

(No Model.)

4 Sheets—Sheet 1.

J. M. HOLLADAY.
SOLE CUTTING MACHINE.

No. 553,067.

Patented Jan. 14, 1896.

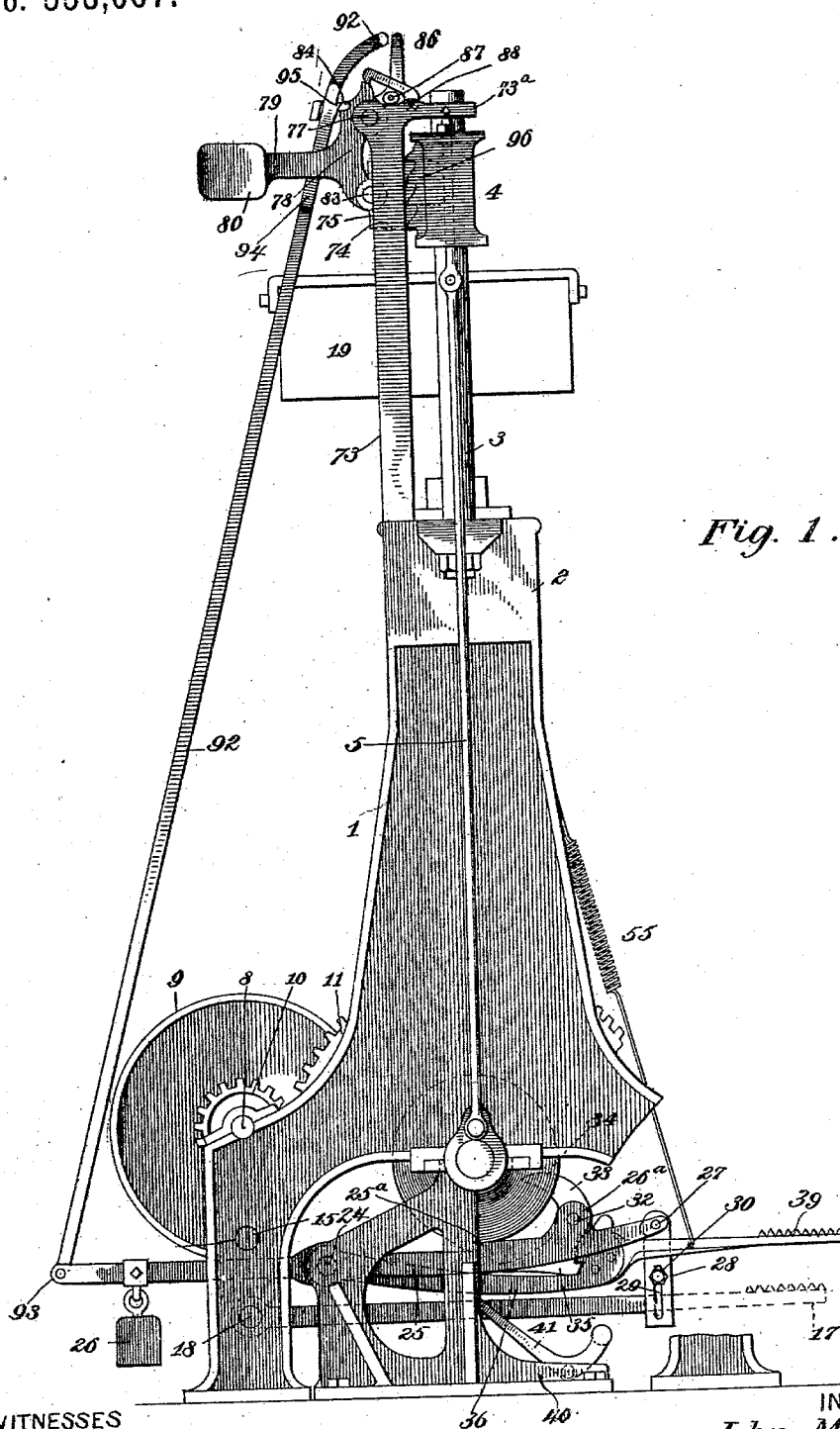


Fig. 1.

WITNESSES

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(No Model.)

