(No Model.)

3 Sheets—Sheet 1.

E. CUMMINGS.

LEATHER SPLITTING MACHINE.

No. 288,551. Patented Nov. 13, 1883.

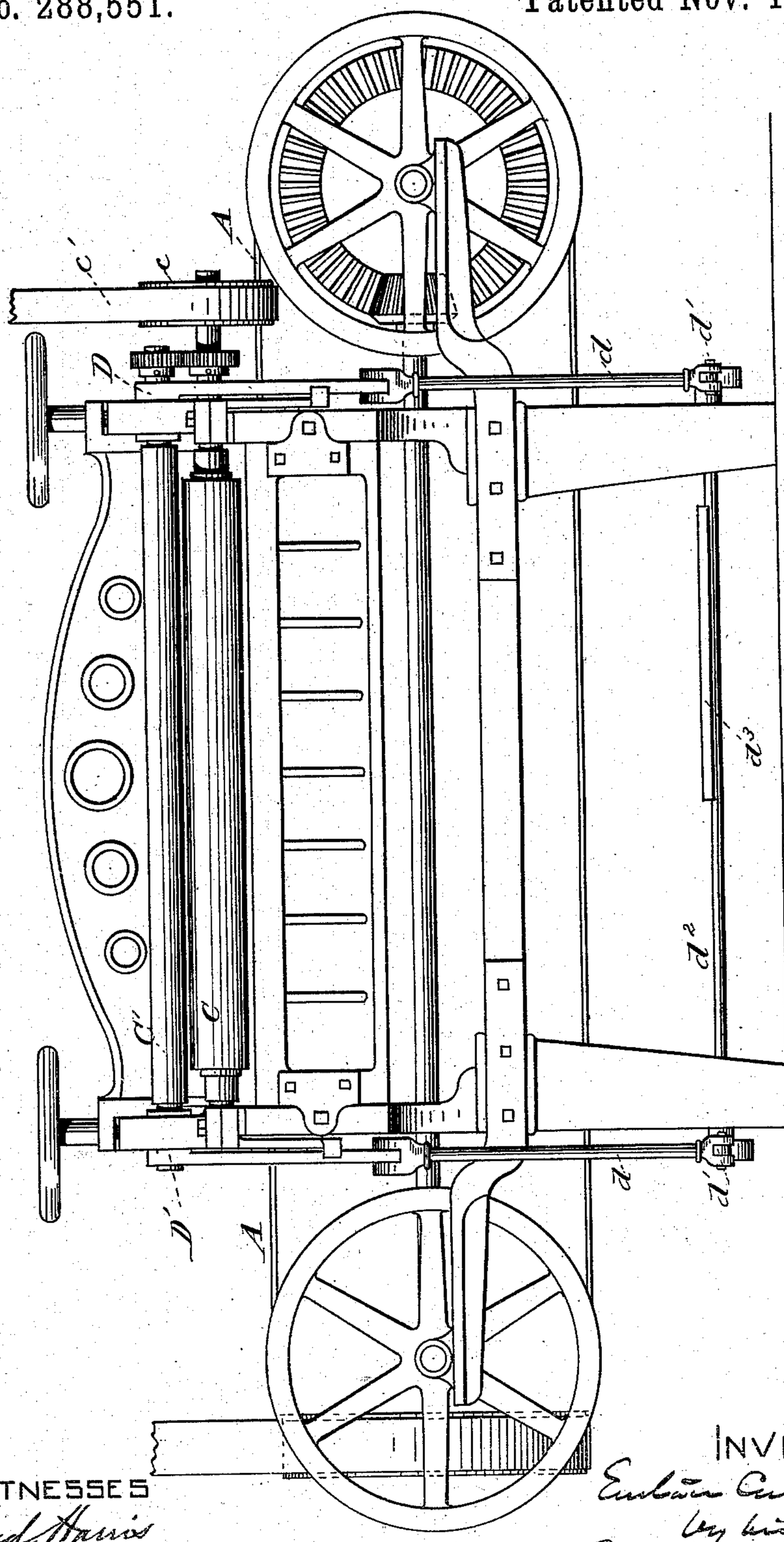

FIG. 1.

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(No Model.) 3 Sheets—Sheet 2.

