

(No Model.)

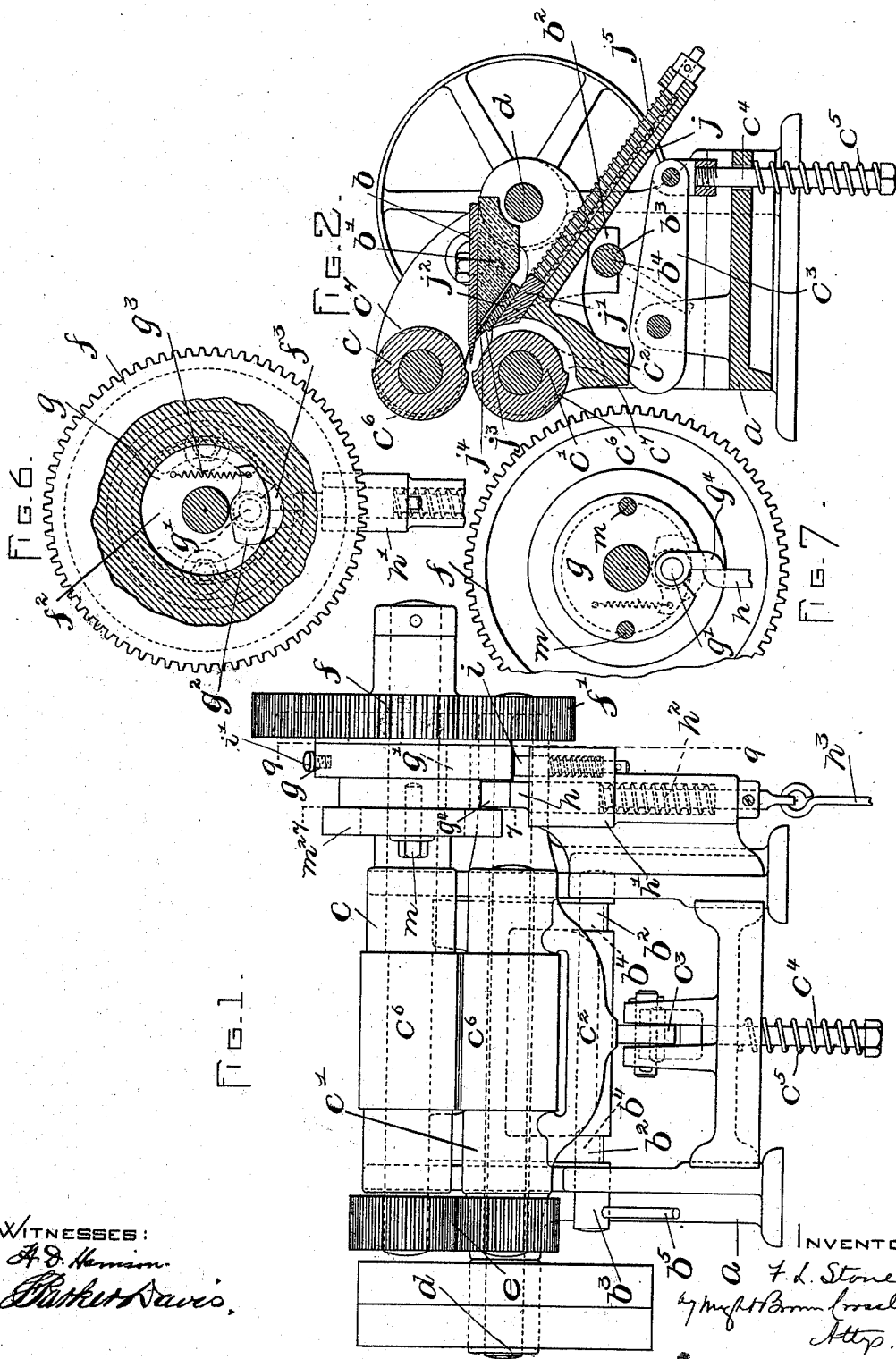
2 Sheets—Sheet 1.

F. L. STONE.

MACHINE FOR SPLITTING INSOLES FOR BOOTS OR SHOES.

No. 527,299.

Patented Oct. 9, 1894.



WITNESSES:
A. D. Hanson.
Parker Davis.

INVENTOR:
F. L. Stone
by M. B. Brown, Attorney.

(No Model.)

