

**No. 611,991.**

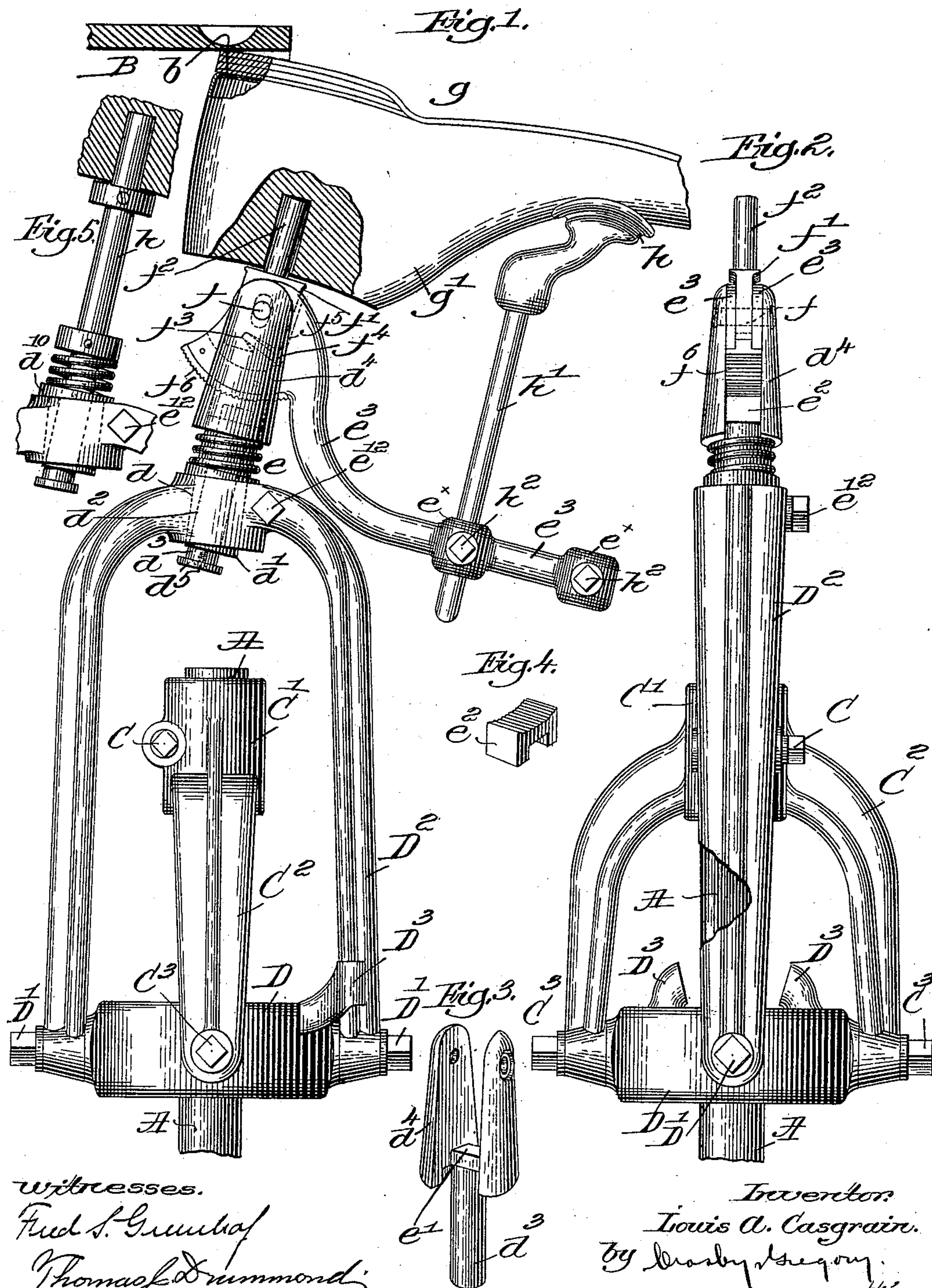
**Patented Oct. 4, 1898.**

**L. A. CASGRAIN.**

**SHOE HOLDING JACK FOR SHOE NAILING MACHINES.**

(Application filed July 14, 1897.)

