

Oct. 30, 1923.

1,472,094

F. W. SIMON

LEATHER BEVELING AND SPLITTING MACHINE

Filed Dec. 13, 1921

3 Sheets-Sheet 1

Fig. 1.

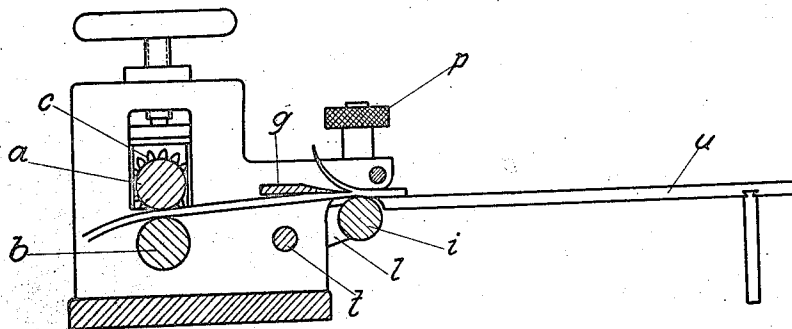
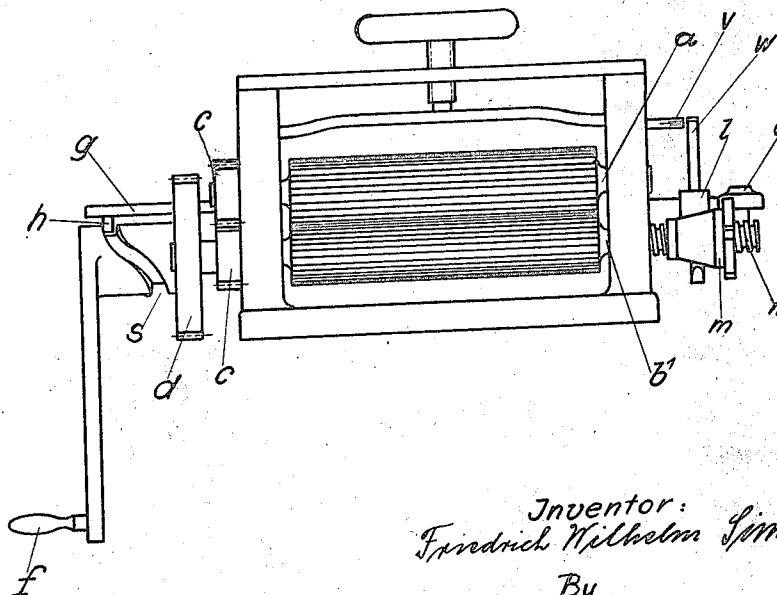


Fig. 2.



