

W. C. PERRY.  
WINDING MACHINE.

APPLICATION FILED MAY 21, 1906.

2 SHEETS—SHEET 1.

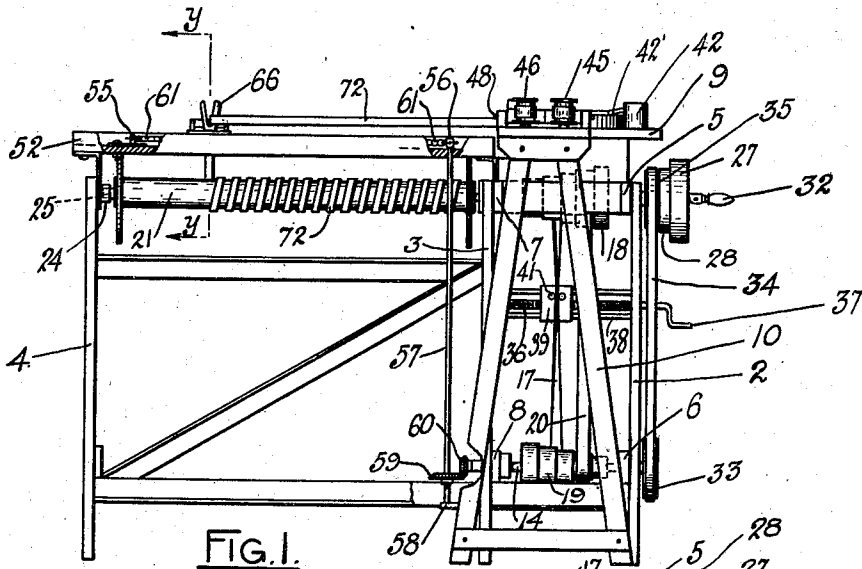


FIG. 1.

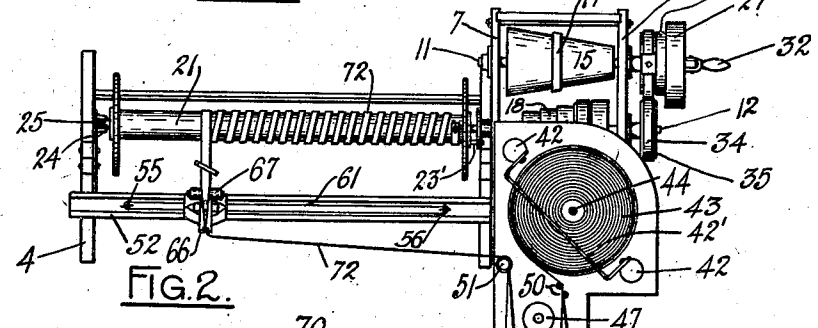


FIG. 2.

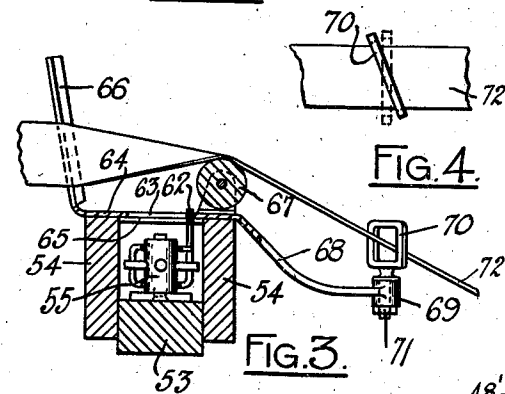


FIG. 3.

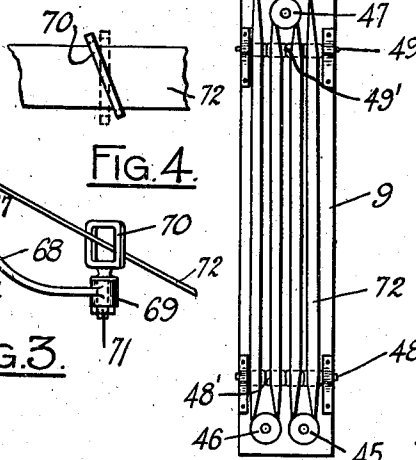


FIG. 4.

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2 SHEETS—SHEET 2.

