April 30, 1935. S. M. BLOCH 1,999,276

CLOTH LAYING MACHINE

Filed April 15, 1933 3 Sheets-Sheet 1

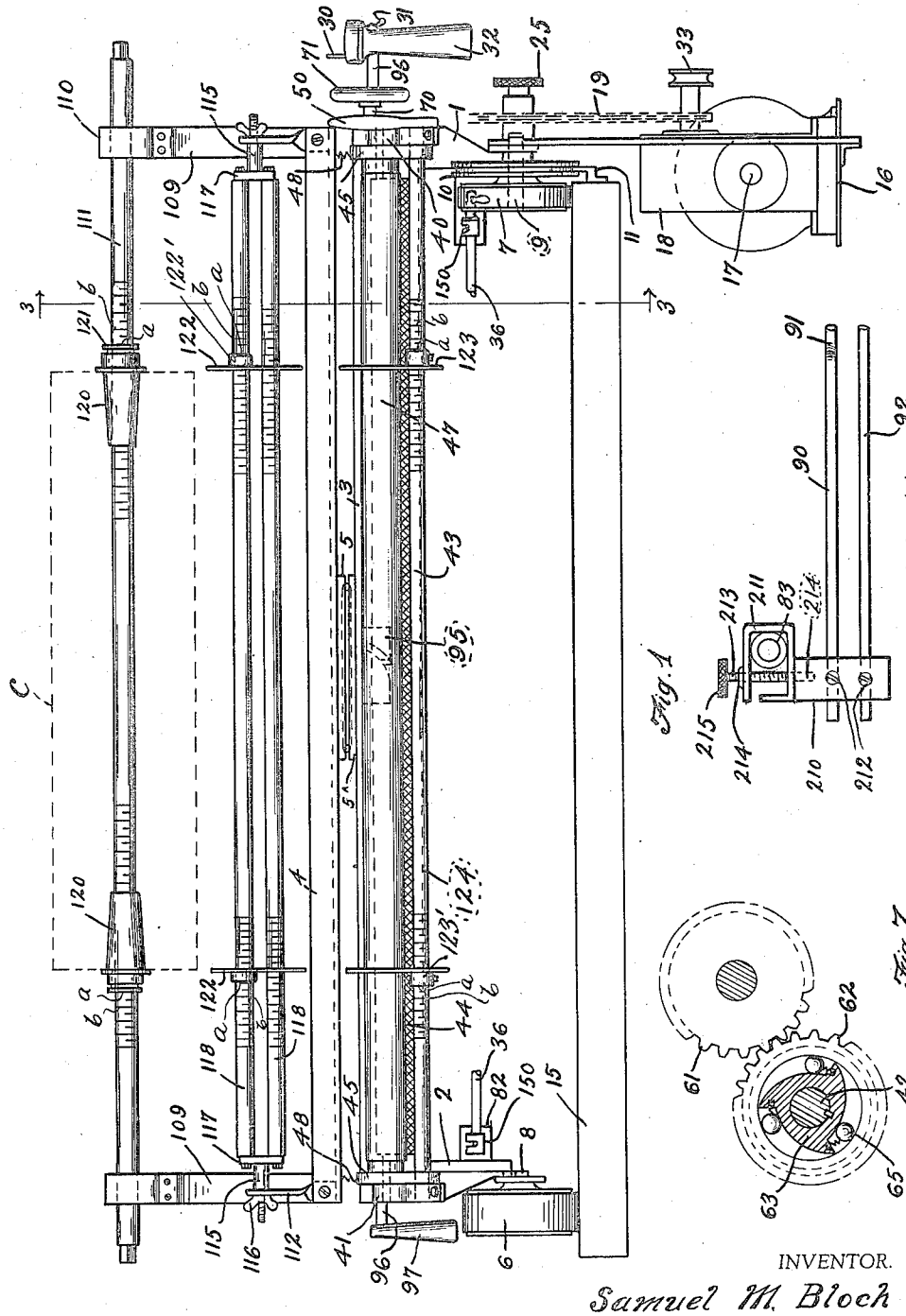


Fig. 1

Fig. 11

Fig. 7

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CLOTH LAYING MACHINE

