

No. 817,179.

PATENTED APR. 10, 1906.

W. E. MADDISON & W. DOWNS.

NAILING, SLUGGING, OR LIKE MACHINE FOR USE IN BOOT AND SHOE MANUFACTURE.

APPLICATION FILED DEC. 18, 1903.

4 SHEETS—SHEET 1.

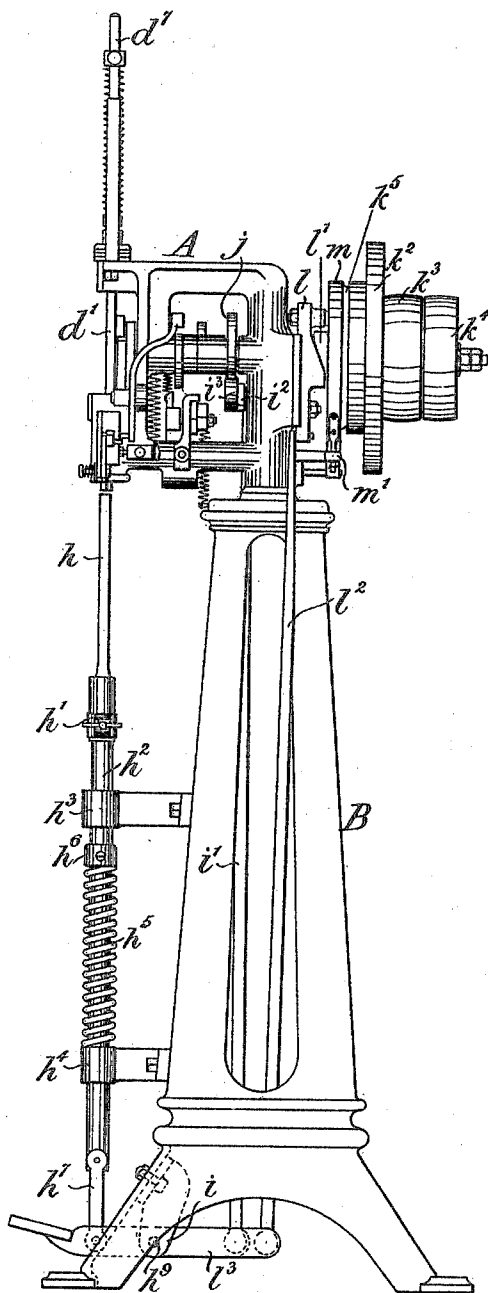


Fig. 1.

Witnesses:

Wm. C. Wood
Ray W. Gardner

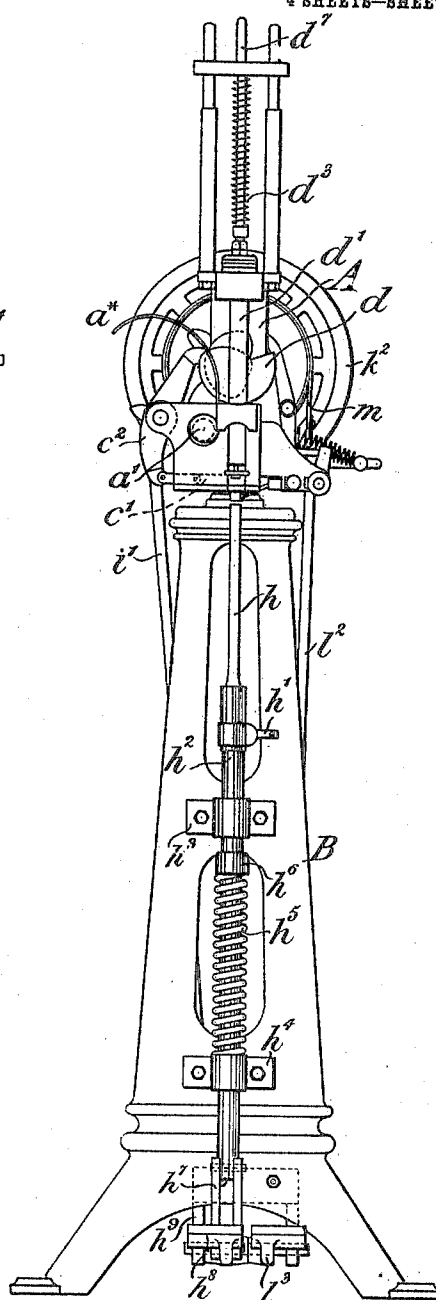


Fig. 2.

