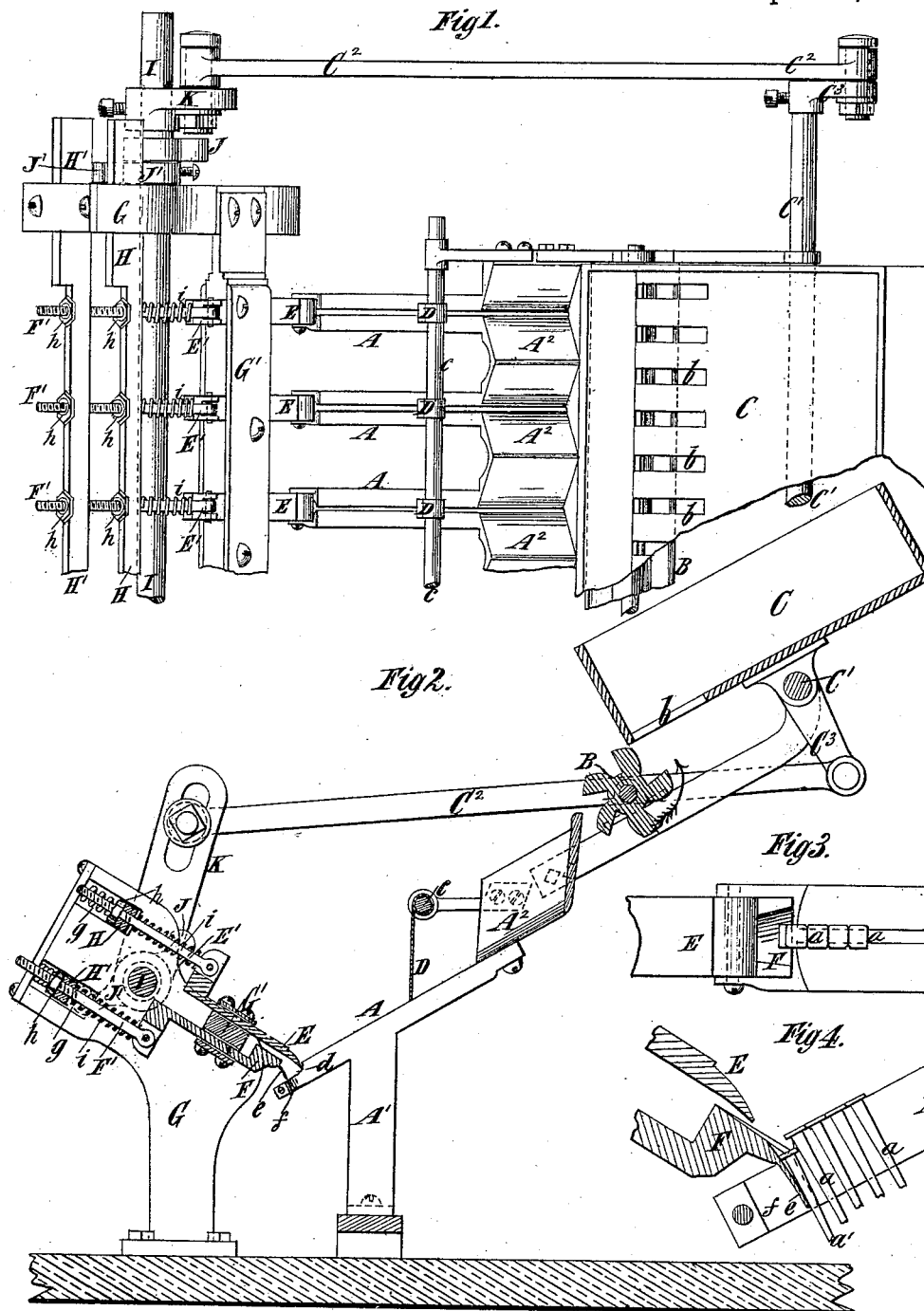


(No Model.)

J. SULLIVAN.
NAIL FEEDING MACHINE.

No. 264,790.

Patented Sept. 19, 1882.



Witnesses:

2
 Geo. Wagner
 Ed. Moran

Inventor:

Inventor
John Sullivan
by his Attorneys
Brown & Brown

UNITED STATES PATENT OFFICE.

JOHN SULLIVAN, OF BROOKLYN, NEW YORK.

