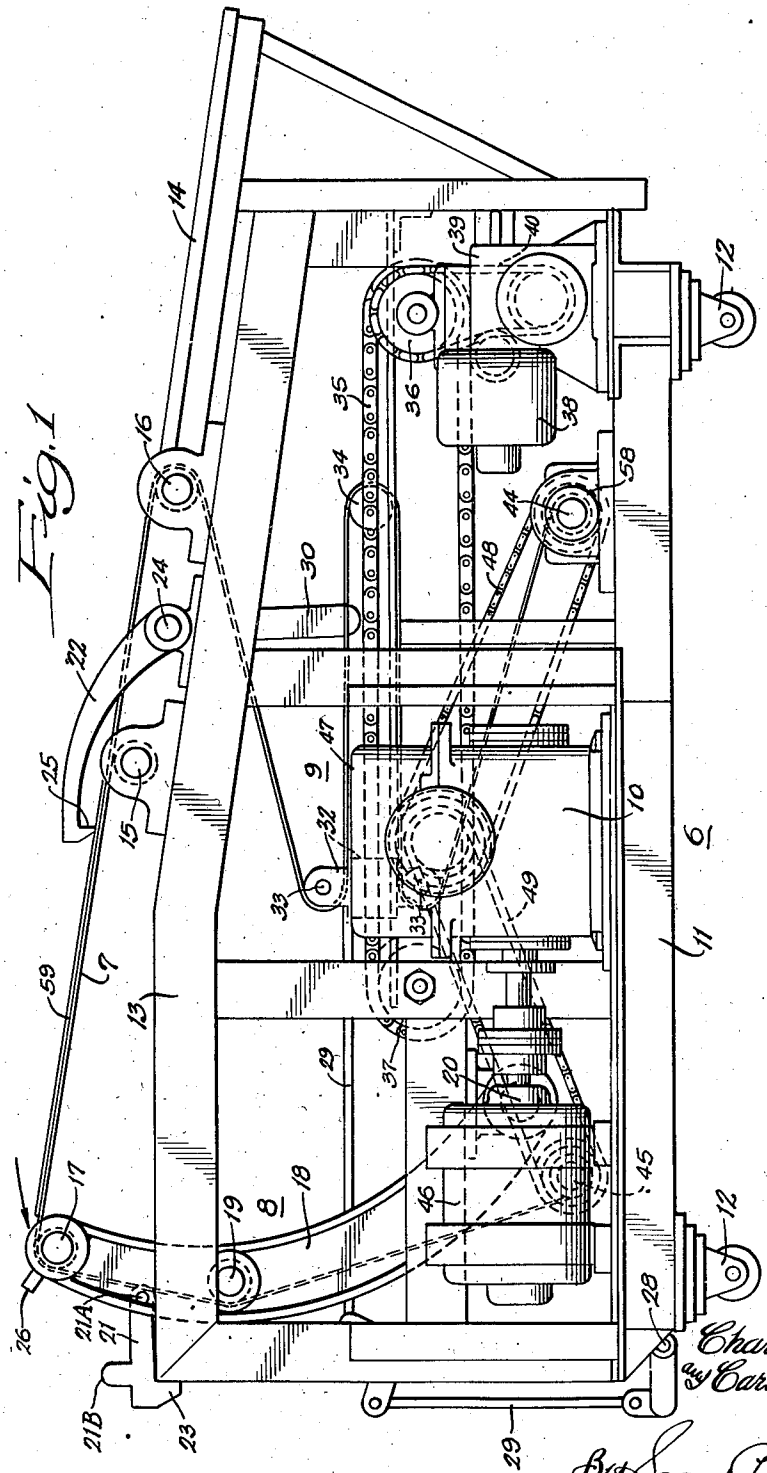
Oct. 16, 1945. C. A. FOURNESS ET AL 2,386,943

WADDING ROLL TIGHTENER

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Fig. 1



Inventors:
Charles Albert Fourness
and Carl Herman Reichel.

By Isaacs, Pond & Henderson
Attorneys.

