(No Model.) 2 Sheets—Sheet 1.

D. O. BARTON.

LEATHER SPLITTING MACHINE.

No. 596,440. Patented Dec. 28, 1897.

Fig. 1.

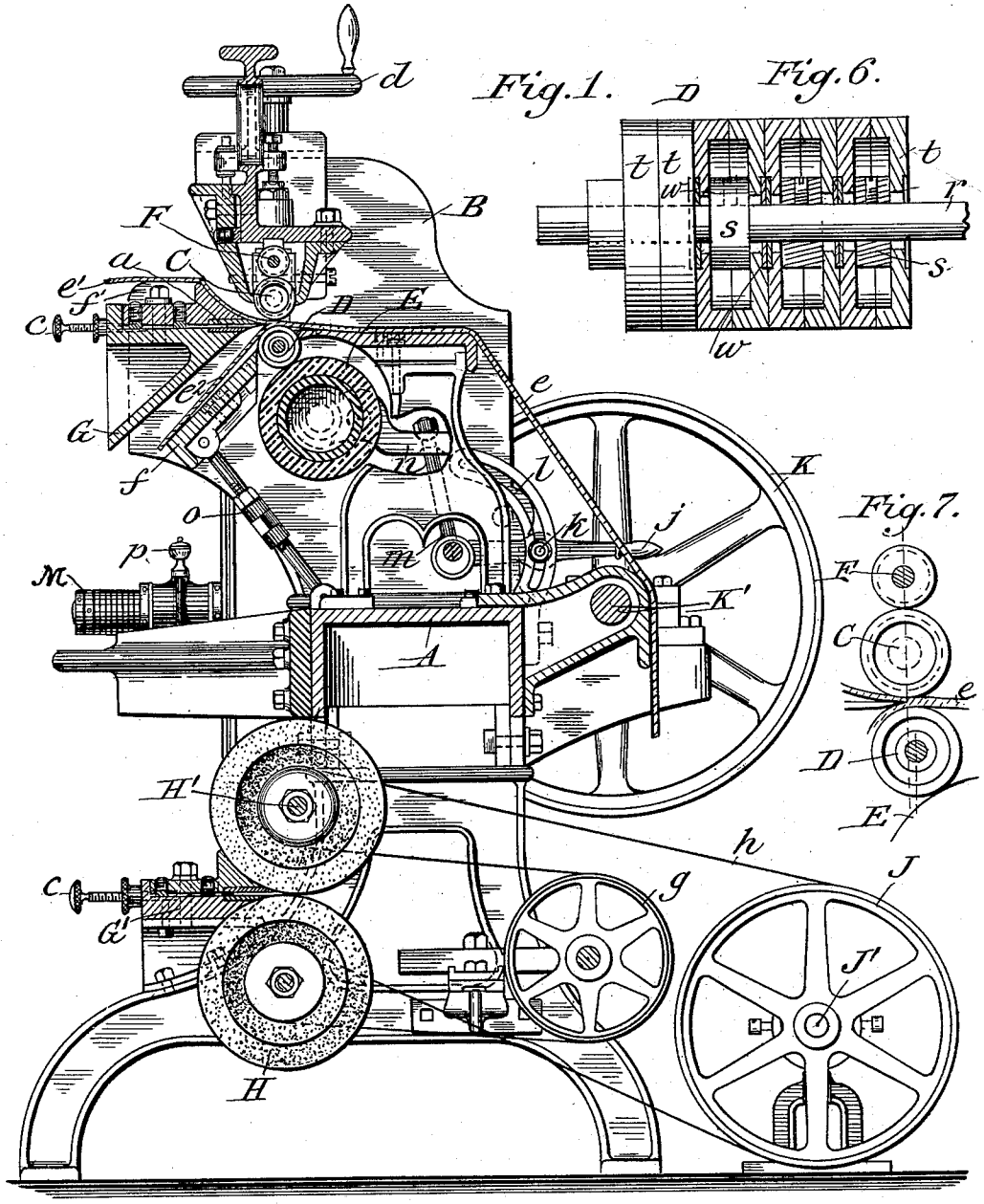


Fig. 6.

