Feb. 7, 1928. 1,658,468

P. E. TARLTON

MARKING MACHINE

Filed April 24, 1926 4 Sheets-Sheet 1

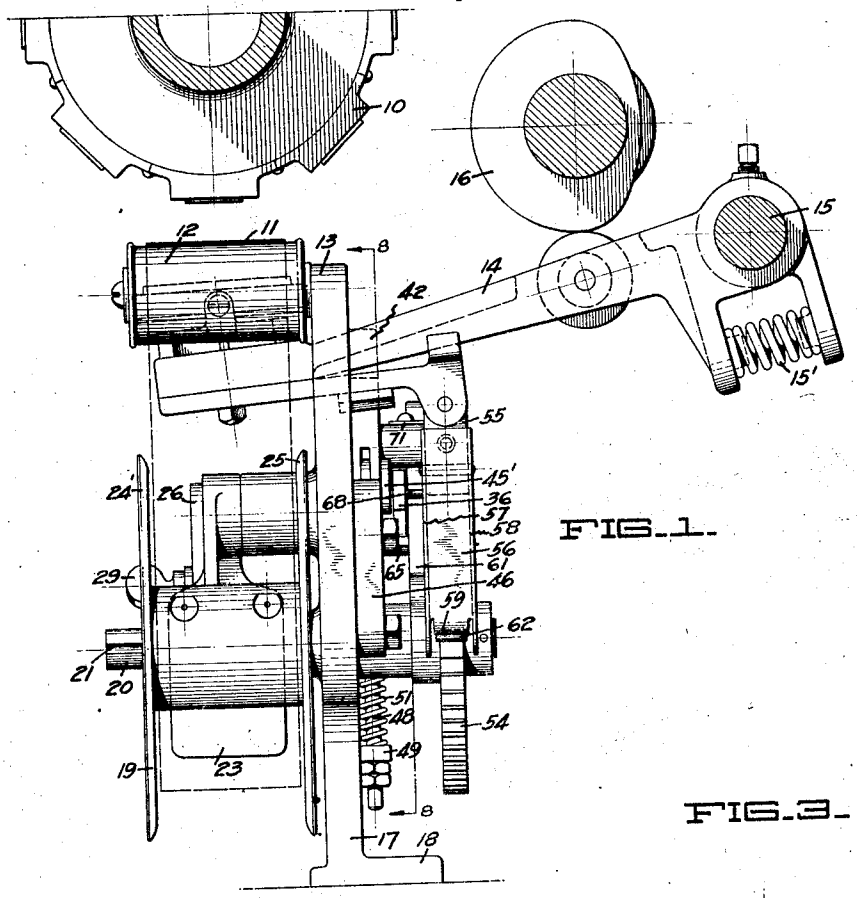


FIG. 1.

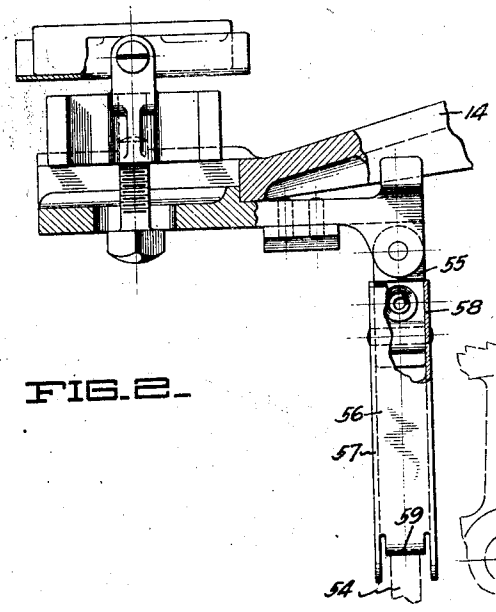


FIG. 2.

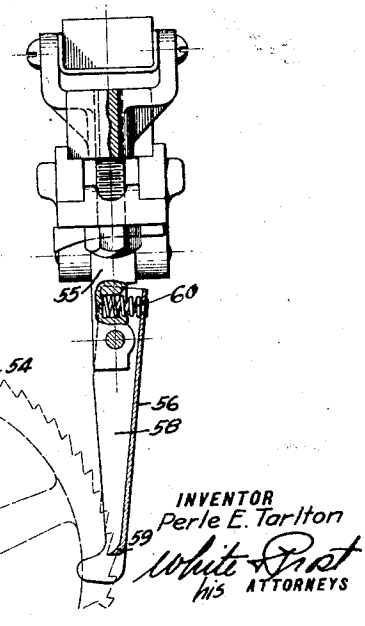


FIG. 3.