(No Model.)



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

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## SHOE-HOLDING JACK FOR SHOE-NAILING MACHINES.

SPECIFICATION forming part of Letters Patent No. 611,991, dated October 4, 1898.

Application filed July 14, 1897. Serial No. 644,550. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS A. CASGRAIN, of  
Winchester, in the county of Middlesex and  
State of Massachusetts, have invented an Im-  
5 improvement in Shoe-Holding Heads for Nail-  
ing-Machines, of which the following descrip-  
tion, in connection with the accompanying  
drawings, is a specification, like letters on the  
drawings representing like parts.

10 This invention has for its object the pro-  
duction of a novel, simple, and efficient shoe-  
holding jack, it being adapted more especially  
for holding shoes having what are called  
"spring-heels," the apparatus being used  
15 when attaching the sole and heel to the up-  
per; but the machine may be used when nail-  
ing any usual thin heels to the sole and shoe.

The jack is adapted to support a last, and  
the last-pin is so mounted that it, with the  
20 last, may be turned more or less about a ver-  
tical axis, and in so turning the last-pin and  
last the angular position or location of the  
bottom of the last with relation to a horizon-  
tal plane may be varied as required. The  
25 last-pin may also be so supported that it may  
move not only vertically, but also somewhat  
laterally, the lateral movement of the last-pin  
aiding in crowding the top of the toe of the last  
into and upon a suitable toe rest or support.  
30 The last-pin is carried above the usual horn  
shaft or spindle by or through a universal or  
gimbal jointed connection, shown as a main  
and an auxiliary yoke.

Figure 1, in side elevation, shows a suffi-  
35 cient portion of a jack containing my im-  
provements to enable my invention to be un-  
derstood, the jack having a last and shoe  
mounted upon it in operative position. Fig.  
2 is a right-hand side elevation of Fig. 1 with  
40 the last and shoe removed. Fig. 3 is a de-  
tail showing the forked slide in which is piv-  
otally mounted the last-pin. Fig. 4 shows  
the locking block or device detached. Fig.  
5 shows a modified form of last-pin and its  
45 collar and part of the support or auxiliary  
yoke upon which it will be mounted.

Referring to the drawings, A represents  
the upper end of any usual horn shaft or post

common to usual nailing-machines, and B is  
part of the usual nose-piece to rest upon the 50  
work at the point where the nail is being  
driven into it, said nose-piece having a suit-  
able opening, as *b*, through which a nail may  
be driven into the shoe. In Fig. 1, by full  
lines, the bottom of this nose-piece is made 55  
flat; but it may present a beveled under side,  
if desired, as shown by dotted lines in Fig. 1,  
that depending upon the particular work to  
be done.

The upper end of the horn shaft or post 60  
has secured to it by a suitable screw C the  
split hub of a main yoke C<sup>2</sup>, said yoke at its  
lower end having suitable pivots, shown as  
stud-screws C<sup>3</sup>, which enter and serve as piv-  
ots for a ring D. This ring has pivoted to it 65  
loosely, as by stud-screws D', an auxiliary  
yoke D<sup>2</sup>, provided at its upper end with a hole  
*d*, which is bored therethrough at an angle  
with relation to the center of said horn-shaft.

The ring D is provided with suitable stops, 70  
as D<sup>3</sup>, which as the auxiliary yoke D<sup>2</sup> turns  
in one or the other direction about the stud-  
screws D' meet the yoke, the stops thereby  
limiting the extent of movement of the said  
auxiliary yoke D<sup>2</sup> on or with relation to the 75  
tipping ring D.

The diagonally-bored hole *d* of the auxiliary  
yoke receives a collared sleeve *d'*, which is also  
bored diagonally or angularly, as at *d*<sup>2</sup>, with  
relation to the center of said sleeve, said 80  
diagonal bore receiving, it may be, the shank  
*d*<sup>3</sup> of a forked slide *d*<sup>4</sup>, the lower end of said  
shank having fixed to it by a suitable screw  
a washer or plate *d*<sup>5</sup>, which under the action  
of a spring *e*, surrounding the upper end of 85  
the said sleeve and acting against the shoul-  
der of the forked slide, prevents the shank  
*d*<sup>3</sup> from being lifted from the sleeve when the  
shoe is not acted upon by the nose-piece, the  
rotation of the sleeve *d'* in the yoke varying 90  
the angularity of the last-pin.