NAIL-FEEDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 264,790, dated September 19, 1882.

Application filed April 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN SULLIVAN, of Green Point, in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Nail-Feeding Machines, of which the following is a specification.

My invention relates to machines or attachments which are employed with nailing-machines for supplying nails periodically to them, and an important object of my invention is to provide such a machine or attachment which will work reliably in feeding cut nails, and will not necessitate the using of wire or French nails.

In my machine, as in other machines of its class, are employed one or more inclined tracks or ways, in which the nails are supported and hung by their heads and upon which they move downward; and my invention consists essentially in the combination, with such a track or way, of two stops arranged at the lower end and above said track or way, and means for moving the stops alternately away from and toward the upper surface of the track or way in planes parallel therewith, the first or upper stop being moved to allow the nails to move downward, so that the foremost nail will rest against the second or lower stop, and then returned over or behind the foremost nail to stop those following, while the second or lower stop moves away from the track or way to release the foremost nail, and is then returned. The end portion of the track or way has in its upper surface a depression or drop, into which the foremost nail drops when permitted by the movement of the first or upper stop, and this depression or drop enables the said stop, in its return movement, to work directly over the head of the foremost nail to check those behind it. The two stops which constitute a pair may be organized so as to be capable of a reciprocating movement, and arranged at an inclination opposite to that of the track or way; and the invention further consists in the combination, with one or more pairs of such stops, of a rock-shaft and cams for reciprocating them, as more fully hereinafter described.

The invention also consists in the combination, with an inclined track or way, of a novel drag, hereinafter particularly described and

claimed, adapted to rest by its weight lightly upon the track or way, and to be raised or deflected by the heads of the nails in their passage under it, and thereby to slightly retard the nails and prevent them from moving down the track or way with their heads overlapping.

The invention also consists in the combination, with two or more inclined tracks or ways, of novel means of supplying nails to them, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a plan of a portion of a machine or attachment embodying my invention. Fig. 2 represents a vertical section thereof. Fig. 3 represents a plan of the end portion of a track or way and a pair of stops for working in conjunction therewith, upon a larger scale and in a different position from Figs. 1 and 2; and Fig. 4 represents a vertical section of the parts shown in Fig. 3 and in the same position.

Similar letters of reference designate corresponding parts in all the figures.

A designates the inclined tracks, each composed of two bars supported upon standards A', and affording a clear and unobstructed passage for the nails *a* between them. The two bars of each track or way are placed at a sufficient distance apart to allow the body of the nail *a* to slide freely between them, but not to permit the head to pass, and the nails hang by their heads, as shown in Fig. 4, as they move from the upper to the lower end of the track or way. I have here represented three tracks or ways; but six or any other number may be employed, as may be necessary to feed the required number of nails at one time. The tracks or ways A are made deeper at their upper ends, so as to form trough-shaped receptacles A², from which the tracks or ways extend.

Adjacent to the trough-shaped receptacles A² is a roller or rotary carrier, B, which is grooved or recessed throughout its length, and to which a slow rotary motion may be imparted by any suitable devices in the direction of the arrow, Fig. 2.

Behind and above the roller or carrier B is a tilting box or hopper, C, which is fulcrumed on a rock-shaft, C', and a rocking or tilting motion is transmitted to said box or hopper by a connecting-rod, C², attached to an arm,

C³, on the rock-shaft C', and reciprocated, as hereinafter described.

In the bottom of the box or hopper C are a number of slots, *b*, over the roller or rotary carrier B, and as the box or hopper is tilted the nails therein are thrown from one side to the other thereof and drop through the slots *b* into the grooves or recesses of the carrier B, by which they are delivered into the trough-shaped receptacles A². In some cases the rotary carrier B might be dispensed with and the box C arranged to drop the nails directly into the receptacles A².

As the nails pass down the tracks or ways A they are apt to crowd on one another, and to prevent their heads from overlapping I provide drags or retarders D, which are hung upon a rod, *c*, and rest lightly on the tracks or ways. These drags are raised or deflected upward by the heads of the nails passing under them, and slightly retard and tend to separate the nails, allowing them to pass one by one.

