2 Sheets—Sheet 1.

C. D. ROGERS.

FEEDING MECHANISM FOR WOOD SCREW MACHINERY.

No. 108,295. Patented Oct. 11, 1870.

Fig. 1.

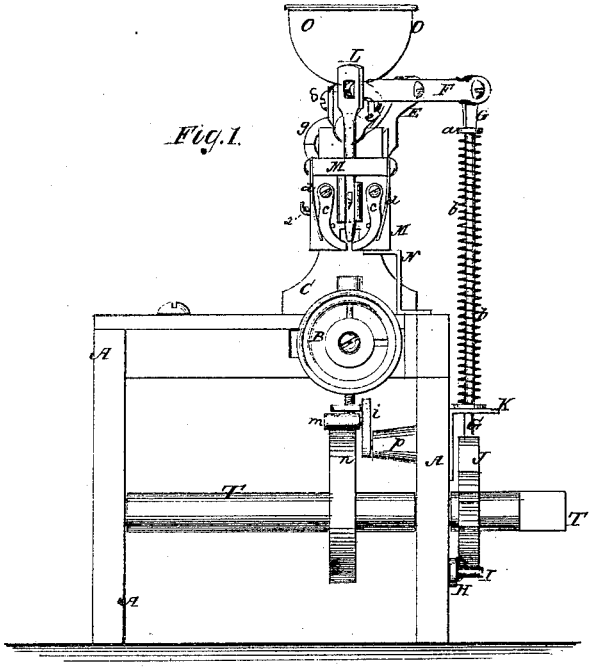
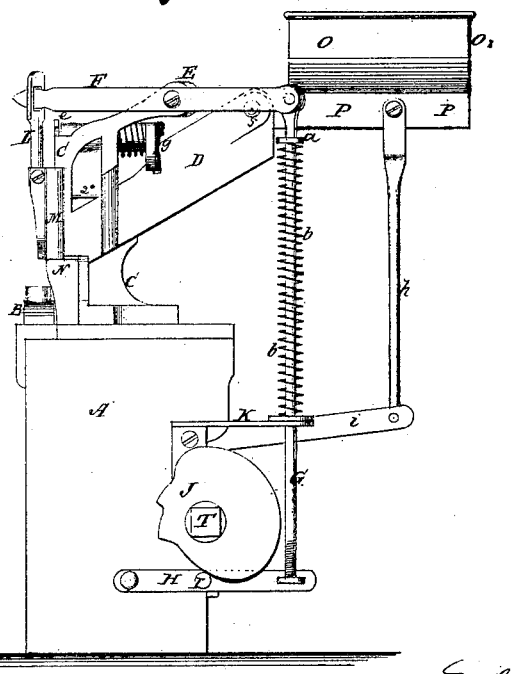


Fig. 2.



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2 Sheets—Sheet 2.

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FEEDING MECHANISM FOR WOOD SCREW MACHINERY.

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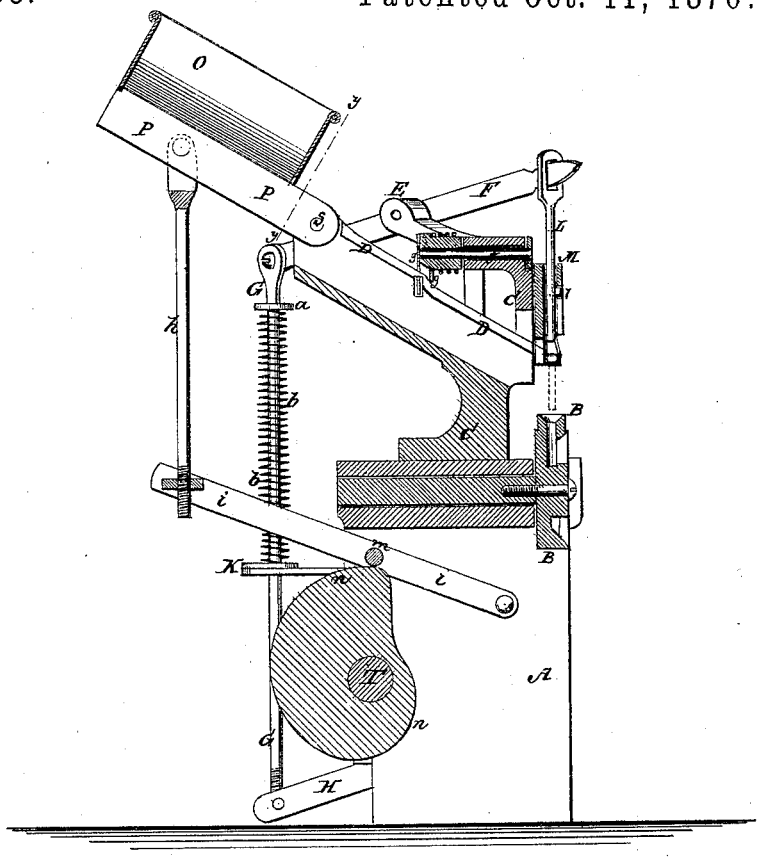
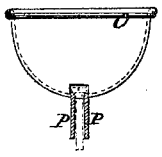
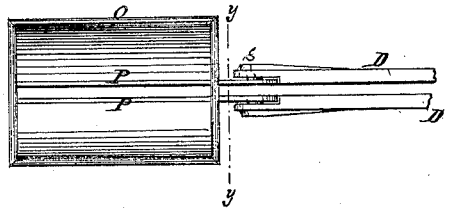


