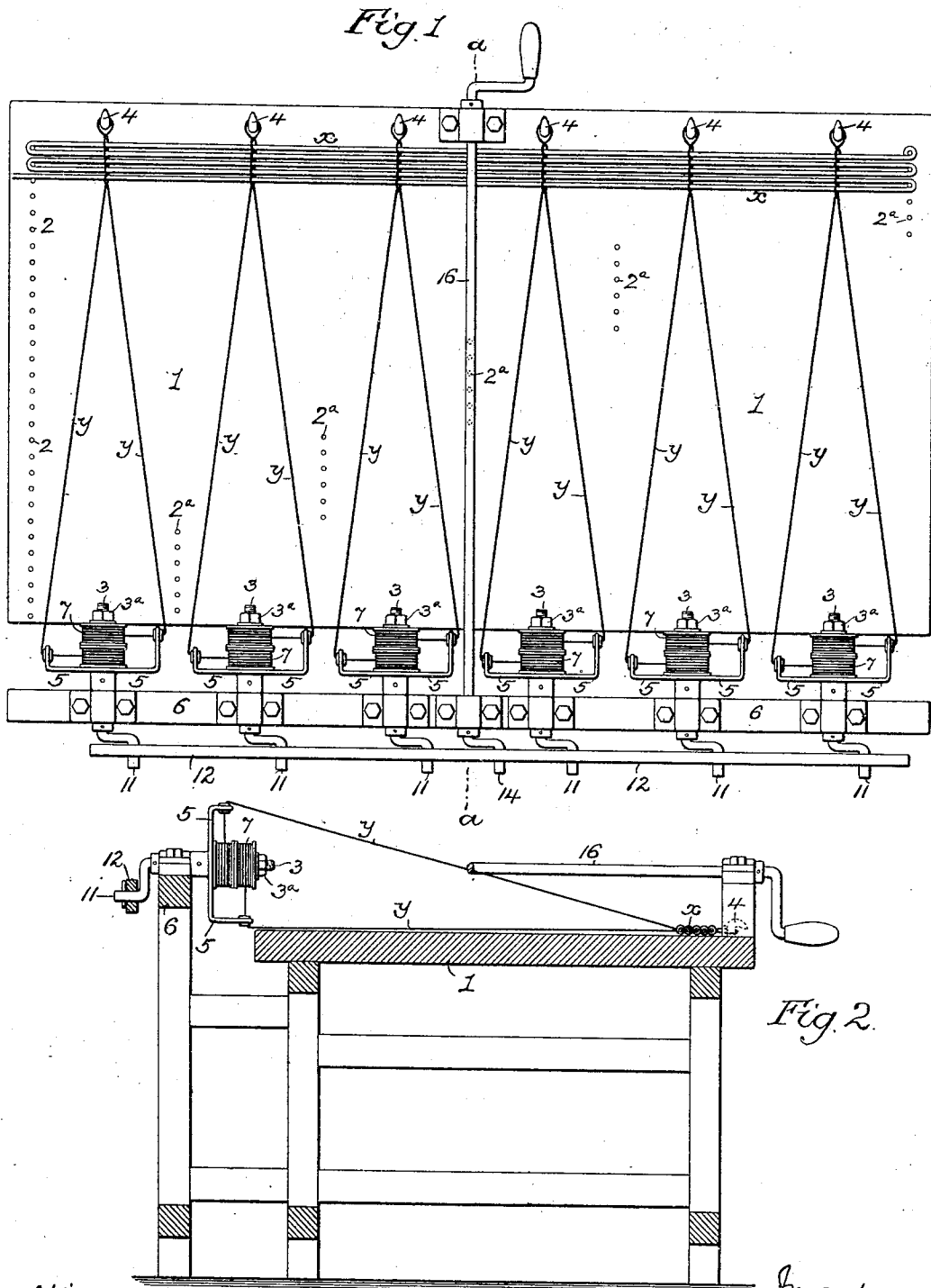


W. T. SMITH.
LAYING TABLE FOR ROPE PORTIÈRES.
APPLICATION FILED JAN. 29, 1908.

939,873.