The narrow neck *e'* of the forked slide *d*<sup>4</sup>  
is embraced by a U-shaped locking block or  
device *e*<sup>2</sup>, (shown in Fig. 4,) the top of which  
is represented as concave and provided with 95  
a series of teeth.



The forked slide in the drawings, Figs. 1 to 3, has holes in its upper ends to receive a pin or stud  $f$ , said pin also passing through holes in the inner end of a lever  $e^3$  and through a slot (shown by dotted lines, Fig. 1) in the shank  $f'$  of the last-pin  $f^2$ , said shank entering a slot in the inner end of said lever  $e^3$ . The lower end of the shank of the said last-pin has (see Fig. 1) a notch  $f^3$ , which is entered by a strut or pin  $f^4$ , the opposite end of which rests against the bottom or shoulder  $f^5$  of the slot cut in the end of the lever  $e^3$ .

The lever  $e^3$  has, as shown, a plurality of open hubs  $e^x$ , either of which may receive a rod  $h'$ , provided at its upper end with a toe-rest  $h$ , and said rod may be put into either one of said open hubs and be there secured fixedly by a set-screw  $h^2$ , and in either of the adjustments of said rod the toe-rest, preparatory to fixing it in position, may be made to point either to the right or to the left, as may be desired, thereby greatly increasing the range of adjustment of the said toe-rest to lasts and shoes of different lengths. Pressure on the fore part of the last transmitted through the toe-rest and the lever  $e^3$  causes the strut or pin  $f^4$  to act on the shank of the last-pin, turning the last-pin, so that the closeness of the contact of the upper on the last with the toe-rest is augmented.

The lever  $e^3$  has a segmental surface  $f^6$  provided with teeth, and when the last-pin and said lever are depressed, as when the upward pressure of the horn-shaft is operating to force the sole or heel of the shoe against the nose-piece, the teeth on the segmental part  $f^6$  of the lever  $e^3$  meet and engage the locking device  $e^2$ , thereby temporarily locking the said lever in place and holding the shoe at the desired or necessary inclination.

In the operation of driving the nails into the shoe, heel, or sole the horn-shaft is lowered after each nail is driven to thereby enable the usual feeding means to engage and move the shoe the proper distance to receive another nail, and, if necessary, the operator at any time when the horn-shaft is depressed for feeding may engage the lever  $e^3$  by hand and turn the same to change the inclination of the last-pin, and as the horn-shaft rises preparatory to the driving of another nail the locking device will engage the segmental toothed portion of the lever  $e^3$  and again hold said lever in a fixed position with the heel or sole at the proper inclination. This provision of adjusting the inclination of the last-pin is essential in order that the nail being driven may always be inserted at the proper angle into the heel or sole no matter what may be the particular inclination or contour of the heel or sole.

As a modification the last-pin  $h$  (see Fig. 5) may be inserted directly into the diagonally-bored hole of the collar  $d^{10}$ , the said collar whenever the clamping-screw  $e^{12}$  is unloosened being turned, thus changing the last-pin as

to its inclination from a vertical plane, as may be desired.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a nailing-machine, a last-holding pin, a diagonally-bored sleeve to receive said pin, and means to support said sleeve so that it may be rotated to vary the inclination of said pin in said support more or less out of a vertical position, substantially as described.

2. In a nailing-machine, a horn-shaft, an auxiliary yoke or support sustained above it and provided with a hole bored diagonally therein with relation to the center of said horn-shaft, and a sleeve placed in said diagonally-bored hole, combined with a last-holding pin, and a shank carrying it, said shank entering loosely the diagonal hole of said sleeve, the rotation of the sleeve in said support varying the angular position of the last-pin to thereby more or less incline the sole of the shoe supported on said last, substantially as described.