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WADDING ROLL TIGHTENER

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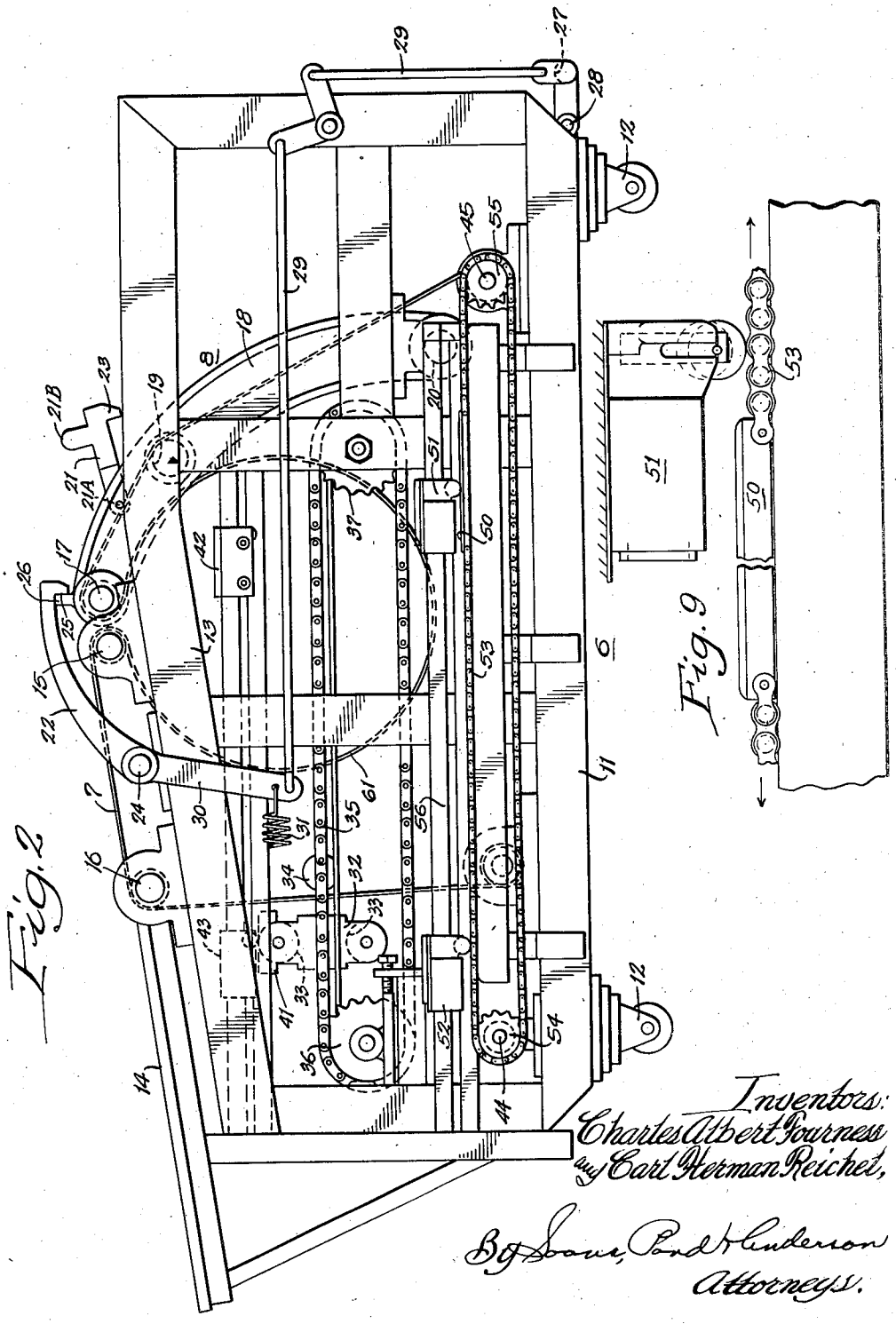


Fig. 2

Fig. 9

Inventors:
Charles Albert Fourness
and Carl Herman Reichel,
By Sears, Pond & Anderson
Attorneys.

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WADDING ROLL TIGHTENER

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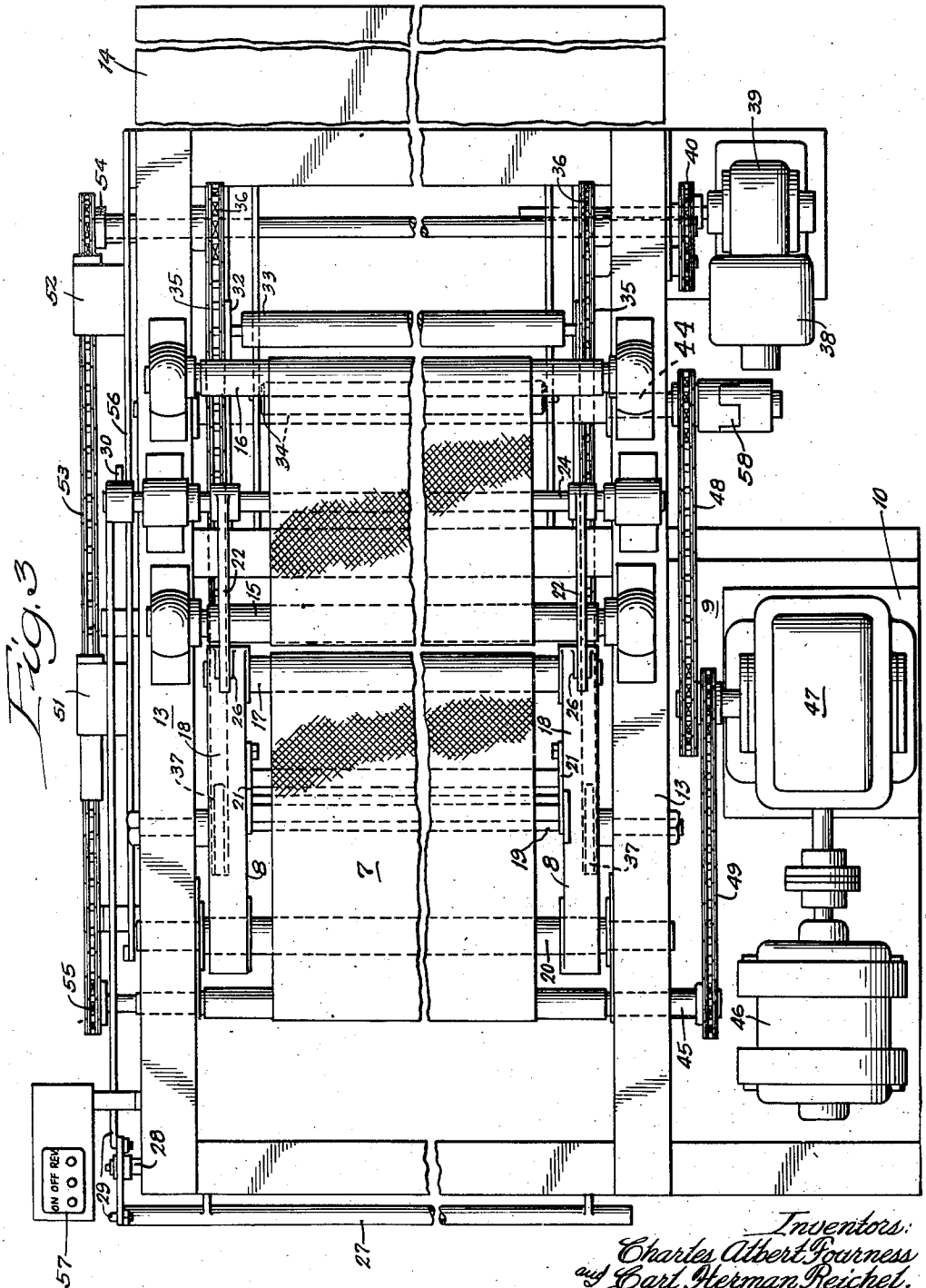