Fig. 7.

Attest:

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F. H. Schmidt

Inventor

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per Chas. A. Casler, Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

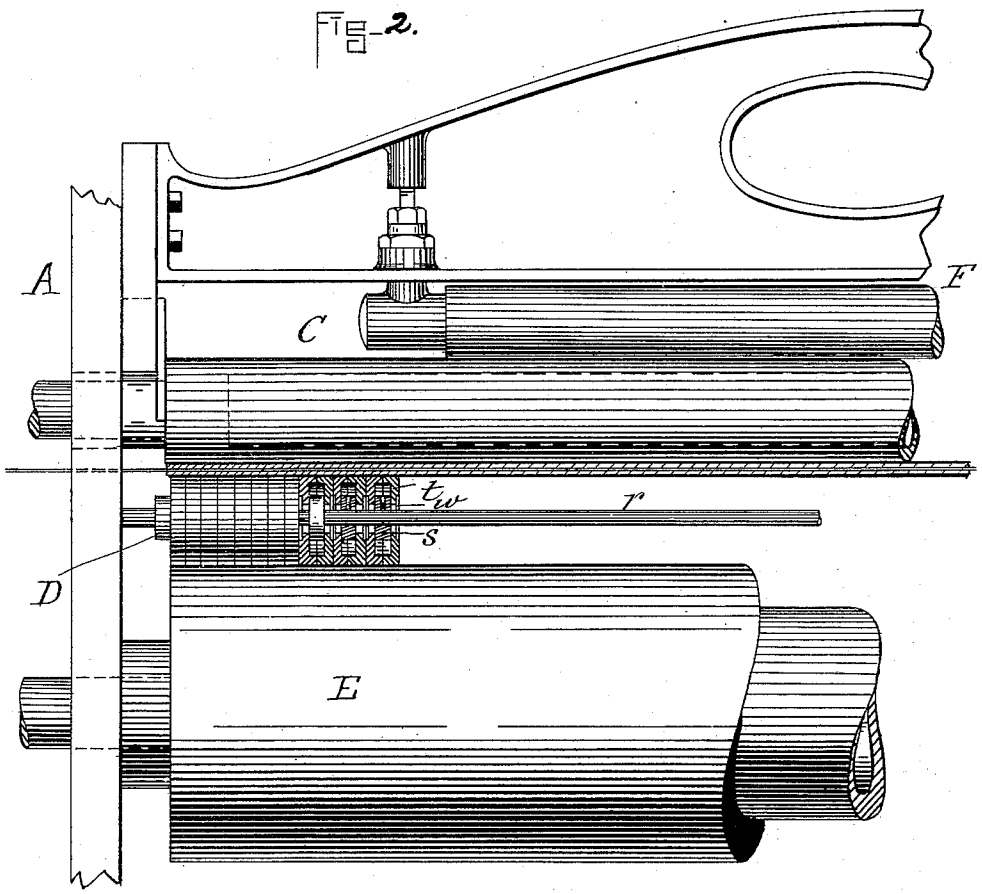
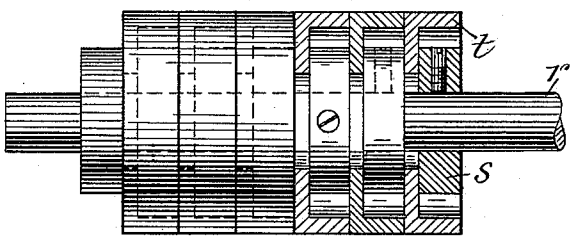


Fig. 3.



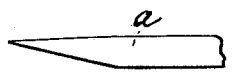


Fig. 4.

