

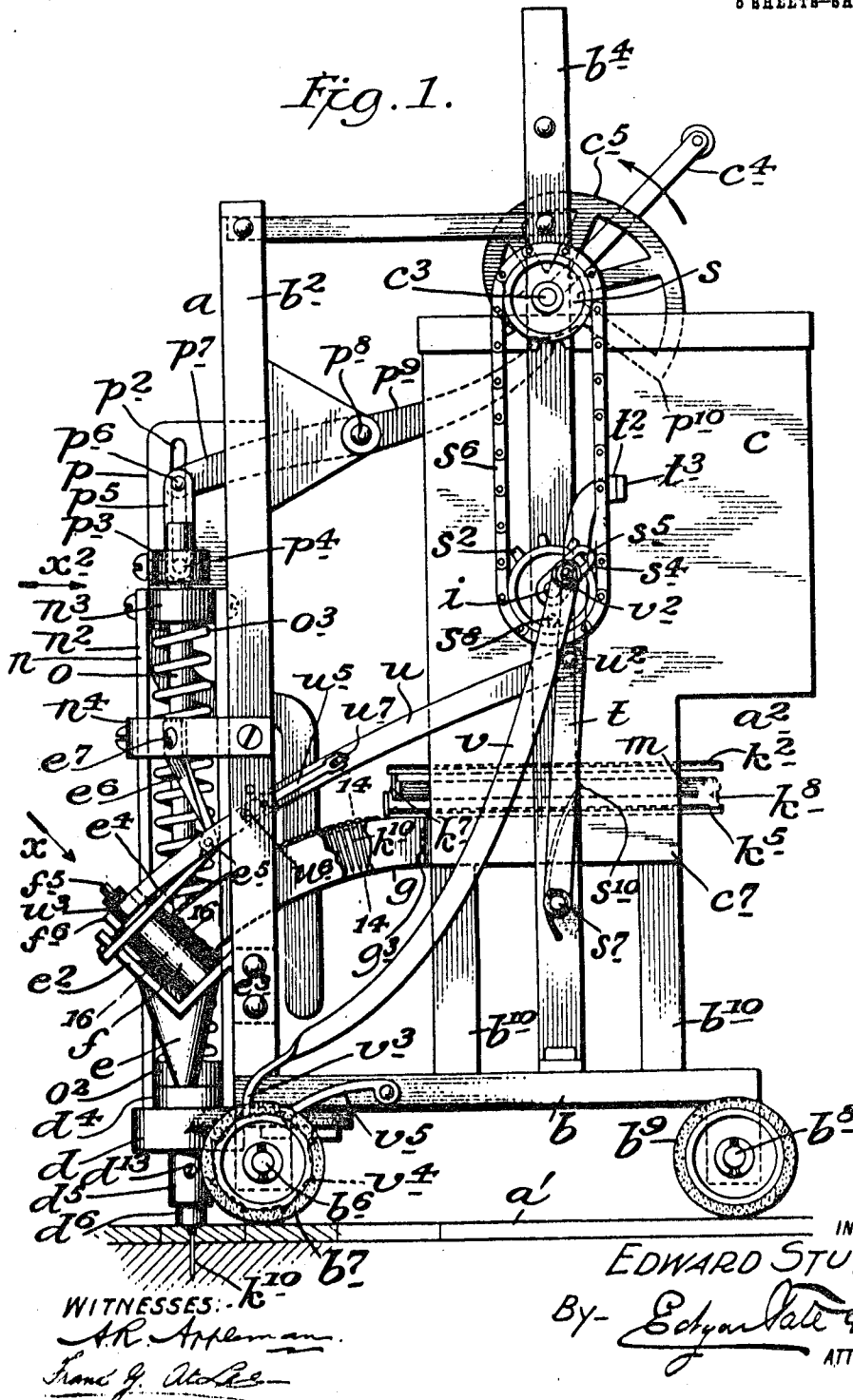
E. STUTZER.
NAILING MACHINE.
APPLICATION FILED JULY 24, 1911.

1,060,377.