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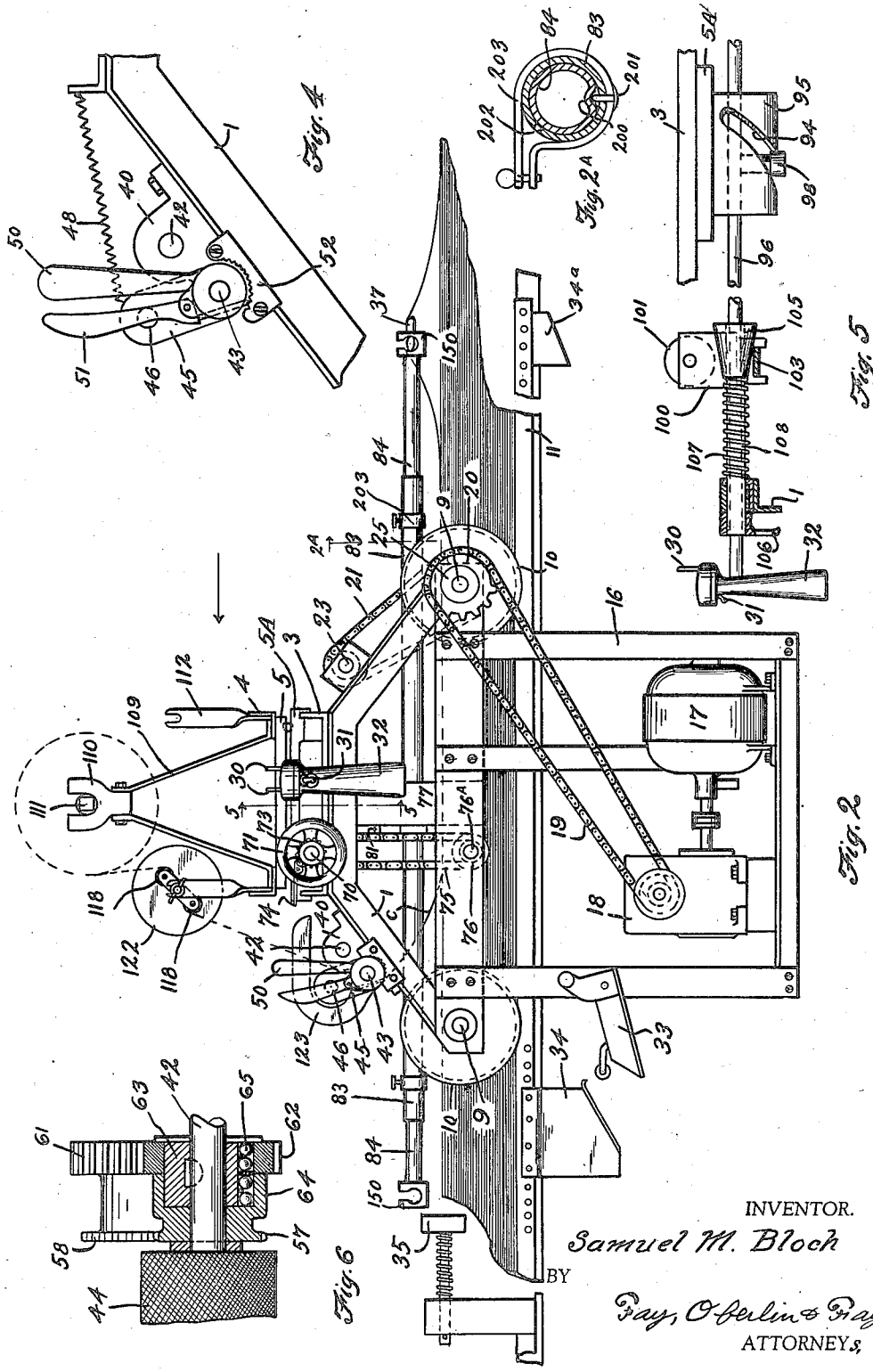


Fig. 2

Fig. 4

Fig. 2A

Fig. 5

Fig. 6

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CLOTH LAYING MACHINE

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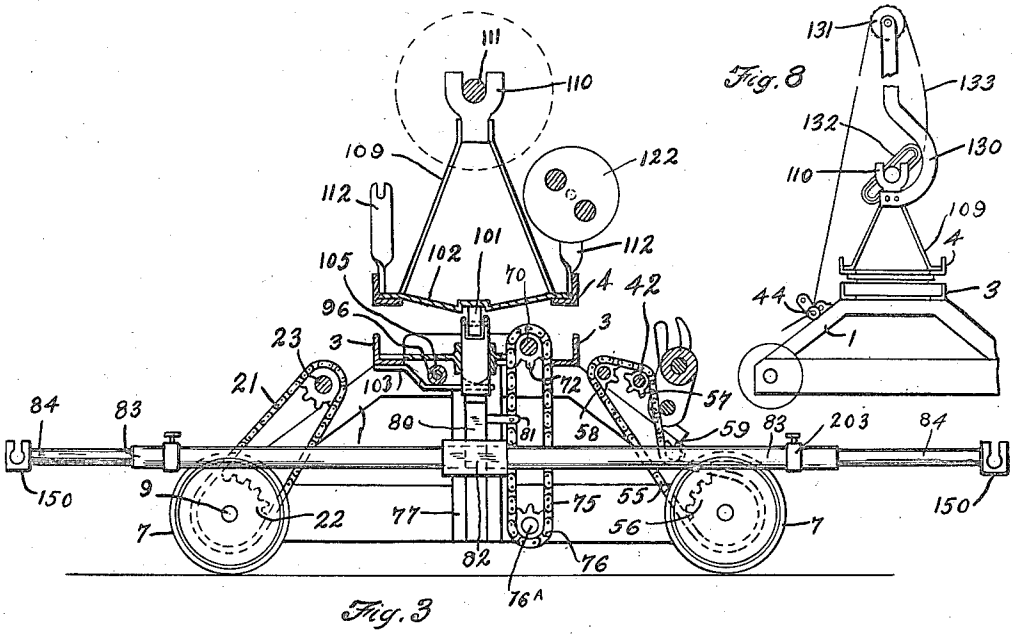


