T. Z. CARPENTER.

SCREW SLOTTING MACHINE.

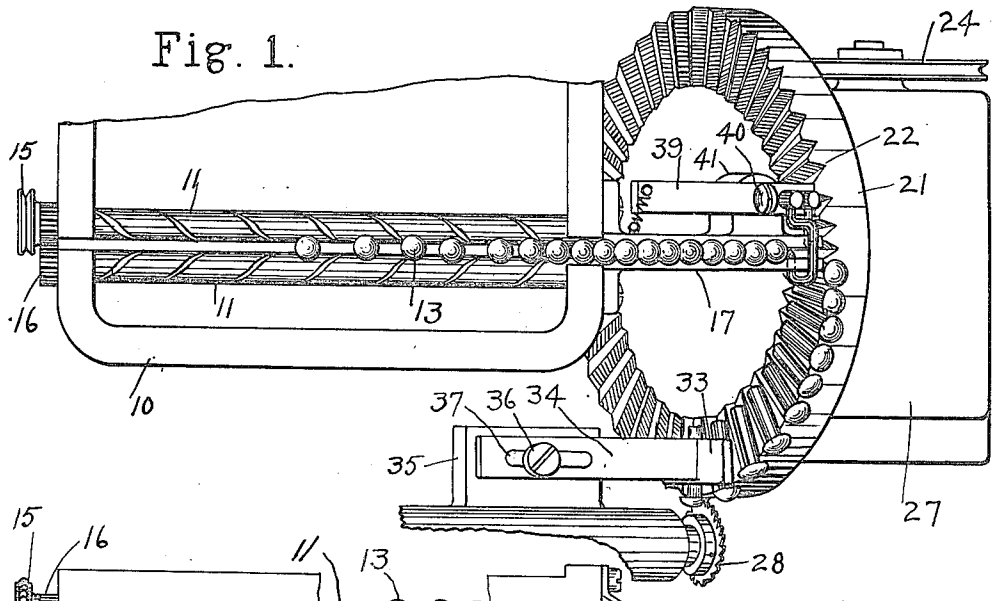
APPLICATION FILED DEC. 14, 1912.

1,153,540.

Patented Sept. 14, 1915.

2 SHEETS—SHEET 1.

Fig. 1.



