

No. 607,001.

Patented July 5, 1898.

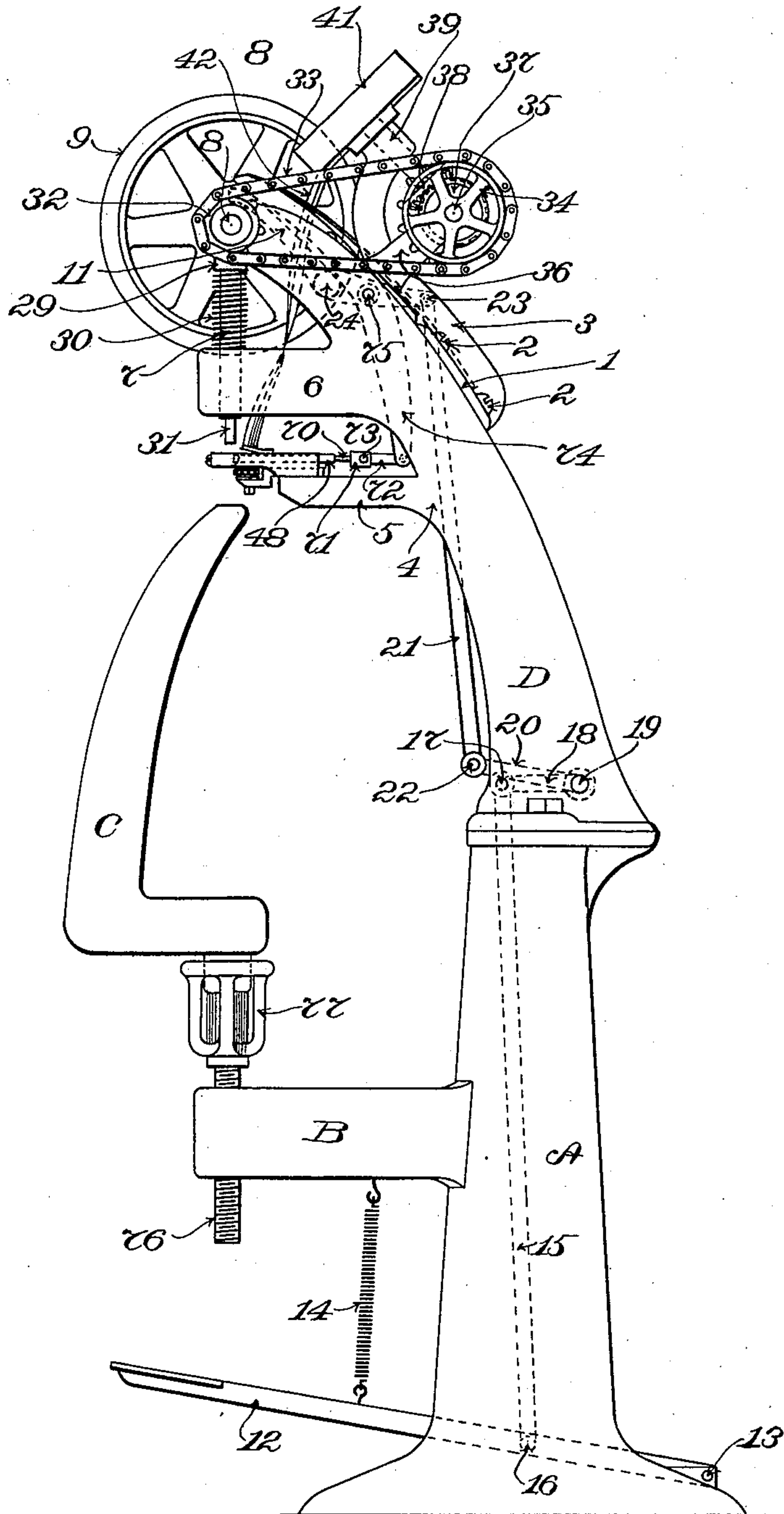
I. F. PECK.