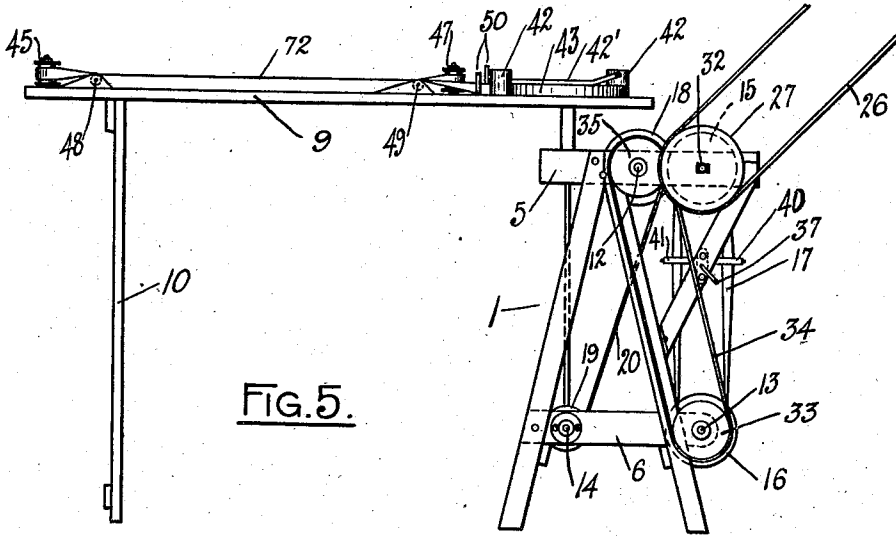


FIG. 5.

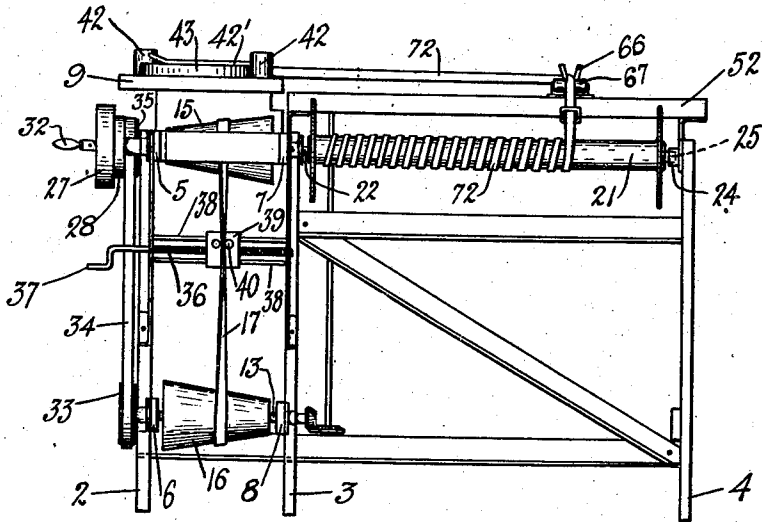


FIG. 6.

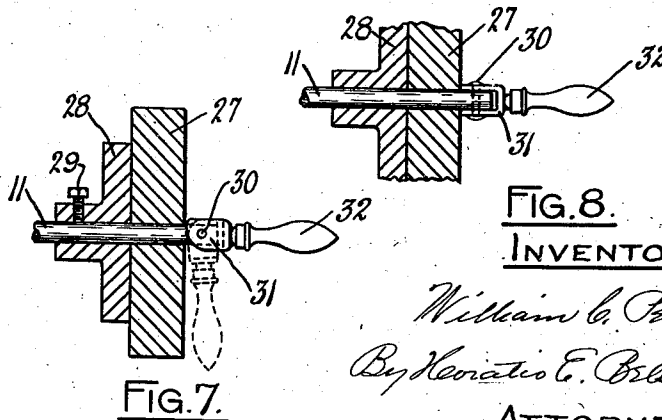


FIG. 7.

FIG. 8.

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# UNITED STATES PATENT OFFICE.

WILLIAM C. PERRY, OF CHARLESTOWN, RHODE ISLAND.

## WINDING-MACHINE.

No. 867,298.

Specification of Letters Patent.

Patented Oct. 1, 1907.

Application filed May 21, 1906. Serial No. 317,878.

### To all whom it may concern:

Be it known that I, WILLIAM C. PERRY, a citizen of the United States, residing at Charlestown, in the county of Washington and State of Rhode Island, have invented certain new and useful Improvements in Winding-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to machines for winding fabrics, particularly elastic and webbing; and has for its primary objects, a display of the fabric for inspection before beaming, means for properly tensioning the fabric during the operations of the machine, a cheap and speedy winding means, means for modifying the speed of the rolls, and finally the avoidance of any excess of stretch upon the strip to be operated upon.

The invention is preferably adapted to employment in winding elastic webbing taken from the loom or bleaching machine.

To the above ends primarily my invention consists essentially of a winding spool fed by a novel adjustable device, and regulated by a novel shifting mechanism and novel stopping and starting means, together with a combined tension and display device.

