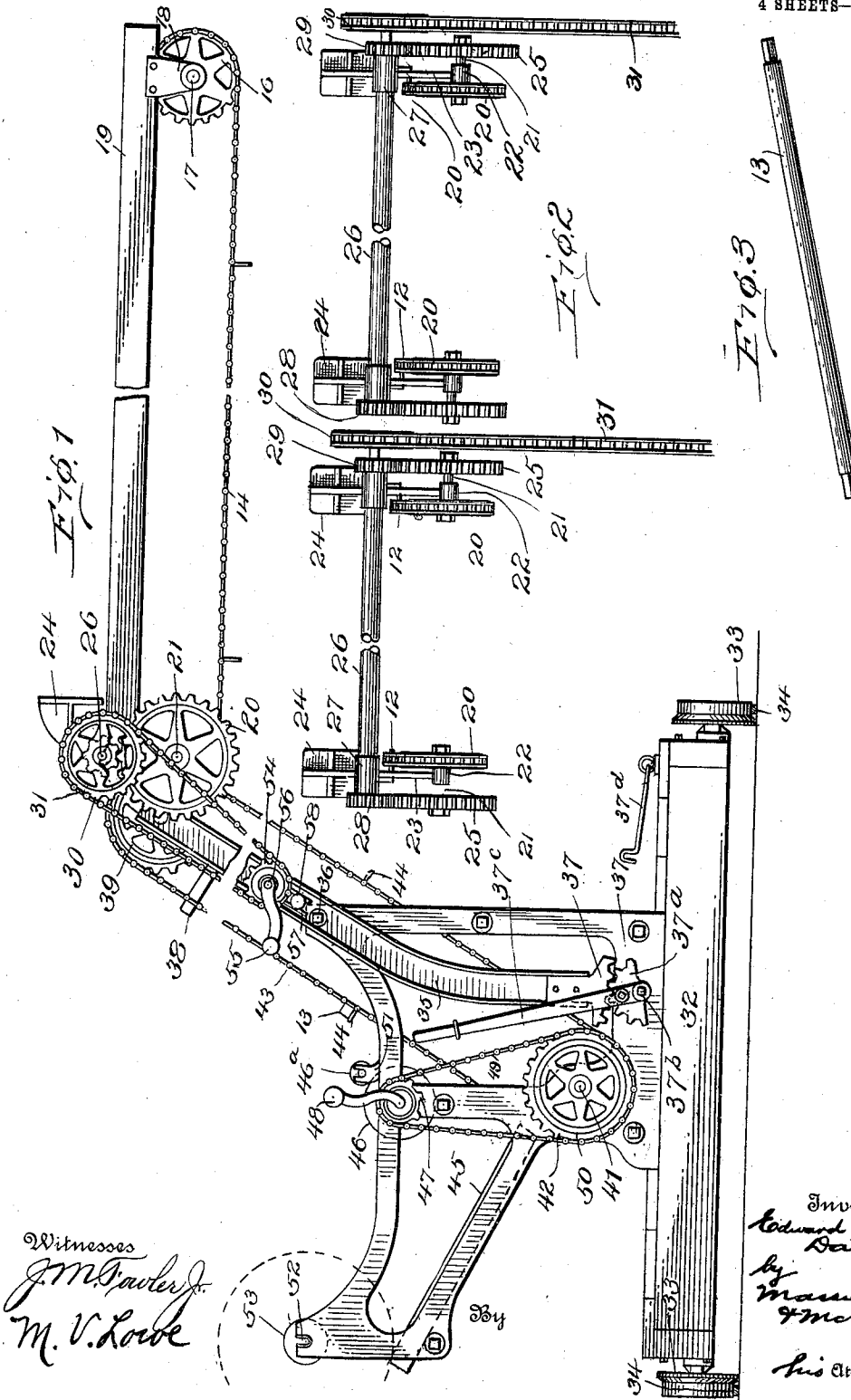


E. B. DAVIS.
 APPARATUS FOR DRYING CLOTH.
 APPLICATION FILED FEB. 15, 1910.

981,621.

Patented Jan. 17, 1911.