Inventors:

William Edgar Maddison
Walter Downs

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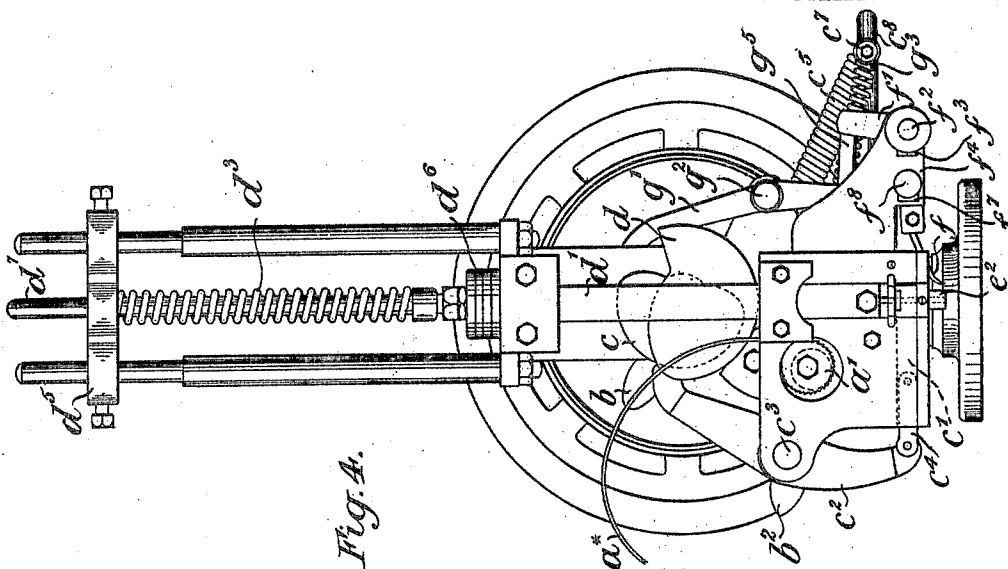


Fig. 4.