INVENTOR
Perle E. Tarlton
White & Post
his ATTORNEYS

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P. E. TARLTON

MARKING MACHINE

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FIG. 4.

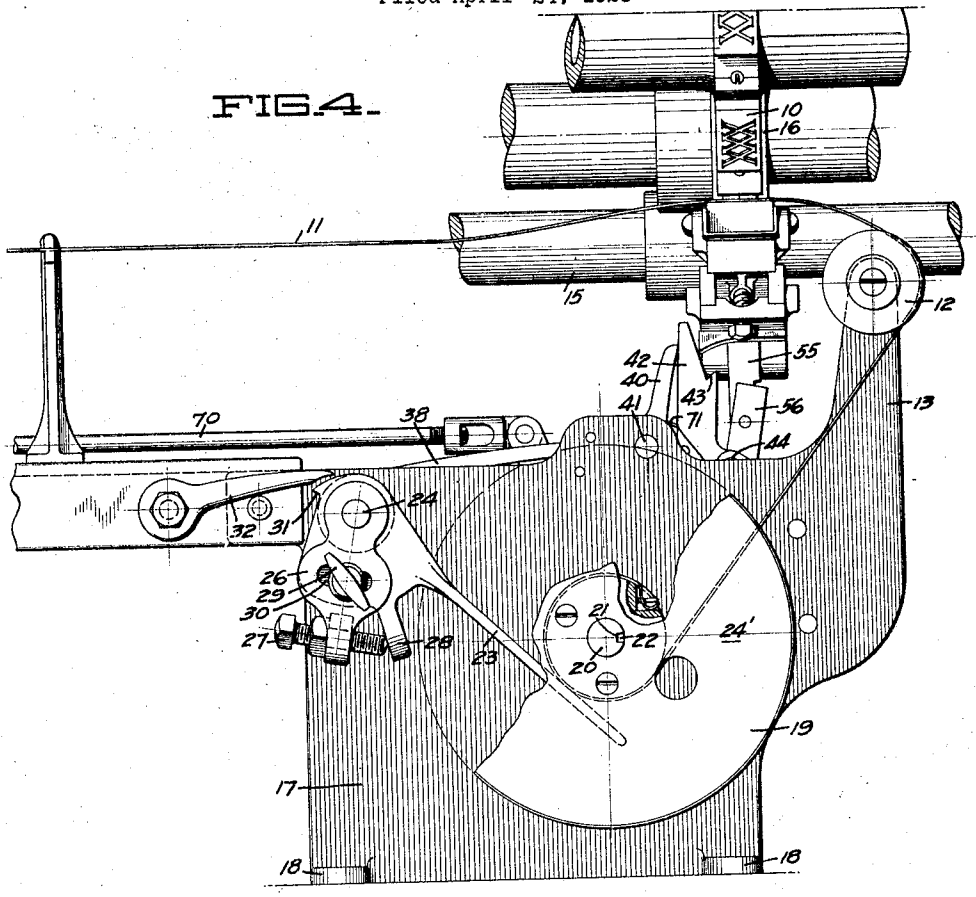
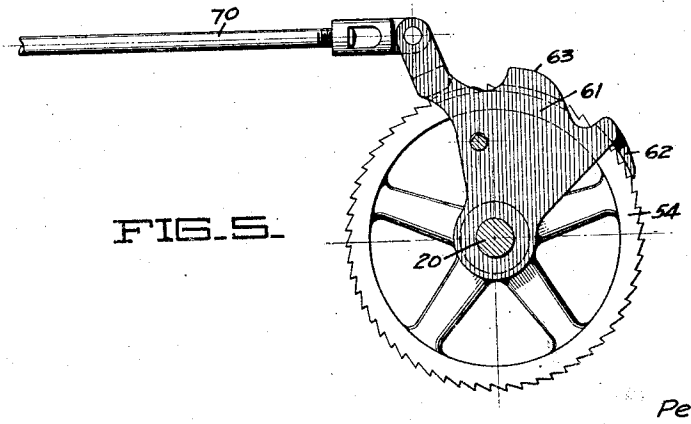


FIG. 5.



