

Jan. 9, 1923.

R. P. HAMILTON.
ATTACHMENT FOR CARDING ENGINES.
FILED APR. 29, 1922.

1,441,850.

3 SHEETS—SHEET 1.

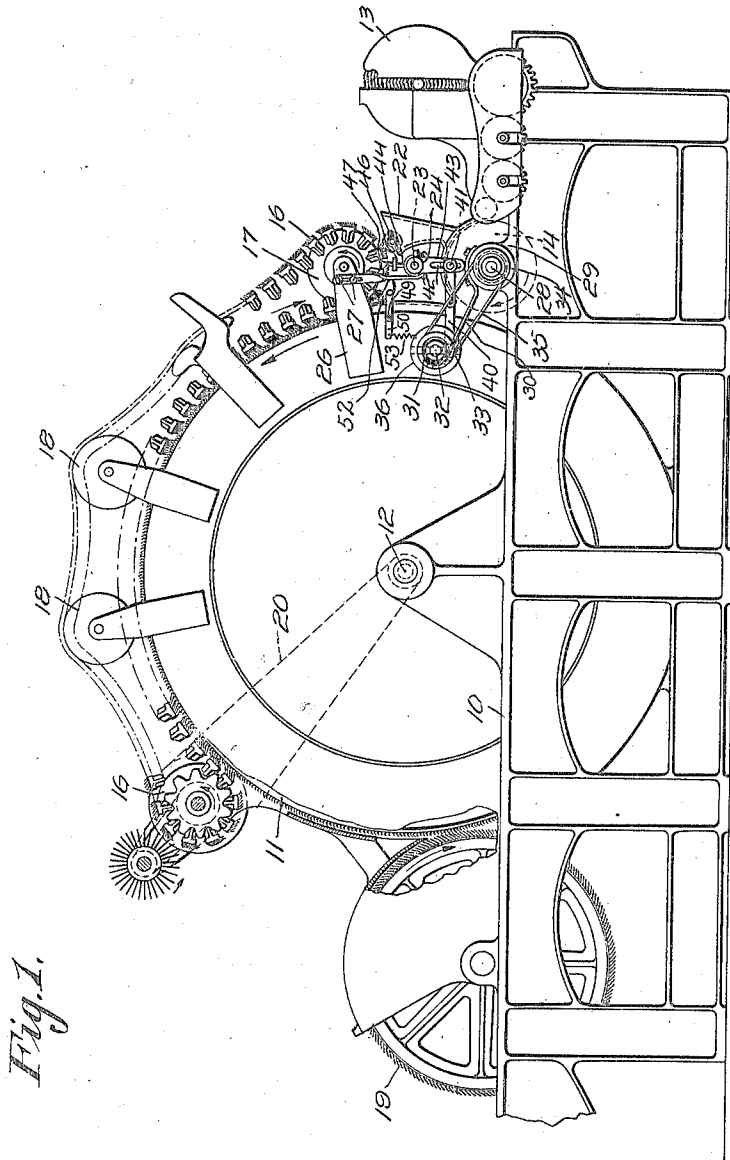


Fig. 1.

R. P. Hamilton

INVENTOR.

BY

Geor. P. Kimmel

ATTORNEY.

Jan. 9, 1923.

R. P. HAMILTON.
ATTACHMENT FOR CARDING ENGINES.
FILED APR. 29, 1922.

1,441,850.

