A. L. CUTTER.

CLOTH LAYING MACHINE.

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1,316,692.

Patented Sept. 23, 1919.

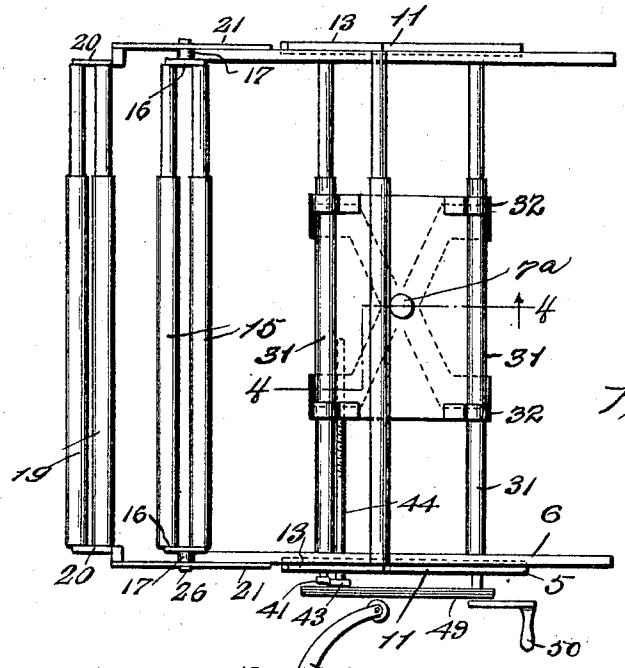


Fig. 1.

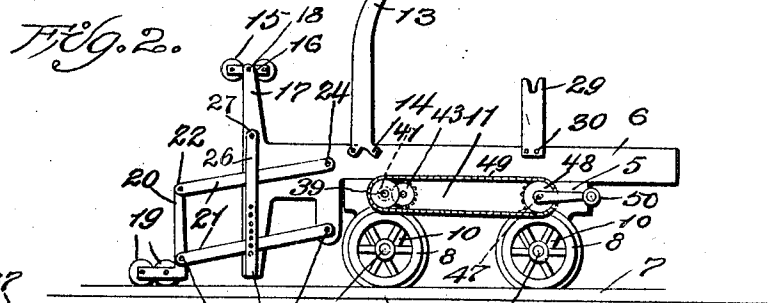


Fig. 2.

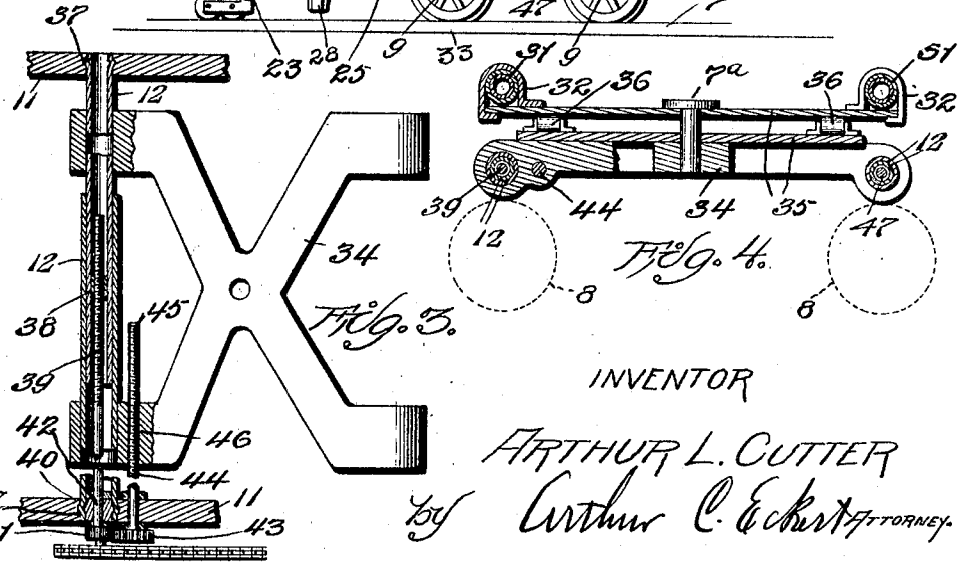


Fig. 3.

Fig. 4.

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ARTHUR L. CUTTER, OF ST. LOUIS, MISSOURI.

CLOTH-LAYING MACHINE.

1,316,692. Specification of Letters Patent. **Patented Sept. 23, 1919.**

Application filed June 25, 1918. Serial No. 241,839.

To all whom it may concern:

Be it known that I, ARTHUR L. CUTTER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Cloth-Laying Machines, of which the following is a specification.