Patented Nov. 9, 1909.

4 SHEETS—SHEET 1.



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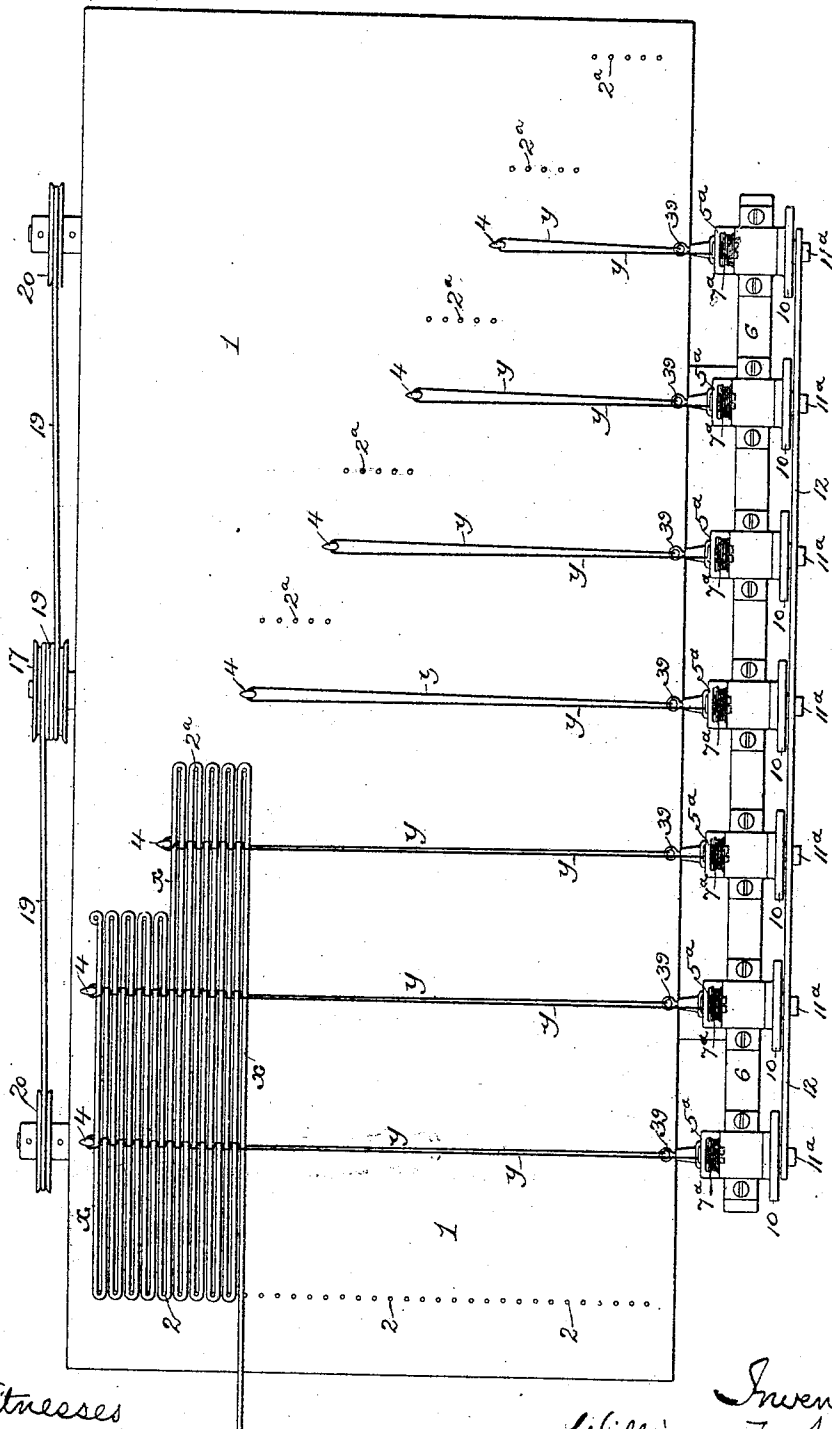
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4 SHEETS—SHEET 2.

