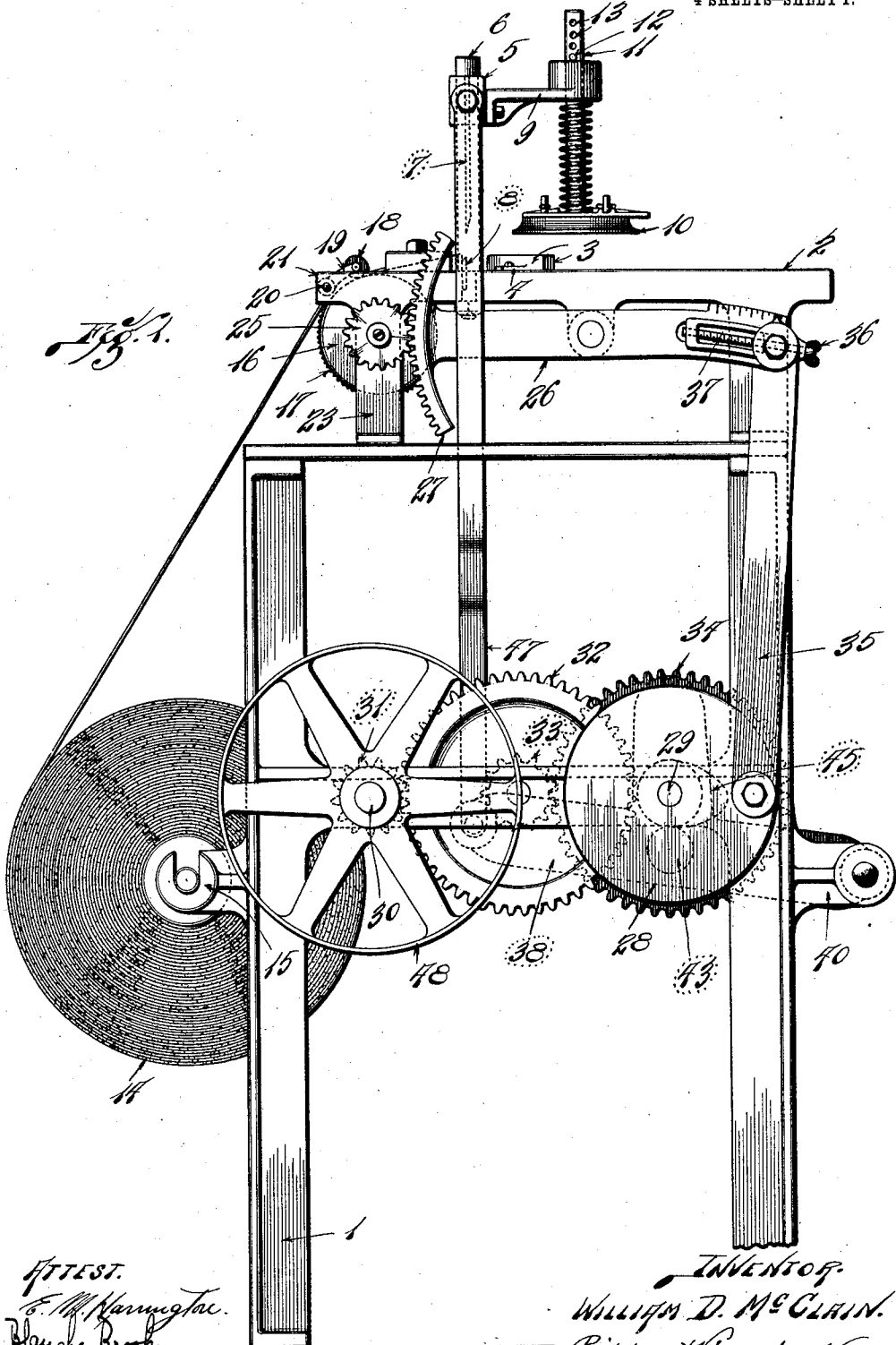


W. D. McCLAIN.
SHOE MACHINE.
APPLICATION FILED NOV. 18, 1911.

1,058,772.

Patented Apr. 15, 1913.

