Feb. 18, 1936. T. S. RAMSDELL 2,031,066

AUTOMATIC LAP DOFFER

Filed April 7, 1930 3 Sheets-Sheet 1

Fig. 1.

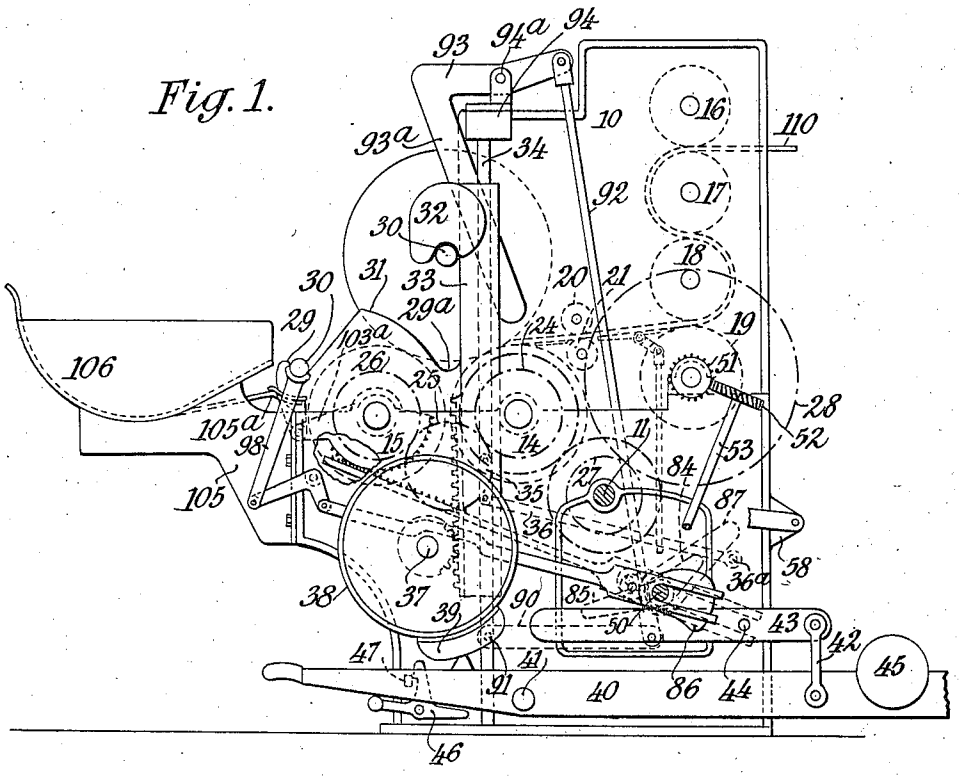
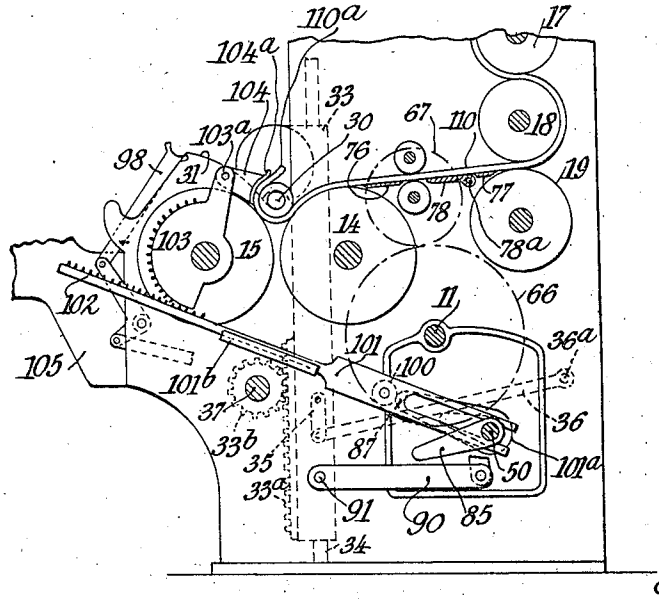


Fig. 3.



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Fig. 2.