Fig. 3.



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4 SHEETS—SHEET 3.

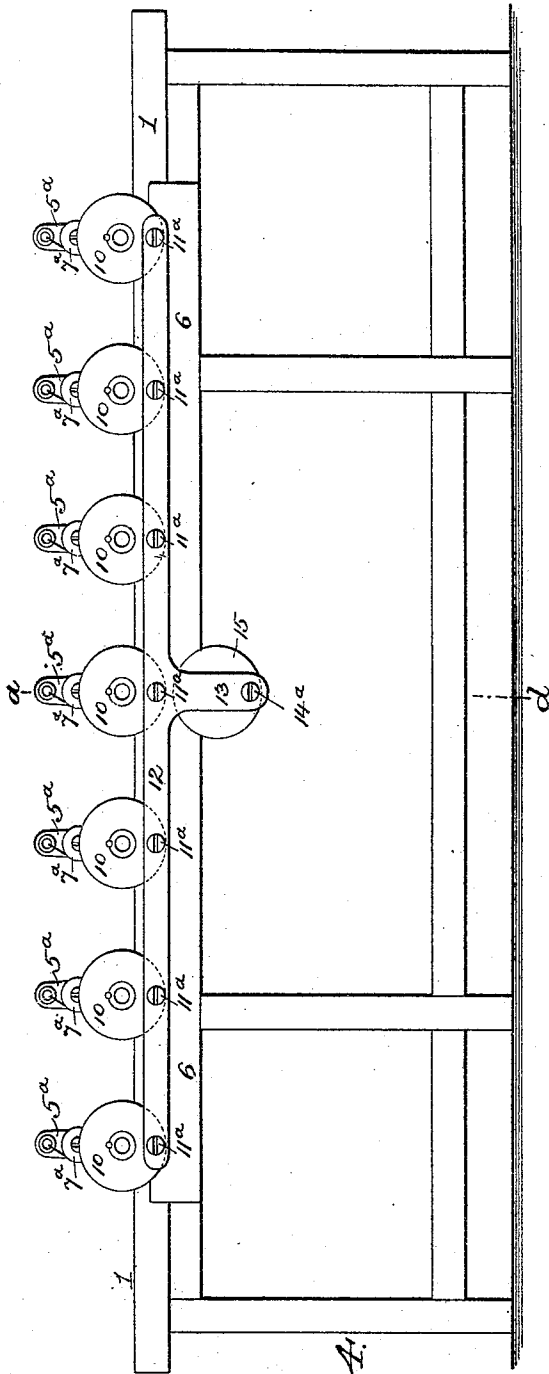


Fig. 4.

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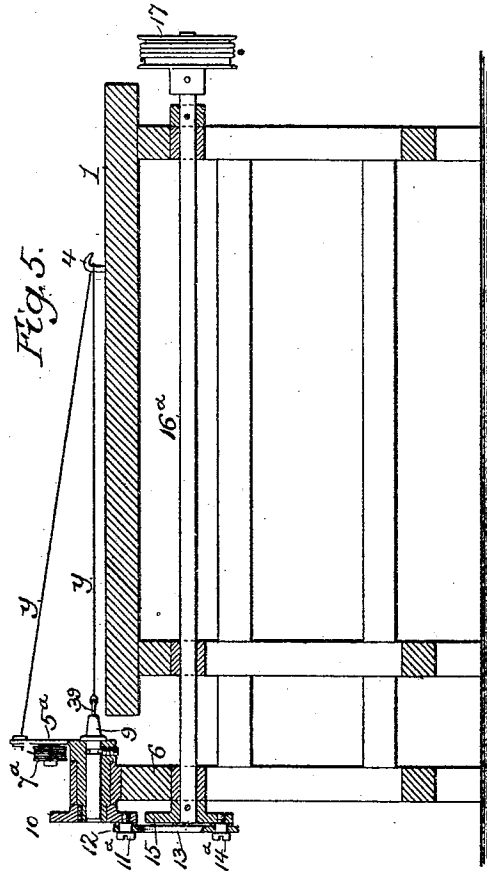


Fig. 5.

