O. L. OWEN.

STOP MOTION.

APPLICATION FILED NOV. 26, 1910.

1,152,541.

Patented Sept. 7, 1915.

2 SHEETS—SHEET 1.

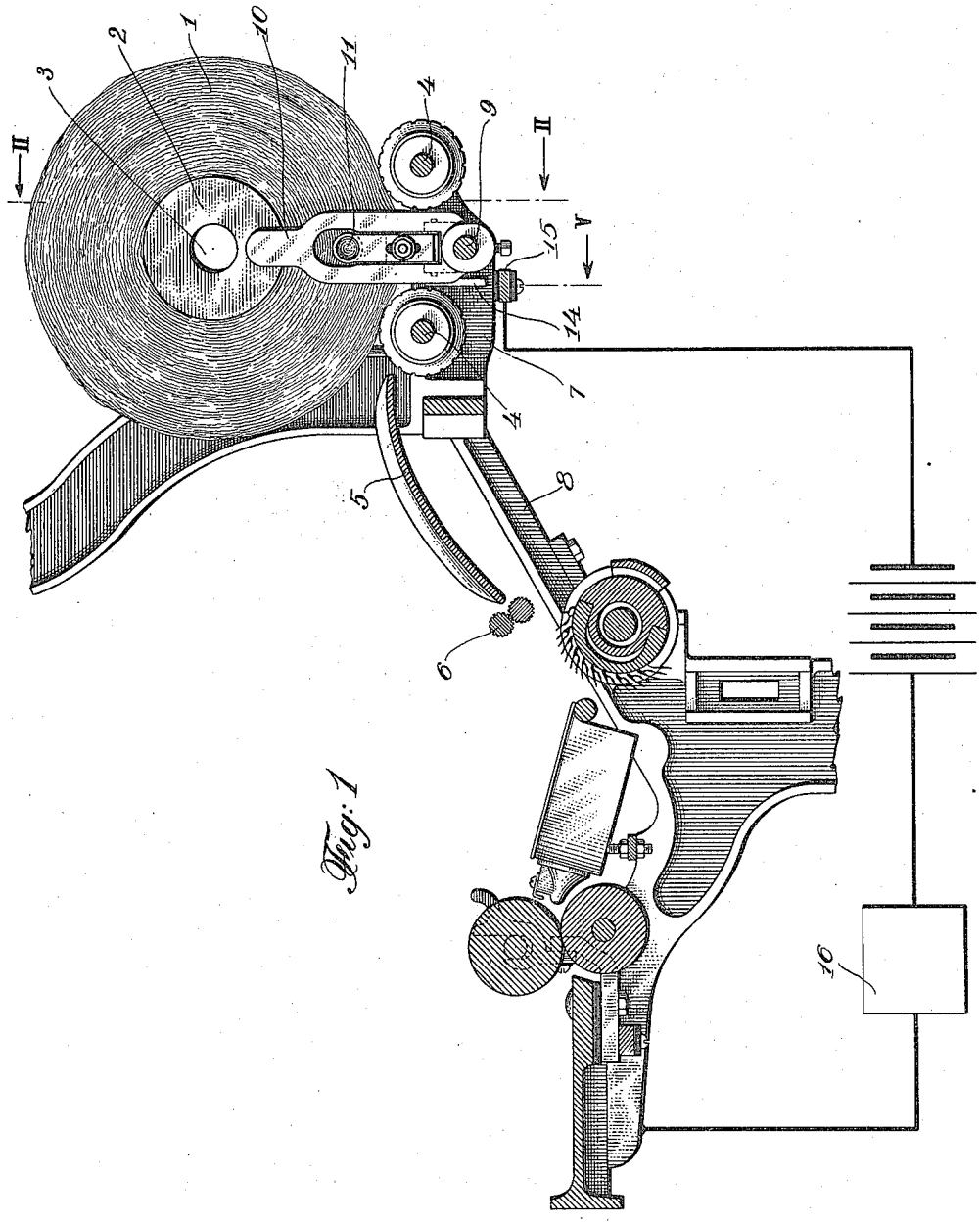


Fig. 1

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2 SHEETS—SHEET 2.

