May 29, 1951 B. C. CREED 2,554,855

CARD WINDING MACHINE

Filed Dec. 12, 1946 4 Sheets-Sheet 1

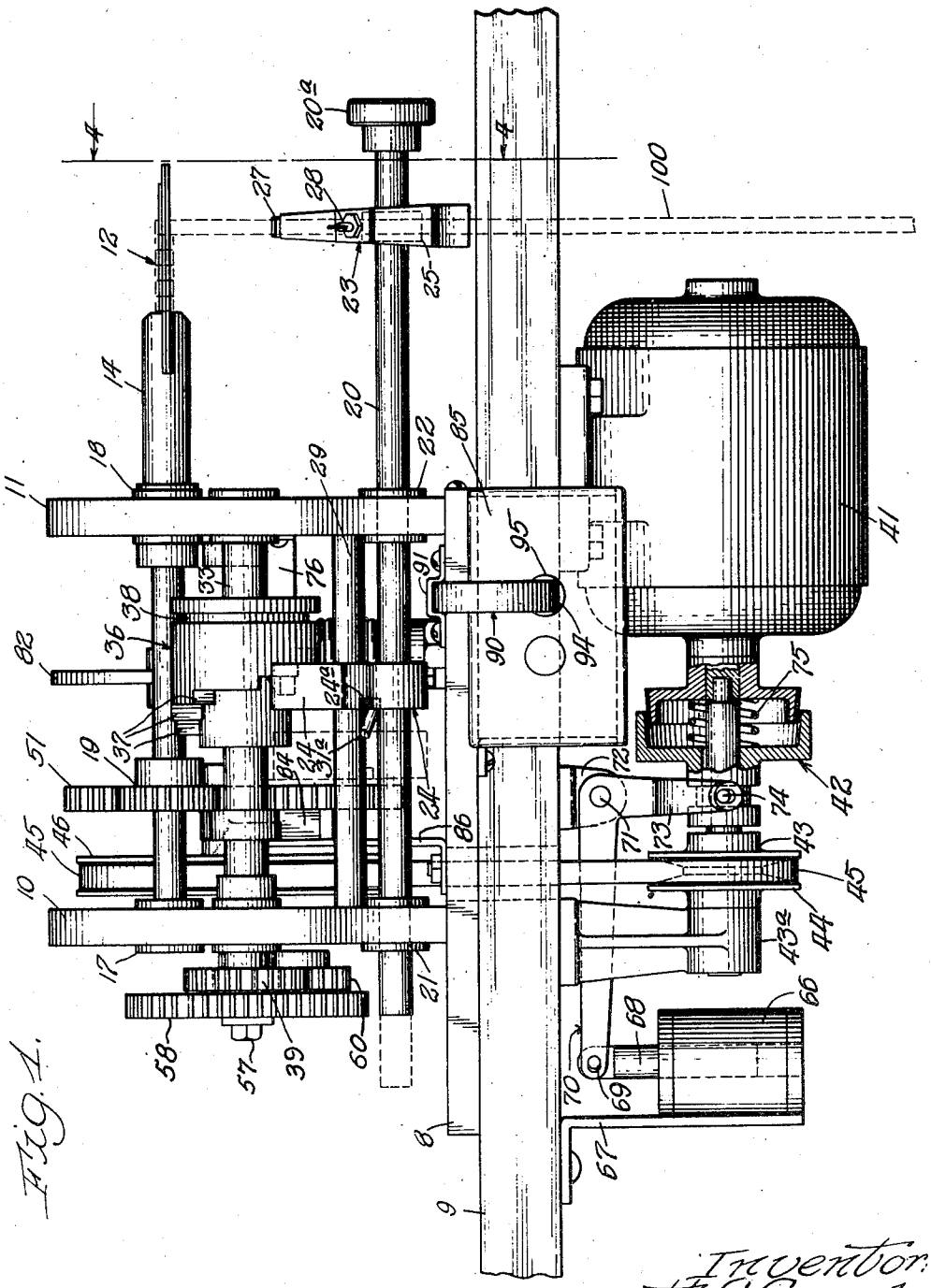


Fig. 1.