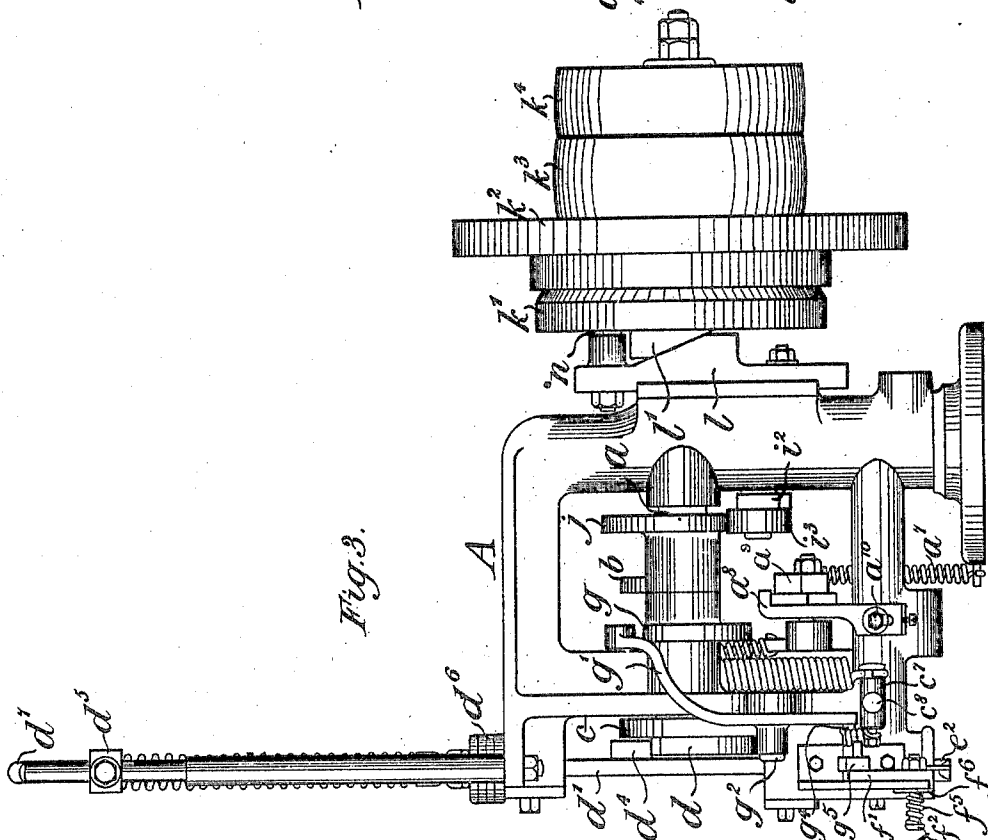


Fig. 3.

WITNESSES:

WITNESSES:
Wm. B. Woodford
 Rags. W. Gardner

INVENTOR,

INVENTOR
William E. Adams
Wm. Adams

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4 SHEETS—SHEET 3.

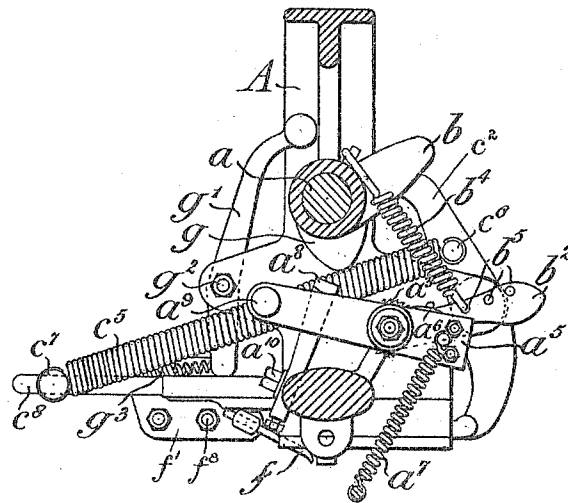


Fig. 5.

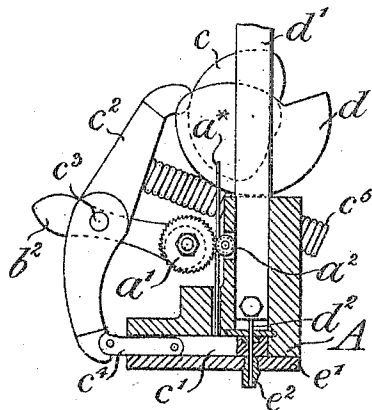


Fig. 6

Witnesses;

Wm. O. Wood

Reginald W. Gardner

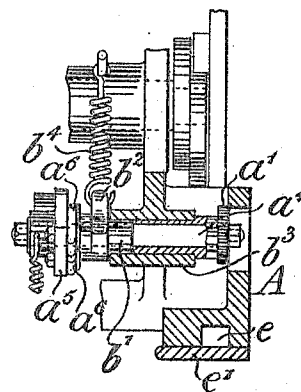


Fig. 7.

