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Patented Dec. 11, 1900.

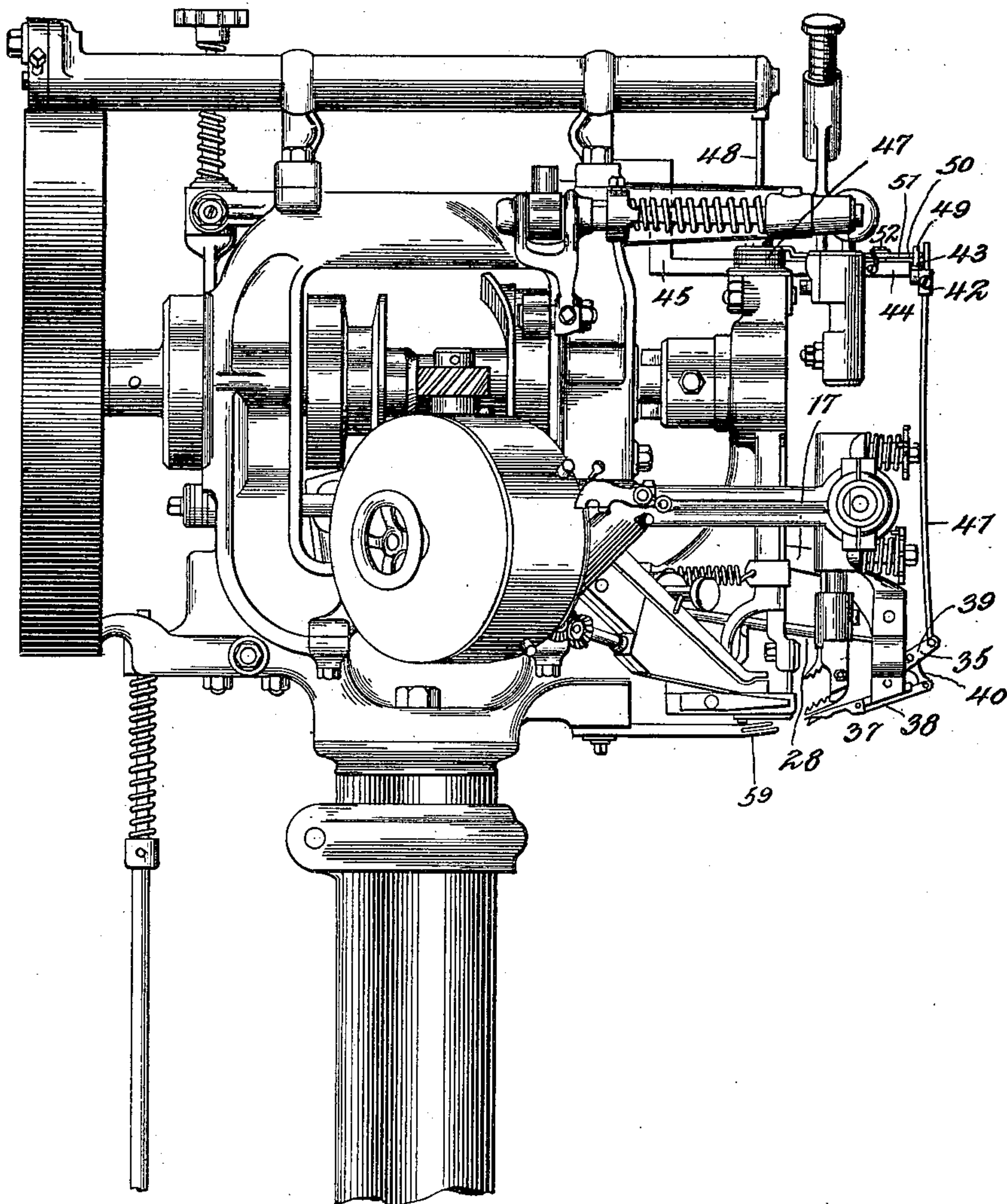
D. RYAN, G. A. ZELLER & C. P. LAWRENCE.
TACK SAVING ATTACHMENT FOR LASTING MACHINES.