Fig. 3

Fig. 8

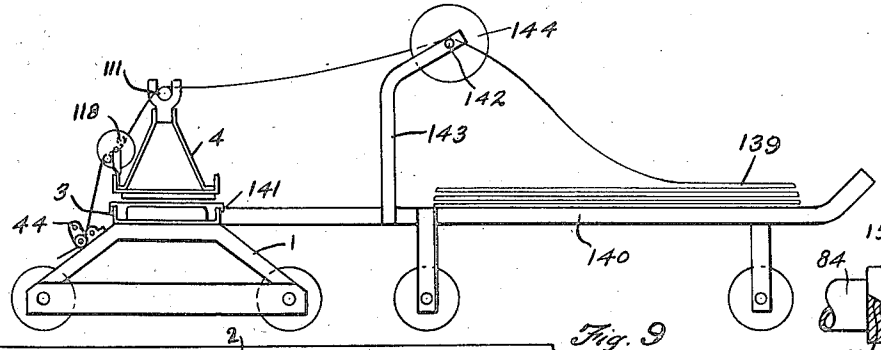


Fig. 12

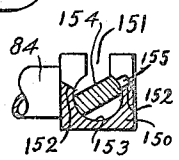
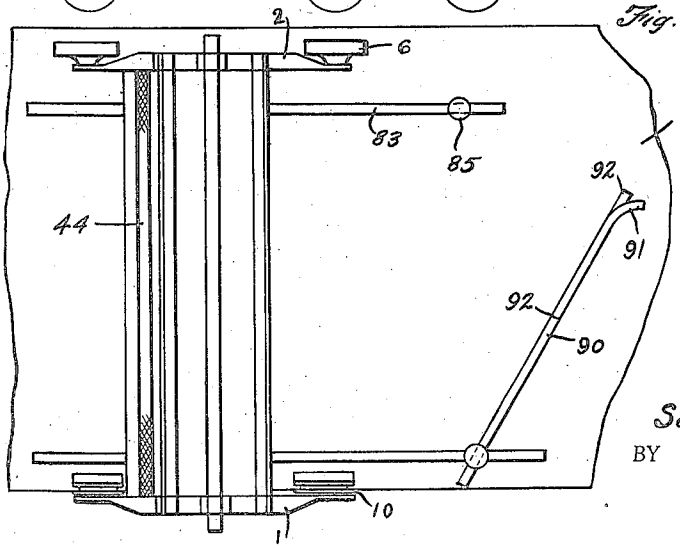


Fig. 9



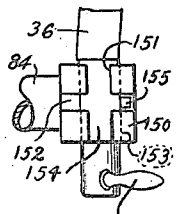


Fig. 10

Fig. 13

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Patented Apr. 30, 1935

1,999,276

UNITED STATES PATENT OFFICE

1,999,276

CLOTH LAYING MACHINE

Samuel M. Bloch, Cleveland, Ohio, assignor to The Fintex Corporation, Detroit, Mich., a corporation of Michigan

Application April 15, 1933, Serial No. 666,318

21 Claims. (Cl. 270—31)

My invention relates to cloth laying machines and specifically is a further development of a machine of the type shown in my previous U. S. Patent No. 1,841,703, issued January 19, 1932. The object of the machine of my previous patent as well as the present improvement is to lay cloth in piles several layers deep for cutting purposes.

In order to handle cloth under all conditions and for all purposes which may be necessary in the garment and allied industries, the present improved machine is designed to lay all kinds of fabrics from the heaviest cloak or overcoat material down through the various grades of suitings, also materials of other character and texture, for example, linings, shirtings, wash goods, and so on; either woolens, cottons, silks, rayons or whatnot. The field of usefulness of my previous machine is extended both as to the range of goods which it can handle satisfactorily and as to the accuracy of laying.

In more detail, my present invention is an improvement on my earlier machine to make it particularly adaptable for power drive and for fully automatic operation, to increase the accuracy of laying by enabling either the operator or an assistant to make side adjustments, to maintain accurate edge alignment of the cloth while the machine is running, to adapt my machine for the laying of cloth from flat folded pieces or from book folded pieces, as well as from cylindrical rolls, and by generally improving many of the points of construction and operation of my previous machine. One of the particular advantages of my new form of machine is that it is capable of laying folded goods with all the advantages as to smoothness and evenness that have hitherto been obtainable only in the machine laying of unfolded goods. Other advantages of my new machine are improved means for controlling the tension and the feed with relation to the surface characteristics and the thickness of the goods, and an improved drive securing even traction on both sides so that the drive force never has a tendency to flex the machine frame out of its correct position squarely across the table. Other objects and advantages of my invention will appear as the description proceeds.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawings and the following description setting forth in detail certain mechanism embodying my invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of my invention may be used.

In said annexed drawings Fig. 1 is a front elevation of the machine; Fig. 2 is an elevation from the right end of Fig. 1; Fig. 2A is an enlarged detail on the line 2A Fig. 2, looking in the direction of the arow; Fig. 3 is a longitudinal cross section on the line 3—3, Fig. 1; Fig. 4 is an enlarged detail from Fig. 1; Fig. 5 is a fragmentary elevational view on the line 5—5, Fig. 2, looking in the direction of the arrows; Fig. 6 is a detail in transverse section of the roll driving means; Fig. 7 is a side elevation of Fig. 6 taken from the left and with parts broken away; Figs. 8 and 9 are side elevations in somewhat diagrammatic style showing certain attachments; Fig. 10 is a diagrammatic plan view showing other attachments; Fig. 11 is a rear elevation of the attachments of Fig. 10; Fig. 12 is a side view partly in section, and Fig. 13 a plan view of means for attaching a cloth spreading bar.

