No. 878,958. PATENTED FEB. 11, 1908.

H. I. ILLINGWORTH.

VAMP CEMENTING AND SNIPPING MACHINE.

APPLICATION FILED DEC. 20, 1906.

3 SHEETS—SHEET 1.

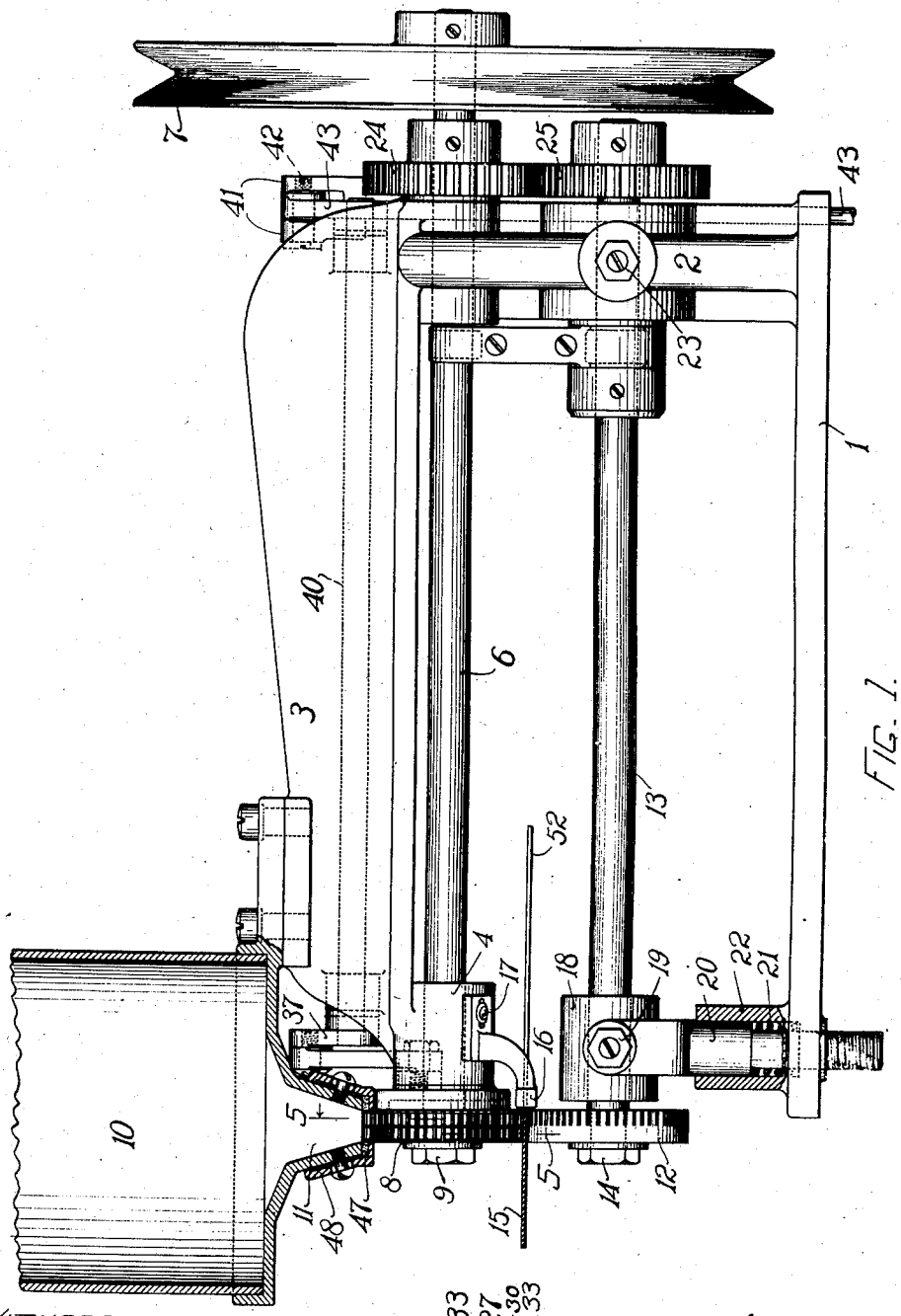


FIG. 1.

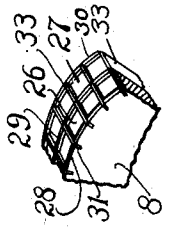


FIG. 2.

