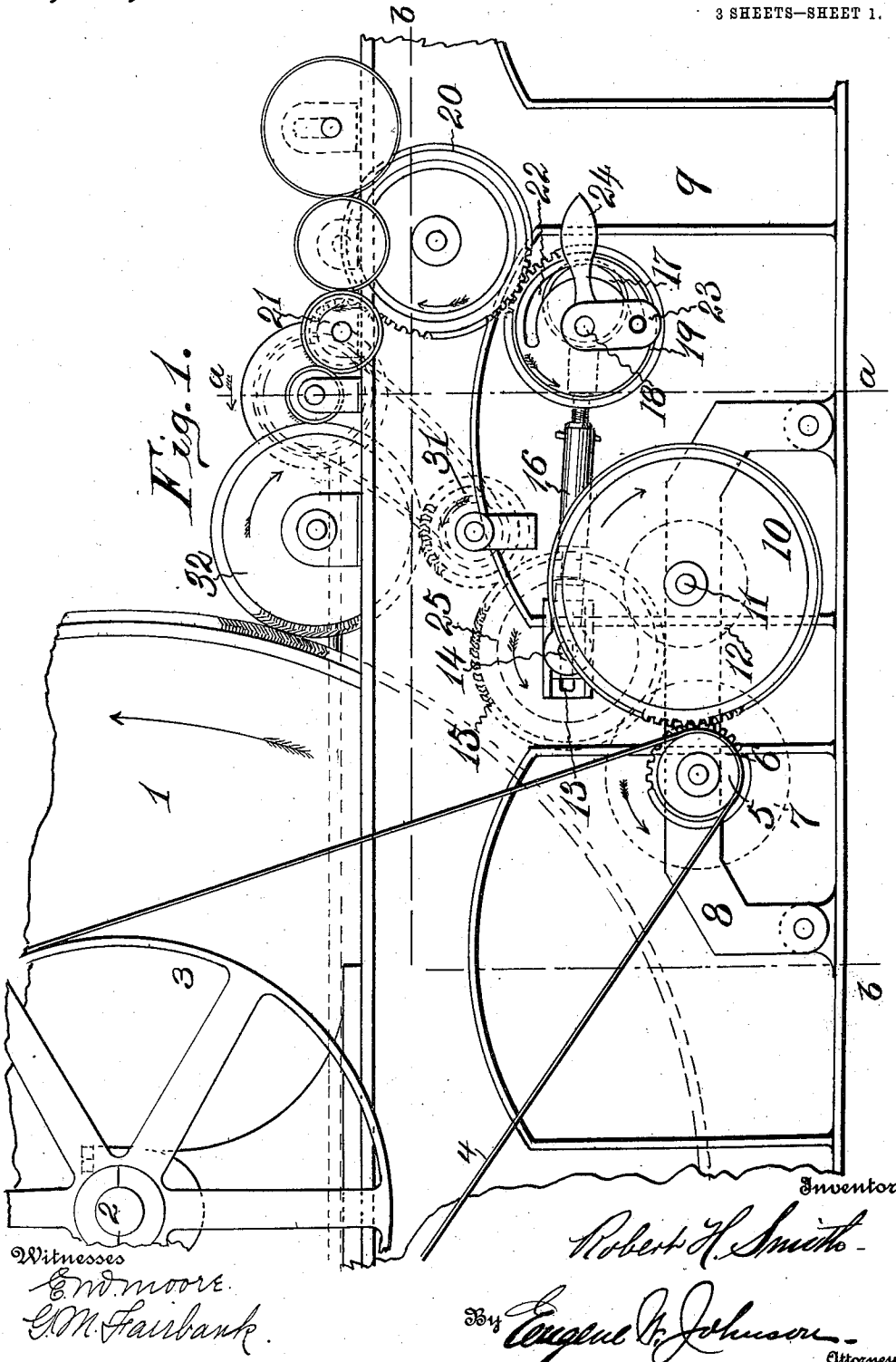


R. H. SMITH.
 STRIPPER FOR CARDING MACHINES.
 APPLICATION FILED JAN. 20, 1911.

1,018,935.

Patented Feb. 27, 1912.

3 SHEETS—SHEET 1.



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Fig. 2.