INVENTOR
Perle E. Tarlton
BY White & Dust
his ATTORNEYS

Feb. 7, 1928. 1,658,468

P. E. TARLTON

MARKING MACHINE

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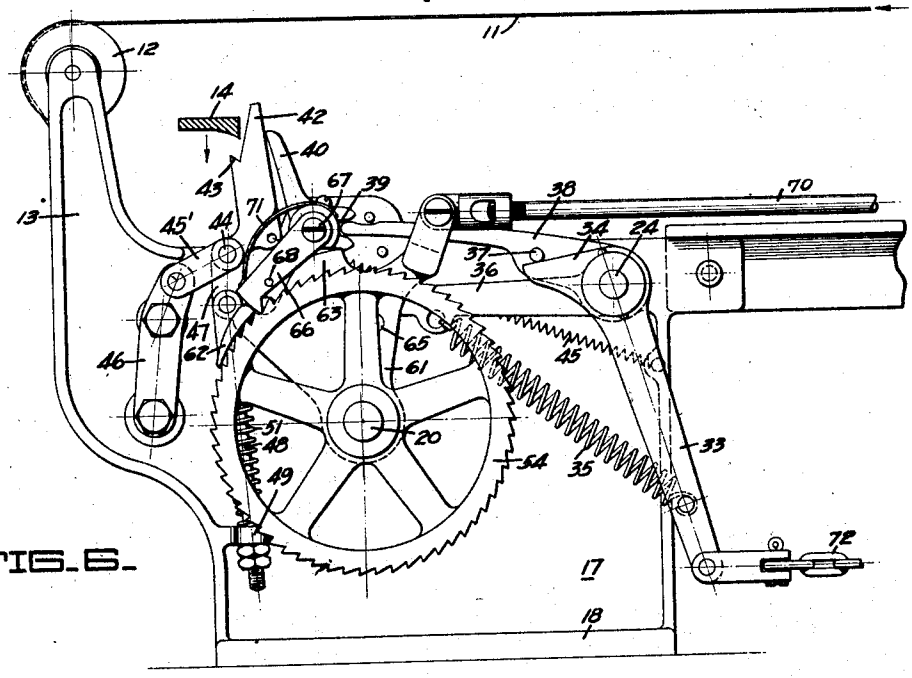


FIG. 6.

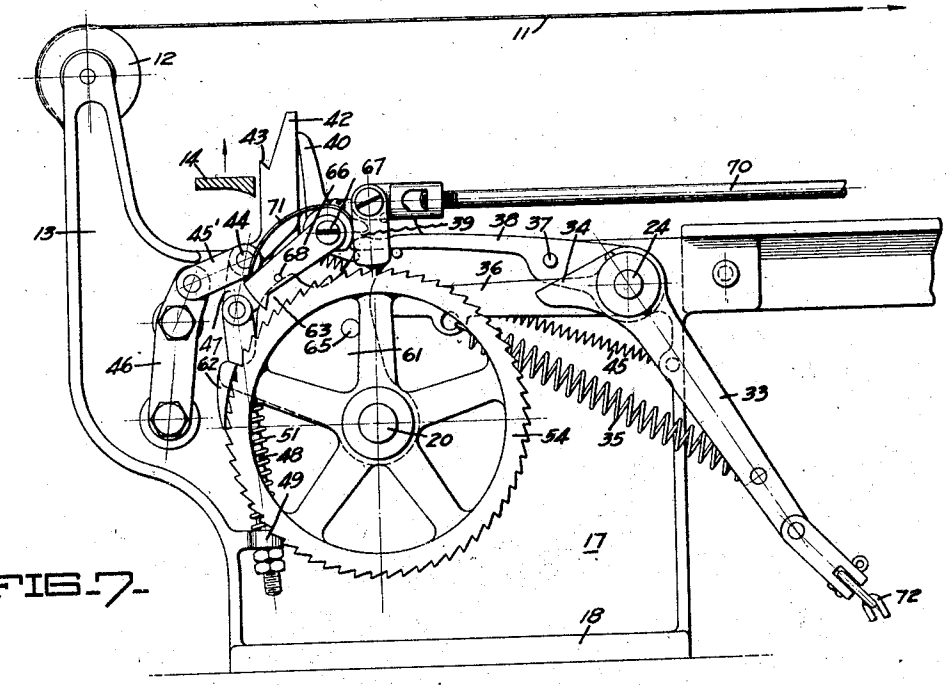


FIG. 7.