(Application filed May 31, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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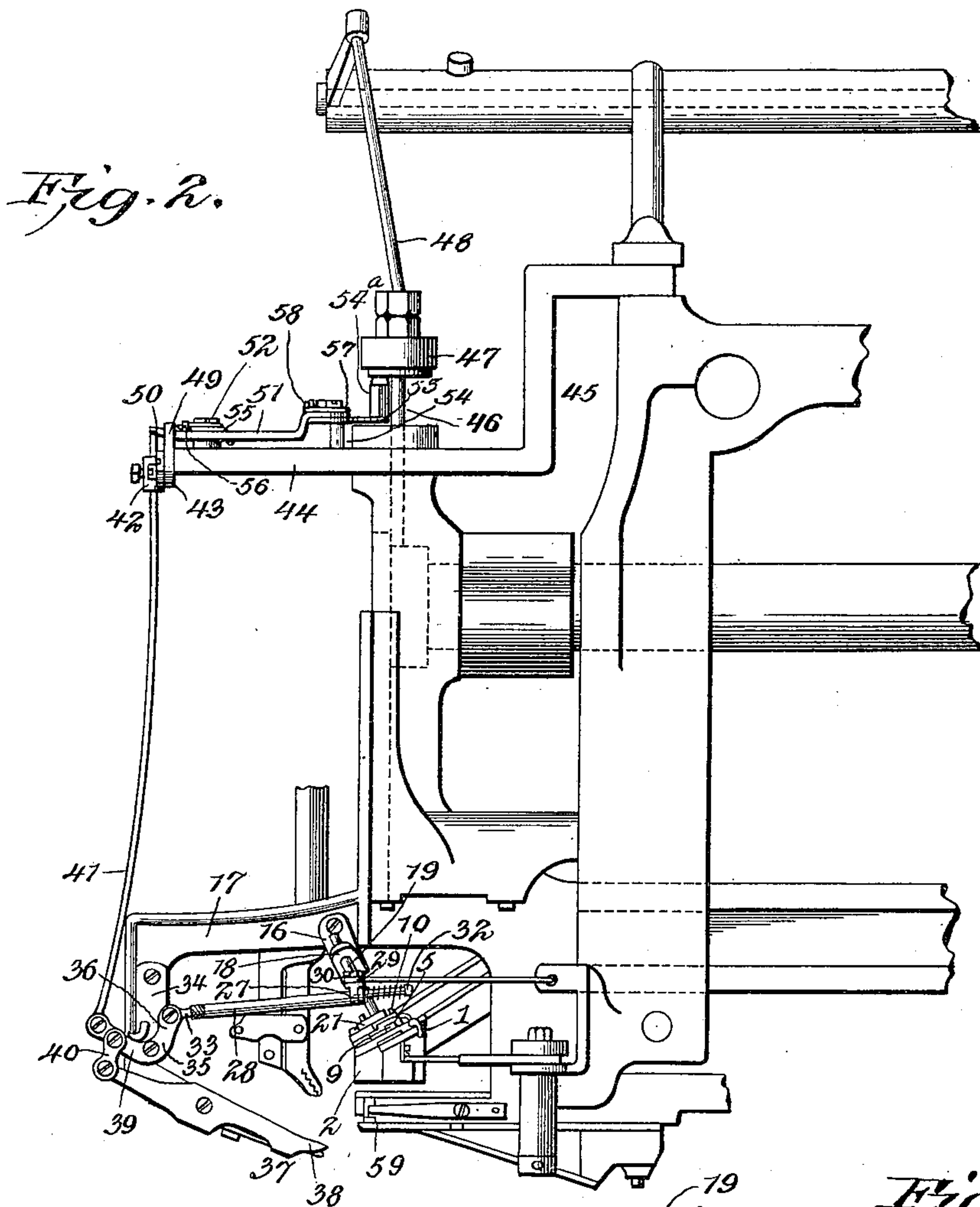


Fig. 4.

