Jan. 10, 1928. 1,655,471

C. K. MARCELL

WIRE FEEDING AND CUTTING DEVICE

Original Filed Sept. 3. 1920 2 Sheets-Sheet 1

Fig. 1,

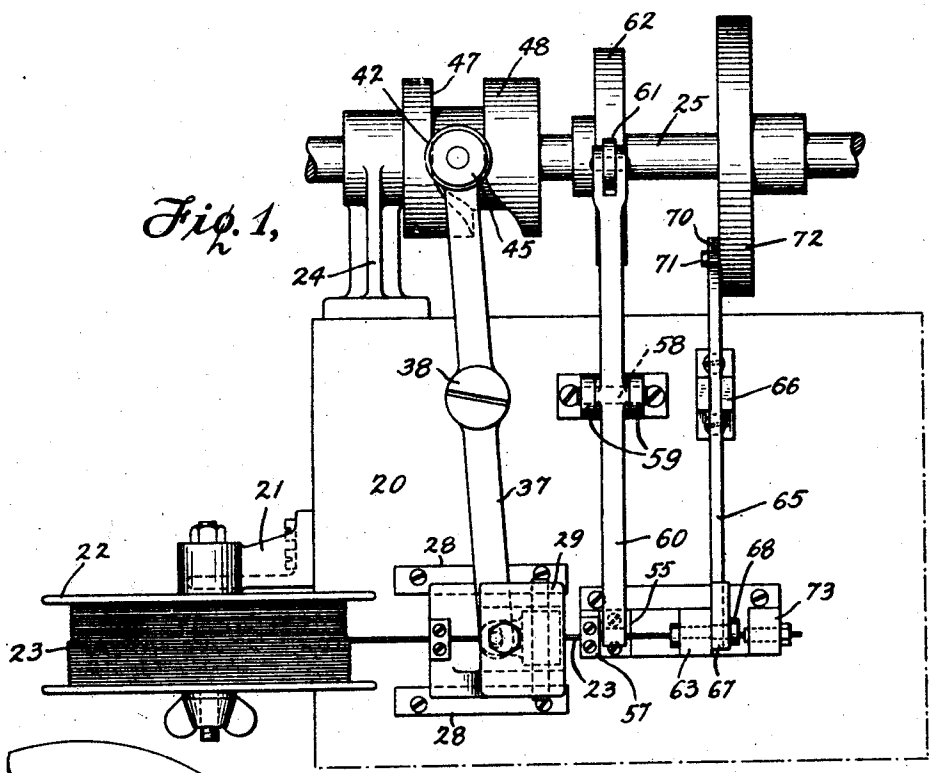
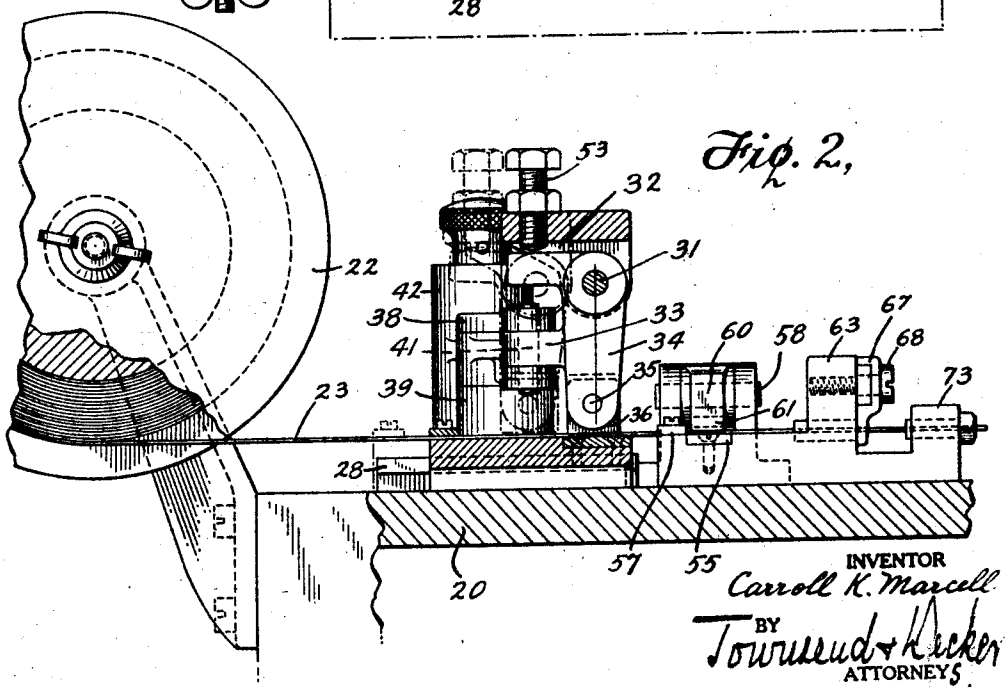