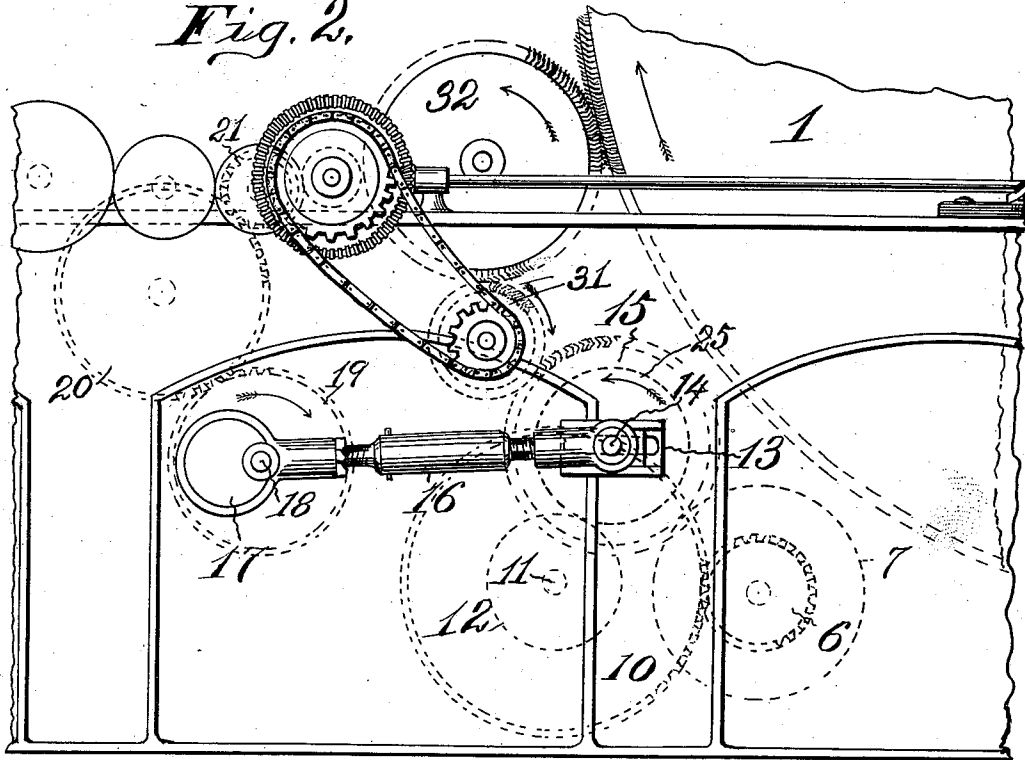


Fig. 7.

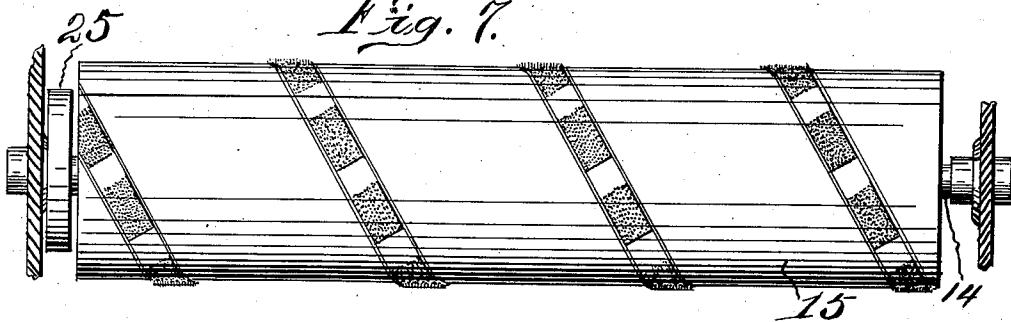


Fig. 5.

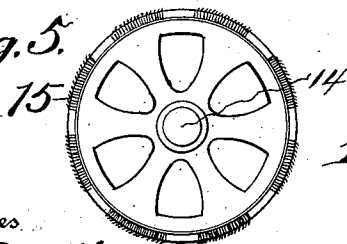
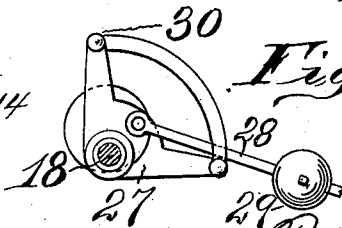


Fig. 6.



