

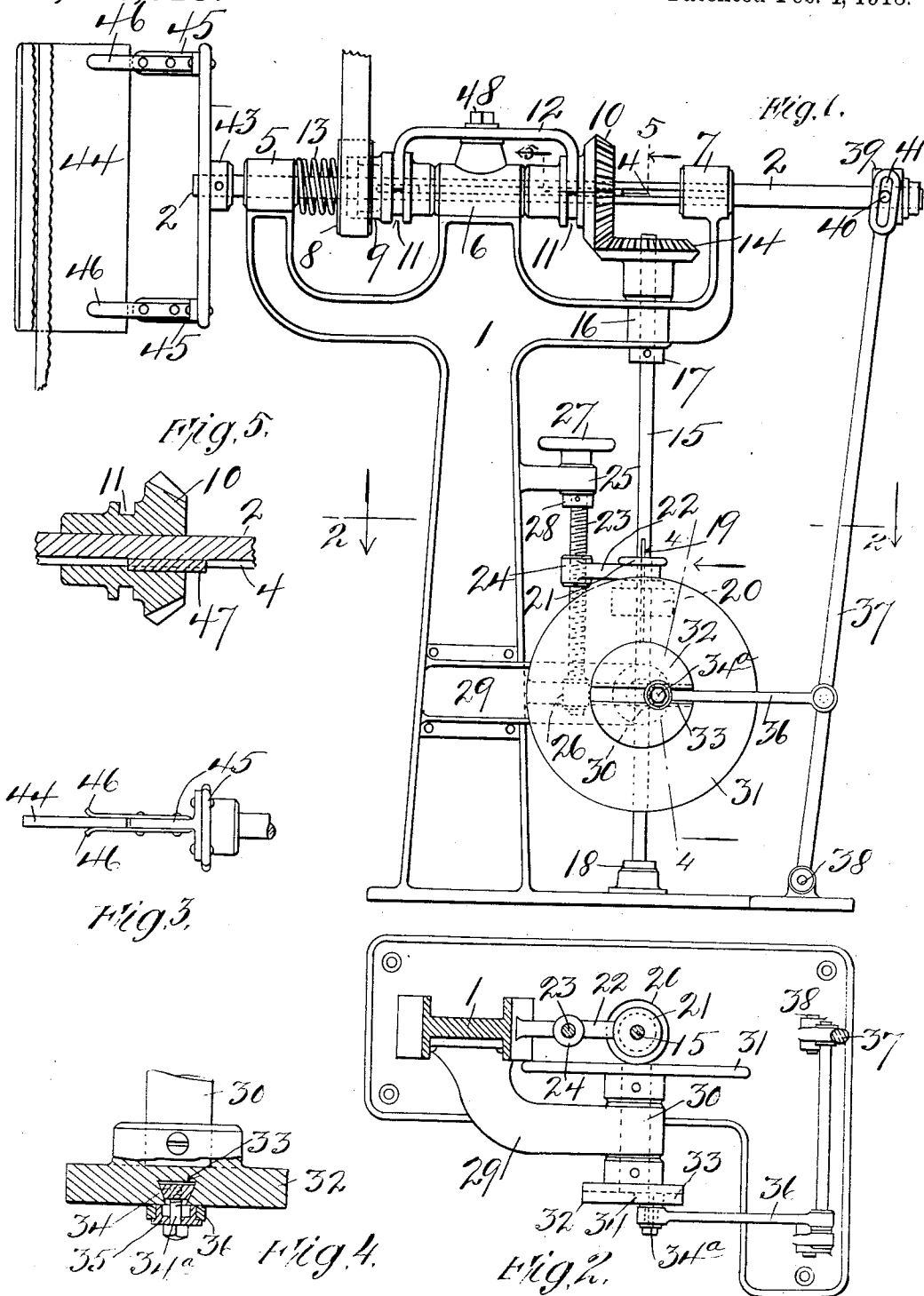
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APPARATUS FOR WINDING STRIPS OF EMBROIDERY IN LAYERS.