4 SHEETS—SHEET 1.



ATTEST.
E. M. Hanning, Jr.
Blanche Brooke

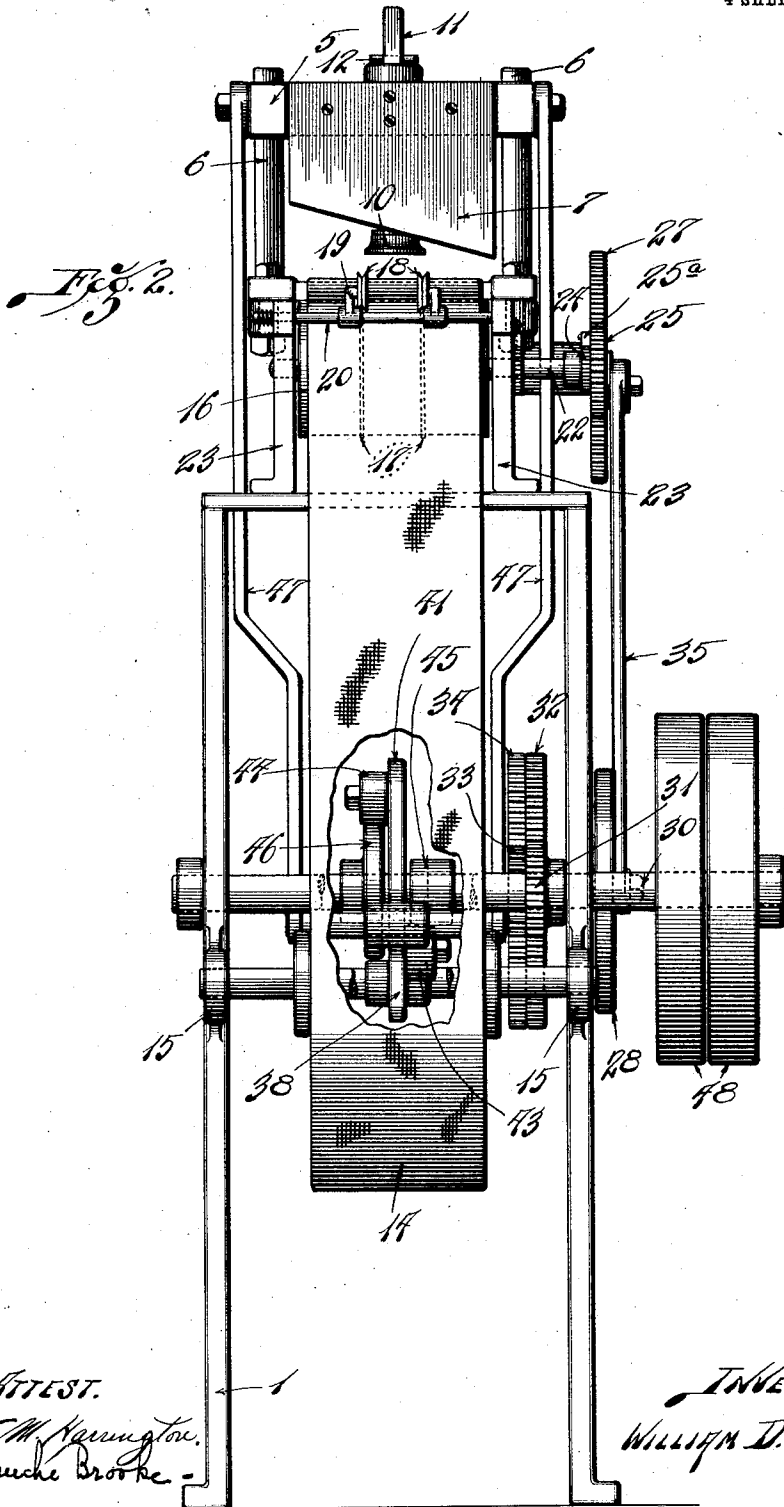
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 3.

