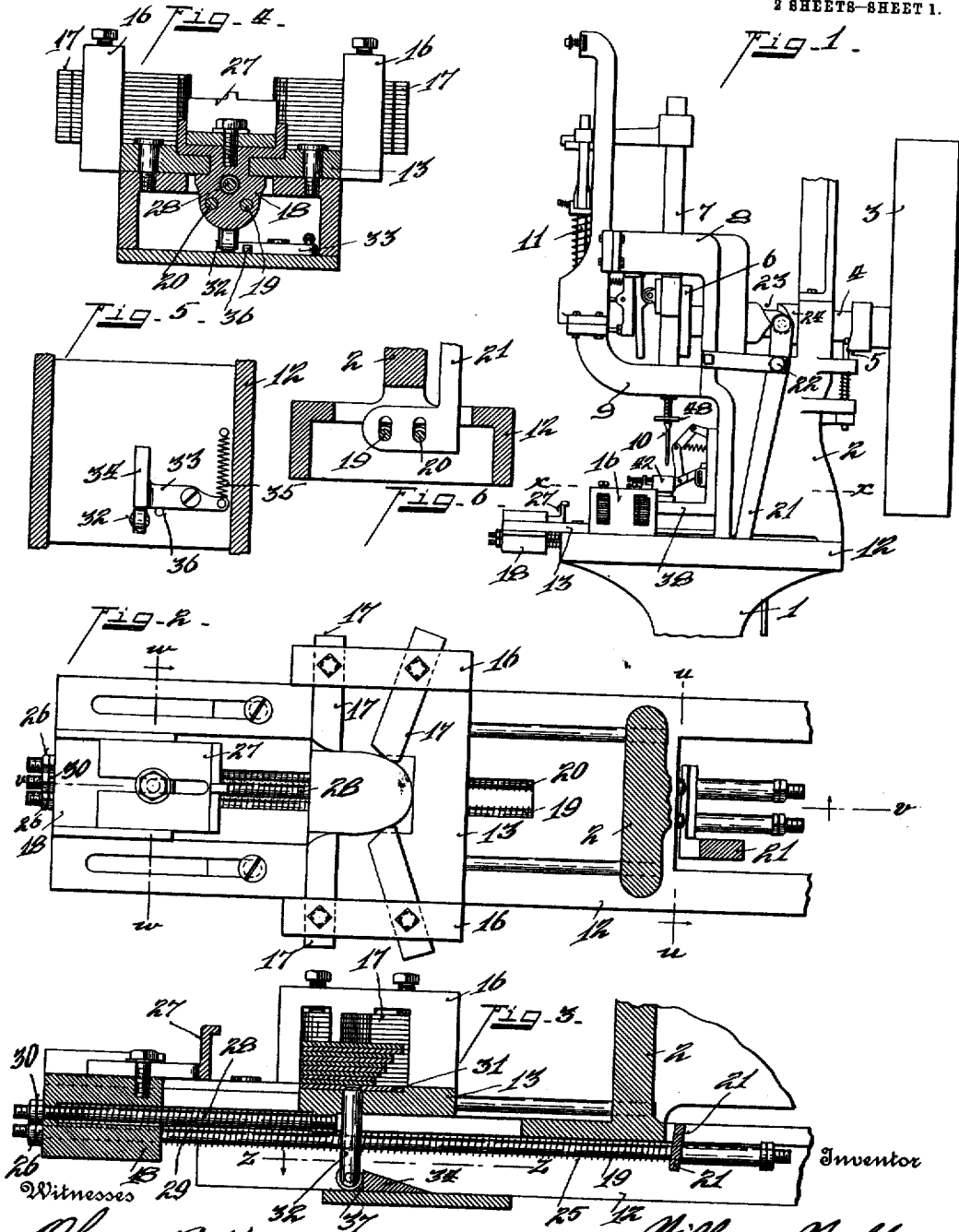


W. WOLFE.
HEEL BUILDING MACHINE.
APPLICATION FILED NOV. 29, 1909.

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Patented Oct. 3, 1911.