This invention relates to improvements in cloth laying machines and is directed to that type which permits the rotation of the roll of cloth at each end of the carriage track for the purpose of laying cloth uniformly with the nap or pattern or grain uniformly placed. This rotating means I have denominated a turntable. My improved device becomes operative when a turntable cloth laying machine is used which permits of the selective variations of the width of the machine with the expansion or contraction of the lateral frame elements of the carriage by means of telescopic rods. The conventional rotatable cloth laying means used with a carriage having telescopic width varying rods is subject to the following defects: The pivotal point of the cloth laying means, that is, the turntable does not remain in the center of the machine or carriage, considering it laterally. This means that when the roll of cloth is rotated it will not bring the selvage of the cloth in the same vertical plane with the lateral members of the carriage. This requires that the pivotal point be moved to the center in order to permit the cloth laying means to properly function. My device automatically centers the pivotal point of the cloth laying means when the width of its supporting carriage is varied. That is to say when the lateral elements of the frame of the machine are laterally spaced apart at varying distance the pivotal point of the cloth laying means will automatically remain in the center of the carriage, considering it laterally, that is midway between the lateral frame elements of the carriage. Without my device the turntable becomes practically inoperative with the telescopic rod machine, or it requires a separate distinct manual operation to preserve the concentricity of the pivotal point of the cloth laying means with the carriage. My device is simple in construction, practically indestructible, made of few parts and can be built in to any machine of this type very economically.

Referring to the drawing—

Figure 1 is a plan view of a cloth laying machine embodying my invention.

Fig. 2 is a side elevation of the machine.

Fig. 3 is an enlarged fragmental sectional plan of a portion of the spider of the turntable and the means for preserving its centralized position relative to the sides of the carriage.

Fig. 4 is a cross section taken on lines 4—4 of Fig. 1.

In the drawing numeral 5 designates the carriage as a whole, 6 the cloth laying means, as a whole, 7 the tracks on which the carriage runs, and 7^a the pivot about which the cloth laying means revolves relative to the carriage.

The carriage comprises supporting wheels 8, axles 9, journal box elements 10, sides (frame elements) 11 and telescopic rods 12 connecting the sides 11.

The cloth laying means comprises side frame elements having special relating devices, a cloth roll support 13, (which is secured to the frame elements as by bolts 14), cloth tension rolls 15, (carried by an arm 16 upon standards 17 forming parts of the sides of the frame elements, and said arm is reversibly mounted on a bolt 18). The cloth laying means further comprises a pair of cloth feeding and laying rolls 19 carried at its forward end on L-shaped carriers 20, pivotally hung on arms 21, as at 22 and 23 and which arms are pivotally supported on the frame as at 24 and 25. The arms 21 are held against lateral movements by guards 26 secured at points 27 and 28 to the sides of the frame elements and free to move vertically between said points.

As is common in machines of this character, I resort to the expedient of a cloth-roll support 29 secured to the frame elements as at 30.

The spacial relating means, recited, of the cloth laying means comprises telescopic rods 31.

All of the elements thus far described are of the conventional form and type. It will be seen that the width of the carriage may be altered by variable spacing of the side frame

elements 11 by means of the telescopic rods 12. The cloth laying means 6 is composed of side frame elements similar to those of the carriage; the side elevation of one of such elements is shown in Fig. 2. These side frame elements in the cloth laying means are likewise connected by telescopic rods permitting these elements to be selectively spaced apart, thereby varying the width of the cloth laying means. The side frame elements of the cloth laying means and the carriage remain in a constant state of parallelism. These telescopic rods of the cloth laying means are shown in section in Fig. 4 by the numeral 31 and are secured to a turntable hereinafter described by the straps 32.

The device thus far described shows all the elements necessary for an operative carriage cloth laying means and turntable which can be selectively used with varying widths of cloth. The purpose of having the cloth laying means 6 rotatively secured to the carriage 5 by means of the bolt 7ª is to permit a rotation of the cloth laying means relative to the carriage of 180 degrees. This rotation is only necessary when cloth is laid which requires the same side of each layer to be faced upward; for instance, cloth having a decided nap or figure or grain so that the cloth has what may be termed a right side and a reversed side. It becomes necessary in laying cloth of this type to cut the cloth at the end of the travel of the carriage at each end and then either move the carriage to the opposite end without laying any cloth or to rotate the cloth distributing portion of the machine 180 degrees. This is accomplished in my device by a rotation of the cloth laying means as indicated. The cloth tension and distributing rolls and the cloth roll standard are all secured to the cloth laying means so that they need not be duplicated at the other extremity of the turntable.