INVENTOR
Perle E. Tarlton
BY White & Post
Their ATTORNEYS

Feb. 7, 1928. 1,658,468

P. E. TARLTON

MARKING MACHINE

Filed April 24, 1926 4 Sheets-Sheet 4

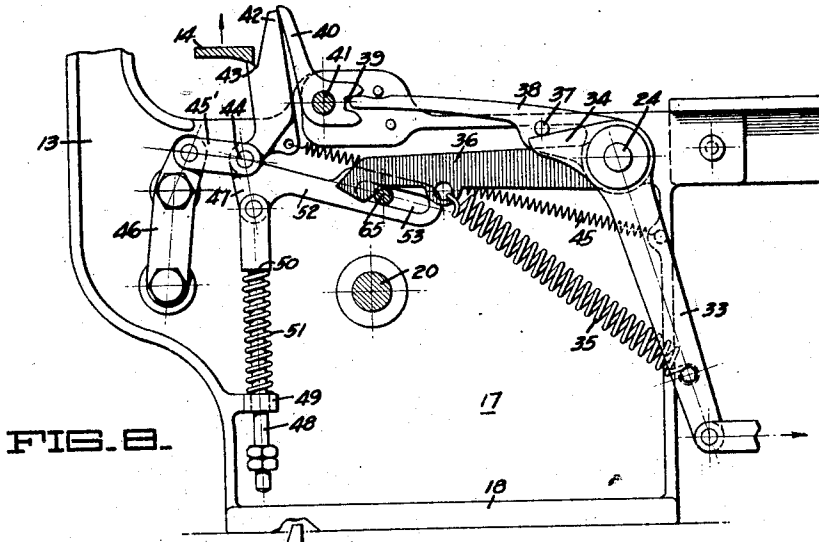


FIG. 8.

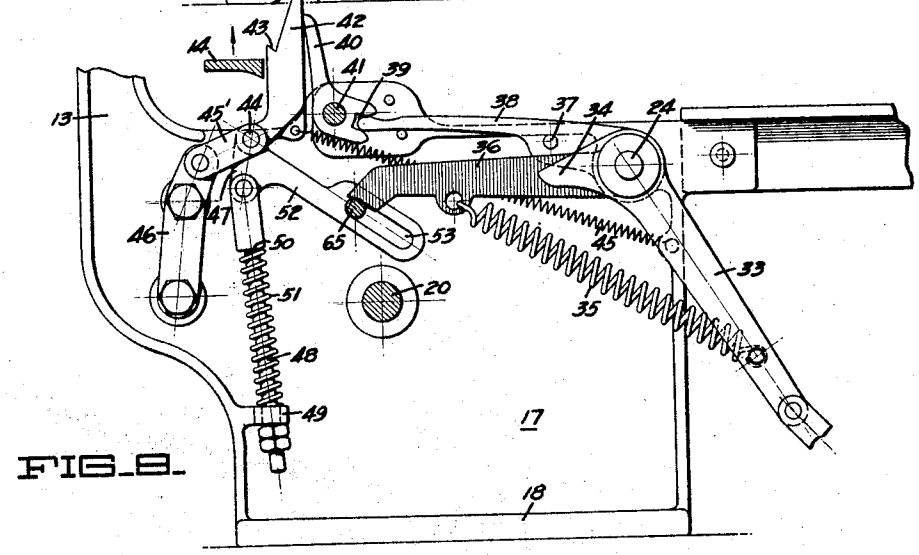


FIG. 8.

INVENTOR
Perle E. Tarlton
BY White & Drat
his ATTORNEYS

Patented Feb. 7, 1928. 1,658,468

UNITED STATES PATENT OFFICE.

PERLE E. TARLTON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO ELECTRIC FRUIT MARKING CO., OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA.

MARKING MACHINE.

Application filed April 24, 1926. Serial No. 104,329.

My invention relates to apparatus for marking names, designs and other delineations on fruit. More particularly, my invention relates to an electric fruit marking machine and is in the nature of an improvement on the electric fruit marking machine shown in United States Letters Patent No. 1,421,292, issued to Lewis Neuenschwander on June 27, 1922, which patent is assigned to the assignee of the present invention. In that patent is shown a machine provided with electrically heated dies for stamping the fruit. Means for inking the dies are provided which comprise a pair of spools which contain the inking ribbon, said ribbon being led over guide rollers and under the die shaft below the dies. Pad arms actuated intermittently by a cam shaft are provided to press the ribbon against the die then directly above the ribbon. The spools are driven continuously by a rotating shaft and a manually operated clutch mechanism is provided for connecting one or the other of said spools with said shaft for the purpose of reversing the direction of the inking ribbon.