2 SHEETS-SHEET 1.

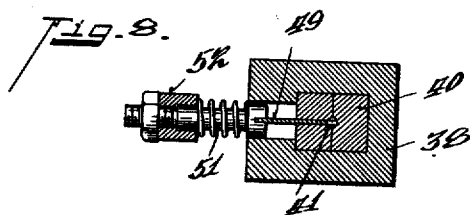
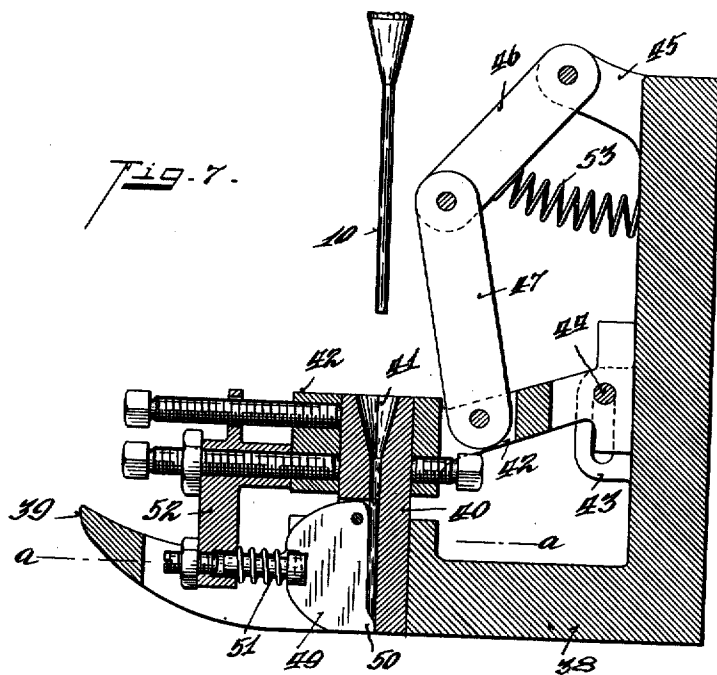


Inventor
William Wolfe
Witnesses
Chas. B. Fair
E. B. Foster
364
Ward & Ward
Attorneys

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Witnesses

Oliver B. Vaux
G. B. Foster

Inventor

William Wolfe

384

Wood & Wood

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM WOLFE, OF CINCINNATI, OHIO, ASSIGNOR TO THE AMERICAN HEEL MACHINE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

HEEL-BUILDING MACHINE.

1,004,952.

Specification of Letters Patent.

Patented Oct. 3, 1911.

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To all whom it may concern:

Be it known that I, WILLIAM WOLFE, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Heel-Building Machines, of which the following is a specification.

My invention relates to certain features of improvement in heel building machines of the type shown and described in a former patent issued to me—Reissue No. 12,433, dated January 2, 1906.

One of the objects of my invention is to provide a heel lift carrier and a front gage carrier of differential actuation in their reciprocation to and from the nail block and driver, with side gages adjustably mounted upon and movable with the heel lift carrier.

Another object of my invention is to provide a heel building machine with a heel carrier and front gage carrier, with intermediate flexible connections between said carriers, and means for actuating said heel lift carrier, whereby both carriers are operated from a single actuating mechanism, but in differential distances of travel wherein in normal position the front gage carrier occupies a position away from the straight edge of the heel.

Another object of my invention relates to means for pressing the nail block against the upper lift for nailing, in combination with means for gripping a nail within the nail block prior to a driving operation, comprising a swinging pawl closing the exit of the nail groove or bore formed in the nail block.

The other features of my invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a side elevation of my improved heel building machine. Fig. 2 is a section on line *x, x*, Fig. 1. Fig. 3 is a section on line *v, v*, Fig. 2. Fig. 4 is a section on line *w, w*, Fig. 2. Fig. 5 is a section on line *z, z*, Fig. 3. Fig. 6 is a section on line *u, u*, Fig. 2. Fig. 7 is an enlarged central vertical section of the nail block. Fig. 8 is a section on line *a, a*, Fig. 7.

1 represents the base frame or pedestal supporting the head frame 2.

3 represents a pulley loose on the shaft 4, adapted to be clutched thereto by means

of the clutch mechanism 5. The clutch mechanism may be of any well-known construction, in which it is required to trip the same for each revolution of the shaft, the trip throwing the shaft into connection with the driving pulley and automatically disconnecting them upon a complete revolution. The front end of the shaft 4 is provided with a crank disk 6, having a crank pin engaging into a sliding box, slidably mounted in a horizontal path in the plunger 7, mounted in the bearing brackets 8, 9, for imparting vertical reciprocation to the plunger 7. The plunger 7 upon one end is provided with the nail driver 10.

11 represents the wire feed and nail forming mechanism, operated in proper time movements for forming and feeding a wire nail to the nail block, which mechanism is of the type illustrated in Patent No. 883,126, issued to me on March 24, 1906.

It has been found desirable to have the front gage capable of actuation independent of the heel lift carrier and the side and rear heel lift gage plates movable with the heel lift carrier. This affords free access in placing the heel lifts upon the carrier between the gage plates.