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CARD WINDING MACHINE

Filed Dec. 12, 1946 4 Sheets-Sheet 2

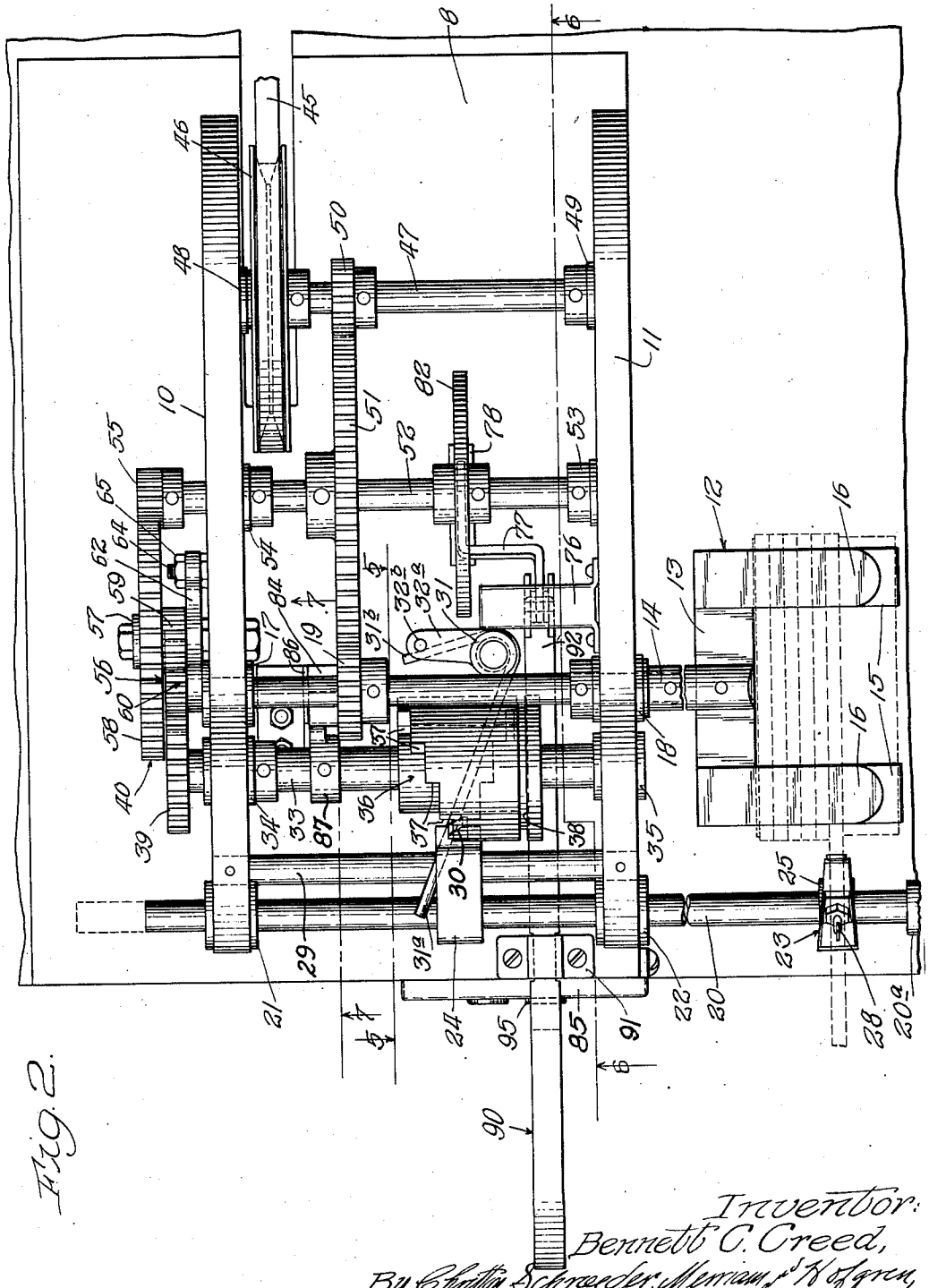


Fig. 2.