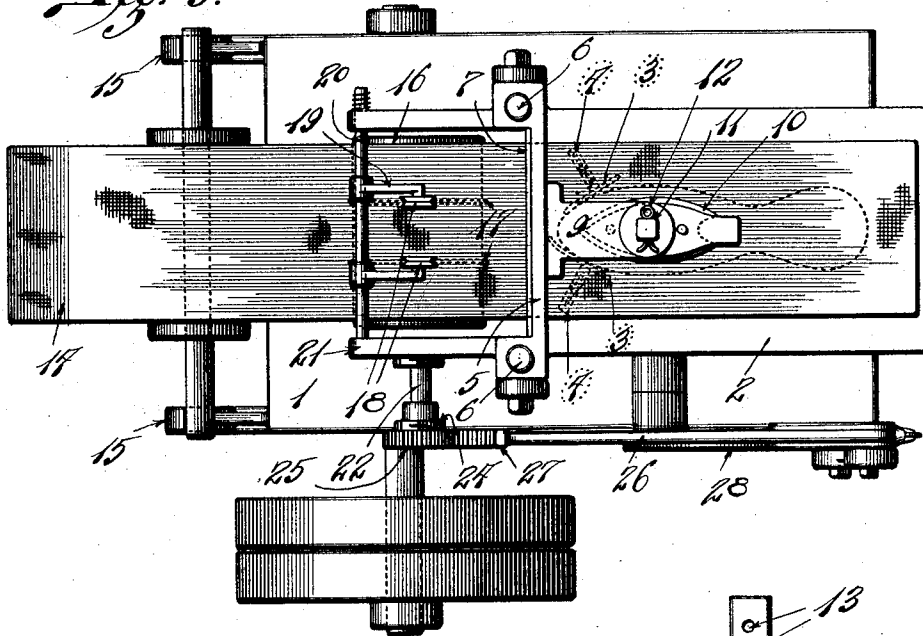
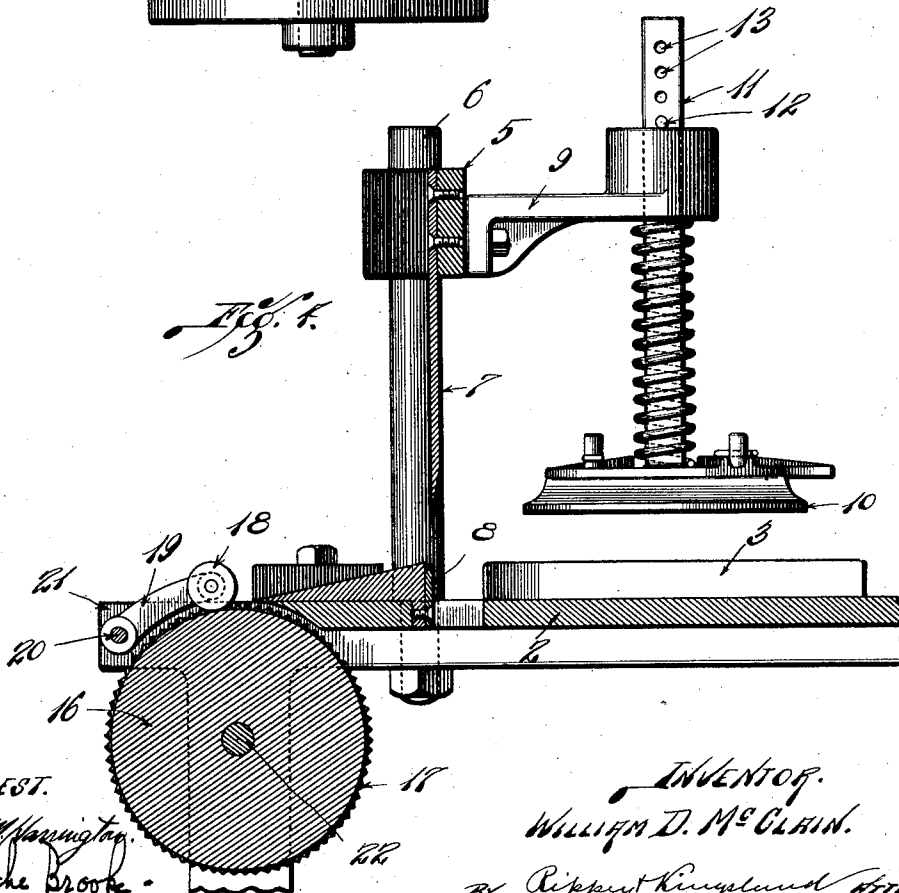


Fig. 4.



