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AUTOMATIC CUT-OFF FOR CLOTH BATCHERS

Filed July 16, 1935

2 Sheets-Sheet 1

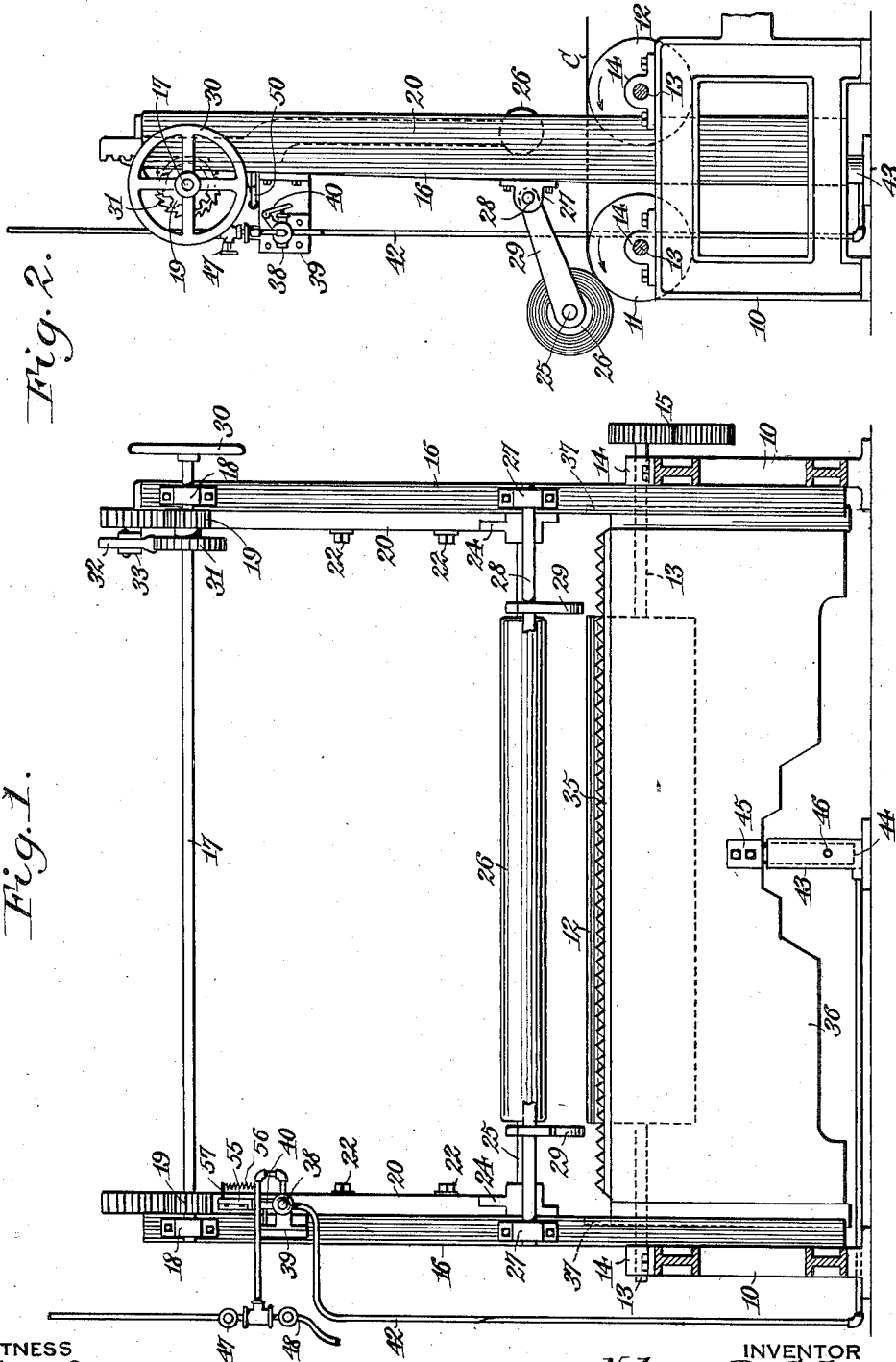


Fig. 2.

Fig. 1.