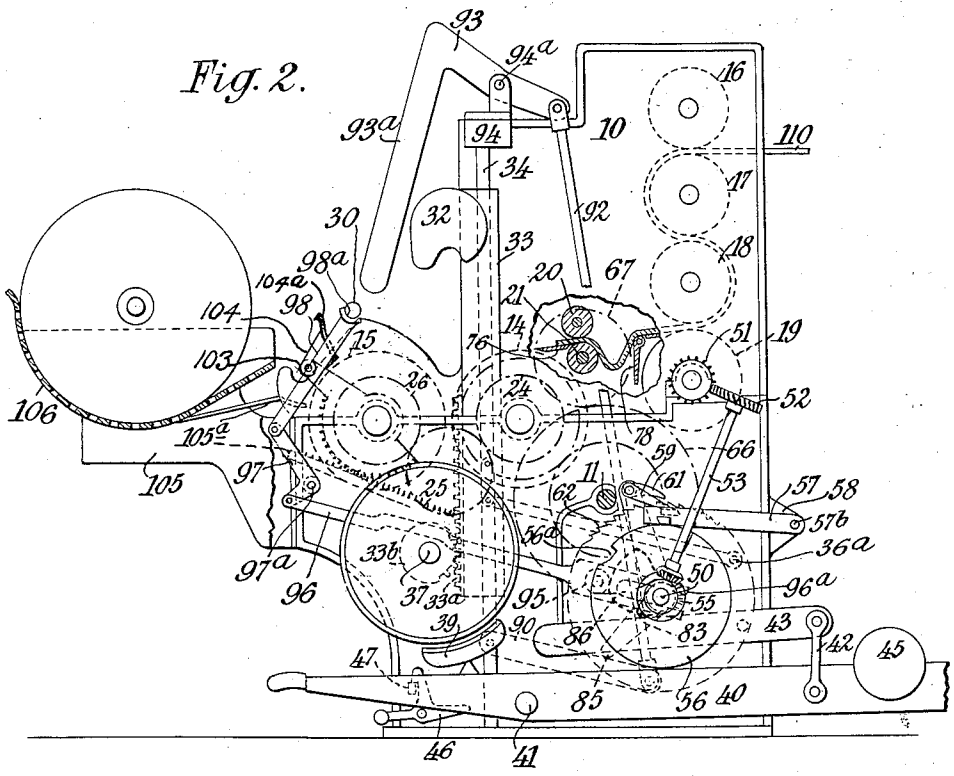


Fig. 5.

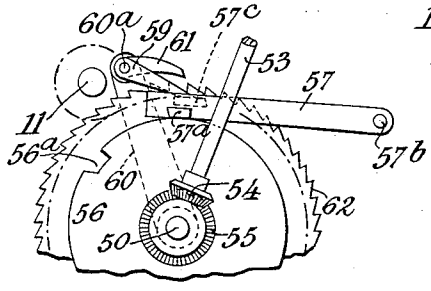


Fig. 6.

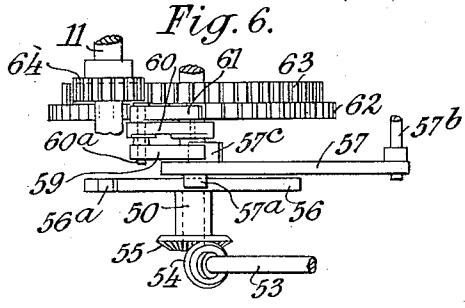
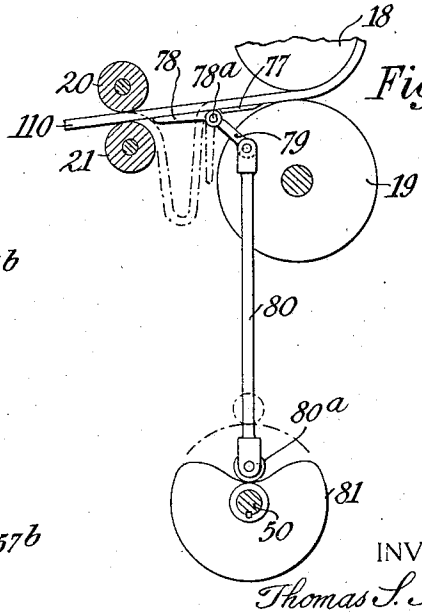


Fig. 7.