Witnesses

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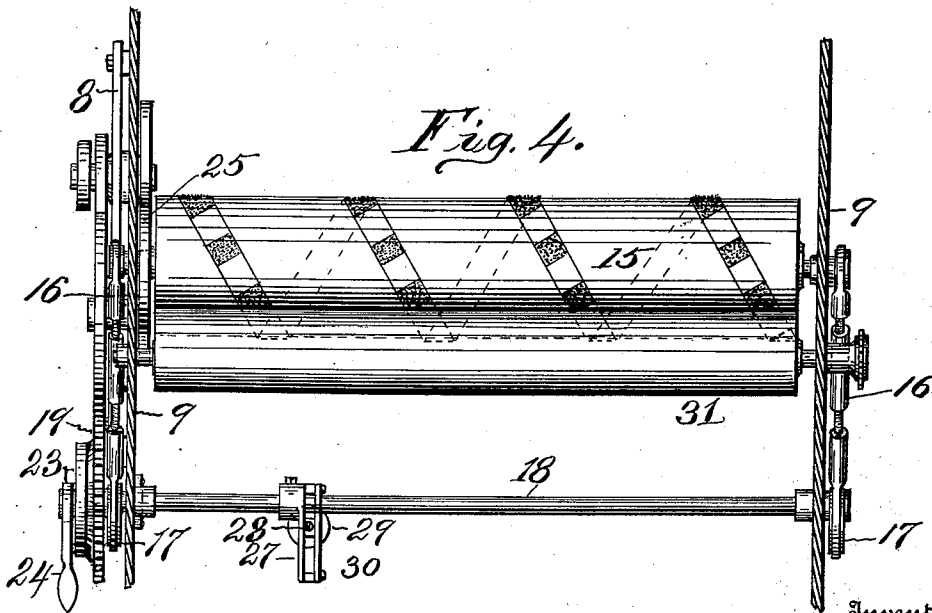
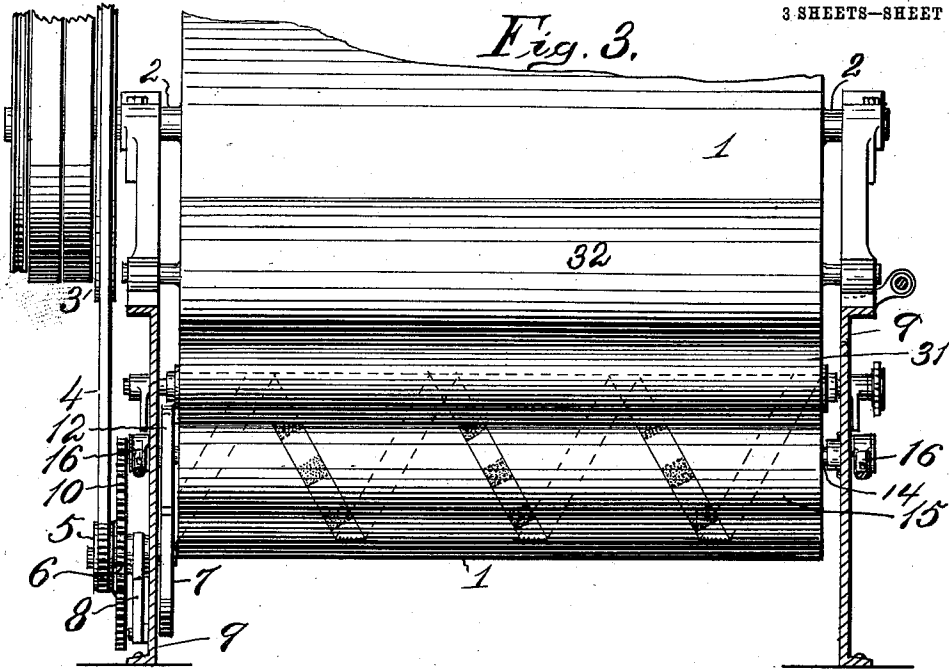
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3 SHEETS—SHEET 3.



Witnesses
 E. H. Moore.
 G. M. Fairbank.

Inventor
 Robert H. Smith.
 By Eugene W. Johnson
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UNITED STATES PATENT OFFICE.

