

M. F. BROGAN.
MACHINE FOR INSERTING PROTECTORS, SLUGS, OR FASTENINGS.
APPLICATION FILED OCT. 3, 1904.

938,118.

Patented Oct. 26, 1909.

3 SHEETS—SHEET 1.

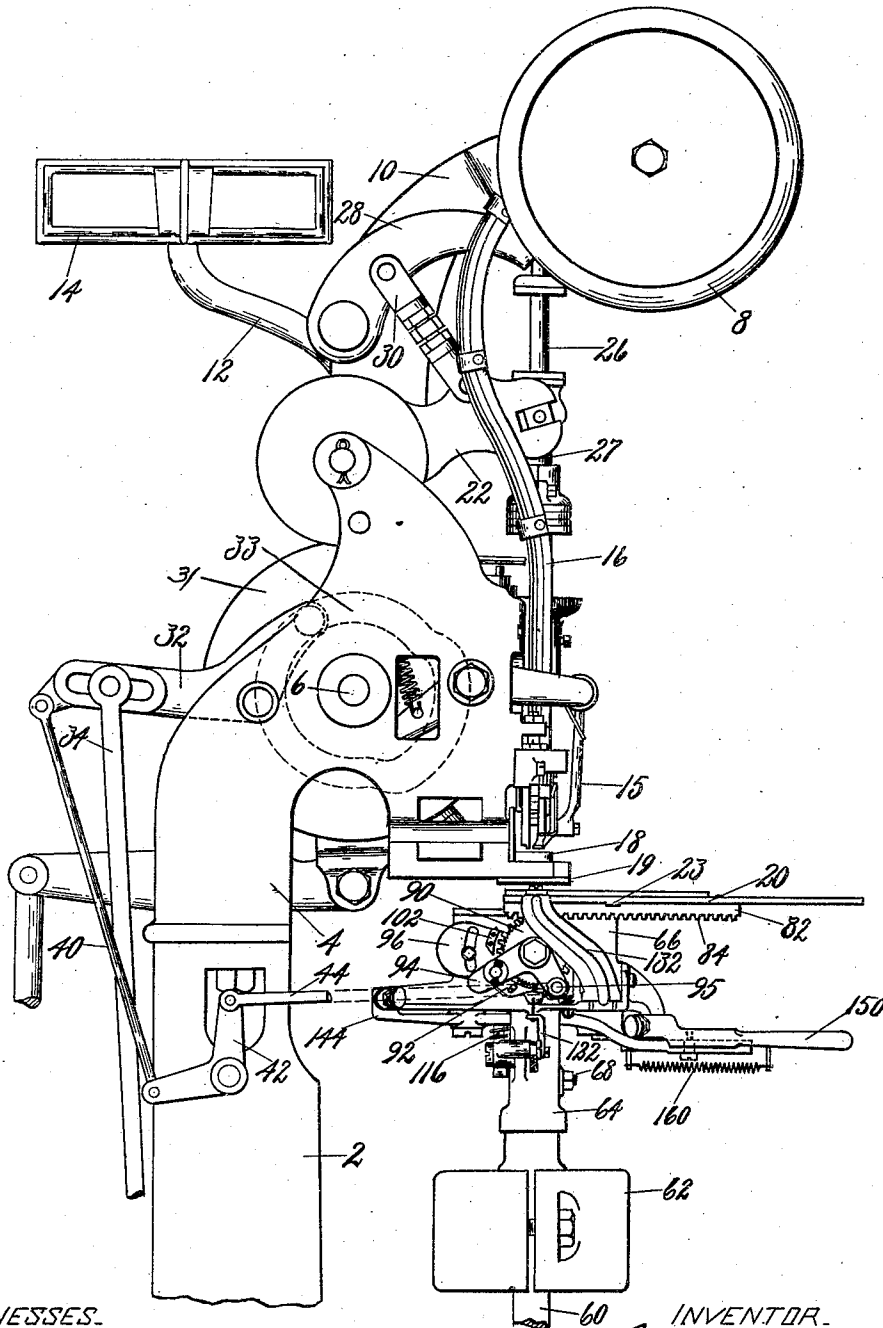


FIG. 1.

WITNESSES.

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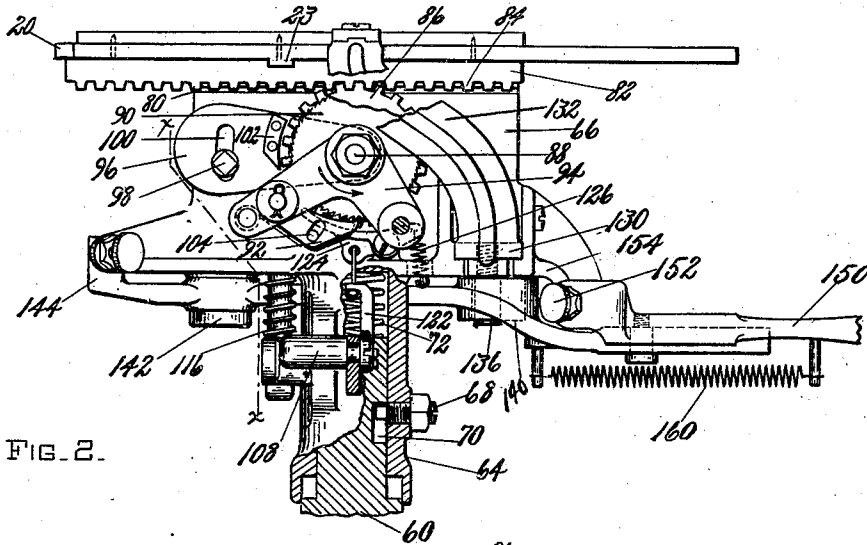


FIG. 2.

