

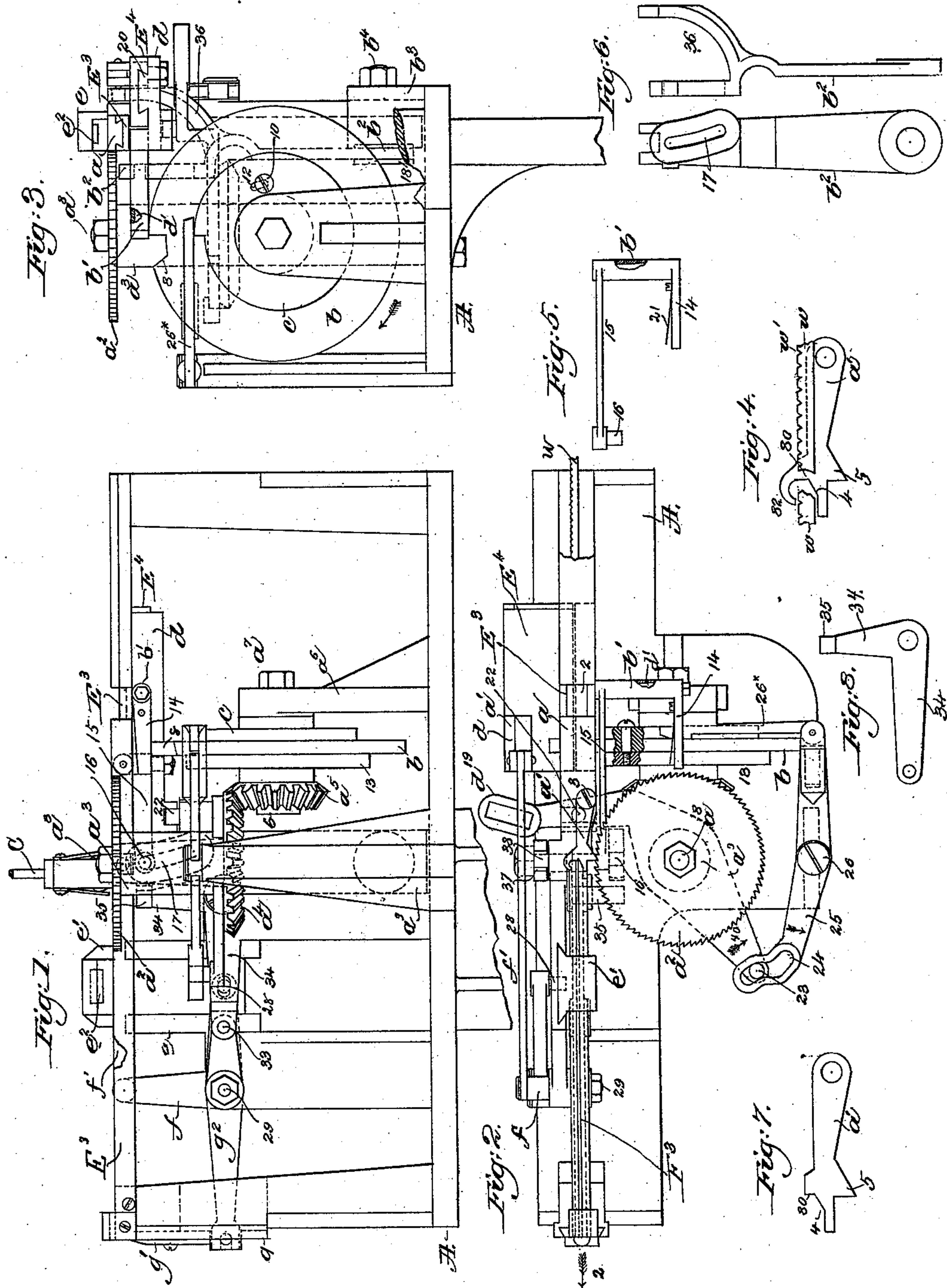
(No Model.)

2 Sheets—Sheet 1.

M. BROCK.
MACHINE FOR MAKING TACK STRIPS.

No. 402,061.

Patented Apr. 23, 1889.



Witnesses.

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Frank L. Emery

Inventor.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 9.