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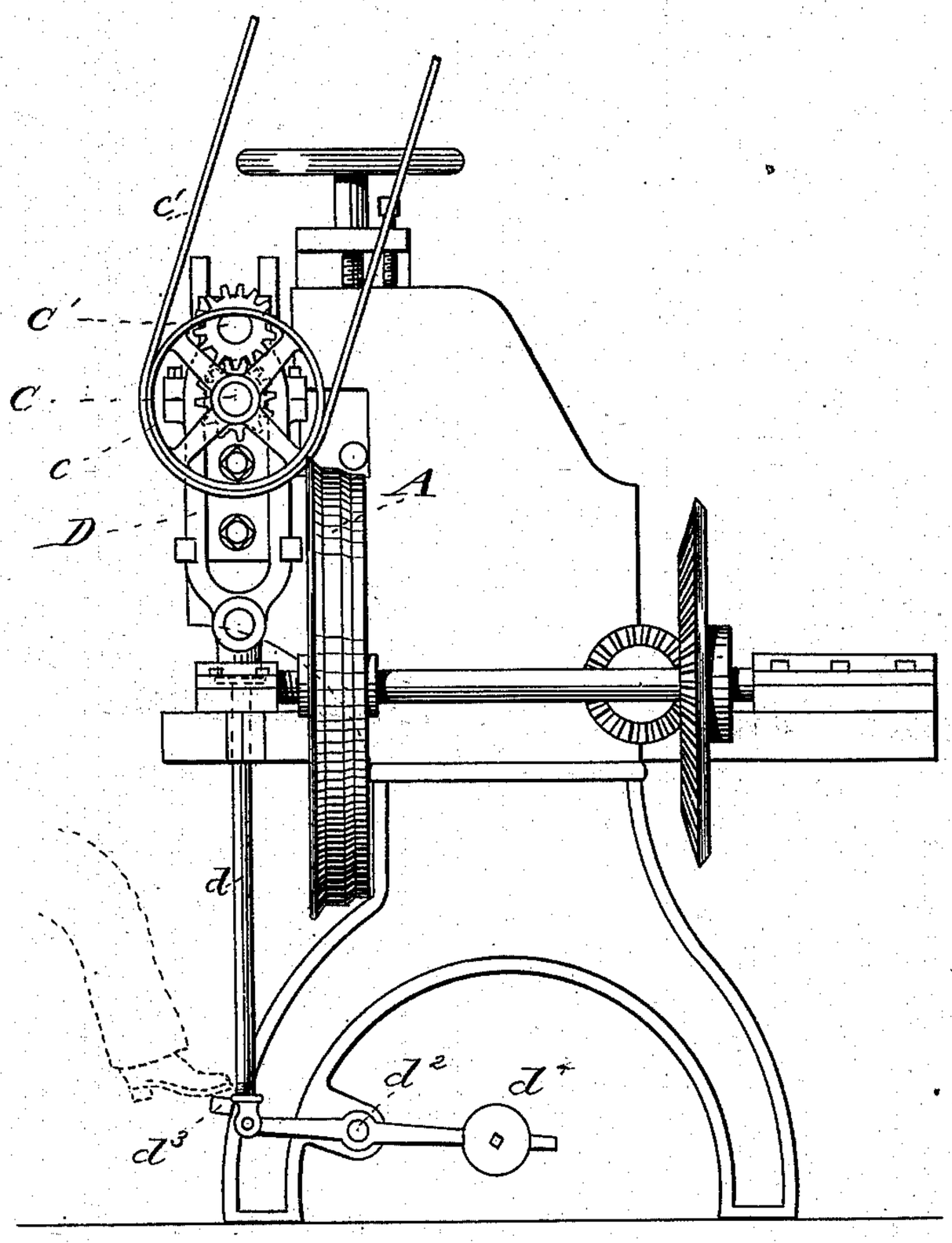

Fig. 2.