Fig. 2,



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Fig. 3,

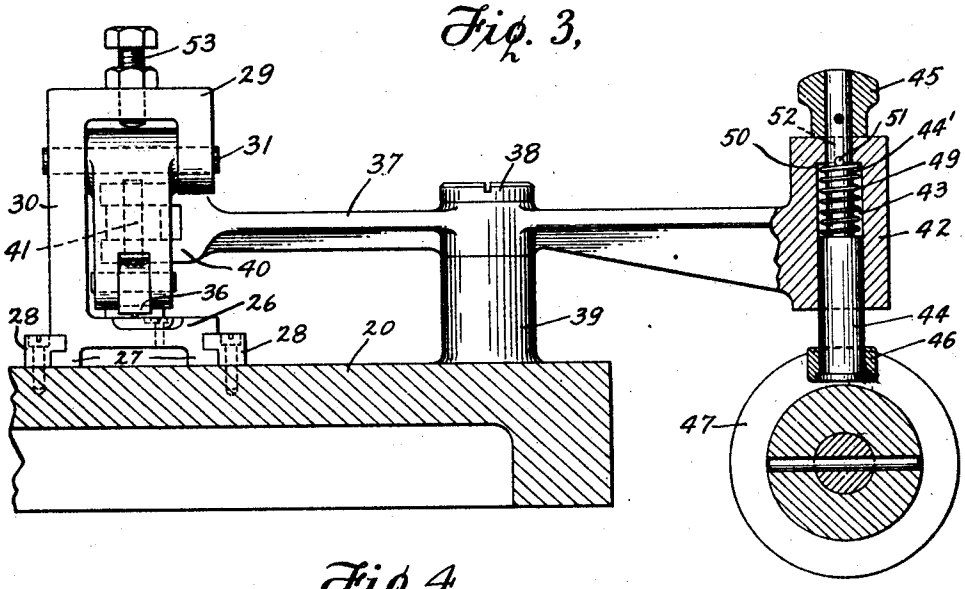


Fig. 4,

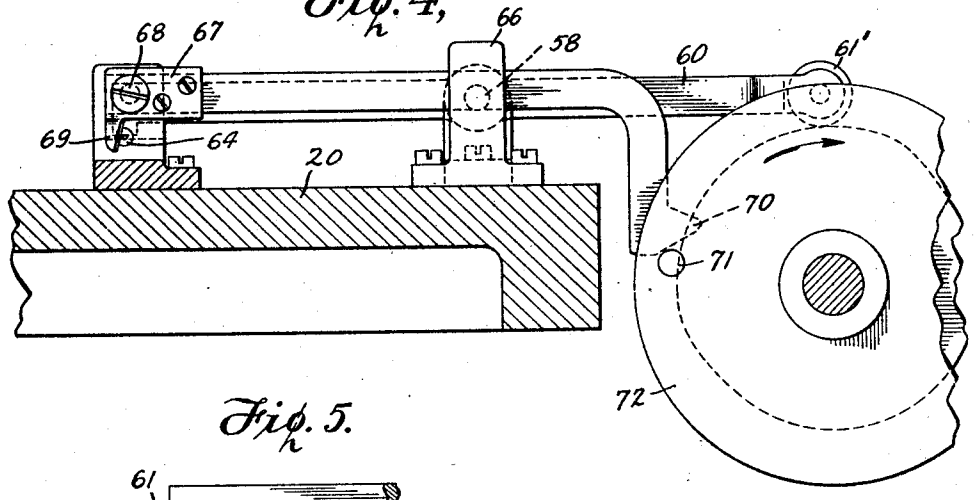
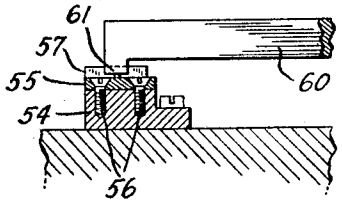


Fig. 5.