WITNESSES.

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INVENTOR.
WILLIAM D. McCLAIN.

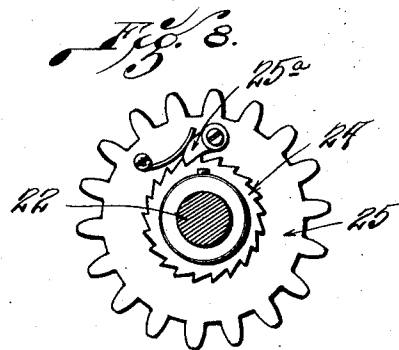
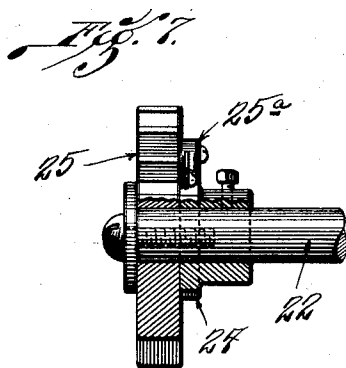
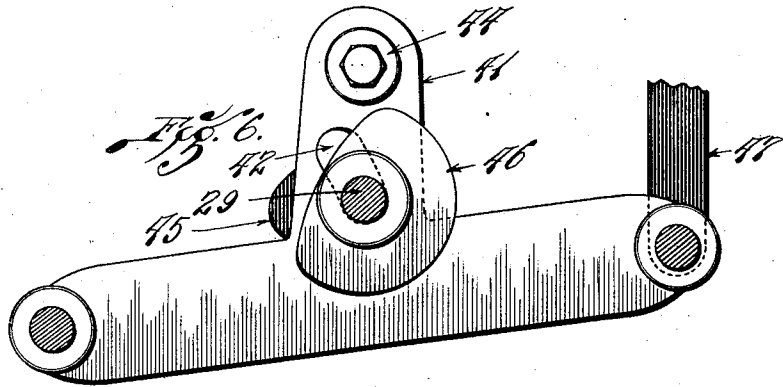
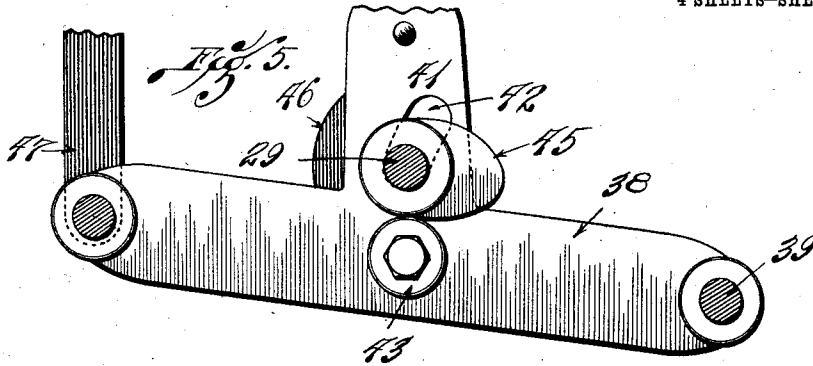
By Rippey Kingland atty.

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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

WILLIAM D. McCLAIN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WALDO FORD, OF ST. LOUIS, MISSOURI.

SHOE-MACHINE.

1,058,772.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed November 18, 1911. Serial No. 661,117.

To all whom it may concern:

Be it known that I, WILLIAM D. McCLAIN, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a new and useful Shoe-Machine, of which the following is a specification.

This invention relates to improvements in shoe machinery, and more particularly to an apparatus for the lining of inner soles for shoes, and one of its objects is to produce a machine of the character mentioned, whereby the fabric lining for the inner sole of shoes may be cut to the proper length, for the varying sizes, thereby eliminating considerable waste entailed by the present usual methods.

Another object is to provide automatic means for affixing the fabric lining to the inner sole.

Another object is to provide means for pressing the fabric after it has been secured to the sole, so that it will conform to the contour of the surface to which it is affixed.