In the drawings which constitute a part of these specifications, and in which like reference characters indicate like parts throughout the views, Figures 1 and 2 are side and plan elevations of a machine embodying my invention. Fig. 3, a section on *yy* of Fig. 1. Fig. 4, a detail view of the tape guide showing in dotted lines an adjusted position. Fig. 5, an end elevation of the machine. Fig. 6, a side elevation of the same taken opposite to Fig. 1, and Figs. 7 and 8, detail sectional views of parts of the clamping devices.

The frame, 1, of my machine may be of any form of construction suitable for carrying the several details of mechanism. In the form thereof herein shown, it comprises essentially three sets of vertically disposed supports, 2, 3, 4; each of the supports 2 and 3 being provided with upper and lower transverse strips, 5, 6 and 7, 8, respectively. The strips, 5 and 7, support one end of a table 9 whose outer end is sustained by supports, 10.

Journalled in the strips, 5 and 7, are shafts, 11 and 12; in strips 6 and 8 are journalled shafts, 13 and 14. Upon shafts 11 and 13 respectively are fixed cone pulleys, 15 and 16, connected by an open belt, 17; upon shafts, 12 and 14, are fixed speed pulleys, 18 and 19, respectively, connected by a belt, 20. A movable spool or beam, 21, has one of its ends, 22, resting in a central opening in the enlarged inner end of the shaft, 12 or pulley 18. A pin, 23, is fixed in the roll adjacent the end, 22, adapted to enter an orifice in the enlarged end of the shaft, 12. The outer end, 24, of the spool rests in a stud, 25, on the support, 4. The shaft, 11, is driven from any source of power through a belt, 26, on the

driving wheel, 27. The wheel, 27, is loosely mounted on the shaft, 11, with its inner face contacting with the face of a disk, 28, fixed to the shaft, 11, by the screw, 29.

Pivoted by a pin, 30, to the outer end of the shaft, 11, which projects beyond the outer face of the wheel, 27, is a bifurcated cam, 31, provided with a handle, 32. As shown in Fig. 7, the cam has a curved face contacting with the outer face of the wheel, 27. The broken lines in the figure indicate the position of the cam when not operatively engaging the wheel, 27. When the cam is elevated as shown in full lines, the cam presses upon the face of the wheel and forms, with the disk, 28, a frictional clutch device for the wheel and shaft, 11. The shaft, 12, which is driven from shaft, 11, by belt, 17, carries upon its outer end a pulley, 33, which by a belt, 34, drives a pulley, 35, upon the outer end of shaft, 12.

A convenient shipping device for the described driving mechanism of the spool comprises a transverse threaded bar, 36, rotatably mounted in the machine frame and provided with an operating crank handle, 37. Above and below the bar, 36, are fixed rods, 38, parallel with the bar and which serve as guides for a block, 39, which is mounted to travel on the bar as the latter is turned. Upon each side of the block 39 project roller couplets, 40 and 41, which act simultaneously upon the receiving and delivery sides of the cone belt, 17.

Upon the inner end of the table are two posts, 42, to which are pivoted an arched bar, 42', which rests upon the webbing block, of fabric, 43. A pin, 44, upon the table intermediate and equidistant the posts 42, traverses the central opening of the webbing block and forms a pivot therefor. Upon the outer end of the table extension are pivoted two vertical rollers, 45 and 46; and upon the table near the webbing block, a vertical roller, 47. Rods, 48 and 49, are mounted transversely upon the table adjacent and intermediate the rollers, 46 and 47 respectively. The rods are respectively provided with the roller series, 48' and 49'. Vertical guide pins, 50, are fixed in the table near the block; and a guide roller or pin, 51, is also fixed upon the table margin near the roller, 47.

Mounted upon the machine frame parallel with the spool, 21, but in a higher plane is a guide rail designated in a general way by 52. It comprises in detail a base, 53, and side rails, 54. A horizontal sprocket wheel, 55, is mounted near the outer end of the base, 53, of the guide rail, while a similar wheel, 56, rotating in the inner end of the guide rail, is mounted upon the upper end of a vertical shaft, 57, which passes through the base, 53, of the guide rail and has its lower end pivotally supported by a horizontal bar, 58, fixed in the lower portion of the machine frame. A bevel gear, 59, fixed to the shaft, 57, meshes with a bevel gear, 60, upon the inner end of the shaft, 14. An endless chain, 61,

connects the sprocket wheels or drivers, 55 and 56. This chain reciprocates a carriage which is shown in detail in Fig. 3.

The chain, 61, is provided with a vertical pin, 62, which traverses a transverse slot, 63, in the base, 64, of a carriage which rests upon the rails, 54, and is guarded against lateral displacement by a guide plate, 65, fixed to the bottom of the base intermediate the rails. Rising from the rear margin of the carriage base is a fork, 66; and mounted on the front of the base is a horizontal roller, 67. An arm, 68, projects downwardly and forwardly from the carriage base, having a cylindrical bearing member, 69, in which is vertically mounted a rectangular frame or guide, 70, capable of horizontal adjustment by a nut, 71, upon its lower extremity in contact with the lower end of the frame, 70.