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CARD WINDING MACHINE

Filed Dec. 12, 1946 4 Sheets-Sheet 3

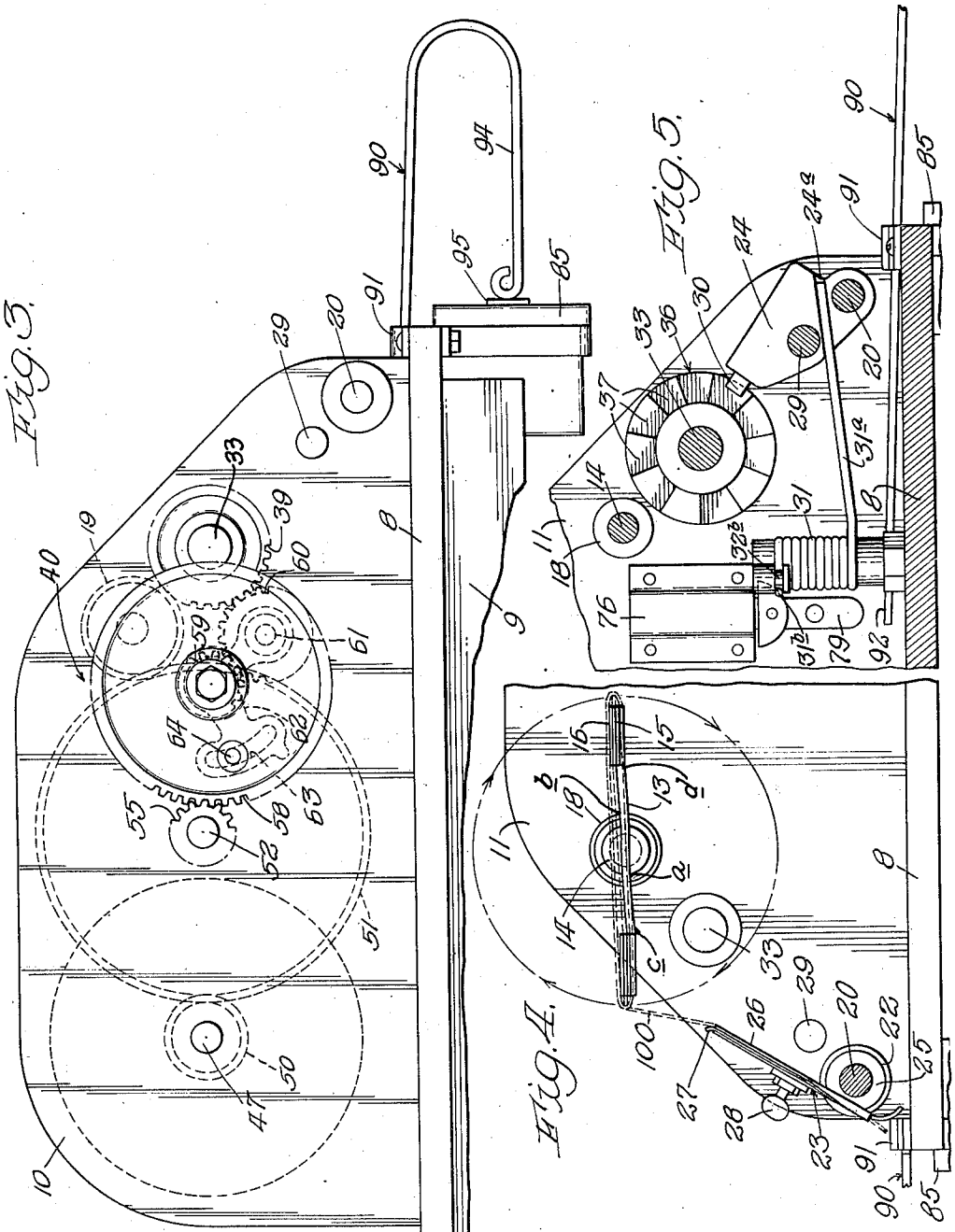


Fig. 3.



Fig. 5.



Fig. 4.