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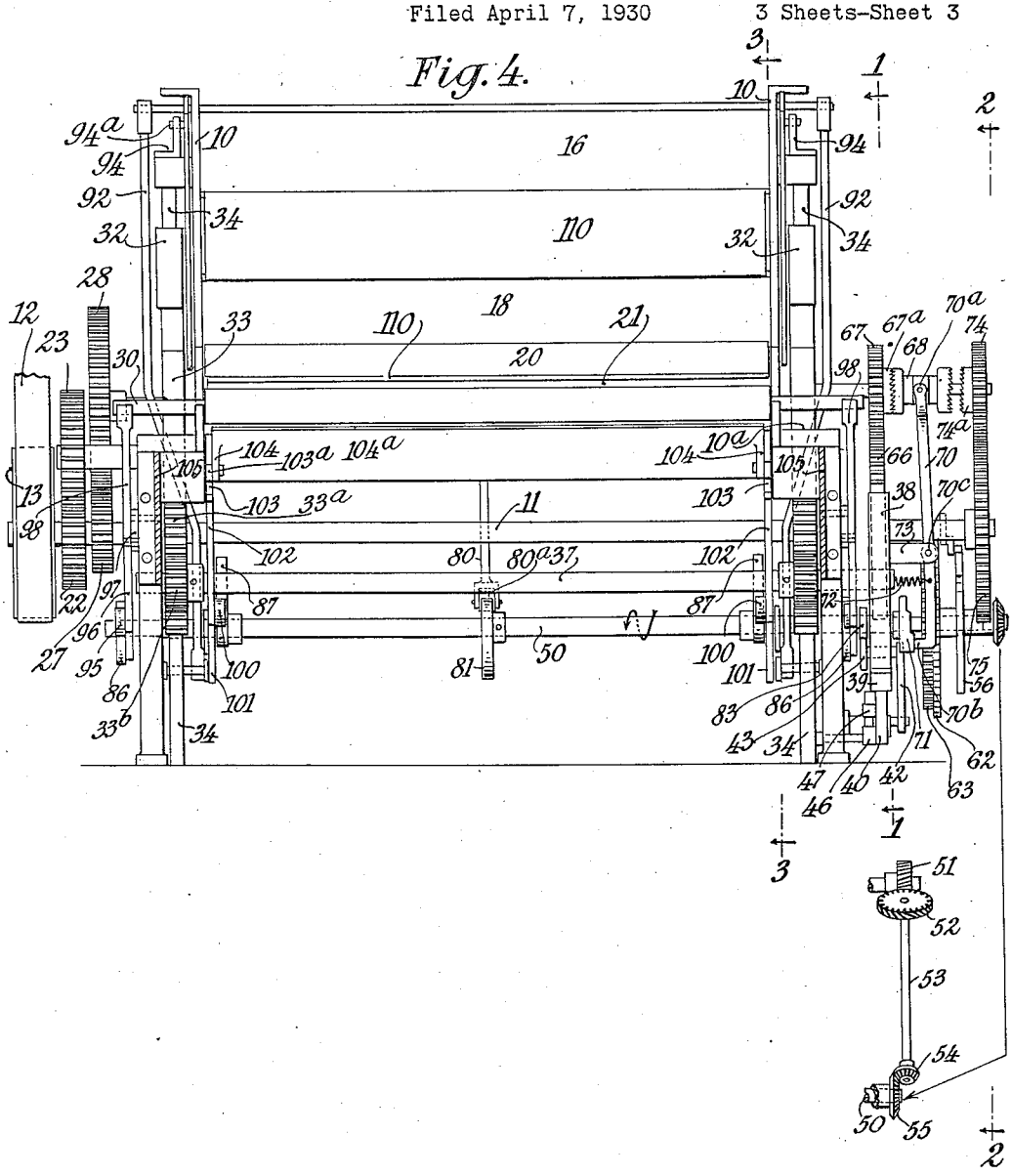
Fraser, Myers & Manley.

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Fig. 4.



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UNITED STATES PATENT OFFICE

2,031,066

AUTOMATIC LAP DOFFER

Thomas S. Ramsdell, Great Barrington, Mass.

Application April 7, 1930, Serial No. 442,217

31 Claims. (Cl. 19—162)

The present invention relates to an automatic doffing mechanism and more particularly to a lap doffer for a picker calender or analogous machines, and aims to provide certain improvements therein.

Heretofore in the use of machines of the class to which the present invention relates, manual labor had to be employed for removing the full lap roll from the machine and for inserting an empty lap rod into the machine, during which operations the machine had to be at rest. Aside from the fact that these operations were time-consuming, another objection thereto was that unevenness in the lap was frequently caused by the uneven feeding of the lap at the time of starting and running the machine.

According to the present invention, which constitutes an improvement upon the automatic lap doffer described in my prior Patent No. 1,734,302, of November 5, 1929, I provide means for doffing the completed lap roll from the machine, replacing said lap roll with an empty lap rod and starting the lap around said empty lap rod, all of which operations are automatically accomplished in a very few seconds without stopping the machine, thereby avoiding the strains incident to starting, and insuring evenness in the lap.

The mechanism which I employ is a typical picker calender modified through the provision of means for breaking or severing the lap when a predetermined yardage is on the lap roll, means for discharging the full lap roll from the machine, means for replacing the discharged lap roll with an empty lap rod, and means for insuring proper curling of the freshly severed end of the lap around said empty lap rod. The present invention embodies improved means over those disclosed in my above-mentioned Letters Patent for accomplishing these various results, and in addition thereto, includes other features of novelty, for example, means for preventing distortion of the lap roll upon its discharge from the machine, all of which will be hereinafter more fully described.

A preferred embodiment of my invention is illustrated in the accompanying drawings, wherein

Figure 1 is a sectional side elevation of a picker calender embodying my invention, said section being taken substantially along the planes of the broken line 1—1 of Fig. 4.

Fig. 2 is a view similar to Fig. 1 showing the position of the various parts of the operating mechanism immediately after a lap roll has been doffed, said section being taken substantially along the planes of the broken line 2—2 of Fig. 4.

Fig. 3 is a fractional sectional elevation corresponding to Figs. 1 and 2, showing the position of the operating mechanism after an empty lap rod has been placed in position of the freshly severed end of the lap curled therearound, said section being taken substantially along the plane of the line 3—3 of Fig. 4.

Fig. 4 is a front elevation of the machine shown in the preceding figures, with the lap roll receiving apron omitted.

Figs. 5 and 6 are a side elevation and top plan respectively of the means for controlling intermittent rotation of the operating shaft.

Fig. 7 is a side elevation of a detail of the invention showing the lap clamping rolls and means for insuring proper feeding of the lap, certain parts thereof being shown in section.