ROBERT H. SMITH, OF SPARTANBURG, SOUTH CAROLINA, ASSIGNOR OF ONE-EIGHTH TO JOHN A. LAW, OF SPARTANBURG, SOUTH CAROLINA, AND EIGHTEEN ONE-HUNDREDTHS TO THOMAS L. CAMP AND EIGHTEEN ONE-HUNDREDTHS TO EDWARD M. DURANT, BOTH OF ATLANTA, GEORGIA.

STRIPPER FOR CARDING-MACHINES.

1,018,935.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed January 20, 1911. Serial No. 603,780.

To all whom it may concern:

Be it known that I, ROBERT H. SMITH, a citizen of the United States of America, residing at Spartanburg, in the county of Spartanburg and State of South Carolina, have invented certain new and useful Improvements in Strippers for Carding-Machines, of which the following is a specification.

This invention relates to improvements in strippers for carding machines, the object of the invention being to provide means which will automatically and intermittently strip the cylinder of carding machines and return such of the strippings as are fit for use back onto the main cylinder.

The parts constituting my invention are adapted to be attached to carding machines of ordinary construction and when applied thereto provide a stripping-roll for the main cylinder of the carding machine that is periodically moved into contact with the main cylinder and with a scavenger-roll which engages the licker-in and delivers thereto the strippings taken by the stripper-roll from the main cylinder, that are fit for use, to the licker-in and from the licker-in onto the main cylinder.

To effect in a practical manner the object of my invention the stripper-roll is mounted in bearings which are movable to and from the main cylinder, and means are provided not only for moving the stripping-roll to and from the main cylinder of the carding machine, and means are also provided for accelerating the movement of the stripping-roll away from the main cylinder after each periodic contact therewith, not only to move the stripping-roll quickly away from the main cylinder but also to quickly move the same into contact with the scavenger-roll, that takes fiber from the stripping-roll and delivers such fiber that is fit for use to the licker-in to be delivered by the licker-in to the main cylinder.

The invention forming the subject matter of this application provides a stripper mechanism for the main cylinder that is located below the licker-in and below the longitudinal center of the main cylinder and in which the stripping-roll is movable in and out of engagement not only with the main cylinder but also with a scavenger-roll that en-

gages the licker-in, the parts being organized so that the main cylinder is periodically engaged by the stripping-roll and when the stripping-roll is moved away from the main cylinder it will engage the scavenger-roll which is maintained to engage the licker-in, movement of the stripping-roll changing the direction of rotation thereof and also changing the speed at which the stripping-roll is rotated.

In the accompanying drawings which show a preferred form of my invention, Figure 1 is a side elevation of a carding machine showing my improvements applied thereto and in this view the stripping roll is shown in position to be engaged by the scavenger-roll. Fig. 2 is a side elevation viewed from the opposite side of the carding machine. Fig. 3 is a sectional view on the line *a-a* looking toward the main cylinder. Fig. 4 is a sectional plan view on the line *b-b*. Fig. 5 is an end elevation of the stripping-roll, Fig. 6 is a side elevation of means for accelerating movement of one of the shafts to effect rapid withdrawal of the stripping-roll from the main cylinder, and Fig. 7 is a plan view of the stripping-roll.

The main cylinder or carding drum 1 is driven in the usual manner and turns in the direction of the arrow. The drive shaft 2 of the cylinder carries a pulley 3, the belt 4 that engages the pulley 3 driving a smaller pulley 5, the shaft on which said smaller pulley is mounted having a gear wheel 6 and a friction disk 7, both fast on the shaft which is supported by a frame 8, and by one of the side pieces 9 of the carding machine. The gear 6 engages a larger gear wheel 10 on a shaft 11 also carried by the frame 8, this shaft 11 having thereon a friction disk 12, which is of smaller diameter than the friction disk 7. It will be noted that as the gear wheel 10 is much larger than the gear wheel 6 and that the friction disk 12 is smaller than the friction disk 7 that the smaller friction disk will be rotated at very much less speed and that its surface will travel slower than the larger friction disk, the direction of rotation of the gears and disks are as indicated by the arrows.

