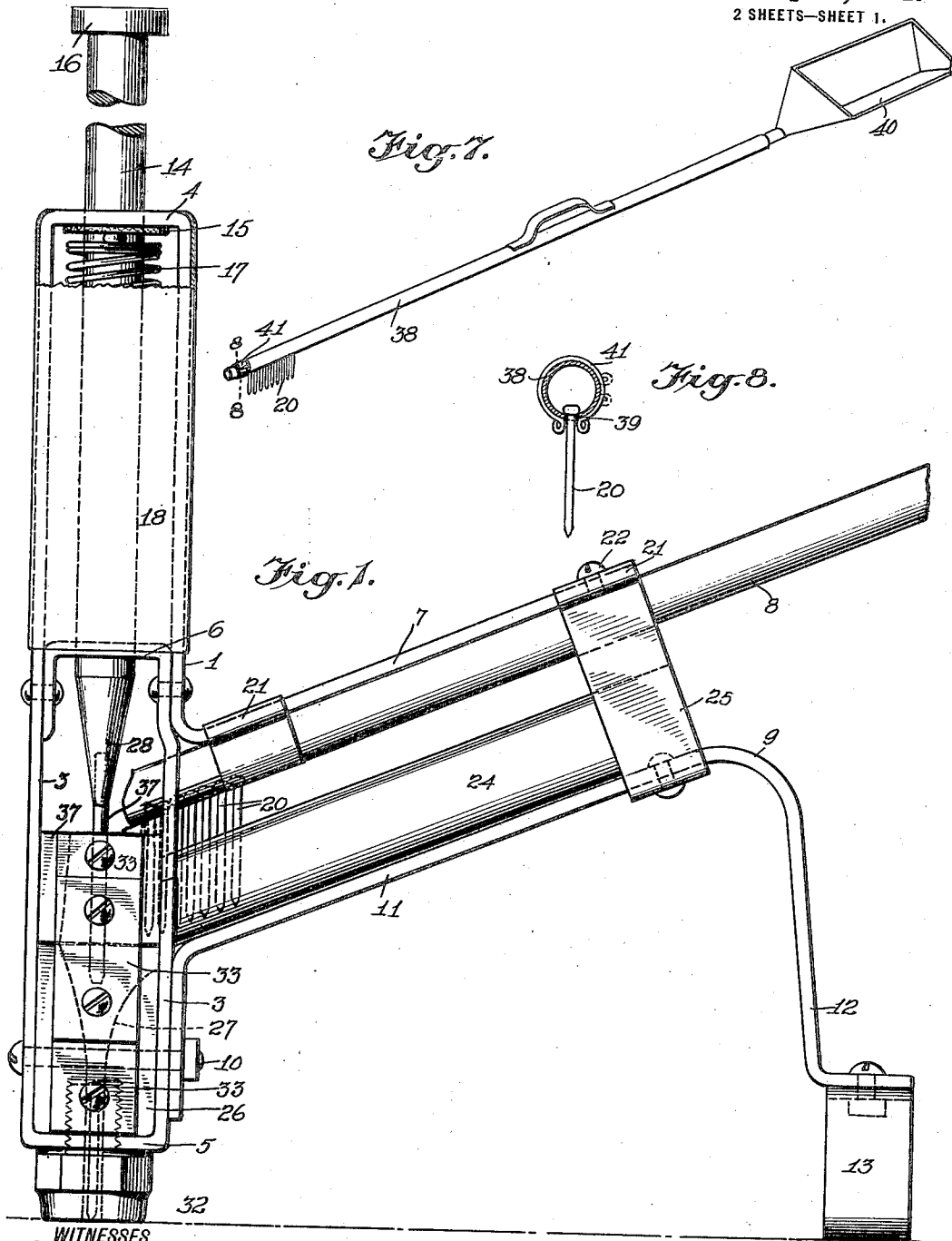


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Patented Sept. 6, 1921.
2 SHEETS—SHEET 1.

1,390,060.