Referring now to the drawings wherein like reference characters are employed to designate the same parts in the various figures, let 10, 10 indicate the side walls or frame of a picker calender, said walls being provided with suitable bearings within which are mounted a driving or power shaft 11 driven from any suitable source of power, for example, a belt 12 and pulley 13, carrier rolls 14 and 15, calender rolls 16, 17, 18 and 19, and clamping rolls 20 and 21. Rotation is imparted to the carrier roll 14 through gears 22 and 23, and to carrier roll 15 through gears 24, 25 and 26 (shown in Fig. 2). Rotation is imparted to the calender roll 19 through the medium of gears 27 and 28, and from the calender roll 19 to the rolls 18, 17 and 16 through suitable gearing (not shown).

The side members 10, as herein shown, consist of substantially flat sections connected intermediate their ends by a horizontal offset portion 10*a*, above which said members are formed with arcuate seats 29 and 29*a* which provide bearings for the ends of lap rods 30. The seats 29 and 29*a* are connected by a crown portion 31. Mounted to rest upon the lap rods 30 near the ends thereof are a pair of hook-shaped compressor members 32 mounted at the upper ends of lap racks 33 which are slidable on vertical rails 34. Connected to each lap rack 33 intermediate its ends and preferably in proximity to its lower end is a link 35, one end of which is pivoted to the lap rack and the other end of which is pivotally connected to one end of a link 36, the opposite end of which is pivoted to a side member 10, as shown at 36*a*. The lap racks are provided with rack bars 33*a* which mesh with pinions 33*b* mounted on a shaft 37, and as is well under-

stood, said lap racks will move upwardly along the rails 34 as the amount of lap on the lap roll increases. The release of the compressor members 32 from the lap rod prior to doffing of the lap roll is accomplished through movement of the links 35 and 36 in a manner to be presently explained.

Mounted upon one end of the shaft 37 which has its bearings in the side members 10 is a brake wheel 38 adapted to cooperate with a brake 39, which, in turn, is mounted upon a brake lever 40 pivotally supported at 41 to one of the side members 10, said brake lever 40 being connected through the medium of a link 42 to a second lever 43 which is also pivoted to the same side member as the brake lever 40, as shown at 44. The brake lever 40 is adapted to be held in braking engagement with the brake wheel 38 due to the counterweight 45 and held out of braking engagement through the medium of a pivoted pawl 46 engageable over a lug 47. Engagement and release of the brake wheel is controlled by means which are operable after a predetermined yardage of lap is received upon the lap roll, and will be presently described.

When a predetermined yardage of lap is received on the lap roll, means are provided for automatically severing the lap, doffing the lap roll, replacing an empty lap rod in the machine and starting the freshly severed end of the lap around said empty lap roll. These means comprise an operating shaft 50, the rotation of which is governed by the power shaft 11 through the medium of a mechanism which is operable when a predetermined amount of lap has been wound around the lap rod. This mechanism comprises a worm gear 51 mounted adjacent the end of a shaft which supports calender roll 19, said worm gear 51 meshing with a worm gear 52 at right angles thereto mounted upon a stud shaft 53 upon the opposite end of which is mounted a bevel gear 54 in mesh with a bevel gear 55 which is mounted at the end of operating shaft 50 to freely rotate thereon. Connected to and mounted to rotate with the gear 55 is a disk 56 having a notch 56*a* into which a lug 57*a* provided upon a lever 57 is adapted to drop when said notch comes into position beneath said lug. The lever 57 is pivotally mounted through the medium of pin 57*b* to a bracket extension 58 carried by one of the side frames of the machine. The lever 57 on its side opposite to that provided with the lug 57*a* carries a second lug 57*c* upon which a tripping finger 59 is adapted to normally bear. The tripping finger is carried upon a pin 60*a* mounted at one end of an arm 60 which is keyed upon shaft 50 and hence rotatable therewith. Also mounted upon the pin 60*a* is a pawl 61 which is adapted to engage the teeth of a ratchet wheel 62 which is affixed to a gear 63, which, in turn, is loosely mounted on shaft 50 and adapted to be normally rotated upon said shaft through the medium of a pinion 64 mounted on power shaft 11. The parts 55 to 64 constitute in effect an automatic clutch which controls the various automatic means hereinbefore recited.

The operation of the automatic clutch, as stated, is controlled by the means for governing the yardage of lap which is to be received upon the lap roll, namely, through the rotation of worm gear 51 and gear 52 and bevel gear 54. When a predetermined yardage of lap, say 50 yards, sufficient to constitute a full lap roll will have passed through the calendar rolls, the disk 56, which is driven through gears 51, 52, 54 and 55, will have completed one revolution and the notch 56*a* on said disk will be brought into position beneath lug 57*a*, which will drop into said recess. When this occurs the tripping finger 59 will be released from the lug 57*c* and the pawl 61 will drop into engagement with a tooth on the ratchet 62. The ratchet wheel 62 being in constant rotation through the medium of gears 63 and 64, the arm 60, which is keyed to shaft 50, will thereby be rotated with the ratchet wheel 62. By the time the arm 60 makes one complete revolution in a counter-clockwise direction, the disk 56, which is continuously moving in a clockwise direction, will move the lug 57*a* out of the recess 56*a* so that it will again ride on the periphery of said disk, and when the tripping finger 59 completes its one revolution it will ride over the lug 57*c*, and in doing so will disengage the pawl 61 from the ratchet wheel, thereby stopping further rotation of the arm 60. During the course of this one complete revolution of the operating shaft 50 the various automatic operations of the machine, as set forth above, will take place, as will presently appear.