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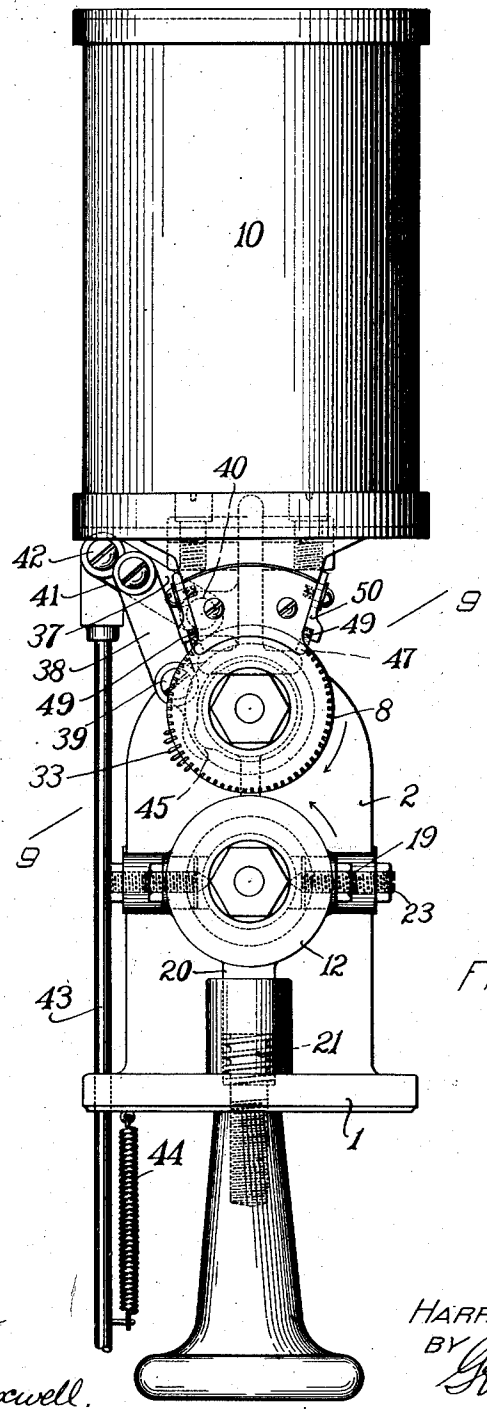


FIG. 3.

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3 SHEETS—SHEET 3.

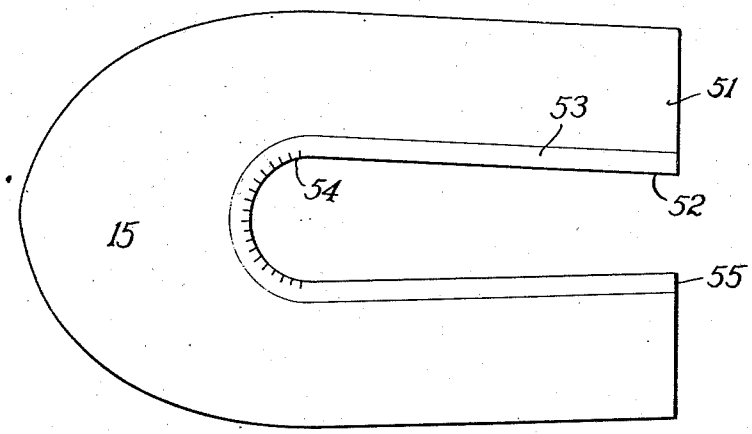


FIG. 4.

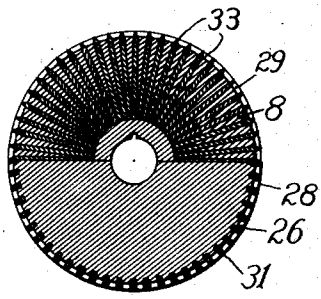


FIG. 5.

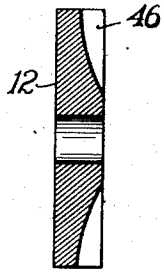


FIG. 6.

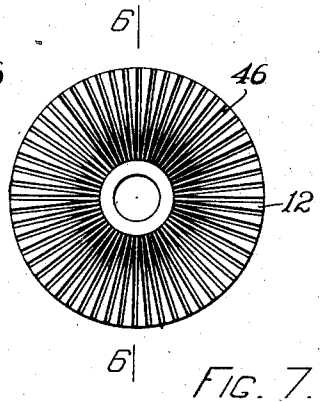


FIG. 7.

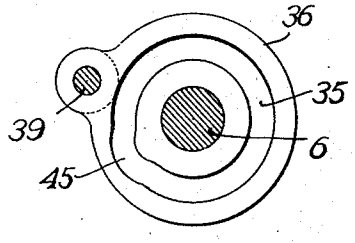


FIG. 8.