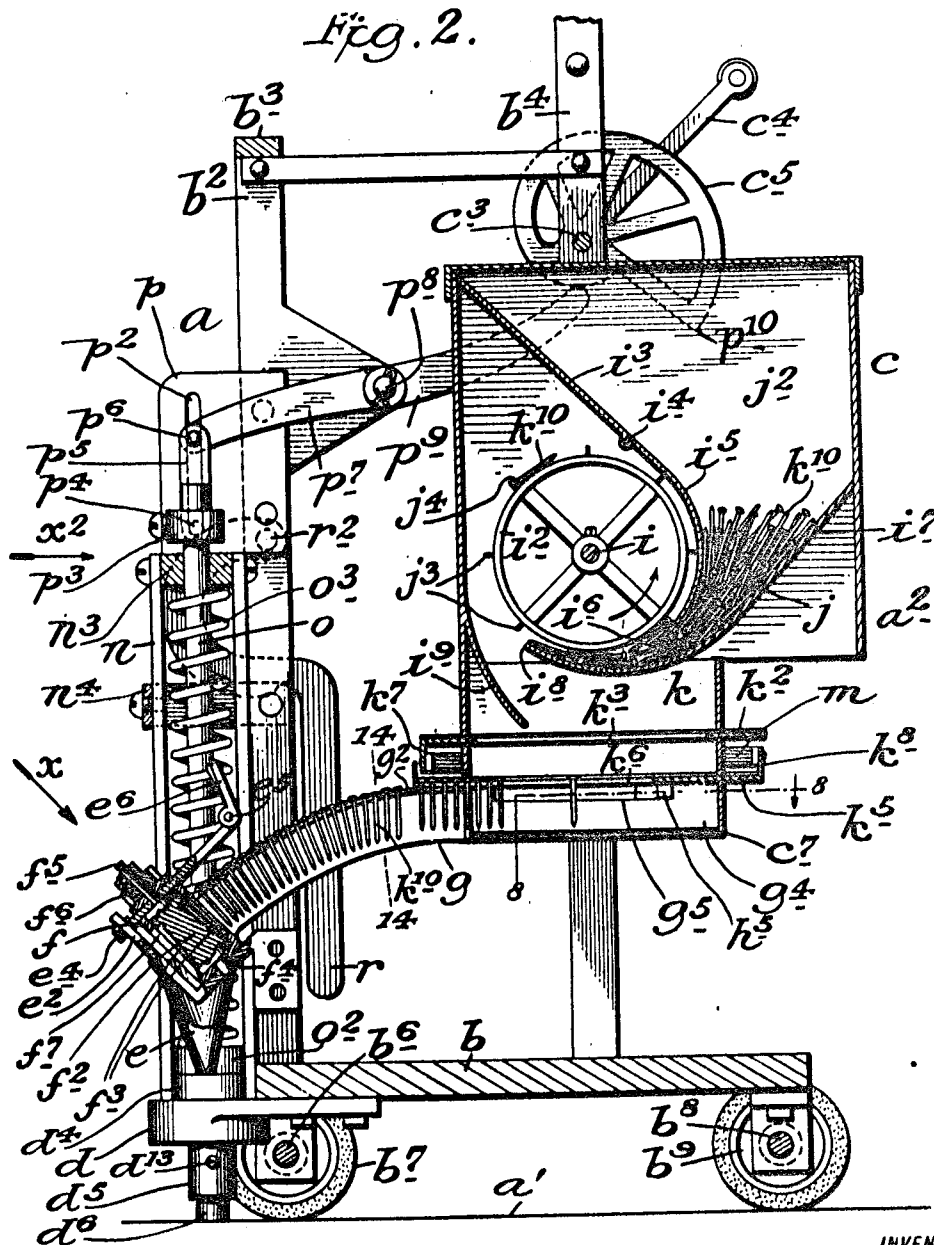
Patented Apr. 29, 1913

6 SHEETS—SHEET 1.

Fig. 1.



6 SHEETS—SHEET 2.



WITNESSES

A.R. Appelman.

Frank J. Atlee

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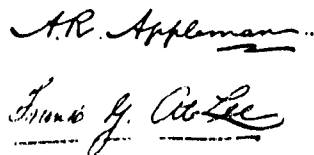
INVENTOR.

EDWARD STUTZER.

Edgar Tate & Co.
ATTORNEYS.

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6 SHEETS—SHEET 3.



BY

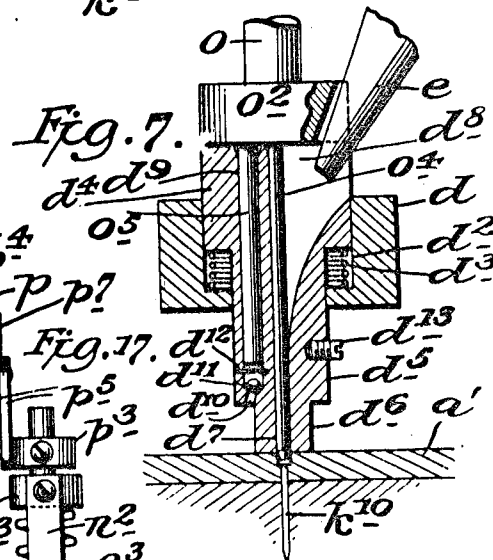
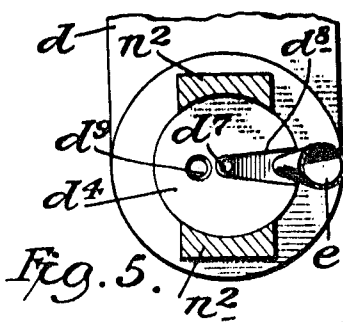
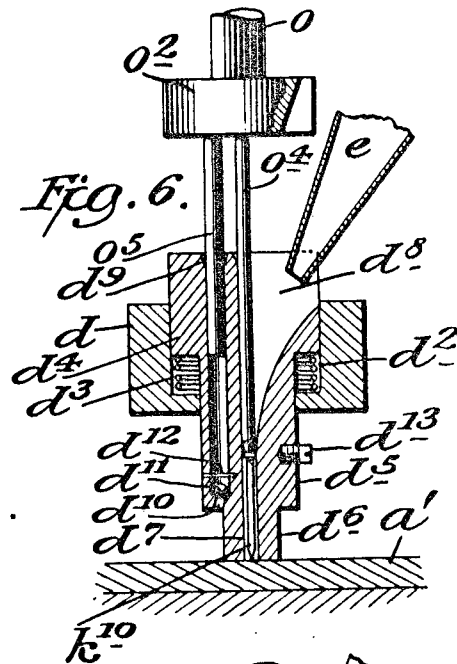
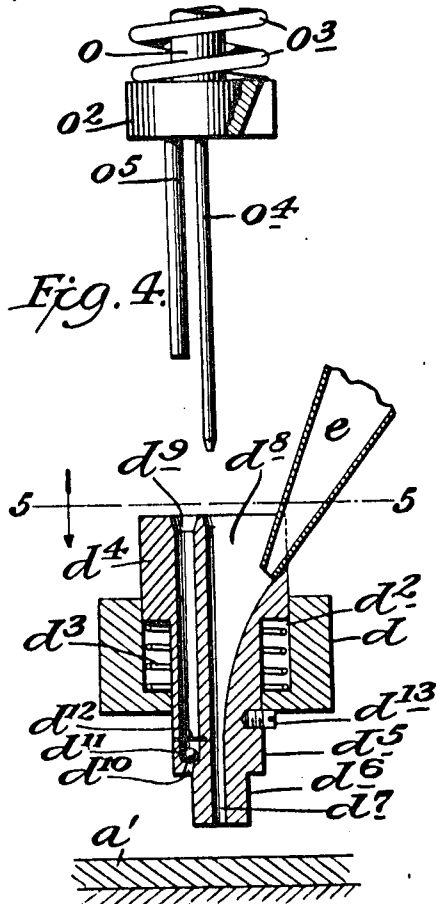
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6 SHEETS—SHEET 4.