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UNITED STATES PATENT OFFICE.

CARROLL K. MARCELL, OF SPRINGFIELD, OHIO, ASSIGNOR TO METAL PACKAGE CORPORATION OF NEW YORK, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

WIRE FEEDING AND CUTTING DEVICE.

Original application filed September 3, 1920, Serial No. 407,920. Patent No. 1,557,539, dated October 13, 1925. Divided and this application filed September 5, 1925. Serial No. 54,631.

This invention relates to machines for forming pintles from a wire, said pintles being adapted for use in connection with the joining together of box bodies and covers such as is described in my prior Patent No. 1,557,539, dated Oct. 13, 1925, of which patent this application is a division.

The object of the invention is the production of a machine of the character described which shall be simple in construction and positive in operation and which shall effectively and automatically feed a wire forwardly and cut the same to form pintles of a predetermined length.

Further objects and advantages of the invention will appear from the following description the invention consisting in the novel machine and parts thereof hereinafter more particularly described and then specified in the claims.

In the accompanying drawings illustrating a practical embodiment of the invention:

Fig. 1 is a plan view of the machine.

Fig. 2 is a front elevation thereof.

Fig. 3 is a side elevation (partly in section) of the wire-feeder.

Fig. 4 is a similar view of the wire-cutter.

Fig. 5 is a side elevation of a fragmentary portion of the wire-clamp.

Referring in detail to the several figures of the drawings:

20 indicates a table to which a bracket 21 is clamped, said bracket rotatably supporting a reel 22 on which a wire 23 is wound. 24 indicates one of a pair of supporting bearings in which are journalled a shaft 25 which is rotated by any suitable power forming no part of my invention.

26 indicates the base of a novel wire-feeder bracket provided with flanges 27 slidably interfitting with flanged guides 28 which are bolted or screwed to the table 20 as indicated. Said bracket is provided with a U-shaped head 29 the longer parallel arm 30 of which is connected with said base 26 and is preferably integral therewith. Pivoted to the arms of said U-shaped head 29 as by pivot 31 is a bell-crank lever 32 having a laterally extending perforated arm 33 and a vertical arm 34, the lower end of which is forked as shown. Said lower forked end of said vertical arm 34 has loosely pivoted thereto as at 35, but off-center as respects the pivot 31, a wire-feeding block 36 adapted to feed the wire 23 laterally as will presently be described.

A wire-feeder actuating arm is indicated at 37 and is pivoted by a screw threaded pivot 38 to a post 39 which is mounted on the table 20 and which is provided with a forward forked end 40 the forked members of which are pivotally connected by pivot 41 to the laterally extending perforated arm 33 of the bell crank lever. The rear end of the actuating arm 37 terminates in a post 42 hollowed out or provided with an opening 43 receiving a rod 44 having fastened thereto or integral therewith a spindle 44′ which extends upwardly through an opening in the top of said post 42 and which has fastened to the end thereof a knob 45. 46 indicates a roller which is carried by the lower end of the rod 44 and which engages the side walls of the cam slot 47 of a drum cam 48 which is carried by the shaft 25. A compression spring 49 encircles the spindle 44′ within the opening 43 and one end thereof engages a shoulder 50 at the upper end of said opening while the lower end bears against the top or upper surface of the rod 44. The function of said spring 49, as is obvious, is to retain the roller 46 in engagement with the cam slot 47. The spindle 44′ is provided with a pin 51 normally engaging a groove or slot 52 in the upper end of the post 42. When it is desired to draw and hold the roller 46 from its engagement with the cam slot 47 the knob 45 may be pulled up manually against the action of the spring 49 and then rotated so that the pin 51 seats on or engages the top of the post 42.