Fig. 4.

Fig. 5





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CHARLES D. ROGERS, OF UTICA, NEW YORK.

Letters Patent No. 108,295, dated October 11, 1870.

IMPROVEMENT IN FEEDING MECHANISMS FOR WOOD-SCREW MACHINERY.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern

Be it known that I, CHARLES D. ROGERS, of Utica, of county of Oneida, in the State of New York, have invented certain new and useful Improvements in Feeding Mechanism of Wood Screw Machinery; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this application.

My invention relates to that part of the machinery used in the manufacture of wood screws which is designed to assort the blanks into a proper position, and supply them to a feed-chute or trough, through which they pass to the threading-mechanism.

Previous to my invention a contrivance has generally been employed in which a quantity of the blanks are contained in a sort of hopper or receptacle, from which they are picked out by the bifurcated end of a vibratory slotted arm, pivoted at one end to the feed-trough or chute, and which, as it is vibrated, picks up and conveys, by gravity, through its slots, the blanks in a manner familiar to those who are skilled in the manufacture of wood screws by machinery. And in some cases a shaking hopper has been used, in which the blanks are shaken down into a slot or feeding-trough pendent by their heads.

The mechanisms or contrivances heretofore employed as a means of gathering, in assorted positions, the blanks, have some objectionable features, besides being costly of construction.

My invention has for its object to dispense with all complication and expense resulting from the employment of any separate device for picking up or effecting the discharge from the hopper or receptacle of the blanks, in an assorted or given position, ready for reception by the feeder-trough or chute, and provide simpler, more economic of construction, and more efficient in its operation, than any heretofore known for assorting or arranging in proper position the blanks, and discharging them singly from a mass into the feeding-trough or chute, and to these ends,

My invention consists in the use, in combination with the usual inclined feed-trough or chute, of a vibratory or oscillatory hopper or box, having a slot or channel in its bottom for the bodies of the blanks to hang through, and so vibrated or swung that the blanks will be tumbled, assorted, and permitted to pass out, in the manner hereinafter described.

To enable those skilled in the art to make and use my invention, I will proceed to more fully describe it, referring by letters to the accompanying drawing, in which—

Figure 1 is an elevation of a portion of a threading-machine, having my invention attached to it;

Figure 2 is a side view of the same;

Figure 3 is a vertical section at *x x*, fig. 1.

Figure 4 is a top view of the vibratory detached; and

Figure 5 is a detail section at *y y*, fig. 4.

In the several figures the same parts will be found designated by the same letter of reference.

A is the frame or body portion of a threading-machine, in which is mounted, to operate in the usual manner, the head-plate or blank-holder B, and on which is secured the stand C that supports the feed-trough or chute D.

From the upper portion of stand C there projects an arm, E, at the end of which is pivoted a lever, F.

One end of this lever is connected to the upper end of a rod, G, which is coupled at its lower end to a vibratory bar, H, and on this bar is a projecting pin, I, against which works the face of a cam, J.

The rod G passes through a hole in a stationary arm or stand, K, and between this stand K and a collar, *a*, on the said rod, is arranged a spiral spring, *b*.

The action of the cam J on pin I moves the lever F in one direction, while the action of the spring *b* moves it in the other direction.