To these and other ends I have designed, combined and arranged the several co-operating parts in the novel manner hereinafter described in the specification and illustrated in the drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a rear elevation of the machine, a part of the fabric strip being broken to show a part of the operating mechanism. Fig. 3 is a plan view of my mechanism. Fig. 4 is a view showing the details of certain of the parts; the fabric feed, cutter and table being shown in vertical section. Fig. 5 is a detail view illustrating the mechanism for raising the cutter frame. Fig. 6 is a view illustrating the mechanism for lowering the cutter frame. Fig. 7 is a detail sectional view of a part of the fabric feed mechanism. Fig. 8 is a side elevation of the same parts.

In the embodiment of my invention illustrated 1 indicates the frame or stand, to the upper part of which is suitably secured a table 2. Guide plates 3 are arranged to be adjustably secured to the upper face of the table. These plates may be adjusted so as to conform to the front edges of soles of different size and shape or other articles in the manner shown in dotted lines in Fig. 3. The simplest and most convenient manner of securing said plates 3 to the table 2 is

to form an outwardly extending lug 4 on the side of each of the plates 3, said lugs 4 having elongated slots therein, against the sides of which the head of a machine or thumb screw will bind when screwed into suitably arranged threaded holes in the upper face of the table 2. The knife or cutter frame 5 is slidably mounted on vertical shafts 6 mounted on the frame 2 at each side thereof. As said shafts 6 constitute the supports and guides for the knife frame they are arranged in true alinement, and are bolted or otherwise rigidly secured to the table 2, so that the movable cutter element 7 carried by the frame will work true with the coöperating cutter element 8 bolted or otherwise rigidly secured to the upper face of the table 2.

A forwardly extending arm 9 is rigidly secured to and is carried by the frame 5. An element 10, of a shape to conform with surface of the article operated upon, constitutes a presser for pressing the fabric against the contacting surface of such article. This presser is mounted on a stem or shaft 11 which is adjustably mounted in the arm 9. A strong spring of the expansion type encircles the stem 11, one end of which spring abuts against the lower face of the arm 9, and the other against the upper face of the presser 10. The tension of the spring may be adjusted by raising or lowering the stem 11, and may be conveniently held in the different adjustments by passing a cotter pin 12 through one of the several holes 13 in the upper part of the stem adjacent to the upper face of the arm 9.

A fabric roll 14 is removably mounted in brackets 15 at the rear of the frame or stand 1. In the use of the present mechanism for lining inner shoe soles, it is contemplated that the fabric be treated with some adhesive material, such as rubber cement, on its inner surface before being placed in the roll. In the operation of the machine the strip of fabric passes over the feed roller 16, which has inlaid in its periphery two serrated rings 17, against which the fabric is held by two grooved rollers 18, carried by arms 19, carried on a transverse shaft supported by extensions 21 on the table 2. These arms are actuated downwardly by springs so that the fabric will be automatically fed to the table as the feed roll is rotated by mechanism hereinafter described.

The feed roller 16 is rigid on the shaft 22, which is mounted transversely of the machine in bearings in the uprights 23. One end of the said shaft 22 extends beyond the frame of the machine, and carries the part of feed mechanism illustrated in detail in Figs. 7 and 8. The ratchet wheel 24 is rigid with the shaft 22, while the gear wheel 25, of larger diameter, is loose on the shaft. On the inner surface of the gear wheel 25 is arranged the snap pawl 25^a, which, when the gear wheel 25 is rotated in one direction, will travel over the face of the teeth on the ratchet wheel 24, and when rotated in the opposite direction will lock the two wheels 24 and 25 in an obvious manner and thereby rotate the shaft 22. The rock arm 26 is pivoted at the side of the table 2, as clearly shown in Fig. 1. The said arm 26 carries at its inner end the segmental rack 27, which rack meshes with the gear wheel 25. The mechanism for rocking the arm 26 comprises a plate 28 carried on a shaft 29 journaled in the frame of the machine. The shaft 29 has suitable gear connection with the main or driven shaft 30, comprising the gear wheels 31, 32, 33 and 34, through which rotation from the main shaft is imparted to the said counter shaft 29. The plate 28 is operatively connected to the arm 26 by the link 35, pivoted adjacent to the outer end thereof, and eccentrically to the plate 28. The pivot point between said arm 26 and the link 35 may be readily adjusted by operating thumb screws 36 extending into a slot 37 in the arm, or by other convenient mechanism for the same purpose.