MACHINE FOR SETTING HEEL AND SOLE PROTECTORS FOR BOOTS OR SHOES.

(Application filed Apr. 17, 1897.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses:
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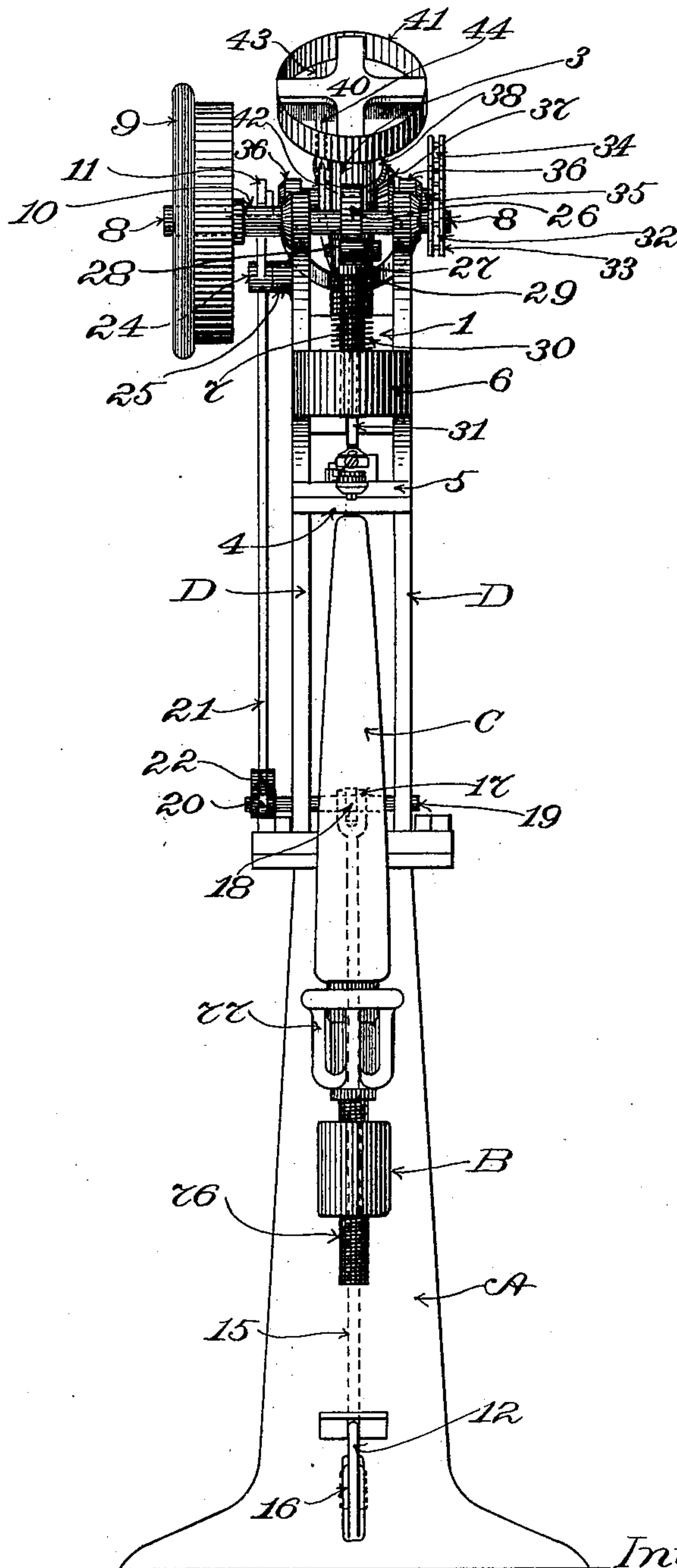
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4 Sheets—Sheet 2.



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Fig. 2.