3 SHEETS—SHEET 2.

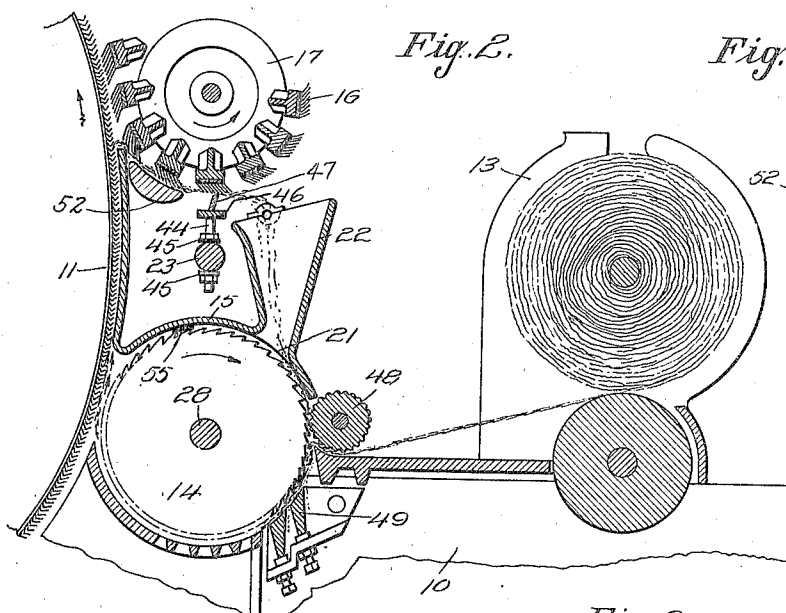


Fig. 12.

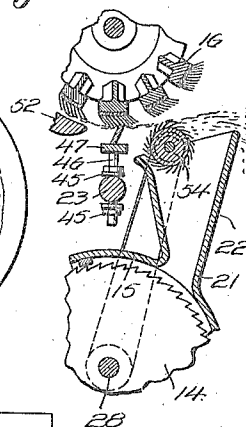


Fig. 4.

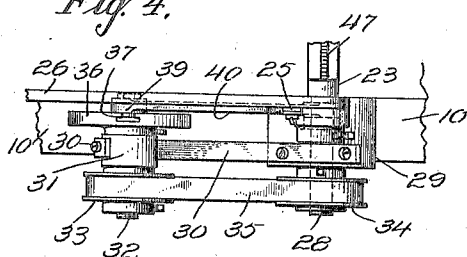


Fig. 3.

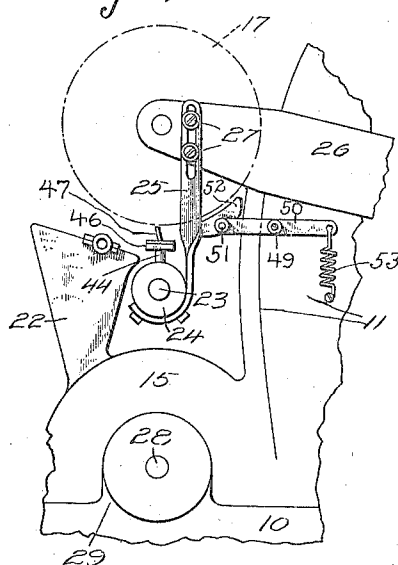
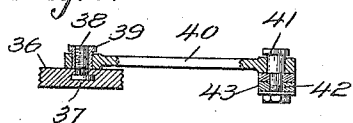


Fig. 5.



R. P. Hamilton

INVENTOR.

BY

Geo. P. Kimmel.

