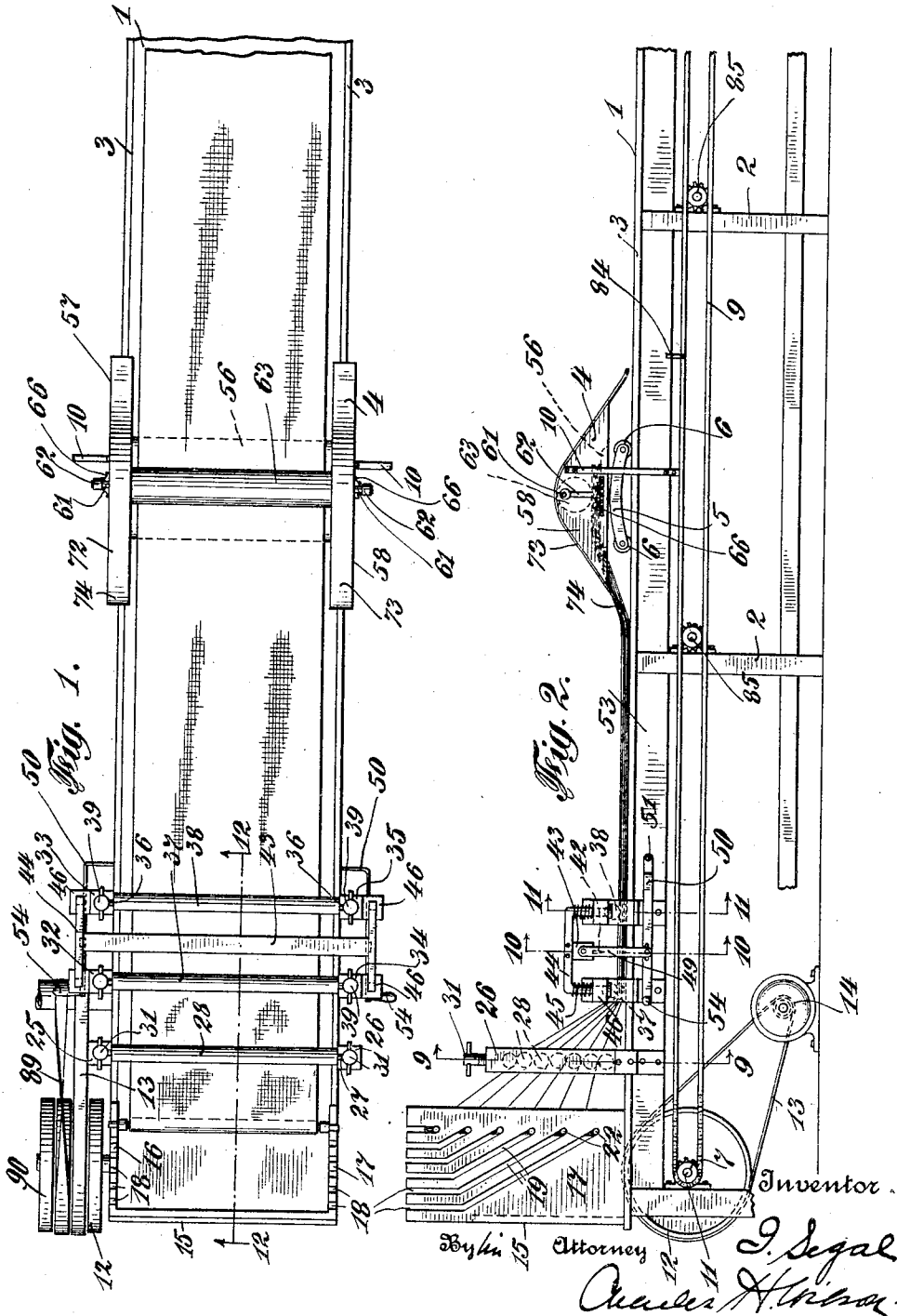


I. SEGAL.
FABRIC LAYING APPARATUS.
APPLICATION FILED JULY 12, 1919.

1,389,906.

Patented Sept. 6, 1921.
7 SHEETS—SHEET 1.