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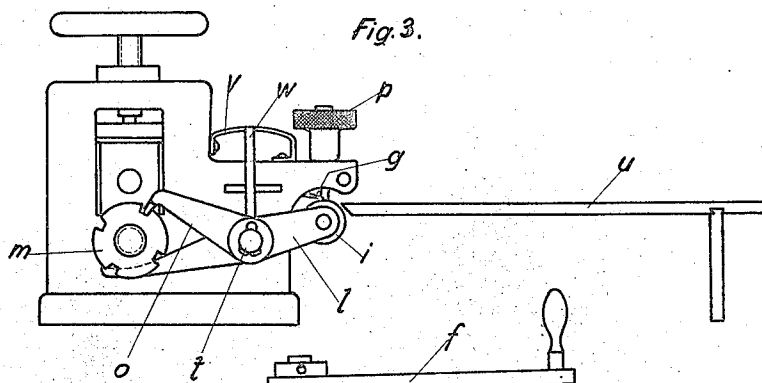
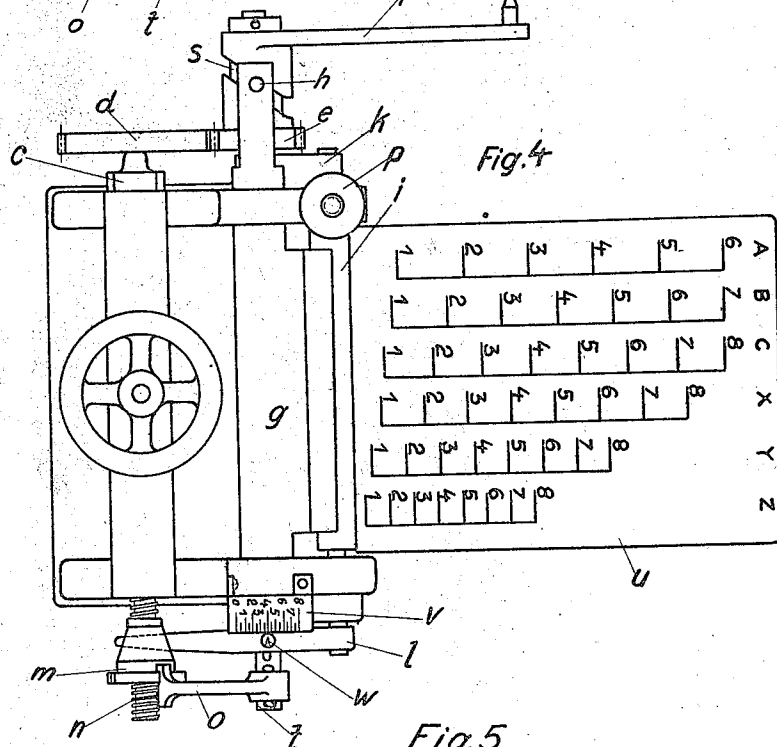
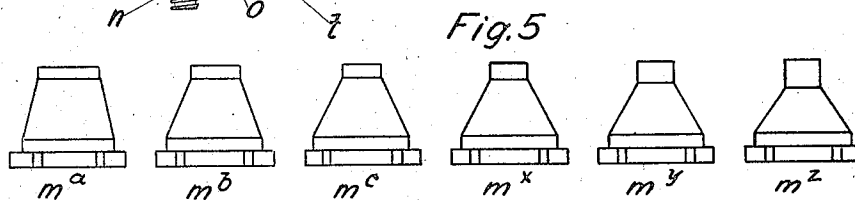
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3 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

FRIEDRICH WILHELM SIMON, OF OBERURSEL, NEAR FRANKFORT-ON-THE-MAIN, GERMANY.

LEATHER BEVELING AND SPLITTING MACHINE.

Application filed December 13, 1921. Serial No. 521,996.

To all whom it may concern:

Be it known that I, FRIEDRICH WILHELM SIMON, a citizen of the Republic of Germany, residing at Oberursel, near Frankfort-on-the-Main, Germany, have invented certain new and useful Improvements in a New or Improved Leather Beveling and Splitting Machine, of which the following is a specification.

The invention relates to a new or improved machine for beveling or splitting leather belts or the like and more particularly to that type of such a machine in which the leather belt is drawn against a straight knife blade.

The object of the invention is to effect the beveling independent of the skill of the operator by forcing the belt automatically more and more against the cutting edge, so that a perfect wedge-shaped edge is obtained. The invention also provides means to enable any desired angle of inclination to be produced. Inasmuch as at equal angles of inclination the length of the bevel depends upon the thickness of the leather, appliances are provided to measure in a simple manner the thickness of the belt prior to the cutting and then to exactly adjust the length of the beveled face to be produced in accordance with the ascertained thickness of the belt, in order that not more of the material is split off than is absolutely necessary for a uniformly sharply terminating cutting profile.

By a simple adjustment of the machine it may also be adapted for equalizing belts, that means splitting or cutting them down to a uniform thickness throughout their length.

In the accompanying drawings—

Fig. 1 shows a cross-section through the improved machine,

Fig. 2 a front elevation,

Fig. 3 a side elevation and

Fig. 4 is a plan of same.

Figs. 5 and 6 are some details of the construction, while

Figs. 7 and 8 illustrate a modified construction of the improved machine in cross-section and front elevation.