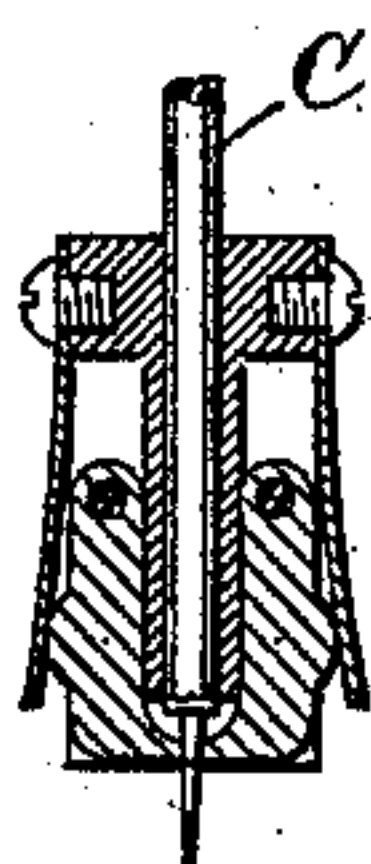


Fig. 10.

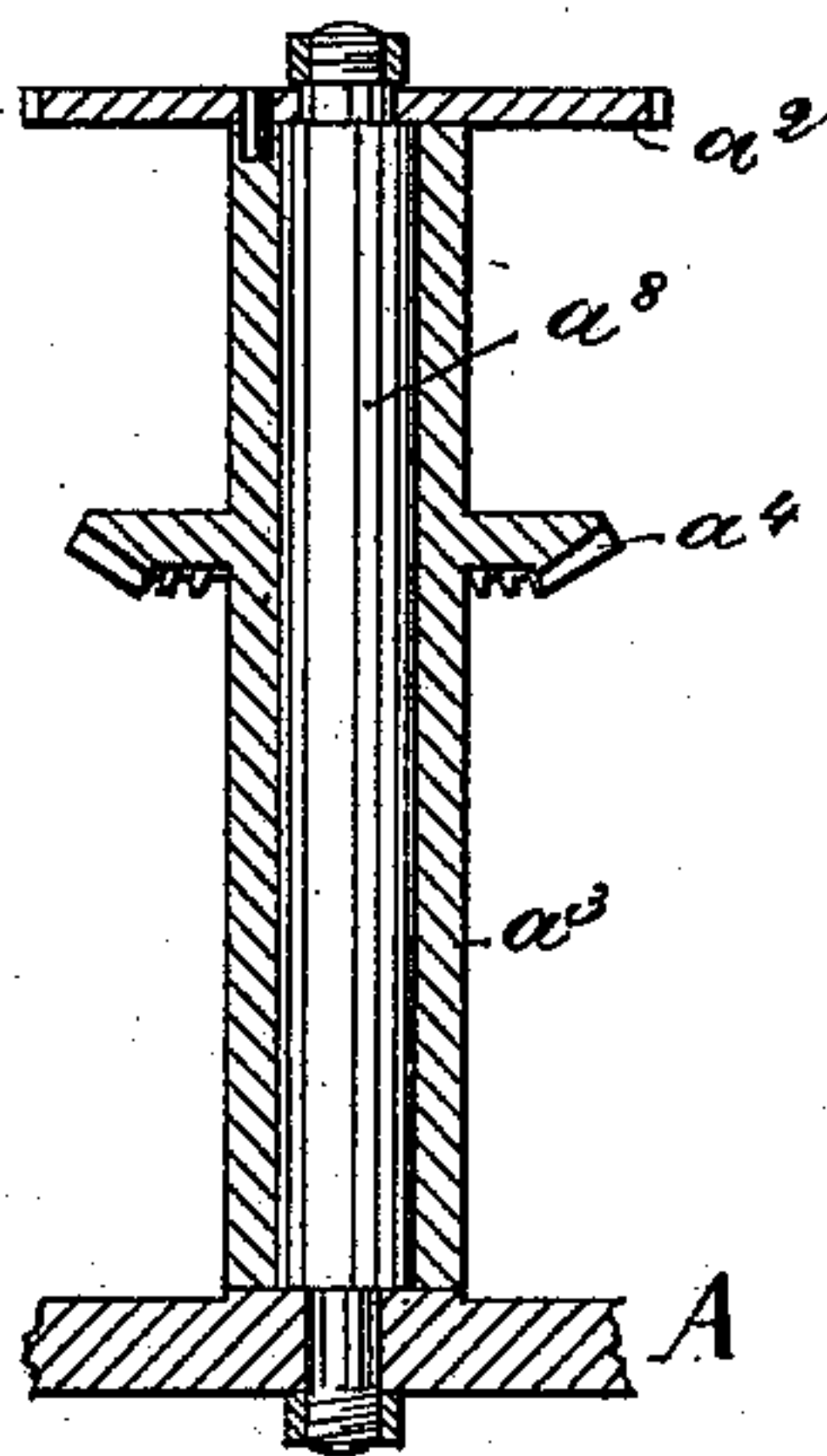


Fig. 11.