In my former patent the heel lifts were compiled upon the carrier against the front gage, and when the heel was built to the suitable height, were moved inward with the carrier under the nail block against the adjustable side and rear gages. In my present invention, the heel lifts are set in proper position against the side and rear gages upon the carrier and when compiled to their proper height the driving mechanism is thrown in, moving the carrier a predetermined distance beneath the nail block, following with the front gage capable of increased movement or travel against the straight edge of the heel, after the heel carrier has been brought to rest, imparting a compression movement against the heel prior to a nailing operation. This is accomplished by the following instrumentalities:—12 represents the base plate of the frame 2, its upper surface forming a slide-way for the heel carrier 13, slidably mounted thereon. 16 represents upwardly projecting brackets formed on the carrier 13, within which are mounted the adjustable side and rear gage plates 17. 18 represents a front gage plate carrier slidably mounted upon a

way formed upon the heel carrier. 19, 20, represent connecting rods passing through a bore formed in the front gage plate carrier 18 at one end, the opposite end projecting through the main actuating lever 21, pivotally connected at 22 with the main frame of the machine. The lever 21 is provided at its opposite end with a pin carrying a roller projecting into the cam groove 23, formed upon the periphery of the cam 24, fixed to the shaft 4, the cam on each rotation swinging the lever 21 to impart the proper travel to the heel carrier and its contained mechanism. The rods 19 and 20 are each provided with a coil spring 25, one end of which engages against the lever 21, while the opposite end engages with the front gage plate carrier 18, forming means for returning the front gage carrier to its normal position. The connection of the rods 19 and 20 with the lever 21 and front gage carrier 18, being positive in one direction, that of its inner feed toward the nail block, and loose in the opposite direction of movement, which provides convenient means for readily adjusting the front gage relative to the heel for imparting greater or less compression against the heel. This enables the front gage plate to be adjusted from the front of the machine by adjusting the nuts 26 on the rods 19, 20. While two rods are shown, it is obvious that the same result can be accomplished by a single rod centrally alined.

27 represents a front gage adjustably mounted upon the carrier 18. 28 represents a rod fixed to an ear projecting from the heel carrier 13 at one end, the opposite end projecting through a bore formed in the gage carrier 18. 29 represents a spring, one end of which engages against the ear on the carrier 13, while the opposite end of the spring engages against the carrier 18, for moving the heel carrier 13 beneath the nail block. This forms a yielding connection between the two carriers to permit the gage carrier to travel a greater distance than the heel carrier to impart compression upon the heel, the operation being as follows:—

After a heel has been built by inserting the proper number of lifts between the side and rear gage plates, the clutch 5 is tripped, revolving the shaft 4 and cam 24, moving the lever 21 rearward, carrying the rods 19, 20, and gage carrier 18, which action will compress the spring 29 until sufficient tension is exerted thereon to move the heel carrier 13 beneath the nail block abutting against the frame 2, limiting its rearward travel. The gage carrier will continue its travel to the complete stroke of the lever 21, bringing greater compression upon the spring 29, with the rod 28 remaining stationary and carrier 18 moving over the same.

Upon the return movement of the carrier 18,

it will contact against the nut 30, of the rod 28, carrying the heel carrier 13 with it.

It is desirable to automatically eject the finished heel from the carrier, which is accomplished by the following instrumentalities:—31 represents a plunger plate, see Fig. 3, seated within the top face of the carrier 13 and alined flush therewith in normal position, and 32 represents a plunger rod slidably mounted and projected through the heel carrier 13. 33 represents a cam lever pivotally mounted upon the base plate 12, having an inclined way 34, provided at one end thereof. 35 represents a spring connected to the opposite end for maintaining the lever under tension against the stop pin 36. Upon the forward movement of the heel carrier, the plunger 32 will engage against the shoulder 37, formed at one end of the inclined way 34, carrying the same with it until in its arc of travel it moves away and out of engagement with the plunger rod 32, after which it will snap back into its normal position. Upon the return movement of the carrier 13, the plunger rod will travel upon the inclined way 34, thereby raising the plunger plate 31, ejecting the heel, the plunger plate and rod returning to normal position by reason of its travel over the inclined way 34.