Inventors:

Inventors:
 N. Main, Edgar Madison

Walter Downs

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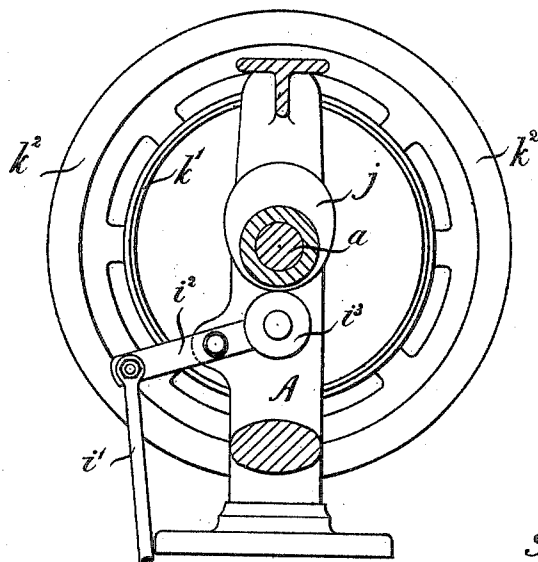


Fig. 8.

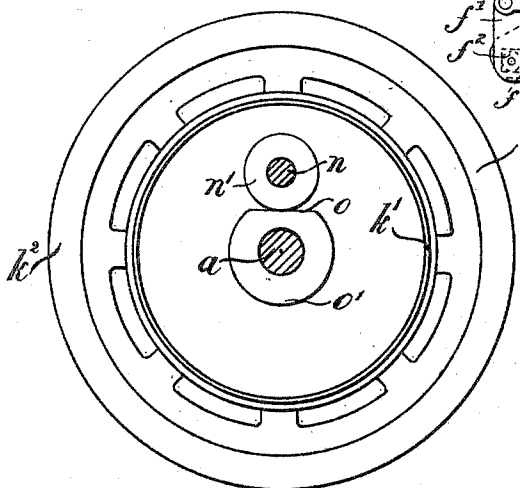


Fig. 9.

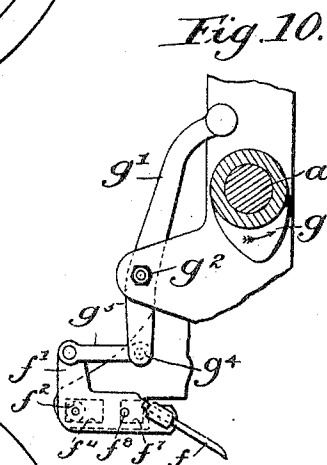


Fig. 10.

Witnesses:

Geo. D. Dimples

Ralph W. Garauer

Inventors

William Edm. Maddison
Walter Downs

UNITED STATES PATENT OFFICE.

WILLIAM EDGAR MADDISON AND WALTER DOWNS, OF IRTHLING-
BOROUGH, ENGLAND.

NAILING, SLUGGING, OR LIKE MACHINE FOR USE IN BOOT AND SHOE MANUFACTURE.

No. 817,179.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed December 18, 1903. Serial No. 185,736.

To all whom it may concern:

Be it known that we, WILLIAM EDGAR MADDISON, of High street, and WALTER DOWNS, of Manton street, Irtlingborough, in the county of Northampton, England, subjects of the King of Great Britain and Ireland, have invented certain new and useful Improvements in Nailing, Slugging, or Like Machines for Use in Boot and Shoe Manu-
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facture, of which the following is a specification.

This invention relates to machines for "stubbing" or inserting nails, wire pegs, or the like in the soles or heels of boots or shoes, our objects being to simplify the construction of the apparatus and generally to increase the efficiency and durability of such machines.

In the accompanying drawings, Figure 1 is a side elevation, and Fig. 2 a front elevation, of a machine embodying our improvements. Figs. 3 and 4 are corresponding views, on a larger scale, of the top portion of the machine, while Figs. 5, 6, 7, 8, 9, and 10 are detail views.