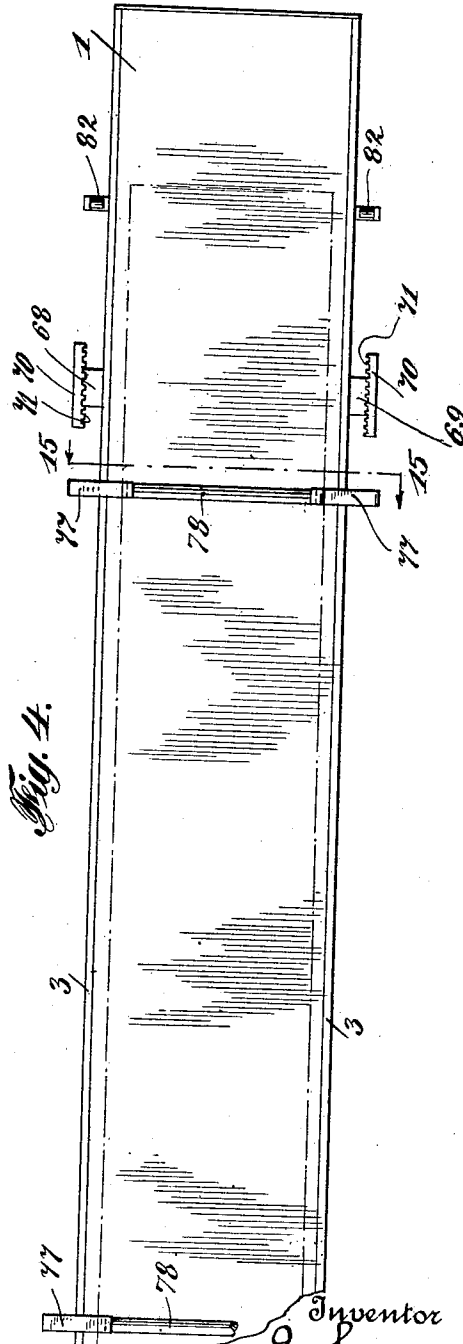
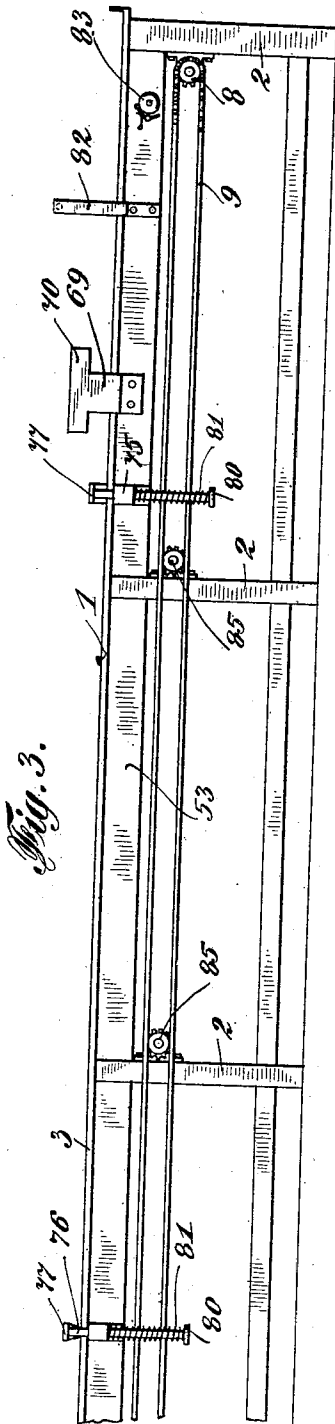


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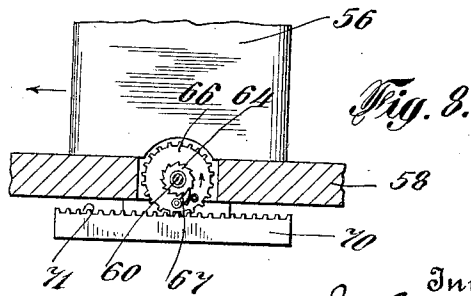
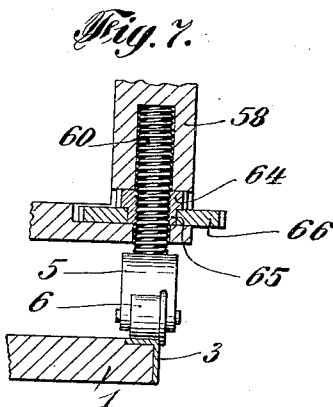
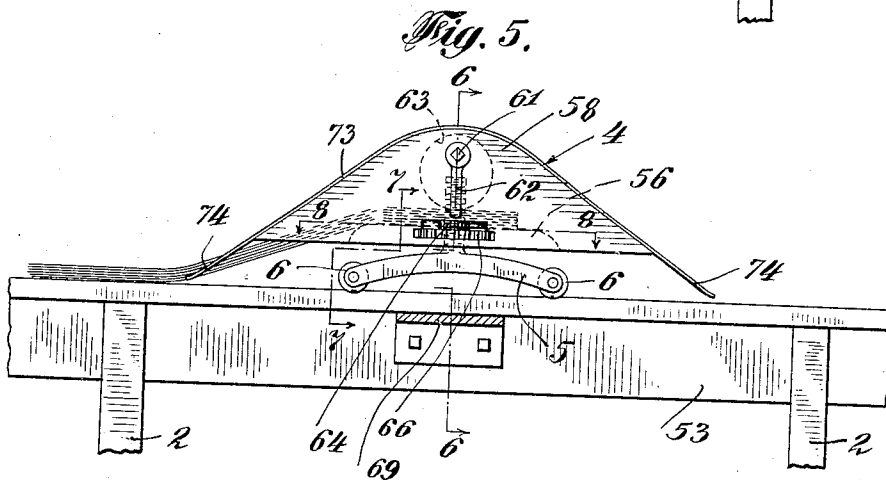
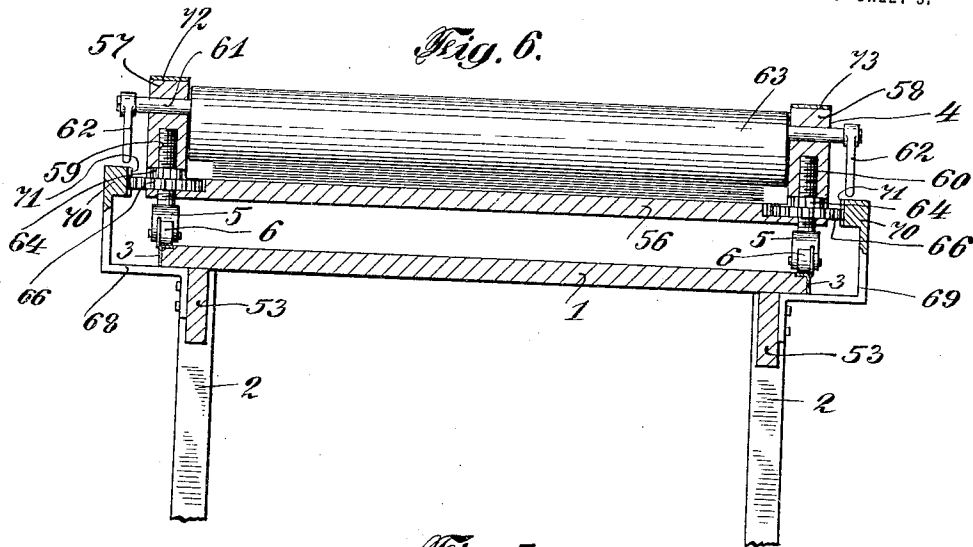
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By his Attorney
Charles H. Wilson