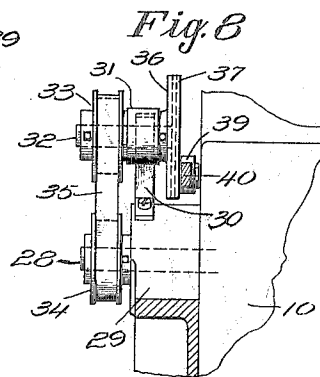
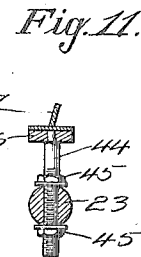
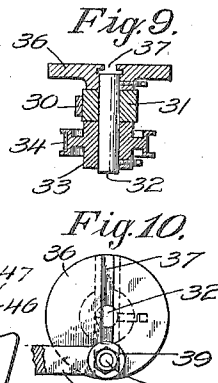
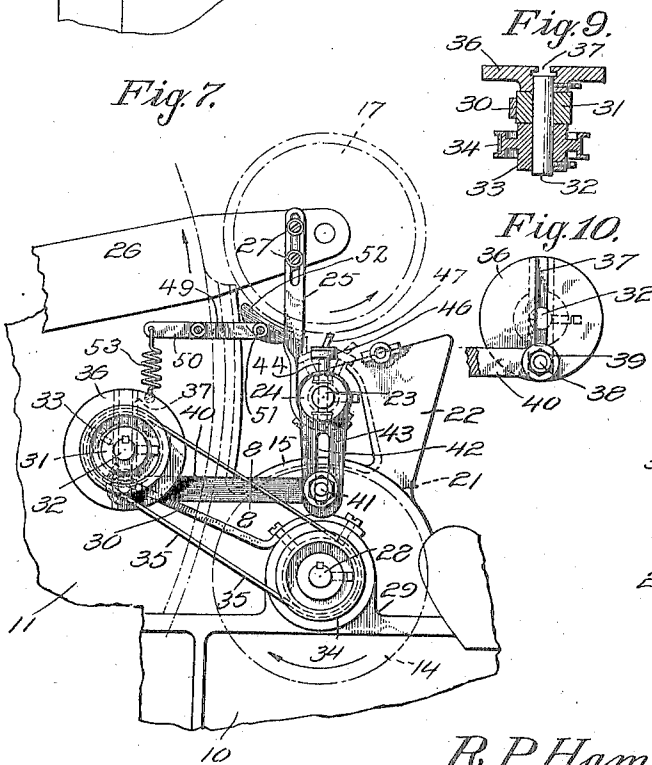
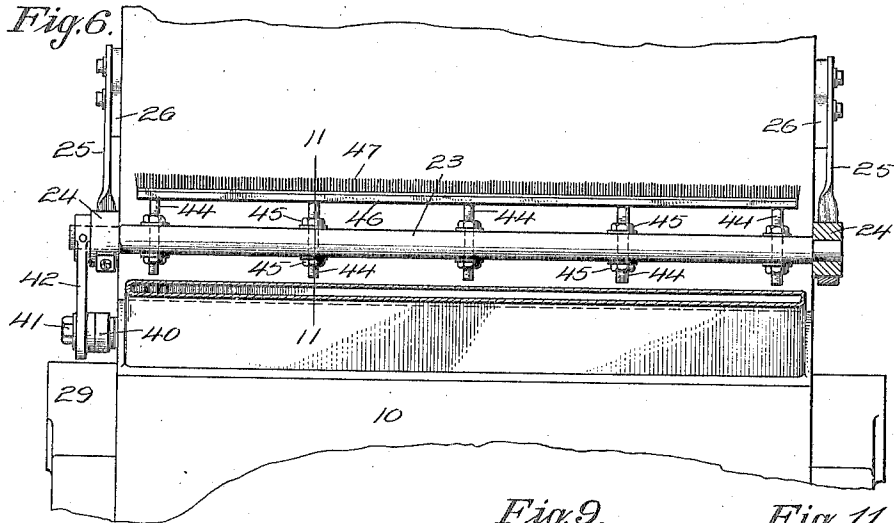
ATTORNEY.

Jan. 9, 1923.

R. P. HAMILTON.
ATTACHMENT FOR CARDING ENGINES.
FILED APR. 29, 1922.

1,441,850.

3 SHEETS—SHEET 3.



R. P. Hamilton

INVENTOR.

BY

Geot. Kimmel
ATTORNEY.

UNITED STATES PATENT OFFICE.

RALPH P. HAMILTON, OF RAEFORD, NORTH CAROLINA.

ATTACHMENT FOR CARDING ENGINES.

Application filed April 29, 1922. Serial No. 557,466.

To all whom it may concern:

Be it known that I, RALPH P. HAMILTON, a citizen of the United States, residing at Raeford, in the county of Hoke and State of North Carolina, have invented certain new and useful Improvements in Attachments for Carding Engines, of which the following is a specification.

This invention relates to carding engines, and has for one of its objects to provide an attachment for devices of this character whereby the material detached by the flats is removed and returned to the lickerein to be reworked together with the material received from the lap roll.

Another object of the invention is to provide a device of this character whereby the material detached by the "flat" when rotated oppositely to the carding cylinder may be conducted therefrom and not passed again to the lickerein.

Another object of the invention is to provide a device of this character wherein the lap material is subjected to the action of a lickerein and a carding cylinder, then subjecting the lap material when first received by the carding cylinder to the action of the flat devices rotating oppositely to the carding cylinder to remove foreign matter therefrom before it passes to the carding cylinder, and then detaching the separated matter.

Another object of the invention is to provide a device of this character wherein the lap material is subjected to the action of a lickerein and a carding cylinder, then subjecting the lap material when first received by the carding cylinder to the action of the flat devices rotating oppositely to the carding cylinder to remove foreign matter therefrom before it passes to the carding cylinder, then detaching the separated matter, and directing it back to the lickerein.

With these and other objects in view the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention:—

Figure 1 is a side elevation of a conventional carding engine with the improved attachments applied.