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1,052,015.

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APPARATUS FOR WINDING STRIPS OF EMBROIDERY IN LAYERS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MORRIS SCHOENFELD, a citizen of the United States, and a resident of Rorschach, in the Canton of St. Gall, Switzerland, have invented certain new and useful Improvements in Apparatus for Winding Strips of Embroidery in Layers, of which the following is a specification.

The object of the present invention is to provide a simple apparatus for winding strips of embroidery in layers, lying side by side upon a winding board, reel or drum or other holding means.

When embroidery is made in long strips to be sold in such strips it is usually wound upon a flat board of card or wood and this retains the embroidery in smooth condition while passing through the various channels of trade until the embroidery is finally sold over the counter to the consumer, when various lengths are cut off and sold.

The object of my present invention is to wind the embroidery upon the holding means, whether the latter be a flat board or other form of device, so that the embroidery will lie in rows side by side, the entire strip of embroidery being wound in helical form around the winding board.

One of the principal advantages of the present invention is that handling of the embroidery may be avoided. The embroidery can be fed directly from the machine which trims the embroidery, direct to my present machine, so that there will be no intermediate handling of the embroidery. I therefore prefer to make the present machine in such a way that the winding board will be moved laterally as it is revolved, so that the embroidery may be fed from a given place, say from the trimming machine above referred to, and still be wound in separate turns on the winding board.

The present machine is very simple and rapid in its operation and it winds the embroidery very smooth and even and may be adjusted to operate with boards of various sizes and to wind embroidery of different widths.

In the drawings forming a part of this application, Figure 1 is an elevation of my improved machine, Fig. 2 is a horizontal section thereof taken on the line 2—2 of Fig. 1, looking downward, Fig. 3 is a plan view of the chuck for holding the winding board, Fig. 4 is a section, taken on the line 4—4 of Fig. 1, looking in the direction of the ar-

rows, and Fig. 5 is a sectional view taken on the line 5—5 of Fig. 1.

In Figs. 1 and 2 a three armed standard is represented at 1, in which is journaled a horizontal shaft 2. This shaft is not only rotatable but is also longitudinally movable and is provided with a longitudinal groove 4. Between the bearings 5 and 6 of the standard 1 is located a friction clutch consisting of a cone and disk 8, and 9, and between the bearings 6 and 7 is located a bevel gear 10, on the shaft 2. While the clutch disk 8 is loose on shaft 2, the clutch cone 9 and the bevel gear 10 are each provided with a key 47, which engages in the groove 4 of the shaft 2, so that the parts 9 and 10 are caused to rotate with the shaft 2. In order to prevent lateral movement of the parts 9 and 10 with the lateral movement of the shaft 2, each of said parts is provided with an annular groove 11, in which a yoke 12, secured to the bearing 6, by a screw 48, engages. Between the bearing 5 and the clutch disk 8, a coil spring 13 surrounds the shaft 2, the purpose of which is to force the clutch disk 8, which also forms the driving pulley for the shaft, against the clutch cone 9, whereby the shaft 2 and the parts connected thereto are driven. With the bevel gear 10 meshes a similar gear 14, secured to a vertical shaft 15. This shaft is prevented from moving longitudinally by reason of the wheel 14 and a collar 17, secured to said shaft, engaging opposite sides of a bearing 16 formed in the standard 1. The shaft 15 is supported at one end in the bearing 16 and at the other end in a bearing 18, secured to the foot of the standard 1. The shaft 15 is also provided with a longitudinal groove 19, and a driving roller 20 mounted on said shaft, has a key 49 engaging said groove, so that said roller can move longitudinally on the shaft 15. The hub of the roller 20 is provided with an annular groove 21, in which engages the forked end of an arm 22 projecting from a nut 24, carried by a screw spindle 23. The spindle 23 is journaled in bearings 25 and 26, and is prevented from longitudinal movement by a hand wheel 27 and a collar 28, engaging opposite sides of the bearing 25. An arm 29, projecting from the standard 1 carries a bearing for a shaft 30, to which is secured at one end a friction disk 31 and at the other end a crank disk 32. The friction disk 31 presses tightly against the driving roller 20,

