

F. KUKKUCK.
COMPOSITION LEATHER MACHINE.
APPLICATION FILED DEC. 6, 1909.

957,219.

Patented May 10, 1910.

2 SHEETS—SHEET 1.

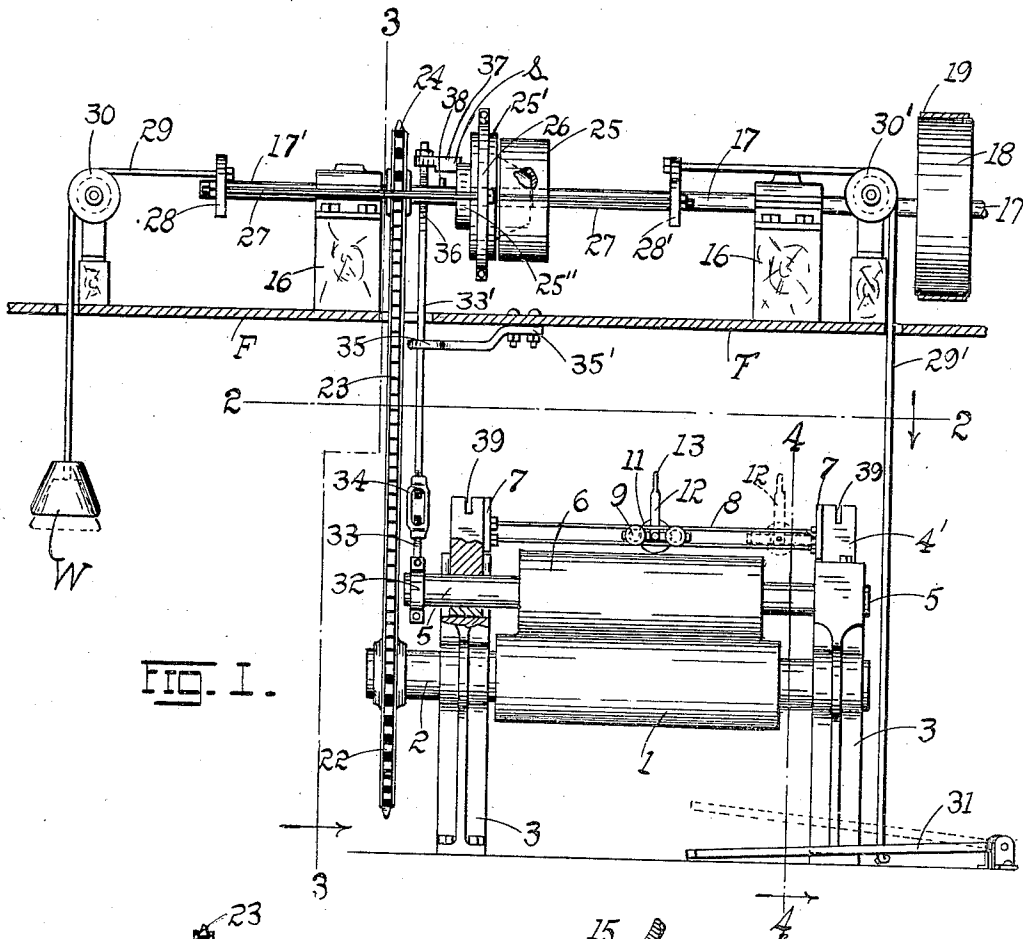


FIG. 1.

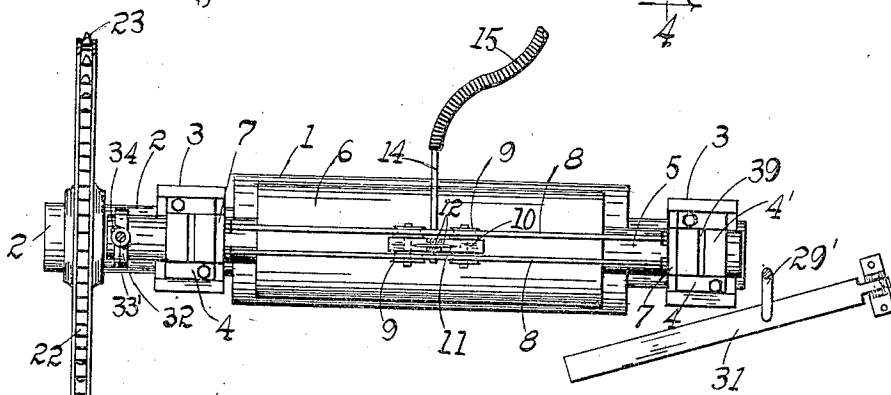


FIG. 2.

