

(No Model.)

2 Sheets—Sheet 1.

J. A. CAIN.
BOX NAILER.

No. 485,530.

Patented Nov. 1, 1892.

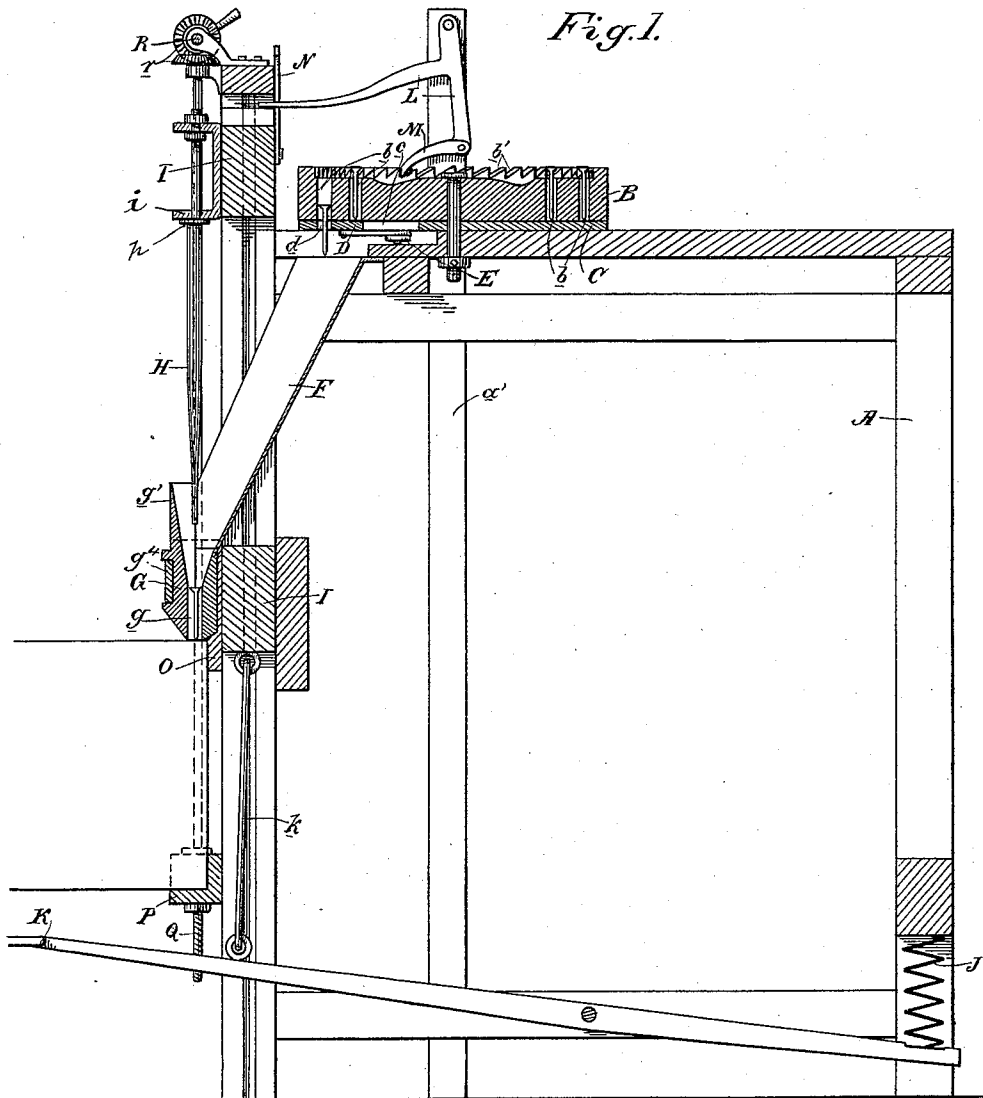
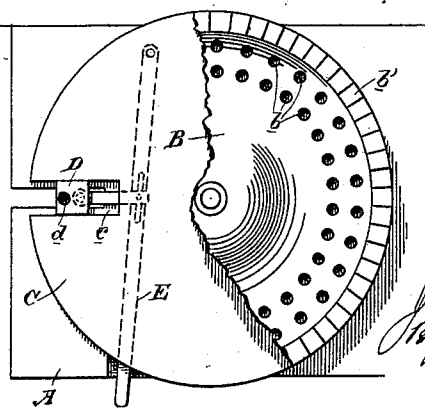


Fig. 2.