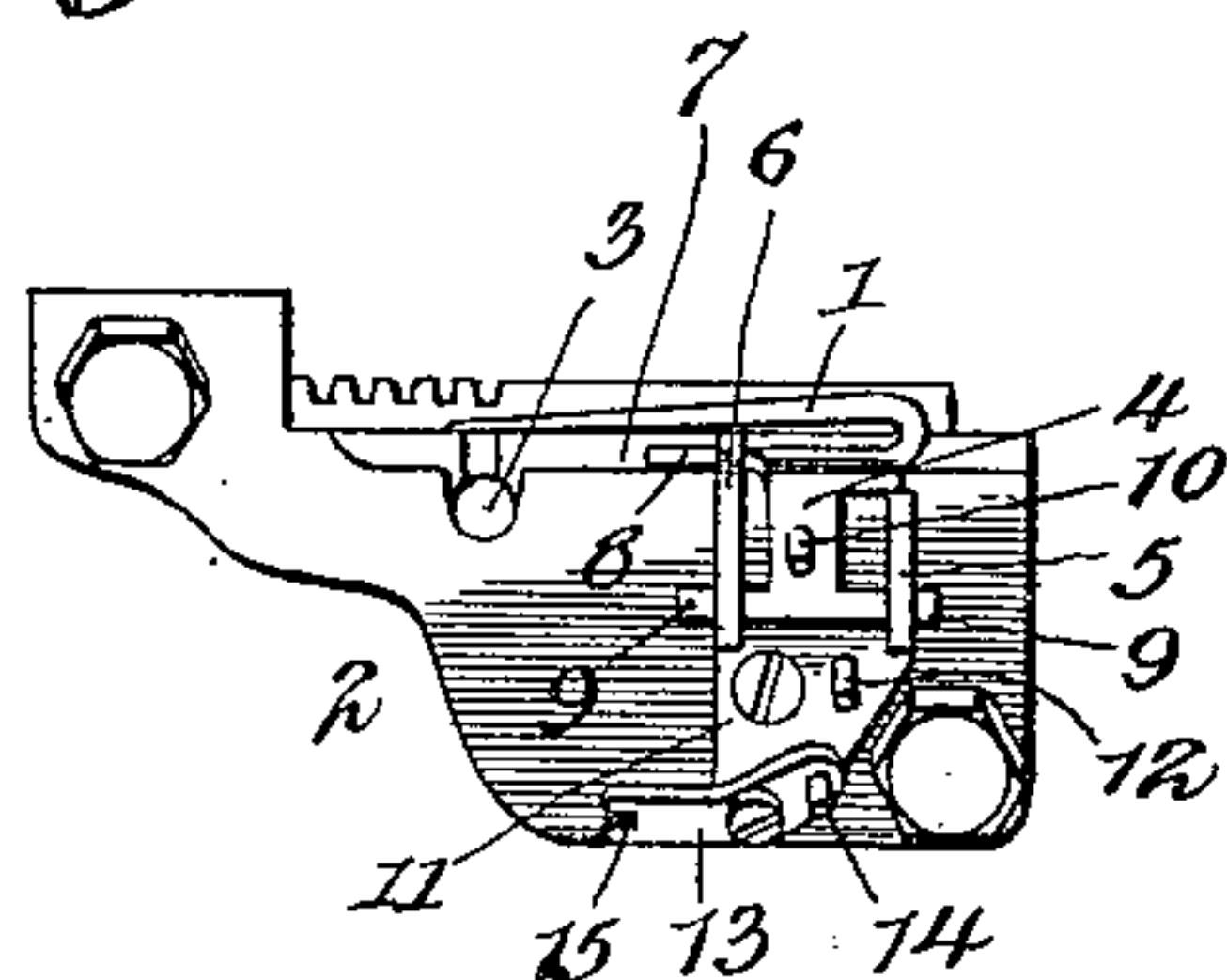
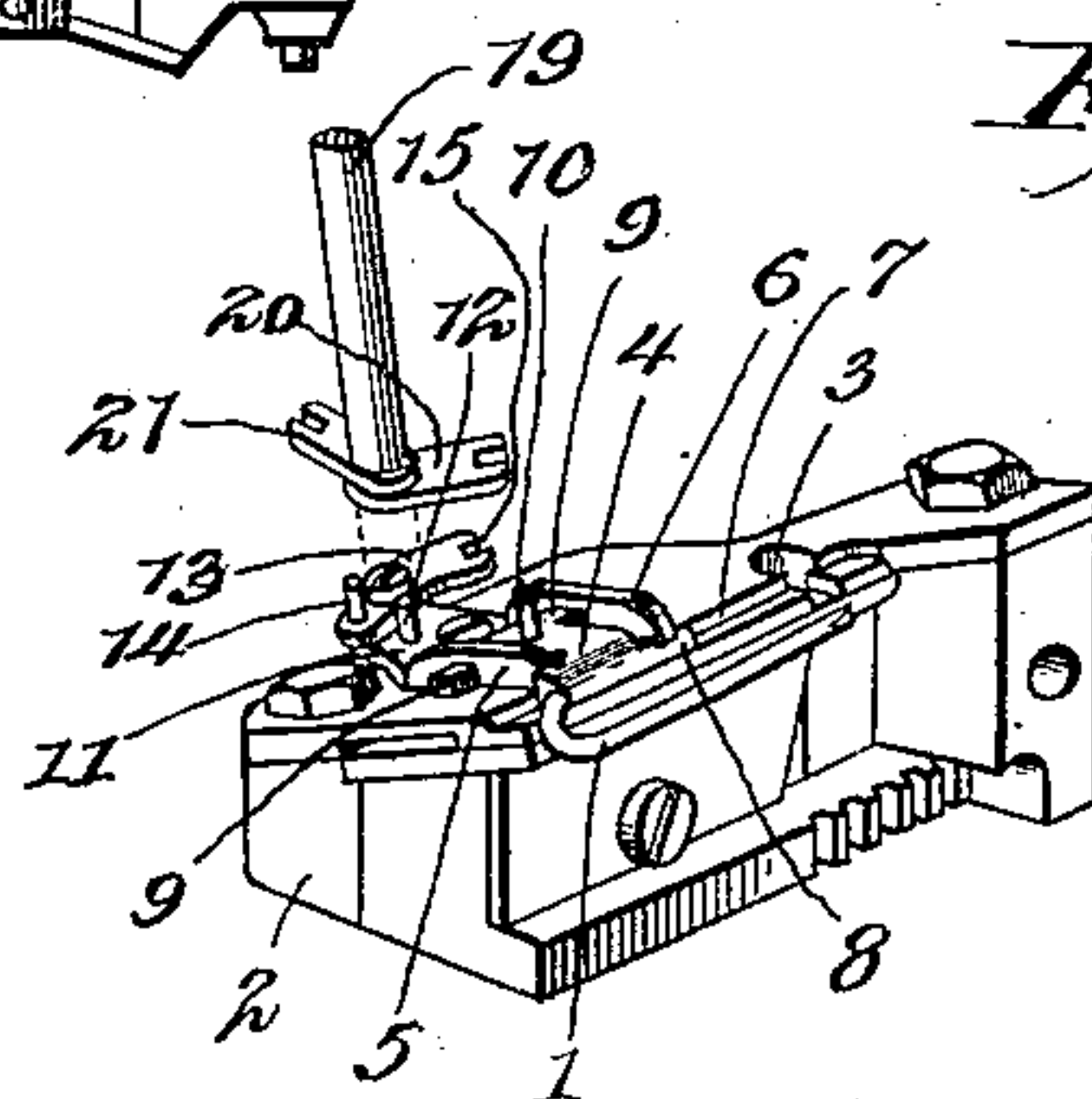