Referring to Figs. 1-6, it will be seen that the belt to be beveled at its end is drawn through between a pair of rollers *a* and *b* geared together by wheels *c* and driven by a crank-handle *f* through pinion *e* and spur-

wheel *d*. Instead of the drawing rollers *a*, *b*, any other suitable transporting device for the belt may be employed, for instance movable clamps, as shown in Figs. 7 and 8, described further on. The knife *g* is either stationary or it is adapted to be reciprocated horizontally by being provided at its extended end with a pin *h* engaging an inclined groove *s* in the hub of the crank. Below the knife blade there is provided a roller *i* disposed in the ends of oscillating arms *k* and *l* keyed upon a rocking shaft *t*. One of the oscillating arms *l* is provided with a tail which rests against a cone *m*. The cone *m* is provided with a screw-threaded bore and rides upon a screw-threaded spindle *n* which forms an extension of the journal of the roller *b*. The cone is provided at its wider end with a flange having recesses adapted to be engaged by the nose of a pawl *o* whereby the cone is prevented from rotating. The oscillating frame carrying the roller *i* can be raised or lowered by means of a nut *p* (see in particular Fig. 6). The measuring of the thickness of the leather is effected between the knife *g* and the supporting roller *i*, the latter as the movable member of the measuring device being forced towards the knife blade by the rising of the rocking arms *k* and *l* keyed to the shaft *t*. A pointer *w* fixed on the hub of the rocking arm *l* indicates the thickness of the belt to be beveled or equalized upon the scale *v* provided upon the frame of the machine.

At the back of the machine there is disposed a table *u* provided with a number of scales (A, B, C—X, Y, Z). The divisions of the scales indicate how far the end of the belt must project beyond the knife in order that at the thickness of the belt indicated upon the scale the bevel turns out uniform and sharp right up to the edge. With each scale corresponds one of the conical nuts *m^a*, *m^b*, *m^c*—*m^x*, *m^y*, *m^z*, as shown in Fig. 5. The conical nuts produce different bevels at equal thickness of belts and therefore a suitable conical nut may be selected by the aid of the scale, if a certain length of bevel is prescribed and which nut will then give a perfect sharply terminating profile for the cut.

The machine is operated in the following manner. The belt to be beveled at the end is passed through between the rollers *a* and

5 b and below the knife g into the machine until its end projects approximately so far beyond the knife blade as the bevel should be long. The thickness of the belt is then
 10 measured by forcing the roller i against the knife g and reading the result off upon the scale v . Now the end of the belt is put exactly upon the mark of one of the scales
 15 upon the table u which corresponds with the thickness of the belt, the conical nut belonging to this scale is screwed upon the spindle n and moved against the tail of the arm l until the pointer w again moves upon the mark indicating the previously read off
 20 thickness. The pawl o is then put upon the flange of the cone. If now the crank f is turned, the rollers a and b will slowly rotate and pull the belt against the blade of the reciprocating knife; simultaneously
 25 the cone m , owing to the engagement of the pawl o with one of the notches in its flange is unable to rotate any longer, rides upon the threaded spindle n towards the roller b and exerts a pressure upon the tail
 30 of the arm l , whereby the roller i is caused to approach nearer and nearer to the knife blade which penetrates deeper and deeper into the substance of the belt. In this manner a perfectly uniform wedge-shaped and
 at the end of the belt sharply terminating bevel is produced without any demand on the skill of the operator.

35 If the machine is to be employed for equalizing purposes, the conical nuts m and the pawl o are not made use of. The roller i is simply raised by the aid of the nut p to such an extent, that the pointer w sets itself upon the scale v to the desired thickness of the belt. The roller i then remains
 40 stationary in relation to the knife blade, so that only the portions of the belt which are thicker than the distance between the blade and the supporting roller are split or shaved off.

45 In the Figures 7 and 8 a modification of the machine is shown, in which instead of the drawing rollers a , b a movable clamping device is employed for drawing the belt against the knife. This clamping device is
 50 supported upon two racks 2 and 3 guided in the frame of the machine. It consists of a lower fixed part 4 and a loose rail 5 which by means of a screw provided with a hand-wheel 7 and passing through a bridge-piece
 55 c is adapted to force the rail 5 against the fixed part 4 and thus to clamp the belt between them. The racks 2 and 3 obtain their motion from a pinion upon a shaft 10 which at one end is furnished with a crank f and
 60 at the other end is provided with the necessary screw-thread n for the conical nut m . In this case the knife g is not adapted to reciprocate horizontally, but is secured in the machine frame. Set-screws 8 and 9 enable it to be adjusted vertically.