Fig: 2

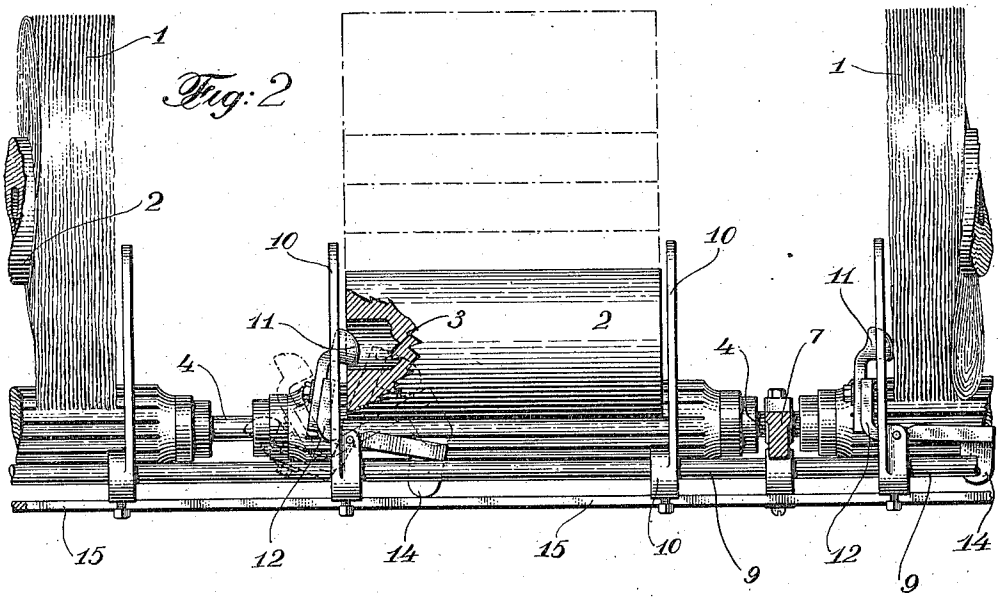


Fig: 3

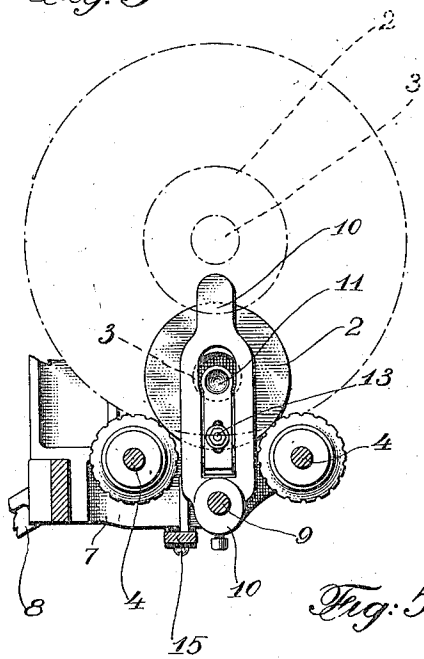


Fig: 4

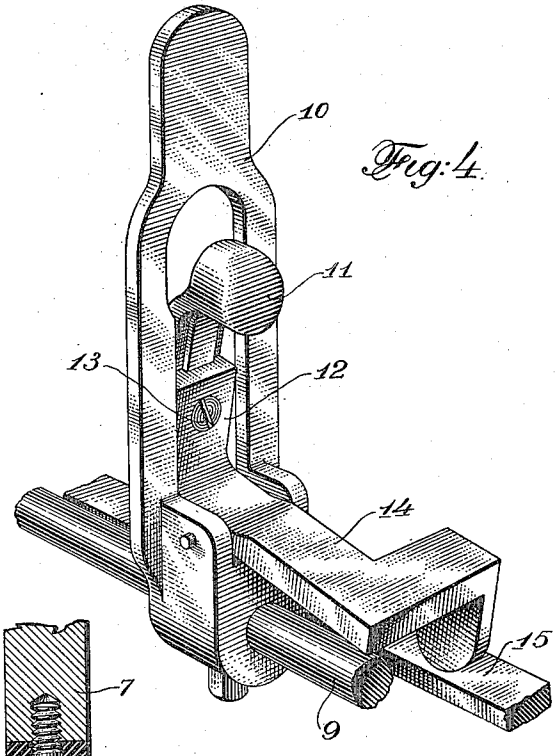
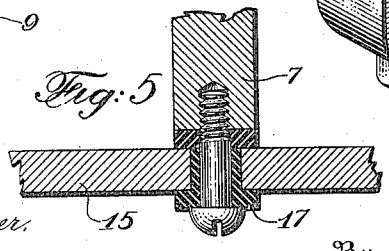


Fig: 5



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UNITED STATES PATENT OFFICE.