The forward end of lever F passes through the slotted head of the bar L, and moves it up and down.

M is a reciprocatory carriage, which is moved or lifted up at each upward stroke of rod L by means of a lug, 1, on said rod, and descends with said rod by gravity, assisted by a spring, 2.

This carriage rests, when down, on a stop-plate, N, and carries on it the spring-jaws *c d*, which hold the blank until it is forced beyond their grasp by the lower end of rod L.

The forward end or portion of lever F also actuates, during its descent, the finger *e* of the rock-shaft *f*, on the inner end of which is hung the oscillating stop and liberator *g*.

This device serves to release from the supply-column in the feed-trough D a single blank at each movement downward of the rod L.

The construction and operation together of so much of the machine shown as has already been alluded to need not be further described here, as it is all familiar to those who have a knowledge of this kind of machinery, and forms no part of the invention made the subject of this application.

To the upper end of the feed-trough or conductor D is pivoted one end of a vibratory hopper or box, O, which is about semi-cylindrical in shape, with a slot running its entire length at the bottom, and formed or provided with two parallel plates, P, as clearly illustrated in the drawing.

From these plates P extends downward a rod, *h*, which is bifurcated at its upper end, where it is pivoted to plates P, as shown, and is connected at its lower end to a vibratory lever, *i*, from which protrudes

a pin, *m*, against which works the face of a cam, *n*, hung on the main shaft T, and one end of which is pivoted to the stand *p* of the main frame.

At fig. 3, I have shown the hopper O, with its vibratory or rear end elevated to its full extent of motion; while at fig. 2 it is seen in about a horizontal position, or half way depressed.

The dotted lines at fig. 2 show the lowest position of the hopper.

The hopper O, it will be understood, swings on the pivot at *s*, and is vibrated or swung up and down by means of the cam *n*, through the intermediate means of lever *i* and pitman *h*, as clearly illustrated.

The operation of and effect produced by this vibratory hopper will be seen to be such as I will now briefly describe.

This hopper being always supplied with a proper quantity of blanks, the latter will be tumbled about from end to end in said hopper during its motions, and will settle down into the slot or opening between plates P P, in the position shown at fig. 5, hanging by their heads, and every time the hopper O is swung up to the position seen at fig. 3, all the blanks that can be accommodated in the feeder D will slide down into it.

Those blanks which cannot have an opportunity to pass into feeder D will remain in the slot of the hopper, and its motions will have no tendency to dislodge them, while at the same time the motions of said hopper tend always to tumble the blanks contained in it into the slot.

It will be understood that whenever the slot in the bottom of the hopper has a supply of blanks in it, or a partial supply, such blanks are afforded an opportunity, at every up-stroke of the hopper, to slide down into feeder D before the mass of blanks in said hopper, which have been tumbled toward the rear end of hopper by the previous down-stroke of the hopper O, can tumble forward to clog their passage.

It will be seen then, that, by means of this simple and economic contrivance of a swing or vibratory hopper, in which is kept a proper quantity of blanks, the latter are automatically fed into the feed-trough or conductor D with great certainty and rapidity, and it will be understood that the device, by means of which this operation is successfully performed, is very economic of construction, durable, and not liable to get out of working order. Of course the proportions and details of construction may be varied, and even the shape of the hopper, without departing from the spirit of my invention. But the shape of the hopper should be such as will induce the blank, while being tumbled, to settle down into the slot in the proper position.

In lieu of having the hopper vibrate from a fixed point at the front end, it might be made to oscillate on a point or pivot nearer the center, and be provided with some means of automatically making and cutting off communication between the forward end of its slot and the upper end of feeder D. But I deem the vibratory arrangement shown the simplest and best method of carrying out my invention, and have found it very efficient in practical operation.

I do not claim, broadly, the combination of a vibratory hopper, having a slotted bottom with inclined ways; but

Having explained my new contrivance or mechanism for assorting the blanks in mass and discharging them into the supply-trough or feeder,

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

The vibratory blank-hopper or receptable, having a slotted bottom and tilting back, and operating substantially as described, in combination with the inclined feeder or conduit.

In testimony whereof, I have hereunto set my hand and seal this 24th day of June, 1870.

CHARLES D. ROGERS. [L. S.]

Witnesses:
J. N. McINTIRE,
C. E. WARREN.