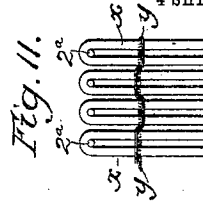


Fig. 11.

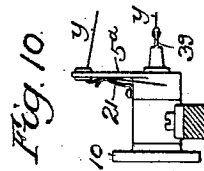


Fig. 10.

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4 SHEETS—SHEET 4.

Fig. 6.

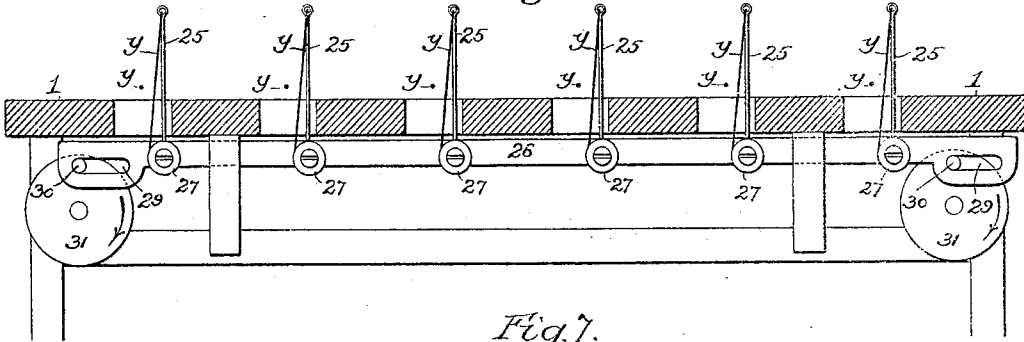


Fig. 7.

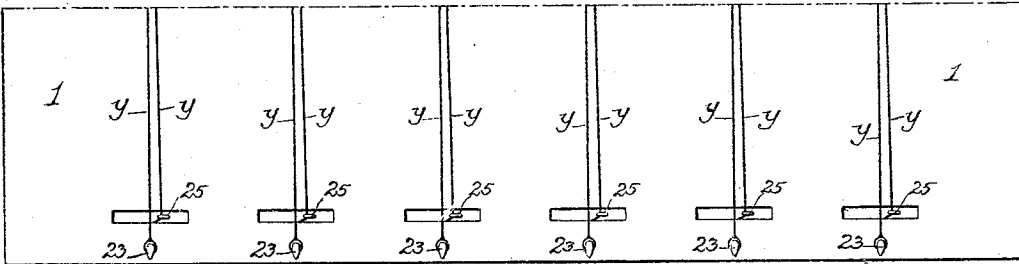


Fig. 8.

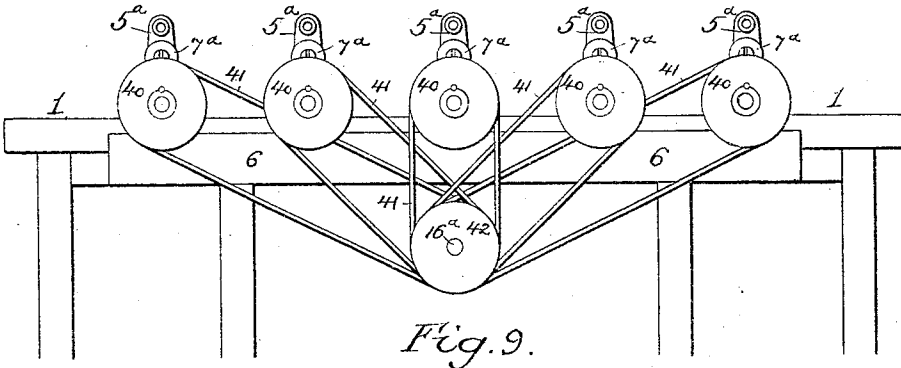
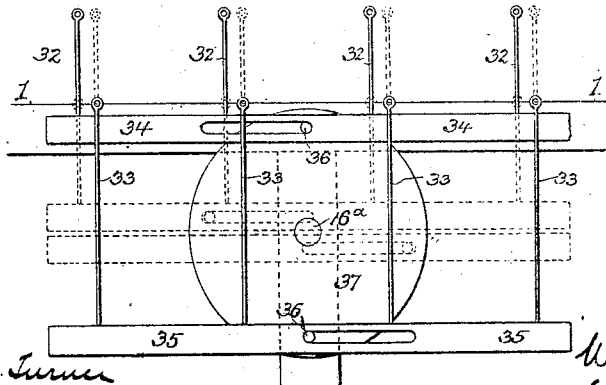