In order to press the nailing block firmly, I provide the devices shown in Figs. 7 and 8, in which 38 represents a foot fixed to the frame 2, having the upturned toe 39, extending outward and beneath which the heel carrier 13 travels, adapted to engage and gradually compress the upper edge of the compiled heel lifts. 40 represents the nailing block projecting through the foot 38, said nailing block being preferably made of two sections, each provided with a groove forming a nail receiving bore 41, when clamped together and projected through the foot 38. 42 represents a bracket arm secured to the nail block, having a sliding engagement between a pair of ears 43, formed upon the foot 38, by means of a pin 44, projected through slots formed in said ears 43. 45 represents an ear, projected from the foot 38, to which is pivotally connected a link 46, which in turn is pivotally connected to a second link 47, said link 47 at its opposite end being pivotally connected to the bracket arm 42. 48 represents a dog mounted upon the nail driver, adapted to engage the links 46, 47, in the downward movement of the nail driver, flexing the same toward a vertical position, depressing the bracket and moving the nail block 40 downward under a leverage pressure to clamp the lower end of the block firmly against the upper heel lift of the series, thereby forming a nail-guide directly over the heel. This prevents the nail from deflecting outward when it is being driven into the heel. 49 represents a

pivoted pawl or latch plate for holding the nail in position in the nail block prior to its driving operation. This latch plate comprises a thin blade of elongated form, pivoted within a slot formed in one of the nail block members 40, and provided with a lip 50, at the discharge end of the nail block to completely close the nail bore. 51 represents a spring controlled pin, having a notched engagement with the latch plate 49 and seating within a bearing 52, secured to the nail block bracket 42, or may be cast integrally therewith. This spring controlled pin exerts inward tension upon the latch plate 49. 15 This forms a very efficient means for holding the nail in position within the nail block prior to a nail driving operation, without interfering with the drive of the nail. 53 represents a spring for returning the links 46, 20 47, nail block and nail block bracket to normal position after a nail driving operation, releasing the nail block from its engagement with the heel.

Having described my invention, I claim:—

25 1. In a device of the class described, a nail driver, a reciprocating lift carrier, a nail block support beneath which the carrier reciprocates to compress the heel lifts upon the carrier, a nail block vertically movable
30 therein, link mechanism connected with said nail block and support adapted to be engaged by the nail driver to depress the nail block upon the heel lift, and means for automatically restoring the movable elements
35 to normal position after each driver operation.

2. In a device of the class described, a nail driver, a reciprocating lift carrier, a nail block support beneath which the carrier reciprocates to compress the heel lifts upon the carrier, a nail block vertically movable therein, link mechanism connected with said nail block and support adapted to be engaged by the nail driver to depress the
40 nail block upon the heel lift, a latch plate pivotally mounted and projected into the bore of the nail block having a lip obstructing the passage of said nail block, tension means for normally maintaining said latch
45 plate within the bore.

3. In a device of the class described, a nail driver, a reciprocating lift carrier, a nail block support beneath which the carrier reciprocates to compress the heel lifts upon

the carrier, a nail block bracket arm vertically movable upon said nail block support, a two-part nail block secured within said bracket arm, means connected to said bracket arm projecting in the path of the nail driver to depress said nail block at
60 each driver operation, a latch plate for holding a nail within the throat of the nail block, one end thereof provided with a lip to obstruct the throat of said nail block, tension means for said latch plate movable
65 with the nail block, and means for automatically restoring said nail block to normal position after each driver operation.

4. In a heel building machine, a frame, a heel lift carrier horizontally reciprocated
70 thereon, a plurality of independent adjustable plates mounted on said carrier to gage the heel lifts, a gage carrier mounted on said heel lift carrier, yielding connections between said carriers, and means for reciprocating
75 said carriers with the gage carrier adapted to move independent of the heel lift carrier, at the limits of reciprocation.

5. In a heel building machine, a heel lift carrier, a plurality of gage plates adjustably mounted upon said carrier to gage the series of lifts of a heel, a front gage carrier movable upon said heel lift carrier, intermediate yielding connections between said
80 carriers, means for reciprocating said carriers, whereby through the intermediate yielding connection the carriers have differential limits of reciprocation.

6. In a heel building machine, a heel lift carrier, a plurality of gage plates adjustably
90 mounted upon said carrier to gage the series of lifts of a heel, a front gage carrier movable upon said heel lift carrier, intermediate yielding connections between said carriers, means for reciprocating said carriers, where-
95 by through the intermediate yielding connection the carriers have differential limits of reciprocation, and heel ejector means movable with said heel carrier and projected through the same, and cam mechanism
100 in the path of ejector travel for operating the same.

In testimony whereof, I have hereunto set my hand.

WILLIAM WOLFE.

Witnesses:

OLIVER B. KAISER,
C. B. FOSTER.