An object of the present invention is to provide means for feeding the inking ribbon past the dies intermittently, the feeding being so arranged that the ribbon is stationary when the pad arms press the same against a die.

Another object of the invention is to provide in a fruit marking machine of the character described a simple and efficient means for feeding the inking ribbon past the die intermittently, actuated by the pad arms which press the ribbon against the dies.

A further object of the invention is to provide means for automatically reversing the direction of the feed of the ribbon, whereby after a spool is unwound, the direction of the ribbon feed is automatically reversed so as to rewind the ribbon on the empty spool.

The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description, where I shall outline in full, that form of my invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings I have shown one form of marking machine embodying my invention, but it is to be understood that I do not limit myself to such form, since the invention, as set forth in the claims, may be embodied in a plurality of forms.

Referring to the drawings:

Fig. 1 is an end view of one unit of ribbon feeding and reversing mechanism embodying my invention, the die, pad arm and actuating cam shaft of a fruit marking machine as shown in said letters patent being indicated to illustrate the relation of my invention to said elements and its operation.

Fig. 2 is an enlarged detail view, partly in section, illustrating the end of the pad arm and mechanism carried thereby for actuating the ribbon feeding and reversing mechanism.

Fig. 3 is an end view, partly in section, of Fig. 2 as viewed from the left.

Fig. 4 is a side view, with parts in section, of apparatus embodying my invention and fragments of associated parts of the fruit marking machine, the figure illustrating principally the ribbon spool and the device for controlling the operation of the same which is determined by the amount of ribbon on the spool.

Fig. 5 is a detail view of mechanism for controlling the driving connection between the pad arm and the gear through which the ribbon spool is driven.

Fig. 6 is a side view of apparatus embodying my invention of the side opposite to that shown in Fig. 4, illustrating primarily the gear for driving the spool and means for controlling the driving relation between the same and the actuating pad arm, the parts being shown in their position when the spool is unwound and in position to be rewound.

Fig. 7 is a view similar to Fig. 6 in which the parts are shown in their position when the spool is full and being unwound or idling.

Fig. 8 is a view similar to Fig. 6, taken on the line 8—8 of Fig. 1, certain parts being omitted, and illustrating the mechanism through which the pad arm actuates the driving gear of the spool the parts being shown in their position when the spool is unwound and in position to be rewound and

Fig. 9 is a view similar to Fig. 8 with the parts shown in their position when the spool is full and being unwound or idling.

As above indicated, the present invention relates to an improved inking ribbon feed

and automatic reversing mechanism particularly adapted for use in a fruit marking machine of the character shown in United States Letters Patent No. 1,421,292 issued to Lewis Neuenschwander on June 27, 1922. Only such parts of that machine are illustrated herein as are necessary for a complete understanding of the present invention, and reference may be had to said patent for other details of the machine, if desired. For the purposes herein, it is sufficient to state that said machine comprises a series of dies 10, arranged co-axially and rotated intermittently. An inking ribbon 11 is led below the dies and over guide rollers 12, positioned on opposite ends of the frame 13 of the machine. A pad arm 14 is positioned below said die, a series of such arms being fixed on a shaft 15, and urged upwardly toward the dies by a tension spring 15'. A cam 16 is provided for each pad arm 14, which is arranged to actuate the pad arms and allow the ribbon to be pressed against the die then directly above the same when the die is stationary, and after a momentary contact the cam forces the pad arm down. The several parts referred to are shown in Fig. 1. With this preliminary description I shall now proceed to describe the apparatus embodying my invention. The apparatus comprises two similar units, positioned at opposite ends of the machine, with certain interconnections hereinafter described, and a description of one of the units will therefore be sufficient.