Fig. 3

Inventors:
Charles Albert Fournes
and Carl Herman Reichel,
By Dawes, Pond & Anderson
Attorneys.

Oct. 16, 1945. C. A. FOURNESS ET AL 2,386,943

WADDING ROLL TIGHTENER

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Fig. 4

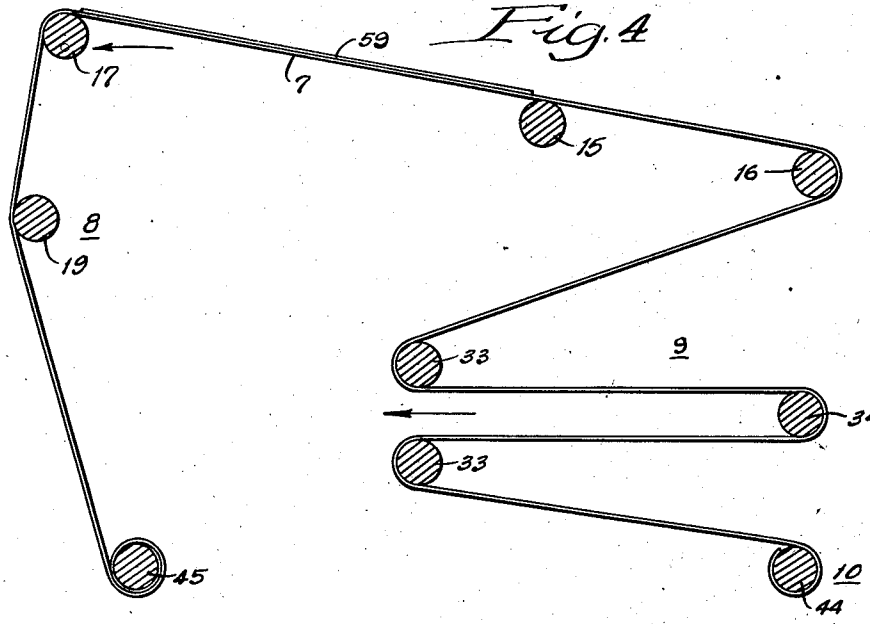
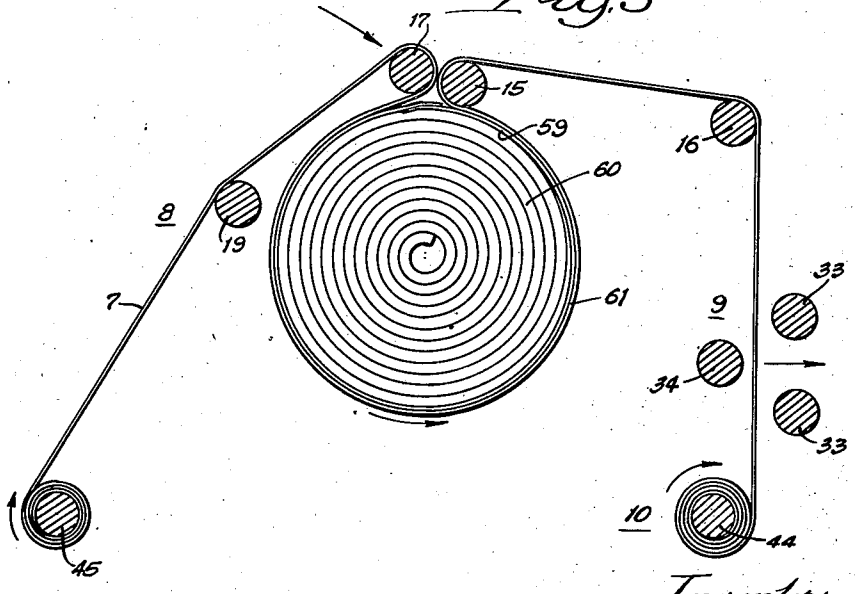


Fig. 5



Inventors:
Charles Albert Fourness
and Earl Herman Reichel,
By Lacey, Pond & Anderson
Attorneys.