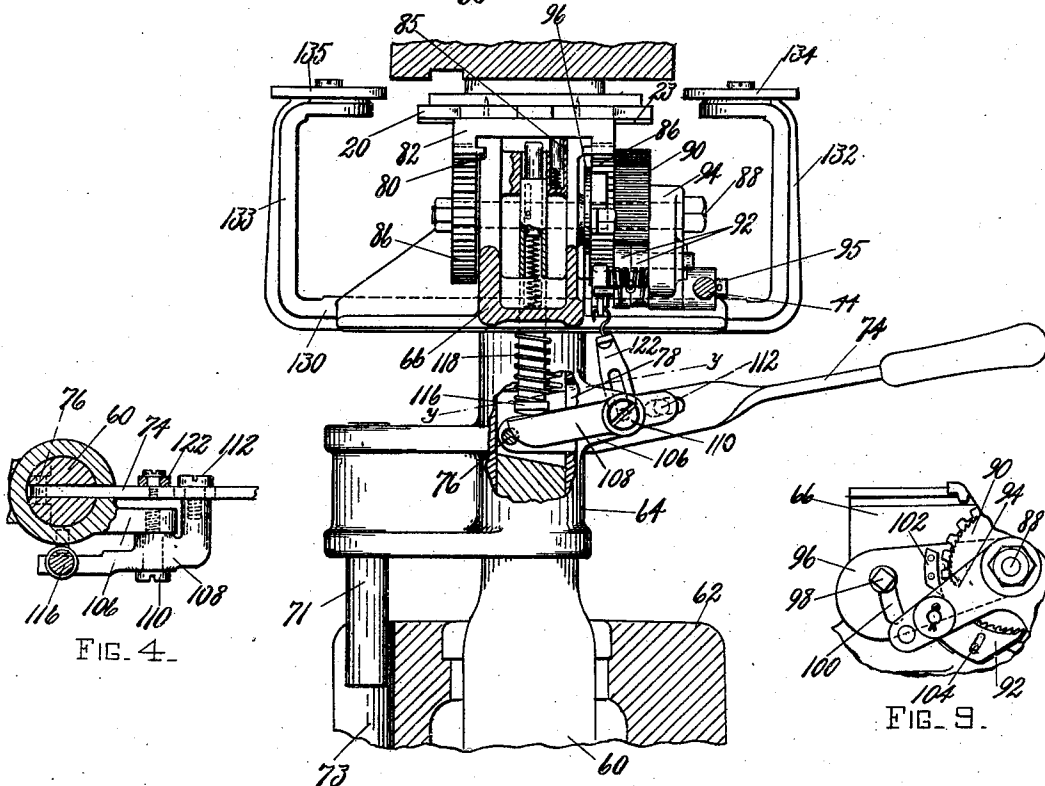


FIG. 3.

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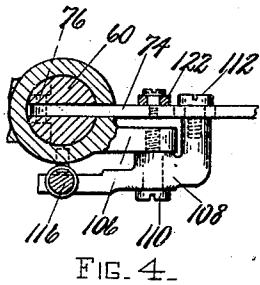


FIG. 4.

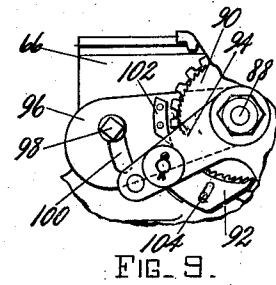


FIG. 5.

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3 SHEETS—SHEET 3.