4 Sheets—Sheet 2.

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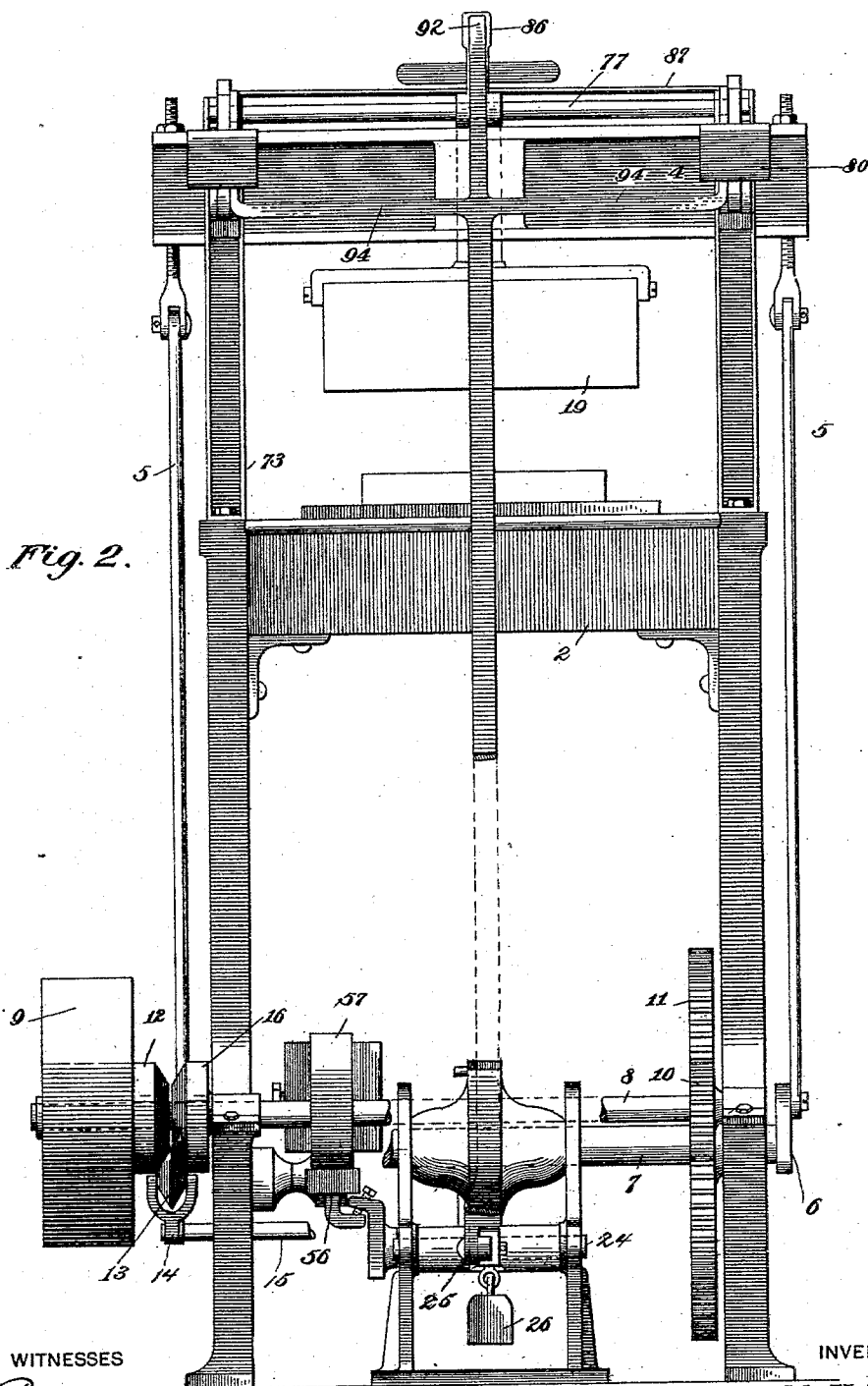


Fig. 2.

WITNESSES

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(No Model.)

4 Sheets—Sheet 3.

J. M. HOLLADAY.
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Fig. 7.

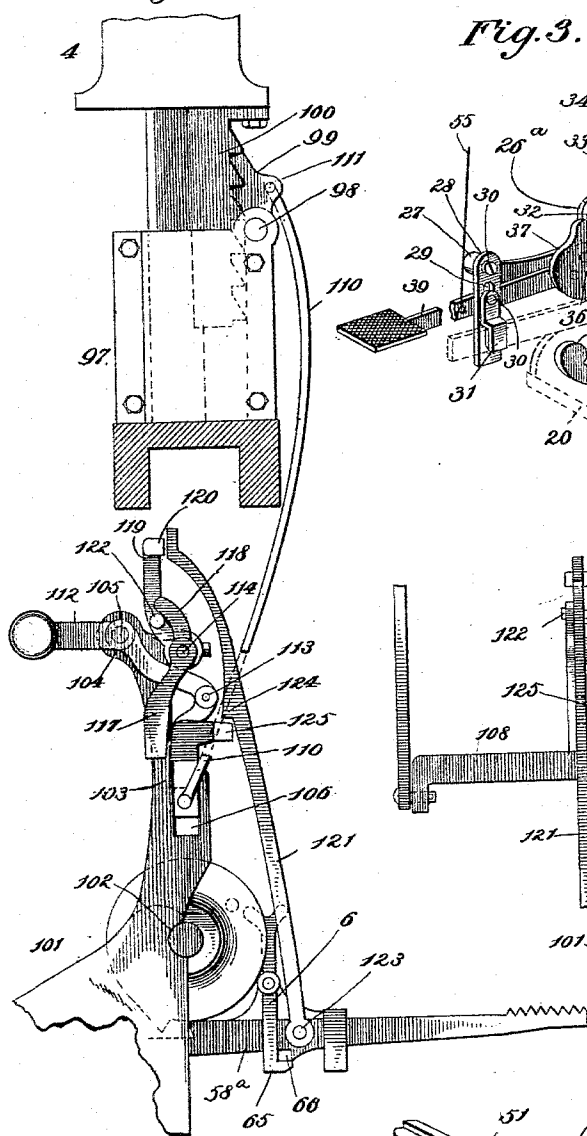


Fig. 3.

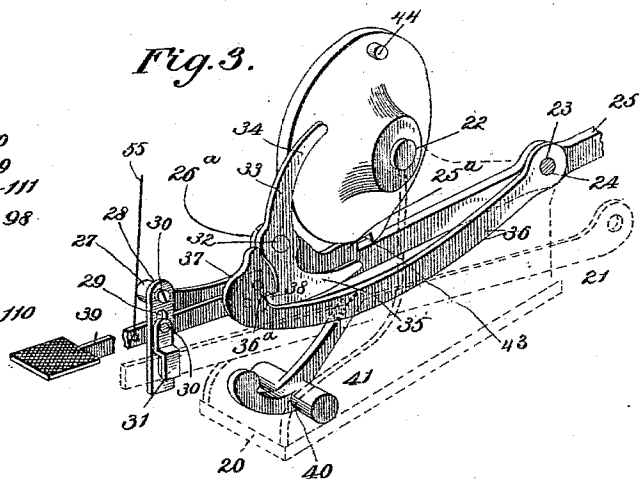


Fig. 8.