Fig. 9.



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UNITED STATES PATENT OFFICE.

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LAYING-TABLE FOR ROPE PORTIÈRES.

939,873.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed January 29, 1908. Serial No. 413,309.

To all whom it may concern:

Be it known that I, WILLIAM T. SMITH, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Laying-Tables for Rope Portières, of which the following is a specification.

The object of my invention is to so construct a laying table for rope portières that the binding together of the various lays of the rope constituting the portière can be readily effected during the laying of the rope on the table instead of subsequently thereto as by the method now practiced. This object I attain in the manner herein-after set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a plan or top view of a laying table for rope portières constructed in accordance with my present invention; Fig. 2 is a transverse section of the same, on the line *a—*a**, Fig. 1, but showing some of the parts in a different position from that illustrated in said figure, and with one of the parts broken away; Fig. 3 is a view similar to Fig. 1, but illustrating other thread-controlling means than those there shown; Fig. 4 is a side elevation of the devices shown in Fig. 3; Fig. 5 is a transverse section on the line *d—*d**, Fig. 4; Fig. 6 is a view, partly in longitudinal section and partly in elevation, of a laying table which provides for a different movement of the binding threads from that effected when either of the tables shown in Figs. 1 to 5 is employed; Fig. 7 is a plan view of part of the table shown in Fig. 6. Fig. 8 is a view similar to part of Fig. 4, but illustrating another means than that there shown for operating the devices which control the movements of the binding threads; Fig. 9 is a side view of part of a laying table illustrating still other means for operating the binding threads; Fig. 10 is a view, partly in section and partly in elevation, illustrating a modification of a detail of the binding thread controlling device, and Fig. 11 is a view illustrating a different arrangement of binding threads in respect to the lays of the rope from that illustrated in Fig. 1.

The laying table shown in Fig. 1 comprises a table or platform 1 of any desired dimensions, provided with pins or pegs disposed thereon with reference to the desired conformation of the portière which is to be produced, the table shown in the present in-

stance having a straight row of pegs 2 at one end, and opposed groups or sets of pegs 2^a disposed in step-like form, that is to say, the groups of pegs 2^a are located at different distances from the row of pegs 2, whereby, when the rope *x* is laid back and forth between the pegs and passed first around a peg 2 of the end row and then around a peg 2^a of one of the opposed sets or groups, the portière, when finished, will present depending portions graduated in length.

It is advisable in many cases to bind the successive lays of the rope together at intervals throughout the length of the portière, and the method heretofore adopted has been to interlace the binding or tying threads with the lays of the rope after the laying of the same upon the table has been completed, this operation requiring considerable time and the exercise of considerable skill. In carrying out my present invention I provide the laying table with means for carrying any desired number of sets or pairs of binding threads, for engaging the same with the lays of the rope as the latter are applied to the pegs or other rope-engaging devices on the table, and for crossing, engaging, or twisting together the threads of each pair or set between the lays of the rope, whereby the laying of the rope and the binding or tying of the successive lays of the same will proceed simultaneously and the portière will be finished when the laying of the rope upon the table has been completed.