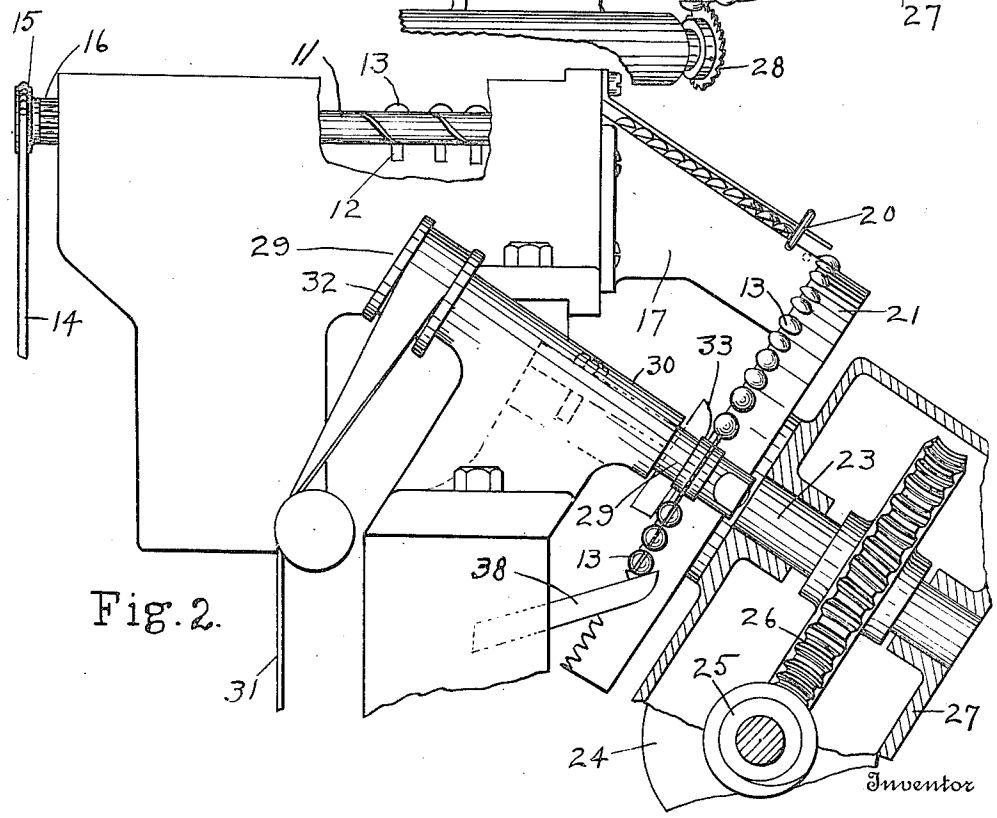


Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

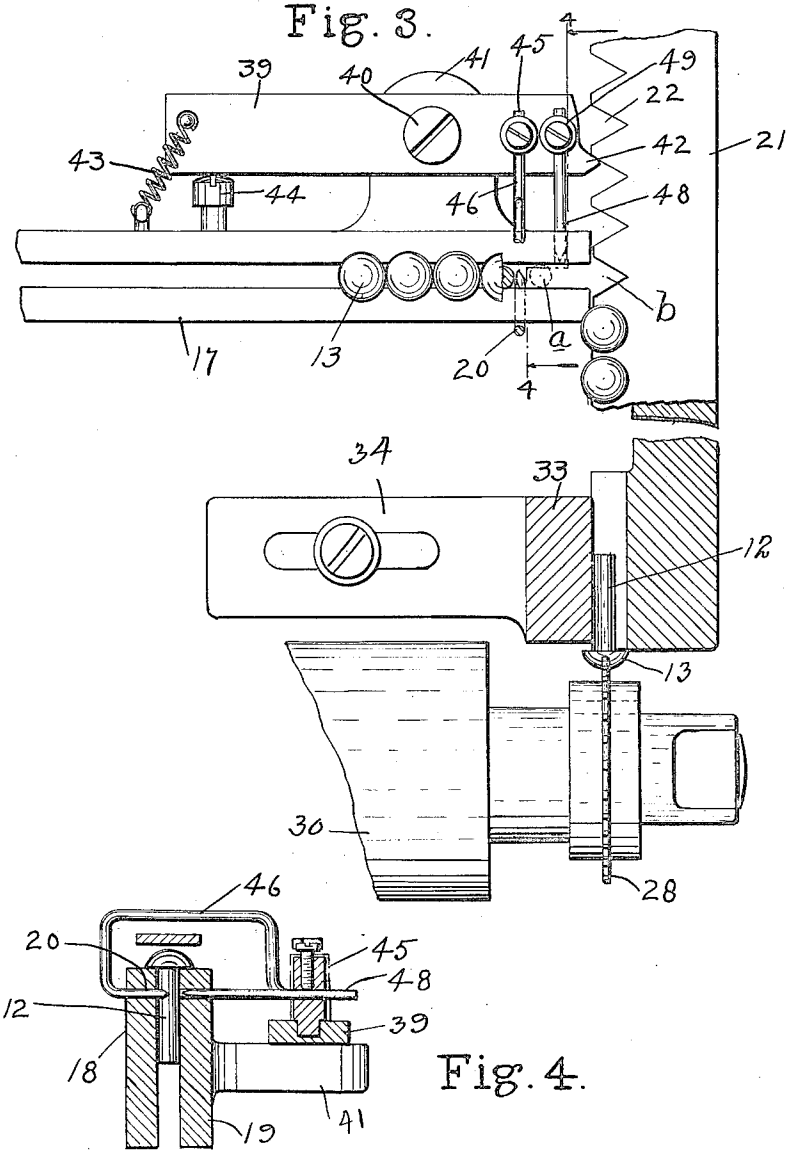


Fig. 4.

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UNITED STATES PATENT OFFICE.

TEUNAUSKI Z. CARPENTER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO FEDERAL SCREW CORPORATION, OF PROVIDENCE, RHODE ISLAND, A CORPORATION OF RHODE ISLAND.

SCREW-SLOTTING MACHINE.

1,153,540. Specification of Letters Patent. Patented Sept. 14, 1915.

Application filed December 14, 1912. Serial No. 736,691.

To all whom it may concern:

Be it known that I, TEUNAUSKI Z. CARPENTER, a citizen of the United States, and resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Screw-Slotting Machines, of which the following is a specification.

This invention relates to a screw blank slotting machine, and has for its object to provide an inclined guideway for receiving the screw blanks from the hopper and conducting and depositing them intermittently by gravity into radial recesses formed in the face of a carrier wheel, said wheel being also set on an incline or angle corresponding to that of said guideway to receive and transfer said blanks and present them progressively to a saw or cutter to be slotted and also to provide means for retaining each blank in its slot while being acted upon by the cutter.