WITNESS
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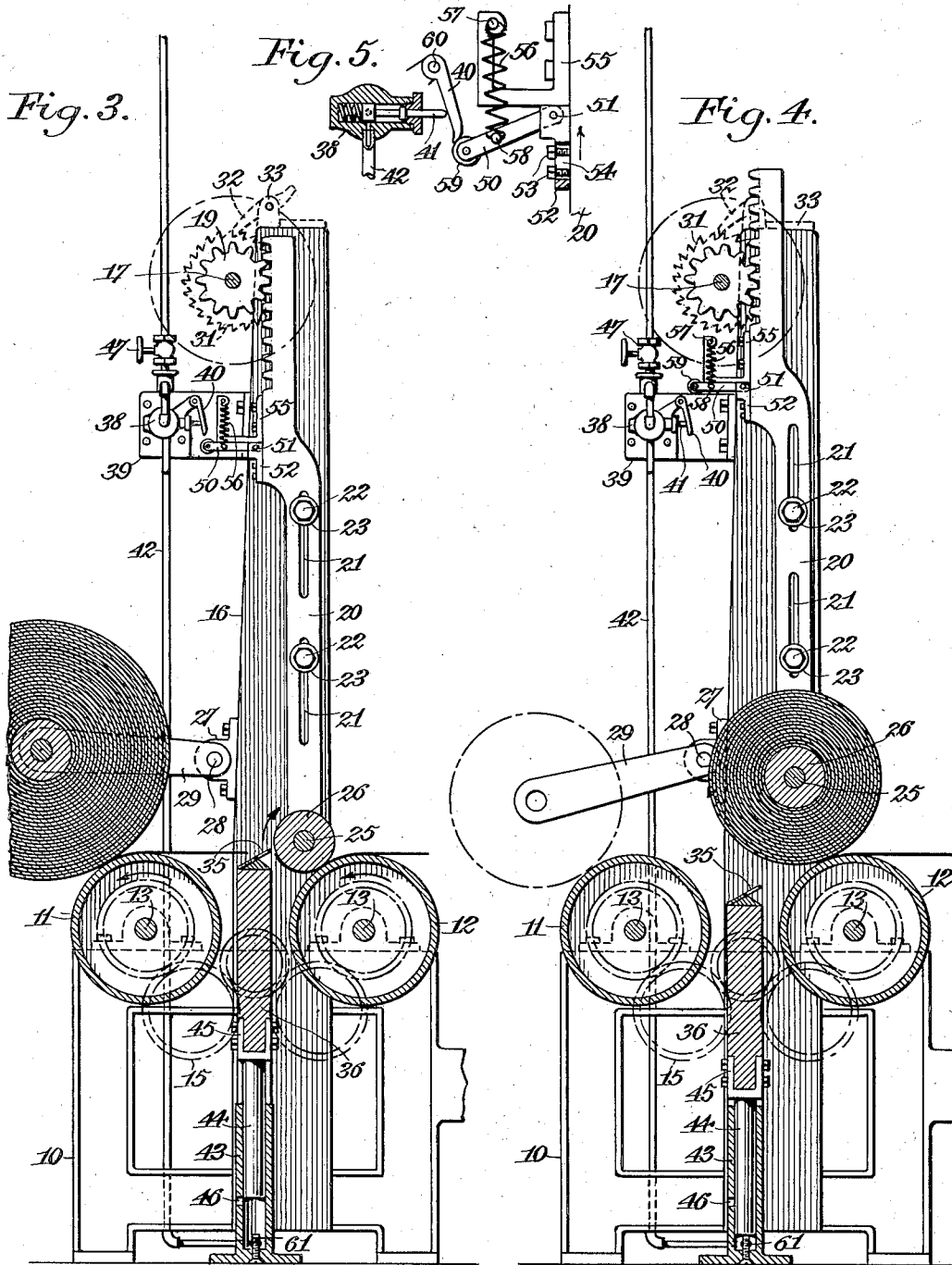
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UNITED STATES PATENT OFFICE

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AUTOMATIC CUT-OFF FOR CLOTH
BATCHERS

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10 Claims. (Cl. 242—65)

This invention relates to improvements in cloth batchers, and has especial reference to a cloth cut-off for cloth batchers of that type which batches or rolls desired quantities of cloth on rolls or shells.