The laying table is equipped with the various pairs or sets of binding threads *y* before proceeding to lay the rope thereon, and in the table shown in Figs. 1 and 2, each pair of threads *y* is tied together at the outer ends and applied to a hook 4 or other engaging device suitably disposed upon the table, the other end of each thread passing through an eye at the outer end of an arm 5, these arms being carried by a shaft which is adapted to bearings on a bar parallel with the side of the table, each thread being drawn from a spool 7 mounted so as to be free to rotate on the shaft 3 but provided with any desired means, such for instance as the nut 3^a on the shaft, for retarding its turning movement, in order to maintain the thread under proper tension and yet permit delivery from either spool 7 of such an amount of thread as may be necessary to enable it to properly perform its binding function.

The outer end of each shaft 3 has a crank 11, which engages an opening in a longitudinal bar 12, another opening in said bar being engaged by a crank 14 on a shaft 16, which is mounted in suitable bearings on the bar 6 and at the front of the table, and is provided, at its front end, with a crank whereby it may be readily turned, any such turning movement of the shaft 16 being, through the medium of the bar 12, transmitted to the shafts 3 and to the thread-guiding arms carried thereby.

In starting the operation the thread-guiding arms are adjusted to vertical position, as shown in Fig. 2, so as to form open sheds of the binding threads γ , and the first lay of the rope is then passed between these open sheds and applied to an opposed pair of pegs 2, 2^a, after which the shaft 16 is turned to any desired extent so as to effect corresponding turning of the shafts 3 and their arms 5 and the twisting of the threads γ alongside of the lay of the rope, the arms being left in the vertical position so as to form another open shed for the insertion of the next lay of the rope, after which the threads are again twisted and these operations are proceeded with until the formation of the portière has been completed, whereupon the forward ends of the binding threads can be slipped from the hooks 4 and the opposite ends of said threads secured in any desired manner.

The threads γ are preferably twisted first in one direction and then in the opposite direction, in order to prevent the continued twisting together of the threads after they have ceased to engage the lays of the rope in the narrower portions of the portière.

In the laying table shown in Figs. 3, 4, and 5, a thread γ is connected at one end to a fixed eye 39 on the table, is then passed around a hook or other engaging device 4 suitably disposed upon the table and then back to and through an eye at the outer end of an arm 5^a, having a hub which is rotatably mounted in a bearing on the bar 6, the thread being drawn from a spool 7^a on said arm, and the hub of the arm carrying the stem 9 of the eye 39, but being free to rotate around said stem in order to permit the eye to retain its stationary position. The outer end of the hub of each arm 5^a is provided with a disk 10 having a crank pin 11^a, and all of these crank pins are connected by the longitudinal bar 12, which has a depending arm 13 engaging a crank pin 14^a on a disk 15, the latter being carried by a shaft 16^a, which is free to turn in suitable bearings beneath the table, and has, at the front side of said table, a drum 17 for the reception of an endless cord, rope, or belt 19, which also passes around sheaves or pulleys 20 at the opposite ends of the table, whereby a pull upon either run of this belt in one direction or the other will

cause rotation in a corresponding direction of the drum 17 and like rotation of the disk 15, which rotation is transmitted, through the medium of the bar 12 and its arm 13, to the various disks 10, and thus causes rotation of the various arms 5^a around the stems of the eyes 39 and a consequent wrapping of the binding threads. Continuous movement of the arms 5^a in one direction may be permitted if the threads γ are placed in position successively as they may be required to effect the binding together of the runs of the rope.

Instead of drawing each thread from a spool 7^a on the arm 5^a, said thread may have a free end of the necessary length engaged by a suitable tension device on the arm, such, for instance, as the spring 21 shown in Fig. 10.

