

(No Model.)

D. F. BRADBURY & G. McDERMOTT.
STOP MECHANISM FOR CARDING MACHINES.

No. 559,160.

Patented Apr. 28, 1896.

Fig. 1.

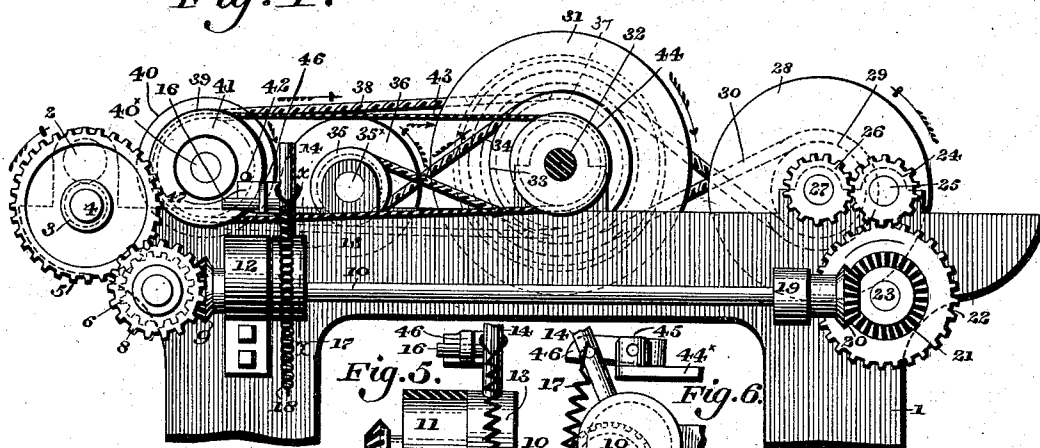


Fig. 5.

Fig. 6.

Fig. 2.

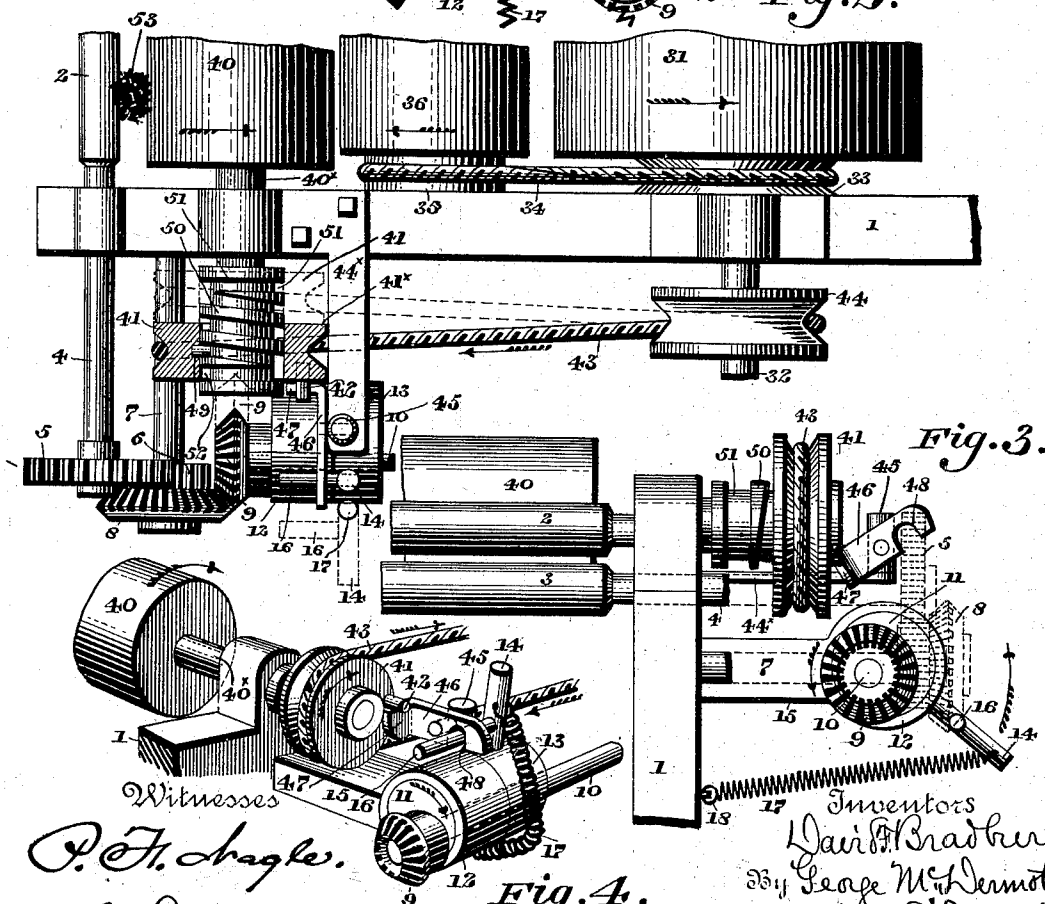


Fig. 3.

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Fig. 4.

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STOP MECHANISM FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 559,160, dated April 28, 1896.