When the shaft 25 is rotated the actuating lever 37 is rocked or oscillated on its pivot 38 due to the engagement of the roller 46 with the cam slot 47. This movement effects a horizontal reciprocation of the bracket 26 bodily in the flanged guides 28 as well as a movement of the bell crank lever 32 on its pivot 31 due to the manner in which the several parts are mounted and connected together.

On the forward movement or movement to the right of bracket 26 the lower end of the

vertical arm 34 of the bell-crank lever is swung to the right on the pivot 31 and causes the wire feeding plug 36 to engage the wire 23 which passes thereunder and the wire is thus carried or fed along with it a predetermined distance limited by the length of travel or forward stroke of the bracket. The actuating arm 37 then oscillates in an opposite direction, due to the cam action of the drum cam 48, to return or carry the bracket back to its initial position. As soon as the bracket begins its return movement in its guides the bell-crank lever 32 is rocked in an opposite or clockwise direction on its pivot 31 and the lower edge of the wire feeding block 36 is "kicked" up or raised, due to the fact that the pivot 35 is off-center as respects the pivot 31, so that said wide-feeding block is returned with the other parts without, however, drawing the wire back with it. I prefer also to provide a screw 53 extending through the U-shaped head of the bracket, as illustrated, and provided with the usual locking nut, said screw being adapted to engage the bell-crank lever 32 to limit the swing or throw thereof on its pivot 31.

It is desirable after every forward stroke of the wire-feeder bracket 26 and the consequent feeding forwardly of the wire 23 a predetermined distance that the wire be clamped tightly while the bracket is being returned to its initial position and while the forward end of the wire has been cut to form a pintle as will be described. I have accordingly provided a wire-clamping table 54 which is bolted or screwed to the table 20 and which is provided with a case-hardened plate 55 countersunk in said table and secured thereto by suitable screws 56, all as shown in Fig. 5. Said table is also provided with a perforated guiding extension 57 through the perforation of which the wire 23 extends. Pivoted, as by the pivot 58, to the pivot bearings 59 which are mounted on the table 20 is a wire-clamping lever 60 having a clamping head 61 adapted to engage and clamp the wire 23 firmly against the plate 55 of the clamping table. The rear end of said lever 60 is forked as illustrated and has pivotally mounted between the arms of the fork a roller 61′ engaging the cam periphery of a step cam 62 which is mounted on or carried by the shaft 25. When the shaft is rotated the lever 60 rocks on its pivot 58 due to the cam action of the step cam 62 and the clamping head of said lever intermittently clamps and unclamps the wire 23 in an obvious manner.

63 indicates a wire-cutter support which is mounted on the table adjacent the clamping table just described. Said support has mounted therein a transversely extending guide bushing 64 which receives therethrough the wire 23. 65 indicates a wire-cutting lever supported in an open bearing 66 on the table 20 the forward end of which lever is provided with a head 67 pivoted, as at 68, to the side of the support 63 and carrying a wire cutting blade 69. The rear end of said wire-cutting lever 65 is provided with a hook 70 adapted to engage a lug or pin 71 extending laterally from one side of a face cam 72 which is carried by the shaft 25. For every revolution of said face cam 72 the lug or pin 71 strikes the hook 70 of the wire-cutting lever 65 and causes said lever to rock on its pivot 68 thereby rotating the wire-cutting blade 69 against the side of the support 63 a distance sufficiently to cut off the wire at that point to form a pintle. The forward end of the pintle, if so desired, may be supported by any suitable form of supporting bushing 73 from which it may be removed in any desirable manner.

Before operations are begun the end of the wire is brought over the wire-feeder through the guiding extension 57 of the clamping table, over said clamping table and through the transversely extending guide bushing 64 of the wire-cutter support 69, and, if so desired, through the bushing 73. When the shaft is rotated the wire is fed forwardly by the feeder a predetermined distance, as previously described, and when the feeder begins the return movement to its initial position the wire-clamping lever 60 is rocked on its pivot in the proper direction to bring the clamping head 61 thereof into clamping engagement with the wire. Immediately thereafter, and while the wire is clamped the wire-cutting lever 65 is rocked on its pivot to actuate the blade 69 thereby causing the same to cut the wire to form a pintle, the blade then being returned to inoperative position, inasmuch as the lever 65 immediately rocks in an opposite direction after the cutting operation has been performed. After such cutting operation the lever 60 is rocked to release its clamping head from engagement with the wire whereupon the feeder begins its forward movement again and feeds the wire forwardly the same predetermined distance upon which the same sequence of operations is performed.