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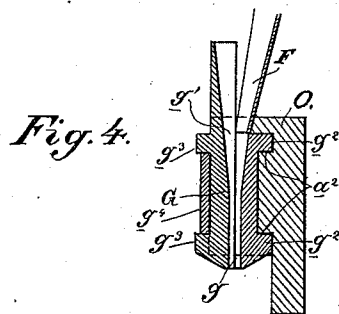
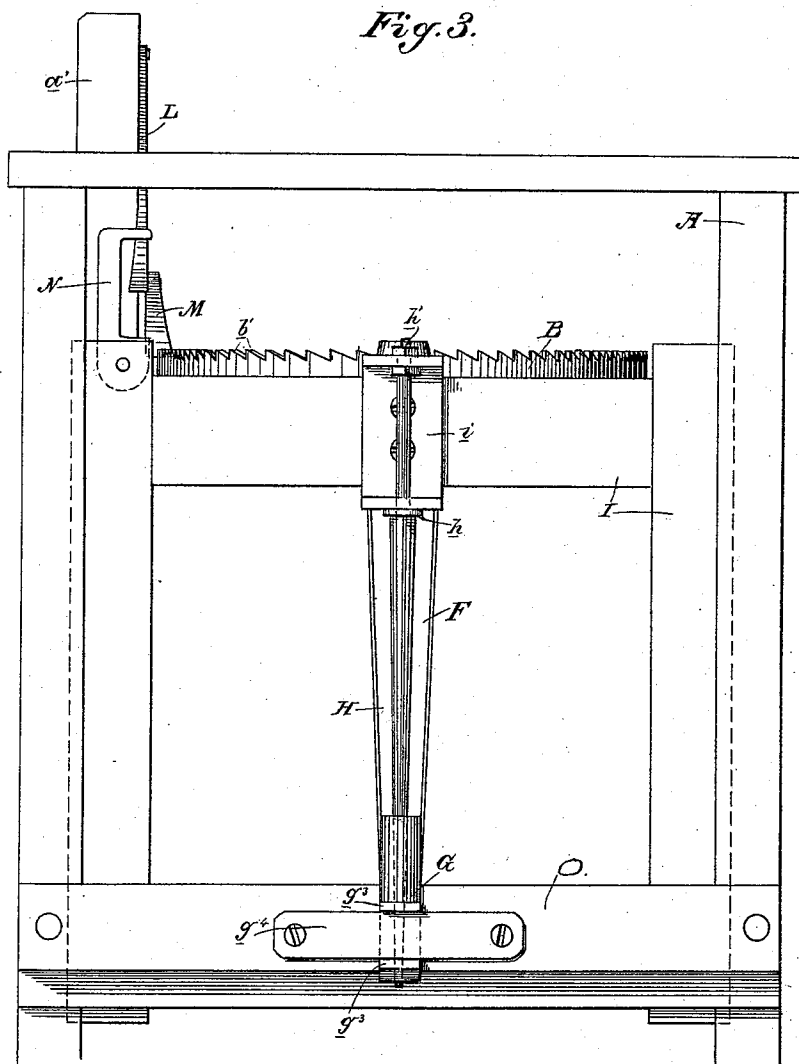
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2 Sheets—Sheet 2.

J. A. CAIN.
BOX NAILER.

No. 485,530.

Patented Nov. 1, 1892.



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UNITED STATES PATENT OFFICE.

JAMES A. CAIN, OF MARKHAM, CALIFORNIA.

BOX-MAILER.

SPECIFICATION forming part of Letters Patent No. 485,530, dated November 1, 1892.

Application filed December 26, 1891. Serial No. 416,231. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. CAIN, a citizen of the United States, residing at Markham, Sonoma county, State of California, have

invented an Improvement in Box-Nailers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of nailing-machines in which a reciprocating hammer operates upon nails fed successively to a directing-chute.

My invention consists in the novel construction, arrangement, and combination of parts hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a simple, effective, and rapidly-operating nailing-machine especially intended for box-nailing.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical section of my machine, showing the back flanges g^2 of the nail-holder and the shoulders in the socket omitted. Fig. 2 is a plan of the carrier B, a portion being broken away to show plate C and the regulating-slide D therein. Fig. 3 is a front view of the machine with the adjustable rest-slat and its actuating mechanism omitted. Fig. 4 is a detail showing in section the nail-holder with its back flanges and the socket with its shoulders, against which the flanges bear.

A is the frame of the machine. Upon its top is a centrally-pivoted nail-carrier B, consisting of a disk having made in it one or more concentric rows of nail-sockets b . (Here shown in two rows.) This carrier rests upon a wearing-plate C, and the nails in the sockets b are held therein by resting their points on this plate. In the front of plate C is made a slot c , in which is mounted a slide D, having a hole d . The slide is moved by means of a pivoted lever E, passing under the plate and connected with the slide. The end of lever E projects to the side of the machine, where it can be readily reached for manipulation. By moving this lever the slide is moved to bring its hole in line with any row of nail-sockets b . Directly under the slide is a fixed feed-chute F, the lower end of which

is in communication with the top of the nail-holder G. This holder is made in two separable parts, each having half the passage made in it. This passage g has a flaring top g' . The nail-holder is carried by a cross-piece a of the frame and is readily removable therefrom to provide for the substitution of another of different size for different-sized nails. This removability is attained, as shown in Fig. 4, by mounting said parts in a socket in the cross-piece O, the inner part having back flanges g^2 bearing against shoulders a^2 in said socket and the outer part having flanges g^3 , between which lies a cross-plate g^4 , screwed to piece O and serving as a clamp and support for said outer part of the nail-holder. By removing said clamp-plate both parts of the holder can easily be removed.