A further object is to provide simple and effective means for engaging and discharging said blanks from the carrier after being slotted.

A further object of the invention is to provide an escapement pawl arranged to be actuated by engagement with the notches in said carrier as the latter rotates, and to mount a set of feed controlling devices on said pawl to be actuated by its movement in time with the carrier to regulate the intervals of feed to correspond with the presentation of the respective notches to receive said blanks one after another.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

Of the accompanying drawings: Figure 1 is a plan view showing a portion of my improved machine. Fig. 2 is a side elevation showing both the guideway and the carrier as set on an incline by which arrangement the carrier receives the blanks direct from the guideway by a gravity feed and then transfers them to the cutter to be slotted. Fig. 3 is an enlarged plan view of the guideway and slotting saw, also showing a portion of the carrier. Fig. 4 is an enlarged sectional end view on line 4—4 of Fig. 3 showing the escapement mechanism for controlling the feed.

Referring to the drawings, 10 designates the hopper into which a quantity of the screw blanks to be slotted are deposited. These blanks are elevated by any of the ordinary methods, not shown, and deposited into the spaced apart helically grooved rolls 11 wherein the body portion 12 of the screw blank falls through between the rolls, see Fig. 2, causing them to be suspended by their head portion 13, in an upright position and be fed into the guideway or fountain 17 by the rotation of said rolls which rotation is imparted thereto through the feed belt 14 over the pulley 15 and intermeshing gears 16. This fountain or guideway is preferably constructed of two parallel plates 18 and 19 set on edge and spaced apart sufficiently to permit the body of the screw blanks to slide along between them. The upper edges of these plates are set on an angle as best illustrated in Fig. 2, whereby when the blanks are received therein from the feed rolls they immediately slide down by gravity until they bring up against the first escapement pin 20, the operation of which is presently described. In order to receive these screw blanks from the guideway I have provided a comparatively large carrier wheel or disk 21 having radial slots or notches 22 formed all around in its face, said notches being preferably of a V-shape to better receive, position and retain the blanks therein. An essential feature of my improved construction is that I set this wheel or disk to rotate on an axis whose inclination or angle is substantially that of the guideway and have set the notched face of this wheel so that it will run in close proximity to the end of the guideway whereby the blanks may be fed intermittently into said notches one after another by gravity, as fast as said notches present themselves in line with the guideway to receive them. The inclination of the face of this carrier is such as to cause said blanks after having been deposited therein to simply and naturally lie there without the necessity of providing other means for retaining them. This carrier is mounted on the shaft 23 and receives a slow continuous rotary motion by a belt, not shown, over the pulley 24, worm 25 and worm wheel

26 all except said driving pulley being mounted in an oil tight casing 27. By this motion the heads of the blanks are presented successively to the slotting saw 28 whose axis I have shown as being in the same plane and set substantially parallel with that of the carrier, said saw being mounted on the shaft 29 in bearing 30 to be rapidly driven by means of the belt 31 and small pulley 32. In order to better retain these blanks in their respective notches while being acted upon by the slotting saw I have provided a guard plate 33 whose face lies against or in close proximity to that of the carrier at the point opposite the saw, which plate is supported by the arm 34 adjustably mounted on the boss 35 by the screw 36 in its slot 37. In order to remove these blanks, after having been slotted, from their respective notches I have provided a finger 38 extending forward on an upward angle so that as the carrier continues to rotate the heads 13 of these blanks will ride up and be lifted from their respective notches and the blank discharged into a suitable receptacle below.

In order to control the passage of the blanks from the guideway into the carrier so that only one shall pass at a time and that, at a time when a notch is in position to receive it, I have provided two escapement pins 20 and 48, each extending laterally from opposite directions into opposite sides of the guideway, said pin being mounted on the binding post 45 and 49 respectively on the lower end of the escapement pawl 39. A feature of my construction is the improved means for operating these escapement pins which is that of pivotally mounting this feed pawl 39 at the point 40 on the lug 41 and providing the lower end of this pawl with an extension 42 to project into the path of movement of the notches 22 in the carrier. The opposite end of the pawl being provided with a tension spring for returning the pawl to normal against the stop 44 after being actuated by the notches on the carrier.

The operation of the invention may be more fully described as follows: The screw blanks are deposited into the hopper 10 by suitable means, not shown, thrown over into the feed rolls which carry them forward into the fountain or guideway down which they slide by gravity until they bring up against the first escapement pin 20, the feed rolls being run at a speed sufficient to supply the fountain and keep it full.