I claim as my invention:

1. In an apparatus of the character described, a support, a guide on said support, a bracket slidable in said guide, a bell-crank lever pivoted to said bracket, a wire-feeding block pivoted to said bell-crank lever and means for reciprocating said bracket in said guide.

2. In an apparatus of the character described, a support, a guide on said support, a bracket slidable in said guide, a bell-crank lever pivoted to said bracket, a wire-feeding block pivoted to said bell-crank lever but off-center as respects the pivot of said bracket and actuating means pivoted to said bell-

crank lever for reciprocating said bracket in said guide.

3. In an apparatus of the character described, a support, a guide on said support, a bracket slidable in said guide, a bell-crank lever pivoted to said bracket, a wire-feeding block pivoted to said bell-crank lever, a shaft and means connecting with said shaft and to said bell-crank lever for reciprocating said bracket in said guide.

4. In an apparatus of the character described, a support, a bracket mounted on said support, a bell-crank lever pivoted to said bracket, a wire feeding block pivoted to said bell-crank lever adapted to engage the wire and feed the same forwardly, means for reciprocating said bracket on said support, means for clamping the wire against movement after it has been fed forwardly and means for cutting the wire after clamping to form a pintle.

5. In an apparatus of the character described, a support, a bracket mounted on said support, a bell-crank lever pivoted to said bracket, a wire-feeding block pivoted to said bell-crank lever, an actuating arm pivotally mounted on said support, and connected to said bell-crank lever and adapted to reciprocate said bracket on said frame, a shaft, a cam provided with a cam slot carried by said shaft, a roller on said actuating arm engaging said cam slot and means for lifting said roller from engagement with said cam slot and for holding it in disengaged position.

6. In an apparatus of the character described, a bracket, a bell-crank lever pivoted to said bracket, a wire-feeding block pivoted to said bell-crank lever for feeding the wire forwardly, actuating means pivoted to said bell-crank lever for reciprocating said bracket on said frame and for rocking said bell-crank lever on its pivot, means for clamping the wire when fed forwardly and means for cutting the wire when clamped to form a pintle.

7. In an apparatus of the character described, a support, a bracket mounted on said support, a bell-crank lever pivoted to said bracket, a wire-feeding block pivoted to said bell-crank lever for engaging a wire to feed the same forwardly a predetermined distance, means connected to said bell-crank lever for rocking the same on its pivot and for reciprocating the bracket on said frame and means carried by said bracket to vary the throw of said bell-crank lever on its pivot.

8. In an apparatus of the character described, a support, a bracket mounted on said support, a wire-feeder pivoted to said bracket for engaging a wire and feeding the same forwardly, an actuating arm pivoted to said wire-feeder for rocking the same on its pivot and for reciprocating said bracket on said frame, means for clamping the wire against movement when it has been fed forwardly a predetermined distance and means for cutting the wire when clamped to form a pintle.

9. In an apparatus of the character described, a support, a wire-feeder bracket slidably mounted on said support and provided with a U-shaped head, a block pivoted to the arms of said head for feeding a wire forwardly, means for reciprocating said bracket, a pivoted clamping lever, a head on said clamping lever, and means for rocking said clamping lever whereby said head will engage and clamp the wire against movement.

10. In an apparatus of the character described, a shaft, wire-feeding means, a lever connecting said shaft and wire-feeding means, clamping means, a lever connecting said clamping means and said shaft, cutting means and a lever connecting said cutting means and said shaft, the connections between said shaft and said levers being such that said wire-feeding means functions when said clamping means and cutting means are in inoperative position and vice versa.

Signed at New York in the county of New York and State of N. Y. this 3rd day of Sept., A. D. 1925.

CARROLL K. MARCELL.