Application filed May 23, 1895. Serial No. 550,322. (No model.)

To all whom it may concern:

Be it known that we, DAVID F. BRADBURY and GEORGE McDERMOTT, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Stop Mechanisms for Carding-Machines, &c., which improvement is fully set forth in the following specification and accompanying drawings.

Our invention relates to carding-machines; and it consists of a novel construction of automatic stop attachment therefor, by means of which the rotation of the feed-rolls will be instantly stopped in case any obstruction is encountered between the licker-in roll and its adjacent roll, the parts being readily thrown into operative position again as soon as said obstruction has been removed.

It further consists of novel details of construction, all as will be hereinafter set forth.

Figure 1 represents a side elevation of parts of a carding-machine and an automatic stop attachment therefor embodying our invention. Fig. 2 represents a plan view of the same on an enlarged scale, the right-hand end of the machine seen in Fig. 1 being broken away. Fig. 3 represents a partial front elevation of the machine, showing the feed-rolls and the tripping mechanism for stopping the same, said tripping mechanism having been just operated. Fig. 4 represents a perspective view showing the tripping mechanism in operative position, the same being just about to be actuated. Fig. 5 represents a partial sectional view through a portion of the automatic stop attachment. Fig. 6 represents a section on line *x x*, Fig. 1.

Similar numerals of reference indicate corresponding parts in the several figures.

Referring to the drawings, 1 designates the frame of a carding-machine, having mounted in suitable bearings near an end thereof the feed-rolls 2 and 3, the shaft 4 of one of said feed-rolls being extended through its bearings on the frame and having mounted thereon the gear 5, which meshes with the pinion 6, which latter is attached to the bevel-gear 8, so as to move in unison therewith, said pinion and bevel-gear being rotatably mounted on a suit-

able stud 7. 9 designates another bevel-gear, adapted to be in mesh with said gear 8 when the parts are in their normal position, said gear 9 being mounted upon the shaft 10, which has a bearing in the disk 11, said bearing being eccentrically located within said disk, while the latter has its bearing in a sleeve or ring 12, said shaft 10 having an eccentric bearing also in the disk 13, which is attached to said disk 11, said shaft 10 being freely movable in said disk 13, while the latter has attached thereto the stem or handle 14, which has projecting therefrom, at an angle, the pin 16, said stem 14 having attached thereto one end of a spring 17, the other end of the latter being attached at 18 to any suitable fixed point, as the bed 1.

19 designates a stationary bearing for shaft 10, which latter has mounted thereon the bevel-gear 20, which meshes with the bevel-gear 21, the same being attached to the gear 22, so as to revolve in unison therewith, said gears 21 and 22 being rotatably mounted upon a suitable stud 23. 24 designates a pinion in mesh with said gear 22 and rotatable on a stud 25, which is attached to a suitable portion of the frame 1, said pinion 24 being in mesh with a pinion 26, which is mounted on the shaft 27 of the doffer-roll 28, said shaft 27 having mounted thereon a pulley 29, (seen dotted in Fig. 1,) around which passes a belt 30, which is crossed in the present instance and engages a pulley (seen dotted in Fig. 1) on the shaft 32, upon which latter is mounted the main cylinder 31.

The shaft 32 has secured thereto a pulley 33, around which passes a belt 34, which is crossed in the present instance and is adapted to transmit motion to the pulley 35, which is mounted upon the shaft 35^x of the tumbler 36.

37 designates a pulley mounted upon the farther end of the shaft 32, around which passes a straight belt 38, said pulley and belt being broken away in Fig. 2, and said belt 38 engaging the pulley 39 on the farther end of the licker-in roller 40, which latter rotates with the shaft 40^x. 41 designates a traveler which is freely mounted on the end of said shaft 40^x, as will be explained, said traveler having a belt 43, passing around the same, 100

and the pulley 44, mounted upon the shaft 32, to which latter shaft power is to be applied in the first instance.

44^x designates an arm which is attached to the frame 1 and projects therefrom, as will be understood from Figs. 2 and 3, said arm having attached thereto the boss 45, on which is pivotally mounted the dog 46, which has one end 47 thereof bent at an angle thereto, the other end of said dog being provided with a notch or recess 48, which is adapted to engage the pin 16 when all the parts are in operative position, as is best seen in Fig. 4. Projecting from the outer face of the traveler 41 is a pin 42, adapted to contact with one end of said dog 46, for a purpose hereinafter explained. 49 designates a pin or stud, which is attached to the interior of said traveler 41 and has its projecting end adapted to engage a worm 50, which revolves with the shaft 40^x, which carries the lick-in roller 40, said worm being left-handed in the present instance and terminating at each end in an annular groove 51 and 52, as will be understood from Fig. 2, it being apparent that when the traveler 41 is rotating in its proper direction, as indicated by the arrow in Fig. 4, the edge 41^x of said traveler will be nearly in alinement with the outer wall of said worm 50.