Fig. 2 is an enlarged sectional detail.

Fig. 3 is a view similar to Fig. 2 showing the structure at the opposite side of that shown in Fig. 2.

Fig. 4 is a plan view of the clearer comb actuating mechanism.

Fig. 5 is a sectional detail of a part of the device illustrated in Fig. 4.

Fig. 6 is a front elevation of the stripping comb partly in section.

Fig. 7 is an enlarged detail of the improved attachment.

Fig. 8 is a view of a portion of the structure shown in Fig. 7, with the connecting rod in section on the line 8—8 of Fig. 7.

Fig. 9 is a sectional detail of the adjustable crank device whereby the motion is imparted to the stripper comb.

Fig. 10 is a face view of the parts shown in Fig. 8.

Fig. 11 is a transverse section on the line 11—11 of Fig. 6.

Fig. 12 is a sectional detail, illustrating the means for conducting the strippings away from the flats and preventing them from passing to the lickerein.

The improved device may be applied without material structural change to carding engines of various makes, but for the purpose of illustration the improved device is shown applied to a conventional carding engine.

The main supporting frame is represented as a whole at 10, the carding cylinder at 11 mounted on the frame by a shaft 12, the lap roll holder at 13, the lickerein at 14, the hood or guard for the lickerein at 15, the "flat" cards at 16 operating around drums 17 and supported by idlers 18, and the doffer 19, these parts being of the usual construction.

In the improved device the belt of flats 16 is caused to rotate in the opposite direction to the card cylinder as indicated by the arrows, instead of in the same direction as in ordinary carding engines, and to this end the drive belt of the belt of flats, indicated at 20, is straight instead of being crossed as in ordinary structures of this character.

In the improved structure the hood 15 of the lickerein is formed with an opening in one side extending the whole length of the lickerein, and leading from the opening is a guide chute or hopper 22, the latter

with its intake enlarged and in position to receive the material picked off by the comb as illustrated in Fig. 2.

Supported in any suitable manner between the chute member 22 and the adjacent casing of the carding cylinder is a rock shaft 23.

For the purpose of illustration the rock shaft 23 is shown supported for oscillation in bearings 24 and each bearing attached to a suspension strap 25, and each strap adjustably coupled to the nearest supporting arm 26 of the "flat" belt. Each of the hanger straps 25 is slotted to receive clamp bolts 27 tapped into the arm 26, whereby the bearings 24 may be adjusted vertically to control the position of the rock shaft 23.

The shaft 28 of the lickerin 14 is supported by brackets 29 rising from the frame 10, and connected to one of the brackets is a relatively heavy strap 30 to the outer end of which another bearing 31 is attached, and journaled in the latter bearing is a stub shaft 32 carrying a belt pulley 33. The shaft 28 also carries a similar belt pulley 34, and an endless belt 35 operates over the belt pulleys. By this means the motion of the shaft 28 of the lickerin is transmitted to the stub shaft 32.

Mounted on the stub shaft 32 at the end opposite to the pulley 33 is a disk 36 having an undercut or dovetailed guide channel 37 in its outer face.

Slidably disposed in the channel 37 is a headed stub 38 carrying a threaded sleeve 39 as shown in Fig. 5, the latter serving the twofold purpose of a clamp nut to adjustably couple the stud 38 in the channel 37, but likewise as a bearing for a connecting rod 40. By this simple means the throw of the connecting rod may be readily changed by changing the position of the stud in the channel 37.

At its opposite ends the rod 40 is pivoted at 41 in a slot 42 in an arm 43 connected to the shaft 23 and partaking of its rocking motion.

Extending through the shaft 23 at spaced intervals are bolts 44 having coacting nuts 45 bearing upon opposite sides of the shaft to enable the bolts to be adjusted transversely of the shaft.

Attached to the bolts 44 at one end is the head member 46 of a comb blade 47 which operates sufficiently close to the latter to strip the material therefrom as the flats are rotated.

Pivoted at 49 upon opposite sides of the casing of the carding cylinder are small levers, one of which is shown at 50, and pivoted at 51 to one end of the levers is a guide bar 52, preferably of relatively heavy metal with its upper face curved to conform to the curvature of the paths of the teeth of the flats 16, and yieldably sup-

ported by any suitable means, for instance by springs, one of which is represented at 53. The member 52 operates as a guide to the flats as they pass around the drums so that the flats will be held in position where they pass over the stripping comb for the comb to remove the strip from the flats. The stripping comb 47 must be set to operate very accurately, hence the necessity for the guide 52 to cause the flats to travel accurately relative to the comb.