It will be obvious that as the pivot point between the arm 26 and link 35 is changed the arc described by the rack 27 will be varied, and that as the end of the link 35 is moved toward the fulcrum of the arm 26, the extent of rotation imparted to the gear 16 will be reduced, and vice versa as it is moved from the fulcrum of the arm. Thus the amount of material from the roll 14 fed to the table 2 may be varied, and predetermined by the simple manipulation of the adjusting means 36 or its equivalent.

The movable cutter element and presser are operated through the mechanism illustrated in detail in Figs. 5 and 6. The arm 38 is pivoted to the shaft 39, mounted transversely of the machine in brackets 40 at the front of the frame. Said arms 38 are provided with a vertical extension 41, having a slot 42, through which the transverse shaft 29 passes, so that the arm may have vertical movement. The arm 38, on one side and adjacent to the bottom thereof, carries a roller 43, and on the opposite face adjacent to the upper extremity of the vertical extension 41 a second roller 44. The cam 45 is rigid on the shaft 29 and is arranged to contact with the roller 43, with which it co-

operates to force the arm 43 downwardly, while the cam 46 also rigid on the shaft 29 contacts with the roller 44 with which it co-operates to raise the arm 38. By links 47 the inner end of the arm 38 is connected to the cutter frame 5. Thus it is obvious that the cutter frame and its carried parts will be intermittently raised and lowered by the cam surfaces, as the shaft 29 is revolved by its gear connections with the main shaft 30. Usual belt pulleys 48 on the main shaft are provided, which may be driven by suitable power transmission belts, from a power shaft (not shown) as will be readily understood.

The operation of the mechanism is as follows: The roll of fabric is placed in the brackets at the rear of the machine, having been previously treated with some adhesive material. The fabric strip is then carried over the feed roller, and the supplemental rollers are allowed to rest upon the upper surface of the fabric. By adjustment of the pivot point between the arm 26 and link 35 the exact amount that will be fed to the table at each operation may be determined. As the main shaft is rotated the rack 27, through its connections therewith, is raised, the pawl 25^a passing idly over the teeth of the ratchet 24. After reaching the highest point in its travel which occurs at the instant the link 35 is down, said rack 27 is pressed downwardly and the wheels 24 and 25 are locked by the snap pawl 25^a and the shaft carrying the feed roller is rotated sufficiently to feed a predetermined length of fabric to the table. In the meantime the shoe sole or other object to be operated on has been placed flat on the table by the operator, at the proper place, which is determined by the guide plates 4. The fabric coming from the feed roller passes over the object and the feed ceases as the object is covered. During the operation just described the cutter frame carrying one of the knife elements and the presser element is raised to a considerable distance above the table. When the fabric strip is brought to the proper position the knife is lowered severing the fabric adjacent to the inner end of the object operated on, and the presser element is brought down on the fabric over the object on the table. The pressure continues and causes the fabric strip to closely and smoothly adhere to the surface of the object operated on. The degree of pressure may be regulated, and the speed of operation may be adjusted by suitable gearing, as will be readily understood.

While I have entitled my invention as relating to shoe machinery, I am aware that the same mechanism may be readily adapted to other arts.

I am also aware that several changes in details of construction may be made with-

out departing in the least from the spirit and scope of my invention. I do not limit myself, therefore, to details, but

What I claim and desire to secure by Letters-Patent is—

1. In a machine for cutting and affixing linings to inner shoe soles, the combination with a frame, of a table rigid therewith arranged to support the shoe soles placed thereon, vertical rods positioned at each side of said table adjacent to one end thereof, a cutter frame slidably mounted on said rods, a knife blade carried by said cutter frame, a bracket carried by said cutter frame and projecting over said table, a presser plate yieldingly supported by said bracket, a fabric feed roller for advancing fabric from said roller to said table, and automatic operating mechanism for said feed roller, and said cutter frame, substantially as specified.

2. In a machine of the character described, the combination with a frame, of a table rigidly mounted thereon, a support on said frame arranged to support a fabric roll, a fabric feed device arranged to advance a predetermined quantity of the fabric therefrom onto said table, a cutter frame positioned transversely of said table between said fabric feed device and said table and being arranged to reciprocate in a vertical plane with respect to said table, a knife in said cutter frame, automatic mechanism for operating said cutter frame effectively to cause said knife to sever the length of fabric fed to said table, and means for applying pressure to said severed piece of fabric to cause it to adhere to a shoe sole placed on said table, substantially as specified.