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WITNESSES

A.R. Appleman

Frank J. Atlee

BY

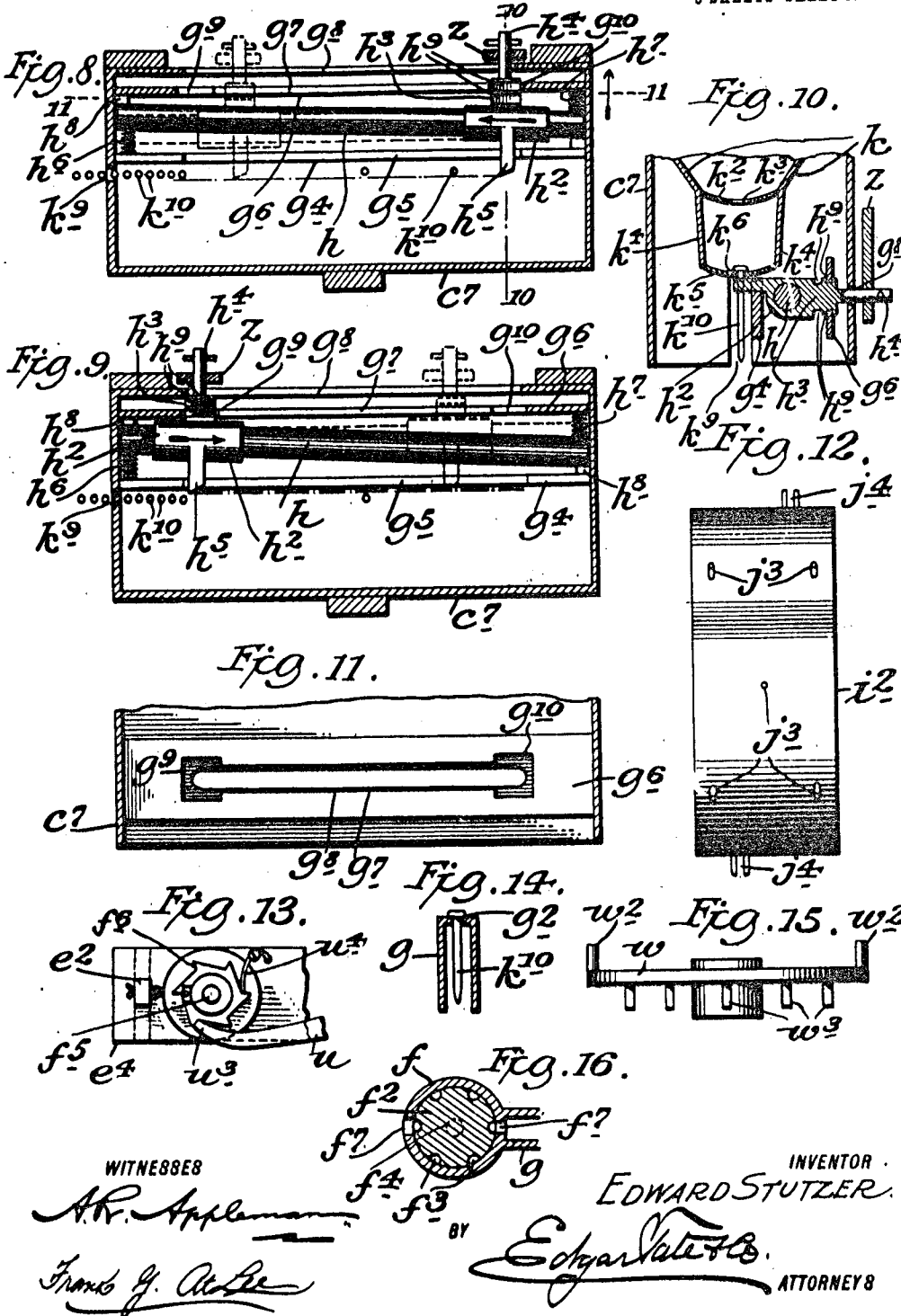
INVENTOR.
EDWARD STUTZER.

Edgar & Co.
ATTORNEYS.

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8 SHEETS—SHEET 6.

1,060,377.



WITNESSES

W. Applamann
Frank G. Allen

INVENTOR

EDWARD STUTZER.

BY

Edgar Tate & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD STUTZER, OF BROOKLYN, NEW YORK.

NAILING-MACHINE.

1,060,377.

Specification of Letters Patent.

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Application filed July 24, 1911. Serial No. 640,118.