At the lower end of each track or way A is a depression or drop, *d*, in their upper or nail-supporting surfaces, and immediately adjacent to said depression or drop are two stops, E F, arranged one above another and at an inclination opposite to that of the track or way. The first or upper stop, E, bears directly against the shoulder formed at the end of the depressed portion of the track or way, and the second or lower stop, F, has a tongue, *e*, which enters between the bars of the track or way. Below or under the lower stop, F, the track or way is constructed with a hole or opening, *f*, through which the nails drop when allowed to escape one by one.

G designates an end frame, and G' designates a horizontal bar or rail extending between the end frames and provided with guides or slideways, in which the stops E and F are reciprocated to carry their points toward and from the tracks or ways A. The stops E F are moved toward and from the upper surface of the track or way in planes which are parallel therewith.

H H' designate two bars, which are movable transversely to their length in slots or guides *g* in the end frames, G, as shown most clearly in Fig. 2.

To the upper stops, E, are connected rods or stems E', which pass through the bar H, and to the lower stops, F, are connected similar rods or stems, F', passing through the bar H'. The rods or stems E F are secured in the bars H H' by nuts *h* on one side of said bars and springs *i* on the opposite side thereof, so that when the bars are moved outward they carry the stops with them away from the tracks or ways A, and when moved in the opposite direction they carry the stops toward the tracks or ways and press them against the same with a yielding pressure by acting through the springs *i*. By adjusting the nuts *h* the stops

E and F may be adjusted so as to give them the proper movement relatively to the tracks or ways.

I designates a rock-shaft journaled in the end frames, G, and adapted to be oscillated by any suitable mechanism.

Upon the shaft I, at each end thereof, are two cams, J J', which are adapted to operate on the bars H H', and an arm, K, which is connected with and serves to reciprocate the connecting-rod C². By rocking the shaft I the bars H H' and their attached stops are moved alternately away from the tracks or ways A and returned, and the cams J J' should be so proportioned as to permit the return of the stops E before the stops F are removed, and vice versa.

The nails *a* move to the lower end of the tracks or ways A by gravity; but the foremost nail strikes against the upper or first stop, E, which is normally in the position shown in Fig. 2. The stop E is now moved outward away from the track or way, and the foremost nail, *a'*, falls down on the drop or depression in the track, as shown clearly in Fig. 4, and rests against the stop F. The stop E then returns over the head of the nail *a'* and bears against the following nails and holds them against movement, while the stop F moves outward and permits the foremost nail, *a'*, to move ahead and drop through the opening *f*.

Instead of the reciprocating stops here shown, stops operated in other ways may be substituted; but in any case they should have a similar alternate movement toward and from the tracks or ways.

I am aware that nail-feeding machines have been provided with stops or separating bars or rods for allowing the escape of the nails one by one, and adapted to move in a direction transverse to the tracks or ways through or above them, and I do not claim such a construction as included in my invention. In my machine the stops are movable toward and from the upper surface of the track or way in planes parallel therewith.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with an inclined track or way, of two stops arranged at the lower end of and above the same, and mechanism, substantially such as described, for moving said stops alternately toward and from the upper surface of said track or way in planes parallel therewith to control the delivery of nails therefrom, substantially as specified.

2. The combination, with an inclined track or way provided at the lower end with the depression or drop *d* in its upper surface, of two stops arranged adjacent to said depression or drop and above the track or way, and mechanism, substantially such as described, for moving said stops alternately toward and from the upper surface of said track or way in planes parallel therewith, whereby I enable

the first stop to work over the head of the nail supported in said depression or drop by the second stop, substantially as specified.

3. The combination of the inclined track or way A, provided with the depression or drop *d* at its lower end, the reciprocating stops E F, arranged at an opposite inclination to said track or way, and mechanism, substantially such as described, for operating said stops, as and for the purpose specified.

4. The combination, with the inclined tracks or ways A, of the upper and lower stops, E F, the bars H H', the rock-shaft I, and cams J J', all arranged and operating substantially as specified.

5. In a nail-feeding machine, the combination, with an inclined track or way, of a drag

or retarder, substantially as described, pivoted above the track or way and resting by gravity upon the upper surface thereof, so that it may be swung aside or deflected by the passage of the nail-heads under it, substantially as specified.

6. The combination, with the track or way A and the trough-like receptacles A², of the rocking or tilting box or hopper C and the grooved or recessed roller B, outside of said hopper, substantially as and for the purpose specified.

JOHN SULLIVAN.

Witnesses:

FREDK. HAYNES,

ED. MORAN.