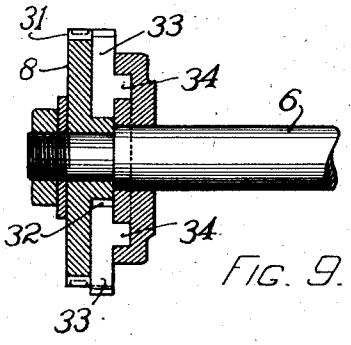


FIG. 9.

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UNITED STATES PATENT OFFICE.

HARRY I. ILLINGWORTH, OF SWAMPSCOTT, MASSACHUSETTS, ASSIGNOR TO BOSTON MACHINE WORKS COMPANY, OF LYNN, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

VAMP CEMENTING AND SNIPPING MACHINE.

No. 878,958. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed December 20, 1906. Serial No. 348,677.

To all whom it may concern:

Be it known that I, HARRY I. ILLINGWORTH, a citizen of the United States, and resident of Swampscott, in the county of Essex and State of Massachusetts, have invented an Improvement in Vamp Cementing and Snipping Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In making certain kinds of shoes, the uppers at their inside edges are cemented and turned over so as to make a smooth turned edge, and as the throat of the vamp is curved, it is necessary to snip the edge, in order that it may be smoothly turned over. The snipping and cementing have hitherto been accomplished separately and laboriously, at considerable expense and delay.

My invention aims to accomplish the snipping and cementing simultaneously, and to this end I provide a machine having means for delivering the narrow line of cement around the edge of the vamp exactly as wanted, and snipping means under the control of the operator for snipping such limited portion of the edge as the skill of the operator and the requirements of the work may demand.

The constructional details and further advantages and operation of my invention will be pointed out in the course of the following description, taken with reference to the accompanying drawings, in which I have shown one embodiment of my invention.

In the drawings Figure 1 is a side view of the machine, parts being broken away for clearness of illustration; Fig. 2 is a perspective view of an enlarged detail of the cementing and snipping wheel; Fig. 3 shows the machine in front elevation; Fig. 4 is a plan view of a vamp after the same has been run through my machine; Fig. 5 is a side elevation taken on the line 5—5, Fig. 1, showing the snipping and cementing wheel, the upper part being sectioned to show the arrangement and relation of the snipping knives, and the lower part being sectioned to show the other side of the wheel; Fig. 6 is a vertical cross-sectional view of the under feed-wheel; Fig. 7 is a side elevation of said feed-wheel looking at the right hand side thereof Fig. 6; Fig. 8 is a front elevation of the cam device for operating the snipping knives; and Fig. 9 is a cross-sectional view showing the relation of said cam to the cementing and snipping wheel.

From a suitable base 1 extends a standard 2 provided with an overhanging arm 3 in whose opposite ends 4, 5 is journaled a shaft 6 driven by a belt pulley 7 and carrying a cementing and snipping wheel 8 at its outer front end secured fixedly thereto by any suitable means, as by a nut 9. Above the wheel 8 is a cement tank 10 having a cement delivering nozzle 11.

It will be understood that although describing in detail the specific embodiment of my invention herein shown, I do not restrict myself thereto, as I intend this case to cover my invention broadly, as I regard it as new to provide means broadly considered for cementing and snipping a vamp as it is fed through the machine, irrespective of the kind of snipping arrangement or of cementing arrangement, it being essential merely, in the broadest aspect of my invention, that as the vamp or other article is fed forward it shall be properly cemented and properly cut at the specific place or places required.

With the above understanding, again referring to the constructional details, I have provided feeding mechanism in the form of a positively driven roll 12 located vertically below the wheel 8 and held fast on a shaft 13 by a nut 14 so as to positively feed the vamp 15 when placed between the feeding members 12 and 8 being guided in accurate position by an edge guide or rest 16 adjustably secured to the bearing 4 at 17. For some kinds of work, and with some workmen, it is desirable to omit the work rest. To accommodate the machine to different thicknesses of stock, the journaled bearing 18 of the feed shaft 13 is pivotally supported at 19 on a post 20 yieldingly supported on a spring 21 to slide in a fixed vertical bearing 22 on the base 1. At its opposite end the shaft 13 is pivoted at 23 in the standard 2 and is positively driven by intermeshing gears 24, 25.