WITNESSES:

Harry A. Reimer.
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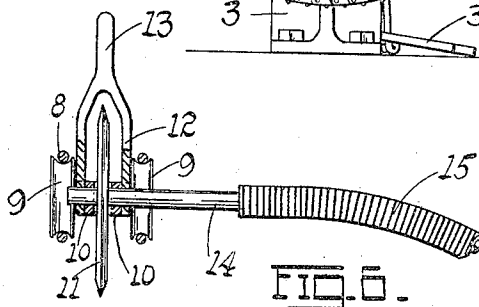
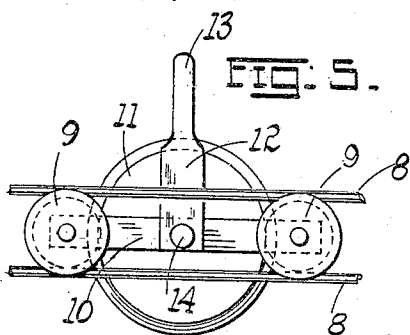
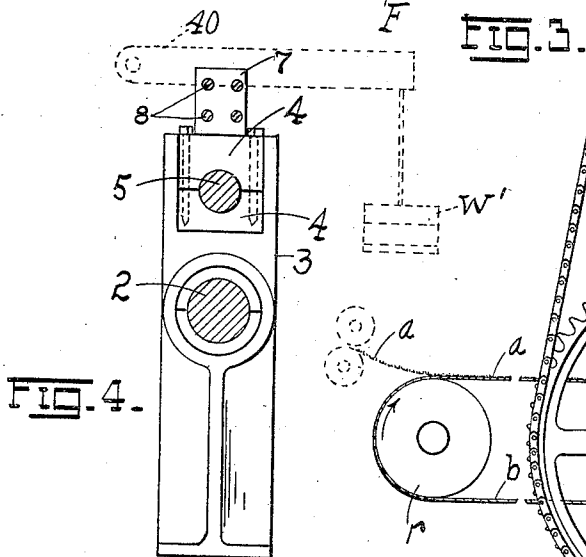
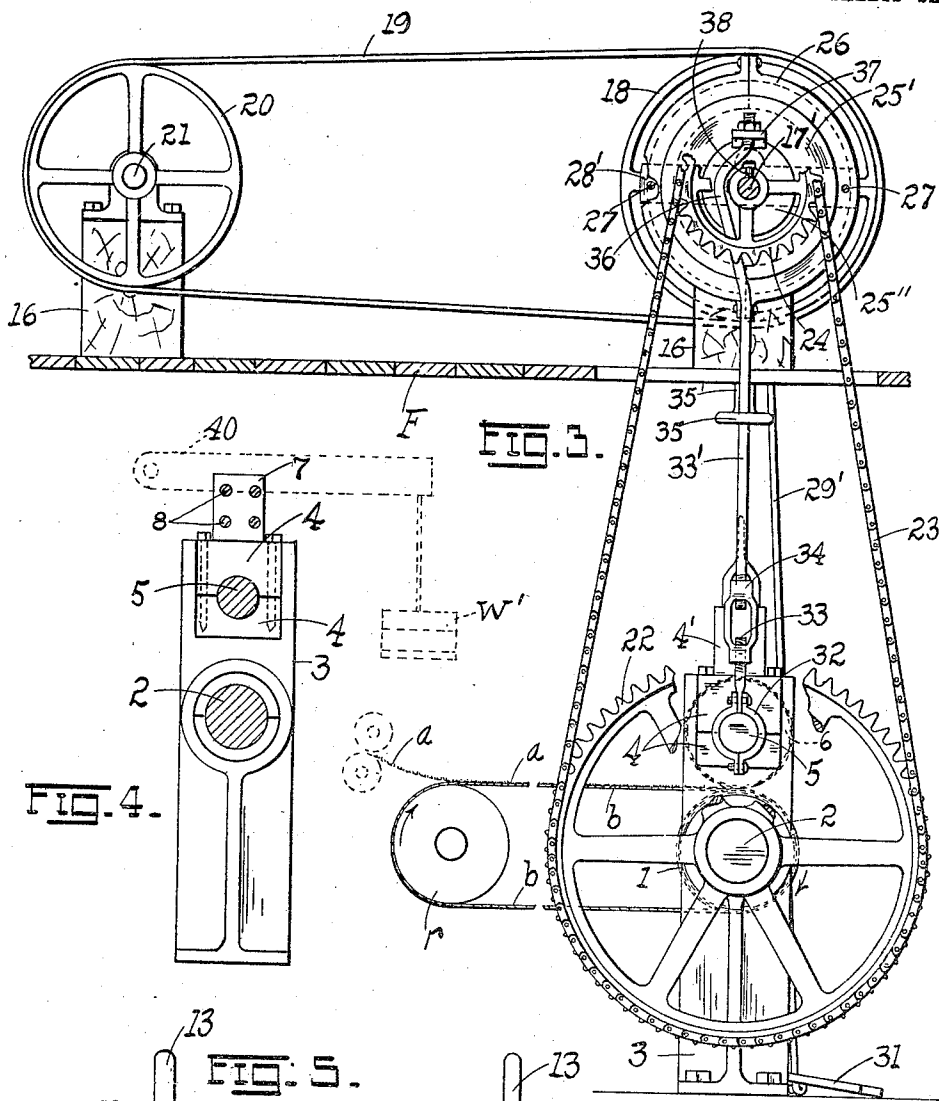
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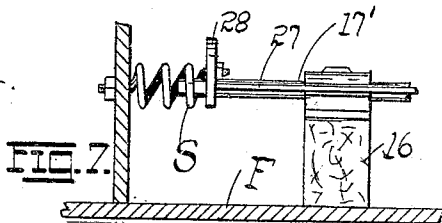
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2 SHEETS—SHEET 2.