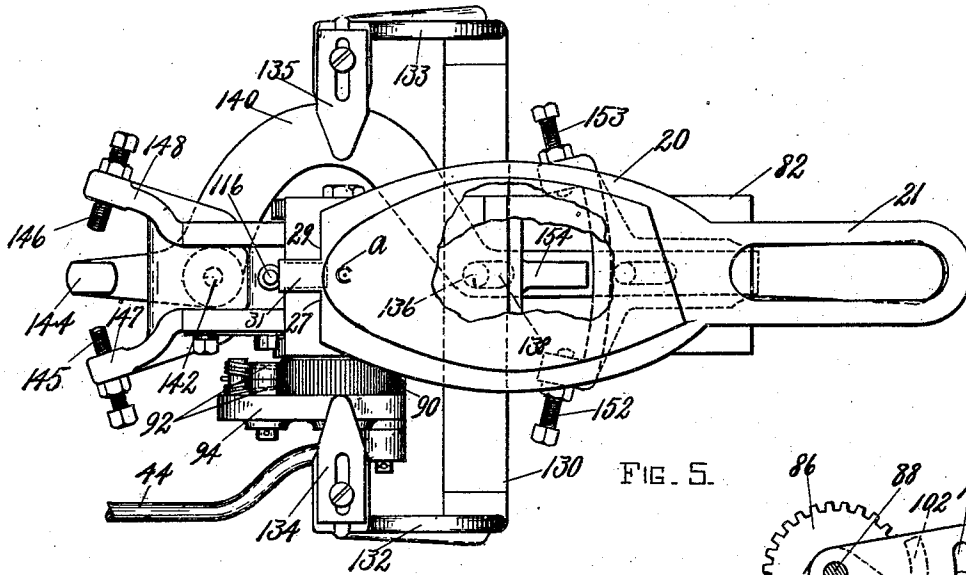


FIG. 5.

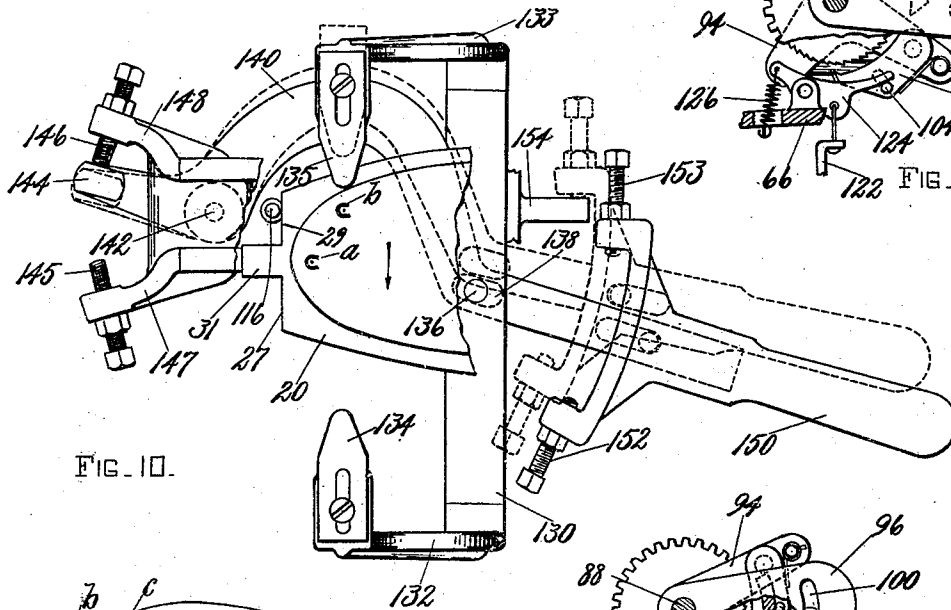


FIG. 10.

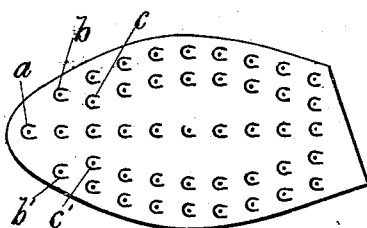


FIG. 6.

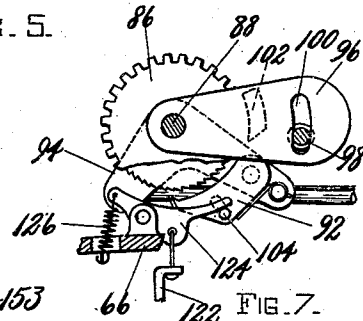


FIG. 7.

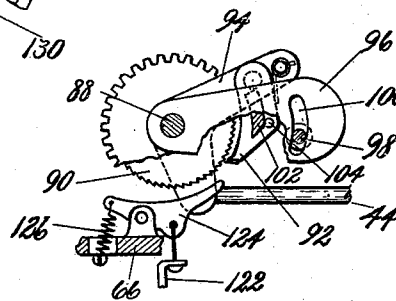


FIG. 8.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR INSERTING PROTECTORS, SLUGS, OR FASTENINGS.

938,118.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed October 3, 1904. Serial No. 227,014.

To all whom it may concern:

Be it known that I, MICHAEL FRANK BROGAN, a citizen of the United States, residing at Lawrence, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Machines for Inserting Protectors, Slugs, or Fastenings, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to machines for inserting protectors, slugs, fastenings or like devices into stock, more particularly to the feeding mechanism and work-support used in conjunction with such machines.

As machines embodying the features of this invention can be utilized with equal efficiency when any of the above-mentioned devices are being inserted, the term "protector" will hereinafter be used generically to designate any device of the nature set forth, and wherever the word "protector" occurs herein it should be held to include any one or all devices of the character above specified, as the context may admit or require.

One object of the invention is to provide improved means for presenting stock to the inserting mechanism, said means being universally movable in a single plane and acting in conjunction with suitable guides so that protectors may be inserted in various designs over any portion of the stock being operated upon.

Another object of the invention is to provide means for correctly positioning the stock at the beginning of the feed movement, which means is controlled by the device utilized for rendering the stock-feeding means inoperative after a particular design or part of a design has been completed.