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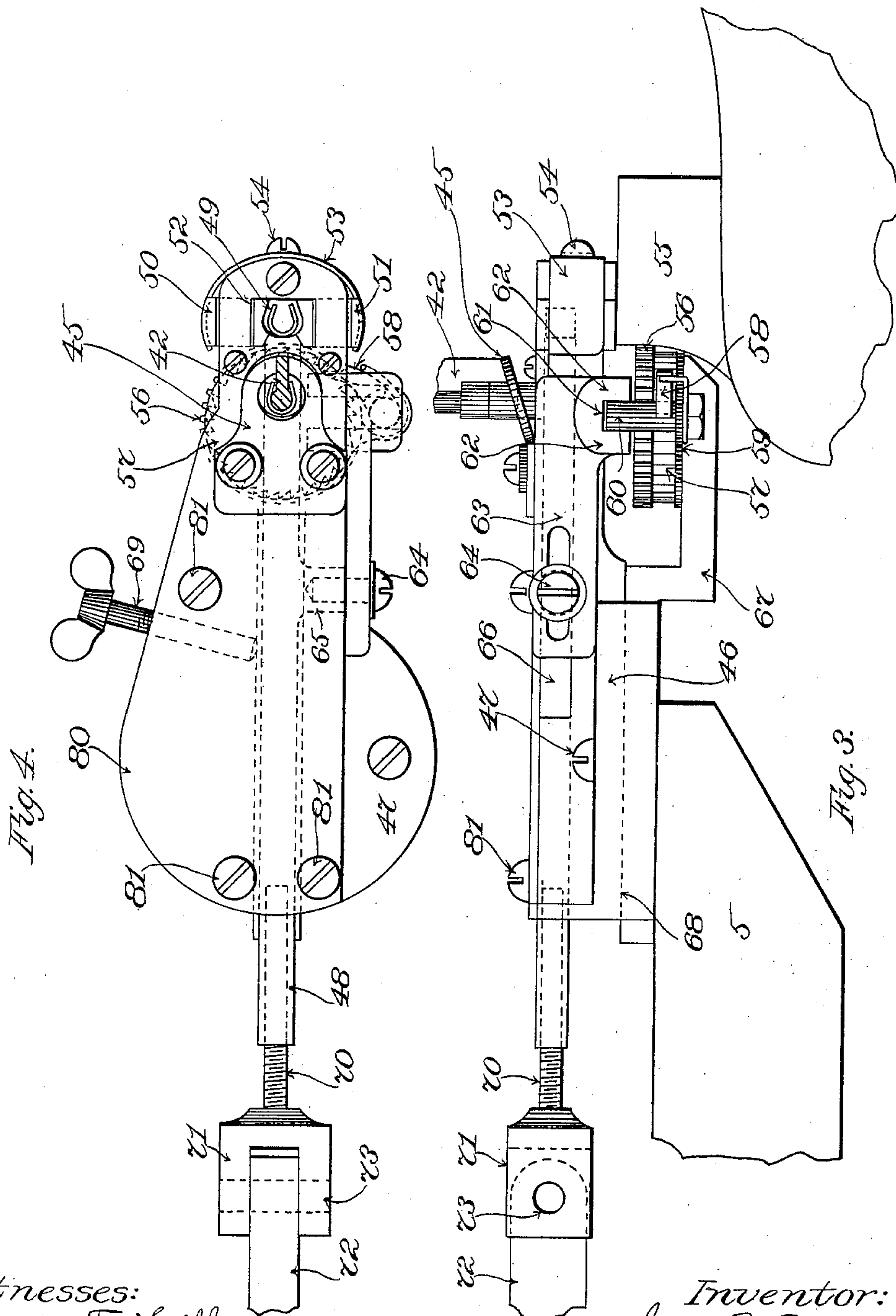