My improved machine is built on the same general lines as my earlier machine and consists of a carriage having side frames 1 and 2 with cross connecting members 3 and carrying a cloth supporting frame 4 mounted on a turntable comprising an upper plate 5 and a lower plate 5A. Each of the side frames is supported by two rubber tired tread wheels 6, 6 and 7, 7 on stub shafts 8, 8 and 9, 9 respectively, on which the machine moves along a cloth laying table 15, which, except for certain attachments, is of the usual type. The stub shafts 9 also carry flanged metal guide wheels 10 which run along a guide rail 11 secured to one side of the table. All the foregoing is similar to the corresponding features of my Patent No. 1,841,703.

A frame 16 depends from the side frame 1 and carries a motor 17 below the level of the table. This motor drives the machine by suitable gearing 18 and a sprocket chain 19, the chain 19 passing over a sprocket 20 outside the flanged wheel 10 on one of the stub shafts 9. Another sprocket chain 21, from a sprocket 22 between the said guide wheel 10 and its corresponding tread wheel 7, drives a cross shaft 23 which in turn drives one of the tread wheels 6 by a corresponding chain and sprocket on the farther frame 2, and concealed in Fig. 2 behind the elements 20 and 21. This shaft 23 is mounted in bearings on each side frame, high enough up to be above any pile of cloth to be laid. A clutch 25 can be disengaged to allow hand movement of the machine. This

clutch is preferably of a cushion type so as to start the machine easily and smoothly, thus avoiding sudden starts which would tend to disarrange the cloth.

Power is conveniently supplied to the motor by flexible conductors of conventional type plugged to the contacts 30 which project from a switch 31 conveniently mounted on the top of a handle 32, which handle also has other purposes as will be later described. A flexible conductor leads from this switch 31 to the motor 17, being concealed in Fig. 2 by the frame members. A reversing switch diagrammatically indicated at 33 makes contact at either end of the travel of the machine with a reversing cam 34 or 34A below the side of the table 15, thus automatically stopping the machine and starting it backward at the end of a length of travel predetermined by the position of the cams 34, 34A, which may be variously placed, as indicated in somewhat diagrammatic style by holes shown in the rail 11. These cams 34 and 34A may be set at any desired position along the table. A safety stop in the form of a spring buffer 35 above the table also acts to prevent the machine from running off if the electric switch fails to function. It will be understood that the member 35 is repeated at each end of the table but is shown at only one end of Fig. 2 as a matter of convenience.

As seen in Figs. 2 and 4 the side frame members 1 and 2 have mounted thereon bearings 40 and 41 in which cross shafts 42 and 43 are carried. The cross shaft 42 is enlarged between the bearings into a knurled roll 44 and the cross shaft 43 carries at each end a short upstanding arm 45 in which a second cross shaft 46, enlarged between the arms into a roller 47 covered with cloth, rubber, or other friction surface, is journalled. For most classes of cloth the best results are obtained by having the surface covering of the roller 47 made of fairly soft rubber. In the preferred embodiment herein illustrated the roller 47 is rotated only by its contact, through the cloth, with the roller 44. These arms are urged in a clockwise direction, Fig. 2, by a coil spring 48 to grip the cloth C between the rolls 47 and 44. The spring 48 is omitted from Fig. 2 for the sake of clearness. On the motor side of the machine a handle 50 is keyed to the shaft 43. This handle has a ratchet and ratchet release 51 coacting with a toothed segment 52, whereby the arms 45 can be set at open positions to permit easy threading of the fabric C between the rolls. The rolls 44 and 47 feed the cloth down from any suitable carrying means, several of which are described hereinafter. The knurled roll 44 is positively driven from one of the tread wheels 7 by a chain 55 which passes over a sprocket 56 on the tread wheel, over a sprocket 57 rotatable on the shaft 42 of the roller 44, over another sprocket 58 adjacent the sprocket 57 and is tensioned by an idler 59 conveniently located on the frame 1. The relative diameters of the various sprockets and rolls is, in the present instance, such as to cause the surface of the knurled roll 44 to have a linear speed equal to the speed of movement of the carriage along the table.

The following arrangement serves to drive the knurled roll 44 always in the same direction, counter-clockwise from the point of view of Fig. 2, and clockwise from the point of view of Fig. 3. A gear 61 moves rigidly with the sprocket 58 and a gear 62, meshing therewith, is rotatable either with, or with reference to the sprocket 57, according to the direction of rotation. This is accomplished by means of a ball clutch shown in detail in Figs. 6 and 7 and having a toothed body portion 63 keyed to the shaft 42 of the roller 44. This body portion extends through the gear 62 and into a sleeve 64 integral with the sprocket 57. The clutch balls 65 are shown as three sets of four each, spring-impelled in the usual form, the outer two working in the gear 62 and the inner two in the sleeve 64.

Thus, when the machine is moving to the left, Fig. 2, (it being remembered that Fig. 7 is taken from the same viewpoint as Fig. 2) the sprocket 57 will run counter-clockwise, which is the direction in which the shaft 42 and roll 44 must always turn in order to feed the cloth downward. In this direction, the inner set of balls crowd into the diminishing space, and lock the sleeve 64 to the clutch body 63 and so drive the shaft 42 correctly. At the same time, the sprocket 58 and its gear 61 are also running counter-clockwise. Inasmuch as the gears 61 and 62 are constantly in mesh, the gear 62 will accordingly run clockwise and the outer balls of the set 65 run to the open end of their travel, permitting such idle running of the gear 62.