It is not essential, in carrying out my invention, that the binding threads γ should be wrapped or twisted between the successive lays of the rope of which the portière is composed, as the threads may simply engage each other between said lays, in which case a rising and falling movement of each thread-guiding arm, first on one side and then on the other side of the lower thread of the pair will be all that is necessary. Means for effecting this movement are shown in Figs. 6 and 7, on reference to which it will be observed that one end of each of the lower threads is connected to a hook or other engaging device 23 near one side of the table, each of the other threads passing through an eye on an arm 25 which is carried by a bar 26, and being wound upon a suitably tensioned spool 27 on said bar. The opposite end portions of the bar are horizontally slotted, as at 29, for the reception of crank pins 30, on disks 31, carried by shafts at opposite ends of the table, these shafts being provided with means similar to those shown in Fig. 3, or other equivalent devices, whereby rotating movement first in one direction and then in the opposite direction can be imparted thereto.

As shown in Fig. 6 the disks are about to move in the direction of the arrows there indicated, the result being that the bar 26 and its arms 25 will be first lowered, then shifted laterally to the desired extent, and then raised again. After the next lay of the rope has been introduced, the disks 31 are turned in the opposite direction, and a reversal of these movements of the bar 26 and its arms takes place, and these operations are repeated with the result that the upper thread γ will be first lowered on one side of the lower thread, then shifted to the opposite side of the same, and then raised on said opposite side, so as to engage each upper thread with the lower thread between the successive insertions of the rope between them.

When it is desired to simply cross the

threads y between the successive insertions of the rope means such as those shown in Fig. 9 may be employed. In this case the ends of the threads y are carried or guided by opposite sets of arms 32 and 33, the arms 32 being carried by a bar 34 and the arms 33 by a bar 35, and each of these bars being slotted horizontally for the reception of one of a pair of oppositely set crank pins 36 on a disk 37 which is carried by a shaft 16 suitably mounted beneath the table, to which shaft movements of partial rotation to the extent of a little less than a quarter turn may be imparted, first in one direction and then in the opposite direction, by means similar to those shown in Figs. 1 and 3 or other equivalent devices, with the result that the bars 34 and 35 will be raised and lowered, one bar being lowered as the other is raised, so as to effect the desired crossing of the threads between the successive insertions of the rope.

Where rotative movements of the thread-guiding arms are required, such movements may be imparted to the various arms by means of belts and pulleys from a common shaft, one arrangement of this character being shown in Fig. 8, in which the hub of each arm 5^a is provided with a belt pulley 40 for receiving a belt 41 from a multiple pulley 42 on the central driving shaft 16^a.

If, instead of passing a shuttle, spool, or ball, upon or into which the rope is wound, back and forth across the table and between the upper and lower binding threads, loops of the rope are drawn from a reel, hank, or skein at one end of the table, the binding threads will be crossed, engaged or twisted between successive double or looped lays of the rope, as shown in Fig. 11, instead of between successive single lays of the rope, as shown in Figs. 1 and 3, or the binding threads may be crossed, engaged or twisted at even less frequent intervals if desired,

the term "lay" applying to the one or more runs of the rope intervening between the successive operations of the binding threads.

When the rope is composed of chenille or other soft material, the tension under which the binding threads y are maintained will cause said threads to bury themselves in the rope, so that in the finished portière the binding threads will not be visible.

I claim:—

1. A laying table for rope portières having rope engaging devices at different distances apart in the direction of the lay of the rope.

2. A laying table for rope portières having rope engaging devices at different distances apart in the direction of the lay of the rope, and having a series of devices for engaging tying threads and operating the same to secure together the successive lays of the rope.

3. A laying table for rope portières having rope engaging devices at different distances apart in the direction of the lay of the rope, and means for engaging tying threads and operating the same to secure together the successive lays of the rope, said means having elements disposed diagonally across the table.

4. A laying table for rope portières having rope engaging devices at different distances apart in the direction of the lay of the rope, means for engaging tying threads which extend transversely to the successive lays of the rope, and means for causing said tying threads to engage with one another between successive lays of the rope.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM T. SMITH.

Witnesses:

R. C. STERNER,
H. C. SAYLOR.