Another object of the invention is to provide improved stock-sustaining means used in combination with the positioning means above mentioned, whereby different rows of protectors, the first protector of each of which is in a different relation to the extreme end of the stock, may be inserted symmetrically.

Another object of the invention is to provide stock-presenting means which operates uniformly and which will not be affected in its operation by the vibration caused when

the driver is actuated for inserting a protector into the stock.

As herein shown the stock is preferably sustained by a carriage, movable in two directions in a horizontal plane, and also movable vertically by means under control of the operator, as a lever fulcrumed on a stationary part of the machine. This lever is so connected to the remaining portions of the mechanism that it controls the operation of the stock-feeding means, and the movement of a novel stop for positioning the stock at the beginning of the feed movement, said stop being normally held depressed and out of engagement with the stock-sustaining means.

Novel means are provided for adjusting the guides for engaging the stock as the protectors are being inserted in the various designs, said adjusting means acting, at the will of the operator, in conjunction with adjustable stops for limiting its movement.

The machine herein shown and described is adapted to insert a protector having laterally-extending wings, and also insert simultaneously a slug into the stock inclosed by the wings of the protector, but my improved stock-presenting means is not limited to use with such type of machine and may be used with any protector inserting machine.

In the accompanying drawings, which illustrate the preferred embodiment of the invention, Figure 1 is an elevation showing the left-hand side of a machine for inserting a protector and a slug simultaneously; Fig. 2 is a detail view, partly in section, showing in side elevation the yieldingly sustained table, the carriage movably mounted thereon, and the mechanism for feeding the carriage; Fig. 3 is a detail, partly in section, taken on the line $x-x$ of Fig. 2; Fig. 4 is a partial sectional view taken on the line $y-y$ of Fig. 3; Fig. 5 is a plan view of the stock-carrying plate, the carriage and its feeding mechanism, and shows, in inoperative position, the guiding mechanism for causing the stock-carrying plate to move transversely of the carriage; Fig. 6 is a plan view similar to Fig. 5, showing, in full lines, one of the gage plates of the guiding mechanism in operative position for one adjustment, and, in dotted lines, in position for a different adjustment; Fig. 7 is a detail view showing the rear side of the pawl-control-

ling plate, the pawl-carrier at the end of its forward movement, and the device for disengaging the pawls from the ratchet wheel; Fig. 8 is a view similar to Fig. 7, showing the pawl-carrier at the end of its rearward movement, the pawls being disengaged from the ratchet wheel by the pawl knock-out carried by the pawl-controlling plate; Fig. 9 is a detail view showing the front side of the parts shown in Figs. 7 and 8, the pawl-controlling plate being adjusted in a different position; and Fig. 10 is a plan view of a tap-sole showing protectors and fastenings inserted in one form of design.

Referring to Fig. 1 of the drawings, 2 designates a standard on which is mounted a head 4 that carries the main shaft 6. A hopper 8 in which protectors are contained is supported by a bracket 10 projecting from the head, and a reel 14 which carries wire for forming fastenings or slugs is supported by a bracket 12. The protectors travel from the hopper down a raceway 16 which is provided with an arrester and a let-off that release the protectors singly, an ejector 15 pushing the protectors from the end of the raceway into an opening in a transferrer 18. After a protector has been placed in said opening the transferrer is moved laterally to place the protector carried thereby in alinement with the driver, which drives the protector through an opening in a foot-plate 19 into the stock. The protector-driver is provided with a longitudinal passage and is carried by a protector-driver bar 27 also provided with a longitudinal passage, the longitudinal passage in the protector-driver bar being intersected by a recess which receives a fastening-carrier movable with the bar. The fastening-carrier is provided with an opening into which the end of the wire or fastening material is fed, and thereafter said carrier is moved into the recess in the driver bar, the movement of the carrier severing the wire to form a fastening and also placing the fastening in alinement with the fastening-driver. The fastening driver moves in the longitudinal passage of the protector-driver and is carried by a driver bar 26 movable in the longitudinal passage of the protector-driver bar, whereby the fastening-driver is adapted to drive a fastening through the longitudinal passage of the protector-driver into the stock inclosed by the wings of the protector. The protector-driver bar is positively actuated by a lever 22 which is connected by an adjustable link 30 to the fastening-driver bar lever 28, as shown in Fig. 1, and whenever the lever 22 is moved the lever 28 also will be moved, so that a protector and a fastening will be driven simultaneously.

Pivoted to the head 4 is a lever 32 which carries a roller adapted to travel in the cam groove 33 of a cam block 31 mounted on the

main shaft, the other end of the lever having attached to it a rod 34 which forms part of the mechanism for depressing and elevating the stock-supporting spindle. The lever 32 also has attached to it a rod 40 which operates the feeding device.

The mechanism above described is identical with that shown and described in the application of George A. Ambler, for machines for inserting protectors, Serial No. 180,296, filed November 9, 1903, and is not herein more fully described, as it forms no part of the present invention.