When the machine is moving to the right, Fig. 2, the opposite action occurs, the sprocket 58 and gear 61 run clockwise, thus driving the gear 62 counter-clockwise and driving the shaft 42 by the outer balls while the sprocket 57 and its sleeve run idly.

A cross shaft 70 is mounted on the top of the machine frame, having a hand wheel 71 outside the frame at one end and a sprocket such as 72 inside the frame at each end. A ratchet 73 engageable by a latch lever 74 is fast to the handle end of the shaft 70 just outside the frame, so that when the handle is in one position the shaft 70 can be rotated and when it is in another position the shaft 70 is locked.

A chain 75 passes over each of the sprockets 72 and around a corresponding lower sprocket 76 carried by a stub shaft 76A on the lower member of the machine side frame. Suitable means will be used for taking slack out of the chain 75, for example, an eccentric mounting for the stub shaft 76A, but such means are well known and hence are not illustrated. Each of the frames 1 and 2 includes a central vertical brace 77 which includes vertical guides on its inner surface as shown in Fig. 3. Blocks 80 are slidable up and down in these guides by a connection such as 81 to the chains 75, each on its respective side. Thus the operator, by turning the hand wheel 71 can raise and lower both blocks 80 simultaneously, and by means of the latch 74 can lock them in any position.

The blocks 80 carry longitudinal members 82 through each of which a tube 83 extends to both the front and rear of the machine. These tubes 83, which correspond to the arms 32 of my earlier patent, carry various spreading rods, such as rod 36 or 90 and 91, all described hereafter. Tubes 84 are telescoped within the tubes 83 and are guided therein by a bottom groove 200 and a pin 201. The outer tubes 83 are slit as shown at 202 and may be clamped tightly to maintain the inner tubes 84 at any given position by means of a suitable clamp, a convenient form of which is indicated at 203. It will be understood that in Fig. 2 and at the right hand end of Fig. 3, the tubes 84 are completely housed within the outer tubes 83. Sockets 150 or 151, described in detail hereafter, are carried on the ends of the tubes 84. Obviously, the spreader rods are movable up and

down simultaneously by the hand wheel 71 and the mechanism just described. The particular spreader just mentioned is adapted for laying folded cloth, and comprises a bar 90, bent at its outer end as at 91, and a straight bar 92 slightly below and having its free end extending out even with the end of the bar 91. The bar 90 runs between the folds of the cloth, with the curve 91 bearing inside against the fold, and the bar 92 goes below the lower fold section thus spreading the cloth as it is laid on the table, as is well understood by those skilled in the art.

The rods 90 and 92 are carried by a holder which comprises a vertical section of bar stock 210 depending from a D clamp 211. The ends of the rods 90 and 92 pass through horizontal holes in this section 210 and may be secured therein suitably, as by set screws 212. A threaded rod 213 passes down through the D clamp into a vertical threaded aperture 214 in the piece 210. At the upper end the rod carries a fixed collar 214 and a hand wheel or other suitable turning means 215, by means of which the D clamp 211 may be tightened upon the side bar 83, all as shown in Fig. 12. The size of the D clamp is such as to pass over the sockets 150 when the tightening rod 213 is removed.

In the previous patent the cloth holding means was shown as a frame extending the full width of the machine and mounted in the middle on a turntable. The cloth holding frame herein is similar and is likewise mounted on a turntable 5, as already mentioned. This turntable 5 is, however, slidably mounted by its lower plate 5A on the cross member 3 and may be adjusted endwise in either direction by a semi-cylindrical sleeve 95 which has a spiral cam slot 94 therein. A transverse shaft 96, to which the handle 32, previously mentioned, is attached, runs the full width of the machine and extends out on the side away from the motor as well as on the side towards the motor, the side away from the motor carrying a handle 97. A short arm 98 extends perpendicular to the middle of the shaft 96 and carries a roller at its extremity which engages with the cam slot 94. Thus an operator on either side of the machine can adjust the cloth carrying frame several inches in either direction. The mid-position of the frame is lightly held by any convenient means, such as a weak detent, not shown. To lock the turntable against rotation I employ a movable plunger 100 having at its top a roller 101 which engages in a longitudinal notch in a cross member 102 of the upper or cloth carrying frame, the purpose of the roller being to allow the longitudinal adjustment just described while maintaining the lock against swinging.

The plunger is urged upward by a flat spring 103 secured to one of the lower cross elements 3. It will be seen from Fig. 3 that the stud 100 is slightly to one side of the shaft 96. In order to release the turntable lock, a cone 105 is axially slidable upon the shaft 96, this cone being of such a size that when in the position of Fig. 5 it allows the spring 103 to take its uppermost position, thus forcing the stud 100 into locking engagement, but when the cone is moved to the left, Fig. 5, its enlarged portion presses the spring 103 down, allowing the stud and roller to drop down so that the turntable can be turned. The cone 105 is moved by a finger catch 106 on a sleeve 107 on the shaft 96, the cone being flat to the inner end of the sleeve. A spiral spring 108 normally urges the cone to the turntable locking position, Fig. 5.