The frame for supporting such a unit is preferably in the form of a flat vertical wall 17 formed with suitable supporting legs 18. On a side of the wall 17, which I shall refer to as the rear side, visible in Figs. 1 and 4, a spool 19, for the inking ribbon 11, is carried on a rotatable shaft 20, journalled in said wall. The spool 19 is slidable axially on the shaft 20, so as to permit the ready positioning thereon, the connection between the same being made by means of a slot 21 in the shaft 20 adapted to receive a pin 22 fixed within the central opening of the spool. As shown in Figs. 1 and 4, the roller 12 and the spool 19 are positioned on the same side of the wall 17, the former being positioned in a plane above the latter, and nearer the end of the frame, so that the ribbon 11 extends from the spool toward the adjacent end of the machine and upwardly over the roller 12 to the roller 12 at the opposite end of the machine. On the same side of the wall 17 with the spool 19, an arm 23 is secured on a shaft 24, journaled in the wall 17. The arm 23 is in the form of a flat paddle, as best shown in Fig. 1, and extends between the ends 24', 25, of the spool 19. The arm 23 is secured to the shaft by means of an arm 26 fixed on the shaft 24. The arm 26 is provided with a screw 27 adapted to engage a lug 28 on the arm 23 which is loosely mounted on the shaft 24. Thus, by means of the screw 27, the position of the arm 23 may be adjusted as desired on the shaft 24 and the same is secured in its adjusted position by means of a screw 29 on the arm 23, which extends thru a slot 30 in the arm 26 in a manner readily understood. The purpose of the arm 23 is twofold, first, it is urged against the ribbon 11, by means later described, and thus maintains a proper tension on the ribbon, and second, it controls the feeding and reversing mechanism, as also later described. In order to remove the spool 19 from its shaft 20, the arm 23 is rotated clockwise, as viewed in Fig. 4, until it is clear of the sides 24' and 25 of the spool. For holding the arm 23 in its clear position, it is provided with a suitable shoulder 31 adapted to be engaged by a pawl 32 and held in this position. The shafts 20 and 24 both extend through the wall 17 and project on its front side. As shown in Figs. 6 to 9, the shaft 24 has fixed on its end, on the front side of wall 17, a lever 33 formed with a shoulder 34. The lever 33 is normally urged in a counterclockwise direction by a spring 35 connected thereto at one end and connected at its opposite end with a locking piece 36 pivoted on the shaft 24, as best shown in Figs. 8 and 9, pulling the same downwardly. At the same time the shoulder 34 is urged upwardly against a pin 37 carried on an arm 38 loosely pivoted at one end on the shaft 24. The opposite end of the arm 38 extends loosely into a notch 39 of a trigger member 40 loosely pivoted on a shaft 41 in the frame. It will thus be seen that the spring acts to rotate the shaft 24 clockwise and urges the locking piece 36 downwardly and the trigger arm 38 upwardly. The clockwise rotation of the shaft 24 causes the arm 23, carried at its opposite end to engage and press against the ribbon 11 on the spool 19 and thus maintain a proper tension thereon. It is proper to state at this point that as the ribbon winds on the spool, the arm 23 is moved outwardly from the center of the spool and moves the lever 33 clockwise. Thus, when the spool is empty the paddle arm 23 is in the position shown in Fig. 1 and the lever 33 is in the position shown in Figs. 6 and 8, and when the spool is wound with the ribbon 11, the lever 33 is in the position shown in Figs. 7 and 9. An upwardly extending lug 42, formed with a notch 43, is pivoted on a shaft 44 and urged against the trigger member 40 by a spring 45. Thus, the position of the lug 42 is controlled by the trigger member 40. When the spool is empty, the arm 34 engages the pin 37, moving the trigger arm 38 upwardly, thereby causing the trigger member 40 to push the lug 42 forward against the action of the spring, in which position its notch 43

is in the line of travel of the pad arm 14 and adapted to be engaged thereby when it is moved down by the cam 16, as shown in Fig. 8, and when the spool is full, the parts are as shown in Fig. 9, in which position the notch 43 is free of and out of the line of travel of the pad arm 14, as shown in Fig. 9. The shaft 44, which supports the lug 42, is carried at one end of an arm 45′ which is pivoted at its opposite end to a member 46 secured to the frame 17. The arm 45′ is connected at its shaft 44 by means of a link 47 with a substantially vertical rod 48 which extends loosely through a lug 49 on the frame. The rod 48 is formed with a shoulder 50 and a spring 51 surrounds the rod and is interposed between the shoulder 50 thereon and the lug 49, thus acting to maintain the lug 42 in its upper position as shown in Fig. 9 and to return it to that position after it has been moved down to its lower position, shown in Fig. 8, by the pad arm 14. The link 47 is formed with an extension 52 formed with a slot 53.