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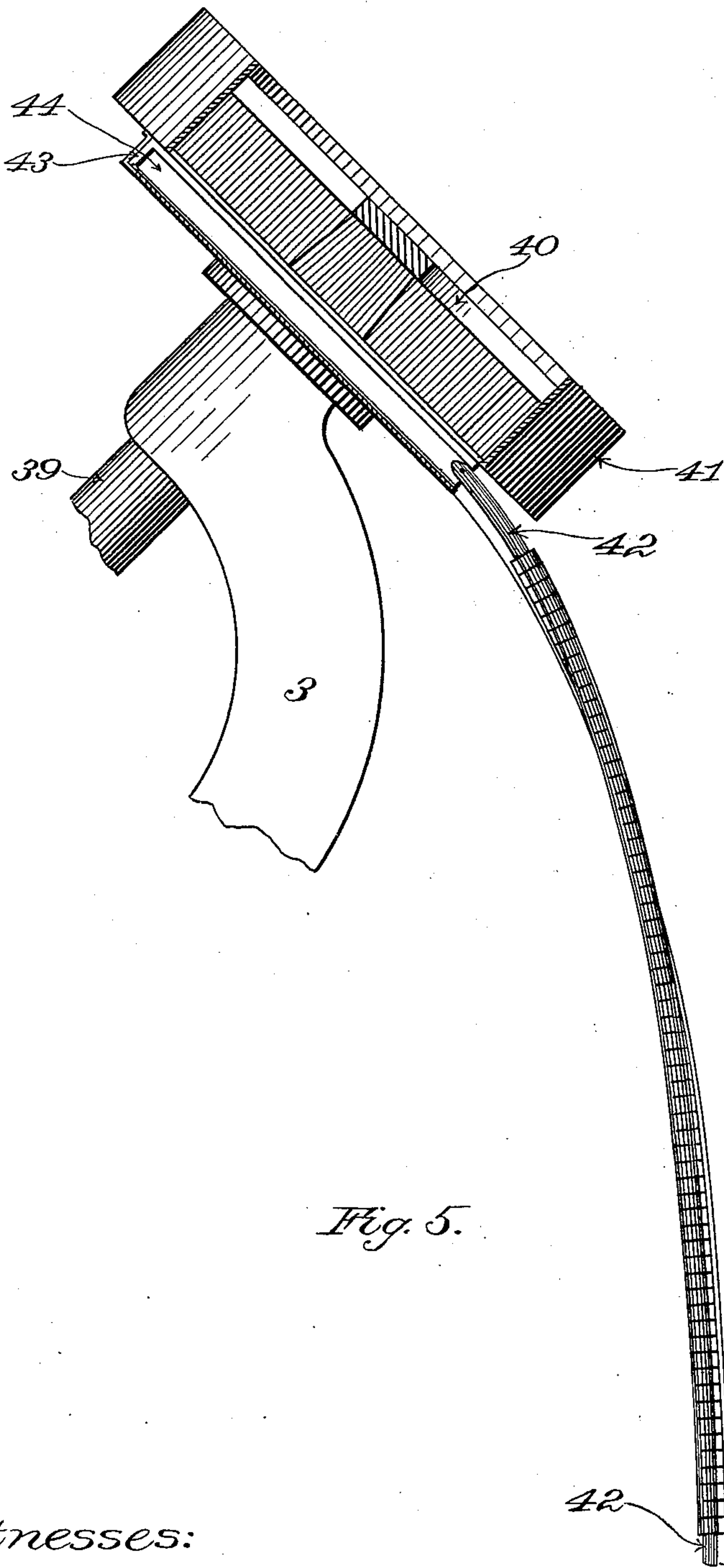