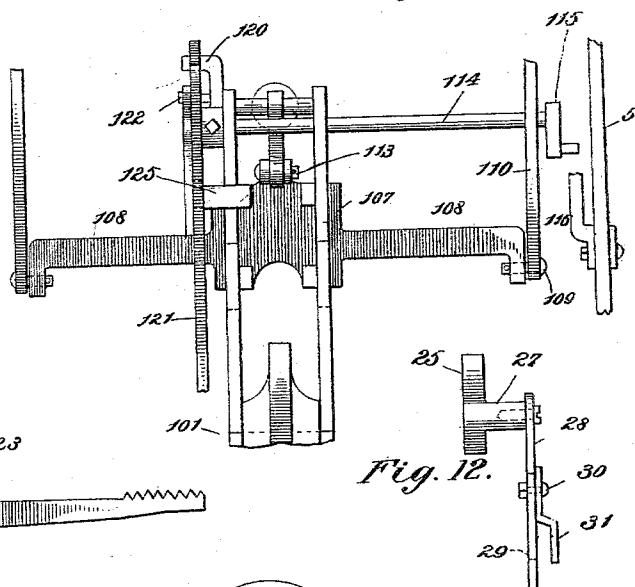


Fig. 12.

Fig. 10.

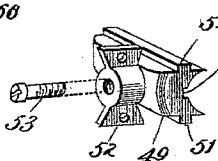
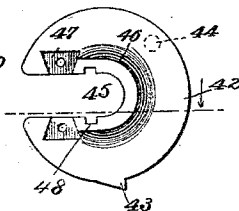


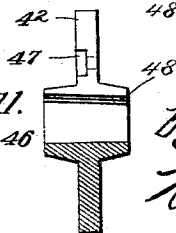
Fig. 9.



WITNESSES

Edw. J. Duralley, Fig. 11.

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UNITED STATES PATENT OFFICE.

JOHN M. HOLLADAY, OF HOLLADAY, VIRGINIA.

SOLE-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 553,067, dated January 14, 1896.

Application filed August 22, 1895. Serial No. 560,148. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. HOLLADAY, a citizen of the United States, residing at Holladay, in the county of Spottsylvania and State of Virginia, have invented certain new and useful Improvements in Sole-Cutting 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 improvements in sole-cutting machines, and has particular reference to certain mechanism that may be manufactured or built in the machine or applied in the form of an attachment for those machines already in use.

The objects of my invention are to produce such mechanism either in the form of an attachment or as a part of the machine, which will render such machine automatic in its action, and which will obviate any danger to the operator by reason of any accidental descent of the cutting-block.

With these main objects in view my invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a sole-cutting machine embodying my invention, the lower front portion of the frame being broken away to expose the parts. Fig. 2 is a rear elevation of the same. Fig. 3 is a perspective view of the lower safety attachment. Fig. 4 is a vertical sectional view, parts being in elevation, of the upper portion of the machine, illustrating in detail the upper safety attachment. Fig. 5 is a side elevation of a modified construction of the lower safety attachment. Fig. 6 is a plan view of the same. Fig. 7 is a partial section in elevation, illustrating a modified construction of both upper and lower safety attachments. Fig. 8 is a rear elevation of the lower portion of Fig. 7. Fig. 9 is a detail in elevation of the safety-cam. Fig. 10 is a perspective view of the cam-locking tongue for securing the same upon its shaft. Fig. 11 is a transverse section on dotted line, Fig. 9, of the cam. Fig. 12 is a detail in front elevation of the end of the safety-lever and its treadle-engaging bracket.

Like numerals of reference indicate similar parts in all the figures of the drawings.

Before entering into a description of my invention I will describe in outline the general construction of the ordinary and commonly used sole-cutting machine.

The machine comprises a pair of opposite vertical standards 1, which are connected at their upper ends by means of a horizontal bed-piece 2, the structure being suitably braced and bolted together to lend perfect rigidity. Openings are formed in the opposite ends of the bed-piece 2, and through these openings are let the lower ends of the opposite vertical cylindrical guide-rods 3. The upper ends of these guide-rods pass through corresponding openings formed in the cross-head 4, the ends of the latter projecting laterally a short distance beyond the guide-rods, and are perforated therebeyond to receive the upper ends of the jointed draw-rods 5, the lower ends of which are connected with eccentrics 6, arranged upon the ends of the main shaft 7, which latter is journaled in bearings formed in the standards 1. Journaled in suitable bearings at the rear side of the standards 1 is the transverse counter-shaft 8, and upon the same at one side of the machine there is located the loose pulley 9, which receives motion to be transferred to the machine. Near the opposite end the counter-shaft has mounted thereon a small spur-gear or pinion 10, which meshes with and drives the large gear 11, arranged upon the main shaft 7. The counter-shaft 8 carries one member 12 of a friction-clutch, which is designed to be thrown into locking engagement with the pulley by means of a beveled-face shifting-wheel 13, that is located in a yoke 14, mounted upon a transverse rock-shaft 15. This beveled-face wheel 13 operates against a correspondingly-beveled-face collar 16, fast upon the shaft 8 and forces the clutch 12 into contact with the pulley 9. The rock-shaft 15 is journaled in the rear part of the standards, as indicated in Fig. 1, and in some machines carries the operating-treadle 17. In the type of machine shown in Fig. 1 the treadle is located on a secondary rock-shaft 18, journaled below the rock-shaft 15, and it, through suitable mechanism ordinarily employed, operates the rock-shaft 15, together with the shifting-wheel and

brake mechanism. In some machines, however, as stated, the treadle is located on the rock-shaft 15, and in such instances the treadle 17 would be located higher than it is shown in Fig. 1 of the drawings. I, however, make provision for such different heights of treadles, as will hereinafter appear, so that my invention is applicable to both styles of machines. The cross-head 4 carries the cutting-block 19, which is adjustably connected thereto and has vertical movement therewith.

I have hereinafter shown and described what I term an "upper safety attachment" and a "lower safety attachment," and by their conjoint use I render the machine doubly safe from accident, and while designed for conjoint use, yet it will be apparent that they may be separately employed, each being automatic and complete in its action.