whereby the shaft 30 is rotated therefrom. In a diametral dove tail groove 33, formed in the crank disk 32, is slidably mounted a block 34, (Fig. 4) in which is screwed a bolt 34^a. On this bolt is mounted a box 35, through which by tightening said bolt, the block 34 is secured in adjusted position in the groove 33. On the box 35 is rotatably mounted the eye of a connecting rod 36, which is connected at its other end to an oscillating lever 37. The latter has its pivot at 38 and is slotted at its upper end to engage the lateral pins 40, projecting from a loose ring 41, mounted between the flanges of a collar 39, secured to the shaft 2.

The opposite end of the shaft 2 carries, by means of a chuck 43, (Figs. 1 and 3), a reel 44 for the winding of the strips of embroidery. The clutch 43, consisting of a hub and two arms, is provided with two T-shaped angles 45, which are riveted to the outer ends of said arms 43. To the ends of the stems of the angles 45 are secured two flat springs 46, between which the reel 44, which consists generally of a flat sheet of card board or wood, is removably held by the clamping action of the springs.

By the rotation of the shaft 2, the reel 44 is driven directly and is also given an axial transverse displacement in reverse directions through the combined operation of the driving members 10, 14, 15, 20, 31, 30, 32, 36 and 37, the relative proportions of these members being such that, for each complete rotation of the shaft 2, and the reel 44, the latter is moved axially for a distance slightly greater than the width of the strips of embroidery, so that such strips, delivered from a machine to the reel, are wound upon the latter in helical coils lying side by side. Since the strips of embroidery are of various widths, the mechanism for moving the reel axially (consisting principally of the elements 15, 20 and 31) are so constructed and arranged that the movements of the oscillating lever 37 can be adjusted for various widths of strips. For this reason the driving roller 20 is adjustable by means of the screw spindle 23 toward and away from the center of the disk 31. In all cases it is necessary to so adjust these parts that, when the reel is covered with one layer consisting of a certain number of adjacent coils, the crank disk 32 will have just made a half revolution and the shaft 2 with the reel will have moved its entire axial distance in one direction, whereupon by further rotation of the shaft 2, it will be moved longitudinally in the opposite direction, so as to allow the

strips of embroidery to be wound upon the reel in a new layer.

It will be apparent that adjustment may be made for every requirement and though the embroidery comes from a definite fixed place, the same is properly disposed on the winding board or reel. Various changes may be made in the construction of the machine without departing from the spirit of my invention, but I deem the machine herein shown, to be the best embodiment of my invention.

Having described my invention, what I claim is:

1. A device of the class described, comprising a shaft having means for holding a winding board or the like, means for imparting a rotary motion to the shaft, means for imparting a reciprocating movement to the shaft, operating in synchronism with the rotary propulsion, means for adjusting the speed of the reciprocating movement with relation to the rotary movement and means for adjusting the extent of reciprocations of said shaft independently of the adjustment of the speed of the reciprocations.

2. A device of the class described, comprising a shaft having means for holding a winding board or the like, means for revolving said shaft, a lever arranged to reciprocate said shaft, a revolving member and means for connecting said lever and said revolving member, whereby the connection may be adjusted diametrically of the revolving member, transmission mechanism for operating said revolving member in synchronism with the shaft rotation and means whereby the transmission may be adjusted to increase or decrease the speed of said revolving member.

3. A device of the class described, comprising a shaft having means for holding a winding board or the like, a friction clutch through which said shaft is revolved, a second shaft geared to the first shaft, a roller adjustable along said second shaft, a friction disk engaged by said roller, a revolving member operated by said disk, a lever arranged to reciprocate said first shaft, a link connected with said revolving member whereby said connection may be adjusted diametrically of the revolving member, for the purpose set forth.

Signed at the city, county and State of New York, this 7th day of February, 1911.

MORRIS SCHOENFELD.

Witnesses:

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