3. In a shoe-holding jack, a forked slide having a shank, a diagonally-bored sleeve to receive said shank, a yoke or support having a diagonally-bored hole to receive said sleeve, said sleeve being rotatable in said yoke or support; a spring to support said forked slide in a yielding manner; a locking device carried by said forked slide; a last-pin, and a lever having segmental teeth to support a last and its shoe, and carrying a toe-rest, said pin and lever being pivoted in said sleeve; pressure on the last carried by said pin in making the shoe putting the toothed part of said lever into engagement with said locking device and holding the last-pin and lever and toe-rest firmly in position, substantially as described.

4. The horn-shaft, its attached main yoke, a ring pivoted on or with relation to said yoke, and an auxiliary yoke pivotally mounted on said ring and having a diagonally-bored hole; combined with a last-pin, and a sleeve bored diagonally and placed loosely in the hole of said yoke, the rotation of said sleeve placing said last-pin in a position inclined more or less from a vertical, substantially as described.

5. The last-pin having a slotted shank, a lever, in one end of which the said shank is fitted, a forked slide, in which the said lever and shank are pivoted, a toe-rest mounted on said lever, combined with a last mounted on said last-pin and resting on said toe-rest, and means to sustain the said forked slide, substantially as described.

6. A last-pin having a slotted and notched shank, a forked slide, and a lever having a connected toe-rest, combined with a strut or pin located between the said lever and the notched shank of the last-pin, to operate substantially as described.

7. The last-pin, and forked slide having a shank in which said pin is mounted to tip, com-



bined with a sleeve having a diagonally-bored hole to receive the shank of said slide, and means to sustain said sleeve loosely, whereby by rotating said sleeve in its sustaining means the angular position of the last-pin may be changed at will, substantially as described.

8. The last-pin, and forked slide in which said pin is mounted to tip, combined with a sleeve having a diagonally-bored hole to receive the shank of said slide, and means to sustain said sleeve loosely, the said sleeve being rotatable in its sustaining means to change the angular position of the last-pin; and a spring surrounding the shank of said slide to normally keep said slide elevated, substantially as described.

9. A last-pin, and forked slide having a shank in which said pin is mounted to tip, and a lever pivoted between the forked upper end of said slide, and having a series of teeth arranged in the form of a segment, combined with a sleeve having a diagonally-bored hole to receive the shank of said slide, means to sustain said sleeve, the said sleeve being rotatable in its sustaining means to change the angular position of the last-pin, a spring surrounding said shank and serving to normally keep said slide elevated, and a locking device to engage the toothed part of said lever, to thereby hold it in place, substantially as described.

10. The forked slide having a shank, a last-pin, a toothed lever mounted in said forked slide, a toothed locking-block mounted loosely in said slide to engage the teeth of said lever when the last-pin and the toothed end of said lever are depressed; combined with a sleeve in which the said forked slide enters, and means to sustain said sleeve, substantially as described.

11. The forked slide having a shank, a last-

pin, a lever mounted in said forked slide and provided with teeth, a toe-rest adjustable on said lever, a toothed locking-block to engage the teeth of said lever when the last-pin is depressed, combined with a sleeve having a diagonally-bored hole to receive the shank of said forked slide, and means to sustain said sleeve, substantially as described.

12. In a shoe-holding jack, a lever provided with a toe-rest, means to sustain one end of said lever, and a movable last-pin sustained by a holder mounted loosely at one end of said lever, combined with a pin or strut co-operating with said holder and lever to operate, substantially as described.

13. The forked slide having a shank provided with a stop to limit its upward movement, a guide for said shank, a spring interposed between a shoulder of said forked slide and said guide, to normally keep said slide elevated, a lever having a toothed segmental part, a toe-rest supported by said lever, a last-holding pin mounted in said lever and adjustable therein, combined with a locking device made as a toothed block sustained loosely in the fork of said slide, said locking device being stopped by contact with the guide in which works the shank of said forked slide, the further descent of said forked slide after the arresting of the said locking device causing the toothed part of said lever to engage said locking device and lock the last-holding pin and toe-rest firmly in position, substantially as described.

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

LOUIS A. CASGRAIN.

Witnesses:

GEO. W. GREGORY,  
MARGARET A. DUNN.