The operation of my machine is as follows: The block of webbing strip is mounted upon the table, and retained in horizontal plane by the gravity of bar, 42'. The free end of the strip, 72, is passed between the pins, 50, and around the vertical rollers, 45, 47, 46, and 51, with a half turn adjacent each of said rollers whereby in conjunction with the horizontal intermediate rollers, 48', 49', over which the strip also passes, both faces of the strip are caused to pass alternately and repeatedly before the observer. The strip passes from the roller or pin, 51, through the carriage, fork, 66, over the roller 67, and through the frame 70, to the spool, to which the end of the strip is fixed and whereon the strip is to be wound.

The machine is put into operation by elevating the cam handle, 32, to horizontal position whereby the spool 21 is rotated through the pulleys, 15, 16, 33 and 34. The strip is fed in layers upon the spool by the reciprocating carriage mechanism which is actuated through pulleys, 18 and 19, gears 60 and 59, sprocket drivers 56 and 55, and chain 61.

As the diameter of the spool increases the speed of the spool may be relatively modified by turning the handle 37 of the shipper. Upon occasion the machine is stopped by depressing the cam handle, 32. When filled the spool 31 is removed by first lifting its end, 24, out of its seat, 25.

What I claim is,

1. In a machine of the type set forth the combination with a table upon which a webbing block is rotatably mounted, of a series of interspaced vertical rollers upon the table over which the webbing strip alternately passes from the block, means upon the table for maintaining the strip in a horizontal plane intermediate the rollers, and means for drawing the strip from the block and around the rollers.

2. In a machine of the type set forth the combination with a table upon which a webbing block is rotatably mounted, of pins upon the table adjacent the block for guiding the fabric strip from the block, vertically disposed

interspaced rollers upon the table around which the strip is adapted to pass intermediate the guide pins, transversely disposed horizontal rollers mounted upon the table adjacent the vertical rollers, and means for drawing the strip around the pins and over the rollers.

3. In a machine of the type set forth the combination with the frame, of a guide rail on the frame, a feeding carriage upon the rail, a driven pulley mounted in the frame parallel with the guide rail, a removable spool rotatably mounted in the frame with one of its ends resting in the end of the pulley and interlocking means upon the spool for engaging the pulley, and means for driving the driven pulley actuating means for reciprocating the carriage.

4. In a machine of the type set forth the combination with the spool and reciprocating feeding carriage, of a table for rotatably supporting the fabric block, means for rotating the spool, and means upon the table for tensioning the fabric in its travel from the block to the carriage.

5. In a machine of the type set forth the combination with a winding spool and reciprocating feeding carriage, of a table for rotatably supporting the fabric block, means for rotating the spool, and means upon the table for displaying the opposite sides of the fabric in its travel from the block to the carriage.

6. In a machine of the type set forth the combination with a winding spool, of a driven shaft, a cone pulley on the driving shaft, a second shaft, a cone pulley on the second shaft, an open belt connecting the two pulleys, a rotatable threaded bar parallel with the shaft and within the belt, a longitudinally movable block mounted on the bar, roller couplets on each side of the block adapted to engage the opposite flat sides of the belt, and a driving connection between the second shaft and the driven shaft.

7. In a machine of the type set forth the combination with the guide rail, winding spool, and spool driving mechanism, of sprocket wheels in the rail, a chain connecting the sprocket wheels, a pin in the chain, a carriage base slidably mounted on the rail provided with a transverse slot to receive the end of the pin, a fork upon one side of the carriage base, a roller upon the opposite side of the base, an arm projecting from the side of the base, a guide frame upon the arm and operative connections between the sprocket wheels and spool driving mechanism.

8. In a machine of the type set forth the combination with the frame, of a guide rail upon the frame, a feeding carriage mounted upon the rail, a spool rotatably mounted in the frame adjacent the guide rail, means for rotating the spool, actuating means for imparting constant continuous rectilinear movement to the carriage, and means for changing the speed of the spool rotating means in relation to the speed of the carriage actuating means.

9. In a machine of the type set forth the combination with the frame, of a guide rail on the frame, a feeding carriage slidably mounted upon the rail, a stepped pulley in the frame for driving the carriage, operative connections between said stepped pulley and the carriage, a spool rotatably mounted in the frame, a second stepped pulley mounted in the frame and engaging the end of the spool and a driving connection between the stepped pulleys.

In testimony whereof I have affixed my signature in presence of two witnesses.

WILLIAM C. PERRY.

Witnesses:

HORATIO E. BELLOWS,  
HAROLD E. BALL.