OSCAR L. OWEN, OF WHITINSVILLE, MASSACHUSETTS, ASSIGNOR TO THE WHITIN MACHINE WORKS, OF WHITINSVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

STOP-MOTION.

1,152,541. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed November 26, 1910. Serial No. 594,271.

To all whom it may concern:

Be it known that I, OSCAR L. OWEN, a citizen of the United States, and a resident of Whitinsville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Stop-Motions, of which the following is a full, true, and concise specification.

The invention is a stop-motion for cotton combers and other lap-working machines, and its object is to safe-guard such machines from injury by the passage of bunched or mussed portions of the lap into the machine, and also to avoid the unevenness resulting from the passage of such portions into the machine's product. The ends of the lap that are last to be unwound from the spools upon which it is supplied to the kind of machines referred to, are the parts in which these bunches or thickened portions ordinarily occur, and it is my object to stop the machine by automatic means before these tail ends of the lap rolls can pass off of their spools and into the feeding devices of the machine. This object is accomplished in a satisfactory manner by the means constituting this invention and hereinafter exemplified, which are simple and not likely to be deranged by prolonged or severe usage.

I have illustrated the invention herein as applied to a well known form of cotton comber, but it will be understood from the description which follows that it is applicable to other kinds of lap-working machines.

Figure 1 is a transverse vertical section of certain familiar parts of a cotton comber showing my invention applied thereto; Fig. 2 is a sectional elevation on line II—II of Fig. 1 of the lap roll supporting devices showing an empty spool in position thereon; Fig. 3 is an end elevation of Fig. 2, parts in section; Fig. 4 a perspective enlarged view of the feeler and its mounting; while Fig. 5 is a detail on line V of Fig. 1, on enlarged scale, indicating the form of insulating connection.

In Fig. 1 the lap roll is marked 1 and is shown in the position in which it is placed to supply the lap to the comber. This roll is prepared, in another machine, by winding the lap upon a cylindrical spool 2, of about the relative dimensions shown in the drawings, and formed with a central hollow bore or cavity in its end, as shown at 3. The supports upon which the lap-roll rests, comprise the two fluted rollers carried on the shafts 4, which extend longitudinally the length of the machine, being common to the several combing heads thereof, so that in one machine they, or the rollers thereof, may form the revoluble support for a series of lap rolls. The roller shafts 4 are ordinarily revolved in the appropriate direction to unwind the lap from the spools, and allow the lap to advance over the lap plates 5 into the feed rolls 6 and thence into the combing mechanism, which being of the usual construction, need not be described. The roller shafts are journaled in brackets 7 extended from the rear upper ends of the several frame standards 8 that separate and support the various parts of the several comber-heads, as will be well understood. These brackets serve also to support a fixed rod 9, which, like the roller-shafts, is also common to all of the heads of the machine, and upon this rod there is mounted a series of guide fingers 10, the latter being arranged in pairs adjacent to the ends of the lap rolls, and adapted to maintain them in proper position on their rollers, preventing their endwise displacement thereon. The rod is placed below and between the roller shafts 4 and the guide fingers are longitudinally adjustable thereon in order to accommodate different widths of lap rolls, but so far as the present invention is concerned, they may be adjustably mounted upon any support that may be convenient for the purpose, depending upon the nature of the machine with which this invention is employed. In the form which is preferred for the present invention, however, they are made with openings or windows through them, as shown in Fig. 4, through which the rounded nose 11 of a feeler can project to engage the edge of the lap wound on the lap roll spool or the end of the spool itself. The feeler comprises a base or body portion 12, to which the nose 11 just referred to is adjustably connected by means of a slot and bolt connection 13, and also an arm 14 laterally extended beneath the lap roll, forming a counter-weight tending to press the rounded nose toward and against the lap roll or against its spool in the obvious manner. There is a similar feeler for each lap roll, and each may be pivoted by its body portion on any conven-

ient support, but, for economy of construction, is desirably mounted on one of the guide fingers at one end of its roll so that it will thus be adjustable in a longitudinal direction on the rod 9 by the adjustment of the finger, and can thus be made to bear upon the lap roll in the most satisfactory manner, extending upwardly between the roller shafts 4, as clearly shown.