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7 SHEETS—SHEET 3.



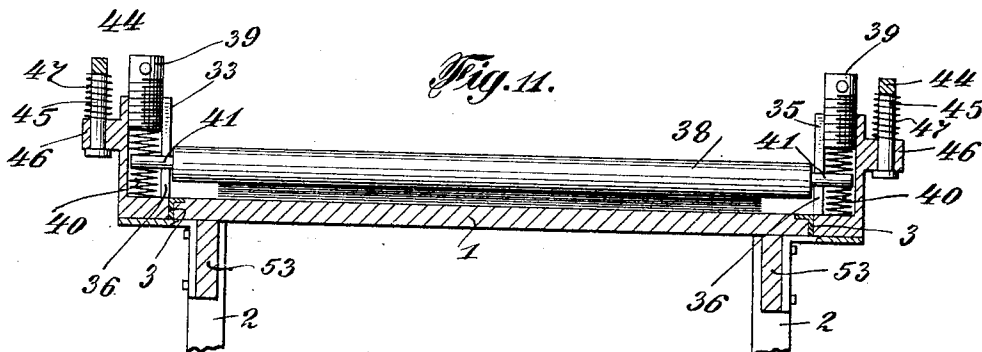
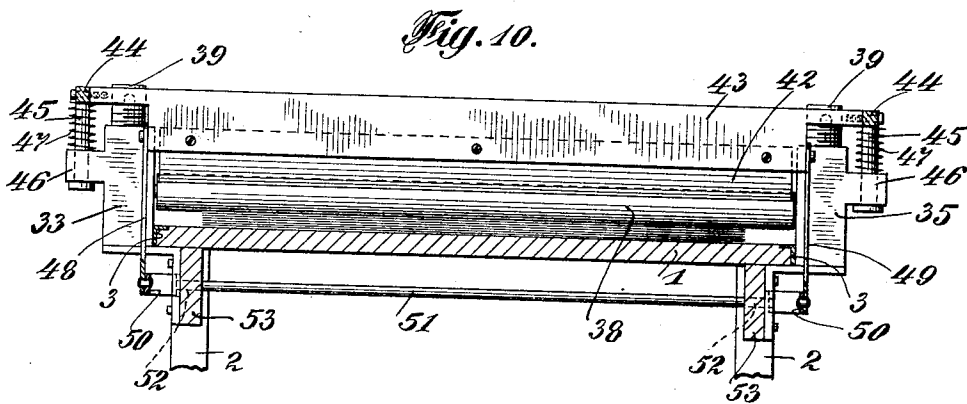
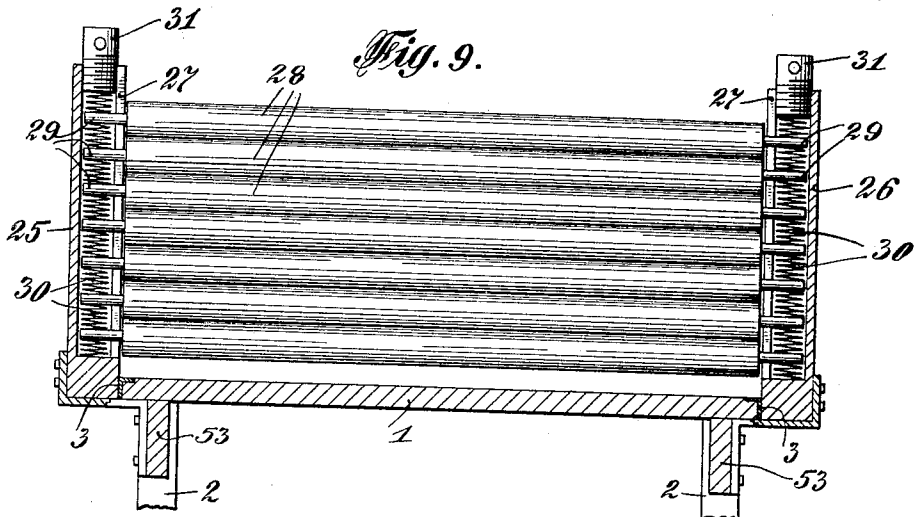
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7 SHEETS—SHEET 4.