Fig. 3.



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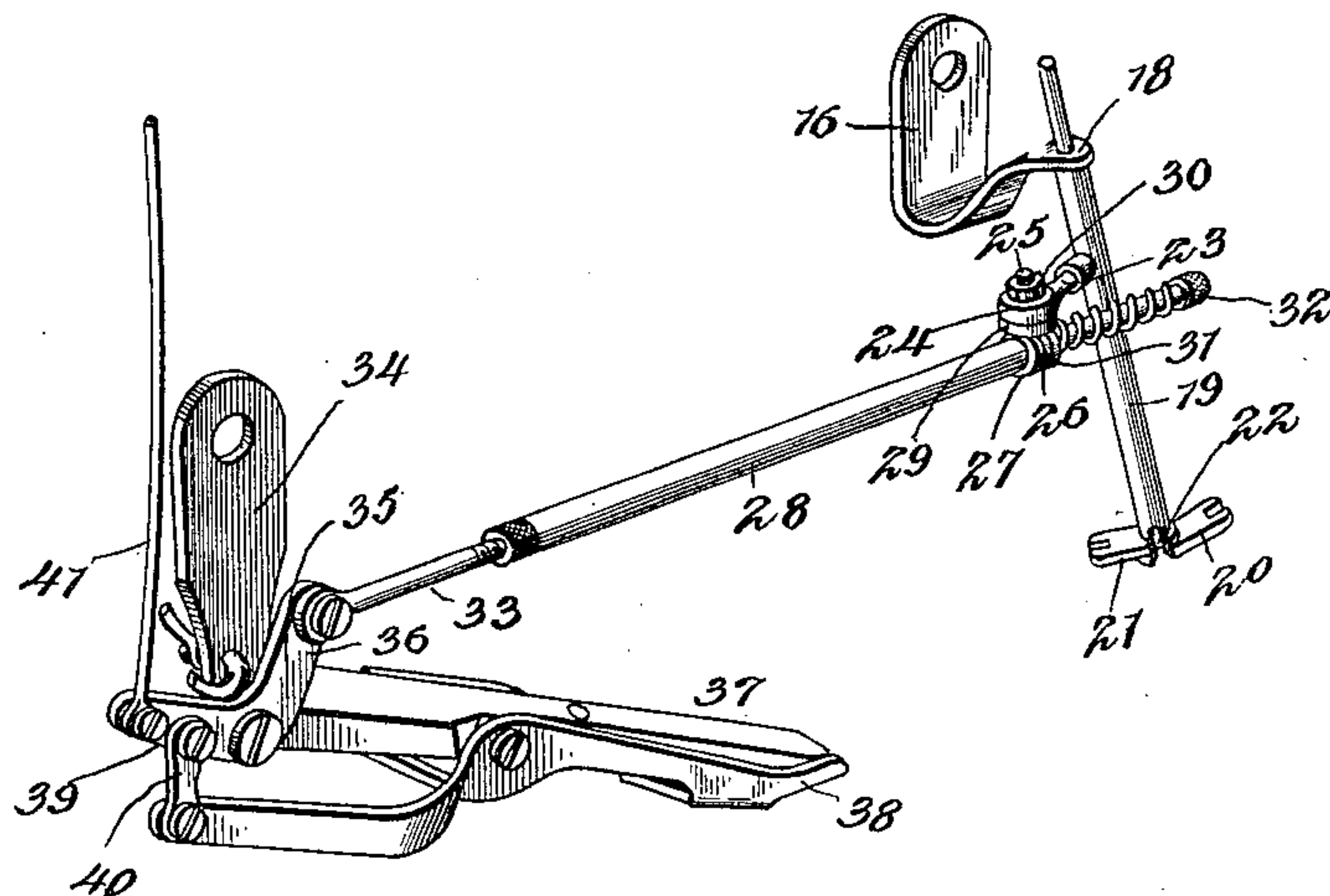
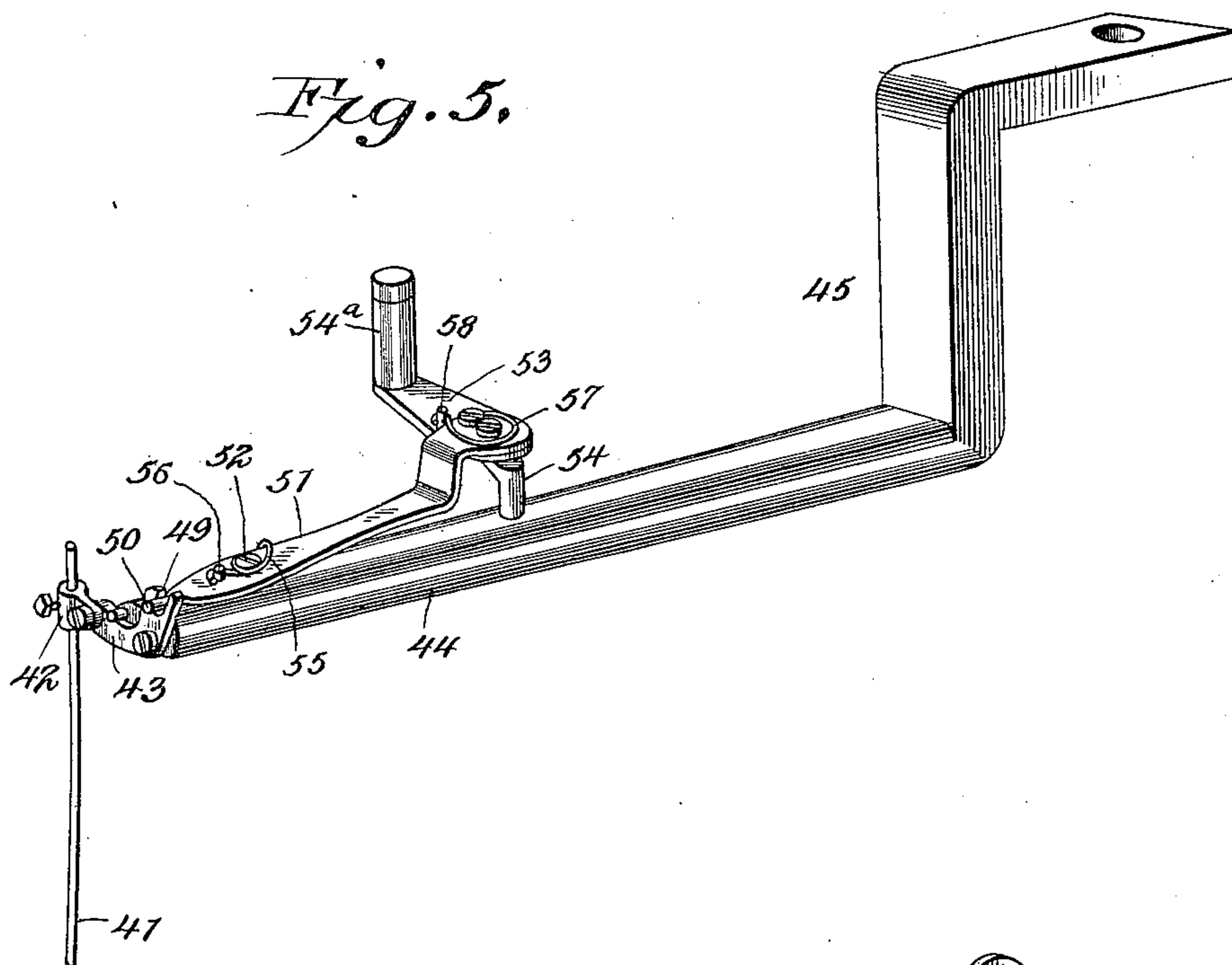
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Witnesses
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UNITED STATES PATENT OFFICE.

DAVID RYAN, GEORGE A. ZELLER, AND CHARLES P. LAWRENCE, OF
HARRISBURG, PENNSYLVANIA.

TACK-SAVING ATTACHMENT FOR LASTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 663,471, dated December 11, 1900.

Application filed May 31, 1900. Serial No. 18,647. (No model.)

To all whom it may concern:

Be it known that we, DAVID RYAN, GEORGE A. ZELLER, and CHARLES P. LAWRENCE, citizens of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and useful Tack-Saving Attachment for Lasting-Machines, of which the following is a specification.

10 This invention relates to tack-saving attachments for lasting-machines; and the object in view is to prevent the loss of tacks during the operation of lasting, and particularly when a shoe is not in position to be lasted or during
15 the interval that may be necessary during a change of work or when an operator's attention may be required at a point distant from a lasting-machine and without requiring a cessation of operation of the machine that may be
20 one of a large number driven from a common source of power or connected line-shafting.