When a full lap roll is in position on the supporting rollers, as illustrated in Fig. 1, the feeler nose 11 will bear against the edge of the lap or end of the lap roll, by the effect of its counter-weighted arm, which will thus be held in a lifted position. As the lap is unwound and the roll decreases in diameter, the spool 2 in the center thereof will gradually approach the fluted rollers on which the lap roll rests, and eventually the cavity or end of the bore in the spool will come into registry with the feeler nose, so that the latter may enter the same, acting under the influence of its counterweight, and thus allow the arm 14 to swing the feeler on its pivot, lowering the arm 14 to its lower position. Of course a spring can be used to move the feeler in substitution for gravity acting on the horizontally extended arm. In its lowest position this arm 14 is adapted to engage a member, such as the bar 15, forming part of the operating connections of a suitable throw-off mechanism, and by such engagement to effect the immediate stopping of the machine.

In the case of a mechanically operated throw-off mechanism, which is a common device, the member 15 will take the form of a reciprocating part adapted to be arrested by the feeler-arm according to the usual principle, and thus ship the driving belt; but in the case illustrated and forming a specific feature of this invention, the throw-off mechanism, is of the electrical type, and the bar 15 is therefore merely an electrical contact member, common to the several lap rolls. It is bolted to the under side of each of the several brackets 7 by a bolt covered with an interposed insulating bushing 17, as indicated in Fig. 5, so that it is electrically separate from the frame of the machine. It is also located adjacent the rod 9 and in alinement with the arms of the feelers. The throw-off mechanism shown diagrammatically at 16, is connected in the circuit indicated in Fig. 1, with one pole grounded to the machine frame and its other pole connected to this member 15, so that the operation of the feeler by which it engages the common bar 15, closes the circuit and thereby stops the machine through the operation of the throw-off mechanism 16, in the manner which will be well understood without description. The throw-off mechanism, which is represented diagrammatically, may be of any suitable or known character, for example, such as is shown in the application of Alexis F. Waldow, Serial Number 765,983, filed May 7th, 1913.

It will be observed that the adjustable connection between the feeler-nose and its body portion enables the former to be adjusted toward and from the support on which the lap roll rests and with reference to the path of approach of the axis of the lap spool caused by the unwinding of the lap, so that it can be thus set to become operative at the proper moment with respect to the height of the spool above its supporting means, *i. e.* to the size of the lap roll, and before the bunched portions of the lap that are immediately next to the spool, can pass therefrom into the machine, thereby accomplishing the objects of the invention first above stated.

The lap roll spools may be of metal or of wood or other material, and the feelers may or may not form a part of the electrical throw-off circuit as preferred, so long as the approach of the lap roll spool brings about the timely closing of the circuit or the stoppage of the machine.

From the description above given, it will be understood that except as particularly defined by the appended claims, the invention is not limited to the specific exemplification thereof above described, but that various omissions, substitutions and changes of proportions may be made therein without departing from this invention.

It will be noted that when a lap roll is desired to be removed from the machine without stopping the latter, the feeler of that roll can be turned back through its dead center, as indicated by the dotted lines of Fig. 2, to a position where its center of gravity will lie outside of the vertical plane of its pivotal support, and thus maintain an open condition of the stop motion circuit when the lap-roll is removed, and when in this position, the placing of a fresh roll in the place of the one removed will automatically restore the feeler to its working position by engagement therewith which will rock the feeler on its pivot.

I claim—

1. A stop motion for lap-working machines, comprising in combination with the means for supporting and unwinding the lap-roll, said means permitting the axis of the lap roll to descend as the roll is unwound, a throw-off mechanism and means for operating the same, comprising a feeler mounted independently of the roll and having normal engagement with the end of the roll and means controlled by said feeler for operating said mechanism.

2. A stop motion for lap-working machines, comprising in combination with the means for supporting and revolving the lap-roll, and the spool vertically movable therein, a feeler normally having engagement

with the end of the roll and its spool and mounted independently in predetermined relation to the height of the spool, said spool having a portion adapted to cause the actuation of the feeler, a throw-off mechanism, and means controlled by the feeler to actuate said mechanism.

3. A stop motion for lap-working machines, comprising the combination of the lap-roll arranged to approach its support by the unwinding of the lap therefrom and having a bore or cavity at its end, a feeler cooperatively related to the end of the roll and the cavity in the spool, a throw-off mechanism and means controlled by the feeler to actuate said mechanism.

4. In a stop motion for lap-working machines, the combination of the lap roll supporting means and a lap-roll thereon having a cavity in its end and arranged to approach its support by the unwinding of the lap, a feeler engaged with the end of the roll and adapted to enter the cavity, a throw-off mechanism and means brought into operation by the movement of the feeler, to actuate said mechanism.