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WADDING ROLL TIGHTENER

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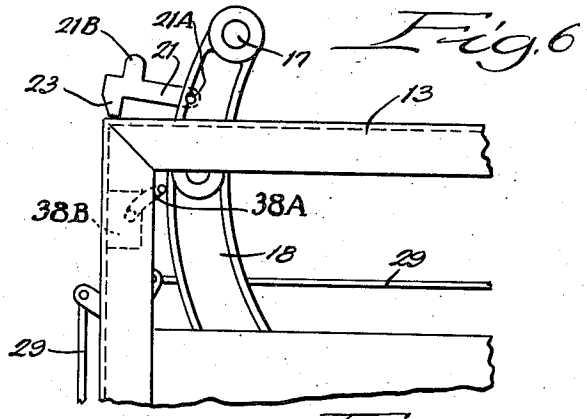


Fig. 6

Fig. 7

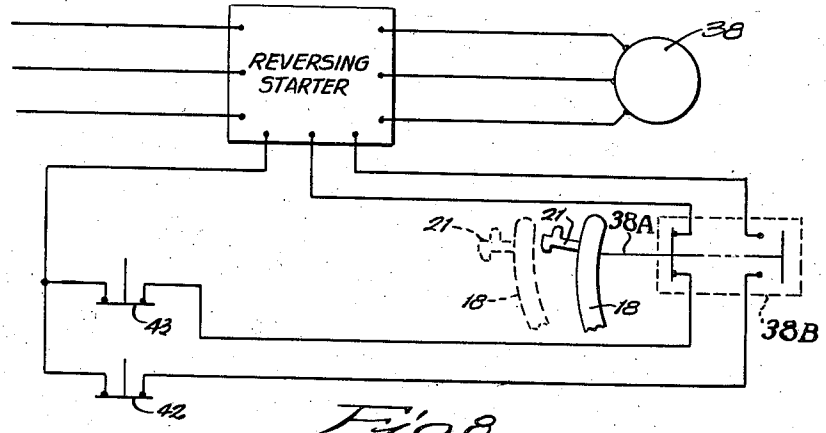
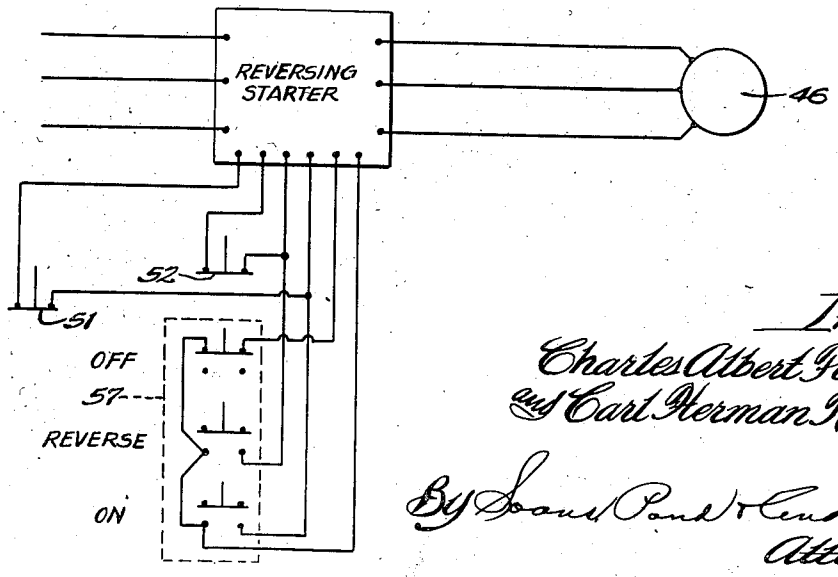


Fig. 8



Inventors:
Charles Albert Fourness
and Carl Herman Reichel,

By Lowe Pond & Anderson
Attorneys.

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UNITED STATES PATENT OFFICE

2,386,943

WADDING ROLL TIGHTENER

Charles Albert Fourness, Appleton, and Carl Herman Reichel, Neenah, Wis., assignors to Paper Patents Company, Neenah, Wis., a corporation of Wisconsin

Application July 21, 1943, Serial No. 495,558

14 Claims. (Cl. 100—1)

This invention relates to machines for tightening and wrapping rolls or bats of wadding of one kind or another. It is suitable for use with rolls or bats developed from any type of celllulose and that have been rolled either by hand or by machine. It is especially adapted for tightening and wrapping hand-rolled bats of wadding formed in accordance with the apparatus shown and described in United States Patent No. 2,303,087 issued to Richard K. Neller November 24, 1942.

The main objects of this invention are to provide a bat-tightening and -wrapping machine of a bat of wadding adapted to draw up the spiral convolutions and simultaneously apply and seal a wrapper and subsequently discharge the wrapped bat onto a receiving platform; to provide an improved machine of this kind wherein a taut span of a conveyor belt, upon receiving a bat and wrapper, is relaxed and lengthened to form a suspended bat-embracing loop; to provide improved means for effecting the linear movement of said belt so that the spiraled form of said bat is tightened and the wrapper is simultaneously applied and sealed; to provide improved means for shifting the belt transversely of its linear movement for accelerating the alternation of said belt between its taut and looped contour; to provide an improved arrangement of electrically-controlled, motor-driven mechanisms for effecting the several movements of the belt; and to provide an improved machine of this kind which is reasonably simple in construction, exceptionally compact in its arrangement, positively effective in its operation, and portably mountable so as to facilitate movement from place to place to permit its most convenient use.

In the particular embodiment of the bat-tightening and -wrapping machine, herein shown:

Fig. 1 is a side elevation showing the parts in position preparatory to receiving a roll or bat of wadding to be tightened and wrapped;

Fig. 2 is a side elevation taken from the opposite side of the machine, showing the parts in the position which they occupy when the bat is in the process of being tightened and wrapped;

Fig. 3 is a plan view of the machine with the parts in the position shown in Fig. 2;

Fig. 4 is a diagrammatic view of the conveyor belt when its associated parts are in the position shown in Fig. 1;

Fig. 5 is a diagrammatic view of the conveyor belt when its associated parts are in the position shown in Fig. 2;

Fig. 6 is a fragmentary view of the rocker arm and frame showing the position of the switch which controls the operation of the belt-extending and -retracting mechanism;

Fig. 7 is a diagrammatic view of the electrical circuit for the belt-extending and -retracting mechanism;

Fig. 8 is a diagrammatic view of the electrical circuit for the belt-winding mechanism;

Fig. 9 is a detail view of the switch required for controlling the operation of the belt-tightening mechanism.