To all whom it may concern:

Be it known that I, EDWARD STUTZER, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Nailing-Machines, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to machines for driving nails and particularly to machines of this class designed for use in nailing down floors, and more particularly for nailing parquet floors; and the object thereof is to provide an improved machine of this class which, in the form of construction shown, comprises a truck frame mounted on wheels and adapted to be moved around over a floor, a nail feeding and placing mechanism, a nail driving mechanism and a mechanism geared in connection with the wheels of the frame for moving the machine around over the floor; all of said mechanisms being geared in connection with and operated by a single crank shaft, the construction and operation being such that the machine is given an intermittent or step by step movement and a nail placed and driven at each movement; and with these and other objects in view, the invention consists in a machine of the class specified, constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a left side view of my improved nail driving machine, part of the construction being broken away, and showing the machine mounted on the floor and a nail driven; Fig. 2 a view of the machine similar to Fig. 1, but showing part of the construction in vertical section and part broken away; Fig. 3 a right side view of the machine; Fig. 4 a detail front view of two parts of the nail driving mechanism on an enlarged scale, one part being in vertical section and a portion of the other part being broken away; Fig. 5 a section on the line 5—5 of Fig. 4; Fig. 6 a view similar to Fig. 4, but showing the parts in a different position and the

method of their operation; Fig. 7 a view similar to Fig. 6, but showing the parts in a still different position and showing a nail driven; Fig. 8 a partial horizontal section on the line 8—8 of Fig. 2 and on an enlarged scale and showing details of the nail feeding and placing mechanism; Fig. 9 a view similar to Fig. 8, but showing the parts in a different position; Fig. 10 a section on the line 10—10 of Fig. 8; Fig. 11 a partial section on the line 11—11 of Fig. 8; Fig. 12 a face view on an enlarged scale of a nail feed drum which forms part of the feeding and placing mechanism and an end view of which is given in Fig. 2; Fig. 13 a detail view on an enlarged scale of a part of the nail feeding and placing mechanism looking in the direction of the arrow X of Figs. 1, 2 and 3; Fig. 14 a section on an enlarged scale through a nail guide chute which forms a part of the nail feeding and placing mechanism, said section being taken on the line 14—14 of Figs. 1 and 2; Fig. 15 a plan view on an enlarged scale of a rocker disk which forms a part of the nail feeding and placing mechanism and a side view of which is given in Fig. 3; Fig. 16 a partial section on an enlarged scale on the line 16—16 of Fig. 1, and Fig. 17 a front view of a detail of the hammer mechanism looking in the direction of the arrow X² of Figs. 1, 2 and 3.

In the accompanying drawing, Figs. 1 to 3, inclusive show my improved nailing machine complete with all the parts assembled and ready for use and for the purposes of this description the side shown in Fig. 1 will be called the left side, the side shown in Fig. 2 the right side, while the front of the machine is at *a* in Figs. 1, 2 and 3, and the back at *a'*. The framework of the machine, in the construction shown, comprises a base portion *b* which may be solid in form or consist of openwork together with a front upright yoke-shaped member *b'* having a cross head top portion *b''* and a rear upright yoke-shaped member *b'''* having a crosshead top portion *b''''* which forms a handle in the manipulation of the machine as hereinafter described, and the frame is provided with a front axle *b¹* having wheels *b²*, and a rear axle *b³* having wheels *b⁴*. The nail box *c* is set into the right side portion of the frame and the right side part of the rear upright yoke-shaped frame member *b⁴* or the lower part thereof is cut away and

said side of said frame member is secured to the nail box c as shown at c^2 , and said nail box is thus made to form a part of the frame and is connected with the base by vertical side members b^{10} , and the front and back frame members b^2 and b^4 are rigidly connected in any desired manner. Mounted transversely of the frame and above the nail box c is a crank shaft c^3 provided with a crank c^4 , and secured to said shaft is a cam disk c^5 and secured to the right side of the frame member b^4 , in the form of construction shown, is a keeper c^6 which incloses the cam disk c^5 and through which the shaft c^3 passes, and in the operation of the machine as hereinafter described, the turning of the shaft c^3 operates the nail feeding and placing mechanism, the driving device or mechanism and also moves the machine around over the floor.

In the construction of the nail feeding and placing mechanism I secure to the bottom of the frame centrally of the front thereof, a forwardly directed keeper d having a chamber d^2 in which is placed a spiral spring d^3 and in which is also placed a vertically movable plunger d^4 provided with a downwardly directed extension d^5 which is movable through the bottom of the keeper d and which is provided with a supplemental extension d^6 , and the vertically movable plunger d^4 is provided with a central vertical bore or passage d^7 which opens upwardly through the top thereof and which extends downwardly through and opens through the downwardly directed extensions d^5 and d^6 , and said bore or passage d^7 forms a nail placing guide chute through the plunger d^4 and said plunger serves as a nail holder and placer, and the top portion of the core or passage d^7 is enlarged laterally and to the right as shown at d^8 , and said plunger is also provided to the left of the bore or passage d^7 with another bore or passage d^9 parallel therewith and which opens upwardly through said plunger and which, in the construction shown, is provided at its lower end with a small outlet port or passage d^{10} controlled by a ball valve d^{11} and above which is placed a transverse stop d^{12} , and the downwardly directed extension d^5 of the plunger d^4 is provided at one side with a stop plug d^{13} which limits the upward movement of said plunger.

The construction of the plunger d^4 and its operation are clearly shown in Figs. 4 to 7, inclusive, and extending downwardly into the enlarged top portion d^8 of the bore or passage d^7 in the plunger d^4 is a conical guide chute e supported by an L-shaped bracket e^2 secured to the frame at e^3 and provided with a top plate e^4 hinged at e^5 to an arm e^6 secured at e^7 , and mounted in the L-shaped bracket e^2 is a circular casing f containing a cylindrical rotor f^2 provided

with a plurality of longitudinal grooves f^3 in the face thereof which are equally spaced and which, in the form of construction shown, are six in number as shown in Fig. 16.

