Aug. 17, 1954 H. W. GILBERT ET AL 2,686,565

CLOTH LAYING MACHINE AND TRACK THEREFOR

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Fig. 1

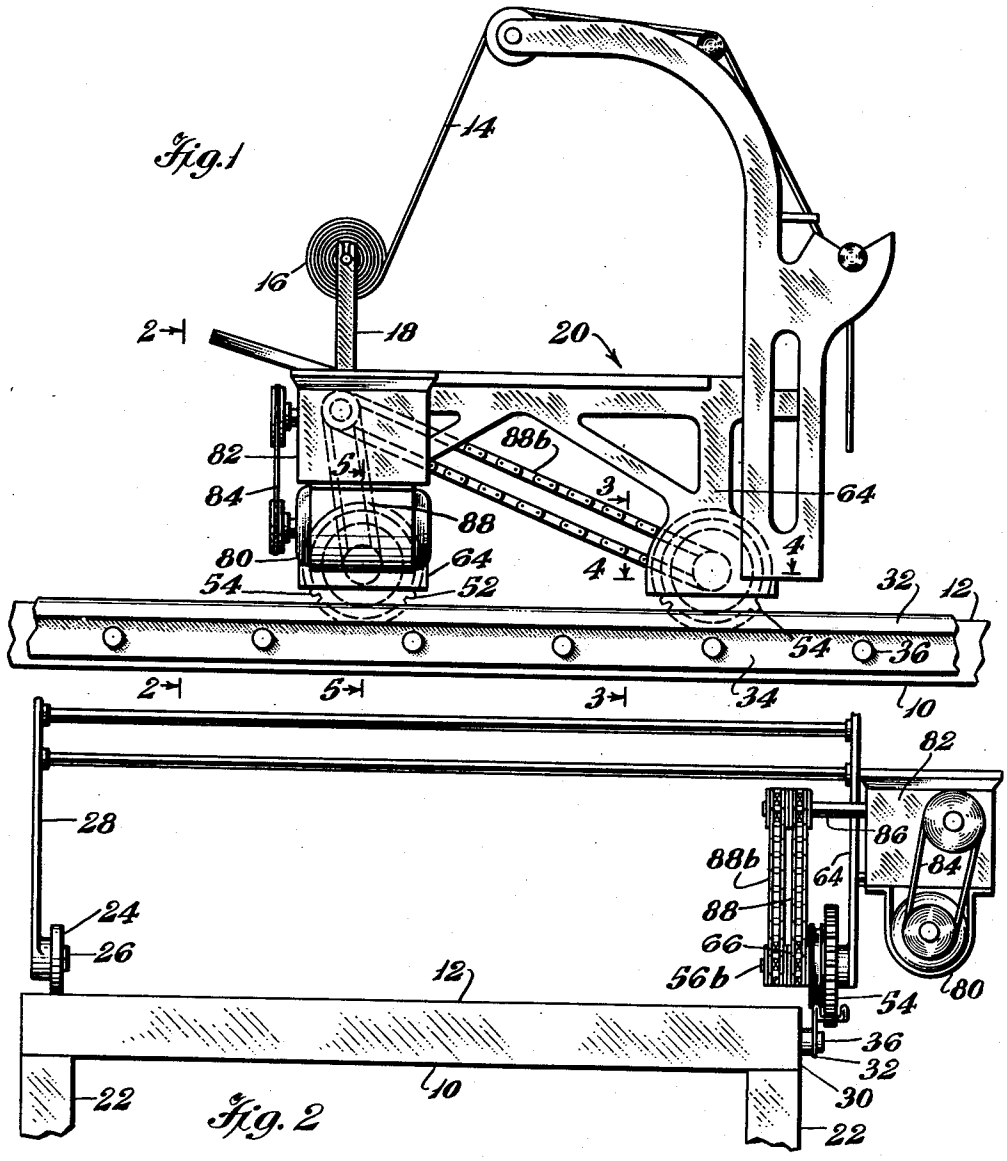


Fig. 2

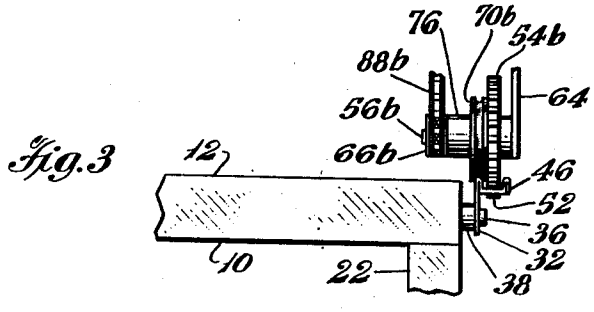


Fig. 3

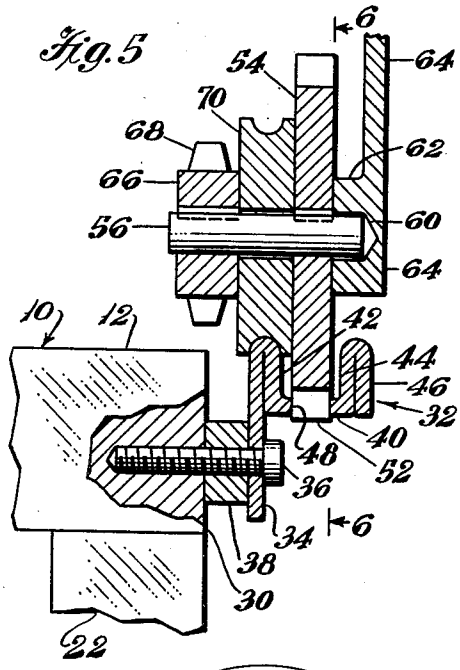
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Fig. 5



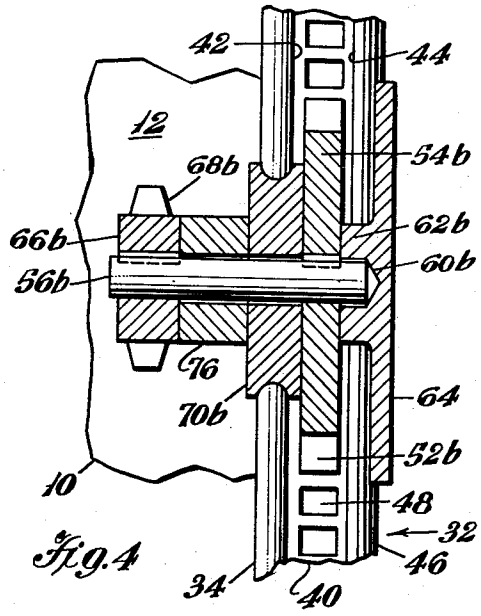


Fig. 4

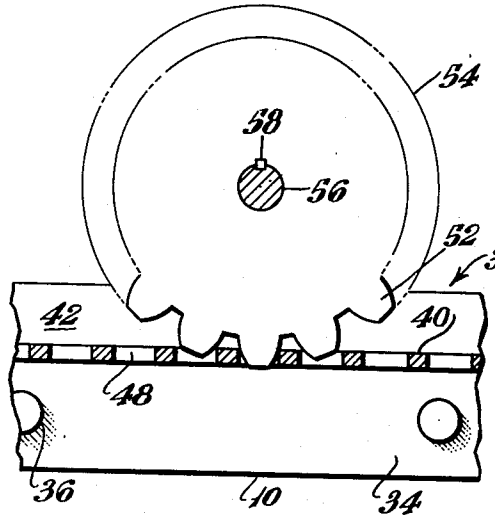


Fig. 6

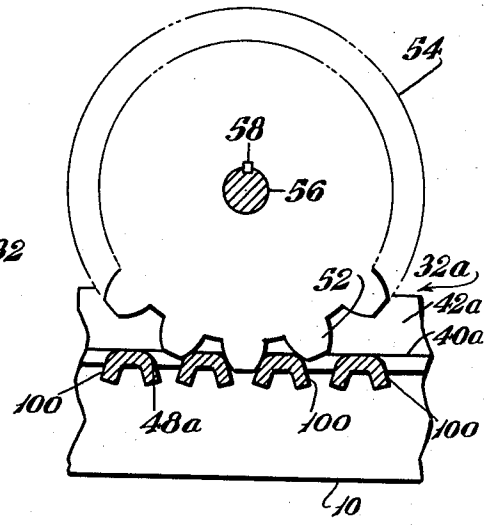


Fig. 7

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CLOTH LAYING MACHINE AND TRACK THEREFOR

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Application November 20, 1947, Serial No. 787,240

2 Claims. (Cl. 164—78)

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This invention relates to improvements in cloth laying machines and the like.

An object of the invention is to provide an improved means whereby a cloth laying machine engages the cutting table, having improved traction, and being characterized by smooth operation and absence of slippage during the movement of the machine along the table.

Another object of the invention is to provide an improved cloth laying device including a cutting table and a cloth laying machine adapted to carry a bolt of cloth thereover and to lay the cloth thereon, and including an improved form of track carried by the table and improved means carried by the cloth laying machine for engaging the track.