The cloth carrying frame in more detail, comprises the transverse bars 4 and uprights 109 at each end. These uprights 109 support open-topped trunnions 110 in which a bar 111, carrying a bolt of cloth, can be laid. The cross members 4 also support at their ends smaller uprights 112 also open at the top and adapted to receive the ends of a tensioning member. This tensioning member, in detail, comprises a short bar 115 at each end, which has a reduced end which can be laid in the socket at the top of the upright 112 and clamped in any angular position therein by means of wing nuts such as 116. These bars 115 carry transverse end arms 117, to which a pair of parallel transverse bars 118 are fastened. By setting these bars 118 at various angular positions, as in Figs. 2 and 9, the tension on the cloth passing to the feed roll 44 can be governed.

The question of accurate side guides for cloth from a laying machine is one of importance. It is provided for in the present machine by means of side adjustable elements such as the hubs 120 which slip into the end of a bolt of cloth in the usual manner. These hubs are of a gripping type such that they can be moved inward by simply pushing but are automatically locked against outward displacement and can only be moved outward by pulling on the rims 121. Large discs such as 122 are movable on the tension bars 118 and can be fastened in any suitable position, as by set screws. The shaft 43 also carries guide members 123 which have the appearance of large flat hooks and overlap the cloth feeding rolls 44 and 47, as best seen in Fig. 2.

The various cross bars 111, 118 and 43 are graduated, the graduations conveniently being equal and related, so that a uniform setting of all the side guide elements can be obtained without making measurements. For the convenience of the operator in setting the roll-holding hubs 120 and the guides 122 and 123 at the correct width for the cloth being laid, the graduations shown in Fig. 1 on the bars 111, 118 and 43 are not directly aligned, but are offset so that direct settings corresponding to the cloth width are made by bringing the outer edge of each rim 121 and the outer edge of each collar of the shields 122 and 123 to the appropriately marked graduation. For example, if the roll of cloth c is a inches wide, each hub 120 will be set with its rim 121 on the graduation marked a, and similarly the guides 122 and 123 will each be set with the outer end of their respective collars 122′ and 123′ on their own graduations a. The graduations marked a are not actually a inches apart, but are a distance from the center of the respective guide bar equal to

$$\frac{a}{2}$$

plus the length of the collar element. Thus, for example, if the cloth is 42 inches wide the graduations a will actually bear the number "42". In this same example if the collar 122′ is one inch long, the marks a on the upper bar 118 will be spaced an actual distance of 22 inches from the center of the bar. The advantage of such an arrangement of the graduations is that the operator in setting the machine does not have to make any allowances for the length of the hubs 120 or collars 122′ and 123′, nor does he have the inconvenience of being obliged to look over the guides 122 or 123 to bring their inner edges

into registry with the proper mark. If the cloth is *a* inches wide he sets to the marks *a*, if it is *b* inches wide he sets to the marks *b*, and so on. The guides 123 are also adapted to be held in position by set screws. In this instance the set screws are keyed into a shallow groove 124 on the cross shaft, to prevent the guides 123 from turning.

For special purposes, a variety of attachments may be used with my machine, some of the more important ones being illustrated in Figs. 8 and 9. In Fig. 8, vertical arms 130 are shown as attached below the open top bearings 116 and carry a sand roller or similar rough surface roller 131 at the top. This attachment is for use when a bolt of cloth such as 132, wound on a board, is to be laid. The cloth passes down from the sand roll 131 to the feed roll 44 and from there the laying proceeds in the usual manner. The object of the extension and of the roll 131 is to enable the slack or unevenness due to unwinding from a board to be taken up before the cloth reaches the roll 131, such slack being indicated at 133, so that the stretch of the cloth from 131 to 44 is fairly uniform.

Fig. 9 illustrates an attachment for laying cloth which is in flat piles, particularly linings. For this purpose a trailer 140 is coupled on as at 141 to be pulled or pushed by the machine and this trailer carries the pile of cloth 139. The cloth is laid up over a bar 142 carried above the trailer by standards 143 and the cloth is guided between a pair of large discs 144 which may be adjusted axially of the bar 142 according to the width of the material. The cloth or lining is then led to the bar 111, which for this purpose is provided with guide discs 145, then passed down between the tensioning bars 118 and so to the feed roll 44. In connection with the devices of Figs. 8 and 9, any suitable type of spreader bars will be used according to circumstances.

In the operation of this machine, the cloth is supplied to the feed roll 44 from a round or flat bolt or from a pile, as already described, and is laid by the feed roll on the table at the exact rate of travel of the machine, so that there is no pull or tension in the cloth. Great accuracy in side adjustment, and consequent perfect straightness of lay ore obtainable by the side guides on the various cross bars, and by the transverse adjustment of the turntable which may be made by the operator using the handle 97.

One of the possibilities of this machine is to pile only a predetermined amount of cloth from a roll or other source of supply. This is accomplished by setting the reversing cams 34 and 34A the predetermined distances apart, whereby the yardage laid can be determined by counting the layers and multiplying by the distance.

