

A. C. BRILL.
LEATHER STAKING MACHINE.
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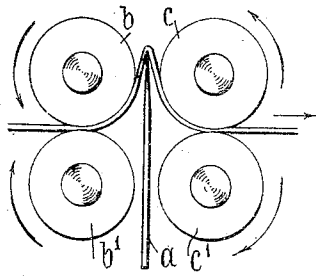


Fig 1

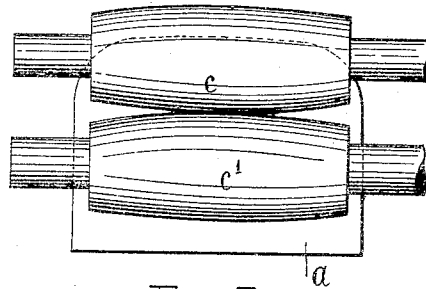


Fig 2

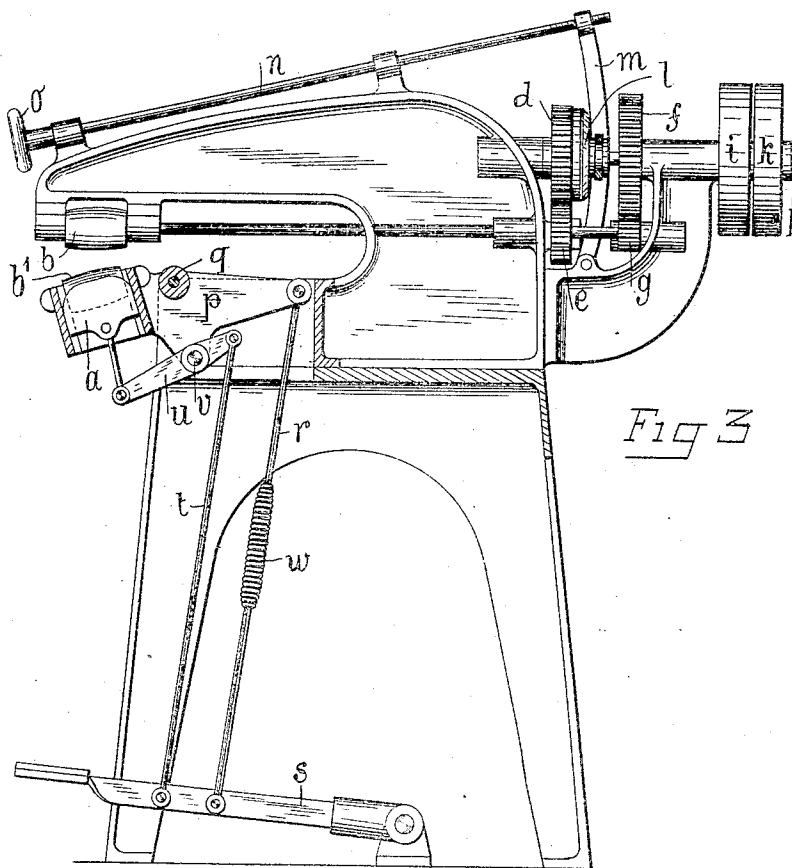


Fig 3

Witnesses:
C. H. Lauritt
J. Murphy

Inventor
August Christian Brill
by Jas. H. Churchill
att'y.

UNITED STATES PATENT OFFICE.

AUGUST CHRISTIAN BRILL, OF OBERURSEL, GERMANY.

LEATHER-STAKING MACHINE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, AUGUST CHRISTIAN BRILL, a subject of the German Emperor, residing at No. 4 Saalburgstrasse, Oberursel a. T., Province of Hesse-Nassau, Germany, have invented certain new and useful Improvements in Leather-Staking Machines, of which the following is a specification.

The present invention relates to a leather-staking machine, the action of which is designed to resemble as closely as possible the manual process in which the leather is drawn over a fixed blade (stake), while it is kept under tension with the hands, very often with the assistance of the knees. The known staking machines differ from the new type herein described in that, in the former, one end of the leather is held firmly, while the free end is seized and acted upon by staking tools which move backward and forward with a fixed stroke. Since in these machines the longitudinal motion of the staking blades is fixed, and cannot be altered by the attendant, machines of this type are not suitable for certain purposes. For instance, skins containing holes could not be staked on such machines for fear of tearing. Similarly, in consequence of the rectilinear movement of the staking tools, it would be impossible to stake a skin along its irregular bounding line. The present invention is intended to obviate these drawbacks, in that pairs of rollers are provided on the machine, which draw the work over a stake which can be adjusted to engage with the work to a greater or less extent. In order to keep the leather stretched continuously during the operation, the pairs of rollers on opposite sides of the blade are given different velocities, as is known, for instance in spinning machines, with the same end in view, namely to stretch the material.