WITNESSES
Geo. Maylor
F. J. Foster

INVENTOR
ADOLPH RIVER
BY *Mundt*
ATTORNEYS

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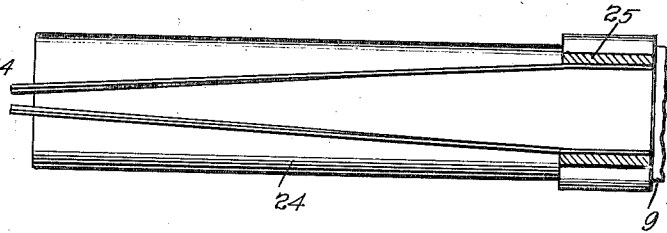
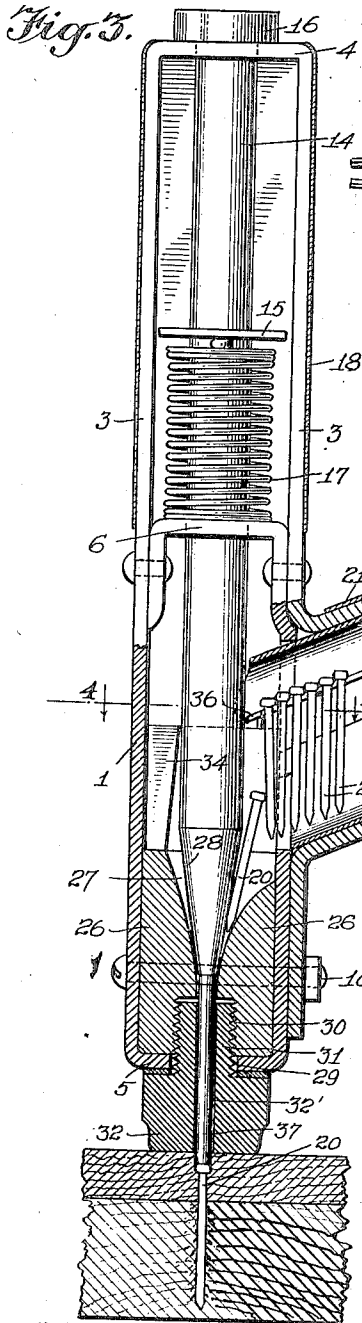
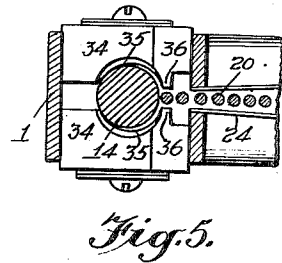
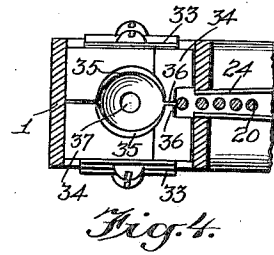
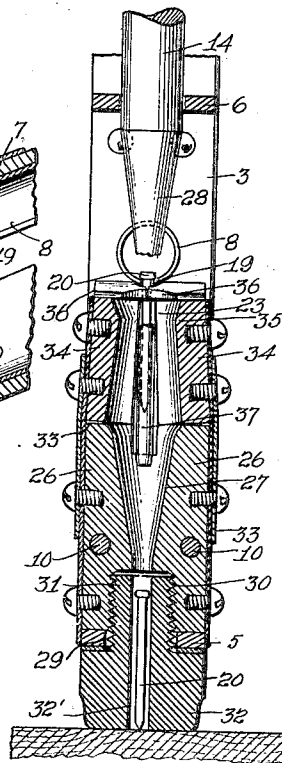


Fig. 2.



WITNESSES
F. J. Foster

INVENTOR
ADOLPH RIVER
BY *Mumford*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ADOLPH RIVER, OF BROOKLYN, NEW YORK.

NAIL DRIVING AND SETTING MACHINE.

1,390,060.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ADOLPH RIVER, a citizen of the Republic of Finland, and a resident of New York city, borough of Brooklyn, in the county of Kings, and State of New York, have invented a new and Improved Nail Driving and Setting Machine, of which the following is a full, clear, and exact description.

This invention relates to improvements in nail driving and setting machines, particularly to a machine which is primarily designed for handling parquet nails, such as are commonly used in laying floors.

An object of the invention is to provide a manually operable machine of the character stated and to provide means associated with the machine for automatically feeding the nails.

A still further object is to provide a machine, which accomplishes the driving and setting operation at the same time and which is therefore, a great time saver when laying parquet floors.