In order to adapt the attachment for ready insertion and application to the machine now in use, I prefer to mount what I term the "lower safety attachment" in an independent frame. (See Figs. 1 and 3.) This frame consists of a lower horizontal base 20, from the longitudinal edges of which rise the vertical sides or standards 21. (See dotted lines, Fig. 3, and full lines, Fig. 1.) The sides or standards 21 are provided at their upper ends and at their front sides with segmental bearing-recesses 22, and in rear and below the same with bearing-openings 23, in which latter there is located a transverse fixed shaft 24. On the fixed shaft 24 there is loosely mounted and adapted to rock the safety-lever 25, which extends in front and in rear of said shaft, and its latter end carries a counterbalancing-weight 26, which is adjustable thereon. At or about its middle the upper edge of the safety-lever is provided with a lug 25^a, and beyond the same said lever is slightly upwardly curved and provided upon its upper side with an ear 26^a. Beyond this ear and at its extreme front end the lever is provided with a laterally-projecting lug 27, (see Fig. 3,) and bolted to the extremity of said lug is a vertical plate 28, slotted in its lower half, as at 29, for the reception of a transverse adjusting-bolt 30, which extends through an angular keeper 31, which is adjustable upon the plate by means of the slot and bolt. Loosely pivoted, as at 32, to the ear 26^a of the safety-lever is a bell-crank gravity-latch 33, the same comprising an upper member or branch 34 to be operated upon in a manner to be described, and a lower weighted portion 35, in advance of which a shoulder or catch 36^a is formed.

Loosely pivoted on the shaft 24 is the rear end of a foot-lever 36, which is arranged at one side of the safety-lever 25 and which terminates short of the front end of the latter and in rear of the plate 28, at which point a disk-like head 37 is formed, the same having at its rear side a shoulder 38. Adjustably secured to the disk-like head of the foot-lever 36 is the rear end of a treadle 39. The treadle may be raised or lowered to suit the operator.

Journalled on the base-piece 20 of the cast-frame of the attachment in suitable ears 40 are the opposite trunnions of a safety-latch 41, whose rear end is weighted and is normally lowered and rests against the vertical brace in the frame, as shown in Fig. 1.

42 designates a cam, the same having on its periphery a stop-lug 43 and upon one of its faces a laterally-projecting trip-pin 44. The cam (see Fig. 9) is provided with a radial recess or opening 45, extending from its center bore to its perimeter and partially surrounded by a flange or hub 46. At opposite sides of the radial recess are formed dovetailed seats 47, and between the same and the bore of the cam within the hub are formed opposite grooves 48 extending transversely through the hub of the cam and at a slight inclination to the axis of the hub, as shown in Figs. 9 and 11.

49 designates a filling-block, designed to close the radial recess 45 in the cam, said block having its inner end concaved to agree with the bore of the cam and form a continuation or completion thereof. At its inner end the block is provided with a transverse key-seat 50, and upon its upper and lower sides is further provided with transverse tongues 51, designed to fit the grooves 48 of the cam. Beyond the tongues the upper and lower sides of the block are provided with upper and lower dovetailed wings 52. This cam is intended to be applied to the main shafts of the ordinary machines now in use, and as the shafts of such machines vary slightly in diameter I make provision for adjustably fitting the cam in position thereon. I furthermore obviate the necessity of removing the main shaft and separating its parts by means of my improved cam, and am enabled thereby to readily slip the latter upon the shaft, apply the filling-block to the recess, and clamp the block in position by means of screws passed through the wings and into the seats 47. In inserting the block transversely into position the tongues 51 enter the grooves 48, and the grooves being inclined with relation to the axis of the hub it will be apparent that the farther into the cam the block is inserted or driven the smaller will be the bore of the cam. Of course this is almost an infinitesimal adjustment; but it aids in clamping the cam upon the shaft, and by loosening the screws upon the wings permits the cam to be adjusted to the exact position it should occupy upon the shaft to co-operate with the mechanism hereinbefore described. The block is longitudinally bored to receive a set-screw 53, which screw is employed, first, for the purpose of retaining the cam in its proper position by binding upon the shaft while testing the correctness of the position of the cam, and, second, by binding the key 54 in its seat, which latter has been cut in the shaft at the point indicated by the point of the screw.

Having mounted the cam in position upon the main shaft 7 of the machine, it simply re-

mains to insert the lower safety attachment, heretofore described, and this is accomplished by tilting it to a suitable degree and sliding it under the main shaft and raising it up and moving it forward until the segmental opening 22 of the attachment-frame fits up against the main shaft 7 on each side of the hub of the cam 42, and said attachment may further be adjusted as to height to suit the main shaft of any machine by means of a block of suitable thickness placed beneath the same. Suitable bolts are passed through the base of the frame and block and serve to securely hold the whole upon the floor.

In some machines the treadle is higher than the lug 27 on the foot-lever 25, and in other machines it is lower, as shown in Fig. 3. In the latter case the keeper 31 is adjusted at a point above the old treadle, and the old treadle is subsequently cut off immediately in advance or directly in front of the keeper. (See dotted lines, Fig. 1.) In other instances where the old treadle is located above the lug 27 the plate 28 is swung to its upper position, and the keeper reversed from the position it then occupies and is adjusted at a suitable height above the treadle, after which the cutting off of the old treadle occurs. There is still another class of treadles which would come immediately under the lug 27, and such can be operated upon by a simple set-screw through the lug, the plate 28 and its keeper being removed. A spring connection 55 is made between the under side of the bed-piece and the forward portion of the treadle 39 of the attachment.

Taking the parts in the position they are shown as occupying in Figs. 1, 2, and 3, the operator first presses down upon the foot-lever 39 of the attachment, which withdraws the shoulder 25^a of the safety-lever 25 from the path of the shoulder 43 of the cam 42. Continuing the pressure said safety-lever, through its plate 28 and its keeper 31, acts to depress the old sawed-off foot-lever 17, thereby removing the usual brake 56 from the brake-pulley 57, and at the same time and by the same motion causing the shifting-wheel 13 to operate the clutch, and thus convey from the pulley motion to the counter-shaft, and from its pinion to the large gear of the main shaft, and so set the machine in motion, perhaps as will be best understood by reference to Fig. 5. This causes a descent of the cutting-block upon the leather and die in the well-known manner, and its return from its cutting position to its original highest position or starting point. During the rotation of the main shaft 7 and its cam 42, and about the time that the cutting-block starts up, the trip-pin 44 arrives into contact with the upper branch 34 of the bell-crank latch 33, and serves to trip the same, so as to disengage its shoulder 36^a from the shoulder 38 of the foot-lever 36 of the attachment. The liberation of the safety-lever from its connection with the treadle and foot-lever permits the counterbalancing-weight 26