The principal object of the invention is the provision of improvements of the indicated character, whereby as cloth is being batched or rolled, the strand is cut completely across as a new roll or shell is brought into position to receive a loose end of the strand, to continue the rolling or winding of the cloth on the new roll or shell, and thus expeditiously performs the work of batching the cloth.

The invention resides in the combinations, operation and construction of parts as hereinafter described and claimed, and as illustrated in the embodiment thereof, by way of example, in the accompanying drawings, in which—

Figure 1 is a front view and part section of a cloth batcher embodying the invention;

Figure 2 is a side view of the batcher showing cloth being wound on the roll or shell by the front drum, while a new roll or shell is held elevated preparatory to having wound thereon a predetermined quantity of cloth by the back drum;

Figure 3 is an enlarged central vertical section of the batcher showing the manner in which the strand of cloth is cut as the new roll or shell is brought down into position for the application thereto of the leading loose end of the strand so that the cloth will be wound on said roll or shell by the back drum, while the old roll or shell with the desired quantity of cloth rolled or wound thereon is subsequently removed;

Figure 4 is a view similar to Figure 3, but showing the cloth being wound on the new roll or shell by the back drum;

Figure 5 is a sectional view of the fluid pressure valve, its lever, and the trigger mechanism for operating the same.

The batcher includes spaced stationary side frames 10. Front and back drums 11 and 12, respectively, are arranged between the frames 10 in spaced relation to each other. Each drum is rotatable with a shaft 13 whose opposite ends are journaled respectively in bearings 14 secured to the frames 10 on the top thereof. The shafts 13 are geared to each other by suitable gearing 15, whereby the drums 11 and 12 will rotate at the same speed and in the same direction as indicated in Figures 2 and 3. Each of the frames 10 has a standard 16 secured thereto on the inside thereof. A transversely extending shaft 17 is rotatably supported by bearings 18 secured to

the upper ends of the standards 16. Gears 19 are fast on the shaft 17 in proximity to the standards 16 respectively. Each gear 19 meshes with the teeth of a rack 20 connected with the related standard 16 for up and down movement. This is accomplished by providing slots 21 longitudinally of the rack, and studs 22 secured to the standard 16 and disposed respectively in the slots 21. Washers 23 are provided to facilitate the movement of the rack. The lower ends of the racks 20 have bearing means 24 in axial alinement. The means 24 receive the opposite ends respectively of a shaft 25 of a roll or shell 26 on which the cloth is wound by the back drum 12. The standards 16 have secured thereto bearings 27 in axial alinement which receive the opposite ends of a shaft 28. The shaft 28 has arms 29 secured thereto in spaced relation to each other to accommodate the shaft 25 of a roll or shell 26 so that the cloth may be wound thereon by the drum 11. A hand wheel 30 is secured to one end of the shaft 17. A ratchet wheel 31 is secured to the shaft 17 on the end thereof having the hand wheel 30. A gravity pawl 32 is mounted on a bracket 33 secured to the top of a standard 16 adjacent the ratchet wheel 31. The pawl 32 cooperates with the teeth of the wheel 31 to hold the racks 20 from moving downwardly until released. By rotating the hand wheel 31 counter-clockwise as viewed in Figure 2 the racks 20 and the roll or shell 26 carried thereby will be elevated, through the intervention of the shaft 17 and gears 19.

In order to cut the strand of the cloth completely across the same as the hand wheel 30 is operated to lower the racks 20 and a new roll or shell carried thereby, there is provided a mechanism as follows.

A batcher knife or cutter 35 is secured to the top of a frame or stock 36. The frame 36 extends transversely between the lower ends of the standards 16, and the opposite ends of said frame are received respectively in vertical grooves 37 in the standards 16 to guide the frame and its cutter 35 for vertical or up and down movement between the drums 11 and 12.