Both of the side frames of the carding machine have horizontal slots 13 which

carry journals or bearings for the shaft 14
 of the stripping-roll 15 and beyond the side
 frames the shaft 14 is engaged by the ends
 of pitmen or links 16, the opposite ends of
 5 the pitmen or links having rings which en-
 gage eccentrics 17 which are fast on a trans-
 verse shaft 18. The pitmen or links 16
 have their ends connected by a coupling
 having right and left handed threaded end
 10 portions and lock nuts, so that when adjust-
 ed by turning the coupling the same may be
 locked to prevent accidental turning of the
 coupling. The shaft 18 which carries the
 eccentrics has loosely mounted thereon a
 15 gear 19 that meshes with a larger gear 20
 that is driven from a smaller gear or pinion
 21 on one of the rolls between the licker-in
 and the lap-cylinder or roll; to which motion
 may be imparted from a lay shaft. The
 20 gear 19 on the shaft 18 has a concentric slot
 or recess 22 and fast upon the shaft is a
 dog 23, comprising one member that has a
 pin which projects into the recess or slot 22
 and another member that projects at right
 25 angles and provides a handle and weighted
 part 24. The gear 19 turning upon the shaft
 as it is driven in the direction indicated by
 the arrow the shaft and the eccentrics that
 are fast thereon are moved by the pin that
 30 enters the slot or recess and as the dog is
 moved the shaft is turned to move the strip-
 ping roll 15 into its closest position to the
 main cylinder and to effect a rapid with-
 drawal of the stripping-roll from the main
 35 cylinder, and a quick change of the friction
 drive or disk 25 of the stripping-roll 15
 from the friction disk 7 and onto or against
 the disk 12. The shaft 18, between the sides
 of the frame, has fast thereon an accelerat-
 40 ing device comprising a frame 27 having
 arms that extend at right angles and carry
 segmental guides between which swings an
 arm 28 that carries a weight 29. As the
 transverse shaft 18 is turned and the eccen-
 45 trics move the links or pitmen to bring the
 stripper-roll in engagement with the teeth
 of the main cylinder and the driving disk
 of the stripping-roll in contact with the fric-
 tion disk, which contact is only for a part
 50 of one second, as the entire surface of the
 main cylinder is not stripped at any one en-
 gagement of the stripping roll therewith,
 the weight 29 will have been carried beyond
 the center of gravity or over the center of
 55 the shaft 18 and in falling contact with
 the pin 30 and rapidly turns the shaft to
 withdraw the stripper roll from the main
 cylinder and its friction disk onto the fric-
 tion drive 12 and to bring the stripping-
 60 roll into engagement with the scavenger-roll
 31, and at the same time reverse the direc-
 tion of travel or rotation of the stripping-
 roll so that the scavenger-roll may take the
 good fiber from the stripping-roll and place
 65 such fiber upon the licker-in 32.

The scavenger-roll 31 is set in proper rela-
 tion to the licker-in, and is driven in one
 direction all the time being driven by a
 belt or chain from one of the driven shafts
 between the lap-roll and the licker-in.

The clothing or wire on the stripping-
 roll comprises a series of blocks of teeth
 which are secured to the roll and are ar-
 ranged spirally thereon from one end of the
 roll to the other end and positioned to
 75 break joints circumferentially or overlap in
 the direction of rotation of the roll and this
 spiral and overlapping arrangement of the
 teeth will strip the main cylinder so as to
 leave no rings of fiber upon the same. The
 80 amount of clothing upon the stripping-roll
 15 will be varied to suit the conditions of
 the fiber that is being carded.

A device made in accord with my inven-
 tion provides for stripping the main cyl-
 85 nder piecemeal, the pulley 5 being driven at
 a rapid rate and the friction wheel or disk
 7 being of larger diameter than the friction
 disk on the stripping-roll drives the same at
 a speed that gives it a greater surface speed
 90 than the main cylinder which it strips and
 the stripping-roll running at the speed im-
 parted thereto from the shaft of the main
 cylinder strips only a few points at each
 time that it comes up to the main cylinder
 95 and does not strip more than one square
 foot on equal parts of the surface of the cyl-
 nder, or in other words in practice the
 stripping-roll does not strip more than one-
 fiftieth part of the surface of the main cyl-
 100 nder at a time, and the intervals between
 the contact of the stripping-roll with the
 main cylinder is about two minutes. The
 ratio of the gears 6 and 10 is such that the
 friction disk 12 will be run at a low speed
 105 and a further reduction in the rotation of
 the stripping-roll will be effected when the
 disk 25 engages the disk 12 to reverse the
 direction of the rotation of the stripping-
 roll and bring it in contact with the scaven-
 110 ger-roll, the fiber removed from the main
 cylinder being taken by the scavenger-roll
 and being taken therefrom by the licker-in.