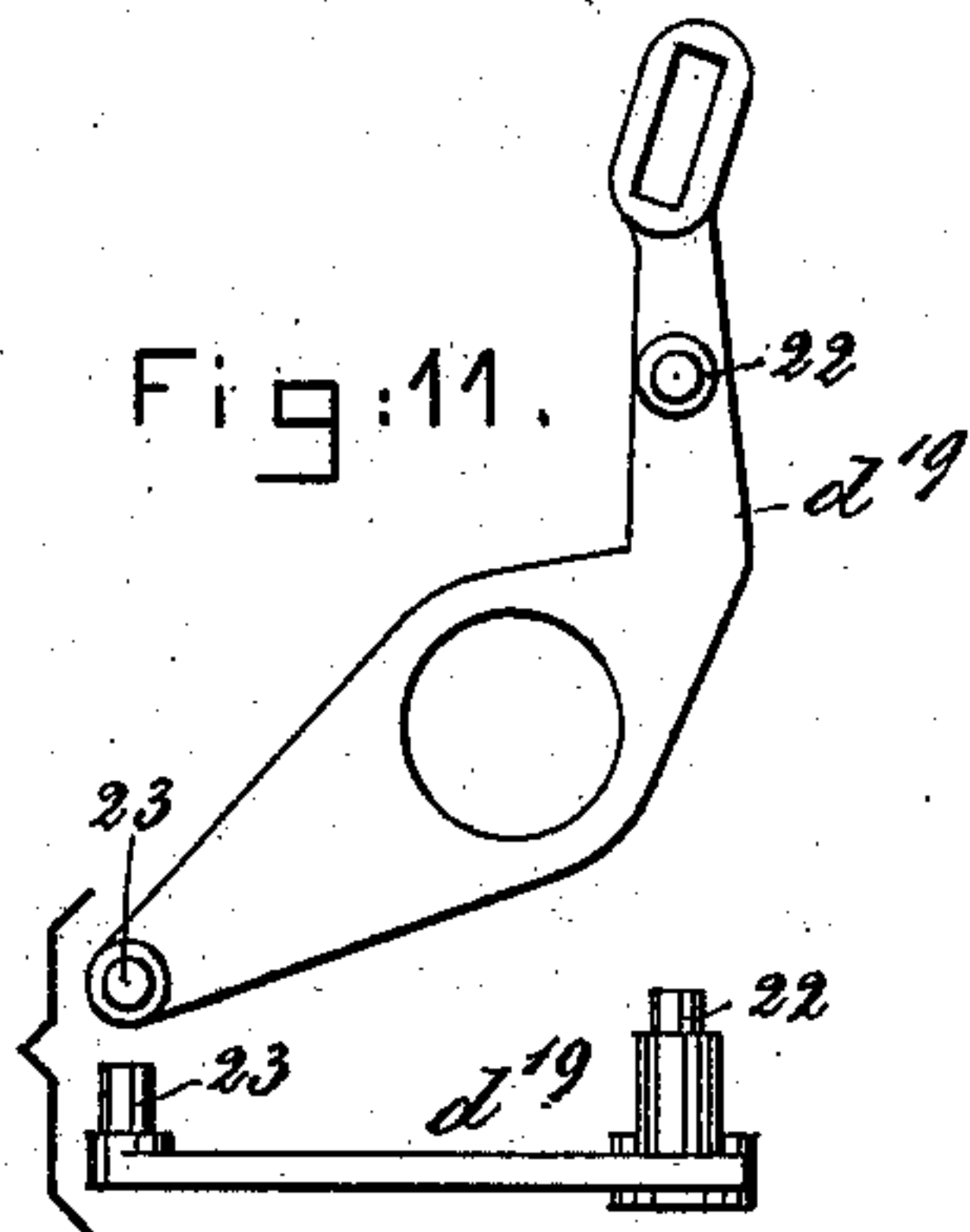
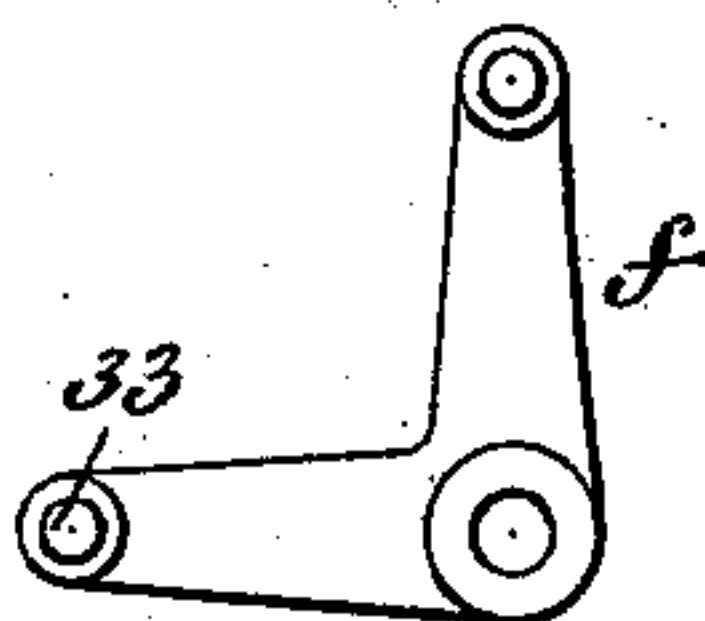