As a matter of course the machine may equally well be driven by power as by the hand-crank shown in the drawings by way of example. Other modifications within the ambit of the claims will easily suggest themselves.

I claim:

1. In a leather beveling and splitting machine, the combination with a knife blade, of a support for the article operated upon co-operating with said knife blade and provided with an oscillating arm, and means for causing the support to approach the knife blade during the beveling, said means including a rotating screw-spindle, and a conical nut adapted to ride axially on said rotating spindle and against which the oscillating arm rests.

2. In a leather beveling and splitting machine, the combination with a knife holder, of a support for the article operated upon co-operating with said knife blade and provided with an oscillating arm, and means for causing the support to approach the knife blade during the beveling, said means including a rotating screw-spindle, a conical nut adapted to ride axially on said rotating spindle and against which the oscillating arm rests, and a pawl connected with said oscillating arm and co-operating with said conical nut to lock the latter against rotation.

3. In a leather beveling and splitting machine, the combination with a knife blade, of a support for the article operated upon, means for causing the said support to approach the knife blade during the beveling operation, including a rotating screw spindle and a conical nut adapted to ride axially upon said spindle, and means for measuring the thickness of the article to be treated between the said knife and said support.

4. In a leather beveling and splitting machine, the combination with a knife blade, of a support for the article operated upon, means for causing the said support to approach the knife blade during the beveling operation including a rotating screw spindle and a conical nut adapted to ride axially upon said spindle, and means for measuring the thickness of the article to be treated between the said knife and said support, said measuring means comprising a pointer fixed to said support to move therewith, and a scale with which said pointer co-operates.

5. In a leather beveling and splitting machine, the combination with a knife blade, of a support for the article operated upon, means for causing the said support to approach the knife blade during the beveling operation including a rotating screw spindle and a conical nut adapted to ride axially upon said spindle, means for measuring the thickness of the article to be

treated between the said knife and said support, a table in proximity to the said support having thereon different scales, each scale corresponding with a conical nut and
 5 being divided according to the thickness of the article operated upon.

6. In a leather beveling and splitting machine, in combination, a knife, a support for the article operated upon, means for
 10 moving one of said elements toward the other to effect a bevel cut, means for feeding the article past the knife, and a pattern to determine the bevel of the cut in the article.

15 7. In a leather beveling and splitting machine, in combination, a knife, a support for the article operated upon, means for moving one of said elements toward the other to effect a bevel cut, means for feeding
 20 the article past the knife, a pattern to determine the bevel of the cut in the article, and means for measuring the thickness of the article between the said knife and support.

25 8. In a leather beveling and splitting machine, in combination, a knife, a support for the article operated upon, means for moving one of said elements toward the other to effect a bevel cut, means for feeding
 30 the article past the knife, a pattern to determine the bevel of the cut in the article, means for measuring the thickness of the

article between the said knife and support, a table in proximity to said support provided with a scale to determine the length
 35 of the bevel cut according to the thickness of the article between said knife and support.

9. In a leather beveling and splitting machine, in combination, a knife, a rotatable
 40 bed roll to support the work, an oscillating support for said bed roll, means for moving the work past the knife while supported by said bed roll, and means for moving said
 45 oscillating support to move the bed rolls toward and from said knife.

10. In a leather beveling and splitting machine, in combination, a knife, a rotatable
 bed roll to support the work, an oscillating support for said bed roll, means for moving
 50 the work past the knife while supported by said bed roll, means for moving said oscillating support to move the bed roll toward and from said knife, a rotating screw
 55 spindle connected with said rotatable bed roll to rotate therewith, a conical nut mounted on said spindle, means co-operating
 60 therewith to effect movement of said bed roll toward said knife and means for locking said nut against rotation to effect axial
 movement thereof on said spindle.

In testimony whereof I affix my signature.

FRIEDRICH WILHELM SIMON.