to return, or raise the front end of safety-lever, whereupon the pressure upon the old foot-lever 17 being also removed it rises, withdrawing the shifting-wheel, so as to permit the disengagement of the clutch from operative connection with the driving-pulley and apply the brake-shoe to the brake-pulley, causing the machine to stop with the cutter-block at its highest point. The safety-lever, having been raised at its front end by the weight at its rear end, presents its shoulder 25^a in the path of the shoulder 43 of the cam 42, insuring its stoppage at the point of contact, thus obviating the possibility of any accidental return or downward movement of the cutting-block by reason of the failure upon the part of the brake to properly operate, such brake having been heretofore depended upon for this purpose. As the foot-lever 36, by the pressure of the foot of the operator, descends after its release, it comes into contact with the front weighted end of the safety-latch 41, thus raising the rear end thereof against the under side of the safety-lever and causing it to co-act with the weight in raising the latter and serves to positively hold the same and prevent any vibration thereof until the operator removes his foot from the treadle, by which time the safety-lever will have come to a complete standstill and will be held by the weight 26, so that its shoulder 36^a is directly in the path of the shoulder 43 of the cam 42, ready for a repetition of the operation.

Referring to Figs. 5 and 6, which show a side elevation partially broken away and a plan view, respectively, it will be seen that I have illustrated a modified form of lower safety attachment. In employing this modified form the old foot-lever, instead of being cut off as in the former instance, is wholly removed from the machine. This form or construction of lower safety attachment consists of a rectangular safety-lever made in the form of a frame 58^a, the same having its rear end provided with a separable clamp 58, designed to be mounted upon the rock-shaft 15 of the machine. By the presence of this clamp I obviate the necessity of removing said shaft for the application of the attachment. At one side of the frame there is pivoted the foot-lever 59, which corresponds in function with the foot-lever 36 in the preferred construction. This foot-lever passes loosely through and is located a slight distance below the upper end of the keeper 60, located at the front end of the safety frame or lever and at one side thereof. Pivoted between its ends at the front end of the safety-lever 58^a, as at 61, is a vertically-disposed latch 62, corresponding with the latch 33 in the preferred construction. The upper end of this latch 62 is forked to produce front and rear branches 63 and 64, respectively, while the lower end is provided with a catch-shoulder 65, the latter lying in the path and engaging with the lug or rib 65^a, formed on the safety-lever. A vertical spring 67 rises from the front of the safety-lever and

at its upper end bears against the front branch 63 of the latch 62, thus normally pressing the upper end of the latch to the rear, so that its rear branch 64 lies in the path of the trip-pin 46 of the cam 42, and its lower end is pressed to the front, so that it engages with the lug 65^a. Inasmuch as the old treadle and its brake-lever have been removed for the reception of this form of attachment, it becomes necessary to provide means for operating the brake rock-shaft 15 and the shifting-wheel for operating the clutch, which are ordinarily carried and operated by such foot-lever. This, it will be seen, I accomplish.

66 designates the brake-lever, which is employed in all machines, and it carries the brake-shoe 56, heretofore referred to, and also the weight 68. The lower rear end of the brake-lever is laterally bent to form an extension 69, and the same takes under a lateral ear 70, formed on the side of the safety-frame 58^a of the attachment, said attachment carrying a set-screw 71 or other equivalent adjusting device for the brake-lever. The safety-lever is provided with a transverse web 72, constituting a stop which coacts with the shoulder 43 of the cam 42 in the same manner as does the stop-shoulder 25^a in the preferred construction heretofore described. The operation of the two attachments being identically the same, a description of the one will serve for that of the other.

Although the safety attachment in either instance described is considered sufficient to render a machine for cutting soles perfectly safe from accident to operators by reason of any accidental descent of the cutting-block, yet, nevertheless, accidents have so frequently occurred with such serious results that in many States laws have been passed requiring safety attachments to be applied to such machines, that I therefore, in order to obviate to an absolute certainty all possibility of accidents of this nature and comply with the most stringent of these State laws, deem it advisable to provide further means of safety to the operators of these machines.

The attachment described and the one to be described, while acting in unison when combined, also act independently of each other, so that a failure upon the part of one to properly operate would in no wise affect the operation of the other.

Immediately in rear of each of the guide-rods 3 of the machine I mount upon the bed-piece 2 thereof a vertical standard 73. These standards may be secured in any desirable manner to the bed-piece, but preferably by means of bolts passing through the feet of the standards into the bed-piece. The upper end of each standard 73 is provided with a forwardly-projecting collar 73^a, which has its opening fitting over the upper end of the corresponding guide-rod 3 above the cross-head, and which may be provided with a set-screw, as shown, which impinges at its inner end upon the guide-rod embraced there-

by. Each standard near its upper end is provided with a transverse mortise 74. (See Figs. 1 and 4.) In each of these mortises is located a transverse reciprocating toothed safety-bolt 75. The upper ends of the standards 73 are provided with aligning eyes 76, which receive the ends of a fixed transverse shaft 77. Loosely mounted upon the shaft 77, above each of the safety-bolts 75, is a bell-crank lever 78. The rear branch 79 of each bell-crank lever is enlarged to produce a weight 80, or may be provided with a weight made adjustable thereon, if preferred. The upper branch 80^a of the bell-crank lever is provided with an eye for engaging the shaft 77 and below its angle is provided with an eye 81, which is loosely connected to a similar eye 82, formed on the rear side of the safety-bolt, by means of a transverse pin or bolt 83. Formed on the rear side of the upper branch 80^a of each bell-crank lever 78 is the laterally-projecting lug 84, and above the same at the extremity of said branch 80^a a lug 85 is formed.