3. A machine for lining shoe soles or the like, comprising a rigid table arranged to support the sole placed thereon, adjustable devices on said table for centering the soles, means located at one end of said table for feeding a predetermined quantity of fabric to said table, a cutter frame arranged to reciprocate vertically with respect to said table between said feed device and said table, a knife in said frame, a bracket on said frame projecting over said table, a presser plate yieldingly mounted in said bracket, operating mechanism whereby said feed device is operated, and mechanism whereby said frame is depressed after said feed device has fed a strip of fabric to said table, effectively to cut the fabric fed to the table and to press it upon the sole placed upon the table causing it to adhere thereto, substantially as specified.

4. A machine of the character described, comprising a frame, a support mounted on said frame arranged to support a roll of fabric having an adhesive surface, a table secured to said frame arranged to support shoe soles placed thereon, a fabric feed device placed intermediate said fabric support

and said table whereby a predetermined length of fabric is intermittently advanced to said table, operating mechanism therefor, a cutter frame provided with a knife arranged to reciprocate vertically with respect to said table, a presser plate yieldingly supported by said cutter frame above said table, and operating mechanism for causing said cutter frame to reciprocate intermittently, thereby severing the strip of adhesive fabric advanced to the table and applying it to the sole placed upon the table, substantially as specified.

5. In a machine of the character mentioned, the combination with a table for supporting work placed thereon, of a reciprocating frame arranged to move vertically with respect to said table, a knife carried by said frame, a presser plate carried by said frame, a support arranged to hold a roll of fabric, a feed device between said support and said frame, mechanism for operating said feed device, correlated mechanism for operating said frame and an adjustable connection in said feed operating mechanism by adjustment of which said mechanism may be caused to feed various selected lengths of fabric onto said table, substantially as specified.

6. In a machine of the character described the combination with the frame and a horizontal table secured to the upper part thereof, of a cutter frame provided with a knife arranged transversely of said table adjacent to one end thereof and to reciprocate in a path of movement at right angles to said table, a bracket carried by said cutter frame and extending over said table, a presser element yieldingly mounted in said bracket, adjustable centering devices mounted on the top face of said table, a fabric feed mechanism arranged to feed varying predetermined lengths of fabric across the path of movement of said cutter and mechanism operable effectively to cause said feed device to operate and then to depress said cutter frame to sever the fabric so fed to the table and to exert pressure thereon causing it to adhere to shoe soles placed on the table, substantially as specified.

7. A machine of the character described comprising a frame, a support arranged to support a roll of fabric secured to one end of said frame, a table secured to the upper part of said frame, an adjustable fabric feed device for feeding varying predetermined lengths of fabric to said table, a cutter carrier supported by rods secured to said table at one end thereof and arranged to reciprocate in a vertical path of movement with respect to said table, a cooperating cutter element rigid with said table, a bracket carried by said cutter carrier, a presser plate mounted in said bracket, and automatic means for actuating said reciprocating

ing cutter carrier and said fabric feed device, substantially as specified.

8. A machine for cutting adhesive strips and affixing said strips to shoe soles, comprising a table, a cutter element arranged transversely of one end of said table, an adjustable feed device for feeding predetermined lengths of adhesive material to said table, a presser plate yieldingly carried by an arm attached to said cutter element, and correlated mechanism for operating said cutter element, feed device and presser plate effectively to sever the length of fabric fed to the table and to affix it to shoe soles placed on said table, substantially as specified.

9. In a machine of the character described, the combination with a frame and a work supporting table rigidly secured thereon, of brackets secured to said frame arranged to support a roll of adhesive fabric, a shaft positioned between said brackets and said table, a feed roll fast on said shaft, a frame operatively mounted above said table beyond said feed roll, a knife and presser plate carried by said frame, a constantly rotating power shaft, connections between said power shaft and said feed roll shaft whereby said feed roll shaft is intermittently rotated, said connections being adjustable to vary the extent of the intermittent rotary movement of the feed roll shaft whereby varying predetermined lengths of fabric are intermittently advanced to the table, and connections between said power shaft and said cutter and presser frame, substantially as specified.