The structure herein embodying this invention comprises a mounting 6 whereupon are arranged the several coordinated, motor-driven mechanisms which actuate a conveyor belt 7. For the purpose of receiving a roll or bat of wadding to be tightened and wrapped and then discharged onto a receiving platform these mechanisms include a belt-shifting mechanism 8, a belt-extending and -retracting mechanism 9, and a belt-winding mechanism 10.

The mounting 6 includes a base member 11 mounted on casters 12, whereby the machine may be shifted about from place to place, and a pair of frame uprights 13 secured along the lateral edges of said base member 11 and providing support for the various parts of the machine. As will be noted, the upper longitudinal parts of these frame members 13 are inclined to the horizontal for the greater portion of their length. This is to more readily provide for an inclined disposition of the upper span of the conveyor belt 7. A platform 14 is secured to the upper rear ends of the frame member 13 and inclined to lie in the plane of the upper span of the belt 7 so as to receive the wrapped rolls when discharged from the belt conveyor 7.

The conveyor belt 7 may be of any suitable construction. The width and length thereof will depend, first, upon the size of rolls or bats of wadding that are to be handled and secondly, upon the consequent arrangement of the mechanisms for shifting, extending and retracting, and winding the belt, as will hereinafter be described. As clearly shown in the figures, this belt extends around and over a series of rollers so that the contour of the belt intermediate the pair of fixed supporting rollers 15 and 16 and the movable supporting roller 17 may be alternated between a taut span, as shown in Figs. 1 and 4, and a suspended loop or "sling" 61, as shown in Figs. 2 and 5. The pair of fixed rollers

15 and 16 are mounted in spaced relationship on the inclined sections of the frame members 13. The roller 15 is attached near the middle of the uprights and the roller 16 is attached about half way between the roller 15 and the rear end of the frame.

The belt-shifting mechanism 8 comprises a pair of rocker arms 18 which carry between them the movable supporting roller 17 and an auxiliary roller 19. The arms are pivoted at 20 between the uprights 13 near the base 11 whereby the roller 17 may be moved toward and away from the roller 15 for alternating the contour of the belt intermediate the two rollers as already has been pointed out. Two pairs of latches 21 and 22 serve to retain the rocker arms 18 in the opposite limits of their movement. The pair of latches 21 are pivoted at 21A to the rocker arms 18 and connected together by a cross bar 21B. The shoulders 23 engage the edge of the uprights 13 and retain the rocker arms in their retracted position for holding the belt taut intermediate the rollers 15 and 17. The latches 22 are pivoted at 24 on the uprights 13 so that the shoulders 25 will engage coacting shoulders 26 on the upper ends of the rocker arms 18, when the rocker arms are shifted to bring the roller 17 into associated relationship with the roller 15 and thereby permit the belt to be formed into a suspended loop or "sling" 61.

A releasing mechanism for the latches 22 comprises a foot treadle 27 pivoted at 28 on the forward end of the base member 11 and connected by suitable link mechanism 29 to arms 30 (see Figs. 1 and 2) rigid with the latches 22. This releasing mechanism acts against a spring 31 (see Fig. 2) which normally urges the latches 22 into position for engagement with the shoulders 26 on the rocker arms 18.

The belt-extending and -retracting mechanism 9, which might also be called a belt tightening and releasing mechanism, comprises a carriage 32 mounted for reciprocal movement on the uprights 13 whereby a pair of rollers 33 are adapted to extend the conveyor belt 7 around the roller 34 as shown in Figs. 1 and 4 or to permit said belt to be retracted as shown in Figs. 2 and 5. The carriage 32 is connected to a link belt 35 traveling around the sprockets 36 and 37. Suitable supporting guide means are arranged under a link belt 35 to ensure positive action of the hereinafter-mentioned stop 41 when the belt is not taut.

The roller 34 is fixed on the frame members 13 directly below the supporting roller 16 inwardly of a line between the roller 16 and the adjacent roller of the winding mechanism 10. The pair of rollers 33 are spaced apart vertically a distance slightly greater than the diameter of the roller 34. When the carriage 32 is at the extreme right end movement of its travel, the rollers 33 are retired from contact with the conveyor belt on the side opposite the roller 34.

An electric motor 38 provides the drive for a link belt 35. This motor is mounted at the rear of the base member 11 outside the frame upright 13. It is connected to the sprocket 36 through a suitable reducing gear 39 and link belt 40. The starting and stopping of the motor 38 is controlled by a switch arm 38A which controls a switch 38B (see Figs. 6 and 7).

Control of the carriage 32 in either direction is effected by a stop 41 which contacts either one of the limit switches 42 and 43 (see Fig. 2). When thus engaged by the shoulder 41 these switches operate to cut off the motor 38 as indicated in the diagram Fig. 7. The switches 42 and 43 are adjustable along the frame so as to vary the extent of travel of the carriage 32 as circumstances may require.

The belt-winding mechanism 10 comprises a pair of rollers 44 and 45 which are connected to the respective ends of the conveyor belt and operated by a motor drive 46.

As clearly shown in the drawings, the winding roller 44 is mounted near the rear end of the base member 11 below the supporting roller 16, whereas the roller 45 is mounted near the forward end of the base member below and adjacent to the pivotal connection 20 of the rocker arms 18. The motor 46 is mounted at the forward end of the base member 11 outside the frame upright 13. It is connected to the rollers 44 and 45 through a worm drive 47 and link belt and sprocket mechanism 48 and 49 respectively. The ratio for the sprocket mechanisms 48 and 49 is such that the rate of winding of the belt onto the roller 44 is 1.6 times the unwinding of the belt from the roller 45, the purpose of which is to effect a rotation of the roll of wadding held in the suspended loop or "sling" 61.