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7 SHEETS—SHEET 5.

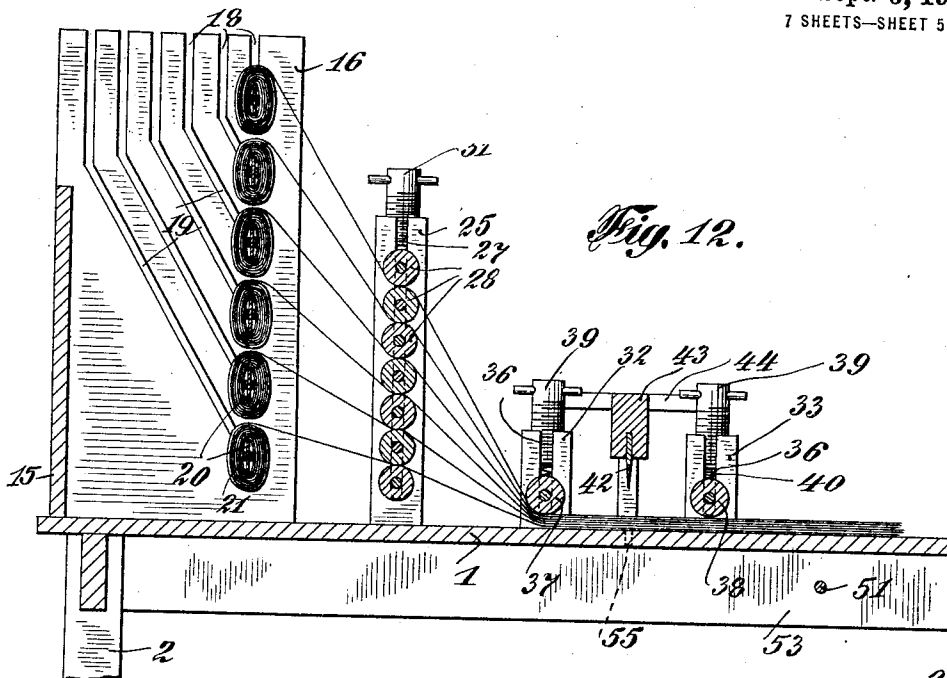


Fig. 12.

Fig. 14.

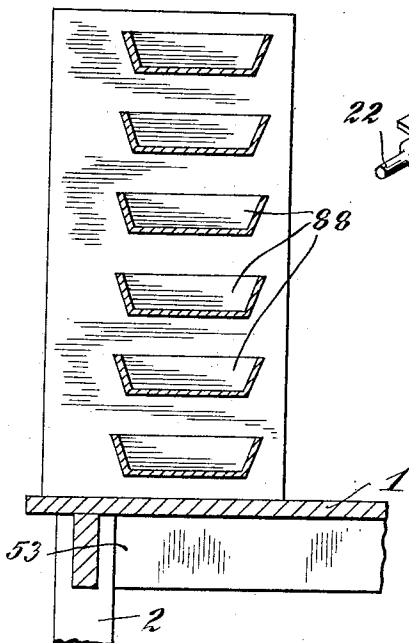


Fig. 13.

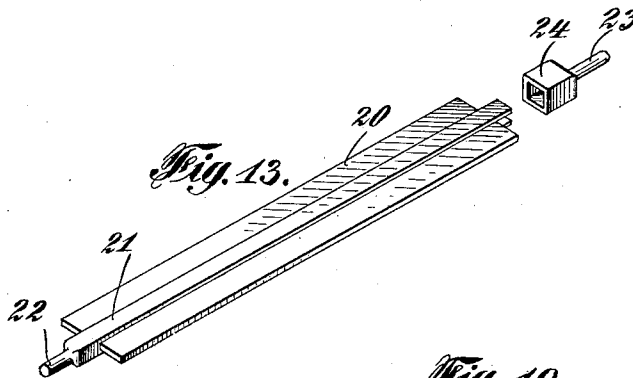
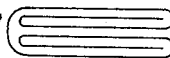


Fig. 19.



Fig. 20.