In the preferred form of my invention as herein shown, a stock-supporting plate 20 is mounted on a carriage 82 which is movably mounted on a table 66 having a hollow shank 64 that loosely surrounds the upper end of a stock-supporting spindle 60. The shank moves vertically on the spindle and is prevented from rotating by a screw 68 carried by said shank and projecting into a vertical slot 70 in the spindle, as shown in Fig. 2, and fastened to said spindle is a weight 62 which takes up the impact of the drivers and helps to prevent the spindle from yielding when a protector and fastening are being driven into the stock supported by the plate 20. In one side of the weight is formed a guideway 73 which is entered by a short guide rod 71 projecting downwardly from the shank 64 to aid the screw 68 in preventing the table from rotating relatively to the spindle.

A coiled spring 72 is confined within the hollow shank 64 between the upper end of the spindle 60 and the lower surface of the table 66 and keeps the table normally in an elevated position, so as to hold the stock yieldingly against the lower surface of the foot-plate. For depressing the table against the stress of spring 72 when it is desired to release the stock or to remove the stock-carrying plate from the carriage, a lever 74 is provided which is pivoted at 76 in a slot in the upper end of the spindle, said lever projecting outwardly through a slot 78 in the hollow shank of the table, as shown in Fig. 3. By pressing downwardly on the lever 74 its lower edge will engage the lower edge of the slot in the hollow shank and depress the table.

As shown in Figs. 2 and 3, the table is provided with guideways 80 on which the carriage 82 is adapted to travel, the carriage being provided on each side with rack-teeth 84 that mesh with pinions 86, 86 fastened to a stud shaft 88 mounted in the table. Rigidly connected with one of the pinions is a ratchet wheel 90 which is engaged by feeding pawls 92 carried by an oscillating pawl-carrier 94 pivotally mounted on the stud shaft 88 and connected at 95 to one end of a rod 44, as shown in Fig. 1. The other end of the rod 44 is fastened to

an elbow lever 42 pivoted to the standard 2 and connected by means of the rod 40 with lever 32, so that whenever the lever 32 is elevated for depressing the spindle, the pawl-carrier will be moved forwardly in the direction of the arrow, Fig. 2, and the pawls carried thereby will engage and turn the ratchet wheel 90, so as to feed the carriage 82 toward the rear of the machine, the carriage being prevented from overthrowing, or moving too freely, by a friction plunger 85 mounted in the table and bearing against the underneath side of the carriage. A reverse movement of the lever 32 moves the pawl-carrier rearwardly to carry the pawls back over the ratchet wheel into position for engaging the ratchet wheel preparatory to turning it when the pawl-carrier is again moved forwardly.

A pawl-controlling plate 96 is pivotally mounted on the stud shaft 88 and is held in adjusted position by a screw 98 which projects through a slot 100 in said plate and clamps it to one side of the table, said plate being provided with a pawl knock-out 102 which is engaged during the rearward movement of the pawl-carrier by a pin 104, carried by the pawls, whereby said pawls are disengaged from the ratchet wheel. When the plate 96 is in the position shown in Fig. 9 the pawls will be disengaged from the ratchet wheel before the pawl-carrier has completed its rearward movement. Consequently when the pawl-carrier is moved forwardly the pawls will not reengage said ratchet wheel until the pawl-carrier has moved forward quite a distance, so that but a slight movement will be imparted to the pinions 86, 86, and the carriage will be fed only a short distance. When the plate 96 is in the position shown in Fig. 2 the pawls will not be disengaged from the ratchet wheel until the pawl-carrier has nearly completed its rearward movement, see Fig. 8, so that in the forward movement of the pawl-carrier the pawls will reengage the ratchet wheel approximately at the beginning of said movement and will feed the carriage the full distance. As the plate 96 can be adjusted in any desired position, the distance the carriage is to be fed at each forward movement of the pawl-carrier may be accurately determined, and for obtaining a very fine and accurate feed without using a fine-toothed ratchet wheel the pawls are of different lengths and movable relatively to each other.

As the machine is arranged to stop with the work support depressed, the lever 32 will stop in its elevated position and the pawl-carrier will stop at the end of its forward movement, in the position shown in Figs. 1 and 2, the pawls being then in engagement with the ratchet wheel. Therefore it is necessary to first disengage the pawls from

the ratchet wheel before the carriage can be moved on the table, and this is provided for by the following mechanism: A dog 124 is pivoted to the side of the table and has a forwardly-projecting end that stands over the pin 104 when the pawl-carrier is at the end of its forward movement, a spring 126 being fastened to the other end of the dog to hold the forwardly projecting end thereof normally in an elevated position. The dog is connected by a link 122 to the lever 74, so that by moving said lever downwardly the end of the dog will engage the pin 104 and remove the pawls from engagement with the teeth of the ratchet wheel, as shown in Fig. 7, and at such times the carriage may be moved freely back and forth on the table.