A further object of the invention is to provide a track adapted to be carried by a cloth cutting table, and having a plurality of openings formed in the track, and a gear wheel adapted to be carried by a cloth laying machine traversing the table longitudinally, the teeth of the gear engaging successive openings in the track during the traverse of the cloth laying machine.

Still another object of the invention is to provide improved means for moving a cloth laying machine along a cutting table, said improvement being adaptable to existing cutting tables and cloth laying machines without major structural alteration thereof, and having substantially enhanced drive characteristics.

Other objects and advantages of the invention will become apparent from the following description of a preferred embodiment thereof, as illustrated in the accompanying drawings, and in which,

Fig. 1 is a side elevational view of a portion of a cutting table with a cloth laying machine supported thereon,

Fig. 2 is an elevational view taken on line 2—2 of Fig. 1,

Fig. 3 is a fragmentary sectional elevation taken on line 3—3 of Fig. 1,

Fig. 4 is a fragmentary sectional plan view taken on line 4—4 of Fig. 1,

Fig. 5 is a fragmentary sectional elevation taken on line 5—5 of Fig. 1,

Fig. 6 is a fragmentary sectional elevation taken on line 6—6 of Fig. 5, and

Fig. 7 is a fragmentary sectional elevation similar to that of Fig. 6, but showing a modified form of the invention, with particular relation to the track.

In the operation of cloth laying machines, as is well known in the art, a frequent source of difficulty occurs due to the non-uniform rate of traverse of the cutting table by the machine during the cloth laying process. This results in uneven cloth laying, characterized by locally stressed areas in the layers of cloth as laid, or by upstanding ridges or undulations in the layers, all this making for imperfect cutting of the cloth.

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The present invention is intended to obviate this difficulty. In order to understand clearly the nature of the invention and the best means for carrying it out, reference may now be had to the drawings, in which like numerals denote similar parts throughout the several views.

As shown, there is a cutting table 10 which is normally of considerable length, the table having an upper surface 12 upon which the cloth 14 is laid upon being unwound from the roll 16 carried upon the upright supports 18 of the cloth laying machine shown generally at 20. The cutting table 10 and the cloth laying machine 20 are in many respects similar to those shown in copending application, Serial Number 760,388, filed on July 11, 1947, by Herman Walter Gilbert, Walter Deichmann and constitutes an improvement not only of the device shown in said application, to which reference may be made for details of construction not otherwise described herein, but also of any cloth laying machines and cutting tables of the same general type.

The cutting table 10 is supported upon legs 22 which rest upon the floor of the cutting room. The cloth laying machine 20 rolls rear wheels 24 along the upper surface of the cutting table, as seen best in Fig. 2, the wheels being carried upon axles or pins 26 secured to and protruding inwardly from the rear wall section 28 of the machine frame. There are two such rear wheels 24 which roll along the left hand portion of the cutting table surface as seen in Fig. 2.

The cutting table is also provided along its right hand edge 30 as seen in Fig. 2, with a longitudinal rail shown generally at 32. It will be seen that the rail 32 comprises a major flange 34, shown best in Figs. 1 and 5, which is vertical and is secured to the abutting edge 30 of the cutting table by means of screws 36. The screws 36 extend through holes formed in the major rail flange at spaced intervals therealong, as shown in Figs. 1 and 5, its shank also extending through a spacing washer 38 disposed between the major flange and the cutting table, to space the rail uniformly from the table edge.

The rail 32 has a central track or guideway 40 which lies in a plane perpendicular to that of the major flange 34 and parallel to the plane

of the table top 12. As shown in the illustrations, the track 40 is interconnected with the upper edge of the major flange 34 by means of an integral longitudinal vertical inner minor flange 42. The rail also has an upstanding integral longitudinal intermediate flange 44 which is parallel to the flanges 34 and 42, the outer portion of which is bent downwardly upon itself to form depending outer rail flange 46.

It will be apparent that the entire rail 32 may be formed from a single continuous length of sheet metal, by methods well known in the metal working art. In the rail floor or track 40 throughout the entire length of the track are formed uniformly spaced openings 48. These openings in the track 40 are adapted to receive the teeth 52 of gear wheels 54 and 54b, two such wheels being provided on the cloth laying machine.