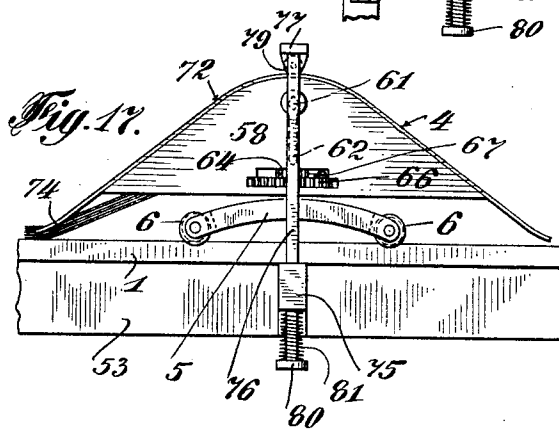
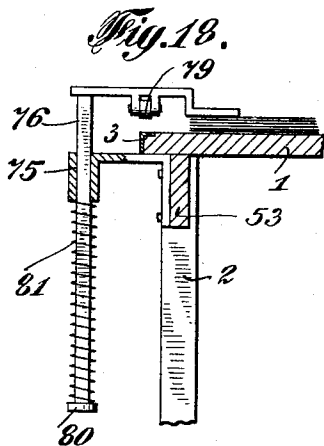
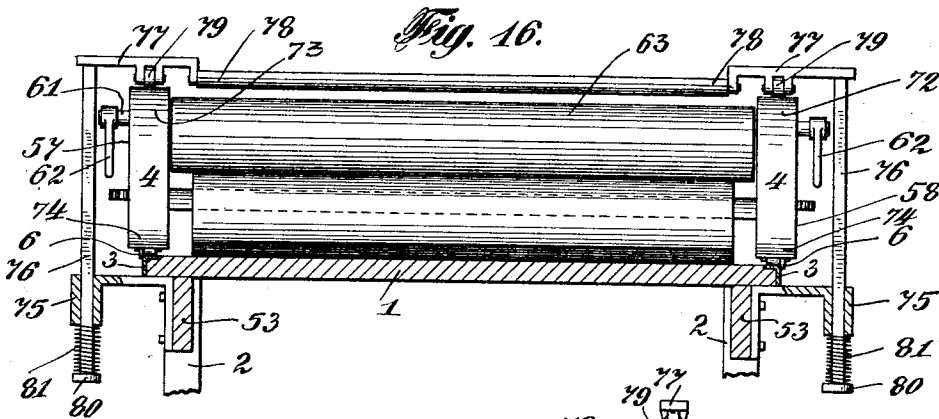
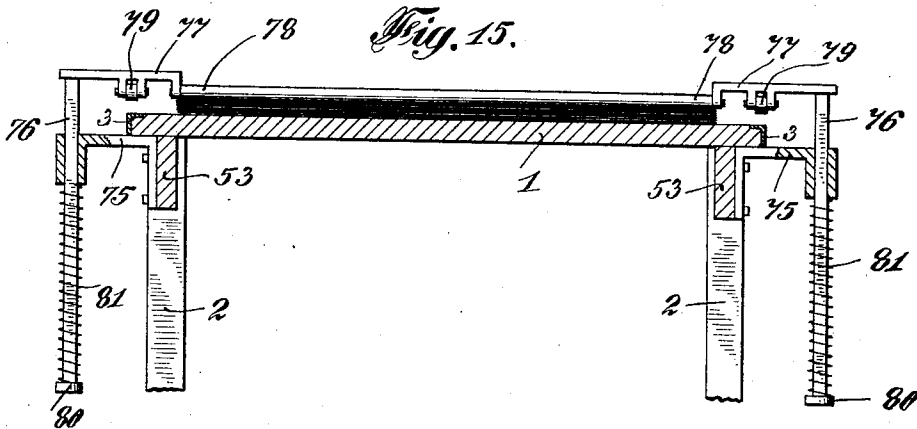


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7 SHEETS—SHEET 6.



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7 SHEETS—SHEET 7.

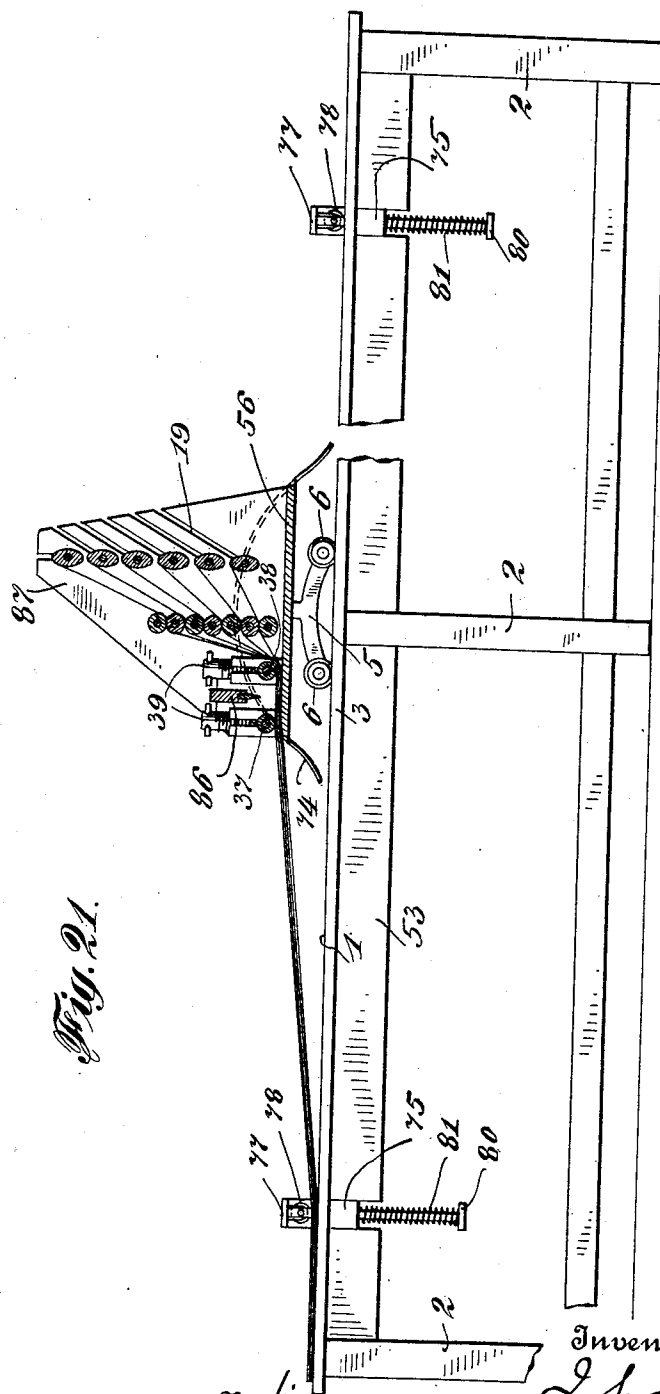


Fig. 21.