At the center of the shaft 77 there is loosely mounted the lower end of an angular and upwardly-bent lever 86, which extends above the plane of the bell-crank levers 78. This bent lever 86 is provided with a transversely-disposed rod 87, which extends laterally from each side thereof to points above each of the standards 73. To the forwardly-disposed guide-rod, embracing collar 73^a of each standard, there is pivoted at its lower end, as at 88, a forwardly-disposed gravity-latch 89, having a catch at its front end to take over and engage with the lug 85 of the bell-crank lever immediately below.

Secured to the rear side and center of the cross-head 4 is a bracket 90, in which is located for vertical adjustment a trip-pin or screw 91, in whose path is located the transverse rod 87. Although I have shown but one bent lever 86 and the rod 87 carried thereby, and as extending to each side of the machine, yet it will be obvious that such bent lever may be duplicated at each side of the machine, and the rod reduced to mere pins or studs.

92 designates a push-rod, the same being pivotally connected, as at 93, to the rear end of the safety-lever and terminating at its upper end immediately in rear of the upper end of the bent lever 86. Below its upper end the push-rod is provided with laterally-extending branches 94, whose extremities are upwardly disposed and provided at their front sides with shoulders 95. In case the bent levers 86 are duplicated at the sides of the machine, instead of being located only at the middle, the ends of the branches 94 would be extended to operate in conjunction with the bent levers 86 at their upper ends. Of course the upper center extension of the rod shown would, in such event, become unnecessary. Bolted to the rear side, and at the ends of the cross-head opposite the safety-bolts 75, are companion fixed safety-keepers

96, adapted to receive and interlock or engage with the teeth of said safety-bolts 75. Subsequent to the initial pressure upon the foot-lever, and just before such pressure has caused the foot-lever to descend to a point necessary to set the machine in motion by a depression of the old foot-lever, the push-rod is raised by such initial pressure and its shoulders 95 engage with the shoulders 84 on the bell-crank levers 80^a, which causes them to rock on the shaft 77 against the tendency of their weights 80, and consequently withdraw the safety-bolts 75 connected to their lower ends from their locking positions with their companion keepers 96. As the bell-crank levers continue to rock, their upper lugs 85 are caught and held by the latches 89 which have ridden thereover so that the safety-bolts are locked out of engagement with the keepers 96, and consequently the cross-head is free to be operated by the usual mechanism. During the downward and upward movements of the cross-head the locking of the safety-bolts is continued. As the cross-head reaches its highest point, the trip-pin 91 at its free end comes in contact with the trip-rod 87 and raises the same and the bent lever 86 which carries it. The upward movement of the trip-rod 87 causes the latches 89 to rise and liberate the bell-cranks 78, permitting them to fall by gravity, and by means of their weights 80 to force the locking-bolts forward into their locking or operative engagement with the keepers 96. The return of the safety-lever in the lower safety attachment to its normal or upper position will ordinarily withdraw the push-rod, so that its shoulders 95 are removed from engagement with the shoulders 84 of the bell-crank levers; but in case such withdrawal of the push-rod should not take place by reason of any possible imperfect operation of the lower safety-attachment, or from other means, the upper end of the bent lever 86 will, when it moves to the rear as actuated by the trip-pin 91, serve to force the push-rod to the rear, so as to positively disconnect its shoulders 95 from the shoulders 84 of the bell-crank levers.

In Figs. 7 and 8 I have shown a side view, partly in section and front elevation, respectively, of a modified construction of a combined upper and lower safety attachment. In this instance the lever ends of the guide-rods are embraced by a pair of short clamps 97, in the upper ends of which are pivoted, as at 98, the lower ends of a pair of swinging safety-bolts 99, having teeth on their inner or rear faces, said teeth being slightly inclined or beveled to conform to the radius of the circle upon which they travel. Bolted to the under side of the cross-head opposite each of the guide-rods is a toothed keeper 100, the lower ends of which extend down into the clamps 97.

101 represents the sides of the lower safety-attachment frame, which, in the present instance, are extended to points above the main-

shaft receiving-recess 102, to form vertical extensions 103, the same having at their upper rear sides laterally-extending ears 104 for the accommodation of the transverse fixed shaft 105. The front of the standards are provided with vertical recesses or guides 106 immediately above the main-shaft receiving-recess 102, before mentioned. Located for vertical movement in the guides 106 is a head 107, the same being provided with lugs for embracing the standard extensions 103. From the opposite sides of the head extend the horizontal arms 108, which project beyond the standards 1 of the machine and are loosely connected, as at 109, to the lower ends of the connecting-rods 110, whose upper ends, it will be understood, are pivoted at 111 to the front faces of the pivoted safety-bolts 99. Loosely hung between its ends upon the transverse shaft 105 at an intermediate point is the weighted lever 112, the front end of which is pivotally connected, as at 113, to lugs located on the upper end of the head 107. Journaled in the upper ends of the extensions 103 of the standards, in front of and below the shaft 105, is a transverse rock-shaft 114, one end of which extends beyond the standard 1 of the main frame, and has secured thereto the crank-disk 115, the pin of which projects into the path of, and is adapted to be struck by, a projection 116, located on the adjacent draw-rod 5 of the machine, whereby said shaft will be rocked at each upward movement of said draw-rod, and consequent similar movement upon the part of the cutting-block. Near the opposite end of this rock-shaft 114 there is loosely hung a gravity-catch 117, whose upper end is rearwardly curved to form a hook 118. Mounted rigidly upon, and adapted to move with the rock-shaft 114, is the rearwardly and upwardly curved bent lever 119, the same having its upper end provided with a suitable lateral projection 120 adapted to act upon the upper end of the pulling-rod 121. This bent lever is further provided intermediate its ends with the laterally-projecting trip-lug 122, which extends across the face of the upper hook end of the gravity-latch 117. The pulling-rod 121 is pivoted at its lower end, as at 123, to the safety-lever 25 in the one form of lower safety attachment and in the other form to the safety-frame 58^a. The remainder of the construction shown in Fig. 7 is the same as that described with reference to and shown in Figs. 5 and 6. The initial depression on the treadle draws upon the pulling-rod 121, and causes the same through its shoulder 124 to depress the arms 108, together with their connecting-head 107, and these arms, through the medium of the pull-rods 110, swing the safety-bolts 99 outwardly from engagement with the keepers 100, with which they lock. When the arms 108 are depressed to their lowest position, the lower end of the gravity-latch 117 swings over the same and locks them, and consequently also locks the safety-bolts out of their operative position and prevents them from rattling.