The loss of lasting-tacks has become a source of considerable annoyance and expense in a large shoe plant employing a plurality of lasting-machines or even in a single machine, and especially in the type of the same known in the art as "hand-method" machines and wherein the operator places the shoe to be lasted in a particular position relatively to
30 the lasting and tacking devices. The machine to which the present improved attachment is particularly adapted is what is known as "The Consolidated Hand-Method Lasting-Machine" and specifically disclosed in the
35 United States patents to S. W. Ladd, Nos. 510,973 and 584,741, and wherein the operation is such, owing to the particular organization of the several elements, that a tack is driven at every revolution of the machine,
40 whether the shoe is in position or not, and in the subjoined description only the parts of the improved attachment will be particularly described and the well-known constructions in the class of machines referred to in a general way to explain the relation and coöperation.
45

The invention primarily contemplates the use of a tack-stopper in connection with the mechanism for delivering the tacks to the shoe and to have the said stopper operate automatically to prevent a feed of a tack when

the shoe is removed and as a secondary provision to have the mechanism also operate to obstruct the actuation of the driver until the shoe is in position for lasting.

55

The invention further consists in the construction, arrangement, and combination of the several elements which will be fully hereinafter described and claimed in their preferred form, though subject to a wide range
60 of modification within the purview of the invention.

In the drawings, Figure 1 is a side elevation of the form of well-known lasting-machine referred to and showing the improved
65 attachment applied thereto. Fig. 2 is a similar view looking toward the opposite side of the machine and illustrating the parts of the improvement in connection with the parts of the well-known organism with which they
70 directly operate. Fig. 3 is a perspective view of a tack-carrier embodying the features of the improvement and also showing a portion of the operating mechanism. Fig. 4 is a top plan view of the improved carrier. Fig. 5 is
75 a detail perspective view of the operating mechanism for the tack-stopper and conjunctively controlling the driving mechanism.

Similar numerals of reference are employed to indicate corresponding parts in the several
80 views.

It may be here stated that in carrying out the work of lasting boots and shoes on the machine to which this invention relates the shoe is prepared for lasting by first putting
85 the upper on the last, drawing it over the toe, and preferably at the sides also, and there securing it with tacks or other fastening devices. It is then taken in hand by the workman and held up to the machine in position for commencing the work. The edge
90 of the last, with its upper, is pressed against a guide-piece, with the edge of the upper turned or bent inward over the last, all this to the end that it may be in position for the bite of the pincers. The shoe is supported and turned by the hands of the workman, and in order that the shoe may be easily held in position while the pincers are drawing and stretching the upper over the last a rest
100 is provided. The shoe is pressed upward against the rest, and the position of the rest

is such that when the shoe is pressed upward against the same, with its edge bearing against the guide-piece, the upper will be in position for the pincers to come forward and clasp the inturned edge of the upper. The pincers are made to seize, draw, and strain upward the shoe-upper, lay it over the bottom of the last, and hold it down to receive the fastening-tack and also perform the proper plaiting of the upper at the heel and toe or other places, as required. A single pair of pincers is employed, and the lasting is thereby progressively pursued.

The improved attachment comprises a stop finger or projection 1, having a sliding movement on the tack-carrier 2 and long enough to extend over and close the outlet of the tack-receiving opening 3. The outer portion of the stop-finger or slide projection 1 is connected to or forms a part of a slide-head 4, located on the upper inclined surface of the top portion of the carrier and has movement between transversely-extending stops 5 and 6. The end of the head 4 from which the finger or projection extends depends a slight distance and engages a groove 7 in the adjacent portion of the top plate of the carrier, and the stop 6 is also continued over said groove and serves as a guide under which the inner extension 8 of the said head has movement to thereby steady the finger or projection 1 in its operation. As shown by Fig. 4, the finger 1 is directed at an angle toward the tack-receiving opening 3 of the carrier and stands over the edge of the latter at its point of connection with the slide-head to clear the same and reduce the friction as much as possible, so as to render its operation more sensitive. The width of the said head is also reduced to give it a certain movement between the stops 5 and 6 and at the end opposite that carrying the finger 1 said head has longitudinally-extending lugs 9, which are movable in the stops, and upstanding from the center of the head is a bearing-stud 10. Adjacent the slide-head and fixed on the upper surface of the tack-carrier is a space block or plate 11, also having an upstanding stud 12, and on the outer end of said block or plate an arm 13 is pivoted at an intermediate point and has an upwardly-projecting pin or stud 14 at its front end and a slot 15 in the inner end. The remaining structural features of the tack-carrier are in all respects similar to the similar devices in the machines heretofore referred to.