To smooth out all wrinkles and give the cloth a perfect lie, spreader bars of a suitable nature are used. For the laying of folded cloth without unfolding it, an operation beyond the capacity of previous machines, two spreader bars are used, as previously mentioned and as shown in Fig. 12, the upper one between, and the lower below, the folded layers. Also with two spreader bars, one above the other, it is possible, in suitable work, to spread on a return trip cloth that was laid on the previous trip, and various combinations can be worked. For cloth not folded a transverse bar 36, which corresponds to the transverse bar 36 shown in Fig. 1 of my Patent No. 1,841,703, is used.

In the present instance the manner of mounting the transverse spreader bar 36 has been improved in construction so as to cooperate with the present improved reversing machine. As shown in Fig. 1 of Patent No. 1,841,703, this bar 36 is straight at the ends, but bent near each end and forms an angle at the middle, when seen in plan view. It is supported transversely to the machine with the angle plane inclined somewhat above the horizontal and in the appropriate direction to spread the cloth. In the present machine improved means of support are used, as described below.

One end of the bar 36 is supported by engagement with a socket 150 permanently attached to the end of the inner extensible tube 34. Such sockets are seen in Figs. 1, 2 and 3 and one is shown on a larger scale in Figs. 12 and 13. The socket 150 is channeled transversely to the machine as at 151 and is notched as at 152. It will be noted, particularly in Fig. 12, that the channel 151 is of inverted keyhole section, having its bottom of enlarged cylindrical cross section as at 153. The end 154 of the bar 36 is flattened as shown in Fig. 12 and has its major diameter such as to turn easily in the cylindrical portion 153 and its minor diameter small enough to pass through the upper part of the slot 151 when in a vertical position, Fig. 12. This end piece 154 also carries a pin 155 which rests in the bottom of either of the slots 152 when the bar is at its inclined working position.

It will be seen from the foregoing, that after the bar 36 has had its end positioned in the socket 150, it can be turned 120° therein. A handle 156 may be attached to a prolongation of the bar for convenience in turning the bar 36 from one to the other of the forward or rearward working positions. In Fig. 2, which shows the machine travelling in the direction of the arrow, the course of the cloth is indicated by a dash line and the reference character C, and it will there be noted how the cloth is spread by the bar 36.

The improved combined adjusting handle, turntable lock and motor switch, all shown in Fig. 5, enables an operator walking alongside the machine to stop, start, adjust, unlock the turntable, all with one hand, leaving the other free to act and turn the bolt of cloth, while the handwheel 71 is also easily accessible to raise the spreader bars as the pile builds up. The reversing cams 34 and 34A, in conjunction with the constant one-way feed, Fig. 7, permit the machine to operate automatically when the cloth is to be laid face to face and back to back.

Various combinations of attachments and modes of operations, besides those described in detail herein, will be apparent to those skilled in the art.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In apparatus of the class described, the combination of a self-propelling wheeled carriage adapted to travel on a table, means for revolubly supporting a roll of cloth on said carriage, means for positively feeding such cloth to the table as the carriage travels thereover, and means driven by a wheel of said carriage for driving said positive feeding means always in the same direction.

2. In apparatus of the class described, the combination of a wheeled carriage adapted to travel on a table, driving means carried by said carriage and connected to certain wheels only on each side of the same, rotatable means for revolubly supporting a roll of cloth on said carriage, rolls for positively feeding such cloth to the table at a rate directly proportional to the rate of travel of said carriage, and means connected to a non-driven wheel of said carriage for driving said rolls always in the same direction.

3. In apparatus of the class described, the combination of a carriage adapted to travel on a table, rotatable means associated with said carriage for revolubly supporting a roll of cloth, means for adjusting said means transversely of the carriage, roll means driven by the supporting wheels of said carriage for positively feeding such cloth to the table at a rate equal to the rate of travel of said carriage, and means for driving said roll means always in the same direction.

4. In a cloth laying apparatus, in combination, a table, a carriage, supporting wheels at each side of the carriage, said wheels having tires of friction material adapted to rest on the surface of said table, a rail offset from the side of said table, and supplemental wheels having guide flanges adapted to travel said rail.

5. In a cloth laying apparatus, in combination, a table, a carriage, supporting wheels at each side of the carriage, said wheels having tires of frictional material adapted to rest on the surface of said table, and means along one edge of said table and off the table surface for guiding said carriage.

6. In a cloth laying machine of the class described, a carriage, supporting wheels at each side of the carriage, said wheels having rubber tires adapted to rest on the surface of the cloth laying table, a rail along the side of the table and beyond the table surface, guiding wheels adapted to engage said rail, a motor dependently supported below the table from one side of said carriage, and automatic means for reversing said motor at predetermined points.

7. In a cloth laying machine of the class described, a carriage, supporting wheels at each side of the carriage, said wheels having rubber tires adapted to rest on the surface of the cloth laying table, a laterally offset rail along the side of the table, guiding wheels adapted to engage said rail, a motor dependently supported below the table from one side of said carriage, safety stop means on said table in the path of said carriage, and an automatic trip adapted to reverse the travel of said motor at the end of its course.

8. In a cloth laying machine of the character described, a self-propelling wheeled carriage of fixed width adapted to travel along a table, cloth supplying means and cloth guiding means on said carriage, rolls on said carriage for feeding cloth downward to said table from said supplying and guiding means, driving connections from the carriage wheels to said rolls, elements in said connections for driving said rolls always in the same direction, and means for moving the cloth on said supplying and guiding means transversely of the table during operation of the machine, said means including an operating handle on either side of the machine.