Fig. 5.

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UNITED STATES PATENT OFFICE.

IRA F. PECK, OF AUBURN, RHODE ISLAND.

MACHINE FOR SETTING HEEL AND SOLE PROTECTORS FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 607,001, dated July 5, 1898.

Application filed April 17, 1897. Serial No. 632,554. (No model.)

To all whom it may concern:

Be it known that I, IRA F. PECK, a citizen of the United States, residing at Auburn, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Machines for Setting Heel and Sole Protectors for Boots or Shoes, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide an improved machine for setting heel or sole protectors for boots or shoes.

The invention is fully set forth in the following description, and the novel features thereof are pointed out and clearly defined in the claims at the end of this specification.

In the following description reference is made to the accompanying drawings, in which—

Figure 1 shows a machine embodying my invention in side elevation. Fig. 2 shows the said machine in front elevation. Figs. 3 and 4 are respectively a view in side elevation and a plan of the transferring mechanism, feeding mechanism, and connected parts. Fig. 5 is a detail of the hopper and raceway.

The sole or heel protectors which my machine is intended more particularly to set are composed of metal bent or curved to give the protector a substantially horseshoe shape in plan. These protectors are forced or driven into the leather of the sole or heel, preferably so as to leave the exposed or wear-resisting edge of the protector flush or substantially flush with the surface of the heel or sole. The work of setting these protectors has been accomplished heretofore by hand, by the use of a hammer or similar tool adapted to drive them, or by a crude form of machine which is slow and inefficient in operation. By the employment of my improved machine, hereinafter described, these protectors may be quickly and easily driven without the aid of specially-skilled labor.

Referring to the drawings, A is an upright standard having a horizontal projection or arm B, upon which latter the horn C is supported. Upon the standard A is secured an upwardly and forwardly inclined frame D, which latter comprises a base portion, which is bolted to the top of the upright A, and two

upwardly and forwardly projecting arms, which serve to support the operating mechanism. The frame D is provided with a cross-piece 1, extending between the upwardly-projecting arms of the said frame and secured thereto by screw-bolts 2. The said piece 1 is provided with an upwardly-extending curved arm 3, which serves as a support for the hopper as also for the mechanism which operates the brush in the hopper, which is employed to agitate the protectors therein. This mechanism will be referred to hereinafter. The said frame D is provided with a cross-piece 4, which may either be secured to the said upright portions of the frame D or cast integral therewith, and the said cross-piece 4 supports a laterally-projecting arm 5, upon which the transferring and feeding mechanism is mounted. At 6 is shown a curved portion of the frame, which projects horizontally forward and preferably is cast integral with the upright portions of the frame D and serves to support the driver-bar 7, which last is guided in the forward portion of the said frame or support 6. At the upper end of the frame D is journaled the main shaft 8, on one end of which is mounted a driving-pulley 9. This driving-pulley is connected with a clutch mechanism 10 of usual construction, so that when the shipper-lever 11 is raised out of contact with the clutch the said driving-pulley is fast on the said shaft 8 and serves to operate the latter, while when the shipper-lever 11 is in contact with the clutch device the driving-pulley 9 runs loosely on the said shaft 8.

For the purpose of operating the shipper-lever 11 I provide a treadle 12, which is pivoted at the rear of the standard or upright A at 13 and the forward end of which is located in convenient proximity to the foot of the operator. At 14 is shown a spiral spring which is secured at its upper end to a hook set in the under side of the horizontal support B and at its lower end to a hook on the treadle-lever 12, as will be clear from Fig. 1. The spring 14 operates, after the treadle 12 has been depressed, to lift the treadle 12 to its normal position as soon as the pressure of the foot of the operator is removed. A connecting-rod 15 is pivoted at its lower end at 16 to the said treadle-lever 12 and at its upper end at 17 to