An inwardly-inclined bearing-hanger 16 is secured to a bracket-arm 17 of the machine-frame, and, as shown in Fig. 5, said bearing-hanger has an outwardly-projecting apertured lip 18, in which the upper reduced end of an angularly-disposed swivel-rod 19 is rotatably mounted, the said rod having feet 20 and 21 at the lower end thereof, which project at different angles, with the foot 21 above the foot 20, and the free ends of both feet are slotted to respectively engage the studs 10

and 14. The lower end of the said rod is also apertured in a vertical direction to form a fulcrum-socket 22 to receive the stud 12, and thereby provide means for transmitting motion to and operating the improved features of the tack-carrier in timed relation to the other mechanisms of the machine. The said swivel-rod has a link-arm 23 radially projecting therefrom and located near the upper extremity, the outer end of said link-arm being provided with a horizontal eye 24, fitted on a shank 25 of a swivel connection 26, comprising a sleeve 27, having a sliding or adjustable movement on the inner end of a connecting-rod 28. Between the eye 24 and the sleeve 27 a washer 29 is interposed to hold the said eye up in proper position, and the upper terminal of the shank 25 is screw-threaded and has a securing-nut 30 thereon to maintain the eye 24, washer 29, and sleeve 27 in connected relation. Against the inner end of the sleeve 27 a washer 31 is disposed and is movable with said sleeve on the inner reduced extremity of the connecting-rod 28, and between the said washer 31 and the inner shouldered terminal 32 of said rod a coiled spring is mounted to establish a yielding play of the sleeve and parts connected thereto to avoid jamming or binding of the swivel-rod 19 and permit freedom of action without strain on the studs 10, 12, and 14 and also to cause the said connecting-rod to have a yielding pulling action. The outer end of the connecting-rod has a stem 33 adjustably mounted therein, and on a depending member 34 of the bracket-arm 17 a bell-crank lever 35 is pivotally mounted, and to one arm 36 thereof the outer end of the stem 33 is pivotally attached. The adjustable union of the stem 33 and the connecting-rod 28 provides means for regulating the movement of the said connecting-rod relatively to the other mechanism and quicken or slow the action of the finger 1. The outer terminal of the hinged jaw 38 of a retaining-finger 37 is movably attached to the remaining arm 39 of the bell-crank lever 35 by a link 40, which connects with the latter arm between its fulcrum and outer terminal, and to the outer terminal of the lever 35 the lower end of a wire rod 41 is pivotally secured and extends downwardly from a socket 42, secured to the outer face of one end of an angle-arm or bell-crank lever 43, pivotally attached to the outer end of the horizontal arm 44 of an angle-bracket 45, secured at its inner portion to the frame of the machine. The horizontal arm 44 of the bracket is arranged in close relation to the guide-upright for the driver of the machine and also in adjacency to the upper terminal of said guide, wherein the driving-bar 46 has movement. In the class of machines to which the improvement is applied, and as will be readily understood the said driving-bar has a stop-collar 47 thereon and is also attached to the operating mechanism above by a connecting-link 48, so that vertical reciprocating motion

will be applied to the said bar and the downward movement thereof limited by the engagement of the stop-collar set forth with the upper end of the said guide-upright. The arm of the bell-crank lever 43 opposite that to which the socket 42 is secured has its end slotted, as at 49, to loosely receive a horizontal terminal pin 50 on the outer end of a horizontal reciprocating shifter 51, fulcrumed on the horizontal arm 44 of the angle-bracket 45. The said shifter has a headed fulcrum-pin 52 passed therethrough and located nearer the outer end, so as to give a greater throw to the inner portion of the shifter, and the inner extremity of the latter is bent at an angle and secured to the inner end of an arm 53, adapted to swing in a horizontal plane on a post 54, which rises from the horizontal arm 44. The arm 53 is high enough to move over the upper end of the guide-upright for the driving-bar and carries at its outer free end a vertical stop-post 54^a, against which the lower end of the collar 47 is adapted to bear. When the said collar is thus engaged, the driving-bar will be held against downward movement, and this position of the said parts will be effected at the time a shoe is removed from the machine and when it is not necessary to utilize the tacks. As will be more fully set forth hereinafter, the finger 1 will also be simultaneously adjusted across the tack-outlet of the carrier and a uniformity of position of the said parts and consonance of operation to attain the desired result will always be regular and positive.

Each of the bell-crank levers described has a stop-pin or projection adjacent thereto to prevent movement in certain directions beyond a predetermined extent for obvious reasons, and thereby maintain a proper relation between the said levers and the parts with which they coact. Furthermore, the shifter 51 has a spring 55 engaging a pin 56 thereon and surrounding the headed fulcrum therefor and having its opposite terminal secured to the horizontal arm 44 of the angle-bracket. A spring 57 is also attached to the inner angularly-formed end of the shifter and bears against a pin 58 on the arm 53, and by means of these two springs the shifter and arm 53 are rendered quickly responsive to the actuation of the mechanism below and without sticking or a tendency to slothful action, and thereby immediately disengage the driving-bar when a shoe is placed in operative relation to the machine.