The rotor f^2 is provided at its lower end with a bottom trunnion f^4 and at its upper end with a pin f^5 which passes through the plate e^4 and on which is secured a ratchet wheel f^6 , and the teeth on the ratchet wheel f^6 are equal in number to the grooves f^3 in the rotor f^2 , and the free end of the plate e^4 is provided with an aperture through which one arm of the bracket e^2 passes as clearly shown in Fig. 13 and the casing f in which the rotor f^2 is mounted is provided in its opposite sides with slots or openings f^7 .

The nail box c is provided with a bottom extension c^7 and the casing f of the rotor f^2 is provided with an upwardly and backwardly directed chute g which is U-shaped in cross section and open at the bottom and closed at the top and provided in the top thereof with a longitudinal slot g^2 , and the rear end of the chute g is secured to the bottom extension c^7 of the nail box c at g^3 .

Secured in the bottom extension c^7 of the nail box c is a horizontal forwardly and backwardly ranging plate g^4 provided in the top thereof with a longitudinal recess g^5 and at the right of the plate g^4 is another plate g^6 having a slot g^7 which corresponds with the recess g^5 , and in the right side of the downwardly directed extension c^7 of the nail box is a slot g^8 which corresponds with the slot g^7 and the ends of the slot g^7 in the plate g^6 are provided with enlargements g^9 and g^{10} .

Mounted between the plates g^4 and g^6 is a shift bar h on which is mounted a longitudinally movable sleeve h^2 provided at its right side with a grooved stud h^3 movable in the slot g^8 and having a pin h^4 which passes through and is movable in the slot g^5 of the plate g^4 . The sleeve h^2 is also provided beneath the pin h^4 with a finger h^5 the operation of which will be hereinafter described, and at the front end of the shift bar h and on the left side thereof is a spring h^6 and at the rear end thereof and on the right side thereof is a spring h^7 and these springs force the opposite ends of said bar in opposite directions against stops h^8 , and the stud h^3 is provided both in the top and bottom thereof with grooves which are arranged in pairs as clearly shown at h^9 in Fig. 10.

In the bottom front portion of the nail box c and over the downwardly directed extension c^7 is mounted a transverse shaft i on which is mounted a nail feed drum i^2 and over said feed drum is a downwardly and backwardly inclined partition i^3 hinged at i^4 and provided with a downwardly, backwardly and forwardly curved guard plate

5 i^2 which terminates below the drum i^2 as shown at i^3 and below which and extending downwardly and forwardly from the back wall of the nail box c is a partition i^7 which extends downwardly and forwardly beneath the drum i^2 and terminates at i^3 , and forwardly of which is a downwardly and backwardly curved guide plate i^8 , and the parts i^5 and i^7 form a nail chute j which constitutes the bottom of the nail receptacle j^2 in the top portion of the nail box c . With this construction it will be seen that the drum i^2 is rotatable in a semicircular space formed by the parts i^5 and i^7 and the nails as they pass through the chute j are exposed to the bottom surface of the drum i^2 . The drum i^2 is provided on the face thereof with projecting pins j^3 which are spaced at intervals thereon transversely thereof in any desired manner, and also with nail grips j^4 preferably composed of pairs of pins placed close together and suitably spaced on the drum i^2 , and some of these grips are arranged adjacent to one end and others adjacent to the other end of said drum, or in other words, are not in circumferential alignment.

30 At the opposite sides of the top portion of the downwardly directed extension c^1 of the nail box c are guide plates k which are downwardly and inwardly inclined and which form a hopper in the bottom of which is mounted an agitator plate k^2 which ranges forwardly and backwardly and is provided with a large central longitudinal slot k^3 , and the plates k are extended downwardly as shown at k^4 to form a supplemental hopper in the bottom of which is a forwardly and backwardly ranging agitator plate k^5 which is provided with a central longitudinal slot k^6 of less transverse dimensions than the slot k^3 , and said plate k^5 is also longitudinally movable and the front and back ends of the plates k^2 and k^5 pass loosely through the front and back walls of the downwardly directed extension c^1 of the nail box c . The plates k^2 and k^5 are preferably concavo-convex in cross-section, and the plate k^2 is provided at its front end with a downwardly directed extension k^7 and the plate k at its rear end with an upwardly directed extension k^8 , and these plates are connected by a horizontal bar m at the right side of the machine, in the form of construction shown, and in the operation of the machine as hereinafter described both of said plates are agitated or given a forward and backward movement at the same time and the top plate k^2 serves as a centralizer and dropper device for the nails which pass through the slot k^3 and drop into the bottom supplemental hopper beneath said plate and the pointed ends of which pass downwardly through the slot k^6 in the plate k^5 as clearly shown in Fig. 10 and said nails are sus-

70 pended by their heads as clearly shown in said figure and in Fig. 2, and the relative arrangement of the shift bar h and its connected parts and the hoppers formed by the plates k and their extensions k^4 , and the agitating plates k^2 and k^5 is clearly shown in Figs. 8 to 11, inclusive, and the front wall of the downwardly directed extension c^1 of the nail box c is provided with a vertically arranged slot k^9 through which nails k^{10} , in the operation of the machine as hereinafter described, pass into the chute g which extends as hereinbefore described from the bottom of the downwardly directed extension c^1 of the nail box to the circular casing f of the rotor f^2 .

85 At the front of the machine and centrally thereof is a supplemental bracket frame n consisting of vertically arranged guide bars n^2 any desired number of which may be employed, and the lower ends of which are supported on and connected with the keeper d , and the upper end portions of which are connected by a block n^3 and said bracket frame n is connected with the main frame of the machine by a transversely arranged plate or plates n^4 which are curved forwardly and secured to one or more of the guide bars n^2 and to one of which the arm e^6 is secured, and mounted vertically in said bracket frame and movable vertically therein is a nail driving shaft o provided at its lower end with a head o^2 , and mounted between said head and the block n^3 is a strong spiral spring o^3 which normally serves to force said shaft downwardly. The head o^2 of the shaft o is provided centrally with a downwardly directed nail driver pin o^4 which is adapted to pass downwardly through the bore or passage d^1 in the plunger d^4 , and said head o^2 is also provided with a downwardly directed plunger rod o^5 adapted to enter the bore or passage d^2 in said plunger d^4 .