A machine constructed according to our invention preferably comprises a main shaft *a*, journaled in the frame A, secured to the pedestal B. The shaft *a* is provided with suitable cams for operating the several working parts. A length of wire *a*^{*} is fed to the machine between a toothed feed-wheel *a*¹ and a roller *a*², the toothed wheel *a*¹ being intermittently rotated by means of a ratchet-wheel *a*³, secured to the same spindle *a*⁴ as the toothed wheel, and a ratchet-lever *a*⁵, provided with the pawls *a*⁶ *a*⁶ for engaging the ratchet-wheel and having one end drawn down by means of the spring *a*⁷, so that the other end is engaged by the stop *a*⁸, thereby retaining the pin *a*⁹ in the path of the cam *b* on the main shaft. The stop *a*⁸ is secured by means of a set-screw *a*¹⁰, which passes through a slot in the shank of the stop, so as to admit of the said stop being raised and lowered, and thereby permitting the distance through which the feed-wheel rotates to be adjusted. The spindle *a*⁴, on which the feed-wheel *a*¹ and ratchet-wheel *a*³ are secured, is mounted eccentrically in a hollow spindle *b*¹, which by means of a hand-lever *b*² may be turned in the boss *b*³ of the frame A in order to throw the feed-wheel *a*¹ into or out of contact with the wire *a*^{*}. The feed-wheel may

be retained in contact with the wire by means of a spring *b*⁴ on the hand-lever *b*², and by providing several holes *b*⁵ in the hand-lever for the reception of the end of the spring the pressure of the feed-wheel on the wire may be adjusted. As the wire *a*^{*} is fed forward it is received in a hole in a carrier *c*¹, which is reciprocated by means of a cam *c*, which is adapted to operate a lever *c*², pivoted on the pin *c*³ and connected at one end to the carrier *c*¹ by means of a link *c*⁴. The wire having entered the hole in the carrier, the latter is moved by the cam in such a manner as to shear off and to carry forward a length of wire, so that it arrives in position beneath a plunger *d*² before the latter descends. After the wire has been inserted in the leather and the plunger withdrawn the carrier *c*¹ is returned to its first position by the pull of the spring *c*⁵ on the lever *c*². This spring is secured at one end to the pin *c*⁶ on the lever *c*² and at the other end to the collar *c*⁷, which is secured adjustably to the standard *c*⁸. The plunger *d*² is secured to a slide *d*¹, adapted to be raised by a cam *d* on the main shaft engaging the projection *d*⁴ and lowered by a spring *d*³, which surrounds a spindle *d*¹ in contact with the end of the slide *d*¹ and guided by the adjustable bridge *d*⁵. Leather washers *d*⁶ may be employed to deaden the shock when the slide is forced down by the spring. To inclose the carrier *c*¹ within its groove or guideway *e*, a plate *e*¹, formed with a perforated nozzle or guide *e*², is provided, the hole through the latter being in alinement with the plunger *d*². The boot or shoe is supported beneath this nozzle. As the plunger *d*² descends it expresses the severed portion of wire from the hole in the carrier *c*¹ through the nozzle *e*² and into the leather without permitting the same to become bent. The plunger and carrier are then returned and the several operations are repeated.

A device for feeding the work forward equal distances after each operation may be provided, consisting of a spur *f*, adapted to be brought down upon the work and then moved laterally. The said spur is attached to a bell-crank lever *f*¹, mounted on a pivot *f*², passing through a slot *f*³ in a suitable bracket *f*⁴. In order to maintain the bell-crank lever *f*¹ in close sliding contact with the bracket *f*⁴, the spring *f*⁵ is arranged to press against

the washer f^6 and the head of the pivot f^2 . Another slot f^7 is also formed in the bracket f^4 , and a pin f^8 , which passes through this slot and has vertical play therein, is secured to the bell-crank lever f' . A lever g' , pivoted at g^2 to the frame A, is adapted to be vibrated by means of a cam g on the main shaft and a spring g^3 , the latter being secured at one end to the collar c' and at the other end to the pin g^4 on the lever g' . The pin g^4 is connected, by means of a link g^5 , with the bell-crank lever f' . Rotary motion is transmitted from the cam g to the said bell-crank lever, thereby depressing the spur f until the pin f^8 contacts with the lower edge of the slot f^7 , which serves as a stop, whereupon the bell-crank lever, together with the spur, is moved along until the end of the slot f^3 engages with the pivot f^2 .