Projecting from one side of the sleeve 64 is a bracket 106 to which a lever 108 is pivoted at 110, as shown in Figs. 3 and 4, one end of said lever having fastened thereto a headed screw 112 which projects through an elongated slot in the lever 74, so that whenever the lever 74 is moved downwardly the lever 108 will be rocked on its pivot to elevate a pin 116. The pin 116, when in its elevated position, is adapted to act as a stop for positioning the stock-carrying plate relatively to the drivers when said plate is moved into starting position, said pin being vertically movable in a guideway formed in the table and being held normally depressed out of the path of the carriage 82 by a coiled spring 118 which, at one end, bears against a head on the pin and at its other end against the bottom of the table. The upper end of the pin is provided with a spring-pressed plunger, see Fig. 3, so that when the carriage is in its rearward position, and at such times covering the end of the pin, a downward movement of the lever 74, and consequently an upward movement of the pin 116, will cause the spring-pressed plunger to yield against the lower surface of the carriage. If the pin were not provided with a yielding plunger the engagement of the end of the pin with the lower surface of the carriage would limit the downward movement of the lever 74 when the carriage was in its rearward position.

From the foregoing description it will be seen that a downward movement of lever 74 lowers the table to release the stock from engagement with the foot-plate and to enable the stock-carrying plate to be removed from the carriage; removes the pawls from engagement with the ratchet wheel, so that the carriage may be moved back to starting position or to any desired position on the table; and elevates the pin 116 into operative position to be engaged by the end of the stock-carrying plate when it is moved into starting position, for it will be understood that as soon as the carriage has been moved toward the front of the machine the spring-

pressed plunger in the end of the pin will be released and will rise upwardly.

The stock-carrying plate 20 is shown in Fig. 5 and comprises a plate which is substantially the shape of the forepart of a sole, one end of the plate having a projection 31 and two notches 27 and 29, and the other end of the plate having a handle 21 by which the operator moves the plate and carriage into position to receive the first protector and fastening of each row, and also returns the plate and carriage to starting position after one row of protectors and fastenings have been inserted. The plate is provided with pins on which the stock is impaled to hold it securely on the plate, and a transversely extending tongue 23 on the lower face of the plate engages a groove formed in the upper face of the carriage 82, so that the plate is prevented from moving longitudinally of the carriage, but may be moved transversely thereof for a purpose hereinafter described.

For producing the design shown in Fig. 10 the operator first adjusts the plate 96, which carries the pawl knockout 102, so as to determine the length of each feeding movement of the carriage, as this represents the distance between two protectors and the carriage and pawl-carrier being in the position shown in Fig. 1, the lever 74 is depressed to lower the table and disengage the pawls from the ratchet wheel and also to elevate the pin 116. The plate 20, having a sole or tap-sole attached thereto, is then placed on the carriage with the tongue on the plate resting in the groove in the upper surface of the carriage, and the carriage is moved rearwardly on the table until the projection 31 on the end of the plate engages the plunger in the end of the pin 116, see Fig. 5. The stock is now in position to receive the first protector and fastening of the center row *a*, and the lever 74 is released so that the table can move upwardly to clamp the stock yieldingly against the foot-plate. At the same time the pin 116 will be lowered out of the path of movement of the carriage and the pawls will reengage the ratchet wheel. The machine is now started, and at the first downward movement of the lever 32 for elevating the spindle to receive the impact of the drivers, the pawl-carrier will be moved rearwardly to carry the pawls into position for turning the ratchet wheel. At the following upward movement of said lever for depressing the spindle, the pawl-carrier will be moved forwardly and the pawls will engage and rotate the ratchet wheel, and as the ratchet wheel is rigidly fastened to one of the pinions 86 in engagement with the rack-teeth of the carriage, the carriage and plate 20 will be moved toward the rear of the machine to place the stock in position to receive the next protector and

fastening of the center row, the carriage and stock-carrying plate being moved rearwardly the distance between two protectors at each cycle of operations of the machine.

When the last protector and fastening of the center row have been inserted the operator stops the machine, the carriage and pawl-carrier being then in the position shown in Fig. 2, and the lever 74 is again depressed to lower the table and to remove the pawls from engagement with the ratchet wheel. The carriage and stock-carrying plate are then moved toward the front of the machine and the spring-pressed plunger in the end of pin 116 will move upwardly when released by the carriage, so as to be in position to be engaged by the end of the plate 20 when it is again moved into starting position.

For guiding the stock-carrying plate while protectors are being inserted in the outer rows *b* and *b'*, and also the rows *c* and *c'*, a guiding mechanism is provided which comprises a bar 130 having projecting upwardly therefrom arms 132 and 133 which carry at their ends adjustable gage plates 134 and 135, as shown in Figs. 3, 5 and 6. Said bar 130 slides in a guideway formed in the table, and is provided with a downwardly-projecting pin 136 which enters a slot 138 in a shifting lever 140, that is pivoted at 142 to the table, the movement of said lever for one adjustment of the guiding mechanism being limited by a part 144 which engages adjustable contact screws 145 and 146 in arms 147 and 148 projecting from the table. On the other end of the lever is a handle 150 movably mounted thereon and provided with adjustable contact screws 152 and 153 which are adapted to cooperate with a stop 154 projecting from the table to limit the movement of lever 140 for a different adjustment of the guiding mechanism. The handle 150 is held normally in its innermost position on the lever by means of a spring 160 which, at one end, engages a pin projecting from the lever, and at its other end engages a pin projecting from the handle. By moving the handle 150 outwardly on the lever against the tension of said spring 160 and then moving the lever to the left until the part 144 engages the contact screw 146, the gage plate 135 will be brought into the position shown in full lines in Fig. 6. The carriage and plate are then moved into starting position, and during said movement the plate 135 will engage the edge of the sole carried by the plate 20 and will move said plate transversely of the carriage, so that the notch 29 in the end of the plate will engage the plunger in the end of the pin 116. The stock will now be in position for receiving the first protector and fastening of the row *b*, as shown in full lines in Fig. 6, and as the carriage is moved toward the rear of the machine the gage plate bearing against the edge