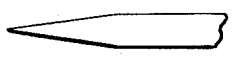


Fig. 5.

Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DANVILLE O. BARTON, OF BOSTON, MASSACHUSETTS.

LEATHER-SPLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 596,440, dated December 28, 1897.

Application filed June 11, 1896. Serial No. 595,202. (No model.)

To all whom it may concern:

Be it known that I, DANVILLE O. BARTON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Leather-Splitting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to leather-splitting machines; and the objects thereof are to so construct the same as to adapt them to feed the leather to the cutting-knife in an even and steady manner and accurately and expeditiously cut the same.

With these objects in view my invention consists in the novel combination, construction, and arrangement of parts and in the details thereof, which will be set forth in the specification and then claimed.

In the drawings forming a part of this specification, and in which like letters of reference indicate corresponding parts, Figure 1 is a vertical sectional view of my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a sectional view showing the common form of sectional roll. Fig. 4 is a view showing the cutting-blade of my improved knife. Fig. 5 is a view of a knife as commonly made. Fig. 6 is an enlarged sectional detail view of the sectional roll, and Fig. 7 is an enlarged detail view showing the relative positions of the gage and sectional rolls.

A represents the main frame of the machine; B, the sides thereof; C, the hollow gage-roll; D, a sectional roll; E, a rubber roll supporting the sectional roll; F, a backing-roll over the gage-roll; G, a bed at the back of the machine to support the cutting-knife, &c., and G′ a bed to support the cutting-knife while being sharpened.

H denotes emery or other wheels on shafts H′ for sharpening the cutting-knife.

a is the band-knife; *c*, adjusting-screws for adjusting the knife; *d*, a hand-wheel having screw connection with the backing-roll for adjusting the same; *e*, leather being fed to the machine; e' e^2, the upper and lower sections of the leather after severance; *f*, an inclined table or support to receive the lower strip or skiving, and f' the support for the upper section or grain side.

J is the main drive-wheel on shaft J′ of the machine, which may be connected to any suitable power.

K is a wheel on shaft K′, having suitable band connection (not shown) with wheel J, and also connected by band or gearing with roll E, and *g* is an idle-pulley supporting the band *h*.

j designates a hand-lever supported by a bolt *k* in a segmental slot formed in the main frame and connected by a link *m* with an arm *n*, which in turn connects with the shaft-carrying roll E, by means of which said roll may be thrown into or out of engagement with roll D. There may be one or more of these levers, as desired.

o denotes a right and left hand nut by means of which the inclined table may be adjusted as desired, said table being pivoted at its upper side to the main frame.

M represents a drive-shaft having connection with the main drive-shaft for operating the pulleys or wheels carrying the band-knife. The band-knife is supported upon four wheels, (not shown,) two at either end of the machine and having communication with shaft M, as before stated.

p denotes an oil-cup on shaft M for lubricating the same.

My improved knife has the upper bevel cut at a small angle, (about two degrees,) while the lower is cut at a bevel of about thirteen degrees. By this means the cutting edge of the knife admits of being placed nearer to the center of the gage-roll; in fact, can be carried underneath the center of the gage-roll to the point where the grip between the gage-roll and the sectional rolls takes place to pull the leather through the rollers. Both top and bottom bevels are of even length, but the upper bevel is cut with an angle of only about two degrees, while the lower is about thirteen degrees. By this manner of grinding the edge of the knife is kept on the top side of the body of the knife-blade. By carrying the knife edge to a point directly under the center of the gage-roll the leather is prevented from vibrating from one side to the other after leaving the rolls and before coming in contact with and being cut by the knife.

It has been customary to place the sectional rolls directly under the gage-rolls, so that their perpendicular axes would coincide, but in my improvement the sectional rolls are placed toward the front or feeding part of the machine, about one-eighth of an inch being found to do good work. By this means the edge of the knife can be carried to a vertical line passing through the center of the gage-roll and furnishes a better clearance or throat between the heel or inside bevel of the knife and the sectional rolls to clear the leather as it passes through.