When the cross-head has almost reached its upper position, the projection 116 of the draw-rod 5 comes in contact with and partially rotates the rock-shaft 114, and with it the bent lever 119, which lever, by means of its pin 122, forces the upper end of the gravity-latch forward, and consequently its lower end to the rear from over the arm 108, whereupon the weighted lever 112 raises the arms 108, and thereby forces the safety-bolts to their locking position in engagement with the keepers 100. The forward movement of the lever 119 disengages the shoulder 124 from over the lug 125 on the upper end of the head 107 in the same manner and for the same reason that I have heretofore referred to in describing the operation of the preferred form of safety attachment.

From the foregoing description, in connection with the accompanying drawings, it will be observed that I have produced a comparatively simple mechanism that may be built in the original machine as a part thereof or readily applied either in part or whole to those machines already built, said mechanism producing a perfect automatic safety appliance for this and other similar classes of machines.

Numerous changes in the details of my invention will readily suggest themselves to those skilled in this class of machines, and I would therefore have it understood that I do not wish to be understood as limiting myself to the exact construction herein shown and described, but hold that I may vary the same to any degree within the knowledge of the skilled mechanic, and so as to adapt my mechanism to the various forms of sole-cutting machines and other machines to which the same is applicable.

Having described my invention, what I claim is—

1. The combination with a sole-cutting machine, of means operated by the driving-mechanism of the machine for automatically locking the cutting-block in its raised position and for automatically releasing the same at a depression of the treadle of the machine, substantially as specified.

2. The combination with a sole-cutting machine, of locking devices carried by the cross-head, companion locking devices supported in rear of the cross-head when in its raised position, means operated by the driving mechanism of the machine for throwing the companion locking devices into operative position when the cross-head is raised and for withdrawing said companion locking devices at a depression of the treadle, substantially as specified.

3. The combination with a sole-cutting machine, of toothed keepers secured to the cross-head, standards arranged in rear of the same, toothed bolts carried by the standards and connections between the treadle operating the driving mechanism of the machine and the toothed bolts whereby said bolts are thrown into engagement with the toothed keepers at

each forward movement of the cross-head and withdrawn from such engagement at each depression of the treadle of the machine, substantially as specified.

4. The combination with a sole-cutting machine, of toothed keepers located on the rear side of the cross-head thereof, standards arranged upon the machine in rear of said keepers and provided with openings, toothed bolts arranged in the openings and adapted to engage said keepers and mechanism between the treadle operating the driving mechanism of the machine and said bolts whereby the latter are caused to lock with the keepers when the cross-head is raised and to unlock or disengage from said keepers at each depression of the treadle of the machine, substantially as specified.

5. The combination with a sole-cutting machine, of toothed keepers located on the rear side of the cross-head thereof, locking bolts for engaging the keepers supported movably in rear thereof, means for normally causing engagement of the bolts with the keepers and a consequent locking of the cross-head when in its raised position, and means actuated by the treadle that operates the driving-mechanism of the machine for temporarily disengaging said bolts at each depression of the treadle, substantially as specified.

6. The combination with a sole-cutting machine, of toothed keepers secured to the rear side of the cross-head, standards arranged upon the machine in rear of the keepers, toothed locking bolts supported by the standards and adapted to engage the keepers, weighted bell cranks pivotally connected to the bolts and pivotally supported thereabove, connections between the treadle of the machine and the bell cranks whereby a depression of the treadle will cause a swinging of the bell cranks and a withdrawal of the bolts, and devices for automatically destroying such connection at each upward movement of the cross-head and permit of the independent operation of the bell cranks to return the bolts to their locking position, substantially as specified.

7. The combination with a sole-cutting machine, of toothed keepers secured to the rear side of the cross-head, standards arranged upon the machine in rear of the keepers, toothed locking-bolts supported by the standards and adapted to engage the keepers, weighted bell cranks pivotally connected to the bolts and pivotally supported thereabove, connections between the treadle of the machine and the bell cranks whereby a depression of the treadle will cause a swinging of the bell cranks and a withdrawal of the bolts, and devices actuated by the cross-head for releasing the bell cranks from such connection at each forward movement of the cross-head, substantially as specified.

8. In a sole-cutting machine, the combination with locking keepers connected to the cross-head, standards arranged in rear of the

same, reciprocating toothed bolts for engaging the keepers, weighted bell cranks pivotally supported above said bolts and pivotally connected to said bolts, of a connection between the treadle of the machine and the bell cranks whereby the latter are operated to withdraw the bolts at a depression of the treadle, devices for locking the bolts in their withdrawn position and tripping devices carried by the cross-head and adapted to release the locking devices and bell cranks at each upward movement of the cross-head, substantially as specified.

9. The combination with a sole-cutting machine, of a locking keeper carried by the cross-head, standards arranged in rear of the same, a transverse shaft connecting the standards above the keepers, a pair of bell cranks loosely hung upon said shaft and weighted at their outer ends, a pair of locking bolts adapted to engage the keepers and supported by the standards and pivotally connected to said bell cranks, shoulders arranged upon the bell cranks, a rod connected to the treadle of the machine and having shoulders for engaging under those of the bell cranks, a lever loosely hung upon the supporting shaft of the bell cranks and terminating opposite the end of the rod, and having lateral projections, a pin carried by the cross-head and adapted to strike one of said projections when the cross-head is raised and thus cause the lever to disengage the rod from the bell cranks, and gravity latches pivoted on the standards arranged over the projections and at their lateral ends engaging the shoulders of the bell cranks, said latches being raised from such engagement by the movement of said lever and its projections, substantially as specified.