10. In a machine of the character described, in combination with a table, a cutter frame operatively mounted at one end of said table, a knife in said frame, a presser element yieldingly mounted on said frame and extending over said table, an adjustable feed device arranged to feed varying predetermined lengths of fabric across the path of movement of said knife and onto said table, an automatic operating mechanism for said feed device and said cutter frame operable effectively to sever the fabric after it has been moved into position by the feeding device, substantially as specified.

11. In a machine of the character described, a table, a fabric feeding device arranged to feed varying lengths of fabric to said table, a cutter element operatively mounted at one end of said table, a presser element, and automatic operating mechanism for said cutter and presser elements comprising a rock arm operatively mounted in the frame of the machine, links connecting said cutter element and presser element with one end of said rock arm, a shaft revolvably mounted in the frame of said machine, cams on said shaft, cooperating rollers carried by said arm, and mechanism for oper-

ating said last-named mechanism, substantially as specified.

12. In a machine of the character described, the combination with a table and mechanism for feeding predetermined lengths of fabric to said table, of a frame arranged to reciprocate in a vertical plane with respect to said table, a knife in said frame, a bracket carried by said frame extending over said table, a stem adjustably mounted in said bracket, a presser plate carried at the lower end of said stem, a spring encircling said stem interposed between said bracket and said presser plate, a rock arm, links operatively connecting said rock arm and said frame, a shaft, cams on said shaft, and rollers on said arms arranged to cooperate with said cams effectively to raise and lower the said frame when said shaft is actuated, substantially as specified.

13. In a machine of the character described, a table, a support arranged to support a fabric roll, a reciprocating frame provided with a knife and presser plate operatively mounted above said table adjacent to one end thereof, operating mechanism therefor, a feed roll located between said support and said knife and presser plate frame for advancing fabric across the path of movement of said frame, and adjustable mechanism for rotating said feed roll operable effectively to impart intermittent rotary motion to said feed roll of varying predetermined extent for the purpose set forth, substantially as specified.

14. In a machine of the character described, a fabric feed mechanism, comprising a feed roller, serrated rings on the periphery of said roller, clamp rollers arranged to hold material fed to said roller against said serrated rings, a shaft for said roller, a gear wheel carried by said shaft, a rock arm, a rack on said rock arm arranged to mesh with the said gear wheel carried by said shaft, means for locking said gear wheel to the shaft when rotated in one direction, and means for operating said rock arm effectively to rotate said feed roller.

15. In a machine of the character described the combination with a table for supporting the work, a frame operatively mounted above said table, a knife in said frame, a presser plate carried by said frame, a feed device for feeding fabric across the path of the movement of said knife, a power shaft, connections between said power shaft and said frame, and connections between said power shaft and said feed device, substantially as specified.

16. In a machine of the character described the combination with a table for supporting work placed thereon, a feed device arranged to feed fabric to said table, a cutter element operatively mounted above said table, a presser plate arranged to op-

erate with said cutter element, a power shaft, connections between said power shaft and said cutter element, and connections between said feed device and said power shaft, substantially as specified.

17. In a machine of the character described the combination with a table for supporting work placed thereon, of a frame operatively mounted above said table, a knife carried by said frame, a presser plate carried by said frame, a power shaft, connections between said power shaft and said frame, and an automatic feed device arranged to feed selected lengths of fabric across the path of movement of said knife and onto said table below said presser plate, substantially as specified.

18. A machine of the character described comprising in combination, a table, a frame operatively mounted above said table, a

knife in said frame, a bracket carried by said frame and extending over said table, a stem yieldingly mounted in said bracket, a presser plate carried at the lower end of said stem, a power shaft, connections between said power shaft and said frame operable effectively to reciprocate said frame, a feed roll, and connections between said power shaft and said feed roll operable effectively to advance a strip of fabric to said table prior to each downward movement of said frame, substantially as specified.

In witness whereof, I have signed this specification in the presence of two subscribing witnesses.

WILLIAM D. McCLAIN.

Witnesses:

J. D. RIPPEY,

L. C. KINGSLAND.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."