of the sole will cause the stock-carrying plate 20 to be moved transversely of the carriage in the direction of the arrow in said figure, so that the protectors will be inserted in a line conforming to the contour of the sole. 5 The transverse movement of the stock-carrying plate in this direction continues until the widest part of the sole has passed the gage plate, and thereafter it is necessary for the operator to move the stock-carrying plate in the opposite direction and hold the edge of the sole against the gage plate, so that the remainder of the protectors and fastenings of this row will also be inserted in a line conforming to the contour of the sole. 10 These operations are repeated for inserting the row *b'*, except that the lever 140 is shifted in the opposite direction for moving the gage plate 134 into operative position, the movement of the lever being limited by part 144 and contact screw 145. For inserting the rows *c* and *c'* it is necessary to move the gage plates farther away from the center of the machine than when inserting rows *b* and *b'*, and to provide for this the handle 150 is allowed to move to its innermost position, the contact screws 152 and 153 coöperating with the stop 154 for limiting the movement of the lever as shown in dotted lines in Fig. 6. The same operations are repeated for inserting rows *c* and *c'* as were performed when the protectors of rows *b* and *b'* were inserted, the only difference between these rows being that the first protectors of rows *c* and *c'* are farther from the toe-end of the sole than the first protectors of rows *b* and *b'*, as shown in Fig. 10, this being effected by moving the stock-carrying plate farther rearwardly and not using the pin 116 when positioning the stock for the first protectors of rows *c* and *c'*. 40

Fig. 10 shows one form of design in which protectors and fastenings may be inserted, but various other designs may be formed, for instance, instead of inserting four rows conforming to the contour of the sole, two rows only may be inserted, and three straight rows, or the guiding mechanism may be dispensed with and five straight rows inserted. 45

By adjusting the contact screws in the guiding mechanism the distance between the rows of protectors may be varied. It is possible with my improved mechanism to insert protectors, slugs, or fastenings in various designs by simply changing the adjustment of the guiding mechanism, and the distance between the protectors may be varied by changing the position of the pawl-controlling plate 96. By manually moving the stock-carrying plate back and forth transversely of the carriage as the carriage is being fed rearwardly it is possible to insert protectors in a design forming the letter **S** or various other designs, depending on the skill of the operator. 50

In a stock-presenting mechanism of the 65

kind herein shown only one stock-carrying plate or pattern plate is used, although protectors may be inserted in various designs, whereas previously it has been the practice to use a different stock-carrying plate for every different design. The feeding mechanism does not act directly on the stock or on the stock-carrying plate, so that the operation of said mechanism will not be affected by the vibration or jarring of the machine. 70 75

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination with a stock-sustaining means, of stock-feeding means, a normally depressed stop for positioning the sustaining means at the beginning of the feed movement, means for rendering the feeding means inoperative, and means controlled by said last-named means for raising the positioning stop. 80 85

2. The combination with means for yieldingly sustaining stock, of means carried by the sustaining means for feeding the stock, and means constructed and arranged to simultaneously depress the sustaining means and render the feeding means inoperative. 90

3. The combination with means for yieldingly sustaining stock and a device for depressing said sustaining means, of means for feeding the stock, and means for positioning the sustaining means at the beginning of the feed movement, both controlled by said depressing device. 95

4. In a machine of the class described, a work-supporting spindle, a table yieldingly sustained thereon, a carriage mounted on the table, a feeding device for the carriage, and means for depressing the table and rendering said feeding device inoperative simultaneously. 100 105

5. The combination with a vertically-movable work-support, of a longitudinally-movable carriage mounted thereon, actuating means for feeding said carriage, a device for engaging said actuating means at the end of the feed movement, a lever arranged to engage and depress said work-support, and connections between said lever and engaging device for moving the latter into a position to cause the actuating means to become inoperative. 110 115

6. In a machine of the class described, a yieldingly-sustained work support, a carriage movably mounted thereon, a pawl and ratchet mechanism for feeding the carriage, a dog for engaging the pawls at the end of their feeding movement, a lever arranged to engage and depress said work-support, and connections between said lever and dog for actuating said dog to cause the pawls to become inoperative. 120 125

7. The combination with a work-support, of a carriage mounted thereon, means for moving said carriage, a pawl and ratchet 130

for actuating said means, an adjustable device for disengaging the pawl from the ratchet to determine the length of the work feeding step and means under the control of the operator for freeing the carriage from the control of the pawl and ratchet.