The wheel 8 is of peculiar formation, being provided with two series of peripheral cement-carrying pockets, extremely narrow and inclosed by walls so as to prevent the cement from running or stringing, and cause it to deliver on the leather in the restricted narrow line or band desired. While this construction, and in fact all other details of

my invention may be made in various ways, I preferably turn two shallow peripheral grooves 26, 27 in the wheel, thereby leaving three ribs 28, 29, 30, and at suitable intervals I mill transverse grooves across the shallow grooves 26 and 27 and drive into these shallow grooves thin pieces of steel which constitute transverse walls 31 terminating, however, in the middle rib 29, thereby dividing the groove 26 into a series of entirely bounded pockets. On the opposite side of the wheel I provide a series of radial slits 32 preferably in line with the dividing walls 31, and in these slits I mount a corresponding series of snipping knives 33, as clearly shown in Figs. 2, 5 and 9, each knife being provided with a projecting ear or lug 34 arranged to travel in a cam-path 35 of the path cam 36, said lugs 34 and path 35 being so positioned that normally the ends of the knives project just flush with the ribs 29, 30, thereby dividing the shallow groove 27 into a series of pockets similar to the adjacent series of pockets at the other side of the wheel, see Fig. 2, and the upper part of Fig. 9. The cam 36 is loosely mounted on the shaft 6 and remains normally in a stationary position, being actuated intermittingly at the will of the operator by a crank 37 connected by a link 38 to the cam 36 at 39, and operated by a shaft 40 having arms or cranks 41 at its rear end, to which is pivoted at 42 a foot treadle rod 43 (the treadle not shown), normally held in up position by a spring 44, see Fig. 3. The cam 36 has an offset 45 in its path which is normally turned to the rear, as shown in Figs. 3 and 8, so that thereby as the snipping knives come round, they simply go out and in as shown in Fig. 3, without accomplishing any work, thereby leaving only the cementing action in operation. But by depressing the treadle the offset 45 in the cam-path 35 is turned into a vertical position directly over the feed wheel, thereby bringing the snipping action into operation. For this purpose the feed wheel is provided with a series of radial slits 46 corresponding in number and alinement to the snipping knives, said slits having concave bottoms, as shown clearly in Fig. 6, so that they are self-clearing. Thus, whenever the snipping knives are brought into coöperative action with the feed wheel for snipping, said knives enter the slits 46 and neatly and quickly cut the leather as desired.

The cementing wheel 8 enters the cement delivery opening 11 and is prevented from receiving more than the desired thin layer of cement in its pockets by lateral scrapers or pads 47 at the sides held by clamps 48, and transverse scrapers or pads 49 held by clamps 50 at the front and back of the opening 11, all so arranged that they may be tightened in adjustment as required, the scrapers 47 being adjusted simply by tightening the clamps 48, and the scrapers 49 being adjusted by sliding forward the clamps 50. The scrapers or pads 47 and 49 abut against each other at the corners, the pads 47 overlapping the lower ends of the pads 49, see Fig. 3, so that thereby the delivery opening 11 is perfectly closed excepting for the amount of cement that is retained in the pockets of the cement delivery wheel 8.

In use, the operator takes the vamp or upper 15, see Fig. 4, and starts it at the end 51, placing the edge 52 against the guide 16, so as to bring the cement delivery close to the edge of the vamp which is to be folded over. As the vamp is fed forward, the cement is deposited along the line 53, as shown in Fig. 4, and when the cementing wheel approaches the curve 54, the operator depresses the treadle rod 43, thereby shifting the cam 36 downward, so that the offset 45 causes the snipping knives instantly to coöperate with the slits 46 in the feed roll 12, thereby beginning to snip the edge of the upper, said snipping being continued until the curved portion of the edge has been cemented and snipped, whereupon the treadle rod 43 is released, thereby instantly shifting the position of the cam and stopping the snipping action, but without interfering in the slightest with the continuance of the cementing to the end at 55, Fig. 4. It will be understood that in Fig. 1 I have merely indicated a fragmentary portion of the vamp in place in the machine, for the purpose of rendering clear the operation of the machine. If a thicker vamp, or other piece of material is to be cemented, it readily goes between the feed roll and the cement wheel by reason of the yielding arrangement, which permits them to separate. In this form of my invention I prefer to have the snipping knives in the cement wheel to cut against or into the feed roll, rather than to have the arrangement reversed, as thereby the knives help to form the retaining pockets and also the apparatus, as constructed, tends to clean itself. Likewise the constant motion of the snipping knives is desirable to prevent their getting stuck or rendered ineffective because of the sticky, smeary nature of the cement used.

I have shown my invention as constructed for applying the thin, viscous, volatile cement, composed of rubber and the like dissolved in naphtha, and it will be understood that the machine will be modified and changed to suit other cements as required, without departing from the main general features of my invention.