H is the hammer. It consists of a vertical bar the lower end of which is adapted to enter and pass through the nail-holder G. The hammer is carried by a vertically-movable sash I, mounted in the front of frame A. This sash is raised by a suitably-arranged weight or by a spring J, as here shown. It is forced down by means of a treadle K, connected with it by a rod k . The hammer is easily removable from the sash to provide for the substitution of another of different size. To accomplish this, the hammer is mounted in an armed bracket i , secured to the sash I, said hammer being shouldered at h under the lower arm of the bracket and provided with nuts or equivalent means for enabling it to be dropped down through the bracket and removed.

The feed of the nail-carrier B is effected as follows: To a standard a' of frame A is pivoted an elbow-lever L, to the lower end of one arm of which is pivoted a pawl M, which engages a series of ratchet-teeth b' , with which the rim of carrier B is provided. The other arm of lever L lies over and in the path of the vertically-movable sash I. To the sash is pivoted a catch-arm N, the upper end of which lies above the actuating-arm of lever L. To the front of frame A is secured a guide-slot O for the box. Under this is a vertically-adjustable rest-slat P for the box. This slat is adjusted by being carried on the lower threaded ends of vertical shafts Q, operated from above

by a crank-shaft R through the intervention of bevel-pinions *r*. This provides for different sizes of boxes.

The operation of my machine is as follows:

5 The nails are placed in the sockets *b* of the carrier B. The slide D is adjusted for the outer row of sockets. A nail drops from a socket *b* through hole *d* in the slide and passes down through chute F into holder G. In this
10 holder it is momentarily sustained and guided, the flaring upper end *g'* of the holder-passage *g* conducing to accuracy in the position of the nail. Now the sash I is brought down by the treadle, whereby the hammer H comes down
15 upon the nail and drives it through the holder into the box. In this downward movement of the sash the catch-arm N comes in contact with the actuating-arm of lever L and swings it so that the pawl M is carried back, slipping
20 over one tooth of the ratchet *b'* of carrier B. When the treadle is released, the sash rises again, withdrawing its hammer from holder G. In this upward movement the top of the sash comes in contact with the actuating-arm
25 of lever L and so swings it that its pawl M is brought forwardly. The pawl, engaging the ratchet of carrier B, turns said ratchet, so as to carry its next socket into line with hole *d* of slide D, whereupon another nail drops
30 through. Thus the operation is continued until all the nails of the outer row of sockets *b* are exhausted. Then the slide D is moved by lever E to bring its hole in line with the next row of sockets, and the operation is continued
35 as before.

By throwing back the catch-arm N, so that it will not engage lever L, the feed can be stopped at any time. This is especially useful in case the machine is run by power.

40 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a box-nailing machine, the combination of a centrally-pivoted horizontal carrier
45 having a concentric row of nail-sockets and a row of ratchet-teeth upon the upper surface of its rim, a directing-passage under the carrier to receive the nails successively from the sockets thereof, a nail-holder to receive the
50 nails from the passage, a vertically-reciprocating sash, a hammer carried by said sash, a swinging two-armed lever above the carrier

and having a feed-pawl on one arm engaging the ratchet-teeth of said carrier and its other arm lying in the path of the uprising sash, whereby it is raised, and a catch-arm carried
55 by said sash and lying above the lever-arms, whereby it is depressed, said catch-arm being pivoted to the sash, whereby it may be thrown back out of engagement with said lever-arm
60 to stop the feed of the carrier, substantially as herein described.

2. In a box-nailing machine, the combination of the rotary carrier having a plurality
65 of concentric rows of nail-sockets, a fixed solid plate lying under said carrier, forming a rest and support for the points of the nails in the carrier-sockets, and an adjustable slide in said fixed plate, having a hole adapted by the
70 movement of said slide to be brought into line successively with the several rows of nail-sockets in the carrier, substantially as herein described.

3. In a box-nailing machine, the combination of the rotary carrier having a plurality
75 of concentric rows of nail-sockets, a fixed solid plate lying under said carrier, forming a rest and support for the points of the nails, the adjustable perforated slide in said plate, and the lever for moving said slide to bring its
80 hole into line successively with the several rows of nail-sockets in the carrier, substantially as herein described.

4. In a box-nailing machine, the combination of the rotary carrier having a plurality
85 of concentric rows of nail-sockets, the fixed solid plate lying under said carrier and forming a rest and support for the points of the nails, the adjustable slide in said plate, having a hole adapted to be brought into line successively with the several rows of nail-sockets,
90 the fixed chute under the slide, the nail-holder at the lower end of the chute, the hammer, the vertically-movable sash carrying the hammer, and the pawl-and-ratchet connection between the sash and carrier, substantially
95 as herein described.

In witness whereof I have hereunto set my hand.

JAMES A. CAIN.

Witnesses:

S. H. NOURSE,
H. F. ASCHECK.