9. In a cloth laying machine of the character described, a carriage including side frames and transverse connecting bars, a turntable, cloth supporting means thereon, means for sliding said turntable on said connecting bars, driving means for said carriage, and a combined control element beyond one of said side frames for controlling said driving means and said sliding means.

10. In a cloth laying machine of the character described, a carriage including side frames and transverse connecting bars, a turntable, cloth supporting means thereon, means for sliding said turntable on said connecting bars, driving means for said carriage, a plurality of combined control elements at one side, all engageable by one hand, said elements comprising a handle for moving said cloth supporting means transversely, means for locking and unlocking said turntable, and a motor cut-off switch, all said means being engageable by one hand without removing the hand from said handle.

11. In a machine of the class described, a carriage having side frames, fixed transverse elements connecting said frames, wheels mounted on stub shafts on each of said frames, a motor supported by one of said frames, a transverse shaft extending between said frames above the highest level of cloth to be laid, direct driving connections from said motor to one of said wheels on the motor side, other direct driving connections, including said shaft, from said one wheel to one of the wheels on the far side.

12. In a machine of the class described, a motor-driven carriage, cloth guiding means and driven cloth feeding means thereon, carrying means for folded cloth comprising a trailer adapted to be coupled to said carriage.

13. In a machine of the class described, a movable carriage, cloth supply means movable therewith, coacting rollers thereon for feeding cloth to a pile at the rate of travel of the carriage, means for driving said rollers by the movement of the carriage, and means for guiding cloth from said supply means to said rollers including bars parallel to said rollers, said bars being adjustable to vary the length and angularity of the path of said cloth.

14. In a machine of the class described having a movable carriage with cloth feeding rolls transverse thereto, side guide means associated with said feeding rolls, cloth tensioning means between the cloth supply and said feed rolls, side guides on said tensioning means, means for supplying cloth to said tensioning means, said last-named means also including side guides, related graduations adjacent each of said guiding means whereby all said guiding means may be uniformly set.

15. In a machine of the character described, a friction surfaced cloth feeding roll, and means for driving said roll from a tread wheel of the machine always in the same direction, said driving means comprising an over-running clutch on said roll, a sprocket on the shaft of said roll connectable by said clutch to drive said roll in one direction only, a gear wheel on said shaft connectable by said clutch to drive said roll in the same direction, and a unitary sprocket and gear on a stub shaft adjacent said roll shaft, both said gears being in constant mesh, and a chain directly driven by said tread wheel and passing over both sprockets in the same direction, whereby when said machine runs one way the roll takes its motion from the first-named sprocket, and when the machine runs in the opposite direction the roll takes its motion from the first-named gear.

16. In a machine of the character described

having two side frames, a pair of arms, one in conjunction with each side frame, said arms being adjustably extendable beyond said machine in either direction in line of travel thereof, means at either end of each of said arms for mounting spreader attachments thereon.

17. In a machine of the character described, a spreader for longitudinally folded cloth, said spreader comprising a bar supported at one side of the machine and free over the table at the other end, said bar being curved at its free end, said curved portion being adapted for substantially tangential engagement with the fold of the cloth and a parallel straight bar therebelow, both said bars being transversely disposed to the cloth.

18. In a machine of the character described having two side frames, a pair of arms, one in conjunction with each side frame, said arms being adjustably extendable beyond said machine in either direction in line of the travel thereof, means for adjusting the height of said bars simultaneously, said means comprising blocks carrying said arms vertically slidable in the respective side frames, a cross shaft supported by the side frames above the greatest height of cloth to be piled, a hand-wheel and a locking ratchet on said shaft outside one of said side frames, a sprocket wheel on each end of said cross shaft and a chain at each side passing over said sprocket, each of said chains being secured to its respective block.

19. In a machine of the character described, a carriage having side frames and a cross frame therebetween, a turntable on said cross frame, a cam and a shaft for moving said cam to move the turntable along the cross frame, a roll carrying rack supported by said turntable, means for locking said rack in position parallel to said cross frame, said locking means comprising a notched element near the end of the rack, a dog supported beneath said cross frame, a leaf spring secured at one end to the machine frame and its other end pressing said dog constantly upward, a conical sleeve longitudinally movable on the turntable-adjusting shaft and engageable with said leaf spring whereby axial movement of said sleeve will move said spring and said dog downward.

20. In a machine of the character described, a self-propelled carriage, driven wheels and free wheels supporting the same, means movable with said carriage for carrying cloth to be piled, a roller on said carriage for feeding said cloth downward onto a pile, driving means from a free carriage wheel to said roller for moving said roller at the peripheral speed of said wheel, and a transverse spreader rod carried by said carriage over which said cloth is adapted to pass immediately before going onto the pile.

21. In a machine of the character described, a self-propelled carriage, driven wheels and free wheels supporting the same, means movable with said carriage for carrying longitudinally folded cloth to be piled, rollers on said carriage for feeding said cloth downward onto a pile, driving means from a free carriage wheel to said rollers for moving said rollers at the peripheral speed of said wheel, and a transverse spreader carried by said carriage, said spreader comprising two vertically spaced rods, one adapted to go under the folded cloth, and the other to go between the parts of the cloth, immediately before the cloth goes onto the pile.

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