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UNITED STATES PATENT OFFICE.

ISAAC SEGAL, OF NEW YORK, N. Y.

FABRIC-LAYING APPARATUS.

1,389,906.

Specification of Letters Patent.

Patented Sept. 6, 1921.

Application filed July 12, 1919. Serial No. 310,415.

To all whom it may concern:

Be it known that I, ISAAC SEGAL, residing at New York, in the county and State of New York, have invented certain new and
5 useful Improvements in a Fabric-Laying Apparatus, of which the following is a specification.

This invention relates to fabric folding apparatus, and one of the objects thereof is
10 to provide simple and effectively operating mechanism for piling fabric upon a table preliminary to the marking and cutting operation.

Another object of the invention is to provide
15 mechanism of the above character, which will effectively guide the cloth during the piling operation, so that the edges of the various layers will be even.

Another object of the invention is to provide
20 new and improved means for automatically releasing the carrier from the cloth at the end of the table farthest from the operator.

Other objects and aims of the invention,
25 more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of
30 principles, constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings, wherein I
35 have illustrated preferred forms of embodiment of my invention:

Figure 1 is a top plan view of one end of the machine.

Fig. 2 is a side elevational view of the
mechanism shown in Fig. 1.

40 Fig. 3 is a side elevational view of the machine opposite to that which is shown in Figs. 1 and 2.

Fig. 4 is a plan view of that part of the
machine shown in Fig. 3.

45 Fig. 5 is a side elevational view of part of the table and carriage.

Fig. 6 is a sectional view on an enlarged
scale, taken on the line 6—6 of Fig. 5, looking in the direction of the arrows.

50 Fig. 7 is a sectional view taken on the line 7—7 of Fig. 5, looking in the direction of the arrows.

Fig. 8 is a sectional view, showing certain
of the parts in plan, taken on the line 8—8
55 of Fig. 5.

Fig. 9 is a vertical sectional view taken on
the line 9—9 of Fig. 2.

Fig. 10 is a vertical sectional view taken on
the line 10—10 of Fig. 2.

Fig. 11 is a similar view taken on the line
11—11 of Fig. 2.

Fig. 12 is a vertical sectional view taken on
the line 12—12 of Fig. 1, looking in the
direction of the arrows.

Fig. 13 is a view in perspective of one of
65 the carriers for a bolt of cloth adapted to be used for the construction illustrated in Fig. 12.

Fig. 14 is a view in section of a modified
form of cloth-holder.

Fig. 15 is a cross-sectional view taken on
the line 15—15 of Fig. 4.

Fig. 16 is a view similar to Fig. 15, showing
the manner in which the carriage lifts
75 the presser rolls.

Fig. 17 is a side elevational view of a
portion of the table and carriage, with the
parts in the positions shown in Fig. 16.

Fig. 18 is a detailed view of a modified
form of construction.

Fig. 19 is a schematic view showing the
manner in which the cloth is folded upon
the bolt when the latter is supported in
mechanism similar to that shown in Fig. 12.

Fig. 20 is a similar view showing the way
85 the cloth is folded when the carrier, similar to that shown in Fig. 14, is employed; and

Fig. 21 is a view of a modified form of
construction.

Referring now to the drawings, wherein
90 similar reference characters refer to similar parts throughout the several views thereof, the reference numeral 1 denotes the table, the same being supported upon suitable legs 2, and at either side of the table there is
95 provided a track 3, which extends the entire length thereof.

4 denotes generally a carriage which is
employed to carry the free ends of the strips
of fabric, and lay them on a table, as will
hereinafter be described, said carriage being
provided at either side with the side frames
5, carrying the wheels 6 which run upon the
tracks. Thus it will be seen that this carriage
can travel from end to end of the table.

Traveling about suitable sprockets 7 and
8, arranged at either side of the machine, are
endless bands 9, each of which is connected
to the carriage as by means of the connecting
pieces 10. One of said sprockets is
110

mounted upon a shaft 11, driven by a pulley 12, by means of a belt 13 from the motor 14. Supported upon the front end of the table is a box 15, having the side walls or frames 16 and 17, each of which is provided with a plurality of slots 18, which slots extend at first downwardly, and then incline forwardly, as at 19, so that the several slots terminate in vertical alinement, as indicated in Figs. 2 and 12.

At this point it may be noted that this embodiment of my invention is designed to unwind cloth wound upon bolts, such as indicated in Fig. 19, each bolt being provided with the usual board 20, upon which the cloth is wound.

21 indicates a split rod, which is adapted to embrace the board in each bolt cloth, as indicated in Fig. 13, said rod having the journal 22 at one end and a removable journal 23 at the opposite end, having the box 24 adapted to engage the free ends of the rod 21; the construction being such that the bolts with their board and journal rods 21 may be inserted in the slots 18, so that when the machine is ready for operation the bolts are in the position shown in Fig. 12 of the drawings.