Fig. 12.



Fig. 13.



Witnesses.

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UNITED STATES PATENT OFFICE.

MATTHIAS BROCK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE MCKAY & COPELAND LASTING MACHINE COMPANY, OF PORTLAND, MAINE.

MACHINE FOR MAKING TACK-STRIPS.

SPECIFICATION forming part of Letters Patent No. 402,061, dated April 23, 1889.

Application filed December 18, 1888. Serial No. 293,943. (No model.)

To all whom it may concern.

Be it known that I, MATTHIAS BROCK, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Machines for Making Tack-Strips, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention is intended as an improvement upon the class of machines represented in United States Patent No. 247,143, dated September 13, 1881. That patent describes a mechanism for driving tacks into a strip of
15 paper, the heads of the tacks being covered by a second paper strip, so as to retain the tacks in place as the said strip is used in a machine for driving the said tacks. In the machine described in the said patent the
20 tacks, when driven into the strip, are engaged by a feed-wheel to feed the strip, the feed movement depending upon the insertion of a tack in the strip, and the tack as it is driven is made by its point to actuate parts which
25 permit the pawl for moving the feed-wheel ratchet to come into operation. In this way the points of the tacks are frequently so blunted that they cannot be properly driven. To obviate this difficulty I have constructed
30 a machine in which the strip, after each tack is properly driven, is fed forward by the action directly against the last tack driven of a reciprocating feeding-finger made as a pawl, the pawl part of the said finger co-operating
35 with a ratchet-wheel forming part of a spacing mechanism, to be described, whereby, after the insertion of a given number of tacks into the strip, the said strip will be fed a greater distance, to thus leave a space through
40 which the strip may be severed, to thus cut the substantially continuous strip into short strips for use in machines having means for driving the said tacks from the strip into the article to be united or produced.

45 My invention in tack-strip-making machines consists, essentially, in a slotted roadway to receive the shanks of the tacks driven into the strip, a driveway or throat, and a driver, combined with a reciprocating slide having a
50 finger provided with a shoulder to act against a tack after the same has been driven into

the said strip, thereby feeding the same along the said roadway, substantially as will be described; also, in the combination, with a ratchet-wheel, of a finger having a projection
55 and an inclined surface, and a shoulder, combined with means to move the said finger in the direction of the tack last driven into the strip, the presence of a tack acting through the beveled face of the finger to cause the
60 engagement of the finger with the rotation of the ratchet-wheel, substantially as will be described; also, in the combination, with a driveway or throat and a driver and a ratchet-wheel, of a reciprocating pawl having
65 an incline to act against a tack driven into the strip and throw a projection of the said pawl into engagement with the ratchet-wheel, and with means to move the said finger, substantially as will be described.