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FREDERICK KUKKUCK, OF ST. LOUIS, MISSOURI.

COMPOSITION-LEATHER MACHINE.

957,219.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed December 6, 1909. Serial No. 531,685.

To all whom it may concern:

Be it known that I, FREDERICK KUKKUCK, citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Composition-Leather Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in composition-leather machines; and it consists in the novel details of construction more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a rear elevation of the machine, with driving and winding drums exposed; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1; Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 1, parts broken away; Fig. 4 is a vertical sectional detail on the line 4—4 of Fig. 1; Fig. 5 is an enlarged side elevation of the knife carriage and track therefor; Fig. 6 is a middle vertical transverse section of the carriage, with blade or knife in edge view; and Fig. 7 is a detail showing modification of the means for disengaging the male clutch-member of the shaft which actuates the drums.

The present invention relates to that class of machines in which leather-pulp (pulp made from leather waste and scraps) is mixed with a certain proportion of binding composition or material and pressed into sheets by the passage of the pulp between the rollers of what is known as a "wet machine", in which operation the water is expelled. The advancing sheet delivered from the wet machine onto a traveling conveyer belt or sheet of felt, thence passes jointly with the felt between two coating rolls or drums, one of which (the lower) serves to advance the felt, and the other (the upper) wraps the leather sheet about its periphery, the feeding being continued until a sufficient thickness of the leather sheet has accumulated on the upper drum. It is then removed from such drum and used for any available commercial purpose, for example, to build up the heels of shoes, boots and the like.

The object of the invention is to provide means which will automatically arrest the rotation of the winding drum as soon as a predetermined thickness of leather has ac-

cumulated thereon, whereupon a (preferably) mechanically driven rotary knife is passed over the layer of leather on the drum cutting the layer on an even edge and avoiding any possible waste.