25 and 26 indicate side frames, one of which is located at each side of the machine adjacent the box 15, said side frames being provided with lateral slots 27, and 28 indicates a plurality of presser rolls, each of which has end journals 29, which are received in slots 27 between the coils of springs 30, one of which is located in each of the side frames 25 and 26; this construction being shown in Fig. 9 of the drawings.

31 indicates screw threaded adjusting members, by means of which the tension of the springs 30 may be adjusted. The cloth from the bolts passes between these rolls, as clearly shown in Fig. 12 of the drawings.

Located upon either side of the table is a pair of journal boxes 32—33 and 34—35; the journal box 32 being directly opposite the journal box 34, and the journal box 33 being directly opposite the journal box 35. Each of the journal boxes has in its lateral portion a vertical slot 36, each of which receives a journal of one of the presser rolls 37 and 38, adjusting screws 39 being employed to engage interposed springs 40, which receive the journals 41 of the presser rolls 37 and 38, whereby the tension of the rolls against the cloth may be suitably regulated.

The reference numeral 42 denotes a knife or cutter, the same being disposed between the presser rolls 37 and 38, and mounted upon a suitable block or carrier 43, the ends of which are carried by side frames 44, said latter frames at each end being provided with suitable plungers 45, which operate in guides 46, one of which is carried by each

of the journal boxes 32 to 35. Springs 47 engage with the frame 44 and operate to hold the knife or cutter 42 in its uppermost position.

Connected with the carrier or block 43 are links 48 and 49, which are connected with crank arms 50 carried upon the ends of a shaft 51, which extends transversely of the table 1, underneath the same, and is journaled in suitable bearings 52, formed in the longitudinally extending member 53, arranged immediately beneath each edge of the table.

The crank arm 50 is extended forwardly and is provided with an operating handle 54. Thus it will be seen that by means of the handle 54 and the next above described mechanism, the knife 42 may be operated to engage with the cloth upon the table and sever the same. If desired, a slot 55 may be provided underneath the knife, through which the latter may be projected.

Referring now to the carriage mechanism, the latter comprises a base plate 56, rigidly mounted therein and disposed above this base plate at each end thereof are side pieces 57 and 58, each of the latter being provided with an aperture into which is received one of the rods 59 and 60. One of the rods 59 and 60 is carried by each of the side frames or bars 5 of the carriage.

Journaled in the side pieces 57 and 58 is a shaft 61, provided with an operating handle 62. This shaft has positioned thereon a cam shaft clamping member 63, arranged so that when the shaft 61 is rotated by the handle 62 the cam member 63 can be used to firmly clamp the ends of the cloth against the table or bed 56, so that when the carriage is moved rearwardly of the table it will pull the ends of the cloth with it.

Threaded upon each of the rods 59 and 60 is a ratchet wheel 64 and journaled upon an arbor 65, provided upon each ratchet wheel, is a gear wheel 66, a spring-pressed pawl 67 being provided upon the side of the gear wheel which engages with the ratchet wheel 64.

Supported upon the side pieces 53 are brackets 68 and 69, each of which is provided with a plate 70, which is faced with a plurality of gear teeth 71. These brackets are located near the rear end of the table, and are so disposed that when the carriage reaches that point the gear teeth 71 will engage with the teeth of the gear wheel 66 and rotate the same, whereby the ratchet wheel 64 will be rotated through its connection therewith by means of the pawl 67. This operation will cause a rotation of the ratchet wheel 64, causing the latter to rotate the side pieces 57 and 58 of the carriage, whereby the cam 63 will also be raised or lifted bodily, thereby releasing the cloth. Mounted upon each of the side pieces 57 and

58 are curved cam members 72 and 73. These cam members have depending ends 74, between which the cloth passes.

Located along the table at spaced intervals, are brackets 75, each of which carries a plunger 76, each plunger being provided with an inwardly extending arm 77, oppositely located arms carrying a presser roll 78, which is adapted to engage with the cloth, each arm being also provided with a cam roll 79. Plunger 76 is provided at the lower end with heads 80, between which and the bracket 75 operate extensile springs 81.

It will be noted that when the carriage moves lengthwise of the table, the ends 74 of the cam members 72 will enter between the rolls 79 and the table, and elevate the presser rolls 78 so that the cloth may be laid between them and the table; the rolls 79 passing over the cam members 72 during the travel of the carriage.

82 indicates a stop which is fastened to the table and which is adapted to arrest the movement of the carriage. 83 indicates a bell which is adapted to be operated by an obstruction 84 carried by the endless band or chain, the latter at frequent intervals being supported by means of sprockets 85 carried upon suitable brackets supported upon the legs of the carriage.

In Fig. 21 of the drawings I have illustrated a slightly modified form of the invention, in that the cutting and guiding mechanism 86 and the cloth carrying mechanism 87, is supported upon the movable carriage, rather than stationary, as in the embodiment of my invention above described; the construction and operation being otherwise similar to that already described.

In the embodiment of my invention first above described, the cloth is adapted to be carried upon the rods 21. This in the event that a roll or bolt of cloth, such as shown in Fig. 19, is to be utilized. In the event that a roll, however, such as shown in Fig. 20, is utilized, I preferably provide a plurality of pans 88 adapted to receive the bolts of cloth and from which they are unwound. Having thus described this form of embodiment of my invention, the operation thereof, which should be largely obvious, may now be described.