Heretofore the sectional rollers have been made of a smaller diameter, so much so that they indent the leather and leave what are called "ring-marks" upon it, and when the leather was slippery or slimy or very wet there would not be sufficient friction between the rolls to feed the leather through the machine. In my improved machine the rolls are made of larger diameter, (about two and one-half inches.) This gives a better and stronger pull to the leather and holds it firmly to the cutting edge of the knife. My improved gage-roll is also made much larger in diameter than is customary and hollow to make it lighter, and thereby prevents the sagging of the roll and the splitting of small pieces of leather on the edge and shanks on the hide thinner than the body of the hide itself, which is a common fault with the machines now in use.

The sectional roll, Fig. 2, consists of four parts—the spindle *r*, the collars *s*, rigidly fastened therto by set-screws, the movable rollers *t*, which surround the collars, and the plates or guides *w* to keep the rollers in proper alinement. By this means and the pressure of the rubber roll the collars are kept in proper alinement and are firmly pressed against the leather passing between the sectional rolls and the gage-roll above. They are made in this manner, so that they can yield to any slight inequalities which occur in the leather, for, as already stated, the thickness of the hide varies throughout in spots. The collars, which are rigidly attached to the shaft, prevent the rings from canting horizontally and to serve hold the sectional rings together, the backs or the closed sides of the sectional rings being all placed in the same relative direction. These sectional rolls were formerly set up as shown in Fig. 3, but my improved rolls are set up in the following manner: First, a collar is rigidly secured to the shaft; next, a sectional ring is placed on the shaft and slipped along over the same until the closed end abuts against the first collar; next, a second collar is placed on the shaft and pushed along until it strikes the first ring, another ring is then slipped along the shaft with its open end toward the open end of the first ring, then another ring is placed on the shaft with its closed end against the closed end of the second ring, then a third collar is placed on the shaft against the third ring, then a fourth ring, and so on, two rings containing a collar within and abutting against two other rings containing collars until the entire sectional ring is completed, making a roll which yields in sections vertically, but does not yield or cant horizontally.

In my improved machine I increase the speed of the gage-roll above that of the sectional rolls from one and one-half to three times—*i. e.*, for each turn of the sectional rolls the gage-roll turns one and one-half or three times. This rapid movement of the gage-roll over the surface of the leather tends to iron or smooth out any indentations or marks therein and to pull the leather up to the gage-roll and produce a more uniform thickness in the leather. It will be understood, of course, that I provide proper boxing, &c., for the various rolls, said boxing sliding in suitable ways in the sides of the main frame.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a leather-splitting machine, the combination with the gage-roll thereof, of a sectional roll located in advance of the gage-roll, means for adjusting said rolls with relation to each other, and a knife at the rear of the rolls, the said arrangement of the rolls permitting the edge of the knife to be carried to a vertical line passing through the center of the gage-roll.

2. In a leather-splitting machine, the combination with the feed-rolls thereof, of a cutting-knife therefor having its lower bevel cut at a greater inclination than the upper and extending forward to the axes of the rolls.

3. In a leather-splitting machine, the combination with the band-knife thereof, of sharpening means for said knife automatically operated by the machine, rolls to feed the leather to the knife, an inclined table to receive the lower strip of cut leather, said table having its upper edge pivotally connected to the frame of the machine, and having adjustable means connected with the lower edge of the table for adjusting the inclination of the same.

4. In a leather-splitting machine, the combination with the gage-roll thereof, of a sectional roll slightly in advance of the same, said sectional roll comprising a shaft, rigid collars thereon, rings to overlap said collars, and plates or guides to keep the rings in proper alinement.

In testimony whereof I affix my signature in presence of two witnesses.

DANVILLE O. BARTON.

Witnesses:
DAVID W. BLANCHARD,
LORING D. SHAW.