When a shoe is rested against the edge-gage 59, it also contacts with the inner terminal of the hinged jaw 38 of the retaining finger or rest 37 and moves the said jaw upwardly. This movement of the said jaw causes the outer arm of the bell-crank lever 35 to be depressed and the inner arm thereof to be elevated, and the swivel-rod 19 is thereby rotated to move the slide-head 4 in an outward direction or toward the front of the machine and draw the finger 1 clear of the

tack-outlet of the carrier. At the same time the wire rod 41 is moved downwardly and the front slotted end of the bell-crank lever 43 is raised and thrown over to the rear, and the shifter 51 is thereby actuated to turn the arm 53 in such direction as to draw the post 54^a from under the collar 47 of the driving-bar. The machine will then be free to carry on the lasting operation, and when the shoe is withdrawn the post 54^a will be again thrown under the collar 47 and the slide-finger 1 over the tack-outlet of the carrier. A great saving in tacks will result by the use of the attachment, and the additional expense attending the application of the improved devices to the machine is of small moment compared to the decrease in the cost of the tack-supply for each machine. Moreover, the addition of the extra mechanism does not interfere with the operation of the other instrumentalities of the machine nor is a reorganization necessary, and the improvements can be easily applied to machines now in use with the resultant advantages accruing therefrom.

Having thus described the invention, what is claimed as new is—

1. In a lasting-machine, the combination with lasting instrumentalities, of a tack carrier or feeding device, an automatically-movable element coacting with the said carrier or feeding device to open and close the tack-outlet of the latter, and means actuated by the application of a boot or shoe thereto for shifting said element to open position and permit unretarded feed of the tacks without other manual operation, the tack-feed being stopped by the same means upon a withdrawal of the boot or shoe therefrom.

2. In a lasting-machine, the combination with lasting instrumentalities including a tack carrier or feeding device and a driving-bar, of an automatically-movable element coacting with the said carrier or feeding device for stopping and permitting feed of the tacks, and a stop mechanism for the driving-bar connected to and simultaneously operating with the said element to stop or release the said bar.

3. In a lasting-machine, the combination with lasting instrumentalities including a tack carrier or feeding device and a driving-bar, of an automatically-movable element coacting with said carrier or feeding device for stopping and permitting feed of the tacks, a stop mechanism for the driving-bar, intermediate mechanism between the said element and stop mechanism, and a support for engagement with a shoe having a movable member connected to said intermediate mechanism for controlling the operation of the element and stop mechanism and cause the latter mechanism to lock the bar against descent when the said element shuts off the tack-feed and release said bar when the tacks are free to feed by the respective application and withdrawal of a shoe relatively to said support.

4. In a lasting-machine, the combination with lasting instrumentalities including a tack carrier or feeder and a driving-bar, of an automatically-movable element coacting
5 with said carrier or feeding device to open and close the outlet of the latter controlled in its operation by the application of a boot or shoe to the machine, a stop mechanism for the driving-bar, and means for connecting
10 and simultaneously operating said element and stop mechanism.

5. A lasting-machine having a tack carrier or feeder, and a movable element to open or close the outlet of the said carrier or feeder
15 and actuated by the application of a shoe or boot to the machine to permit the tacks to be continuously fed as long as the boot or shoe is in applied position without other manipulation, and the said feeding operation caused
20 to instantly cease by a withdrawal of the boot or shoe.

6. A lasting-machine having a driving-bar, means for stopping and releasing said bar automatically, a support having a movable
25 member connected to said means and which is operated by the application of a boot or shoe thereto to release said bar and self-actuated by the withdrawal of the boot or shoe to stop the movement of the bar, and tacking
30 mechanism also connected to said member on the support and simultaneously operated with the driving-bar by the application and withdrawal of the boot or shoe to respectively produce a continuous tack-feed and cause a
35 cessation of the latter.

7. A lasting-machine having a tack-carrier and an automatically-operating slidable finger or projection to open and close the outlet thereof, combined with a support having a
movable member connected to said finger or
40 projection and operated by the application of a boot or shoe thereto to release said slide finger or projection to permit feed of the tacks and having a self-actuation to set the finger or projection in closing position relatively to
45 the carrier-outlet, and driving mechanism.

8. A lasting-machine having a driving-bar with a projection thereon, and a tack carrier or feeder, of a swinging stop mechanism to engage the said projection of the driving-bar,
50 a slidable element automatically operating to open and close the outlet of said carrier or feeder, and adjustable and yielding connecting mechanism between the said element and stop mechanism, the stop and release opera-
55 tions of the said element and stop mechanism being respectively controlled by the withdrawal from and application to the machine of a boot or shoe to be lasted through the said
60 connecting mechanism.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

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GEO. A. ZELLER.
CHARLES P. LAWRENCE.

Witnesses:

M. W. POFFENBERGER,
WILLIAM COLEMAN.