70 Figure 1 is a side elevation of a sufficient portion of a tack-strip-making machine to enable my invention to be understood. Fig. 2 is a top or plan view of Fig. 1, but with the driver and throat or driveway omitted. 75 Fig. 3 is a right-hand end view of the parts shown in Figs. 1 and 2, with the post to support the rear end of the roadway broken out. Fig. 4 is an enlarged plan view of the finger
80 *a'*, with a portion of the foundation-strip of paper in place. Fig. 5 is a plan view of the rocking sleeve detached. Fig. 6 shows in front and side elevation a lever, *b*², detached; Fig. 7, a modified form of finger, and Fig. 8 a detail showing the lever 34. Fig. 9 is a sectional detail showing the driveway or throat
85 enlarged, with a driver therein and a tack about to be thrust out of the throat; Fig. 10, a sectional detail, chiefly to exhibit the hollow sleeve *a*³ and parts carried by it; Fig. 90 11, details showing the lever *d*¹⁹ detached. Fig. 12 is a top or plan view of the carriage removed from the machine, and Fig. 13 a detail showing the lever *f*.

The driver C and the driveway or throat in 95 which the tack enters to be driven by the driver into the paper or other strip, and the arm *d*¹⁹ and the roadway E³, in which travel the shanks or bodies of the tacks after they have been driven into the usual paper or other
100 strip, (shown only in Fig. 4,) are the same as in the said patent, the tack-strip lying upon the

said roadway and being moved intermittently thereon in the direction of the arrow 2 by devices to be described.

It will be understood, in practice, that the machine herein described will be provided with suitable mechanism or devices to feed the tacks singly into position under a driver and with a driver and means to move it to drive the said tacks or usual nails into a paper or other strip. The patent referred to shows one form of such mechanisms or devices which may be employed for such purpose, and as my invention does not include any special form of tack-driving mechanism or race for delivering the tacks to the driveway or throat I have omitted from the drawings the tack driving and presenting devices, except the driver and the driveway or throat, which, as stated, are and may be as in the said patent.

The frame-work A of the machine contains bearings for the different working parts.

Referring to the drawings, it will be noticed that the roadway E³, or a part coinciding with it, is extended toward the right-hand end of the machine, and is provided at its upper side (see Fig. 2) with a groove, 2, of dovetail shape in cross-section, the said groove receiving in it a dovetail projection of a slide, a, upon which is pivoted at 3 a feeding-finger, a', (see Fig. 2, and enlarged in Fig. 7,) having a beveled side, 4, a shoulder, 80, and a projection, 5, which projection, when a tack is properly presented to the finger in its forward movement, is made to enter as a pawl the teeth of the ratchet-wheel a² and rotate it, the said wheel a² being attached to a sleeve, a³, the lower end of which rests on the base-plate of the frame-work.

The sleeve a³ (see Fig. 1) has secured to it a bevel-gear, a⁴, which engages a bevel-pinion, a⁵, mounted loosely on a stud, 6, held in the stand a⁶ by a nut, a⁷. The sleeve a³ receives through it and is free to rotate about a shouldered vertical stud or bolt, a⁸. The hub of the pinion a⁵ has secured to or forming part of it a shoulder-plate, 13, and loose on the stud 6, at one side of this plate 13, is a disk, b, forming part of the spacing mechanism, the said disk having a notch, 8, in its periphery (see Fig. 3) and a cam portion, c. The plate 13 referred to receives in it a screw, 10, which is passed loosely through a slot, 12, in the said disk and in the said cam c, the said slot 12 permitting the said cam and disk to be changed as to their relative positions during each rotation.

The roadway-extension E³ referred to at the right-hand end of the machine is enlarged or extended laterally, as at E⁴, the under side of the said enlargement (see Fig. 3) having a groove of dovetail shape, which groove receives in it a projection, 20, of dovetail shape, the said projection forming part of a sliding carriage, d. This carriage has a fixed stud, d', (see Fig. 3,) extended from one side thereof, upon which is mounted to turn a lever, b',

shown as composed of a sleeve portion having at one end a short arm, 14, and at its other end a long arm, 15, having a pin, 16. (Shown by dotted lines in Figs. 1 and 2 and by full lines, Fig. 5.) The arm 14 normally rests on the periphery of the disk b, and the pin 16 enters a slot, 17, (shown by dotted lines, Fig. 1,) in a lever, b², mounted loosely upon a headed stud, 18, held in stand b³ by a nut, b⁴. The arm 14 has attached to its inner side a spring, 21.