10. The combination with a sole-cutting machine, the cross-head of which is provided with toothed keepers, of a pair of standards arranged in rear of the keepers and secured to the machine table and having forward extensions provided with openings for engaging the upper ends of the guides of the machine, a transverse shaft connecting the upper ends of the standards and provided with lateral openings, toothed locking bolts for engaging the keepers arranged in the openings, a pair of bell crank levers weighted at their rear ends loosely hung upon the shaft above the bolts and loosely connected at their lower ends to the bolts, said bell crank levers being provided at their upper ends with the shoulders 85 and below the same with the shoulders 84, gravity latches 89 loosely pivoted upon the upper ends of the standards in front of the bell crank supporting shaft and at their rear ends adapted to ride over and engage with a shoulder 85 of the bell cranks, a bent lever 86 loosely supported on the bell crank supporting shaft and extending above the same, projections 87 arranged on the bent lever and extending under the latches, a rod 92, pivotally connected to the treadle of the machine and terminating in a curved extension oppo-

site the upper end of the bent lever 86 and below said extension having lateral arms or branches 94 each of which is provided with a shoulder 95 adapted to loosely engage with the shoulders 84 of the bell cranks and to be thrown out of such engagement by a rearward movement of the bent lever 86, and a trip bolt 91 adjustably supported by the cross-head of the machine and adapted to come against one of the projections 87 at each upward movement of the cross-head, substantially as specified.

11. The combination with a sole-cutting machine, of devices for automatically locking the cross-head when raised to its highest position and for automatically locking the cam of the machine when such position is assumed by such cross-head and for automatically releasing the cross-head and cam upon a depression of the treadle of the machine, substantially as specified.

12. The combination with a sole-cutting machine, of a safety-lever fulcrumed in the frame thereof and provided with a stop-shoulder adapted to engage a similar shoulder formed in the cam, means for normally raising the front end of said lever so as to present its shoulder in the path of that of the cam, a treadle arranged at the side of the safety-lever and having a shoulder, a trip device for engaging the shoulder of the foot lever, a trip operating device carried by the cam for disengaging the trip device from its engagement with the foot-lever, and connections between the brake and clutch mechanisms of the machine and the safety-lever, substantially as specified.

13. The combination with a sole-cutting machine, of an attachment for the same comprising a safety-lever having a shoulder on its upper side, a weight in rear of its fulcrum, a frame for supporting the parts of the attachment, means for connecting the safety-lever with the treadle of the machine, an auxiliary foot lever fulcrumed in the attachment at one side of the safety-lever and provided with a shoulder, a locking lever pivoted intermediate its ends to the safety-lever and provided with a shoulder for engaging the shoulder of the foot lever, means for causing such normal engagement, a trip pin carried by the cam for actuating the locking-lever and causing its disengagement, connections between the safety-lever and old foot-lever of the machine, a treadle connected to the foot-lever of the attachment, and means for normally raising said treadle, substantially as specified.

14. The herein described attachment for sole-cutting machines, the same consisting of a frame-work comprising vertical sides having recesses adapted to fit against the main shaft 22 of the machine, a transverse shaft 24 arranged in the standards, the safety-lever fulcrumed between its ends thereon and provided upon its upper side with the shoulder 25^a, a weight arranged on the rear end of the safety-lever 25 for raising said shoulder into

the path of the shoulder carried by the cam of the machine, the plate supported by the front end of the safety-lever in an adjustable manner and adapted to engage over the old foot-lever of the machine, the auxiliary foot lever 36 arranged on the shaft at the side of the safety-lever and having the shoulder 36^a, the treadle adjustably connected to the foot-lever, the intermediately pivoted locking lever 33 having the shoulder 38 at its lower side for engaging with the shoulder 36^a of the foot lever and adapted at its upper end to be liberated by contact with a pin carrying the cam of the machine, means for normally throwing the locking lever shoulder 38 into engagement with the shoulder 36^a with the foot lever and means for normally raising the treadle, substantially as specified.

15. The herein described attachment for sole-cutting machines, the same consisting of a frame-work comprising vertical sides having recesses adapted to fit against the main shaft 22 of the machine, a transverse shaft 24 arranged in the standards, the safety-lever 25 fulcrumed between its ends thereon and provided upon its upper side with the shoulder 25^a, a weight arranged on the rear end of the safety-lever 25 for raising said shoulder into the path of the shoulder carried by the cam of the machine, the plate supported by the front end of the safety-lever in an adjustable manner and adapted to engage over the old foot-lever of the machine, the auxiliary foot lever 36 arranged on the shaft at the side of the safety-lever and having the shoulder 36^a, the treadle adjustably connected to the foot-lever, the intermediately pivoted locking-lever 33 having the shoulder 38 at its lower

side for engaging with the shoulder 36^a of the foot lever and adapted at its upper end to be liberated by contact with a pin carrying the cam of the machine, means for normally throwing the locking lever shoulder 38 into engagement with the shoulder 36^a of the foot lever, and means for normally raising the treadle, the bell crank lever 41 journaled between its ends in the sides of the frame, said lever having its front end weighted and lying in the path of the foot-lever and its rear end adapted to contact with the under side of the safety-lever, substantially as specified.

16. The combination with a sole-cutting machine, of a safety-lever fulcrumed between its ends in rear of the main shaft, means for normally raising the front end of the lever, a stop shoulder arranged on the upper side of the lever, a foot lever fulcrumed at the side of the safety-lever and having its front end provided with a stop shoulder, connections between the safety-lever and the brake and clutch mechanisms of the machine, an intermediately pivoted locking lever arranged on the safety-lever and provided with a shoulder for engaging that of the foot-lever, means for normally causing such engagement, and a cam removably and adjustably arranged upon the main shaft of the machine and provided with a peripheral stop shoulder for engaging that of the safety lever, and a pin for tripping the locking lever, substantially as specified.

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

JNO. M. HOLLADAY.

Witnesses:

W. S. DUVAL,

FRANK D. BLACKISTONE.