Control mechanism for limiting each winding operation of the winding mechanism comprises a stop 50 (Fig. 2 and Fig. 9) arranged for engagement with limit switches 51 and 52 which are connected to control the circuit of the motor 46. The stop 50 is a specially formed link in the link belt 53 operating over the sprockets 54 and 55 respectively connected to the rollers 44 and 45. Suitable supporting guide means are arranged under the link belt 53 to ensure positive action of the stop 50 when the belt is not taut. The switches 51 and 52 are adjustably supported on a rod 56 so that the amount of winding of the belt onto the roll 44 may be varied depending upon the requirements of the machine in connection with varying sizes of rolls.

The required manual control for the machine is provided by means of a switch panel 57 (see Fig. 3) mounted at one side of the machine near the front. As indicated, this has three buttons, one for throwing on the current, another for cutting it off, and a third for reversing the operation of the machine.

The winding roller 44 is provided with a coupling 58 whereby the roller may be disconnected from its link belt and sprocket drive 48 to permit more or less of the belt to be initially wound onto the roller 44. This provides for adjusting the belt to handle rolls or wads of varying diameters.

The operation of the machine is as follows:

With the parts shown in their respective positions as indicated in Figs. 1 and 4, the machine is ready to receive a roll or bat of wadding to be tightened and wrapped and then discharged to the delivery table 14, where it may be labeled preparatory for shipment or storage. In preparation for receiving such a roll a wrapper 59 is laid on the belt intermediate the rollers 15 and 17, as shown in Figs. 1 and 4. The roll or bat 60 (see Fig. 5) is placed upon the belt whereupon has been laid the wrapper 59. The operator releases the latches 21, through the medium of the cross bar 21B; which automatically release the switch arm 38A to start the motor 38. The latches 21 being retracted, the operator pushes the rocker arms 18 rearwardly toward the supporting roller 15. Obviously, this relaxation of the conveyor belt causes the span between rollers 15 and 17 to sag so as to initiate the formation of a loop or "sling" 61 for the roll or bat 60.

When the rocker arms 18 reach the limit of movement toward the roller 15, the latches 22 operate to engage the shoulders 25 and 26 whereupon the rocker arms 18 are retained in their shifted position with the roller 17 adjacent to the roller 15.

Meanwhile, the motor 38 has been retracting the carriage 32 so as to effect lengthening the belt between the rollers 15 and 17 and thus insure the formation of the loop 61 sufficiently large to receive the bat or roll 60. The motor continues this retraction of the carriage 32 until the shoulder 41 contacts the switch 43 whereupon the current is cut off from the motor 38 and the conveyor belt is entirely free from the rollers 33 and 34. (See Fig. 5.)

The operator thereupon puts the motor 46 into operation which causes the rollers 44 and 45 to be positively driven, the former somewhat faster than the latter. Obviously, this produces a linear movement of the belt and at the same time causes a reduction in the size of the loop or "sling" 61. This combined linear movement of the belt and the reducing of the size of the loop 61 effects a rotation of the roll or bat 60 so that the spiral is gradually tightened and more firmly compressed. Such movement of the winding mechanism continues until the shoulder 50 engages the switch 51 whereupon the current is automatically cut off from the motor 46 and the movement of the belt ceases.

Two methods may be used for sealing the wrapper 59 around the roll 60. One method would be to apply a quick-drying glue to the top edge of the wrapper—the one nearest the operator. The other method is to apply a strip of gummed tape after a slight initial tightening when the loose end of the wrapper is still exposed between the rollers 15 and 17. When the tightening operation is completed the operator pushes the "reverse" button on the switch panel 57. This causes the motor 46 to rewind the belt 7 onto the roller 45, which is completed when the shoulder 50 engages the switch 52 and cuts off current to the motor 46. The wrapped roll 60 is loosely held in the slackened loop 61 ready to be discharged onto the receiving platform 14. This is effected by the operator stepping on the treadle 27, the movement of which is carried through the link mechanism 29 and arm 30 to retract the latches 22 to disengage the shoulders 25 and 26. The operator may then retract the rocker arms 18. When the rocker arms 18 reach the limit of their retracted movement a switch arm 38A is shifted which starts the motor 38 in reverse from that caused by the lifting of the latches 21. The consequent inward movement of the carriage 32 brings the rollers 33 into contact with the belt 7 and extends it around and beyond the roller 34 as shown in Figs. 1 and 4. This movement of the carriage 32 continues until the stop 41 engages the switch 42 which cuts off the motor 38. However, by the time the shoulder 41 has reached the switch 42, the conveyor belt intermediate the rollers 15 and 17 has been restored to the taut position shown in Figs. 1 and 4. Obviously, this has caused an elevation of the wrapped roll of wadding 60 so that as soon as the belt approaches its taut position the roll of wadding will roll down onto the platform 14 to be labeled for storage or shipment.

Various devices may be constructed in accordance with the principles disclosed in the foregoing. Accordingly, it is our desire that the accompanying claims shall be given the broadest reasonable construction consistent with the language appearing therein and the prior art.

We claim:

1. In a machine of the class described the combination of a belt, a pair of supporting rollers relatively movable toward and away from each other for alternating the contour of said belt intermediate said rollers between a suspended loop and a taut span, means coordinately operable with the relative movement of said supporting rollers for shifting said belt so as to accelerate alternating the contour of said belt intermediate said rollers, a pair of winding rollers connected to the respective ends of said belt, and means positively actuating said winding rollers for effecting the linear movement of said belt.