100 At the left of the shaft o and above the same is a vertically arranged plate p having a vertical slot p^2 and said shaft is provided with a detachable collar p^3 having a pin p^4 which extends to the right and through the slot p^2 , and connected with said pin are link members p^5 to which is pivoted at p^6 an arm p^7 which is pivoted within the main frame at p^8 and which is provided with a backwardly directed extension p^9 adapted to be operated by the cam disk c^5 , and said cam disk is provided with a projecting nose portion p^{10} , and in the operation of the machine as hereinafter described, the turning of the crank shaft c^3 depresses the backwardly directed extension p^9 of the arm p^7 and raises the nail driving shaft o until the nose p^{10} of the cam disk c^5 slips off of the end of said arm, at which time the shaft o is driven downwardly by the spring o^3 .

A crank arm r is pivoted to the right

hand side of the main frame at r^2 and provided with a semicircular crank portion r^3 which is adapted to operate in connection with the pin p^4 , and when it is desired to move the machine around from one point to another without operating the same, the arm i is turned backwardly and in this operation the semicircular part r^3 of said arm operating on the pin p^4 raises the shaft o into its highest position and at the end of the backward movement of the arm r the pin p^4 drops into a recess r^4 in the part r^3 of said arm and locks said shaft in its raised position.

The left hand of the crank shaft c^3 is provided with a sprocket wheel s , and mounted on the corresponding end of the shaft i is another sprocket wheel s^2 , and said shaft is provided with an arm s^4 having a longitudinal slot s^5 , and said wheels s and s^2 are geared in connection by a chain s^6 .

Pivoted below the sprocket wheel s^2 at s^7 is an upwardly directed arm t which passes up inwardly of the wheel s^2 and is provided with a backwardly directed member t^2 having an outwardly directed finger piece t^3 , and the inner side or face of the wheel s^2 is provided with a pin s^8 which operates in connection with the upper end portion of the arm t and forces it backwardly at each revolution of said wheel.

An arm u is pivoted to the arm t below the wheel s^2 at u^2 and said arm extends forwardly and downwardly to the ratchet wheel f^6 on the pin f^5 of the cylindrical rotor f^2 and is provided with a nose u^3 which operates in connection with the teeth of said wheel and said ratchet wheel is provided with a spring pawl u^4 which prevents its backward movement and at each revolution of the wheel s^2 the arm t is given a backward and forward movement, the arm u a backward and forward movement, and the rotor f^2 is turned one step or one-sixth of a revolution. A spring s^{10} serves to hold the arm t in the position shown in Fig. 1 and a spring u^5 is secured to the main frame member b^2 at u^6 and is provided with an anti-friction roller u^7 which bears on the outer side of the arm u and normally serves to hold the nose u^3 of said arm in connection with the ratchet wheel f^6 .

An arm v is pivoted to the crank shaft s^4 at v^2 by a pin which passes through the slot s^5 in said crank arm, whereby said arm v may be adjusted longitudinally on said crank arm, and said arm v extends downwardly and forwardly and is provided at its lower end with a nose piece v^3 which operates in connection with a ratchet wheel v^4 connected with the front wheel b^7 at the left end of the front axle b^6 of the truck frame, and at each revolution of the wheel s^2 the front wheels of the truck frame are given a forward movement and said truck

frame is correspondingly moved forwardly a predetermined distance, preferably about one inch, and a pawl v^5 operates in connection with the ratchet wheel v^4 to prevent the backward movement of the truck frame.

The shaft i of the nail feed drum i^2 is provided on the right side of the machine with a rocker disk w which is shown detached in Fig. 15 and the inner face of said rocker disk is provided with diametrically arranged pins w^2 and the outer face thereof is provided with circularly arranged pins w^3 . Below the rocker disk w is a pivot pin w^4 which may be supported by the nail box c or in any suitable way and to which is pivoted an outer downwardly directed arm y and an inner downwardly directed arm z . The arm z is provided with a yoke-shaped head z^2 which is movable between the disk w and the nail box c and one arm of which is provided with a projecting nose portion z^3 , and the pins w^2 of the disk w operate in connection with the side arm portions of the yoke-shaped head z^2 of the arm z . The arm y is also provided at its upper end with a double or yoke-shaped head y^2 , the separate parts of which are provided with projecting nose pieces y^3 , and the pins w^3 of the disk w operate in connection with the parts of the head y^2 of the arm y . The lower end of the arm y is provided with a longitudinal slot y^4 through which is passed a pin y^5 connected with the bar m , and the lower end of the bar z is provided with a longitudinal slot z^4 through which the pin h^4 of the stud h^3 of the sleeve h^2 or the bar h passes.