Assuming the bolts of cloth to be mounted in the ends of their supporting slots, as shown in Figs. 2 and 12 of the drawings, the ends of said strips of cloth are inserted between the rolls 28 and are thence passed beneath the rollers 37 and 38 and the ends thereof are then lifted upon the table 56 of the carriage 4 and clamped thereto by the cam 63 operated by the handle 62. The machine is then started by shifting the belt 13 to the driving pulley, whereupon the endless chain 9 will move the carriage rear-

wardly, carrying the ends of the cloth with it, thereby drawing the cloth from the bolts and separating it upon the table 1. As each guide roll 78 is reached, the end 74 of each cam member 72 will engage with the cam rolls 79 and lift the presser rolls, so that the cloth may be passed under them, whereupon by the passing of the carriage the roll 78 will again be permitted to descend under the influence of the springs 81, whereby they will again engage with the cloth upon the table. When the carriage has reached the rear end of the table the gear teeth 71 of the plates 70 will engage with the gear wheels 66 and rotate them, and thereby the ratchet wheels, whereby the cam 63 will be lifted bodily, thereby disengaging the cloth and allowing the ends thereof to fall downwardly, it being noted that the plate 56 of the carriage is elevated so that upon a return of the carriage, said plate will pass over the cloth piled upon the table. When the carriage has passed rearwardly far enough to permit the dropping of the ends of the cloth upon the table, the projection 84 upon the endless belt will ring the bell, notifying the operator to reverse the carriage, which is accomplished by reversing the driving mechanism. In this connection it may be noted that a second crossed belt 89 is provided, which is engaged with the fixed pulley wheel 90, and will operate to reverse the mechanism. In the event that the operator does not promptly reverse the carriage, the stop 82 will engage with the arm 10, which is attached to the bell carriage, and hold the parts stationary, until the operator reverses the driving connections of the carriage.

When each layer comprising several thicknesses of cloth has been laid upon the table, the knife 42 is operated to sever the cloth, whereby the operation above described may be repeated.

It will accordingly be seen that I have provided a machine well adapted to attain, among others, all the aims and objects above pointed out, in an exceedingly simple yet efficient manner.

As many changes could be made in this construction without departing from the scope of the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a cloth folding machine, the combination with a carrier, of a table adapted to run thereon, means located upon said carrier for grasping the cloth so that the carrier will pull the same over said table, a plurality of presser rolls carried by the

table adapted to engage the cloth being piled thereon, and means upon said carrier for lifting said presser rolls from the cloth as the carrier passes thereby.

5 2. In a cloth folding machine, the combination with a table, of a carriage mounted to run lengthwise over said table with a forward and backward movement, a plurality of presser rolls yieldably mounted upon the
10 table adapted to engage the cloth as it is piled upon said table, clamping means upon said carriage, and means upon said carriage for engaging said presser rolls and lifting them from the cloth so that a new layer or
15 layers can be piled under said rolls.

3. In a cloth folding machine, the combination with a table, of a carriage mounted thereon and adapted to run forwardly and backwardly thereon, presser rolls located
20 upon the table, adapted to engage the cloth as the same is piled upon the table, and means mounted upon the carriage, automatically lifting said presser rolls from engagement with the cloth while a new layer or
25 layers of cloth are being piled upon the table.

4. In a cloth folding machine, the combination with a table, of a carriage adapted to run thereon with a forward and backward
30 movement, means located on one end of said table for carrying a plurality of bolts of cloth, clamping means carried by the carriage, and means located at the opposite end of the table for moving the clamping means
35 relative to the table, when the carriage has been moved to a position at said last mentioned end of the table.

5. In a cloth folding machine, the combination with a table and a carriage mounted
40 thereon and adapted to be moved forwardly and rearwardly upon said table, a plurality of presser rolls engaging the cloth mounted upon said table, means upon the carriage for

lifting said presser rolls out of engagement with the cloth, so as to permit a new layer
45 or layers of cloth to be piled upon said table, and means upon the table for automatically moving the clamping means after a layer or layers of cloth have been laid upon said table.

6. In a cloth folding machine, the combination with a table, of a carriage mounted to run thereon in forward and reverse directions, a plurality of presser rolls extending
50 across said table, means located upon each side of said presser rolls and mounted upon each side of said table upon which said presser rolls are carried, and means upon said carriage adapted to engage said last mentioned means, so as to elevate said
60 presser rolls, whereby said carriage may lay another layer or layers of cloth upon said table.

7. In a cloth folding machine, the combination with a table, of a carriage mounted
65 to run thereon in forward and reverse directions, a plurality of presser rolls extending across said table, means located upon each side of said presser rolls and mounted upon each side of said table upon which said
70 presser rolls are carried, means upon said carriage adapted to engage said last mentioned means, so as to elevate said presser rolls, whereby said carriage may lay another layer or layers of cloth upon said table, adjustable clamping means mounted upon said
75 carriage, and means for automatically moving said clamping means relative to the table when one or more layers of cloth have been laid thereon.

80 In testimony whereof I affix my signature in the presence of two witnesses.

ISAAC SEGAL.

Witnesses:

EMMA WEINBERG,
ALBERT HAMER.