a guiding-arm adapted to bear against the edge of the blank in advance of the knife, said knife-block having also an arm 32 and roller 33.

11. In a leather-working machine, the combination of the winding-drum 31, table 1 having the channel 4, knife-carriage 9 movable in said channel, knife-block 20 having guide-wheel 25 and knife 19, and pivot-block 5.

12. In a leather-working machine, the combination of a table, means for rotating a blank thereon about a central point, a knife adapted to cut along the margin of said blank, two series of rollers adapted to bear against the upper and lower sides of the blank and hold it in proper position for the knife, the rollers of each series being mounted for independent rotation.

13. In a leather-working machine, the combination of a table, means for rotating a blank thereon about a central point, a knife adapted to cut along the margin of said blank, two series of rollers adapted to bear against the upper and lower sides of the blank and hold it in proper position for the knife, the rollers of each series being mounted for independent rotation, and an arm carrying the upper series of rollers and movable so as to withdraw said rollers from operating position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STEPHEN R. KROM.

Witnesses:

NICHOLAS M. GOODLETT, Jr.,
EDWIN SEGER.