an arm 18, which is fast on a rock-shaft 19, journaled between uprights of the frame. One end of the rock-shaft 19 projects through one of the said upright portions of the frame C, as will be clear from Fig. 2, and is provided outside the said upright with an arm 20, which is rigidly secured to said shaft 19. A connecting-rod 21 is pivotally connected at its lower end 22 with the said arm 20 and at its upper end at 23 with the tail or rearwardly-projecting portion of the shipper-lever 11. The shipper-lever 11 is pivoted at 24 to a boss or projection 25 near the upper portion of one of the uprights of the frame D. As will be clear, the operator may, by depressing the treadle-lever 12, raise the engaging end of said shipper-lever, thus freeing the clutch and causing the main shaft to rotate. At 26 is a cam which is fast on the said shaft 8. The said cam engages a cam-roll 27, which is pivoted between the arms 28 of a yoke-shaped piece 29, which last is secured to or formed on the upper end of the driver-bar 7. The driver-bar 7, as previously stated, is mounted in the forwardly-projecting part of the horizontal portion 6 of the frame and is free to move vertically in its bearings in said support. As the cam 26 revolves on the shaft 8 the said driver-bar is forced downwardly once at each revolution of the said cam, and as the projecting portion of the cam passes the roll 27 said driver-bar is moved upwardly again by the pressure of the spiral spring 30, which encircles said bar 7 and is placed between the support 6 and the head or yoke-shaped part 29 at the upper end of said bar. At the lower end of the said driver-bar 7 I secure a driver 31, which latter is set in a socket in the lower end of said bar and firmly secured therein in any well-known manner. By this mechanism the driver is caused to reciprocate vertically once during each revolution of the shaft 8. The driver 31 consists of a solid pin of the shape in cross-section of the plan of the protector which is to be set or driven, the face of said driver being of a sufficient size to engage the upper edge of the said protector when the latter is being set.

On the end of the shaft 8 opposite that on which the driving-pulley 9 is placed I secure a small sprocket-wheel 32, which is connected by means of a sprocket-chain 33 with a larger sprocket-wheel 34, which latter is fast on a shaft 35. The shaft 35 is journaled in the upwardly and rearwardly projecting supports 36, which are secured to the curved support 3. Between the supports 36 I secure on the shaft 35 a beveled gear 37, which is in mesh with a beveled gear 38 on the lower end of the short inclined shaft 39. The shaft 39 is journaled in the upper end of the curved support 3 and is provided at its upper end with a brush or agitating device 40, which is fast on said shaft. The brush 40 preferably is provided with four arms or projections, as shown clearly in Fig. 2, and is adapted to revolve inside the hopper 41, which preferably

is circular in shape, as shown, and is mounted on the stationary support 3, at the upper end of the latter, where the shaft 39 is journaled. Power is conveyed by means of the sprocket-chain 33 from the main shaft 8 to the shaft 35, and thence by means of the beveled gears 37 and 38 to the agitating device or brush 40. The protectors are placed in the hopper 41, and by means of the brush 40, which revolves inside the hopper, as described, are agitated and are thus fed onto the upper end of the raceway 42, the upper end of which is located in the bottom of said hopper. At one point on the bottom of the hopper I form a groove or trough-shaped recess 43, from the bottom of which rises a thin upwardly-projecting piece or blade 44, which forms the upper end of the raceway. By agitating the protectors in the hopper they are thrown over the upper end 44 of the raceway, and such of them as are placed astride the raceway—that is, with their open sides down—will pass down the upper end 44 of the raceway, through an opening at one side of the hopper where the raceway is located, and thence onto the lower part of the raceway 42. The raceway proper is tapering at its upper end—that is, it gradually thickens at one edge—and is in cross-section of substantially the shape shown, Fig. 4—that is to say, it is formed as a blade having a thickened or beaded edge substantially filling the interior space of a protector—so that when the protector is on the raceway it cannot be dislodged, but must pass down the latter and be delivered at the lower end thereof. The raceway 42 projects downwardly at the rear of the driver-bar and is twisted or turned half-around on its long axis, so that when the protector arrives at the bottom thereof the open side of the latter will be toward the operator, and therefore will be in proper position, so that its open side when it is set will lie farthest from the edge of the heel or sole. The lower end of the raceway 42 projects inside the curved metallic piece 45, which is firmly secured to the cover 80 of a block 46. (Shown more clearly in Figs. 3 and 4.) The curved piece 45 is inclined upwardly at its forward end, as shown more clearly in Fig. 3. The block 46 is secured by means of a screw 47 to the forwardly-projecting support 5, previously referred to, and is of the shape shown in said Figs. 3 and 4. The top of the block 46 is provided with a groove or slot lengthwise to receive the transferring device 48, which is adapted to reciprocate within the said slot. The plate or cover 80 is secured by screws 81 81 on top of the block 46 and serves to hold the transferring device or slide-bar 48 in place. When the said transferring device or bar 48 is in its forward position, the lowermost protector on the raceway rests on top of said bar. When the bar is moved rearwardly, its forward end passes from under said lowermost protector on the raceway and allows the latter to drop down into the