The invention herein set forth provides
 115 means whereby the main cylinder may be
 stripped between the doffer and the licker-
 in without stopping the main cylinder or in
 any way interfering with the operation of
 the same and as the stripping-roll and the
 scavenger-roll are both below the licker-in
 120 any dirt or foreign matter in the fiber will
 fall without being liable to be fed back to
 the main cylinder.

The shifting and drive of the stripping
 roll may be accomplished by other mechan-
 125 ical means than that shown herein, but to
 secure the result sought by this invention it
 is deemed essential to drive the stripping-
 roll at a high rate of speed and to reciprocate
 the same so that it will be in contact

with the clothing of the main cylinder only for a moment at a time, and by such periodical engagement effected by the automatic mechanism herein described the main cylinder will be kept clean without the necessity of stopping the carding machine, and the fiber removed therefrom will be returned to the licker-in and returned to the main cylinder.

10 I claim:—

1. In combination with a carding machine having a main cylinder and a licker-in, of a stripping-roll for the main cylinder that is mounted and associated with means for moving said stripping-roll in and out of engagement with the main cylinder, a scavenger-roll mounted to be in constant engagement with the licker-in and to be engaged by the stripping-roll when said roll is moved out of engagement with the main cylinder.

2. In a carding machine, a main cylinder and a licker-in, a stripping-roll mounted to be moved into engagement with the clothing of the main cylinder for a short periodic engagement therewith, means for rotating the stripping-roll so that its surface will travel faster than the surface of the main cylinder, means for moving the stripping-roll away from the main cylinder and means for changing the direction of rotation thereof subsequent to its removal from the main cylinder and means for taking the strippings from the stripping-roll and placing them in the path of the clothing of the licker-in.

3. The combination in a carding machine, a device for cleaning the clothing of the main cylinder thereof comprising a stripping-roll mounted and associated with means for moving the stripping-roll in and out of engagement with the clothing of the main cylinder and to have the direction of its rotation reversed at the end of each movement, a scavenger-roll for engagement with the stripping roll at the limit of its movement away from the main cylinder and a licker-in that is in constant engagement with the scavenger-roll.

4. In a carding machine, a main cylinder, a rotative stripping-roll, carriers therefor, means for periodically reciprocating the carriers of the stripping-roll so that the stripping-roll will engage a part of the main cylinder of the carding machine, driving means organized to reverse the direction of rotation of the stripping-roll at the end of each reciprocation and means for taking fiber from the stripping-roll and placing the same upon the main cylinder.

5. In a carding machine, a main cylinder and its licker-in, a stripping-roll for the main cylinder, means for supporting and means for reciprocating the stripping-roll to effect periodic engagements of the stripping-roll with the main cylinder, a scavenger-roll with which the stripping-roll en-

gages when moved out of engagement with the main cylinder and means for reversing the direction of rotation and changing the speed of the stripping-roll.

6. In a carding machine, a main cylinder, a licker-in, a scavenger-roll maintained to engage the licker-in, movable bearings for a stripping-roll, a stripping-roll carried by the movable bearings, means for reciprocating the stripping-roll to effect alternate engagement of the same with the main cylinder and with the scavenger-roll, means for rotating the stripping-roll in one direction when in engagement with the main cylinder and means for rotating said stripping-roll in an opposite direction and at a different speed when it engages the scavenger-roll.

7. In a carding machine, a main cylinder and a licker-in, a constantly rotated scavenger-roll maintained to engage the licker-in, a stripping-roll for the main cylinder, automatic means for moving the stripping-roll to effect a quick and positive engagement thereof with the main cylinder to strip a portion of the clothing thereof such means also moving the stripping-roll in engagement with the scavenger-roll whereby the stripping-roll is stripped and the fiber taken thereby from the main cylinder is delivered to the licker-in.

8. In a carding machine having a main cylinder and a licker-in, a stripping-roll having clothing the teeth of which are inclined to strip the clothing of the main cylinder when moved to engage therewith, a scavenger-roll having teeth which incline to clean the stripping-roll and to be stripped by the teeth of the licker-in, means for reciprocating the stripping-roll and means for changing the direction of rotation of the stripping-roll subsequent to its removal from engagement with the main cylinder.