The operation is as follows: Power having been applied to the shaft 32, and the different rollers and gears being revolved in the directions indicated by their respective arrows, it will be evident that the face 41^x of the traveler 41 will be normally in the position seen dotted in Fig. 2, the lick-in roll 40, the feed-rolls 2 and 3, and the other rolls revolving in unison, as will be understood by following out the train of gearing and belting. If now any obstruction 53 becomes interposed between the lick-in roll 40 and the adjacent feed-roll 2 of such character as to stop the rotation of said lick-in roll, the rotation of the worm 50 will cease, but by reason of the engagement of the belt or cord 43 with the pulley 44 the traveler will continue its rotation, and because of the engagement of the pin 49 with the worm 50 the said traveler will be caused to move from the position seen in dotted lines in Fig. 2 to the position seen in full lines in said figure and also in Fig. 4, it being remembered that the stud 16 is engaged by the dog 46, whereby the gears 8 and 9 are in mesh, and rotation is thus imparted to the feed-rolls. When the traveler 41 has reached the position seen in Fig. 4, the engagement of the pin 42 with the bent end 47 of the dog 46 will tilt the latter and so cause the notch 48 to be disengaged from the pin 16, and the spring 17 will move the stem 14 and the disks 11 and 13 and thereby one end of the shaft 10, so that the parts will assume the position seen in Fig. 3, at which period the gear 9 will be moved into the position seen dotted in Fig. 2, by reason of the eccentricity of the bearing of the shaft 10, so that said gear 9 will be out of mesh with the gear

8 and the rotation of the feed-rolls will be instantly stopped, whereby the attendant may be aware of the presence of an obstruction. When it is desired to place the parts in operative position again, the stem 14 is moved upwardly in the direction of the arrow, Fig. 3, until the pin 16 can be engaged by the notch 48 in the dog 46 again, it being understood that when the lick-in roll 40 is properly rotating, the traveler 41 is in the position seen in dotted lines, Fig. 2, the engagement of the pin 49 of said traveler with the worm 50 causing said traveler to move outwardly into the position seen in Fig. 4, when the rotation of said lick-in roll and worm ceases, the length of the pin 42 being such that it does not hit the portion 47 of the dog when the traveler is in its normal position, (seen dotted in Fig. 2,) as is evident.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. An automatic stop attachment for a carding-machine, comprising a worm adapted to be secured on a continuation of the lick-in roll-shaft of the machine, a traveler on said worm, a shaft having gearing at one end, adapted to mesh with gearing on an operating-shaft of said machine, and having its other end mounted in a movable bearing, and mechanism intermediate of said traveler and movable bearing for operating the same, said parts being combined substantially as described.

2. A carding-engine, having a worm secured to a prolongation of its lick-in shaft, a traveler movable on said worm, a rotatable shaft having at one end a fixed bearing, and at its other end a movable bearing, and mechanism intermediate of said traveler and said movable bearing for shifting the latter, said parts being combined substantially as described.

3. A carding-engine, having a worm secured to its lick-in shaft, a traveler movable on said worm, a shaft having at one end a fixed bearing, and at its other end a movable one, a dog adapted to hold said movable bearing in one position, means on said traveler for releasing said dog from said movable bearing, and a spring for operating said movable bearing, said parts being combined substantially as described.

4. In a device of the character described, feed and lick-in rolls, a worm, a traveler mounted thereon, a projection upon the inner bore of said traveler engaging said worm, a pin attached to the face of said traveler, and a tripping device engaged by said pin in combination with connections from the latter, whereby the feed-rolls can be thrown into or out of operation, substantially as described.

5. In a device of the character described, a worm having the annular channels 51 and 52 therein, a traveler mounted upon said worm and actuated thereby, a pin or swivel 42 attached to said traveler, a dog 46 con-

5 structured substantially as shown the disks 13 and 11 having the stem 14, the latter having a pin 16 attached thereto, the shaft 10 mounted eccentrically in said disks, feed-rolls, and gearing intermediate said shaft and feed-rolls, in combination with suitable means for actuating said traveler, substantially as described.

10 6. A carding-machine, having a licker-in roll with a worm on the shaft thereof, a traveler movable on said roll, a shaft having at one end a fixed bearing, and at the other end a movable bearing, a feed-roll with connected gearing, a dog engaging said movable bearing for holding it in one position, a pin connected with said traveler for releasing said dog from said bearing, and a spring for moving said bearing, said shaft having at its movable bearing, end gearing adapted to mesh with said feed-roll gearing, said parts being combined substantially as described.

15 7. In a device of the character described, a shaft 10, means for actuating the same, disks 11 and 13 in which said shaft is eccen-

trically mounted, feed-rolls, gearing intermediate said shaft 10 and said feed-rolls, a worm, a traveler mounted thereupon, means for actuating said traveler, and means intermediate the latter and said disks, whereby the rotation of said feed-rolls is stopped when an obstruction is encountered, substantially as described.

20 8. In an automatic-stop machine for a carding-engine, a shaft having gearing on one end adapted to mesh with gearing on an operative shaft of the machine, a movable bearing for the other end of said shaft, a rotatable traveler having longitudinal motion on the licker-in roll-shaft of the machine, and mechanism intermediate said movable bearing and traveler for operating the latter, said parts being combined substantially as described.

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