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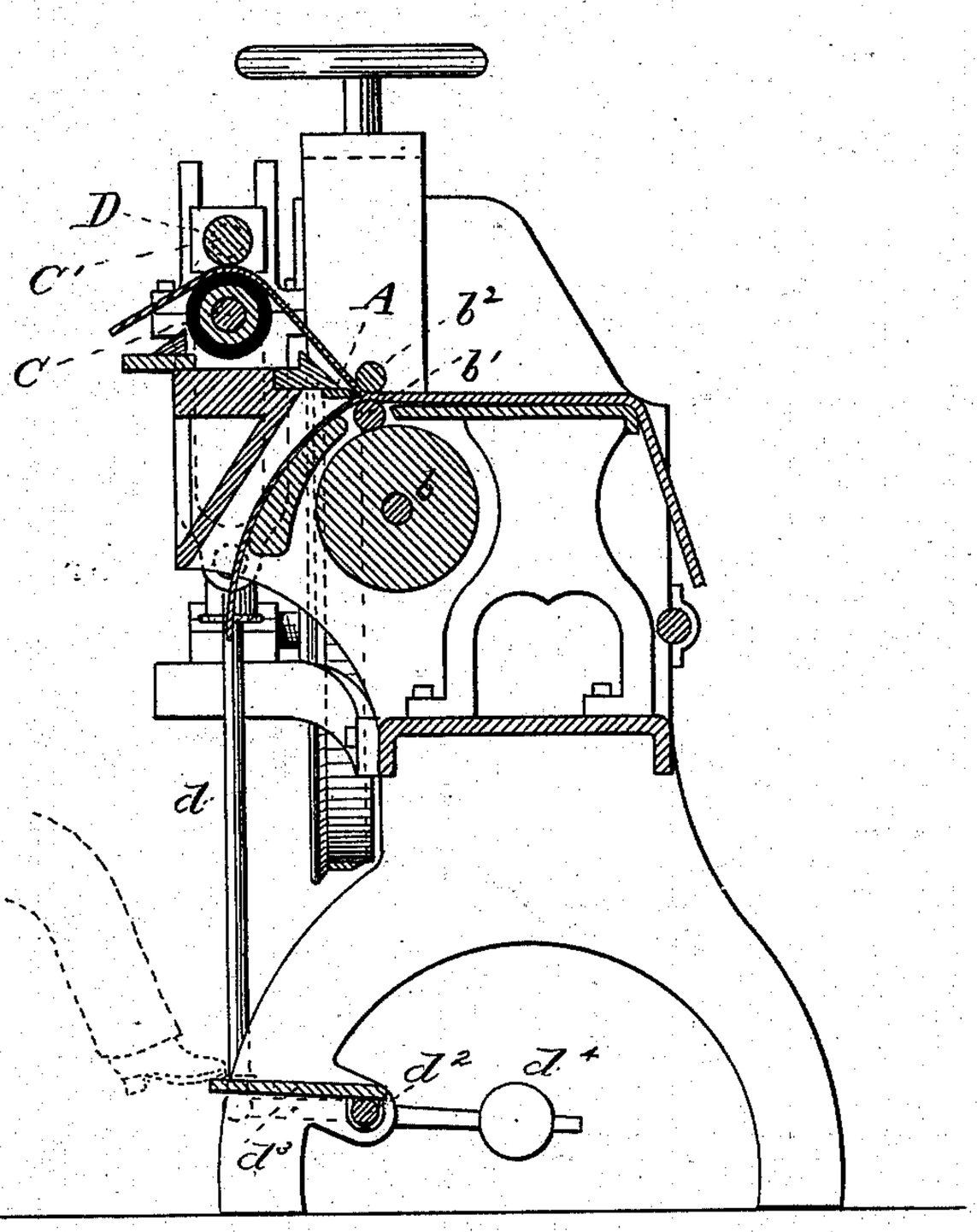

Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

EUSTACE CUMMINGS, OF WOBURN, MASSACHUSETTS.

LEATHER-SPLITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,551, dated November 13, 1883.

Application filed September 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, EUSTACE CUMMINGS, of Woburn, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have made a certain new and useful Improvement in Leather-Splitting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification in explaining its nature, in which—

Figure 1 is a back or rear elevation of a belt-knife machine such as made by Barton & Co., of Boston, containing my invention. Fig. 2 is a side elevation, and Fig. 3 is a vertical cross-section.

Heretofore in leather-splitting machinery having a belt-knife the sides of leather have been fed to the knife by means of the feed and gage rolls arranged in front of the cutting-edge of the knife, and the operator simply guides the same as it leaves the knife and feels of it from time to time to see that it is being split to the proper thickness. I have discovered that by the addition of drawing mechanism placed upon the opposite side of the belt-knife from the feed-rolls, which shall produce a constant and uniform tension upon the leather as it is being drawn from the knife, it can be much more uniformly split than would otherwise be the case. In fact, I may say that a substantially-perfect result is reached, in that the leather is split uniformly or of the same thickness throughout, and this result is obtained because it is drawn and held firmly to the gage-roll.

Referring to the drawings, the machine to which my improvement is added is one in common use.