In a co-pending application, Serial No. 348,678 I have shown and claimed another species of my generic invention. The snipping mechanism *per se*, aside from the cementing, is not herein claimed, because of the requirement of division by the Patent Office.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is:

1. The combination with feeding mechanism, including means operating in a direction parallel to the edge of the stock for applying cement to a leather piece, of means to snip said piece at the same time and place that the cement is being applied.

2. The combination with cement-applying mechanism, of snipping mechanism coöperating with said applying mechanism to snip and positively feed the stock operable at the will of the operator.

3. The combination with continuously operating cement-applying mechanism, of intermittingly operating manually controlled snipping means constructed and arranged to coöperate with the cement-applying means to snip the edge at curves.

4. A machine, comprising a cement-applier, constructed and arranged to apply a continuous line of cement in a direction parallel to the edge of the stock, snipping mechanism, and operating mechanisms therefor constructed and arranged to coöperate with the cement-applier in feeding the work for receiving a narrow deposit of cement and to snip the work at a curved place as it is being fed.

5. A machine, comprising self-feeding mechanism for feeding a piece of stock, said feeding mechanism including cement-applying means and snipping means.

6. A machine, comprising means for delivering a thin, narrow layer of cement progressively adjacent to the edge of a leather piece, and means under the control of the operator for snipping said leather piece at a curve as the cementing means reaches said curve.

7. A machine, comprising means for applying a thin, narrow strip of cement adjacent the edge of a crooked piece, means uniting therewith to positively grasp and feed the piece, and guiding means to maintain the edge of said crooked piece in accurate position with relation to the cement-applying means, being constructed and arranged to permit the crooked piece to be turned as required to maintain its edge in cement-receiving position as it is being fed.

8. A machine, comprising means for applying a thin, narrow strip of cement adjacent the edge of a crooked piece, snipping means, means uniting with the applying means to feed the piece, and guiding means to maintain the edge of said crooked piece in accurate position with relation to the cement-applying means, being constructed and arranged to permit the crooked piece to be turned as required to maintain its edge in cement-receiving position as it is being fed.

9. A machine, comprising a cement delivery wheel and a coöperating feed roll, said cement delivery wheel having a series of peripheral delivery pockets at one side and a series of radial grooves at its other side, reciprocating snipping knives in said grooves, said feed roll having slits to receive said snipping knives, and means for automatically actuating said snipping knives.

10. A machine, comprising opposite rotary members, means for positively rotating them in unison, cement delivering means cooperating with said members to deliver cement to the work being snipped, one of said members containing radial slits, snipping knives mounted to reciprocate in said slits, the other of said members containing slits to coöperate with said knives, and means under the control of the operator for reciprocating said knives in cutting relation with said other member.

11. A machine, comprising opposite rotary members, means for positively rotating them in unison, one of said members containing a series of radially movable snipping knives, the other member being provided with means coöperating with said knives in snipping, means normally located in inoperative position for causing each of said knives to move outwardly in each revolution, means under the control of the operator for shifting said moving means into position to bring the outwardly moving knives into snipping relation with said other rotary member and cement delivering means coöperating with one of said members to deliver cement to the work at the point being snipped.

12. The combination with a cement-applier, of snipping means constructed and arranged to snip the stock progressively in the midst of the cementing area of the cement applier.

13. A machine, comprising a continuously operating rotary cement-applier, snipping mechanism including a continuously rotary member, said rotary applier and member engaging the opposite sides of the leather at the same point, and operating mechanisms for the cementing and snipping mechanisms.

14. A machine, comprising a rotary cement-applier, a coöperating rotary member for engaging the stock opposite said cement-applier, and a snipping knife coöperating with both of said rotary members for snipping the leather at the same time and place that the cement is applied to the leather.

15. A machine, comprising a cement-applier and a snipper constructed and arranged to coöperate in cementing and simultaneously snipping the leather at one place, and operating means therefor.

16. A machine, comprising two rotary wheels for engaging the edge of a leather piece at its opposite sides, an edge guide located close to the approximately meeting peripheries of the two wheels for the edge of the leather piece to bear against, means for simultaneously rotating said two wheels to

feed the leather piece, one of said wheels containing means for continuously delivering a thin, narrow strip of cement at its periphery to the adjacent edge of the leather piece, and means coöperating with the other of said wheels to snip the area being cemented.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HARRY I. ILLINGWORTH.

Witnesses:
ALBERT LATHAM,
A. K. PUTNAM.