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CARD WINDING MACHINE

Filed Dec. 12, 1946 4 Sheets-Sheet 4

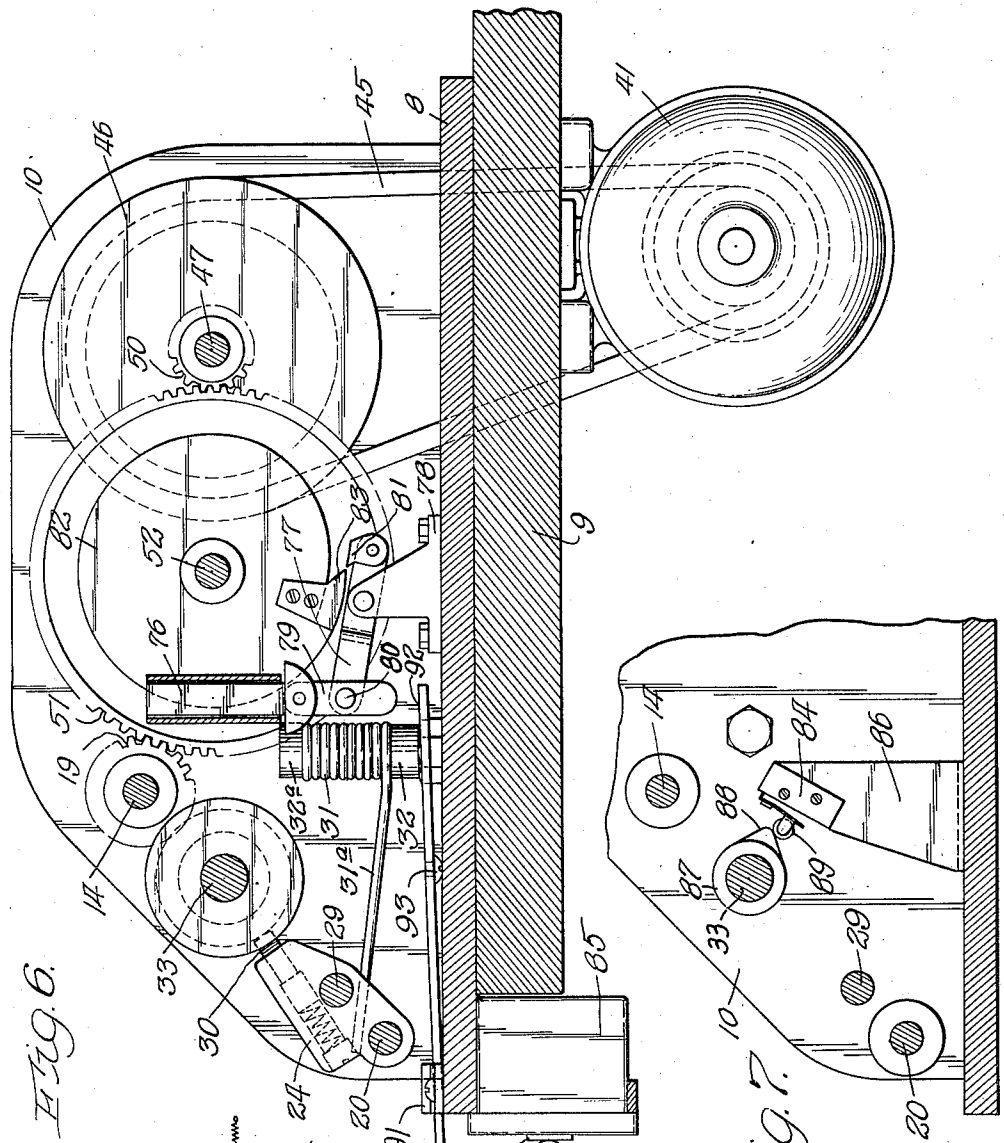



Fig. 6.




Fig. 7.

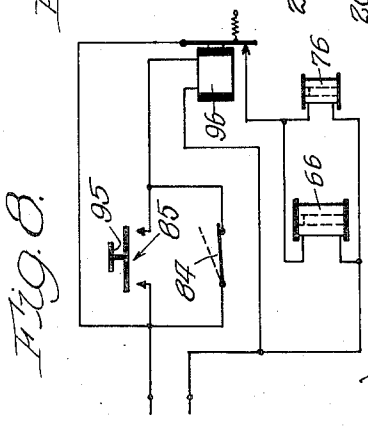



Fig. 8.

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Patented May 29, 1951

2,554,855

# UNITED STATES PATENT OFFICE

2,554,855

## CARD WINDING MACHINE

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Application December 12, 1946, Serial No. 715,676

17 Claims. (Cl. 242—50)

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This invention relates to a machine for winding tape on a card, known as a carding machine.

One object of the invention is to provide a simple, sturdy, compact machine for winding tape on cards.

A further object is to provide a machine which will positively wind a predetermined length of tape on a card.

A further object is to provide a carding machine with a positive stop so that the card, and all moving parts of the machine, are in precisely the same position at the end of each carding operation.

A further object is to provide a carding machine which can be easily reset and readied for a new card at the end of each carding operation.

A further object is to provide a carding machine the gearing of which can readily be changed to provide for a varying number of throws in each row of tape on the card.

The invention is illustrated in a preferred embodiment in the drawings, in which:

Fig. 1 is a front elevation of the carding machine with the cover removed;

Fig. 2 is a plan view thereof;

Fig. 3 is a left side elevation;

Fig. 4 is a partial section thereof taken on the line 4—4 of Fig. 1, looking in the direction of the arrows;

Fig. 5 is a partial section thereof taken on the line 5—5 of Fig. 2;

Fig. 6 is a section thereof taken on the line 6—6 of Fig. 2;

Fig. 7 is a partial section thereof taken on the line 7—7 of Fig. 2; and Fig. 8 is a wiring diagram.

Referring to the drawings in greater detail, the carding machine has a bed plate 8 which is preferably bolted to a table 9, and side plates 10 and 11. A U-shaped card holder indicated generally at 12 consists of a cross-bar 13, secured at its central portion to a card holder shaft or rod 14, and parallel side arms 15 projecting from the cross bar 13, the cross bar 13 having equal, slight, opposed transverse bends *a* and *b* immediately adjacent the shaft 14, and bends *c* and *d* equal and opposite to the first bends immediately adjacent the side arms 15, so that the side arms 15 are parallel to and oppositely offset from the center line of the cross bar 13 (as best shown in Fig. 4). The side arms 15 are furnished with spring clips 16 in which a card may be inserted. The offsetting of the side arms 15 slightly bends a card placed in the card holder 12 so that when the card is removed with tape wound upon it the straightening of the card causes the tape to fit it snugly and thus prevents slipping of the wound tape. The card holder shaft 14 extends through the side-plates 10 and 11, and is journaled to rotate therein in bearings 17 and 18, which may be of bronze or other suitable material, and a spur gear 19 is secured thereto.

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The machine is adapted to wind a predetermined number of parallel, non-helical rows of tape upon a card, each row having a predetermined number of layers of tape therein. This is accomplished by a unique winding guide which consists of a cam finger push rod 20 in parallel spaced relationship to the card holder shaft 14 slidably mounted in the side plates 10 and 11 in bearings 21 and 22, the push rod 20 being furnished with a tape-guide, indicated generally at 23, a cam finger indicated generally at 24, and a push plate 20*a*. The tape guide 23 consists of a collar 25 adapted to be secured to the slidable push rod 20 by means of a locking screw, an elongated tongue 26 secured to said collar, a spring finger 27 secured to the tongue 26 adjacent the collar and extending parallel thereto, and a thumb screw 28 arranged to adjustably tension the spring finger 27 against the tongue 26. Tape, 100, is carried on a spool (not shown) which may be mounted on a suitable rack secured to the table 9, and is fed between the tongue 26 and the spring finger 27 of the guide 23, and is held in tension by said tongue. Because of the relative positions of the card holder shaft 14 and the slidable push rod 20, the tape guide 23 is best inclined toward the shaft 14 at an angle of about 30° from the vertical. The cam finger 24 is rigidly secured to the slidable push rod 20 and projects angularly upwardly and inwardly therefrom, and is provided with a hole to accommodate a guide shaft 29 which is rigidly secured to the side plates 10 and 11, and upon which the cam finger is free to slide. The cam finger 24 terminates in a spring pressed plunger 30 which is wedge shaped at its outer end. A coil spring 31 is rotatably mounted around a spring post 32 which is screwed into the bed plate 8, said spring having a straight integral extension 32*a* which fits into a spring groove 24*a* in one face of the cam finger 24. A spring tensioning arm 32*a* is pivotally mounted on the top of the spring post 32 and may be locked thereon by means of a locking screw, the arm 32*a* being provided at its outer end with a pin 32*b* against which rests a second integral extension 31*b* of the coil spring 31. Thus the spring pressure against the cam finger 24 may