Another object is to provide a machine of the character stated, which will be simple and practical in construction, strong, durable and efficient in use and comparatively inexpensive to manufacture.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, to be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings:

Figure 1 is a view in side elevation of my improved machine, parts being broken away for clearness;

Fig. 2 is a fragmentary view in longitudinal section therethrough, the driver bar being shown in elevated position, and parts being broken away for clearness;

Fig. 3 is a view partly in longitudinal section and partly in elevation through the machine, the driver bar being shown in descended position;

Fig. 4 is a view in section on the line 4—4 of Fig. 3, when the driver bar is in elevated position;

Fig. 5 is a view similar to Fig. 4, showing the position of the parts upon the descent of the driver bar;

Fig. 6 is a top plan view of the guide tray

Fig. 7 is a reduced perspective view of my improved loading attachment; and

Fig. 8 is an enlarged view in section therethrough on the line 8—8 of Fig. 7.

Referring in detail to the drawings, 1 represents the upright frame, preferably formed by bending the intermediate portion of a metal strip 2 to form a pair of parallel side walls 3, a top 4 and a bottom wall 5. One end of the strip extends transversely across the frame between the side walls 3 and forms a platform, such as 6. The other end 7 of the strip extends outwardly and upwardly from one side of the frame and forms a support for a feeder 8. The particular method of attaching the feeder to the support will be more fully hereinafter described.

The frame 1 is supported in upright position by a bracket 9 having one end bolted to the lower end of the frame by bolts 10. The intermediate portion 11 of the bracket 9 extends laterally and upwardly in parallelism with the end 7 of the strip 2, at a distance below the strip. The other end 12 of the bracket is curved downwardly and attached to a transversely disposed bracket, such as 13 which engages the floor and prevents the accidental tipping over of the frame 1.

A driver bar 14 in the form of a plunger is movable through alined openings in the upper end 4 of the frame and the platform 6. A disk 15 around the plunger between the platform 6 and the upper end 4 of the frame limits the upward movement of the plunger and an integral head such as 16, limits its downward movement. A coiled spring around the plunger or driver bar between the platform 6 and the disk 15 serves to normally maintain the disk in engagement with the upper end 4 of the frame. Any suitable casing, such as 18, may be fitted over the frame to protect the spring from dust.

The feeder 8 is in the form of a tube having a longitudinal slot 19 extending throughout its length. The heads of nails 20 are supported by the walls of the slot so that the nails are maintained in upright position. Guide brackets 21 fixed to the feeder accommodate the ends 7 of the strip 2, so that when the end 7 is introduced through the brackets, the feeder will be rigidly supported at an angle to the frame, which is indicated clearly in Fig. 1. The feeder may be locked against accidental sliding movement on its support by a screw, such as 22 passed through one of the guide brackets.

An opening 23 in the side wall 3 of the

frame permits the lower end of the feeder to extend into the frame and also permits the nails 20 to pass through the wall of the frame, as they are fed by gravity down the inclined feeder.

A tapered guide tray 24 for the ends of the nails is supported on the intermediate portion 11 of the bracket 9 and is held in place by a U-shaped bracket 25 straddling the bracket 9.

A pair of blocks or castings such as 26, are rigidly secured in the lower end of the frame 1, preferably by the bolts 10 and are provided with opposed recesses which cooperate to form a tapered socket 27 adapted to limit the downward movement of a tapered shoulder 28 on the spring-held driver bar 14.

The lower end 5 of the frame is formed with an opening 29, registering with a threaded socket 30 in the lower ends of the blocks 26. The socket 30 receives a threaded nipple 31 on a bearing block 32. The block 32 is provided with a vertical bore or channel 32', registering and communicating with the socket 27.

Spring steel plates 33 having one end affixed to the outer faces of the blocks 26 carry at their upper ends blocks 34. The blocks 34 have opposed recesses therein which cooperate to form an annular passageway communicating with the socket 27. The passageway is smaller than the diameter of the body portion of the plunger 14 and a beveled cam face 35 around the upper end of the passageway is engaged by the tapered shoulder 28 on the plunger to spread the blocks 34 against the tension of the spring plates 33. Opposed lugs 36 on the upper ends of the blocks 34 are normally maintained in closed relationship by the springs' plates and serve to prevent the nails 20 from sliding off of the lower end of the feeder 8 and dropping into the channel 32'.

The plunger or driver bar at its lower end terminates in a straight reduced portion 37 of substantially the same diameter as the heads of the nails 20.

It will be apparent that any approved means might be resorted to for loading the nails into the feeder 8. I have illustrated in Figs. 7 and 8, one very efficient form of loader. This loader comprises a tube 38 having a longitudinal slot 39 therein. One end of the tube opens into a hopper such as 40 and at its other end a split collar 41 rotatable freely on the tube controls the passage of nails through the slot.