The first of these operations is the severing of the lap. This is accomplished by the strain placed upon the lap in passing from the clamping rolls 20 and 21 to the lap roll due to the stopping of said clamping rolls. Normally the clamping roll 21 is driven from the power shaft 11 through the medium of driving gear 66, gear 67 which is loose upon the shaft of clamping roll 21, and clutch element 68 which is keyed on shaft of clamping roll 21 but movable longitudinally and in mesh with the clutch element 67*a* carried by gear 67. Normally the clutch element 67*a* and 68 are held in clutching engagement through the medium of a rocker arm 70, one end 70*a* of which is bifurcated and straddles the clutch element 68, and the other end 70*b* of which is held in contact with the surface of a cam element 71 through the medium of a tension spring 72, said rocker arm being pivoted intermediate its ends through a bracket 73, as shown at 70*c*. The cam 71 has three rises over which the end 70*b* of the rocker arm rides. When upon the highest rise of the cam the parts are in position shown in Fig. 4, or in other words, normal operation of the machine. When the end 70*b* is on the intermediate rise, the clutch element 68 is moved into neutral position, at which time the clamping roll 21 is held stationary. When the end 70*b* is on the lowest rise of the cam, the clutch element 68 is in clutching engagement with a clutch element 74*a* carried by a gear 74 loosely mounted on the shaft of clamping roller 21, which gear, in turn, is in mesh with a gear 75 mounted on power shaft 11. The gear 67 is somewhat larger in diameter than the gear 74, and the gear 66 is somewhat smaller in diameter than the gear 75. From these relative ratios of diameters between the gears 67 and 66, and 74 and 75, respectively, it will be apparent that when the roller 21 is driven through the medium of the clutching engagement between clutching elements 68 and 74*a*, it will be rotated at a greater speed than when normally driven through clutch engagement of elements 68 and 67*a*. The purpose of these relative speeds at which the clamping roller can be driven is to temporarily speed up the movement of the lap from the clamping rollers to the lap roller after a lap roll has been doffed from the machine and an empty lap rod moved into position to receive the fresh end of the severed lap. It will be understood that the cam 71 is mounted upon operating shaft 50, which, when given a single

revolution, will function through the rocker arm 70 to first disengage the clutching elements 67a and 68, thus stopping the clamping roller, then after an interval, establishes the clutching engagement between the elements 68 and 74a, thereby speeding up the clamping rollers to carry the severed end of the lap toward the empty lap rod, and then to again bring about the clutching engagement between the elements 67a and 68 for the normal operation of the machine.

To insure proper feeding of the lap end from the clamping rollers to the carrier roll 14, there is provided between said rollers a supporting element or plate 76 which is supported by the side walls of the machine. To insure proper feeding of the lap from the calender roll 19 to the clamping rolls, there is similarly provided between roller elements supporting means in the form of plates 77 and 78, the former being fixed and the latter being pivotally mounted about a pin 78a and adapted to be intermittently moved about said pivot in the following manner:

Rigidly fixed to the rear edge of the plate 78 is a link 79, the opposite end of which is pivotally connected to one end of a second link 80, the opposite end of which carries a roller 80a mounted to ride upon the surface of a cam 81 fixed on shaft 50. It will be apparent that when the clamping rollers are stopped the lap from the calender rolls keeps on feeding and produces an accumulation of lap between the last calender roll and the clamping rolls, as best shown in Fig. 7. In order that this accumulated lap may not interfere with the operation of the machine during the period of accumulation, the supporting plate 78 is moved into dotted line position as the roller rides over the constant radius surface of cam 81. This takes place immediately upon the stopping of the clamping rollers and during the rotation of shaft 50. When the clamping rollers are again started and speeded up as above explained, and the accumulated lap is passed through said clamping rolls, the plate 78 is again moved into its full line position, as shown in Fig. 7, by the movement of the roller 80a over the reduced radius surface of cam 81.

Mounted upon shaft 50 is a cam 83 for releasing the brake, and at opposite ends of said shaft identical cams 84 for raising the lap racks, cams 85 for operating the doffing mechanism, cams 86 for placing an empty lap rod in position, and cams 87 for operating the folding or curling means to start the severed end of the lap around an empty lap rod. All of the foregoing cams are successively brought into operating relation during the course of a single revolution of the shaft 50.