5. In a stop motion for lap-working machines, a lap-roll and spool, a feeler having a rounded nose held ineffective by the end of the lap-roll and adapted to enter the bore of the lap-roll spool when the latter is lowered by the unwinding of the lap, in combination with a throw-off mechanism and operating connections therefor controlled by the feeler on entering movement of the nose.

6. In a stop motion for lap-working machines, a lap roll feeler comprising a pivotally mounted body portion and a relatively adjustable nose portion, in combination with means for supporting the lap roll whereby the axis thereof approaches said nose portion as the lap unwinds.

7. In a stop motion for lap-working machines, a feeler the end of the lap roll normally having contact with and correlated with a cavity in the center thereof and comprising a pivotally mounted body portion and a nose portion adjustably carried on said body portion adapted to enter said cavity when the roll approaches exhaustion, in combination with means for longitudinally adjusting the said body portion and means for pressing the said nose portion toward the lap roll.

8. In a stop motion for lap-working machines, the combination of guide fingers between adjacent ends of the lap rolls, movable feelers mounted on the guide fingers having means for pressing them against the rolls, a throw-off mechanism and operating means therefor controlled by said feelers by virtue of the latter bearing against the ends of the rolls.

9. In a stop motion for lap-working machines, means for supporting several lap rolls and the spools thereof, a longitudinal support beneath and parallel with the axes of the rolls, feelers longitudinally adjustable on said support and respectively arranged to press against the ends of the rolls, in combination with a throw-off mechanism controlled by the feelers.

10. In a lap-working machine, a pair of rotating roller shafts forming the support for a plurality of lap rolls, movable feelers engaged with said rolls and controlled thereby, a member extending beneath the several rolls adapted to be engaged by the feelers and a throw-off mechanism connected with said member and adapted to be rendered operative by the engagement of a feeler therewith.

11. In a lap working machine, a pair of rotating roller shafts forming the support for several lap rolls, a fixed rod disposed between said shafts and carrying a series of lap roll feelers respectively pressed against said rolls, a member common to said rolls and feelers, and a throw-off mechanism operated by the engagement of a feeler with said member.

12. In a lap-working machine, means for supporting the lap-roll and a guide finger adjacent the end thereof provided with an opening or recess, in combination with a feeler nose adapted to engage the lap-roll through said opening, a throw-off mechanism, and means controlled by said feeler to actuate said mechanism.

13. In a lap-working machine, the combination of a feeler mounted to engage the end of the lap-roll and having a lateral arm extended beneath the said roll, a contact member beneath the roll engaged by said arm and a throw-off mechanism operated by such engagement.

14. In a lap-working machine, a support for the lap roll, a pivoted feeler engaging the end of the roll and having a horizontal arm forming a counterweight adapted to press the feeler against the roll, in combination with an electrical circuit with one pole thereof connected to said feeler, a contact member beneath the said arm connected to the other pole, and a throw-off mechanism operated by said circuit.

15. In a lap-working machine, a pair of roller shafts adapted to support a series of lap rolls, a corresponding series of pivoted feelers disposed between said shafts and projecting upwardly in engagement with said rolls, and lateral arms on said feelers extending beneath their rolls and in the direction of the axes thereof, in combination with a contact bar co-extensive with said series of rolls beneath said arms and adapted to be engaged thereby, and a throw-off circuit operated by such engagement.

16. A stop motion for lap-working machines comprising a throw-off mechanism

and suitable supporting means for the lap roll, in combination with a feeler having two arms or portions, one of which is adapted to feel the roll as it unwinds and the other of which is adapted to be engaged by the roll to throw the said feeling arm into engagement therewith, suitable means for pressing said feeler arm against the roll and suitable controlling connections from the feeler to said throw-off mechanism adapted to operate the same on a predetermined diminishment of the lap-roll.

17. A stop motion for lap-working machines comprising lap-roll supporting means, a throw-off mechanism, and a pivoted feeler having engagement with the end of the lap-roll to control said mechanism, the said feeler being normally subjected to a force tending to impel the same against the roll and being adapted to be turned back through its dead center position.

18. A stop motion for lap-working machines comprising lap-roll supporting means, a throw-off mechanism controlled by a feeler nose adapted to feel the roll as it unwinds and a part adapted to place the nose in its operative position by the placing of a lap-roll upon the said lap-roll supporting means.

In testimony whereof, I have signed this specification in the presence of two witnesses.

OSCAR L. OWEN.

Witnesses:
CHESTER C. LAMB,
JOHN F. MCGINNISS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."