In the rotation of the disk b, when the notch 8 thereof arrives under the arm 14 of the rocking sleeve b', the said arm, and also the arm 15, drops, and the pin 16 is moved down in the cam-slot 17 of the lever b². The lever d¹⁹, mounted loosely on the sleeve a³ and moved as in the said patent, has erected upon it two studs, as 22 23. The stud 22 enters a transverse slot at the under side of the sliding carriage d. The stud 23 enters a cam-slot, 24, at one end of a pawl-moving lever, 25, pivoted at 26 upon a rigid part of the frame, the said lever at its end opposite the said slot 24 having a pawl, 26*, (see Figs. 2 and 3,) attached thereto by a knuckle-joint of any usual construction, the said pawl in practice being normally retained pressed against the side of the disk b, and also against the periphery of the cam c, as in Fig. 3.

The frame-work e has a suitable guideway, in which slides vertically a presser-foot, e', provided, preferably, with a block, e², of india-rubber or other suitable elastic material to act upon the pasted strip, (not shown, but of usual construction,) which strip is to be pasted down upon the usual foundation-strip, w, in which the tacks are driven, but not, however, until after the said tacks have been driven.

The presser at its outer side has a slot which receives a pin, 28, of an elbow-lever, f, (shown in Figs. 1 and 2,) the said lever being mounted loosely on a stud, 29, that arm of the said lever f which is extended upwardly having jointed to it one end of a connecting-rod, f', which rod at its other end is jointed by a pin to an ear of the sliding carriage d.

To cut the substantially continuous strip at the proper time—as, for instance, after a predetermined number of tacks have been driven into the strip w—I have provided the machine with a slide, g, having a knife, g', the said slide deriving its movement from a lever, g², having its fulcrum on the stud 29, the inner forked end of the said lever (see Fig. 1) engaging a pin, 33, at the forked end of a bell-crank lever, 34, the upper end of which has a laterally-extended arm, 35, (see Figs. 2 and 8,) which arm is struck at stated intervals by a projection or part of the lever b² when the same has imparted to it its abnormal long stroke, as will be described, the finger a' at such time having about twice or, it may be, more its usual throw, to thus give to the tack-strip a long feeding movement sufficient to leave a space between the tack last driven and the tack next to be driven,

through which space the cutter described may act on the strip to sever it.

The lever b^2 , as will be understood from the foregoing description, derives its motion from the pin 16, moved by the carriage d , and the extent of movement of the said lever is more or less according to the position of the pin 16 in the slot 17. The lever b^2 has a branch, 36, which is extended under and up at the outer side of the race E^3 , where the forked end of the said branch embraces a block, 37, on a pin, 38, extended outwardly from the slide a , carrying the finger a' . Consequently the finger a' is moved at times for a greater distance than at other times, the greatest movement taking place when the strip is to be fed for a long distance, so as to leave a space for severing the strip.

In operation a tack having been deposited in usual manner in the driveway or throat is acted upon by the driver-bar and is driven down into and through the tack-strip w in usual manner. As the finger a' is moved forward after driving the tack, the beveled side 4 of the finger acts against the body of the driven tack, and as the finger is moved forward the projection 5 of the finger enters a space between the teeth of the ratchet-wheel a^2 , and thereafter in the further forward movement of the finger the projection 5 rotates the said ratchet-wheel for the distance of one tooth, and the shoulder 80 of the finger a' , by coming squarely against the body of the tack, moves the foundation-strip w forward. If the driver fails to drive a tack into the foundation-strip, then it will be obvious that the finger a' will not be turned aside to cause the projection 5 to engage and move the said ratchet-wheel. At each movement of the ratchet-wheel the plate b is moved one step, and a definite or predetermined number of tacks having been driven into the foundation-strip, the notch 8 arrives under the arm 14, into which notch the said arm is to fall when the lever d^{19} reaches its extreme backward throw in the direction of the arrow 40, Fig. 2, the spring 21, attached to the arm 14, preventing the descent of the said arm 14 until the lever d^{19} has completed its full backward stroke. Were it not for the spring 21 the arm 14 would drop into the notch 8 at the commencement of the backward throw of the lever d^{19} in the direction of the arrow 40, and would cause the lever b^2 to be moved back twice as far as desired, which is unnecessary. The arm 14 having dropped into the notch 8 and the pin 16 having descended into the bottom of the cam-slot 17, the lever d^{19} in its forward movement, as described, effects a movement of the lever b^2 , the slide a , and the finger a' for twice its usual distance, so that the shoulder 80 of the said finger again strikes the driven tack against which it last acted and gives to the strip w an additional movement to leave a sufficient space between that tack and the one next to be driven for the cutter to rise and cut the strip. As the lever d^{19} arrives in its farthest