A represents the belt-knife. It is revolved by means of driving wheels or pulleys in the ordinary way.

b b′ b² represent the ordinary feed-rolls of the Barton machine. The roll *b* is a rubber-covered roll, which revolves the smaller sectional roll *b′*, and the leather is fed between this smaller sectional roll and the gage-roll *b²* to the knife, and it is of course apparent that there is a space between the cutting-edge of the knife and the portions of the rolls which most nearly contact which is sufficient to cause the leather to be pressed from a straight path and down from the gage-roll as it is being fed to the belt-knife, and it is this movement from a straight path that causes the leather to be split unevenly. It is equally apparent that if the leather is drawn taut upon the knife this fullness between the cutting-edge and the feed and gage rolls is prevented, and this I accomplish by means of the drawing mechanism, consisting, preferably, of two rolls, C C′, positively driven from any suitable shaft by means of a belt, *c*, and pulley *c′*, or in any other desirable way. These rolls are run at a speed greater than the speed of the feed and gage rolls. The lower of the two rolls preferably is covered with rubber, felt, or other like material; but while this is an improvement upon a metal-surfaced roll, yet I do not wish to be understood as limiting myself thereto. The rolls are arranged above the plane of the knife, so that the split portion of the leather takes a diagonal course upward thereto after leaving the knife. The upper roll is provided with a vertical movement in relation to the lower roll, so that it may be moved to receive the forward end of the leather as it passes the knife, and also to permit of the adjustment of the leather while it is being split, or, on account of its shape, (when a side,) it does not feed uniformly in a straight line; and this is accomplished by means of the sliding boxes D D′, the rods *d*, the lever *d′*, connecting-bar *d²*, and the treadle *d³*, and I prefer that the construction be such that the upper roll shall automatically lift from the lower roll, and this may be accomplished either by counterbalancing-weights *d⁴*, attached to the bar *d²*, or by means of springs adapted to lift the treadle and the upper roll; and in this case the front portion of the side of leather passes the knife, enters between the two rolls, and the operator then with his foot presses the upper roll down upon the leather and lower roll sufficiently to give as much tension or friction thereon as may be desired, and as the rolls revolve faster than the feed-rolls the leather is drawn taut between the feed and drawing rolls and upon a straight line parallel with the rolls, but somewhat inclined between the drawing-rolls and the feed-roll. The teeth of the gear-wheels upon these rolls are made long, so that a separation of the rolls can take place without interfering with

the positive rotation of either roll, so that when the upper roll is brought down upon the hide it will be rotating at the same speed as the lower roll.

By this device I am enabled to split the leather to a uniform degree of thickness, and thereby dispense with the subsequent shaving now necessary, and consequently save the cost of much labor, as well as prevent the waste of the stock; that which before made shavings forming a portion of the split leather, and of course making it stronger, heavier, and of better quality.

It is not necessary in all kinds of work to use both drawing-rolls, as the lower one, especially when covered with a frictional material, like rubber, will answer to draw the hide, especially when held down thereon by hand.

Of course this mechanism may be used for splitting other material than leather, if desired, and I do not confine myself in its use to leather-splitting simply.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a leather-splitting machine, in combination with the feed and gage rolls b' b^2 and belt-knife A, the positively-operated revolving drawing-rolls C C′, all substantially as and for the purposes described.

2. In a leather-splitting machine, in combination with feed-rolls b' b^2 and belt-knife A, the drawing-rolls C C′, revolved at a greater speed than the feed-rolls, whereby material split is kept taut during the splitting operation, all substantially as and for the purposes described.

3. The combination, in a leather-splitting machine, of the feed-rolls b' b^2, the belt-knife A, and the drawing-rolls C′ C^2, located in relation to the splitting-knife, as described, all substantially as and for the purposes set forth.

4. The combination, in a leather-splitting machine, of the feed-rolls b' b^2, the belt-knife A, and the drawing-rolls C C′, one of which is adapted to be moved vertically in relation to the other, all substantially as and for the purposes described.

5. The combination, in a leather-splitting machine, of the feed-rolls b' b^2, the belt-knife A, the drawing-rolls C C′, the treadle d^3, and connecting mechanism whereby the rolls are brought together, all substantially as and for the purposes described.

6. In a leather-splitting machine, in combination with suitable feeding and gaging devices, and a revolving belt-knife, A, the drawing roll or rolls C C′, located in relation to the belt-knife, as set forth, all substantially as and for the purposes described.

7. In a leather-splitting machine, in combination with suitable feeding and gaging devices, and a revolving belt-knife, A, the drawing-rolls C C′, located in relation to the belt-knife, as set forth, one of which rolls is automatically moved from the other, and that is adapted to be brought in contact therewith by a foot-treadle, all substantially as and for the purposes described.

8. The combination, in a leather-splitting machine, with suitable feeding and gaging devices, and a revolving belt-knife, A, of the drawing-roll C, having a rubber, felt, or other equivalent working-surface, and a smooth-surfaced drawing-roll, C′, arranged over the same and adapted to be revolved therewith, the said rolls being located in relation to the revolving belt-knife as set forth, all substantially as and for the purposes described.

EUSTACE CUMMINGS.

Witnesses:
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FRED. HARRIS.