To release the brake 39 from engagement with the brake wheel 38 the cam 83 engages the pivotally mounted link 43, which, in turn, through the medium of link 42, withdraws the brake from engagement with said brake wheel. It is held in such disengaging position by the pawl 46 and lug 47 until said pawl is released from such engagement by the lowering of rack bar 33, which, upon reaching its lowermost position, trips said pawl, whereupon the counterweight 45 moves the brake into braking position. After the brake is released, the cams 84 engage the links 36, which, through the pivoted links 35, raise the compressor members 32 of the rack bars out of engagement with the ends of the lap rod. Thereupon the cams 85 ride over the top surface of links 90, one end of which is pivoted to the side frames 10, as indicated at 91, and the other end of which is pivotally connected to the lower ends of links 92, the upper ends of which are in turn pivoted to one of the ends of angular members 93, which angular members in turn are pivoted intermediate the ends of their short arms at 94a to bracket members 94 carried at the top of the side members 10. The long arms 93a of the angular members are adapted to engage the lap rod near its ends to discharge the full lap from the machine when said angular members are pivoted about their mountings 94a. When the full lap roll is doffed from the machine the weight of the long arm 93 of said angular members will return said members to their position shown in Fig. 1, it being understood that at this time the cams 85 will already have passed over the top of the links 90. After a full lap roll is doffed the cams 86 engage the rollers 95 carried by the members 96, one end 96a of said members being bifurcated and straddling the shaft 50 which acts as a guide for the movements of said members, and the opposite ends of said members 96 being pivotally connected to the ends of bell-crank levers 97 which are pivoted at 97a, the opposite ends of said bell-crank levers pivotally carrying links 98 which are provided at their other ends with curved seats 98a for supporting the ends of a lap rod. As the cams 86 engage the rollers 95 they move the links 96 to the left, and as a concomitant of such movement the links 98 raise a lap rod 30 supported thereby over the crown portion 31 of the side walls of the machine, whereupon the rod 30 thereupon activated by gravity, rolls down into position in arcuate seats 29a. The members 96 thereupon move back to their normal position and carry with them the links 98. The cams 87 thereupon engage the rollers 100 carried by members 101, the lower ends of which are bifurcated as indicated at 101a, and straddle the operating shaft 50, which, in conjunction with slideways 101b, serve as guides for said members, the opposite ends of said members being provided with rack bars 102, the teeth of which are in engagement with gear sectors 103 mounted upon the same shaft as carrier roll 15. The gear sectors 103 are each provided with a projecting lug 103a, to the free ends of which are pivoted one end of links 104, the opposite ends of which support the curler element 104a. As the members 101 are moved upwardly by engagement of cams 87 with rollers 100, the gear sectors 103 are rotated in a clockwise direction and the curler 104a is moved over the surface of the carrier roll 15 down into proximity to the lap rod position in seats 29a and thus serves to start the free end of the severed lap around said lap rod. When this is accomplished the members 101 return to their normal position, and in doing so return the gear sectors 103 to their normal position shown in Fig. 1, in which position the curler 104a rests upon seats 105a provided on the bracket extensions 105 mounted on the front of the machine, which causes said curler to assume a position in slightly spaced relation to the carrier roller 15 to provide a clearance between the curler 104a and said carrier roller, so that small pieces of cotton will not become wedged therebetween.

Supported upon the bracket members 105 are the apron members 106 in a position to receive a lap roll as it is doffed from the machine. Preferably the apron 106 is formed of foraminated material so that as the lap roll drops thereonto there will not be formed a pocket of compressed air which tends to distort the lap roll, but on the contrary the discharged lap roll will be more

nearly truly cylindrical in shape. The discharged lap roll is removed from the apron and an empty lap rod placed in position upon the lap rod supporting links 98 and the machine is ready for its next doffing operation.

Recapitulating the various operations of the machine, the lap 110 is fed to the machine through the calender rolls 16, 17, 18 and 19 through clamping rolls 20 and 21, and over carrier rolls 14 and 15 to be wound about the lap rod 30, which, when empty, is supported in the seats 29a and upon the carrier rolls 14 and 15. When a predetermined amount of lap has passed through the calender rolls, lug 57a drops into recess 56a on disk 56 causing one complete revolution of operating shaft 59. During this one revolution of shaft 59, the following operations take place in succession: (a) the clamping rollers are stopped, thereby causing the severing of the lap; (b) the lap support 78 is dropped to its dotted line position shown in Fig. 7 by passage of the roller 80a over the rise of cam 81; (c) the brake shoe 39 is released from the brake wheel 38 through engagement of cam 83 with link 43; (d) the compressor members 32 of the lap racks are raised through engagement of the cams 84 with links 36; (e) the full lap roll is doffed from the machine onto apron 106 through engagement of the cams 85 with links 90; (f) the empty lap rod 30 is moved over the crown portions 31 of the side members through engagement of the cams 86 with the rollers 95 on the members 96; (g) the clamping roller is speeded up to carry the lap which has accumulated between the calender rolls and clamping roll to the empty lap rod; (h) the curler 104a is moved into position to start the fresh end of the lap 110a around an empty lap rod through the engagement of cams 87 with rollers 100 carried on members 101. In the course of the completion of these several operations the lap racks 33 are returned to their lowermost position where they trip the pawl 46, thus returning the brake shoe 39 to operative position and the plate 78 is also returned to its full line position shown in Fig. 7. All of the foregoing operations are completed entirely automatically in a comparatively few seconds. It will thus be seen that a single operator can readily take care of a battery of many such machines.

From the foregoing description it will be apparent that I have provided an efficient, practicable, automatic machine capable of performing the various functions for which it is designed, and although I have shown and described what I consider a preferred embodiment of my invention and the manner in which it operates, I desire it to be understood that I do not wish to be limited to the specific details of construction or mechanical movements herein disclosed, since modifications thereof may be resorted to without departing from the spirit of the invention.