The cutter 35 extends approximately the entire length of the frame 36, and said cutter is preferably of the serrated type, as shown most clearly in Figure 1. The points of the cutter 35 project obliquely and rearwardly, as shown most clearly in Figures 3 and 4. A self-closing valve 38 is fixedly secured to a bracket 39 bolted to one of the standards 16, preferably the one at the left. A lever 40 is mounted on the bracket

39 to act on the stem 41 of the valve 38. The valve 38 is connected with a compressed air supply pipe 42 which is connected with the lower end of a cylinder 43 secured in fixed position with respect to the frame 36, the latter being cut out to receive the cylinder 43 in upright position. A piston 44 is movable in the cylinder 43 and its upper end is secured to the frame 36 centrally thereof as at 45. The cylinder 43 has an exhaust opening 46 to release air from the cylinder when the lower end of the piston 44 clears the opening 46 in moving upwardly. The pipe 42 includes a stop valve 47, and also a blow-off connection and valve 48. A trigger 50 has one end thereof pivotally connected as at 51 with a bracket 52 adjustably secured to the rack 20 adjacent the lever 40 by studs 53 carried by the rack, and which are disposed in a slot 54 in the bracket 52. Another bracket 55 of U-shape is secured to the last mentioned rack 20 directly above the bracket 52. A coil tension spring 56 has its upper end connected with a laterally extending pin 57 on the bracket 55 and its opposite end connected with a laterally extending pin 58 on the trigger 50 between its ends. The free end of the trigger 50 has an anti-friction roller 59 which acts on the lever 40. The fulcrum 60 of the lever is above the valve 38. The spring 56 holds the trigger 50 in a horizontal position at all times when not in operation. The trigger 50 is limited in its movement upwardly to a horizontal position by engaging the bracket 55. The bracket 52 may be adjusted to obtain any desired operative disposition of the trigger 50 so as to cooperate properly with the lever 40 and in absolute conjunction with the racks 20 which carry the roll or shell rotated by the back drum 12.

The operation of the mechanism is as follows. When the desired quantity of cloth has been batched or wound on the roll or shell 26 supported by the arms 29, and the operator is ready to cut the strand of cloth and start a new roll or shell, the hand wheel 30 is turned sufficiently to release the pawl 32. This will permit the racks 20 to drop downwardly carrying the new roll or shell 26 into position in contact with the strand of moving cloth pressing the same in contact with the back drum 12, as shown in Figure 3. The gears 19 will remain in mesh with the teeth of the racks 20, so that they will move upwardly during the batching of the cloth on the new roll or shell, as shown in Figure 4. When the racks 20 move downwardly, the one carrying the trigger causes the latter to slide against the lever 40, which in turn presses on the valve stem 41 causing the valve to open. This admits air under pressure into the lower end of the cylinder 43, causing the piston 44 to move upwardly thereby forcing the frame 36 and its knife or cutter 35 upwardly until the knife or cutter engages the strands of cloth as it is moving forwardly, and cuts the strand completely across, as indicated in Figure 3. Previously to this cutting operation, the new roll or shell carried by the racks 20 is wetted or pasted, and as soon as the strand of cloth is cut, the leading loose end is caused to adhere to the roll or shell and starts batching under the rotation of the back drum 12, as shown in Figure 4. When the knife or cutter 35 has reached its maximum up position, the piston 44 has traveled past the exhaust opening 46 in the cylinder 43, and the air is instantly released to the atmosphere, thereby permitting the piston 44 and frame 36 to drop to the original down position, as shown in Figure 4. The downward

movement of the piston 44 is limited by a stop 61.

As the cloth is wound on the new roll carried by the racks 20, the racks are moved upwardly, and the pawl 32 in cooperation with the ratchet wheel 31 prevents downward movement of the racks 20 until released. After the desired amount of cloth is wound on the new roll or shell, it is transferred to the arm 29 so that the winding of cloth may be continued until the desired amount has been wound on the roll. The operator may then cut the strand of cloth and start a new roll or shell in the manner and by the means hereinbefore described.

When the roll of cloth is removed from the bearing means 24 at the lower ends of the racks 20 and is arranged on the arms 29 and a new roll or shell is inserted to be carried by the means 24, the racks 20 will have been raised to a high clear position, as shown in Figure 2. The pawl 32 in engagement with the ratchet wheel 31 retains the new roll or shell 26 up in its elevated position.

When the racks 20 and the roll or shell 26 carried thereby are lowered, the trigger 50 operates the lever 40 to open the valve 38, to cause the strand of cloth to be cut, and said trigger 50 travels down past the lower end of the lever 40, as shown in Figure 3. When the racks 20 move upwardly as the cloth is being wound on the roll or shell 26 carried by the racks, the trigger 50 encounters the lower end of the lever 40 which causes the spring 56 to stretch as the trigger swings downwardly on its pivot until it passes the lever 40 without causing the closing of the valve 38. As soon as the trigger 50 has passed the lever, the spring 56 immediately snaps the trigger back into engagement with the bracket 55 disposed horizontally ready for the next cycle of operation.