2. In a machine of the class described the combination of a belt, a pair of supporting rollers relatively movable toward and away from each other for alternating the contour of said belt intermediate said rollers between a suspended loop and a taut span, means coordinately operable with the relative movement of said supporting rollers for shifting said belt so as to accelerate alternating the contour of said belt intermediate said rollers, a pair of winding rollers connected to the respective ends of said belt, means positively actuating said winding rollers at differing speeds for effecting the linear movement of said belt and synchronizing the effectual rotation and gradual lessening size of said suspended loop.

3. In a machine of the class described the combination of a belt, a pair of supporting rollers relatively movable toward and away from each other for alternating the contour of said belt intermediate said rollers between a suspended loop and a taut span, winding means remote from said supporting rollers and operable for effecting the linear movement of said belt, and means movable transversely of the span of said belt intermediate said winding means and said supporting rollers for extending and retracting said belt span to accelerate alternating the contour of said belt intermediate said supporting rollers.

4. In a machine of the class described, the combination of a belt, a pair of supporting rollers relatively movable toward and away from each other for alternating the contour of said belt intermediate said rollers between a suspended loop and a taut span, a pair of winding rollers connected to the respective ends of said belt and operable at differing speeds for effecting the linear movement of said belt and synchronizing the effectual rotation and gradual lessening size of said suspended loop, and means movable transversely the span of said belt intermediate one of said winding rollers and the adjacent supporting roller for extending and retracting said belt span to accelerate alternating the contour of said belt intermediate said supporting rollers.

5. In a machine of the class described, the combination of a belt, a pair of fixed supporting rollers horizontally spaced, a third supporting roller movable toward and away from the nearest of said fixed rollers for alternating the contour of the belt intermediate said fixed and movable rollers between a suspended loop and a taut span, winding means operable for effecting the linear movement of said belt, a stationary roller located inwardly of the span of said belt intermediate said winding means and the adjacent fixed supporting roller, a pair of rollers spaced on opposite sides of said stationary roller and positioned for contact with the outer face of said belt span on the side opposite said stationary roller, and means

for horizontally reciprocating said last mentioned pair of rollers coordinately with the shifting of said supporting roller so as to advance and retract said belt around said stationary roller and accelerate alternating the contour of said belt intermediate said fixed and movable supporting rollers.

6. In a machine of the class described, the combination of a belt, a pair of fixed supporting rollers horizontally spaced, a third supporting roller movable toward and away from the nearest of said fixed rollers for alternating the contour of the belt intermediate said fixed and movable rollers between a suspended loop and a taut span, a pair of rollers connected to the respective ends of said belt for effecting the linear movement thereof, said rollers being operable at differing speeds for synchronizing the effectual rotation and gradual lessening size of said suspended loop, a stationary roller located inwardly of the span of belt intermediate one of said winding rollers and the adjacent fixed supporting roller, a pair of rollers spaced on opposite sides of said stationary roller and positioned for contact with the outer face of said belt span on the side opposite said stationary roller, and means for horizontally reciprocating said last mentioned pair of rollers coordinately with the shifting of said supporting roller so as to advance and retract said belt around said stationary roller and accelerate alternating the contour of said belt intermediate said fixed and movable supporting rollers.

7. In a machine of the class described, the combination of a supporting frame, a belt, a pair of fixed supporting rollers horizontally spaced on said frame, a reciprocating arm, a roller mounted on said arm and movable thereby toward and away from the nearest of said fixed supporting rollers for alternating the contour of the belt intermediate said fixed and movable rollers between a suspended loop and a taut span, motor-driven winding rollers connected to the respective ends of said belt and operable for effecting the linear movement of said belt, and other motor-driven means coordinately operable with the reciprocation of said arm for extending and retracting said belt transversely of its linear movement to accelerate the alternating contour of said belt intermediate said fixed and movable supporting rollers.

8. In a machine of the class described, the combination of a supporting frame, a belt, a pair of fixed supporting rollers horizontally spaced on said frame, a reciprocating arm, a roller mounted on said arm and movable thereby toward and away from the nearest of said fixed supporting rollers for alternating the contour of the belt intermediate said fixed and movable rollers between a suspended loop and a taut span, motor-driven winding rollers connected to the respective ends of said belt operable at varying speeds for effecting the linear movement of said belt for synchronizing the effectual rotation and gradual lessening size of said suspended loop, and other motor-driven means coordinately operable with the reciprocation of said arm for extending and retracting said belt transversely of its linear movement to accelerate the alternating contour of said belt intermediate said fixed and movable supporting rollers.

9. In a machine of the class described, the combination of a supporting frame, a belt, a pair of fixed supporting rollers horizontally spaced on said frame, a reciprocating arm, a roller mounted on said arm and movable thereby toward and away from the nearest of said fixed supporting rollers for alternating the contour of the belt intermediate said fixed and movable rollers between a suspended loop and a taut span, motor-driven winding rollers connected to the respective ends of said belt and operable for effecting the linear movement of said belt, a stationary roller fixed on said frame inwardly of the belt span intermediate one of said winding rollers and the adjacent fixed supporting roller, a carriage reciprocably mounted on said frame, a pair of rollers on said carriage spaced above and below said stationary roller and engageable with the outer face of said belt span, and other motor-driven means for coordinating the reciprocation of said carriage with the reciprocation of said arm to cause said carriage rollers to extend and retract said belt span around said stationary roller so as to accelerate alternating the contour of said belt intermediate said fixed and movable supporting rollers.