groove or slot in which the bar 48 moves. The said bar 48 equals in thickness the vertical height of the protector, and at the next forward movement of the said bar the protector, which has dropped down in front of it, is moved forward or transferred and drops into a flaring slot or opening 49, which is formed vertically in the forward end of the block 46. The guide-slot 49 corresponds in shape with the shape of the protector, so that it serves to center the protector properly with reference to the driver and the stock in which it is to be set and to maintain it in proper position, as also to guide it while it is being driven into the sole or heel. The slot 49 is directly beneath the driver, and in setting the protector the driver passes downwardly into and substantially through the slot 49, thereby forcing the protector which is in the slot into the heel or sole. The guide-slot 49 is formed between laterally-movable side pieces 50 and 51, which latter are set in lateral slots formed at each side of a vertical slot or opening 52 in the forward end of the said block 46. The said pieces 50 and 51 are arranged to yield laterally, the outer ends of said pieces being engaged by the ends of a spring 53, which is secured by means of a screw 54 to the curved front end of the block 46. By this means the said side pieces 50 and 51 will yield slightly as the protector and driver pass downwardly between and will thus operate to hold the protector more accurately and will accommodate themselves to any slight irregularity in the protectors which are being set.

In setting a protector in the heel of a shoe the heel is placed in the position indicated at 55, Fig. 3, the top lift of the heel being placed along the under side of the forwardly-projecting portion of the block 46, directly beneath the vertical slot or opening through which the protector passes. After a protector is set the heel is fed forward or moved slightly into the proper position to receive another protector, it being usual to place three or more protectors side by side in the heel. For the purpose of correctly positioning the heel quickly and of moving it to receive another protector I provide a feed-wheel 56, which preferably is roughened slightly on the periphery to engage the side of the heel. The feed-wheel 56 is provided with a ratchet 57, with which the pawl 58 engages. The pawl 58 is pivoted on a disk 59, which is on the arbor of the feed-wheel and ratchet and directly beneath the latter. The boss of the pawl is provided with an upwardly-projecting portion 60, which lies in a slot 61, formed between lugs 62 on a plate 63. The plate 63 is secured by means of a screw 64 to a boss or projection 65 on the side of the transferring-bar 48. The projection or boss 65 lies in a slot 66, formed in the top of the block 46, so that at the reciprocation of the bar 48 the plate 63 is also reciprocated. In the rearward movement of the plate 63 the