The gears 54 and 54b are mounted upon shafts 56 and 56b respectively for rotation therewith, being engaged therewith by means of keys 58, the shafts being seated firmly and securely at one end in bearings 60 formed in bosses 62 in the inner lower ends 64 of downward projections of the front wall of the cloth laying machine frame. As seen in Fig. 5, a sprocket wheel 66 having teeth 68 is also mounted on axle 56 for rotation therewith, being spaced from the gear wheel 54 as illustrated. A pulley-like wheel 70 is mounted on the axle 56 for rotation freely thereon, in the intervening space. The wheel 70 has an annular groove formed in its peripheral surface to receive the rounded rail surface formed at the intersection of the rail flanges 34 and 42, upon which the wheel 70 rides and provides support for the cloth laying machine.

As shown in Fig. 4, the other gear wheel 54b is mounted on the axle 56b for rotation therewith, the axle being secured in and rotatable in a bearing 60b formed in a boss 62b of the frame wall 64. A pulley-like wheel 70b is mounted on the axle 56b for rotation thereon and has an annular groove to receive the underlying curved portion of the rail 32, upon which it rides and supports the cloth laying machine. A spacer 76 is mounted on the axle next to the pulley wheel, for rotation on the axle, and, as shown in Fig. 4, a sprocket wheel 66b, similar to that shown at 66 in Fig. 5, is mounted on the axle 56b for rotation therewith.

The axles 56 and 56b are driven by means of power derived from a motor 80 connected to a speed change gear box 82 through a power belt 84. The speed and direction change gear mechanism may be of any suitable type, one of which is described and illustrated in the said copending patent application, Serial No. 760,388, although we do not wish to be limited to a mechanism of the type mentioned in said application. Power from the output shaft 86 of the gear box 82 is transmitted to the axles 56 and 56b through sprocket chains 88 and 88b.

It will be apparent that upon rotation of the power output shaft 86 in any suitable direction, both the traction gears 54 and 54b will rotate in a corresponding direction, and, in view of the engagement of their gear teeth with the openings 48 in the track floor, will cause the cloth laying machine to traverse along the cutting table. Because of the positive engagement of the cloth laying machine with the cutting table through the aforementioned traction gears and the track itself, it is apparent that there will be no slippage of the cloth laying machine as it moves. Instead, its motion will be uniform, depending necessarily upon the rate of speed set by the gear box 82, and there will be no slippage with respect to the track. The cloth will hence be laid in wholly plane layers upon the table, and without locally stressed cloth areas in each layer.

By means of the construction shown, it is not necessary to drive the wheels 24 of the cloth laying machine to achieve this end, as has been almost always necessary in prior art machines, since positive engagement of the gear wheels 54 and 54b is obtained on the same side of the machine as the gear box 82 and driving motor 80. Use of long lateral drive shafts is avoided, which were almost always needed in prior art machines, such as the lateral shaft 36 shown in Figs. 2 and 3 of the aforementioned patent application, Serial No. 760,388. This reduced the cost and expense of manufacture and maintenance.

When seen in plan, as in Fig. 4, the openings 48 in the track floor are substantially rectangular, although other shapes may be employed, depending upon the shape of the gear teeth 52. A modified form of track is shown in Fig. 7, in which the teeth 52 of a gear 54 extend through the openings 48a formed in the track floor. It will be seen that instead of the openings being wholly punched out as in Fig. 6, the floor of the track is tongued downwardly at intervals, forming tongues 100, the surfaces of the tongues which bear against the curved portions of the gear teeth being similarly curved to avoid wear on the track and the gear teeth.

Although we have described our invention in specific terms, it is to be understood that various changes may be made in size, shape, materials and arrangement without departing from the spirit and scope of the invention.

We claim:

1. In combination with a cutting table, a cloth spreading machine for movement over the table, track means carried by the table parallel to one edge thereof, wheel means carried by the machine for supporting the machine upon the table, the track means incuding a metallic formed member of substantially uniform cross-section, the member having a relatively horizontally disposed portion, said portion having a plurality of openings formed therein along its length, the member including an upwardly directed portion adjacent said horizontally disposed portion, said upwardly directed portion providing an edge above said horizontally disposed portion, said wheel means including a rotatable member having projections complementary to said openings, motor means for driving said rotatable member, said projections and said openings being associated to interengage for propelling said machine along the track means substantially without slippage, and a wheel mounted on said machine and encompassing the edge of said upwardly directed portion.

2. In combination, a cutting table having an elongated edge, and a track for use in movably supporting a cloth laying machine above said table; said track having a major vertically disposed flange, and means for securing said flange in spaced and parallel relationship with respect to said elongated edge; a substantially U-shaped channel portion carried by and integral with said major vertical flange and defining a track floor therewithin to receive a rotatable traction wheel riding upon said track floor and carried by a cloth

laying machine; said track floor having a plurality of uniformly spaced openings therein to receive projections in the nature of teeth and the like forming parts of said traction wheel.

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