be adjusted by pivoting the arm 32*a* to any desired position and then locking it in place with the locking screw. A cam shaft 33 is located in parallel spaced relation to the slidable push rod 20, said cam shaft being rotatably mounted in bearings 34 and 35 in side plates 10 and 11 respectively. The cam shaft 33 carries a control cam 36 which has a series of circumferential steps 37 progressing from one of its end surfaces toward the other, the drop from one step to the next being precisely equal to the width of the tape being wound, and the last of the steps 37 communicating with an annular groove 38. The cam shaft 33 is provided with a change gear 39 located exteriorly of the side plate 10, said gear 39 being in communication with a gear train, indicated generally at 40, whereby the cam shaft may be driven through one rotation for each complete carding operation. The spring-pressed plunger 30 of the spring finger 24 is in contact with the stepped surface of the control cam 36, and as the control cam rotates the spring finger 24 is urged into the successive steps 37 by the action of the spring arm 31*a*. The number of steps 37 on the cam 36 determines the number of rows of tape which will be wound upon a card held in the card holder 12, and the gearing of the cam shaft 33 determines the number of throws of tape which will be wound on each row, as will be fully explained hereafter.

The driving mechanism consists of an electric motor 41, preferably of about ⅓ horsepower, mounted on the under side of the table 9, and connected through a cone clutch 42 to a pulley shaft 43 which is carried in a pulley hub 43*a* secured to the under side of the table 9, and is furnished with a pulley 44. A V-belt 45 extends through coincident apertures in the table 8 and the bed plate 9 to drivingly connect the pulley 44 to a pulley 46 mounted on a drive shaft 47. The drive shaft 47 is rotatably mounted in bearings 48 and 49 located respectively in the side walls 10 and 11, and is furnished with a small spur gear 50 locked in a key-way therein, the spur gear 50 being in driving communication with a large intermediate spur gear 51 mounted in a key-way on an intermediate shaft 52, said shaft 52 being rotatably mounted in a bearing 53 in the side plate 11, and projecting through a bearing 54 in the side plate 10, and having a small change gear 55 secured to its outer end. The intermediate gear 51 meshes directly with the spur gear 19 on the card holder shaft 14, thus driving the card holder directly; and the change gear 55 on the end of the intermediate shaft 52 drives the cam shaft 33 through the gear train 40 and the change gear 39.

The gear train 40 includes a double change gear 56 which is rotatably mounted on a rigid idler gear stud 57 and consists of a large gear 58 which meshes with the change gear 55 on the intermediate shaft and a small gear 59 which meshes with an idler change gear 60, the idler change gear 60 also meshing with the change gear 39 on the cam shaft. The idler change gear 60 is mounted in a bearing 61 in one arm of an L-shaped idler adjustment lever 62, said adjustment lever 62, being rotatably secured on the idler gear stud 57 and having its other arm furnished with an arcuate slot 63 through which slot projects a lock stud 64 having a lock nut 65 thereon by which the idler adjustment lever 62 may be locked in place. The idler change gear 60 is thus adjustable in an arc about the idler gear stud 57, so that it is possible to employ several different sizes of change gear 39 on the cam shaft and thus to provide various ratios of rotation between the card holder shaft 14 and the cam shaft 33, thereby permitting easy adjustment of the machine to lay different predetermined numbers of layers of tape in each row of tape on a card.

A typical gear arrangement is as follows: a 24-tooth spur gear 50 on the drive shaft 47 meshing with a 112-tooth spur gear 51 on the intermediate shaft, the spur gear 51 meshing with a 32-tooth spur gear 19 on the card holder shaft; a 20-tooth change gear 55 on the intermediate shaft, meshing with an 80-tooth large gear 58 on the idler stud, a 20-tooth small gear 59 on the idler stud, meshing with a 30-tooth idler change gear 60, the gear 60 meshing with a 40-tooth change gear 39 on the cam shaft, gives a ratio of 28 turns of the card holder shaft 14 to one turn of the cam shaft 33. By exchanging the change gear 39 for one of a different size, and adjusting the idler adjustment lever 62, the machine can be readily adjusted to wind any desired number of throws of tape upon a card held in the card holder 12; and to wind any desired number of yards of tape it is necessary only to select a card of appropriate width. Thus, with a 5⅛ inch card, if the change gear 39 on the cam shaft has 30 teeth, the ratio of rotation of card holder shaft to cam shaft is 21–1, and 6 yards of tape will be wound on the card. Similarly, 40 tooth gear, 28–1, 8 yards; 50-tooth gear, 35–1, 10 yards; and 60-tooth gear, 42–1, 12 yards. Further adjustments may be made by means of suitable variations of the change gear 55 and the various change gears in the gear train 40, or by selecting a card of different size.