In the accompanying drawing: Figure 1 shows the working parts during the passage of the leather. Fig. 2 is a side view of Fig. 1. Fig. 3 shows a staking machine embodying the present invention.

The blade *a* is situated between the rollers *b b'* and *c c'*, which rollers are preferably covered with rubber or felt, and revolve in the directions shown by the arrows in Fig. 1. The rollers *c c'* revolve at a higher speed than the rollers *b b'*, the ratio of the two velocities corresponding approximately to the ratio of the lengths of the piece of leather before and after staking. Since the

extent to which different parts of the same skin can be stretched varies very much, it might often happen that the leather would be stretched too taut by the rollers and would tear, were it not that devices, such as are known, for example, in wire-drawing machines, were provided which interrupt the drive of one of the feeding rollers, as soon as the tension in the leather rises above a definite, adjustable amount.

In the machine shown in Fig. 3, the rollers *b c* are mounted in the upper part of a C-shaped frame, and are driven by means of toothed wheels *d e* and *f g* from a shaft *h* carrying the fast and loose pulleys *i, k*. The toothed wheel *f* is rigidly mounted on the shaft *h*, while the toothed wheel *d* can revolve freely thereon and can be coupled to it by means of a friction-clutch *l*. The clutch *l* is controlled by the attendant through a lever *m* adjusting-rod *n* and hand-wheel *o*, so that the attendant can regulate the pressure of the coupling disk *l* against the toothed wheel *d*. In Fig. 3, the pairs of rollers are shown open, ready to receive a skin, which is laid between the upper and lower rollers, room being provided for the skin by the gap in the C-shaped frame.

The lower rollers *b' c'* are mounted on a rocking-lever *p* which is pivoted on the pin *q* and can be actuated from a treadle *s*, through the connecting rod *r*. The blade *a* is guided in grooves between the rollers *b', c'*. The blade can also be raised or lowered by the treadle *s*, being connected to it by the connecting rod *t* and the double armed lever *u*. The latter is pivoted to the lever *p* at *v*. When the treadle is pressed down, the rollers *b' c'* and the blade *a* are lifted into their working position, the work is pressed against the upper rotating rollers *b, c* and drawn over the blade under continual tension. If the tension in the leather rises above a certain maximum, determined by the pressure of the disk *l* of the clutch against the toothed wheel *d*, the toothed wheel slides over the surface of the disk *l*, so that the pair of rollers *b b'* allow the skin to pass through quicker than before until the tension decreases. The ratio of levers *p* and *u* to one another is chosen such that the blade, when at rest, is drawn back between the two lower rollers, so that the work can easily be inserted, while during the passage of the skin it occupies the position shown in Fig. 2. When the pairs of

rollers have been brought close together, the blade can be raised still higher by pressing the treadle farther down as required, in which case the spring *w* in the connecting
 5 rod *r* gives way. By this means, the extent of bending of the leather, for the purpose of softening it, can be regulated at will.

Movable jaws could also be used instead of the pairs of rollers. Furthermore, several pairs of rollers with a corresponding
 10 number of staking tools could be arranged one behind the other, in order to increase the effect.

I claim:

15 1. In a leather staking machine, the combination of a blade, feeding means on each side of said blade capable of moving the leather independently of each other, the feeding means behind the blade being driven
 20 faster than those in front of said blade.

2. In a leather staking machine, the combination of an adjustable blade and feeding means on each side of said blade capable of moving the leather independently of each
 25 other, the feeding means behind the blade being driven faster than those in front of said blade.

3. In a leather staking machine, the combination of a blade with one pair of feed
 30 rolls in front of said blade and another pair of feed rolls behind said blade, the pair behind the blade being driven faster than those in front.

4. In a leather staking machine, the combination of an adjustable blade with one
 35 pair of feed rolls in front of said blade and another pair of feed rolls behind said blade, the pair behind the blade being driven faster than those in front.