The opposite end of the shaft 20 has fixed thereto on the front side of the wall 17 a ratchet wheel 54, best shown in Figs. 6 and 7, adapted to be rotated in a counter clockwise direction so as to wind the ribbon on the spool. The ratchet wheel 54 is driven by the pad arm 14. As shown in Figs. 1 to 3 the arm 14 has an arm 55 pivoted thereto on its under side, to which is pivoted at right angles a pawl 56, substantially U-shaped in cross-section so as to provide side walls 57 and 58 thereon. The end of the pawl 56 is provided with a suitable tooth 59 at its lower end adapted to engage the teeth of the ratchet wheel 54, and a spring 60 is interposed between its upper end and the arm 55 so as normally to urge the tooth 59 into engagement with the ratchet wheel 54. A locking member 61, best shown in Fig. 5, is pivoted on the shaft 20, carrying a shoe 62 at one end arranged to cover some of the teeth of the ratchet wheel 54, and provided with a raised portion 63 on its periphery. The locking piece 61 is also provided with a pin 65 which is positioned in the slot 53. A pawl 66 is pivoted on a shaft 67, adapted to engage the teeth of ratchet wheel 54. The pawl 66 is also provided with a pin 68 adapted to engage the periphery of locking piece 61. The locking piece 61 has two positions shown in Figs. 6 and 7 respectively, and is actuated by the pad arm 14 through lug 42.

Let it be assumed that the spool is empty as shown in Fig. 1, and ready to be wound in which case the parts are as shown in Figs. 6 and 8. In this case, the arm 23 is in its innermost position as shown in Fig. 1, and the lever 33 is in its innermost position shown in Figs. 6 and 8 in which the trigger member 40 acts against the lug 42, placing the notch 43 in line to be engaged by the pad arm when it is moved down by the cam 16. At this time the locking piece 61 is in the position shown in Fig. 7, in which the shoe 62 prevents the pawl 56 from engaging the ratchet wheel 54. It must be remembered that the pad arm 14 is moving up and down continuously. When the lug 42 is in the position shown in Fig. 6, on its first downward movement, the pad arm 14 strikes the same, and moves the locking piece 61 to the position shown in Fig. 6 in which the shoe 62 is clear of the teeth of ratchet 54 and permits the pawl 56 to engage its teeth and rotate the same intermittently and thus wind the ribbon on the spool. The locking piece 61 is thrown to this position through the action of the lug 42 on link 47, the extension 52 of which engages the pin 65 on the piece 61 and thus rotate the same about its axis 20. This operation continues until the spool is fully wound, when the lever 33 is moved by the paddle arm 23 to the position shown in Fig. 7 at which time, the trigger 40 releases the lug 42 and allows it to be drawn free of the spring 45. It is of course understood that when the spool at one end of the machine is empty, the other is full, thus when the parts of a spool at one end of the machine are as shown in Fig. 7, the parts of the spool at the other end of the machine are as shown in Fig. 6. The locking pieces 61 of the two units are connected by means of a rod 70, thus when a spool is full as shown in Fig. 7, the other spool is empty and its locking piece is thrown to the position shown in Fig. 6, which moves the locking piece of the full spool to the position shown in Fig. 7, in which case, the shoe 62 carried thereby shields the teeth of the ratchet wheel 54 from engagement by the pad arm pawl 56. The sides 57 and 58 of the pawl 56 now serve to guide the pawl over the shoe 62. In this position of the locking piece 61, the pin 68 rests on the raised portion 63 of said piece and holds the pawl 66 free of the ratchet wheel thus permitting the same to be rotated in the opposite direction as the spool is unwound. The pawl 66 is normally urged into engagement with the ratchet 54 by a spring 71 and prevents the same from rotating in the opposite direction while the spool associated therewith is being wound. Preferably the ends of the levers 33 of the two units are connected by a chain 72 so as to aid each other in performing their functions. A spring 35 of considerable strength is desirable since this serves to actuate the trigger member 40, to tension the ribbon on its associated spool and to positively hold the locking piece 61 in either of its two positions. It is obvious that as the spool is wound, the diameter of the ribbon thereon increases, thus placing its associated spring 35 under greater tension and in order to prevent this tension from becoming too great, the same is counteracted by connecting the levers 33

together, so that the spring 35 of the other spool which is being unwound may exert a pull on the former spring 35.

I claim:

1. In a marking machine, a die, an inking ribbon arranged to pass underneath the die, a pivotally mounted pad arm for pressing the ribbon against the die, a rotatable spool to which one end of the ribbon is connected, means for rotating the spool comprising a ratchet wheel, means for rocking said pad arm about its axis at predetermined intervals in a plane at right angles to the rotation of said ratchet wheel, and a pawl carried by said pad arm adapted to engage said ratchet wheel when the arm moves downwardly, said pawl being pivoted on said arm on an axis parallel with the axis of said ratchet wheel, and resilient means urging said pawl into engagement with said ratchet wheel.