Proceeding to the mechanism by which the machine is started and stopped, it consists generally of a combination of mechanical and electrical controls. As illustrated in the drawings, the machine is about half-way through a carding operation.

A clutch control solenoid 66 is secured to the under side of the table 9 by means of a bracket 67, and a clutch activator arm 68 is so located as to be capable of being moved by the solenoid 66, said arm 68 being provided with a pin 69 which projects through an oval eye in one arm of a bell crank 70 so as to pivotally secure the arm 68 to the bell crank. The bell crank 70 is pivotally secured by means of a pin 71 to a lug 72 which is secured to the under side of the table 9, and its other arm is formed into a fork 73, the arms of which are provided with oval eyes through which extend pins 74 to pivotally link the bell crank 70 and the pulley shaft 43. It is apparent that when the solenoid 66 is active it engages the cone clutch 42 against the force of the clutch throw out spring 75, by drawing the clutch activator arm 68 downward and pivoting the bell crank 70 about its pivot 71.

A lock control solenoid 76 is secured to the side plate 11 in spaced relationship to the intermediate shaft 52. A locking lever 77 is pivotally secured to a bracket 78 mounted on the machine bed plate 8, said lever having one of its ends pivotally secured to a locking lever activator arm 79 by means of a pin 80, the arm 79 being so located as to be capable of being moved by the solenoid 76. The other end of the locking lever 77 terminates in a locking tooth 81. A locking cam 82 is secured to the intermediate shaft 52, and is provided with a single locking tooth 83. It is clear that when the solenoid 76 is active it

retains the arm 79 in its raised position and thus holds the locking tooth 81 out of the path of the tooth 83 on the locking cam 82.

As best seen in Figs. 7 and 8, the solenoids 66 and 76 are wired in parallel, and are controlled by a relay switch 96 which in turn is controlled by a microswitch 84 which serves as a stop switch, and a push button switch 85 which serves as a start switch, the switches 84 and 85 likewise being wired in parallel. During a carding operation the micro-switch 84 is closed, and the start switch 85 is open. The micro-switch 84 is secured to a base 86 in close spaced relationship to the cam shaft 33, and the start switch 85 is secured beneath the bed plate 8 at one of the edge portions thereof.

A trip cam 87 is secured to the cam shaft 33 adjacent the microswitch 84, and in such a position that at the end of a carding operation its trip dog 88 contacts the switch roller 89 of the micro-switch 84. This serves to open the circuit to the relay switch 96, thus opening the relay switch and thereby simultaneously de-activating both of the solenoids 66 and 76. The clutch throw-out spring 75 opens the clutch 42, disengaging the motor 41 from the pulley shaft 43. The locking lever activator 79 drops by gravity to its lower position, moving the locking tooth 81 into the path of the tooth 83 on the locking cam 82, thus providing means by which the machine stops with its parts in the same predetermined position at the end of each carding operation. The trip dog 88 remains in contact with the switch roller 89, thus keeping the circuit open until the machine is started again.

Starting is effected by means of the combined starter lever and release booster 90 which is loosely secured near one edge of the bed plate 8 by means of the straps 91. The interior end portion 92 of the starter lever 90 is held above the bed plate 8 by an intermediate bearing point 93 and is directly below the locking lever activator 79, and the exterior end portion 94 of the lever 90 is U-shaped so that it contacts the start button 95 of the switch 85. Thus when downward pressure is exerted upon the lever 90, its interior end portion 92 boosts the locking lever activator 79 to its raised position, releasing the locking cam 82; and its exterior end portion 94 presses upon the start button 95, closing the circuit through the switch 85 and energizing the relay switch 96 so as to close it and thus energize both of the solenoids 66 and 76. The solenoid 66 engages the clutch 42 against the resistance of the clutch throw-out spring 75, and the solenoid 76 retains the locking lever activator 79 in its raised position. The starter lever 90 must be held down momentarily to permit the trip dog 88 to clear the switch roller 89 of the microswitch 84 and allow said switch to close, whereupon release of pressure on the lever 90 permits the start button 95 to return to its normal position, breaking the circuit through the start switch 85 and leaving the circuit closed through the micro-switch.