It will be seen that in order to preserve the relative position of the carriage and cloth laying means when different widths of cloth are laid that the point of rotation of the cloth laying means must always remain exactly in the middle of the vertical distance between the side frame elements 11. If this condition does not obtain, the cloth laying means will become so relatively positioned with respect to the carriage that a portion of the cloth laying means would protrude beyond the sides of the carriage. It would be impossible in such a condition to have the cloth laid in a proper position on the table which forms the support for my entire device and which table I designate by the numeral 33. My device for varying the distance between the side frame elements 11 is of such a structure that the bolt 7ª, the axis of the cloth laying means, always remains intermediate the side frame elements 11 of the carriage irrespective of the distances they are spaced apart.

This is accomplished by means of the following device which is most clearly shown on Fig. 3. Slidably supported by the rods 12, of the carriage, is a spider 34 over which there is located a pair of plates 35 between which are anti-friction rollers 36, and said spider, plates, rollers and the bolt 7ª constitute the turntable hereinbefore recited. The telescopic rods of the cloth laying means are by means of the straps 32 secured to the uppermost one of the plates 35. The method of attaching the telescopic rods 12 to the side frame elements 11 is shown at 37 in Fig. 3. In Fig. 3 the telescopic rod is shown in section. In the interior of the smaller one of the telescopic rods 12 shown in Fig. 3 is firmly secured a nut 38 into which is screwed the shaft 39 which said shaft passes through one of the side frame elements 11 at 40. Firmly secured to the extremity of the shaft 39 is the spur gear 41. 42 designates collars secured to the shaft 39, one at each face of the side frame elements 11 so that when the spur gear 41 and hence the rod 39 are rotated the distance between said collar and said spur gear will remain constant. It can be seen that by a rotation of the spur gear 41 and hence the rod 39 the threaded engagement between said rod and the nut 38 will vary the distance between the side frame elements 11. In mesh with the spur gear 41 is positioned the spur gear 43 which is firmly secured to the rod 44. The gear ratio between gears 41 and 43 is as one is to two. That is to say, that rod 44 will rotate one-half as fast as rod 39. The one extremity of the rod 44 is threaded as at 45 and is secured to the spider 34 by a threaded engagement as shown at 46. The pitch of the threads on rods 39 and 44 is the same, and the direction of the threads is in opposition. It will be seen, therefore, that if gear 41 is rotated, that the spider 34 will be moved laterally relative to the side frame elements 11 in one direction one-half as fast as the other side frame element 11 will move from said first named side frame element 11 in the same direction.

As shown, only in section in Fig. 4 there is a rod 47, whose function is identical with the described rod 39 and coacts therewith to hold and move the frame elements of the carriage in relative parallelism. To the rod 47 there is secured a sprocket wheel 48 having a chain connection 49 with a similarly sized sprocket wheel on the rod 31, and to the rod 47 there is secured a crank 50 for the purpose of securing a mechanical advantage in the rotation of gear 48. It will be seen, therefore, that when handle 50 is rotated that the

side frame elements 11 of the carriage can be selectively spaced apart in any direction depending upon the direction of rotation of the handle 50. It will also be seen that the bolt 7ª, the axis of the cloth laying machine, will remain in its intermediate position between the side frame elements 11.

What I claim and mean to secure by Letters Patent is—

1. A cloth laying machine, comprising in combination a carriage, having its side frame elements selectively spaced apart, a cloth laying means comprising a turntable having its side frame elements selectively spaced apart, said turntable rotatively mounted on said carriage midway between the lateral frame elements of said carriage and means for automatically, selectively preserving the concentricity of the pivotal point of said turntable and said cloth laying means relative to the side frame elements of said carriage.

2. In a cloth laying machine, a carriage having relatively movable side frame elements, a cloth laying means rotatively secured on said carriage and means of automatically centralizing the rotational pivotal point of said cloth laying means relative to the side frame elements of said carriage upon relative movements of said frame elements.

3. In a cloth laying machine, a carriage, a turntable supported by the carriage, a cloth laying means supported by said turntable, said carriage and cloth laying means each having side frame elements, telescopic rods connecting said frame elements, a gear for varying the spacing of the frame elements of the carriage, a spider constituting a mount for said turntable, supported by the rods of the carriage, a gear acting on said spider and relative to the gear of the frame elements to cause the spider to be moved to a centralized position between the frame elements upon a movement thereof, whereby the cloth laying means may be reversed over the path of the carriage and be centralized in each directional movement of the carriage as, and for the purposes stated.

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

ARTHUR L. CUTTER.

Witnesses:
R. G. ORWIG,
PHYLLIS S. MAFFRAY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."