2 Sheets—Sheet 2.

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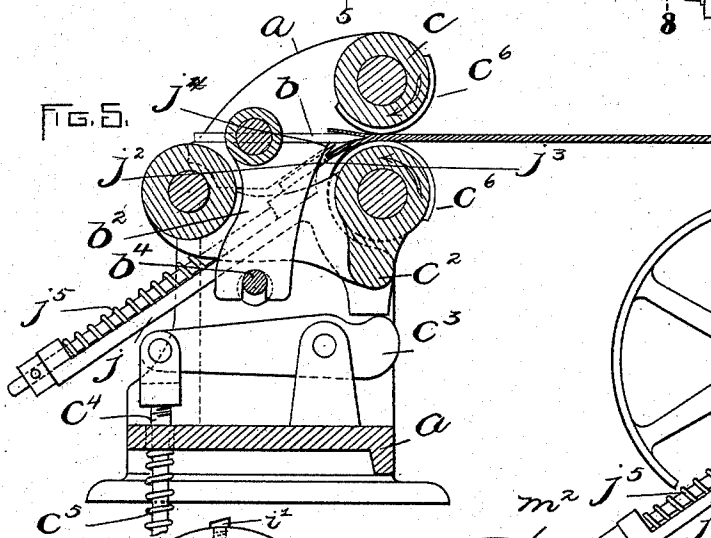
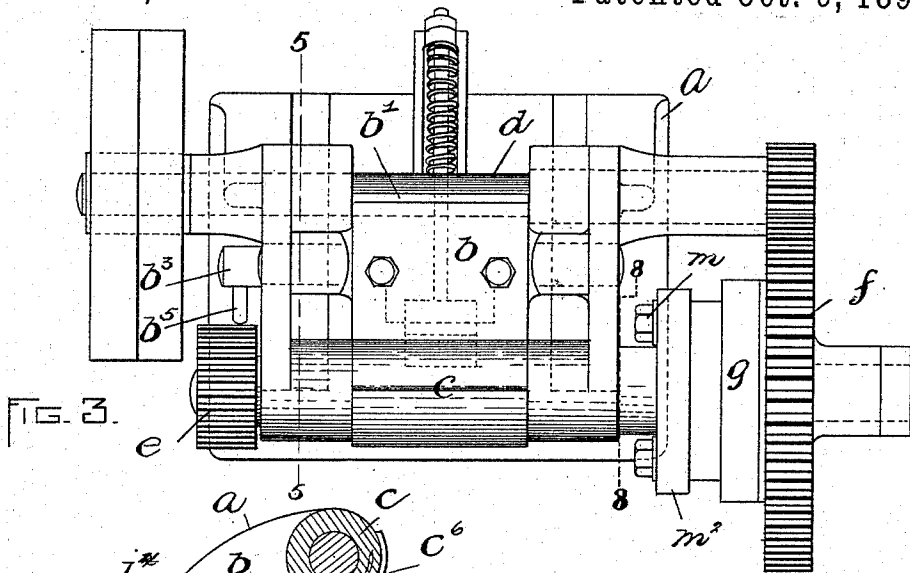


FIG. 4.

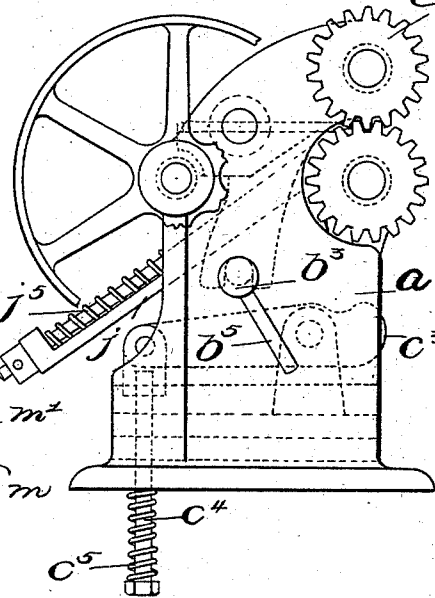


FIG. 9.

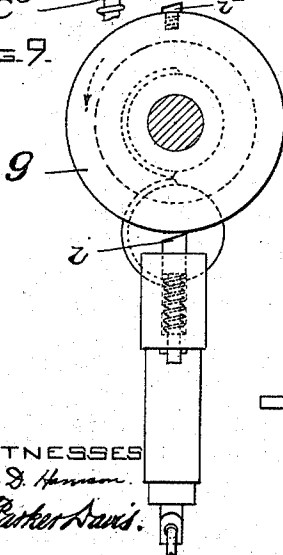


FIG. 8.

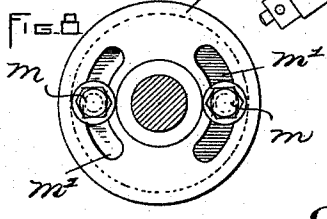
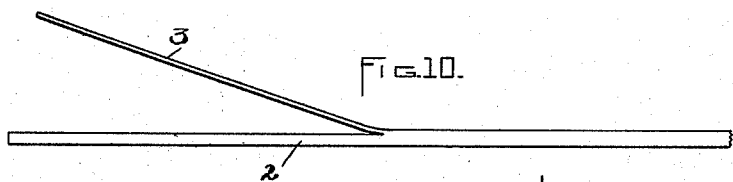


FIG. 10.