At the end of a carding operation the spring pressed plunger 30 of the cam finger 24 is in the annular groove 38 of the control cam. To prepare for a new winding sequence the operator need only cut the tape 100 near the card, tuck the loose end under an adjacent row of tape, and remove the fully wound card from the card holder. The new sequence may then be started by placing a new card in the card holder 12, pushing the slidable push rod 20 to its rear-most



position, thus forcing the spring pressed plunger 30 out of the annular groove 38 and returning the cam finger 24 to its original position on the first step of the cam 36, placing the loose end of tape on the new card underneath one of the spring clip 16, and pressing downwardly upon the combined starter and manual booster lever 90. In ordinary operation the motor 41 runs continuously, and a separate switch (not shown) is provided for the purpose of starting and stopping the motor 41.

The operation of the machine is believed to be clear from the above description. Upon pressing the starter lever 90, the switch 85 is closed, thus closing the relay switch 96 and causing the solenoids 76 and 66 to operate respectively to unlock the locking cam 81 and to engage the clutch 42. The motor 41, driving through the clutch 42, the pulley shaft 43, and the belt 45, drives the drive shaft 47 through the pulley 46 thereon, and the card holder shaft 14 is driven at a relatively high rate of speed through the spur gears on the drive shaft 47, the intermediate shaft 52, and the card holder shaft itself. The change gear 55 on the end of the intermediate shaft 52 simultaneously drives through the gear train 40 to rotate the cam shaft 33 at a relatively slow rate. Tape 100 is wound onto several layers on one row as the cam 36 rotates with the spring pressed plunger 30 of the cam finger 24 remaining on the first step of the cam 36. When the cam 36 has rotated through a sufficient angle, the cam finger 24 drops off the first step of the cam face and the spring arm 31*a* slides the slidable push rod 20 the width of one row of tape. A second row of several layers of tape is thereupon laid immediately adjacent the first row, this operation continuing until the card has had the predetermined amount of tape wound upon it. At this time the spring pressed plunger 30 in the end of the cam finger 24 drops into the annular groove 38 on the cam 36, and the trip cam 87 strikes the switch arm 89 to open the circuit to the relay switch 96 and thus deactivate the solenoids 66 and 76 and stop the operation of the machine by permitting the clutch 42 to open and the locking tooth 81 to move into the path of the tooth 83 on the locking cam 82.

If desired, the machine may be furnished with a counter which is tripped each time the slidable push rod 20 is returned to its rearward starting position, and the total yardage wound by the machine thus may be recorded.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. A card winding machine comprising, a rotatable card holder, a rotatable control cam having a series of circumferential steps progressing from one of its end surfaces toward the other, means for driving said control cam and said card holder at different rates, a tape guide, means for causing said tape guide to move periodically parallel to the axis of rotation of said card holder as said control cam is rotated, means for locking said two rotatable elements in a predetermined position, and a rotatable cam shaft on which said control cam is mounted, the axis of rotation of said cam shaft being parallel with the axis of rotation of said card holder.

2. A card winding machine according to claim 1 wherein means are provided for releasing said locking means, and said cam shaft axis is laterally spaced from said card holder axis and the axis of rotation of the cam shaft when extended intersects the area of rotation of the card holder.

3. A card winding machine according to claim 1 wherein means are provided for varying the ratio of rotation of the control cam to the card holder, said last mentioned means comprising a gear train having a swingable idler gear adapted to mesh with a fixed size gear and variable size gears.

4. A card winding machine comprising, a rotatable card holder, a rotatable control cam having a series of circumferential steps progressing from one of its end surfaces toward the other, driving means, an intermediate shaft adapted to transmit rotational motion from said driving means to both said rotatable means in such manner that said control cam is driven through only one revolution in each carding operation, means for disengaging said driving means from said intermediate shaft, a tape guide movable parallel to the axis of rotation of the card holder, resilient means urging said tape guide in one direction, means associated with said tape guide adapted to permit intermittent motion thereof as the control cam is rotated, a locking cam on said intermediate shaft, a locking member adapted to be moved into engagement with said locking cam, means for simultaneously disengaging said driving means from said intermediate shaft and engaging said locking member with said locking cam, and means rotatable with the control cam for activating said means for disengaging the driving means and engaging the locking member.

5. A card winding machine according to claim 4 wherein the means for simultaneously disengaging the driving means and engaging the locking member comprises an electric circuit having a solenoid adapted to retain the driving means in driving connection with the intermediate shaft, a second solenoid adapted to retain the locking member in a disengaged position, and a switch adapted to be opened by a member rotatable with the control cam.

6. In a card winding machine having a rotatable card holder, a tape guide movable parallel to the axis of rotation of the card holder, and a rotatable control cam having a series of steps progressing in a direction parallel with the axis of rotation of the cam from one of its end surfaces toward the other for causing intermittent motion of the tape guide, said tape guide including a longitudinally movable push rod, and a cam finger on said rod successively movable into the steps of said series as the cam rotates.

7. In a card winding machine according to claim 6, resilient means urging the tape guide push rod in one direction, the push rod being parallel with the axis of rotation of said control cam.

8. In a card winding machine having a rotatable card holder, a winding guide comprising a slidable guide rod having a tape guide secured thereto, resilient means urging said guide rod in a direction parallel to the axis of rotation of said card holder, and a rotatable cam having a series of circumferential steps progressing from one of its end surfaces toward the other and coacting with said guide rod to control the motion thereof, the axis of rotation of the cam being parallel to the axis of rotation of the card holder.