The face of the carrier wheel 21 is provided with radial notches or slots spaced apart a little over the diameter of the screw bodies. As the carrier rotates slowly the notches, as illustrated in Fig. 3 in the face thereof, intermittently engage the projecting end 42 of the escapement pawl 39 pressing it toward the guideway, which movement withdraws the pin 20 and inserts the pin 48, whereby the blank which was resting against the pin 20 is permitted to pass down to the position illustrated at *a* in dotted lines against the pin 48, then as the actuating notch passes beyond the extension 42 the pawl moves back to normal returning the pins 20 and 48 to the position illustrated in Fig. 3, thereby permitting the blank *a*, illustrated in dotted lines, to pass down into the recess *b* in the carrier, which at that time comes directly opposite the guideway to receive it and so on during the rotation of the carrier one after another of the blanks are permitted to move down into the recesses in the carrier as fast as presented to receive them, thus it will be seen by this construction that the spaces between the notches in the carrier automatically control the time for permitting the blanks to pass into the notches as presented. Owing to the inclination of the carrier, or angle of its carrying face, it will be seen that as each blank lies naturally in its notch, it is held there by gravity without other retaining means, and these blanks are carried around beneath the guard 33 which retains them from turning while being passed through the saw and slotted after which the blanks are discharged from the carrier by means of the discharge finger 38.

I claim:

1. In a screw slotting machine, a cutter, an inclined guideway, a carrier wheel having a face set at substantially a right angle to the inclination of said guideway, and means in said face for receiving the screw blank direct from said guideway and retaining it in a radial position to be conveyed to said cutter by the rotation of said wheel.

2. In a screw slotting machine, a cutter, an inclined guideway, a carrier wheel having one of its side faces set at substantially a right angle to the inclination of said guideway, a series of radial notches in said face adapted to receive the screw blank direct from the guideway and means for rotating said wheel to present said blanks progressively to said cutter.

3. In a screw slotting machine, a saw, an inclined guideway, a carrier wheel having the axis on which it is rotated set on substantially the same inclination as that of said guideway, said wheel having radial notches in its face for receiving the screw blank by gravity direct from the guideway, means for rotating said wheel to present said blanks progressively to said saw, the axis of the latter being parallel with that of the carrier, and means for retaining said blanks in said notches while being slotted.

4. A screw slotting machine comprising a guideway for feeding the screw blanks, a

carrier wheel having blank receiving notches in its face and an escapement mechanism actuated by the movement of said carrier for controlling the deposit of said blanks in said notches.

5. A screw slotting machine comprising a guideway for feeding the screw blanks, a carrier wheel having notches on its face for receiving said blanks from said guideway, and a feed controlling means actuated by the notches in said wheel as the latter rotates.

6. A screw slotting machine comprising a guideway for feeding the screw blanks, a carrier wheel having notches in its face for receiving said blanks from said guideway, an escapement pawl engaging said notches and actuated by the rotation of said wheel, and feed controlling means mounted on and actuated by the movement of said pawl.

7. A screw slotting machine comprising an inclined guideway for feeding the screw blanks, a correspondingly inclined carrier wheel having radial receiving notches in its face, and an escapement mechanism actuated by the movement of said carrier for controlling the deposit of the blanks into said notches.

8. A screw slotting machine comprising a cutter, an inclined guideway for feeding the screw blanks, a correspondingly inclined carrier wheel having notches in its face for receiving said blanks from said guideway, an escapement pawl engaging said notches and actuated by the rotation of said wheel, feed controlling pins operated by the movement of said pawl, and means for rotating said wheel to present said blanks held therein progressively to said cutter to be slotted.

9. A screw slotting machine comprising a cutter, an inclined guideway for feeding the screw blanks, a correspondingly inclined carrier wheel having notches in its face for receiving said blanks from the said guideway, an escapement pawl engaging said notches and actuated by the rotation of said wheel, feed controlling pins operated by the movement of said pawl, and means for rotating said wheel to present said blanks held therein progressively to said cutter to be slotted, means for retaining said blanks while being operated upon by said cutter, and means for discharging said blanks from said carrier after being slotted.

10. A screw slotting machine, comprising a rotary saw having stationary bearings, a guideway for the screw blanks, a carrier wheel, feed control means for automatically feeding blanks from said guideway intermittently to said carrier, and means for actuating said carrier to pass said blanks through the path of rotation of said saw whereby the heads of said blanks are slotted progressively, the axis of the saw being parallel with the axis of the said carrier.

In testimony whereof I affix my signature in presence of two witnesses.

TEUNAUSKI Z. CARPENTER.

Witnesses:

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