WITNESSES
A. S. Hanson.
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INVENTOR:
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Attys

UNITED STATES PATENT OFFICE.

FLORENTINE L. STONE, OF BROCKTON, MASSACHUSETTS, ASSIGNOR OF TWO-THIRDS TO THE BOUVÉ, CRAWFORD & COMPANY CORPORATION, OF SAME PLACE.

MACHINE FOR SPLITTING INSOLES FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 527,299, dated October 9, 1894.

Application filed November 25, 1893. Serial No. 491,990. (No model.)

To all whom it may concern:

Be it known that I, FLORENTINE L. STONE, of Brockton, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Splitting Insoles for Boots or Shoes, of which the following is a specification.

The object of this invention is to provide a machine which will split the heel-portion of an insole, and thereby form a thin flap to cover fastenings which secure the heel, and thus obviate the use of a separate sock-lining for this purpose; and the invention consists in means for accomplishing the above object, substantially as hereinafter described and claimed.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 shows a front elevation of the machine. Fig. 2 shows a central cross-section. Fig. 3 shows a top plan view. Fig. 4 shows an end elevation, as viewed from the left of Fig. 3. Fig. 5 shows a section on line 5—5 of Fig. 3. Fig. 6 shows an elevation of the driving gear-wheel, broken out to illustrate the means for operatively connecting the same with the feed-rollers. Fig. 7 shows a section on line 7—7 of Fig. 1. Fig. 8 shows a section on line 8—8 of Fig. 3. Fig. 9 shows a section on line 9—9 of Fig. 1. Fig. 10 shows the product of the machine.

The same letters and figures of reference indicate the same parts in all the figures.

In order that it may first be understood what the machine is designed to perform, attention is called to Fig. 10, which shows an edge view of a portion of an insole for boots and shoes, 2 designating the heel part of said insole, which is split lengthwise, as shown, to form a thin flap 3, which is to cover the heel fastenings issuing through the under portion 2. In order to successfully accomplish the work, it is desirable that provisions be made for regulating the thickness of the flap 3, and also its extent in the direction of length of the sole. Other provisions are also desirable, all of which will be fully described hereinafter.

The letter *a* designates the stationary sup-

porting-frame of the machine; and *b* a horizontally-disposed cutting-knife, which is mounted upon a block *b'*, having trunnions which journal in the frame *a*, and formed with pendent arms *b²*, which straddle cranks *b⁴* on a shaft *b³*.

To secure vertical adjustment of the splitting-knife *b* for regulating the thickness of the flap, the shaft *b³* is turned, it being journaled in the frame *a* eccentrically with respect to the cranks *b⁴*. A handle *b⁵*, affixed to the shaft on the exterior of said frame, provides a means for turning said shaft. The cutting edge of the knife stands behind a pair of feed-rollers, the upper one *c* of which is supported in stationary bearings on the frame *a*, while the lower one *c'* is supported in bearings on a frame *c²*, pivoted on the driving-shaft *d*, and bearing on the forward end of a lever *c³*, to which is connected a rod *c⁴*, extending through the base of the frame *a*, and carrying a spring *c⁵*, bearing at one end against the frame and at the opposite end against a head on said rod. Through these means, the lower feed-roller *c'* is spring-pressed toward the upper roller, to establish a co-operative relation between the two rollers.

It is desirable that the work be fed through a predetermined distance by the feed-rollers and then released, and to this end each feed-roller is formed throughout a portion of its circumference with a raised acting surface *c⁶*, while the remaining portion *c⁷* of its circumference recedes and is inoperative. The raised portions *c⁶* of the two rollers are of equal extent, and the rollers are so arranged that these portions always register. Power is transmitted to the upper roller, which is operatively connected with the lower one through gears *e*.

