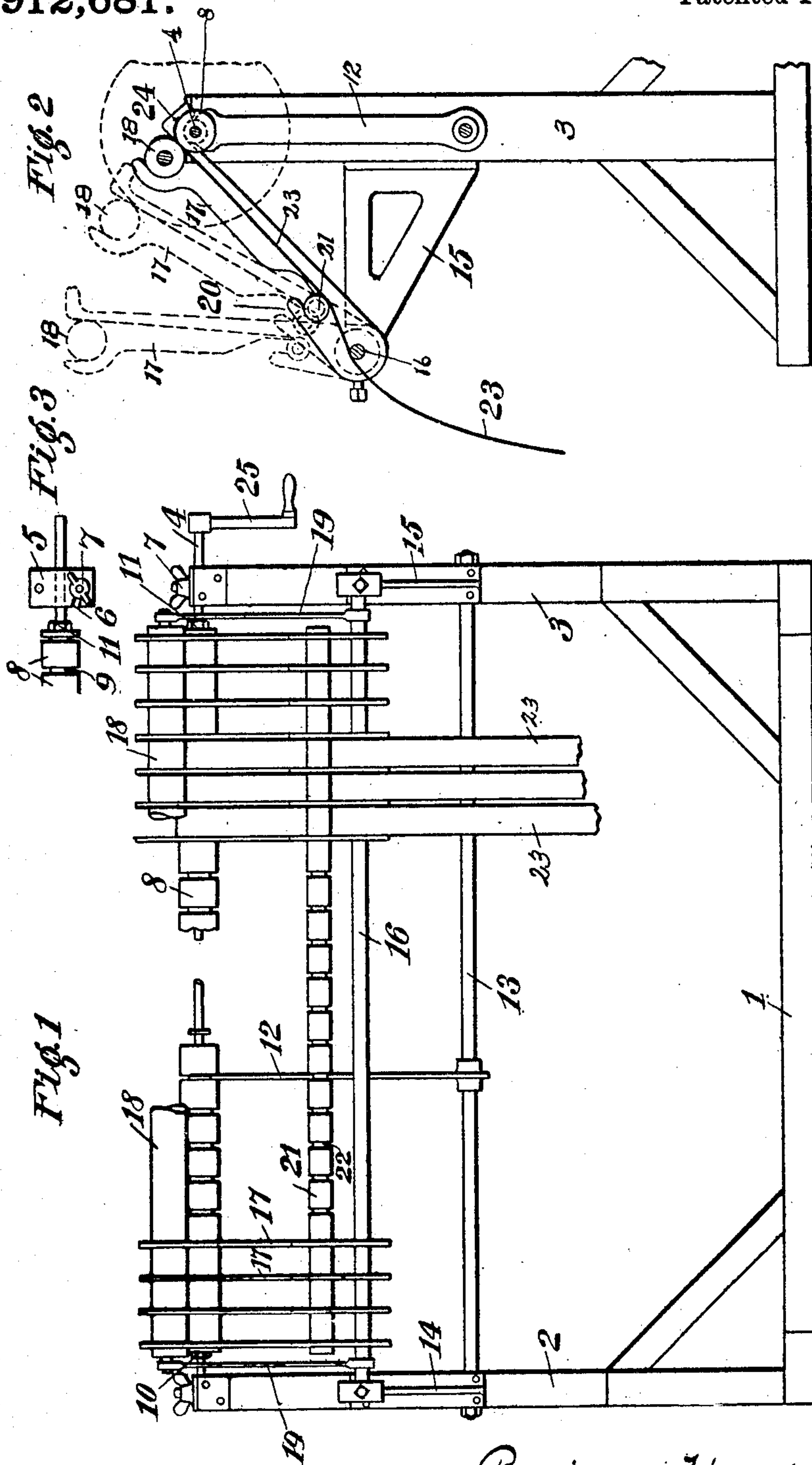


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WINDING MACHINE.  
APPLICATION FILED MAR. 25, 1901.

912,681.

Patented Feb. 16, 1909.



Witnesses  
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# UNITED STATES PATENT OFFICE.

BENJAMIN HURD, OF NEW YORK, N. Y.

## WINDING-MACHINE.

No. 912,681.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed March 25, 1901. Serial No. 52,737.

*To all whom it may concern:*

Be it known that I, BENJAMIN HURD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Winding-Machines, of which the following is a full, clear, and exact specification.

This invention relates to winding machines and its object is to construct a machine for winding strips or ribbons of cloth into a compact and evenly formed roll.

The invention will be more particularly described with reference to the accompanying drawing in which—

Figure 1 is a front view of the machine, some of the parts being broken away for clearness, Fig. 2 is a side view partially in section, and Fig. 3 is a detail top view of the spool carrying spindle.

Referring more particularly to the drawings, 1 represents a suitable stand having the uprights 2 and 3, a spindle 4 is mounted in the standards 2, 3, the bearings preferably being such as to make the spindle easily removable. Thus in Fig. 3 the plate 5 which holds the spindle in its bearing is pivoted at one end and provided with a notch 6 at the other end, into which the thumb screw 7 fits, so that by unscrewing the thumb screw the plate may be swung out of the way. The spools 8 upon which the material is to be wound are slipped upon the spindle, being separated by the washers 9, and the whole being clamped together between a nut 10 fixed at one end of the spindle and a nut 11 screw threaded on the other end. Where the spindle is long and carries a number of spools it may be prevented from sagging by a brace 12 carried by the tie rod 13, which braces the standards 2 and 3. The brace 12 is notched at its upper end to receive the spindle and thus forms a bearing therefor. Arms 14 and 15 are carried by the respective standards 2 and 3 and in their outer ends have suitable bearings for the rod 16 upon which are loosely mounted the guiding plates 17. The upper ends of the guiding plates 17 are suitably notched or curved to receive the bar 18, the ends of which are journaled in the links 19, 19, the latter being loosely mounted on rod 16. Near the rod 16 the plates 17 are provided with notches 20 into which rests a bar 21 provided with grooves 22 spaced apart a distance equal to the width of the winding

spools, the grooves fitting upon the plates 17 and thus spacing them apart.