In Fig. 1 I have shown my improved nail driving machine mounted on a parquet flooring a' and the operation of said machine will be readily understood from the foregoing description when taken in connection with the accompanying drawing and the following statement thereof. In practice, the cross head b^6 of the rear frame member b^4 is usually grasped by the left hand and serves as a handle for guiding the machine, while the crank shaft c^3 is turned by the right hand and it will also be understood that in the operation of the machine it is moved forward in a straight line, and the nails are driven in straight lines and preferably about one inch apart. In this operation of the machine the arm r is first turned into a vertical position which raises the nail shaft o and throws it out of operation and at the same time the spring-operated arm u is drawn outwardly so that it will not engage the ratchet wheel f^6 , the crank shaft c^3 is then turned to the right rapidly until the chute g is entirely filled with nails as shown in Fig. 2 after which, the arm r is turned down so as to place the nail shaft in operation by allowing the arm p^1 or the backwardly directed end p^9 thereof to engage the cam disk c^5 after which,

the arm u is released so that its nose u^1 will engage the ratchet wheel f^1 . When this has been done the operation of the shaft c^1 is continued and at each revolution thereof a nail is deposited in the rotor f^2 and one is discharged therefrom into the conical chute e from which it is dropped into the placer formed by the plunger d^4 and as each nail is successively deposited in said holder or placer, the nail shaft o is given a complete operation and a nail is driven and set or countersunk as indicated in Figs. 1, 6 and 7.

It will be understood that the plunger d^4 is normally held above the floor by the spring d^3 so that the truck frame may move freely over the floor, but at each downward movement of the shaft o which occurs when the truck frame is stationary, the plunger d^4 is forced downwardly by the plunger rod o^1 of the head o passing into the plunger d^4 and forming an air cushion in the bore or passage d^5 , and at each of these operations as hereinbefore stated, a nail is driven, and when the shaft o^1 is again raised the plunger d^4 is forced upwardly by the spring d^3 and in this operation at each upward movement of the shaft o air enters the bore or passage d^5 through the bottom thereof and size of the plunger rod o^1 is such as to permit a slight escape of the air from said bore or passage when said plunger rod is forced downwardly thereinto. My invention, however, is not limited to the exact construction of the plunger d^4 and the plunger rod o^1 and its operation as said plunger, and these features may be changed or varied, within the scope of said invention. It will be understood that at the beginning of the operation the nails k^{10} are deposited in the receptacle j^2 in the nail box o and said nails are simply dumped into said receptacle without any regard as to order or arrangement, and said nails fall into the bottom of the chute formed by the parts i^6 and i^7 and are engaged by the pins j^3 on the drum i^2 which serve to arrange them at right angles to the axis of said drum with the heads thereof directed backwardly. As the drum i^2 continues to turn, the said nails are successively picked up by the grips j^4 which operate in connection with the heads thereof, and as the drum continues to turn, the nails are carried around the perimeter thereof and are dropped into the hopper formed by the plates k . The slot k^3 in the plate k^2 which forms the bottom of said slot is of such size as to permit the nails to pass freely there-through, but the slot k^3 in the plate k^2 which forms the bottom of the hopper formed by the extensions k^4 of the plates k will not permit the heads of the nails to pass there-through and the pointed end portions of said nails therefore pass downwardly through said slot as shown in Fig. 10 and the constant agitation of the plates k^1 and k^2 ef-

fects by the arm y and the bar m facilitates this movement of the nails as will be readily understood.

The normal position of the shift bar h and the sleeve h^2 thereon is that shown in Fig. 8 and in the above described operation the sleeve h^2 is moved back and forth on said bar by the arm z operated by the pins w^2 on the disk w and said sleeve h makes a complete forward and backward movement at each revolution of the crank shaft c^2 . In this operation, at the beginning thereof, the said bar is in the position shown in Fig. 8 and the sleeve h is moved forwardly, the plate g^6 operating in the outer grooves in the top and bottom of the lug h^3 . In this operation the finger h^5 projects through the slot g^5 in the plate g^4 and moves the nails k^{10} depending through the slot k^6 , forwardly, and in order to illustrate this operation the nails k^{10} are indicated in Figs. 8 and 9. At the end of the forward movement of the sleeve h^2 the front end of the shaft h is forced backwardly by the spring k^6 and the lug h^3 of the sleeve h^2 moves backwardly through the opening g^6 at the front end of the slot g^7 so that the plate g^6 will move in the inner grooves in the top and bottom of said lug, and this backward movement of the front end of the shaft h withdraws the finger h^5 so that it will move backwardly on said shaft without interfering with the nails depending through the slot k^6 as shown in Fig. 10. When the sleeve h^2 reaches the limit of its backward movement, the rear end of the shaft h is forced forwardly by the spring h^7 so that the finger h^5 projects through the slot g^5 in the plate g^4 as shown in Fig. 8 and at the next forward movement of the sleeve h^2 the nails are again forced forwardly, as will be readily understood, and into the chute g .

From the foregoing description it will be seen that at each revolution of the shaft o^1 the machine is moved forwardly one step of predetermined length or over a predetermined distance and at each of said steps a nail is passed into the rotor or rotary nail feeder f^2 and a nail discharged therefrom through the conical chute e into the holder or placer d^4 , and at each of said operations a nail is driven into the floor and another nail fed into chute or conveyer g , and from the foregoing description it will be understood that only one stroke of the hammer or driver is necessary to sink and set or countersink a nail, the countersinking of the nail resulting from the fact that the driving pin o^1 is longer than the vertical dimensions of the nail holder or the bore or passage d^7 therein, as clearly shown in Fig. 7.

In the accompanying drawing and in the foregoing description I have shown and described the preferred form of my improved machine, but it will be understood that my

invention is not limited in any of its parts to the details of construction herein shown and described, and changes therein and modifications thereof may be made within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

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

1. In a nail driving machine, a tensionally supported nail holder, means for depositing nails in said holder at intervals, a device for driving a nail deposited in said holder, and means forming a cushion between said holder and said driving device.