What I claim is:

1. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll for receiving the lap which passes through the calender rolls, and positively operable means between a carrier roll and its adjacent calender roll for causing a severing of the lap after a predetermined amount of lap has passed through the calender rolls.

2. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll for receiving the lap which passes through the calender rolls, an operating shaft, which is rotatable when a predetermined amount of lap has passed through the calender rolls, and positively operable means between a carrier roll and its adjacent calender roll operable upon rotation of the operating shaft for causing a severing of the lap between said rolls.

3. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on said carrier rolls for receiving the lap which passes through the calender rolls, means for controlling the amount of lap to be wound on the lap roll positively operable means between a carrier roll and its adjacent calender roll for causing a severing of the lap, said last named means being caused to function by said first named means after a predetermined amount of lap has passed through the calender rolls.

4. A picker calender or the like, comprising feed rolls, a lap roll for receiving the lap which passes through said feed rolls, means for rotating said rolls, and means for severing the lap by temporarily stopping the movement of the lap through adjacent rolls.

5. A picker calender or the like, comprising feed rolls, a lap roll for receiving the lap which passes through said feed rolls, means for rotating said rolls, and means for severing the lap by temporarily stopping the movement of the lap through adjacent rolls without stopping the feeding action of the lap through the other rolls.

6. A picker calender or the like, comprising calender rolls, a lap roll for receiving the lap which passes through said calender rolls, means for rotating said rolls, and means for severing the lap by temporarily stopping the movement of the lap at a point in advance of the lap roll.

7. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier roll and receiving the lap which passes through the calender rolls, means for controlling the amount of lap to be wound on the lap roll, and means intermediate the last calender roll and first carrier roll for temporarily arresting the movement of the lap after a predetermined amount of lap has passed through the calender rolls, said arresting means being operable by said first named means.

8. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier roll and receiving the lap which passes through the calender rolls, a pair of rollers through which the lap passes, positioned intermediate the last calender roll and first carrier roll, and means for intermittently stopping said rollers to clamp the lap after a predetermined amount of lap has passed through the calender rolls.

9. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on said carrier rolls for receiving the lap which passes through the calender rolls, a positively driven roll between the calender rolls and the carrier rolls, means for rotating the various rolls, and means for severing the lap by temporarily varying the rate of rotation of the positively driven roll directly in advance of the carrier rolls.

10. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on said carrier rolls for receiving the lap which passes through the calender rolls, means for controlling the amount of lap to be wound on the lap roll, means for rotating the various rolls and means for severing the lap when the predetermined amount of lap is wound on the lap roll, comprising a positively driven roll in advance of

the carrier rolls and means for temporarily varying the rate of rotation of said roll, said lap-severing means being controlled by said first named means.

11. A picker calender or the like, comprising feed rolls, a lap roll for receiving the lap which passes through the feed rolls, means for rotating the rolls, means for severing the lap by temporarily arresting the movement of the lap in advance of the lap roll without stopping the feeding action of the lap through the other rolls, and means for insuring proper feeding of the lap end when normal movement of said lap is resumed.

12. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier roll and receiving the lap which passes through the calender rolls, means through which the lap passes positioned intermediate the last calender roll and first carrier roll, means for intermittently causing the first named means to clamp the lap passing therethrough without affecting the continuous feed of the lap through the calender rolls, and means between the last calender roll and first carrier roll for insuring proper feeding of the lap end when the clamping action on the lap is released.

13. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier roll and receiving the lap which passes through the calender rolls, means through which the lap passes positioned intermediate the last calender roll and first carrier roll, means for intermittently causing the first named means to clamp the lamp passing therethrough without affecting the continuous feed of the lap through the calender rolls, and means between the last calender roll and first carrier roll for insuring proper feeding of the lap end when the clamping action on the lap is released, said last named means comprising a movable support for the lap between the last calender roll and the first named means.

14. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier roll and receiving the lap which passes through the calender rolls, means through which the lap passes positioned intermediate the last calender roll and first carrier roll, means for intermittently causing the first named means to clamp the lap passing therethrough without affecting the continuous feed of the lap through the calender rolls, and means between the last calender roll and first carrier roll for insuring proper feeding of the lap end when the clamping action on the lap is released, said last named means comprising a movable support for the lap between the last calender roll and the first named means, which support is displaced from its normal position while the lap is clamped to permit an accumulation of lap between the calender roll and the first named means, and is moved to normal supporting position when the accumulated lap has passed through the first named means after the clamping action on the lap is released.

15. A picker calender or the like, comprising a power shaft, a clamping roll, and means for selectively driving and stopping the clamping roll after a predetermined amount of lap has passed thereunder.

16. A picker calender or the like, comprising a power shaft, a clamping roll, and means for selectively stopping the clamping roll and driving it at different speeds, after a predetermined amount of lap has passed under said clamping roll.

17. A picker calender or the like, comprising a clamping roll, a power shaft, an operating shaft, means for controlling the amount of lap passing under said clamping roll and operative when a predetermined amount has passed under said clamping roll to cause the power shaft to rotate the operating shaft, and means controlled by the rotation of the operating shaft for selectively stopping and driving the clamping roll at different speeds.