Means are provided for automatically stopping the feed-rollers at the end of each complete revolution, so that said rollers will begin to operate on a piece of work at the same point in their acting surfaces, so long as their adjustment remains unchanged. The means here shown for accomplishing this purpose are as follows: A gear *f* is mounted loosely

on the journal of the upper roll c , and is in mesh with pinion f' on the driving-shaft k , whereby said gear f is continuously rotated. The gear is formed with a circular recess f^2 , entering from its inner side and having at one point an offset f^3 of partly circular form. A head g , which is arranged to rotate with the feed-roller c , carries a stud g' , projecting at one end into the recess f^2 of the gear, and there carrying a lug g^2 , adapted for engagement with the offset f^3 in the recess f^2 , and actuated by a spring g^3 in a direction to engage said offset. On the opposite end, the stud g' carries a lug g^4 , extending on an angle with respect to the lug g^2 , and adapted to abut a bolt h . While the said lug g^4 is abutting the bolt h , the lug g^2 is held clear of the offset f^3 , and the gear and feed-roller are disconnected. The bolt h is arranged to slide vertically in a stationary bearing h' on the frame a , and is held by a spring h^2 in the path of the lug g^4 . Said bolt is connected by a rod h^3 with a treadle (not shown), arranged to be operated by the attendant. When the treadle is depressed, the bolt h is withdrawn from engagement with the lug g^4 , whereupon the spring g^3 throws the lug g^2 into the offset f^3 and the gear f then drives the feed-rollers. The treadle is released before the feed-rollers have completed a revolution, and the bolt h is restored to its position in the path of the lug g^4 ; and, as the feed-rollers complete a revolution, said lug g^4 encounters the bolt h and the lug g^2 is thrown out of the offset f^3 . To prevent the momentum acquired by the feed-rollers from carrying them through more than one complete revolution, a brake i is arranged to bear with spring pressure against a beveled stud i' on the periphery of the head g , said brake being in the form of a beveled slide, engaging a bearing on the frame a , and having a shank which is surrounded by a spring within said bearing. At the end of each revolution of the rolls, the stud i' encounters the brake i , and the friction thus created is sufficient to prevent the further rotation of the rolls after they are disconnected from the driving means.

In the operation of the machine, the work is entered between the feed-rollers c and c' , the treadle controlling the bolt h is depressed, and the acting surfaces c^6 of the feed-rollers carry the work upon the cutting edge of the knife b . When the ends of said raised surfaces leave the work, the latter is no longer advanced upon the knife, as the depressed portions c^7 of the rollers do not co-act in feeding the work.

Means are provided for ejecting the completed work from between the feed-rollers, as follows: The pivotal frame c^2 is formed with a rearwardly and downwardly extending slideway j , which supports a slide j' , having position below the knife b and back of the cutting edge of the same. This slide has a bearing-piece j^2 , fastened on its upper side

and formed with a shoulder j^3 and a beveled guiding-surface j^4 which extends from said shoulder to the underside of the knife against which the bearing-piece abuts. A spring j^5 holds the slide up, but is not of sufficient strength to resist the action of the feed-rollers in advancing the work upon the knife. After the work has passed the cutting edge of the knife b , it abuts the shoulder j^3 , and the slide j yields to the latter and is pushed back thereby so long as the acting surfaces c^6 of the feed-rollers engage the work. Immediately upon said acting surfaces leaving the work, the spring j^5 projects the slide j' , and the work is thereby pushed out of the machine.

As the length of the flap 3 may vary in different soles, means are provided for adjusting the rollers to begin operating on the work at different points in their raised surfaces c^6 .

The upper feed-roller c is adjustably connected with the head g , by means of bolts m , which fasten in said head g and extend through arc-shaped slots m' in a circular head m^2 fixed with relation to the roller c . After loosening the bolts m , the roller c may be turned, and the two feed-rollers brought to the adjustment desired, and locked in such adjustment by tightening the said bolts.

It is evident that the invention is capable of embodiment in other forms than here shown, and is not therefore limited in this respect.

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

1. In a machine of the character described, a splitting-knife; a pair of feed-rollers, one having a raised surface throughout a portion of its circumference adapted to co-act with the other roller in advancing the work upon the knife, and a lower inoperative surface throughout the remainder of its circumference; said roller being adjustable to commence feeding at different points in its raised surface; means for rotating said feed-roller; and means for stopping the same at the end of each complete revolution.

2. A machine of the character described, comprising in its construction a splitting-knife, feed-rollers for advancing the work thereagainst to a predetermined extent, and ejecting means for pushing the work back when that extent has been reached.

3. A machine of the character described, comprising in its construction a splitting-knife, feed-rollers for advancing the work thereagainst to a predetermined extent, and a spring-pressed ejector against which the work is carried by the feed-rollers.

4. In a machine of the character described the combination of a splitting knife, feed rollers, one having a raised surface throughout a portion of its circumference adapted to co-act with the other in advancing the

work upon the knife, and a lower inoperative surface throughout the remainder of the circumference, and ejecting means for pushing the work back when said lower surface arrives opposite the opposed roller.

5 In testimony whereof I have signed my name to this specification, in the presence of

two subscribing witnesses, this 20th day of November, A. D. 1893.

FLORENTINE L. STONE.

Witnesses:

A. D. HARRISON,
WALTER F. MCLEOD.