The operation of the driving and setting machine is as follows:—

Assuming the feeder 8 to be loaded, it is necessary to drive the plunger 14 downwardly, spreading the blocks 34 and the lugs 36 and permitting a single nail to drop from the feeder 8 in the socket 27. The spring 17 will restore the plunger to its elevated po-

sition permitting the nail to drop into the channel 32'. By using a mallet or similar tool (not shown) to strike the head 16 of the plunger or driver bar, the reduced lower end 37 of the driver bar will engage the head of the nail 20 in the channel 32' and drive the nail into the floor. The end 37 of the driver bar is of sufficient length to extend below the bearing block 32, when the plunger is driven home, as shown in Fig. 3 and will thus serve to set the nail as well as to drive it. This downward nail driving operation of the plunger above described, again spreads the lugs 36 and permits another nail to drop into the socket 27, as indicated in Fig. 3. As the plunger again moves upward, this nail will drop into the channel 32'. In other words, upon every driving operation, the plunger automatically serves to feed another nail into position to be driven.

Although I have illustrated one of the preferred embodiments of my invention, it will be apparent that various slight changes and alterations might be made in the general form and arrangement of the parts described without departing from the invention and hence I do not limit myself to the precise details set forth, but shall consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of the appended claims.

It will also be well to note that the lower end 37 of the plunger fits into a recess in the tapered portion 28 thereof, so that should the set 37 become accidentally broken it may be quickly extracted and replaced by another.

I claim:

1. In a machine of the character described, a spring-held driver bar, a channel wherein the working end of said driver bar is movable, a gravity operated feeder and means actuated by said driver bar limiting the passage of nails from the feeder into said channel, said means comprising a spring-held expansible socket normally preventing the passage of nails from the feeder and adapted to permit such passage when expanded by the driver bar, said socket including a beveled cam face, said driver bar including a tapered shoulder engageable with the cam face to expand the socket.

2. In a machine of the character described, a hollow standard, a pair of blocks fixed in the lower end of the standard and having opposed recesses therein forming a socket, spring plates having one end fixed to the outer faces of said blocks, a pair of jaws secured to the other ends of the plates and cooperating to form an expansible socket, a gravity nail feeder, said expansible socket normally preventing a passage of nails from said feeder, a nail receiving channel communicating with said first-mentioned socket, a spring-held driver bar movable downwardly

through said channel to drive and set a nail located in said channel and including a tapered shoulder engageable with the walls of said expansible socket upon its downward movement to operate the socket and permit the dropping of a nail from the feeder into the first-mentioned socket.

3. A device of the character described in claim 2, and including a bracket supporting said standard in upright position and a tapered guide tray supported on the bracket and guiding the passage of nails through the feeder.

4. A device of the character described in claim 2 and including an arm extending upwardly and laterally from the standard and in which said feeder includes a longitudinally slotted tube and a plurality of guide brackets fixed to the tube and slidable over the arm, whereby the feeder is supported on the arm.

5. In a machine of the character described, a gravity feeder, a tapered channel in which nails drop from the feeder, an expansible socket controlling the passage of nails from the feeder into the channel, a driver bar including a tapered shoulder engageable with the socket to expand the same and permit the passage of a nail and also including a reduced nail engaging end fitting the channel and of sufficient length to engage a nail

in the channel before the shoulder expands the socket whereby jamming of nails in the channel is prevented.

6. In a machine of the character described, a hollow standard, a spring held driver bar mounted in the standard, an expansible socket at the lower end of the standard, a gravity feeder associated with the socket, co-acting lugs integral with the walls of the socket normally preventing a passage of nails from the feeder, means integral with the driver bar for separating said lugs upon the downward movement of the driver bar.

7. In a machine of the character described, a hollow standard, a spring held driver bar mounted in the standard, an expansible socket at the lower end of the standard, a gravity feeder associated with the socket, co-acting lugs integral with the walls of the socket normally preventing a passage of nails from the feeder, means integral with the driver bar for separating said lugs upon the downward movement of the driver bar, a guide channel for the nails at the lower end of the socket through which the lower end of the driver bar is adapted to be driven, a bearing block screwed into the lower end of the standard, spacing members interposed between the bearing block and standard, regulating the depth of set of said nails.

ADOLPH RIVER.