A further object is to construct a machine whereby the product delivered by the machine may be uniform in thickness; one in which this thickness may be readily adjusted; one which will save labor; one capable of operation at a maximum speed; one having a maximum capacity; and one possessing further and other advantages better apparent from a detailed description of the invention which is as follows:—

Referring to the drawings, *a* represents the leather pulp sheet as it is delivered from the "wet machine" (not shown) and *b* the felt conveyer on which it is deposited for purposes of temporary support, the felt passing over a suitable guide-roller *r* on its way to the driving-drum or roller 1 of the present improvement. The shaft 2 of the drum 1 is mounted in the standards 3, 3, the upper ends of the standards being forked and supporting and guiding the movable bearings 4, carrying the shaft 5 of the vertically yielding and movable leather-winding drum 6. The bearings 4 are made of two sections bolted together and jointly embracing the shaft as well understood in the art, the upper section carrying an extension or wing 4' projecting above the standards. To the inner faces of the wings 4' are secured plates 7 forming terminal supports for two pairs of superposed wires 8, 8, the ends of which are fastened to the plates in any mechanical manner. These wires form tracks or ways for the grooved wheels 9 of a reciprocating truck or carriage 10, the wires operating in the grooves of the wheels as best shown in Figs. 5 and 6. On the body of the carriage is mounted a circular knife 11 (or saw) the blade projecting above and below the truck body which has an opening cut therein to allow for free rotation of the blade. Spanning the blade are the forks or arms 12 of the carriage-handle 13, the arms being rigidly secured to the sides of the carriage body between the terminal pairs of wheels. The shaft 14 of the blade projects laterally a suitable distance beyond the carriage or truck-body so that if desirable, connection may be made with a flexible shaft 15 operated from any suitable source of power (not

shown). It will be seen from the drawings that the pulp winding drum 6 is shorter than the lower drum 1 on which it rests, so that in the event the carriage 10 is moved up against the adjacent standard 3, the saw or blade 11 will clear not only the drum 6, but also the shaft 5 thereof, so that the blade may be left constantly rotating under the action of the flexible shaft 15 without danger of cutting the leather before occasion arrives to strip it off the drum.

F represents the ceiling or floor which supports the machinery by which the drums are driven. Resting in bearings on the blocks 16, 16, is a counter-shaft 17 carrying a pulley 18 from which leads a belt 19 to a pulley 20 on the main drive-shaft 21 operated from any suitable source of power (not shown). The inner end of the shaft 2 which projects a slight distance beyond the adjacent end of the parallel shaft 5, carries a sprocket-wheel 22 from which leads a sprocket chain 23 through an opening of the ceiling F, passing over a smaller sprocket wheel 24 on the shaft 17', likewise resting on a supporting block 16, and forming a continuation of the shaft 17. The abutting or adjacent ends of the shafts 17, 17' carry respectively the female clutch section 25 which is keyed to the shaft 17, and the male clutch section 25' which is slidingly feathered on the shaft 17'. These clutches are preferably of the frictional type, the male having a conical projection which enters a corresponding socket or cavity in the female (Fig. 1) well understood in the art, no claim being made thereto.

Mounted in a peripheral groove on the outer or projecting cylindrical portion of the male clutch is a loose band 26 made of two sections riveted together at their ends, the band being provided with diametrically disposed rigid rods 27 projecting in one direction past the laps of the chain 23, the outer ends of the rods being connected by a cross-bar or plate 28 to the center of which is connected one end of a cable 29 passing over a guide pulley 30 conveniently mounted, the free end of the cable carrying a weight W. In the opposite direction the rods 27 extend substantially a like distance, their ends being coupled by a cross-bar 28', it being understood that the shafts 17', 17, pass freely through the respective bars 28, 28', being that the latter are virtually carried by, or are connected directly to, the sliding clutch 25'. From the cross-bar 28' leads a cable 29' over a guide pulley 30', the lower end of the cable being connected to a foot-lever 31 hinged at one end to the floor in close proximity to one of the standards 3. No special novelty is attached to the clutch and the parts coupled thereto, but in the machine under consideration the connections described are convenient for clutching and

unclutching the parts 25, 25' and thus coupling and uncoupling the shafts 17, 17'.