18. A picker calender or the like, comprising a clamping roll, a power shaft, an operating shaft, means for controlling the amount of lap passing under said clamping roll and operative when a predetermined amount has passed under said clamping roll to cause the power shaft to rotate the operating shaft, and means controlled by the rotation of the operating shaft for selectively stopping the clamping roll, rotating the clamping roll at one speed and then changing the speed of the clamping roll.

19. A picker calender or the like, comprising a clamping roll, a power shaft, an operating shaft, means for controlling the amount of lap passing under said clamping roll and operative when a predetermined amount has passed under said clamping roll to cause the power shaft to rotate the operating shaft, and a cam-controlled clutch for selectively stopping and driving the clamping roll at different speeds.

20. A picker calender or the like, comprising a power shaft, clamping rolls, an operating shaft, means governed by the rotation of the power shaft for giving to the operating shaft one complete rotation at predetermined intervals, and means governed by the rotation of the operating shaft for momentarily stopping the clamping rolls and then rotating them at a speed greater than normal every time rotation is imparted to the operating shaft.

21. A picker calender or the like, a power shaft, an operating shaft, means governed by the rotation of the power shaft for imparting rotation to the operating shaft, said means comprising a pair of clutch elements on the operating shaft, one of said clutch elements being freely rotatable on said shaft and in driving engagement with means on the power shaft, and the other of said clutch elements being fixed on said operating shaft, the first of said clutching elements having ratchet teeth and the other clutching element having a pawl, and tripping means for causing engagement of the pawl with the ratchet teeth at predetermined intervals.

22. In a picker calender or the like, a power shaft, an operating shaft, calender rolls, a lap roll for receiving the lap which passes through the calender rolls, means for controlling the amount of lap to be wound on the lap roll, means for imparting rotation to the operating shaft, said means comprising a pair of clutch elements on the operating shaft, one of said clutch elements being freely rotatable on said shaft and in driving engagement with means on the power shaft, and the other of said clutch elements being fixed on said operating shaft, the first of said clutching elements having ratchet teeth and the other clutching element having a pawl, and tripping means for causing engagement of the pawl with the ratchet teeth when the predetermined amount of lap is on the lap roll.

23. A picker calender or the like, comprising a power shaft, an operating shaft, means governed by the rotation of a power shaft for intermittently rotating the operating shaft, means

for supporting an empty lap rod, means for curling the end of the lap around the lap rod, said two last named means being separately operable by the rotation of the operating shaft for inserting the empty lap rod in place and for causing the end of the lap to curl around the lap rod.

24. A picker calender or the like, comprising a power shaft, an operating shaft, means governed by the rotation of the power shaft for intermittently rotating the operating shaft, means for supporting an empty lap rod, separately operable means for curling the end of the lap around the lap rod, said last named means comprising a rotatable segment which is movable to operative position by the rotation of the operating shaft.

25. A picker calender or the like, comprising carrier rolls, a lap roll resting on the carrier rolls, means for curling the fresh end of lap around a lap rod pivotally mounted upon a support and movable over the top of a carrier roll, said curling means in normal or inoperative position being held in spaced relation to said carrier roll.

26. A picker calender or the like comprising carrier rolls, a lap roll resting on the carrier rolls, means for curling the fresh end of lap around a lap rod pivotally mounted upon a rotatable support adapted to move the curling means over the top of a carrier roll in contact therewith and means at the normal or inoperative position of the curling means for holding said curling means spaced from said carrier roll.

27. A picker calender or the like, comprising carrier rolls, a lap roll resting on the carrier rolls, means for curling the fresh end of lap around a lap rod, said means being pivotally carried upon rotatable segments mounted on a common axis with one of the carrier rolls.

28. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier rolls receiving the lap which passes through the calender rolls, means for doffing a lap roll, and an apron or support in front of the carrier roll for receiving said doffed lap roll, said apron having air pockets in its top surface.

29. A picker calender or the like, comprising calender rolls, carrier rolls, a lap roll resting on the carrier rolls receiving the lap which passes through the calender rolls, means for doffing a lap roll, and an apron or support in front of the carrier roll for receiving said doffed lap roll, said apron comprising a perforated curved plate.

30. A picker calender or the like, comprising calender rolls, a lap roll resting on the carrier rolls, means for curling the fresh end of lap around a lap rod pivotally mounted upon a support and movable over the top of the front carrier roll, an apron or support in advance of the front carrier roll for receiving a lap roll when discharged from the picker calender, and means on said apron for holding the curling means when in normal or inoperative position in spaced relation to the front carrier roll.

31. A picker calander or the like comprising calender rolls, carrier rolls, a lap roll resting on the calender rolls receiving the lap which passes through the calender rolls, means for controlling the amount of lap to be wound on the lap roll, means for severing the lap, lap racks for holding the lap roll under compression, a brake controlling the movement of the lap rack, a doffer for discharging the full lap roll from the machine, and means operable by the means for controlling the amount of lap on the lap roll for controlling the following operations in succession: (*a*) severing the lap; (*b*) releasing the brake; (*c*) raising the lap racks; and (*d*) moving the doffer to discharge the lap roll.

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