9. In a device for stripping the main cylinder of a carding machine and returning the strippings thereto by way of the licker-in, comprising a stripping-roll which is rotated in one direction to strip the main cylinder, a scavenger-roll, means for moving the stripping-roll into engagement with the scavenger-roll so that the clothing thereon will remove the strippings from the stripping-roll, means for rotating the stripping-roll in an opposite direction when engaging the scavenger-roll from what it is rotated when engaging the main cylinder and a licker-in for taking the strippings from the scavenger-roll and delivering the same to the main cylinder along with the lap.

10. In a carding machine, a roll for stripping the main cylinder, a scavenger-roll for taking the strippings from the stripping-roll, a licker-in that engages the scavenger-roll, a driven shaft having eccentrics thereon,

means for connecting the eccentrics to the shaft of the stripping-roll and a drive for the stripping-roll by means of which the direction of rotation of the stripping-roll is changed at each movement of the stripping-roll to and from the main cylinder.

11. In a carding machine, a main cylinder, a roll for periodically stripping a part of the main cylinder, means for moving the stripping-roll to and from the main cylinder comprising a shaft, eccentrics on the shaft, connections between the shaft and the stripping-roll and means on the shaft adapted to be brought into actuation by the turning of said shaft for accelerating the movement thereof.

12. In a carding machine, a main cylinder, a stripping roll for said cylinder, a drive for the stripping-roll comprising a friction disk on the stripping-roll, a driven disk, means for reciprocating the stripping-roll to place the disks in and out of contact and means adapted to be brought into actuation by the turning of said shaft for accelerating the movement of the stripping-roll away from the main cylinder of the carding machine.

13. In a carding machine, a main cylinder, means for periodically stripping the same comprising a stripping-roll and actuating means therefor consisting of a friction drive for the stripping-roll, a shaft having eccentrics rigidly attached thereto and connected to the stripping-roll, means comprising stops and a weighted arm carried by the shaft, a gear wheel rotatively connected to the shaft and provided with a segmental slot, means movable with the shaft to engage the portions of the gear wheel adjacent to the ends of the slot, the parts being organized so that when the weighted arm is carried to a position where it will fall the impetus will accelerate the movement of the means for reciprocating the stripping-roll.

14. In a carding machine, a main cylinder, a rotative and reciprocatory stripping-roll for the cylinder, the reciprocating means for the stripping-roll including a shaft having in swinging engagement therewith a weighted arm and stops for the arm which are rigidly connected to the shaft, means for moving the shaft to raise the weighted arm so when carried upward beyond a certain point it will fall and engage

one of the stops and by the impetus in falling will accelerate a part of the reciprocatory movement of the stripping-roll.

15. In combination with the main cylinder of a carding machine, a stripping-roll for the main cylinder, means for maintaining the roll below the horizontal plane of the axis of the main cylinder, means for reciprocating and means for rotating the stripping-roll, the reciprocating means including a weight which is carried and actuated to accelerate the movement of the stripping-roll during its reciprocatory movement.

16. In combination with the main cylinder of a carding machine, a stripping-roll for the main cylinder, a friction drive for imparting a rotary motion to the stripping-roll, means for reciprocating the stripping-roll which includes a shaft, means for imparting a partial rotation to the shaft, a weighted arm which is raised by said partial rotation of the shaft and means whereby the descent of the weighted arm will accelerate movement of the shaft which is transmitted to the stripping-roll during part of its reciprocatory movement.

17. In a carding machine a stripping-roll for the main cylinder thereof, a shaft having eccentrics or cranks thereon, movable bearings for the stripping-roll, adjustable connections between the eccentrics or cranks and the stripping-roll and means elevated by a partial rotation of the shaft to accelerate movement of the shaft during the descent of such means.

18. In a carding machine, a stripping-roll for the main cylinder of the carding machine mounted to be susceptible of a reciprocatory movement, a shaft having loosely mounted thereon a gear wheel which has a segmental way formed therein, an arm fast on the shaft and provided with means for engagement with the gear wheel at the end portions of the segmental way, a member attached to the arm to project at right angles therefrom and means for connecting the stripping-roll to the shaft.

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

ROBERT H. SMITH.

Witnesses:

C. L. PLASTER,

D. W. MCCHESENEY.