It is apparent that the operator by placing his foot on the free end of the lever 31, and depressing it will draw the clutch 25' frictionally against the clutch 25, thereby coupling the shafts 17, 17'. If he releases the foot-lever, the weight W will draw the clutch member 25' in the opposite direction and thus uncouple the shafts. In the operation of the machine however, the clutch members 25, 25' are held in positive engagement by a controlling device connected directly to the pulp winding drum 6, until such time as sufficient thickness of leather has been wound on said drum, whereupon the clutch-members are automatically separated and hence the shaft 17' and the drums 1, 6, come to a stop, thereby permitting the removal of the leather sheet from the upper drum. This clutch-controller is as follows:—At the end of the shaft 5 adjacent to the chain 23 is loosely passed a band 32 (made in two sections) to which is secured a screw-rod or stem 33 which in turn is coupled by means of a turnbuckle 34 to an extension rod 33' (the screw-threads of the adjacent ends of the parts 33, 33' being respectively right and left hand) which passes loosely through a loop 35 of a bracket 35' secured to the ceiling F. Near the upper end of the rod 33' is formed a bend 36 so as to pass freely around the shaft 17', the bend permitting the rod to assume a truly vertical position. To the free end of the rod 33' is secured a head 37 at the free end of which is formed a square recess or notch thereby leaving a vertical shoulder *s* engaging the adjacent face of the hub 25'' of the male clutch member 25', the depth of the shoulder *s* corresponding to the maximum thickness to which the leather sheets *a* can be wound about the drum 6. When the shoulder *s* of the head 37 of the controller bears against the hub 25'' (Fig. 1) the clutch 25' will remain in engagement with the member 25, and the two shafts 17, 17' will rotate as a unit, thus imparting rotation to the drums 1, and 6. When, in the operation of the machine, a sufficient number of wraps of the leather sheet *a* have been wound upon the drum 6 to exceed in thickness the depth of the shoulder *s*, the gradual raising of the drum 6 to accommodate this thickness will finally cause the shoulder *s* to pass off the face of the hub 25'' whereupon the clutch member 25' will be released from the head 37, and the weight W will draw the member from the member 25, thus uncoupling the shaft 17' from the shaft 17, whereupon the drums will come to a stop. To disengage the clutch members, of course only a slight movement of the section 25' is necessary, and in practice this movement is arrested by a stop-pin 38 carried by the shaft 17',

although by the time the pin is struck, the end of the head 37 has also engaged the face of the portion 25'.

If it is desired to wrap a layer of leather on the drum 6 of a thickness less than the full depth of the shoulder *s*, a slight turn of the turnbuckle 34 in proper direction, will lengthen out the rod 33' so as to set the shoulder *s* for only a portion of its full depth against the hub 25'', whereupon a less thickness of wrapping will be necessary to raise the drum 6 sufficiently to disengage the head from the male clutch-member 25' and permit the weight *W* to unclutch the same from the member 25. It may be stated in passing that as the web of moist pulp or sheet *a* is wrapped about the drum 6, the several thicknesses are thoroughly amalgamated or pressed together so that a final sheet of homogeneous composition is formed on the drum. In practice, the weight of the drum 6 may be in the neighborhood of five hundred pounds, the drum yielding upwardly in its bearings with the accumulations of the successive wrappings. To increase the pressure of the drum at any time I provide recesses or grooves 39 in the top of the wings 4' which grooves are designed to receive levers 40 pivoted at one end and weighted at the opposite end, any number of weights *W'* being added according to the pressure desired. This last feature is shown in dotted outline in Fig. 4 only, as it is a common expedient for which no claim is made. When the clutch member 25' is unclutched under the action of the weight *W*, which drops to the dotted position indicated in Fig. 1, the foot-lever 31 naturally is pulled up. To restore the parts, the operator depresses the lever, bringing the clutches into reengagement, and as the wrapping of leather is removed, the drum 6 settles to its lowest position on the supporting drum 1, whereupon the shoulder *s* of the head 37 again engages the clutch and the operator may then remove his foot from the lever 31. In lieu of the weight *W*, a spring *S* may be substituted as shown in the modification in Fig. 7, as well understood in the art.

When the drums 1, 6, come to a stop, the operator seizes the handle 13 of the carriage 10, passing the latter along the guide wires or ways 8, 8, the rapidly rotating blade or knife 11 severing the leather-wrapping along a line parallel to the axis of the shaft 5, and making a clean, even cut, with absolutely no ragged edges, and no waste of material. The sheet thus cut may now be drawn off the drum by starting the latter with a depression of the foot-lever 31 as already explained, allowing the drum 6 to settle and cause a reengagement of the shoulder *s* of the controlling head 37, after which the drums continue in their respective

rotations to effect the next wrapping, and so on.