10. In a machine of the class described, the combination of a supporting platform, a pair of upright frame members, a pair of horizontally-spaced belt-supporting rollers fixed to span said frame uprights, a pair of rocker arms pivotally mounted between said frame uprights and rigidly connected together by a second pair of vertically-spaced belt-supporting rollers, a pair of belt-winding rollers, a belt extending from one of said winding rollers over said pairs of supporting rollers to the other winding roller whereby the shifting of said rocker arms alternates the contour of said belt intermediate said pairs of said supporting rollers between a suspending loop and a taut span, a belt-straddling roller fixed on said frame inwardly of said belt intermediate one of said winding rollers and the adjacent supporting roller, a pair of belt-shifting rollers spaced on opposite sides of said straddling roller on the opposite side of said belt, and a supporting carriage for said latter pair of rollers reciprocal transversely of said belt for causing said rollers to extend and retract the straddle of said belt on said straddled roller so as to accelerate alternating the contour of said belt intermediate said supporting rollers, and separate motor-driven means for actuating said belt-winding rollers and said carriage.

11. In a machine of the class described, the combination of a supporting platform, a pair of upright frame members, a pair of horizontally-spaced belt-supporting rollers fixed to span said frame uprights, a pair of rocker arms pivotally mounted between said frame uprights and rigidly connected together by a second pair of vertically-spaced belt-supporting rollers, a pair of belt-winding rollers, a belt extending from one of said winding rollers over said pairs of supporting rollers to the other winding roller whereby the shifting of said rocker arms alternates the contour of said belt intermediate said pairs of said supporting rollers between a suspending loop and a taut span, a belt-straddling roller fixed on said frame inwardly of said belt intermediate one of said winding rollers and the adjacent supporting roller, a pair of belt-shifting rollers spaced on opposite sides of said straddling roller on the opposite side of said belt, and a supporting carriage for said latter pair of rollers reciprocal transversely of said belt for causing said rollers to extend and retract the straddle of said belt on said straddled roller so as to accelerate alternating the contour of said belt intermediate said supporting rollers, motor-driven

means for operating said belt-winding rollers at differing speeds for effecting the linear movement of said belt and synchronizing the effectual rotation and gradual lessening size of said suspended loop, and other motor driven means for reciprocating said carriage.

12. In a machine of the class described, the combination of a supporting platform, a pair of upright frame members, a pair of horizontally-spaced belt-supporting rollers fixed to span said frame uprights, a pair of rocker arms pivotally mounted between said frame uprights and rigidly connected together by a second pair of vertically-spaced belt-supporting rollers, a pair of belt-winding rollers, a belt extending from one of said winding rollers over said pairs of supporting rollers to the other winding roller whereby the shifting of said rocker arms alternates the contour of said belt intermediate said pairs of said supporting rollers between a suspending loop and a taut span, a belt-straddling roller fixed on said frame inwardly of said belt intermediate one of said winding rollers and the adjacent supporting roller, a pair of belt-shifting rollers spaced on opposite sides of said straddling roller on the opposite side of said belt, and a supporting carriage for said latter pair of rollers reciprocal transversely of said belt for causing said rollers to extend and retract the straddle of said belt on said straddled roller so as to accelerate alternating the contour of said belt intermediate said supporting rollers, separate motor-driven means for actuating said belt-winding rollers and said carriage, and motor-circuit control-switch mechanism actuated by said motor-driven means for limiting the movement of said belt-winding rollers and said carriage.

13. In a machine of the class described, the combination of a supporting platform, a pair of upright frame members, a pair of horizontally-spaced belt-supporting rollers fixed to span said frame uprights, a pair of rocker arms pivotally mounted between said frame uprights and rigidly connected together by a second pair of vertically-spaced belt-supporting rollers, a pair of belt-winding rollers, a belt extending from one of said winding rollers over said pairs of supporting rollers to the other winding roller whereby the shifting of said rocker arms alternates the contour of said belt intermediate said pairs of said supporting rollers between a suspending loop and a taut span, a belt-straddling roller fixed on said frame inwardly of said belt intermediate one of said winding rollers and the adjacent supporting roller, a pair of belt-shifting rollers spaced on opposite sides of said straddling roller on the opposite side of said belt, and a supporting carriage for said latter pair of rollers reciprocal transversely of said belt for causing said rollers to extend and retract the straddle of said belt on said straddled roller so as to accelerate alternating the contour of said belt intermediate said supporting rollers, motor-driven means for operating said belt-winding rollers at differing speeds for effecting the linear movement of said belt and synchronizing the effectual rotation and gradual lessening size of said suspended loop, other motor driven means for reciprocating said carriage, motor-circuit control-switches mounted on said frame, and means actuated by the motor-driven means for said belt-winding rollers and said carriage and engageable with said switches for limiting the movement of said belt-winding means and said carriage.

14. In a machine of the class described, the combination of a supporting platform, a pair of upright frame members, a pair of horizontally-spaced belt-supporting rollers fixed to span said frame uprights, a pair of rocker arms pivotally mounted between said frame uprights and rigidly connected together by a second pair of vertically-spaced belt-supporting rollers, a pair of belt-winding rollers, a belt extending from one of said winding rollers over said pairs of supporting rollers to the other winding roller whereby the shifting of said rocker arms alternates the contour of said belt intermediate said pairs of said supporting rollers between a suspending loop and a taut span, motor-driven means for actuating said winding rollers to effect the linear movement of said belt when said rocker arms are shifted to form said loop contour, and coacting latch mechanisms on said frame and rocker arms for holding said rocker arms in either of their positions.

CHARLES ALBERT FOURNESS.
CARL HERMAN REICHEL.