40 5. In a leather staking machine, the combination of a blade, a pair of rollers in front of said blade, a pair of rollers behind said blade, a rocking lever in which the lower
 45 roller of each pair is mounted, and means for actuating said rocking lever to alter the distance between the upper and lower roller of each pair.

6. In a leather staking machine, in combination, a blade over the edge of which
 50 the leather is to be drawn, a pair of feeding devices located on one side of the said blade and between which the leather is passed, a second pair of feeding devices located on the other side of the blade and between
 55 which the leather is passed, a stationary support for the upper members of said pairs of feeding devices, a support for the lower members of said pairs of feeding devices movable toward and from said stationary support,
 60 a carrier for said blade movable with the support for the lower pair of feeding devices and capable of movement independently thereof, and means to move said movable support and carrier, substantially as described.
 65

7. In a leather staking machine, in combination, a blade over the edge of which the leather is to be drawn, a pair of feeding
 70 devices located on one side of the said blade and between which the leather is passed, a second pair of feeding devices located on the other side of the blade and between which the leather is passed, a stationary support for the upper members of said pairs of feeding
 75 devices, a support for the lower members of said pairs of feeding devices movable toward and from said stationary support, a carrier for said blade movable with the support for the lower pair of feeding
 80 devices and capable of movement independently thereof, means to move said movable support and carrier, and means for automatically rendering one pair of feeding devices ineffective to feed the leather when the tension on the leather reaches a predetermined
 85 point.

8. In a leather staking machine, the combination of an adjustable blade, a pair of
 90 rollers in front of said blade, a pair of rollers behind said blade, a rocking lever in which the lower roller of each pair is mounted and means for actuating said rocking lever to alter the distance between the upper and lower roller of each pair.

9. In a leather staking machine, the combination of an adjustable blade, a pair of
 95 rollers in front of said blade, a pair of rollers behind said blade, a rocking lever in which the lower roller of each pair is mounted, and means for actuating said rocking
 100 lever to alter the distance between the upper and lower roller of each pair, the adjustable blade being connected to said rocking lever and moving upward with the rollers to engage the leather.
 105

10. In a leather staking machine, the combination of an adjustable blade, pairs of
 100 rollers, a rocking lever carrying the lower rollers of said pairs and the blade, means for actuating said rocking lever to adjust
 110 the rollers and a yielding device provided in said actuating means to allow the blade to be adjusted further after the final adjustment of the rollers.

11. In a leather staking machine, the combination of an adjustable blade, pairs of
 115 rollers, a rocking lever carrying the lower rollers of said pairs, means for actuating said rocking lever, a yielding device provided in said actuating means and means
 120 for driving one of said pairs of rollers at a higher speed than the other pair.

12. In a leather staking machine, the combination of an adjustable blade, pairs of
 125 rollers, a rocking lever carrying the lower rollers of said pairs, means for actuating said rocking lever, a yielding device provided in said actuating means, means for driving one of said pairs of rollers at a
 130 higher speed than the other pair and means

for driving the second pair of rollers, the driving-gear for the second pair being coupled to the driving-gear for the first pair, for the purpose of adjusting the power transmitted.

13. In a leather staking machine, in combination, a plurality of rollers arranged in pairs to form two sets of feeding devices for the leather, a movable support for the lower roller of each pair, a blade capable of being inserted between the said pairs of feeding devices, and a carrier for said blade movable with said support and independently thereof, for the purpose specified.

14. In a leather staking machine, in combination, a plurality of sets of feeding devices each comprising an upper and a lower member between which the leather is passed, one member of each set being bodily movable toward and from the other, and a blade bodily movable between said sets with the movable members thereof and capable of additional movement independently of the said movable members, substantially as described.

15. In a leather staking machine, in com-

bination, a plurality of sets of devices for engaging the opposite surfaces of the leather and comprising upper and lower members, the said lower members being bodily movable toward and from the upper members, and a tool bodily movable with said lower members toward and from the upper members between the latter and capable of movement independently of the lower members, for the purpose specified.

16. In a leather staking machine, in combination, a plurality of sets of feeding devices, each comprising an upper and a lower member between which the leather is passed, one member of each set being bodily movable toward and from the other, means for automatically rendering one set of feeding devices ineffective to feed the leather when the tension on the leather reaches a predetermined point, and a tool to act on the leather between said sets of feeding devices, substantially as described.

AUGUST CHRISTIAN BRILL.

Witnesses:

JEAN GRUND,

CARL GRUND.