It is not absolutely necessary that the cutting blade be rotated mechanically as described, as the mere passage of the carriage back and forth over the drum 6 will sever the leather sheet; but a rotating blade is preferable. In any event the parts should be so proportioned that when the carriage is not in use, it may be moved to one side so as to take the knife out of engagement with the winding drum 6, and the material wrapped about it.

Obviously, the invention is not limited to leather winding machines, but may be used in connection with any machines on which sheets of material are wound.

Having described my invention, what I claim is:—

1. In a machine of the character described, a drum rotating about a fixed axis, a second drum bearing thereon and rotating about a movable axis, a drive-shaft, gearing interposed between said shaft and the first mentioned drum, a conveyer for feeding sheets between the drums and winding the same about the second mentioned drum, and means coupled to the movable drum and cooperating with the drive-shaft for arresting the rotation of the drums upon accumulation of sufficient material on the movable drum, during the continued rotation of the drive-shaft.

2. In a machine of the character described, a pair of coacting drums, means for feeding a sheet to one of the drums and winding the same thereon, a drive-shaft, a clutch for coupling said shaft to the feeding means aforesaid, and a controller coupled to the winding drum and actuated by the material wound thereon for releasing the clutch when a predetermined thickness of material has accumulated on the winding drum.

3. In a machine of the character described, a pair of coacting drums, means for rotating the drums and feeding a sheet of material adapted to wind on one of the drums, a drive-shaft, means for coupling the rotating means for the drums to the drive-shaft, and a controller coupled to the winding drum and responsive to the material accumulating thereon for uncoupling the rotating means from the drive-shaft with a predetermined thickness of the material accumulated on the winding drum.

4. In a machine of the character described, a drum rotating about a fixed axis, a second drum resting thereon and rotating about a movable axis, a drive-shaft, an extension shaft therefor, clutch-members on said shafts, gearing interposed between the extension shaft and lower drum for actuating the drums, a conveyer for feeding sheets between the drums and winding the

same about the upper drum, a clutch-controller coupled to the upper drum and normally maintaining the clutch-members in engagement, said controller being released
5 from the clutch mechanism with a movement of the upper drum due to material accumulated thereon.

5. In a machine of the character described, a drum rotating about a fixed axis,
10 a second drum resting thereon and rotating about a movable axis, a drive shaft, an extension shaft therefor, clutch-members on said shafts, gearing interposed between the extension shaft and lower drum for imparting rotation to the drums, a conveyer for
15 feeding sheet material between the drums and winding the same about the upper drum, an adjustable clutch-controller coupled to the upper drum and normally maintaining the clutch-members in engagement,
20 said controller being released from the clutch upon a vertical displacement of the upper drum due to accumulated material thereon, and means for disengaging the clutch-members upon a release thereof by the controller.
25

6. In a machine of the character described, a drum rotating about a fixed axis, a second drum resting thereon and rotating about a movable axis, a drive-shaft, an extension shaft therefor, a fixed clutch-member on the drive-shaft, a sliding clutch member on the extension shaft, gearing interposed between the extension shaft and lower drum, a conveyer for feeding the material
30 between the drums and winding the same

on the upper drum, a clutch-controlling rod loosely coupled at one end to the shaft of the upper drum, and a head at the free end of the rod engaging the sliding clutch-member and locking the same to the fixed clutch-member, said head passing off the clutch-member with a raising of the winding drum for a predetermined thickness of accumulated material and thereby releasing said clutch-member and uncoupling the shafts.
40 45

7. In a machine of the character described, a winding drum for rolling up the material, a track disposed adjacent to the drum and parallel to the axis thereof, means for temporarily stopping the drum, and a
50 knife reciprocating on said track for severing the material wrapped about the drum.

8. In a machine of the character described, a bottom supporting drum, an upper yielding drum resting thereon, a carriage reciprocating in proximity to the upper drum in a line parallel to the axis thereof, a knife on said carriage for severing the material wound on the upper drum, and a track for the carriage extending beyond one end of the winding drum to allow the shifting of the carriage away from the drum when the knife is out of service.
55 60

In testimony whereof I affix my signature, in presence of two witnesses.

FREDERICK KUKKUCK.

Witnesses:

EMIL STAREK,
JOS. A. MICHEL.