With the apparatus thus described the operation is as follows:—

As the carding cylinder and lickerin are rotated, the lap of cotton including the impurities if any is fed by the roll 48 to the lickerin and thence to the carding cylinder and between the latter and the "flat" devices. The flats being rotated oppositely to the movement of the card cylinder the material which carries the larger amount of the impurities will be moved to the outer surface of the mass of the lap and be picked off by the teeth of the flats and carried away from the influence of the teeth of the cards, and thus separated from the major portion of the material. As the "picked off" material is carried away from the carding cylinder the oscillating comb device 46—47 strips the material from the flats and conducts it into the chute or hopper 22 and thence into the lickerin.

The stripped material passing through the lickerin, the greater amount of the trash, motes and other foreign matter is extracted by the action of the lickerin and by which they are broken up and extracted by the mote knives represented at 49.

Thus much valuable time and labor is saved as the work in the stripper room may be entirely obviated.

By this arrangement the card strippings may be reworked simultaneously with the carding of the lap material, thus avoiding the necessity for taking off the strippings separately and transporting them to a stripper room to there be worked or sold as "waste."

In treating certain kinds of cotton, it is not desirable to run the strippings through the lickerin, and in that event a stripping roller, represented at 54 in Fig. 12, is supported on the funnel 22 in position to carry the strippings over the funnel and deposit it in a suitable receptacle or otherwise dispose of it.

The rapidly revolving lickerin creates a strong draft downwardly through the hopper or chute 22; hence the stripped material will be drawn into the lickerin, and no danger exists of throwing the stripped material over the upper end of the hopper.

To prevent the strong draft created in the lickerin hood from affecting the operation, a stop of suitable construction, and indi-

cated at 55, is attached to the hood 15 of the lickerin.

Having thus described the invention what is claimed as new is:—

5 1. In an apparatus of the class described a carding cylinder, a flat device cooperating with the carding cylinder and operating oppositely thereto, a lickerin cylinder, and means for detaching the material picked
10 off by the flat device and returning it to the lickerin.

2. The method of treating laps of fibrous material consisting in subjecting the lap material to the action of a lickerin and a
15 carding cylinder, subjecting the lap material while on the carding cylinder to action of a flat device operating reversely to the carding cylinder, and detaching the portion picked off by the flat device and re-
20 turning it to the lickerin.

3. In an apparatus of the class described a carding cylinder, a flat device cooperating with the carding cylinder and operating oppositely thereto, a lickerin cylinder op-
25 erating to receive the material from the feeder mechanism and convey it to the cylinder, and means for detaching the material picked off by the flat device, and conveying it to the lickerin to be carried there-
30 by to the cylinder.

4. In an apparatus of the class described a carding cylinder, a flat device cooperating with the carding cylinder and operating oppositely thereto, a lickerin cylinder hav-
35 ing a shield device with an opening in one side, and means for detaching the material picked off by the flat device and feeding it

through the opening and thence to the lick-
erin cylinder.

5. In an apparatus of the class described 40 a carding cylinder, a flat device cooperating with the carding cylinder and operating oppositely thereto, a lickerin cylinder, a comb device between the lickerin cylinder and the discharge end of the flat device, and 45 means for actuating the comb device to cause it to detach the material picked off by the flat device and return it to the lickerin.

6. In an apparatus of the class described 50 a carding cylinder, a flat device cooperating with the carding cylinder and operating oppositely thereto, a lickerin cylinder, a comb device between the lickerin cylinder and the discharge end of the flat device, and a guard device yieldably supported adja- 55 cent the comb and operating to hold the flat members in position for the action of the comb.

7. The combination with a carding cylinder and a flat device and a lickerin, of a 60 vibrating comb device operating to remove the strippings from the flat device and feed it to the lickerin.

8. The combination with a carding cylinder and a flat device and a lickerin, of a 65 guide funnel between the flat device and the lickerin, and a vibrating comb device operating to remove the strippings from the flat device and feed it to the guide funnel and thence to the lickerin. 70

In testimony whereof, I affix my signature hereto.

RALPH P. HAMILTON.