9. In a card winding machine having a rotatable card holder, a rotatable control cam having a series of steps progressing from one of its end surfaces toward the other and having the last of said steps communicating with an annular groove, a slidable guide rod having a tape guide secured thereto, a rigid cam finger secured to said guide rod and having a spring pressed plunger at its outer end adapted to contact the series of steps on said control cam, and resilient means urging said slidable guide rod in one direction, movement of said guide rod in said one direction being terminated by said plunger passing from the last step into said annular groove.

10. In a card winding machine having a control cam shaft which makes only one revolution for each carding operation, a stop mechanism comprising a single tooth locking cam secured to a second shaft adjacent said control cam shaft which rotates at a substantially higher rate of speed than does the control cam shaft, means for driving both said shafts simultaneously, a locking member adjacent said locking cam and adapted to be moved into the path of rotation of the perimeter thereof, means for retaining the locking member out of said path, and means on the control cam shaft and rotating therewith for releasing the locking member for motion into said path.

11. In a card winding machine, a rotatable control cam, a rotatable locking cam on a shaft spaced from the axis of said control cam, means for rotating said cams continuously at different speeds during a winding operation, a pivotally mounted locking lever having a locking end adjacent said locking cam and adapted to engage therewith, means adjacent the other end of said lever for releasably holding the locking end in its disengaged position, and means including a cam rotatable with said control cam operable upon the completion of a winding operation to release said holding means and thereby release said locking lever from said last named means.

12. In a card winding machine, a rotatable control cam, a rotatable locking cam, means for driving said two rotatable members, a clutch interpositioned between said rotatable members and the driving means, means for disengaging said clutch, a locking member adapted to be engaged with said locking cam, and means including a cam rotatable with said control cam operable upon the completion of a winding operation to cause operation of the clutch disengaging means and the locking member for effecting the simultaneous disengagement of the clutch and engagement of the locking member.

13. In a card winding machine having a rotatable card holder, a rotatable cam shaft, driving means, an intermediate shaft adapted to transmit rotational motion from said driving means to said card holder and said cam shaft in such a manner that the cam shaft is driven through one revolution in each carding operation, means for disengaging said driving means from said intermediate shaft, a single tooth locking cam secured to the intermediate shaft, a locking lever adapted to be moved into engagement with said locking cam, means for retaining said lever in a disengaged position during a carding operation, means for releasing the locking lever from said last-named means, and means secured to the cam shaft for simultaneously effecting the disengagement of the driving

means from the intermediate shaft and the release of the locking lever.

14. In a card winding machine, a rotatable control cam, a rotatable locking cam, a pivotally mounted lever having one of its ends adjacent said locking cam and adapted to engage therewith, a solenoid adjacent the other end of said lever, a circuit for energizing the solenoid, a switch in said circuit, and means rotatable with said control cam for opening said switch.

15. In a card winding machine a rotatable control cam, a rotatable locking cam, a power source, a clutch provided with a disengaging spring interpositioned between said power source and said two cams, a solenoid adapted to retain said clutch in its engaged position, a pivotally mounted lever having one of its ends adjacent said locking cam and adapted to engage therewith, a second solenoid adjacent the other end of said lever, a circuit for energizing both of said solenoids, a switch in said circuit, and means rotatable with said control cam for opening said switch.

16. In a card winding machine, a rotatable control cam, a rotatable locking cam, a pivotally mounted locking lever having a locking tooth adjacent said locking cam and adapted to engage therewith, a solenoid adjacent the other end of said lever, a circuit for energizing the solenoid, a second lever for disengaging the locking tooth of said locking lever from engagement with the control cam, a switch in said circuit adapted to be closed by motion of said second lever, a second switch in parallel with said first named switch, and means rotatable with said control cam for opening said second switch.

17. In a card winding machine, a rotatable control cam, a rotatable locking cam, a power source, a clutch interpositioned between said power source and said two cams, a solenoid adapted to retain said clutch in its engaged position, a pivotally mounted lever having a locking end adjacent said locking cam and adapted to engage therewith, a second solenoid adjacent the other end of said lever, a circuit for energizing both of said solenoids, a second lever for disengaging the locking end of said first named lever from engagement with the control cam, a switch in said circuit adapted to be closed by motion of said second lever, a second switch in parallel with said first named switch, and means rotatable with said control cam for opening said second switch.

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**REFERENCES CITED**

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 405,077 | Clark | June 11, 1889 |
| 572,759 | Jamison et al. | Dec. 8, 1896 |
| 1,306,090 | Weiss | June 10, 1919 |
| 1,588,995 | Ruf | June 15, 1926 |
| 1,638,074 | Van Veen | Aug. 9, 1927 |
| 2,494,486 | Peterson | Jan. 10, 1950 |

FOREIGN PATENTS

| Number | Country | Date |
|---|---|---|
| 7,263 | Great Britain | of 1913 |