8. In a machine of the class described, a work support, a carriage mounted on the support and provided with rack-teeth, pinions meshing with said rack-teeth, a ratchet wheel connected to one of the pinions, a pawl carrier provided with pawls adapted to engage said ratchet wheel, means for actuating said pawl carrier to move the ratchet wheel, and an adjustable device for disengaging the pawls from the ratchet wheel.

9. In a machine provided with protector driving mechanism the combination with a carriage and means for moving said carriage forward to feed the work under the driving mechanism, of a work-supporting plate movable transversely of the direction of movement of the carriage, gage members for each side of the work, and means for moving either of said gage members into contact with a corresponding side of the work whereby rows of protectors may be driven parallel to either side of the work, without a half rotation of the work.

10. In a machine provided with protector driving mechanism the combination with a carriage and means for moving said carriage forward to feed the work under the driving mechanism, of a work-supporting plate movable transversely of the direction of movement of the carriage, gage members for each side of the work, each of said gage members having a plurality of predetermined positions, and means for moving either of said gage members into any one of its predetermined positions whereby rows of protectors may be driven parallel to the sides of the work and at different distances from the edge thereof.

11. In a machine provided with protector driving mechanism the combination with a carriage and means for moving said carriage forward to feed the work under the driving mechanism, of a work-supporting plate movable on said carriage transversely of its path of movement, a gage member for each side of the work and means to move each of said gage members into a position to guide the work to receive a row of protectors parallel to the corresponding edge, and means for stopping said positioning means in any one of a plurality of predetermined positions whereby rows of protectors may be driven at different distances from the edges.

12. In a machine of the class described, a work support, a carriage on said support for moving stock into position to receive protectors, a stock-carrying plate mounted on the carriage, means for causing the stock-carrying plate to move relatively to the car-

riage, said means comprising arms arranged on opposite sides of said plate provided with gage plates which are adapted to bear against the edge of the stock carried by the stock-carrying plate, and a lever for moving said arms into and out of operative position.

13. In a machine of the class described a work table, a guiding mechanism movably mounted on said table, a lever for moving said guiding mechanism, stops presenting two limits between which the lever is free to move, other stops determining a different range of free movement of the lever, and provisions whereby said lever may be brought out of the limiting control of said first named stops and into the limiting control of said second named stops.

14. In a machine of the class described a work table, a guiding mechanism movably mounted on said table, a lever for moving said guiding mechanism, coöperating stops determining two extreme positions of said lever, said lever being free to move between said limits when said stops are in coöperative relation, other stops lying outside the range of movement of said lever when said limits are determined by said first named stops, and provisions whereby said lever may be brought out of operative relation to said first named stops and into operative relation to said last named stops.

15. In a machine of the class described, a work table, a guiding mechanism movably mounted on said table, a lever for moving said guiding mechanism, two sets of stops presenting different ranges of free movement to said lever and provisions for bringing about changes in the relations of said lever and said stops whereby when said lever is in operative relation to one of said sets of stops it is out of operative relation to the other of said sets of stops and vice versa.

16. The combination with a work-table, of a guiding mechanism mounted thereon comprising a pair of gages arranged on each side of said table, a rigid connecting bar between said gages, a lever for moving said guiding mechanism pivotally connected to substantially the center of said bar, and means for limiting the movement of said lever.

17. The combination with a work-table, of a guiding mechanism mounted thereon, a lever for moving said mechanism, a member movable longitudinally with respect to said lever mounted thereon, adjustable stops on said movable member, and means on said table with which said stops engage to limit the movements of said lever.

18. In a machine of the class described, a work table, a guiding mechanism movably mounted on said table, a lever for moving said guiding mechanism, adjustable stops for limiting the movements of said lever for one adjustment of the guiding mechanism, and

a movable handle mounted on said lever and provided with adjustable stops for limiting the movements of the lever for a different adjustment of the guiding mechanism.

5 19. The combination with means for sustaining stock and means for feeding stock, of a stop for positioning said sustaining means at the beginning of the feed movement, said stop having a yielding member at
10 its upper end.

20. A machine for inserting protectors, having in combination, stock feeding means, stock sustaining means and means cooperating with said sustaining means at the beginning of the feed movement for correctly
15 positioning said sustaining means for each of a plurality of rows, the first protector of each of which is in different relation to the extreme end of the stock.

20 21. In a machine for inserting protectors, the combination with stock-feeding means,

of a stop for positioning the stock at the beginning of the feed movement, and stock-sustaining means constructed with separate portions to be engaged with the stop for different rows of protectors to be inserted. 25

22. In a machine for inserting protectors, the combination with stock-feeding means, of a stop for positioning the stock at the beginning of the feed movement, and a stock-
30 carrying plate having one end formed with a series of surfaces for engaging said stop for each of a plurality of rows, each of said surfaces having a different relation to the extreme end of the stock. 35

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

M. FRANK BROGAN.

Witnesses:

WELLS L. CHURCH,
LOUIS H. BAKER.