2. In a nail driving machine, a keeper, a vertically movable spring supported nail holder mounted in said keeper, means for depositing nails in said holder at intervals, a vertically movable nail driver mounted over said nail holder and provided with a driver pin adapted to pass into said holder, said nail holder being also provided with a tubular socket and said driver with a plunger rod adapted to enter said socket and to form an air cushion, the bottom of said socket being provided with an air inlet having a valve which is closed during the downward movement of the driver and admits air during the upward movement thereof.

3. In a nail driving machine, a nail holder, a nail box, a rotatable drum mounted therein, a downwardly curved chute connected with the bottom of the nail box and provided with means for depositing nails in said holder, a nail receptacle in said box and provided with a tapered downwardly directed extension which is curved beneath said drum and the top portion of which is open, nail gripping pins connected with said drum and adapted to remove nails from said nail receptacle and to drop the same into the bottom of the nail box, and devices in the bottom of the nail box for feeding the nails into said chute with the points directed downwardly.

4. In a nail driving machine, a nail box provided with a downwardly directed extension, a downwardly curved nail chute connected with the bottom of said extension and provided in the top thereof with a longitudinal slot, a nail receptacle in the top of the nail box, means for removing nails from said receptacle and dropping the same into the bottom extension of said box, an agitator plate mounted in the bottom portion of said extension and provided with a central longitudinal slot which corresponds with and is in communication with the slot in the top of the nail chute, and means for feeding nails suspended by their heads in the slot of the agitator plate, into the slot in the top of the chute.

5. In a nail driving machine, a nail box

provided with a downwardly directed extension, a downwardly curved nail chute connected with the bottom of said extension and provided in the top thereof with a longitudinal slot, a nail receptacle in the top of the nail box, means for removing nails from said receptacle and dropping the same into the bottom extension of said box, an agitator plate mounted in the bottom portion of said extension and provided with a central longitudinal slot which corresponds with and is in communication with the slot in the top of the nail chute, means for feeding nails suspended by their heads in the slot of the agitator plate, into the slot in the top of the chute, consisting of a laterally movable shift bar mounted parallel with said plate and below one side edge thereof, a longitudinally movable sleeve mounted on said shift bar and provided with a finger which projects transversely of and beneath the slot in said plate, means for moving the opposite ends of said bar laterally, and means for operating said sleeve.

6. In a nail driving machine of the class described, a nail box, a nail feed drum mounted therein, and a nail receptacle in the top portion of said box and provided with a downwardly directed tapered extension which is curved beneath said drum and the top portion of which is open, the surface of said drum being also provided with nail arranging pins, and with nail gripping pins arranged in pairs transversely thereof.

7. In a machine of the class described, a nail box having a downward extension, a nail chute communicating with said extension, a nail receptacle mounted in said box, a rotary drum mounted in connection with said receptacle and adapted to discharge nails therefrom into said extension, and means for feeding said nails into said chute consisting of two longitudinally slotted agitator plates mounted under said receptacle one above another, a shift bar arranged at one side of and beneath the bottom agitator plate and the ends of which are laterally movable, a sleeve longitudinally movable on said shift bar and provided with a finger which projects transversely of and beneath the bottom agitator plate, and means for operating both of said agitator plates and moving said sleeve longitudinally of said bar, consisting of a disk mounted on the drum shaft and provided on its opposite sides with circularly arranged projecting pins, and two arms pivoted beneath said disk and having cross heads in connection with which said pins operate, said arms being in operative connection with said sleeve and said agitator plates.

8. A nail driving machine provided with a nail holder adapted to receive nails to be driven, a nail box, a chute leading from said box to said nail holder, a rotary nail feed

drum mounted in said box, a nail receptacle in the top portion of said box at one side of said drum and provided with a tapered extension which passes beneath said drum and the top portion of which is open and from which the nails are removed by said drum in a predetermined manner; devices located in the bottom of said nail box and adapted to receive said nails and to deposit them in said chute through which they pass to said holder with the points thereof directed downwardly, and means for operating said devices.

9. In a nail driving machine, a nail holder mounted in the bottom front portion thereof, a nail box mounted in the top portion thereof and provided with a downwardly directed extension, a curved chute connecting the bottom portion of said extension with the top of the nail holder and adapted to feed nails thereinto at intervals, said chute being provided in the top thereof with a longitudinal slot, a rotary nail feed drum mounted in said nail box, a nail receptacle mounted in said nail box and provided with a downwardly directed tapered extension which is curved beneath said drum and the top portion of which is open, said drum being provided with means for removing nails from said receptacle and dropping the same into the bottom extension of said nail box, the side walls of the bottom extension of said box being formed into an oblong receptacle, an agitator plate mounted in the top portion of said receptacle and provided with a central longitudinal slot, another agitator plate mounted below the first-named plate and provided with a central longitudinal slot which communicates with the slot

in the top of said chute, means for agitating said plates, and means for feeding nails suspended through the slot in the bottom of the agitator plate into the slot in the top of said chute.

10. A nail driving machine provided with a shaft, a nail receptacle and a nail chute in connection therewith, the combination with the shaft of an agitating device comprising a disk rigidly connected therewith and provided at its opposite sides with circularly arranged pins, and two arms pivoted beneath said disk and provided with cross heads having central recesses and adapted to operate in connection with said pins on each side of said disk, and devices operated by said agitating device for depositing nails in said chute and in a predetermined manner.

11. In a nail driving machine, a stationary support, a vertically movable spring supported nail holder mounted therein and provided with a central vertical bore which passes therethrough and is adapted to receive nails to be driven, a vertically movable nail driver having a driving pin longer than said bore and adapted to project below the same when said driver is depressed, said driver and said holder being provided with means for cushioning the blow of the driver.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 21st day of July 1911.

EDWARD STUTZER.

Witnesses:

WILLIAM F. CHAMBERS,
FRANK G. AT LEE.