In the operation of the device the material 23 is threaded over the rod 16, under bar 21, and to the upper periphery of the winding spool 8, where the end is attached to the spool in any suitable manner, for illustration by hooking it upon the points 24 carried by the spool. When the material has been attached to the spools the handle 25 which is preferably removably attached to spindle 4, is turned thus winding the material upon the spools. Before commencing to wind, the bar 18 is placed in position in the ends of the plates 17, and the plates and bar swung down to the position shown in heavy lines in Fig. 2. This brings a plate between each strip or ribbon of material and the weight rests upon the material on the spools substantially at the point where the material is being delivered to the spools. As the winding is continued and the spools receive more and more material the weighted bar is gradually lifted and swung around the rod 16 as an axis, but its position with respect to the point of the delivery of the material to the spool does not materially change. By reason of this the material is uniformly packed upon the spool, and buckling of the material already wound, or distortion of the roll, is prevented. When the spools are filled, thumb screw 7 is loosened and plate 5 swung around to permit the spindle 4 to be raised. The spools are then removed from the spindle and empty spools put on in their place. Any tendency of the strips to curl, or become twisted, is prevented by the strip passing over rod 16 and under bar 21.

It will be observed that the plates are always in position on each side of the strip, notwithstanding the size of the roll, to properly guide the strip to the roll, and that the plates are properly moved as the size of the roll increases, so as to present but a minimum frictional surface against the sides of the roll.

The machine above described will be found peculiarly applicable to the winding of strips of cloth cut on the bias, but obviously may be used in connection with material of any character.

Having thus described my invention I declare that what I claim as new, and desire to secure by Letters Patent is:

1. In a winding machine, the combination



with a plurality of winding spools having attaching and driving means, of stationary tension means for delivering the material thereto, a weight resting on the winding spool and  
5 moving upward as the size of the roll increases, side guides carrying said weight, substantially as described.

2. In a winding machine, the combination with a plurality of winding spools having attaching means, of a plurality of edge guides  
10 for strips of material, and means independent of the said guides but carried thereby for maintaining pressure at the points of delivery of the strips of material across the entire machine and radially to the spools, substantially as described.

3. In a winding machine, the combination with means for winding a plurality of spools, of means for guiding the edges of the webs  
20 thereto, means for maintaining pressure upon the webs of material when delivered to the spools, and means comprising pivoted guides adapted to permit said last named means to maintain its proper position, substantially as described.

4. In a winding machine, the combination with a winding spool, of pivoted guiding plates on opposite sides thereof carrying a bar normally bearing against the periphery  
30 of the spool in a radial direction, and one or more bars connecting said guiding plates over or under which the material is passed before being delivered to the spool, substantially as described.

5. The combination of a spindle carrying a plurality of winding spools, a plurality of guiding plates separating said spools and pivoted to a common axis, a bar carried by said guiding plates, and resting upon the  
40 periphery of said spools at the point where the material is delivered to the spool, and a bar carried by said plates, transversely thereto, under which the material is passed before delivery to the spool.

6. The combination of a spindle carrying a plurality of winding spools, a plurality of guiding plates separating said spools at a tangent to the periphery of the spindle and pivoted to a common axis, and means for  
50 moving said guiding plates around their axis as the size of the roll increases, whereby the extent of frictional surface between the rolls and plates is prevented from increasing.

7. The combination of a spindle carrying  
55 a plurality of winding spools, a plurality of guiding plates separating said spools at a tangent to the periphery of the spindle and pivoted to a common axis, a plurality of

guiding plates interposed between the respective winding spools, at the outer edge  
60 thereof, and means for moving said guiding plates as the size of the roll increases, whereby the same relative positions of the plates and rolls are maintained, substantially as described.

8. In a winding machine, the combination with a driven winding spool, of a guiding plate at each side thereof pivoted independently of the spool support, tension means, and means adapted to rest on the periphery  
70 of the spool and connected with said guide plates whereby said means and said guide plates simultaneously move outward as the roll diameter increases.

9. In a winding machine, the combination  
75 with a plurality of winding spools, of means for delivering strips of material thereto, and a weighted roll mounted in arms pivoted independently of said winding spool, said weighted roll resting upon the winding roll  
80 where the material is delivered to the latter and adapted to swing outward as the size of the roll increases, edge guides for each web, and tension means, substantially as described.

10. In a winding machine, the combination with the winding spindle, of one or more guiding plates, said plate or plates being connected by tension bars and pivoted upon an axis independent of said winding spindle,  
90 and meeting said winding spindle outside its axis.

11. In a winding machine, the combination with a winding spool having attaching and driving means, of relatively fixed guiding means for delivering the material thereto, means resting on the winding spool and moving upward as the size of the roll increases, said guides and arms, and tension means, connecting the guide arms, substantially as described.

12. The combination with a winding spindle adapted to receive a plurality of spools, and driving means, of guides between each spool for the edges of strips of material, a  
105 bar carried by said guides and resting on the material as wound, and a support on which said guides are pivoted so that said guide may move outwards as the roll increases in diameter, substantially as described.

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

BENJAMIN HURD.

Witnesses:

H. STANTON HURD,  
C. V. EDWARDS.