I claim:

1. A cut-off for cloth batchers comprising the combination of a rack having up and down movement, a new shell rotatably mounted on the lower end of the rack, said shell having an adhesive substance on the cylindrical surface thereof, an old shell on which the cloth is being wound, said cloth being fed horizontally to said old shell, a cutter blade disposed transversely of the horizontal strand of the cloth, said blade being mounted for up and down movement, means operated by the rack in the down movement of the latter to cause the blade to move upwardly and cut completely across said strand, and a roller against the cylindrical surface of which the approaching cut end of the strand is pressed by the new shell, as the rack moves downwardly, to thereby cause said end to adhere to said new shell, to cause the winding of the cloth on the new shell.

2. A cloth batcher including the combination of a traveler, a shell rotatably mounted on said traveler, said shell having an adhesive substance on its cylindrical surface, a shell rotatably mounted in spaced relation to the first shell and on which the desired batch of cloth is to be wound, means operated by the traveler to cut through the strand of cloth as it is fed to the second shell, and means cooperating with the first shell to cause the cut end of the strand approaching the same to adhere to the cylindrical surface, to thereby enable the cloth to be wound on the first shell.

3. A cloth batcher including the combination of a traveler, a shell rotatably mounted on said traveler, said shell having an adhesive substance

on its cylindrical surface, a shell rotatably mounted in spaced relation to the first shell and on which the desired batch of cloth is to be wound, means operated by the traveler to cut through the strand of cloth as it is fed to the second shell, and a rotatable drum cooperating with the first shell to cause the cut end of the strand approaching the same to adhere to the cylindrical surface, to thereby enable the cloth to be wound on the first shell.

4. A cloth batcher including the combination of power driven rotatable drums arranged in spaced relation to each other which engage a strand of cloth, a knife extending transversely of said strand and movable up and down, pneumatic means connected with said knife to operate it to sever said strand, a valve to control the operation of said pneumatic means, and means carried by a movable part of the batcher to operate said valve.

5. In cloth cutting apparatus, the combination of a reciprocal traveler, a self-closing fluid pressure control valve, a lever operable to open the valve to allow the flow of motive fluid, a pivoted trigger on the traveler in the path of the lever, a bracket on the traveler, a coil spring having its opposite ends connected with the trigger and bracket respectively, said trigger operating the lever, and said spring being stretched as the trigger engages the lever when the traveler is moved in the opposite direction, so as not to open said valve.

6. In a cloth batcher, the combination of movable racks, means carried by said racks on which cloth may be batched, cloth cutting mechanism, said mechanism including a movable knife extending transversely of a strand of the cloth to cut transversely through it, control means to operate the mechanism to control the movement of the knife, and means mounted on the racks to operate the control means.

7. The combination with a cloth batching machine including a cloth shell carriage having up and down movement; of a cloth cutting knife, and means operated by the carriage in its down movement to move the knife so as to cut the strand of the cloth fed across the knife.

8. The combination with a cloth batching machine including a cloth shell carriage having up and down movement; of a cloth cutting knife, and means operated by the carriage in its down movement to move the knife so as to cut the strand of the cloth fed across the knife, said means including a self-closing valve, a lever operable to open the valve, and a device on the carriage to operate the lever in its down movement and which passes the lever without operating it in the up movement of the carriage.

9. In cloth cutting apparatus, the combination of a traveler having up and down movement, a self-closing fluid pressure control valve, a lever operable to open the valve, a trigger on the traveler adapted to operate the lever in the down movement of the traveler, but which does not operate the lever in the up movement of the traveler, a cloth cutter, and fluid pressure operable means connected with the valve to operate the cutter in response to the opening of the valve.

10. In cloth cutting apparatus, the combination of fluid pressure operated means including a piston and a self-closing valve for controlling the operation of the piston; a cloth cutter connected with and operated by said piston, a lever whose fulcrum is above the valve and which is operable to open the valve, a slidable element, and a device carried by said element to operate the lever to open the valve to operate the piston as said element moves in one direction, and which operates without operating the lever as said element moves in the opposite direction.

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