backward position in the direction of the arrow 40, as stated, the free end of the pawl 26* drops from the high part of the cam c down upon its low part, and as the lever d^{19} is thereafter moved forward to cause the shoulder 80 of the finger a' to act upon a tack in and feed the strip, the pin 23 of the lever d^{19} , working at the same time in the slot 24 of the lever 25 and turning the said lever so that the said pawl acts upon the shoulder of the cam c , and pushes the said cam and the plate b forward on the shoulder 13, such movement being permitted by the slot 12. As the plate b is moved, as described, by the pawl 26* and the cam c , the cam part of the notch 8, acting on the arm 14, turns the lever b' and moves the stud 16 of the arm 15 thereof upwardly in the slot 17. In the further rotation of the cam c , while the pawl 26* rests upon the portion of the said cam of smallest diameter, the said cam has its movement somewhat retarded, so that the opposite end of the slot 12, or that end of the slot in the direction of movement of the cam c , comes against the screw-stud 10.

Referring again to the finger a' , it will be noticed that it has a toe, 82, which is somewhat upturned next that edge of the foundation-strip w which is provided with the notches w' . In practice this foundation-strip, preferably composed of paper and about one-quarter of an inch in width, has notches w' in one edge about one-sixth of an inch apart, that being about the distance of each feed movement of the foundation-strip. This toe 82, as the finger is moved aside by reason of the contact of its beveled face 4 against the body of a driven tack is made to enter one of the notches w' of the strip, thus aiding in feeding the strip. This finger may be made to move the strip in case it is not desired to push upon the tack.

I claim—

1. In a tack-strip-making machine, a slotted roadway to receive the shanks of the tacks driven into the strip, the driveway or throat, and a driver, combined with a reciprocating slide having a finger provided with a shoulder to act against a tack after the same has been driven into the said strip, thereby feeding the same along the said roadway, substantially as described.

2. In a tack-strip-making machine, a ratchet-wheel, a slide, a finger mounted thereon having a projection, an inclined surface, and a shoulder, combined with means to move the said slide and finger toward the tack last driven into the strip, the presence of a tack in the strip acting against the beveled face of the finger and causing the projection of the finger to engage and move the said ratchet-wheel, substantially as described.

3. In a tack-strip-making machine, the combination, with the slide and its finger having a projection and an inclined surface and a shoulder and the ratchet-wheel, of a spacing mechanism, substantially as described, whereby the strip is moved for a greater dis-

tance at stated intervals, substantially as described.

4. In a tack-strip-making machine, the combination, with the slide and its finger 5 having a projection, an inclined surface and a shoulder, and the ratchet-wheel, of a spacing mechanism, substantially as described, whereby the strip is moved for a greater distance at stated intervals, and with cutting 10 mechanism to sever the strip at intervals, substantially as described.

5. In a tack-strip-making machine, the slide having upon it a feeding-finger, the lever b' , 15 having arms 14 15, and a pin, 16, combined with a slotted lever, b^2 , and a cam to control the movement of the lever b' , as and for the purposes set forth.

6. In a tack-strip-making machine, the le-

ver d^{19} , provided with a projection, 23, and a lever, 24, and its attached pawl 26*, combined 20 with the spacing mechanism and with a lever, b' , and the slotted lever b^2 , to operate substantially as described.

7. In a tack-strip-making machine, the reciprocating slide, and a finger thereon to be 25 moved aside by contact with a tack already driven into the strip and having a toe to engage a notch in the strip, substantially as described.

In testimony whereof I have signed my name 30 to this specification in the presence of two subscribing witnesses.

MATTHIAS BROCK.

Witnesses:

G. W. GREGORY,
B. DEWAR.