The means for supporting the work beneath the nozzle e^2 consists of a horn h , which is adjustably secured, by means of a set-screw h' , to the vertical spindle h^2 , mounted in the brackets h^3 h^4 and pressed in an upward direction by a spring h^5 , inserted between the bracket h^4 and the collar h^6 . The lower end of the spindle h^2 is connected by a link h^7 to one end of a foot-lever h^8 , pivoted at h^9 to a bracket i , bolted to the bottom of the pedestal B. The other end of the foot-lever h^8 is connected by a rod or link i' to a lever i^2 , pivoted to the frame A and having at its end a roller i^3 , which bears upon a cam j on the main shaft a . The cam j is so arranged that after each nail has been inserted in the boot or shoe the horn h is lowered in order to allow the spur f to effect the forward movement of the leather. By pressing with the foot on the lever h^8 the horn may be held in its depressed position in order to permit of the work being inserted or removed.

The main shaft a is rotated by means of a friction-clutch consisting of two parts k' and k^2 . The portion k^2 is free to rotate on the shaft and is formed with a belt-pulley k^3 on one side and an internal bearing-face on the other. A loose pulley k^4 is provided. The part k' of the clutch is secured against rotation on the shaft, but is free to move endwise and is formed with a conical bearing-surface k^5 for engaging the internal surface on the part k^2 . A suitable spring is interposed between the two parts of the clutch. A slide l , having an inclined surface, is adapted to engage the correspondingly-inclined surface of a wedge-piece l' , loosely mounted on the shaft a , and thereby to press the part k' of the clutch against the part k^2 . The slide l is operated through a rod l^2 by means of a second foot-lever l^3 , pivoted on the bracket i . Upon the foot-lever being depressed the slide l is raised, thereby engaging the clutch at the same time the brake-band m , one end of which is attached to the frame A and the other to the arm m' of the rod l^2 , is disen-

gaged from the part k' of the clutch. The slide l has secured to it a pin n , having at its outer end a roller n' , which when the slide is in its lower position rests upon a depression o in a cam-surface formed on the boss o' of the clutch member k' . When the slide l is raised and the part k' of the clutch starts to rotate, the roller n' on the pin n is engaged by the boss o' , and the slide will not be free to descend until the depressed portion o reaches a position beneath the roller.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a machine for nailing boots or shoes, the herein-described means for feeding forward the work; same comprising a bracket whereon is mounted a bell-crank lever provided with a spur and having its pivot mounted to slide in a slot formed in said bracket, a cam and spring, a lever vibrated by the said cam and spring, a link for connecting the last-mentioned lever with the bell-crank lever and a stop on the bell-crank lever for limiting the extent of its rotative movement.

2. In a machine for nailing boots or shoes, the herein-described means for feeding the wire; same comprising a roller and toothed wheel by which the wire is engaged, a spindle to which the toothed wheel is secured, a rotatably-mounted sleeve in which the spindle is eccentrically mounted, a hand-lever for rotating the sleeve, a spring on the hand-lever for keeping the toothed wheel in engagement with the wire, a ratchet-wheel secured to the toothed-wheel spindle, a ratchet-lever loosely mounted on the spindle and provided with one or more pawls for engaging the ratchet-wheel, a cam and spring for vibrating the ratchet-lever and an adjustable stop for regulating the movement of the ratchet-lever.

3. In a machine for nailing boots or shoes, the herein-described means for feeding forward the work; same comprising a bell-crank lever provided with an adjustable spur, a bracket supporting the bell-crank lever, a slot in the bracket, a bolt which serves as a pivot for the bell-crank lever and passes through the said slot in the bracket, a spring and washer on the bolt, whereby the bell-crank lever is maintained in contact with the bracket; a pivoted lever for operating the bell-crank lever, a cam and spring for vibrating the said pivoted lever, a link for connecting the last-mentioned lever with the bell-crank lever, a pin on the bell-crank lever and a second slot in the bracket in which slot the said pin engages.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM EDGAR MADDISON.
WALTER DOWNS.

Witnesses:

WM. C. WOODFORD,
RALPH W. GARDNER.