2. In a marking machine, a die, an inking ribbon, a pivoted pad arm for pressing the ribbon against the die when moved in one direction, a rotatable spool to which one end of the ribbon is connected, means for rotating said spool to wind the ribbon thereon adapted to be actuated by said pad arm when moved in the opposite direction, means for rocking the pad arm about its pivot intermittently, and means for controlling the driving relation between said pad arm and the spool rotating means comprising an element adapted to interrupt said driving relation, a pivoted member secured to said element, means normally holding the pivoted element free of said pad arm, a resilient member bearing against the ribbon wound on the spool, means controlled by said resilient member adapted when the spool is fully wound to move said pivoted element in position to be engaged by the pad arm whereby, when the pad arm engages the pivoted member, the element adapted to interrupt said driving relation is moved to its effective position.

3. In a machine of the character described, a ribbon spool, a pivoted element resiliently held against the ribbon wound on the spool, a trigger arm actuated by said element, a trigger member moved by said arm, a pivoted lug, resilient means normally urging said lug against said arm, whereby said lug is moved about its pivot and its position varied in response to the amount of ribbon wound on the spool.

4. In a machine of the character described, a ribbon spool, a ratchet wheel for rotating the spool to wind ribbon thereon, an intermittently actuated pad arm, a pawl carried thereby for engaging the ratchet wheel and means for controlling the engagement between said pawl and ratchet wheel comprising a pivoted element having a shield adapted in one position to permit the pawl to engage the ratchet wheel and in another to interrupt said engagement, and means controlled by the amount of ribbon wound on the spool for controlling said pivoted element.

5. In a machine of the character described, a ribbon spool, a rotatable wheel for rotating the spool to wind ribbon thereon, an intermittently actuated pad arm, a pawl carried thereby for engaging the ratchet wheel and means for controlling the engagement between said pawl and ratchet wheel comprising a pivoted element having a shield adapted in one position to permit the pawl to engage the ratchet wheel and in another to interrupt said engagement, means for controlling the position of said pivoted element comprising a pivoted member resiliently held against the ribbon wound on the spool, a movable lug connected with said pivoted shield carrying member arranged in one position to be engaged by said pad arm and thereby move the pivoted element so that its shield interrupts the driving relation between said pawl and ratchet, and means controlled by said pivoted member for moving said lug in position to be engaged by the pad arm when the spool is fully wound.

6. In a machine of the character described a pair of ribbon spools adapted to be rotated in opposite directions to wind ribbon thereon alternately, mechanism associated with each spool comprising a ratchet wheel for rotating the spool to wind ribbon thereon, an intermittently actuated pad arm, a pawl carried thereby for engaging the ratchet wheel and means for controlling the engagement between said pawl and ratchet wheel comprising a pivoted element having a shield adapted in one position to permit the pawl to engage the ratchet wheel and in another to interrupt said engagement, means for moving said pivoted element in position so that the shield carried thereby interrupts the engagement between the pawl and ratchet wheel when the associated spool is fully wound and connections between the pivoted elements of the two mechanisms whereby the same are maintained in opposite positions.

7. In a machine of the character described, a pair of ribbon spools adapted to be rotated in opposite directions to wind ribbon thereon alternately, mechanism associated with each spool comprising a pivoted pad arm adapted intermittently to rotate the associated spool, and means for establishing the driving relation between the pad arm and spool when a predetermined amount of ribbon is wound thereon comprising a pivoted member resting against the coiled ribbon on the spool, a lever, a resilient element connected with said lever to urge the pivoted member against the ribbon, and means controlled by the position of said lever for es-

tablishing said driving relation, and a connection between the levers of the two mechanisms for counteracting the action of the resilient elements connected therewith as described.

8. In a marking machine, a die, an inking ribbon, a pivotally mounted pad arm for bringing the ribbon and die into engagement, a rotatable spool to which one end of the ribbon is connected, pivoted means for rotating the spool, pivoted means for rocking said pad arm about its axis in a plane at right angles to the axis of rotation of the first mentioned means, and a pawl carried by said pad arm adapted to engage said first mentioned means when the arms moves downwardly, said pawl being pivoted on said arm on an axis parallel with the axis of said first mentioned means.

In testimony whereof, I have hereunto set my hand.

PERLE E. TARLTON.