pawl 58 is moved rearwardly, as will be clear, slipping over the teeth of the ratchet, while during the forward movement of the bar 48 and plate 63 the pawl operates to move the ratchet 57 and feed-wheel 56, thereby causing the heel of the shoe to be fed forward into position to receive another protector. The arbor of the feed-wheel 56 and ratchet 57 is secured to the offset supporting-piece 67, the rear end of which is set in a slot 68 on the under side of the block 46 and is firmly secured in place by means of a set-screw 69, (see Fig. 4,) which passes through the side of the block 46 in a diagonal direction, as shown. By loosening the set-screw 69 the feed-wheel may be set in proper position with reference to the driver for any given size of heel, and its support may then be firmly secured in place. By this means an adjustment of the feed-wheel is obtained. For the purpose of reciprocating the transferring device or bar 48 I secure the said bar, by means of an adjusting-screw 70, to a yoke-shaped block 71, to which the forward end of a connecting-rod 72 is connected pivotally at 73. The rear end of said rod 72 is pivotally connected with the lower end of a lever 74, which latter is pivoted at 75 between the uprights of the frame D. The upper end of the said lever 74 is held in contact with the peripheral cam 26, by means of which the driver is operated. By this device the bar 48, which operates to transfer the protectors one by one from the lower end of the raceway to a position under the driver, is positively reciprocated once at each revolution of the driving-shaft.

For the purpose of supporting firmly the boot or shoe in which the protectors are to be set I provide the horn C, which is of the usual shape and the upper end of which is in proper position relatively to the driver to hold the boot or shoe firmly in position to have a protector set in the sole or heel thereof. The horn C is mounted on a vertical supporting-screw 76, which latter is supported at the forward end of the horizontal support B. The horn C is swiveled on the upper end of said screw 76, and the screw is provided with an open cap 77, which may be seized by the operator and by means of which the screw may be turned to raise or lower it relatively to the support B. In this way a vertical adjustment of the horn is secured, or the horn may be lowered to remove the upper end thereof from close proximity to the driver in case it should be desirable for any purpose to remove it.

The operation of the machine is as follows: Protectors being on the raceway, the boot or shoe is placed on the horn, and the heel, or that portion of the sole in which the protectors are to be set, is brought into position directly beneath the guide-slot and against the periphery of the feed-wheel 56. The operator then depresses the treadle 12, which raises the shipper, freeing the clutch and permitting the main shaft to be rotated. In case

only one protector is to be set the operator will remove his foot from the treadle, and the main shaft will make one rotation, when the machine will again stop. The rotation of the shaft bears down the driver, which drives the protector from the guide-slot 49 into the stock. The driver is then raised, and the transferring device or bar 48 moves forward, transferring a protector from the end of the raceway into the guide-slot 49 and at the same time feeding forward the stock into position to receive the next protector. The driver then descends, forcing the protector so transferred into the stock, and the operation is repeated.

What I claim is—

1. In a machine for setting heel or sole protectors, a driver, and a raceway, in combination with a transferring device to transfer the protectors one at a time from the end of the raceway to a point underneath the driver, comprising a reciprocating slide-bar, a holder to present the protector properly to the driver and to guide it while it is being driven, and a feeding device for feeding forward the stock, said feeding device comprising a feed-wheel and means for rotating the latter consisting of a pawl and ratchet, said pawl being actuated by the reciprocating slide-bar and operating at each movement of the latter to cause the stock to be fed forward, substantially as set forth.

2. In combination, a driver, supplying and feeding devices including a reciprocating

transferring device, feeding mechanism for feeding forward the work comprising a feed-wheel and a pawl and ratchet to rotate said feed-wheel, said pawl being actuated by the reciprocating transferring device, and means to adjust said feed-wheel toward and from the line of movement of the driver, substantially as described.

3. The combination, in a machine for setting horseshoe-shaped heel or sole protectors, of a hopper, a raceway consisting of a blade having a thin upper end to receive the protectors astride the same after they leave the hopper, and also having a thickened or beaded edge throughout its lower portion substantially filling the interior of a protector to prevent dislodgment of the latter, the said raceway having a twist to present the opening of the protector to the front, a transferrer whereby the protectors are delivered one at a time from the raceway to a point underneath the driver, a holding and guiding device having yielding sides to hold the protector which is delivered thereto by the transferrer and a vertical opening to guide the protector while it is being driven, and a driver, substantially as described.

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

IRA F. PECK.

Witnesses:

GEO. F. BEAN,
F. W. WHITCHER.