4 SHEETS—SHEET 1.



Witnesses
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M. V. Lowe

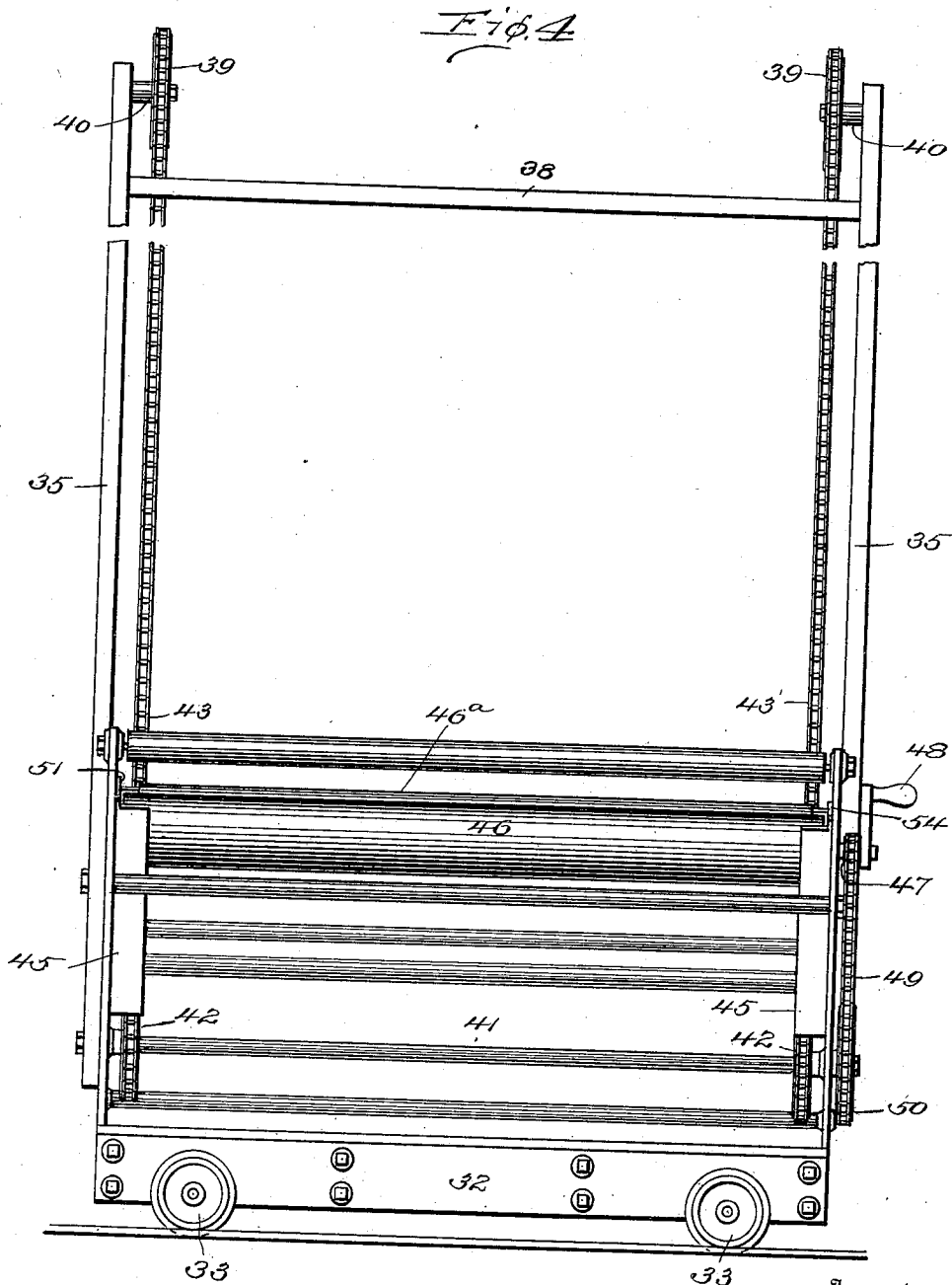
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4 SHEETS-SHEET 2.



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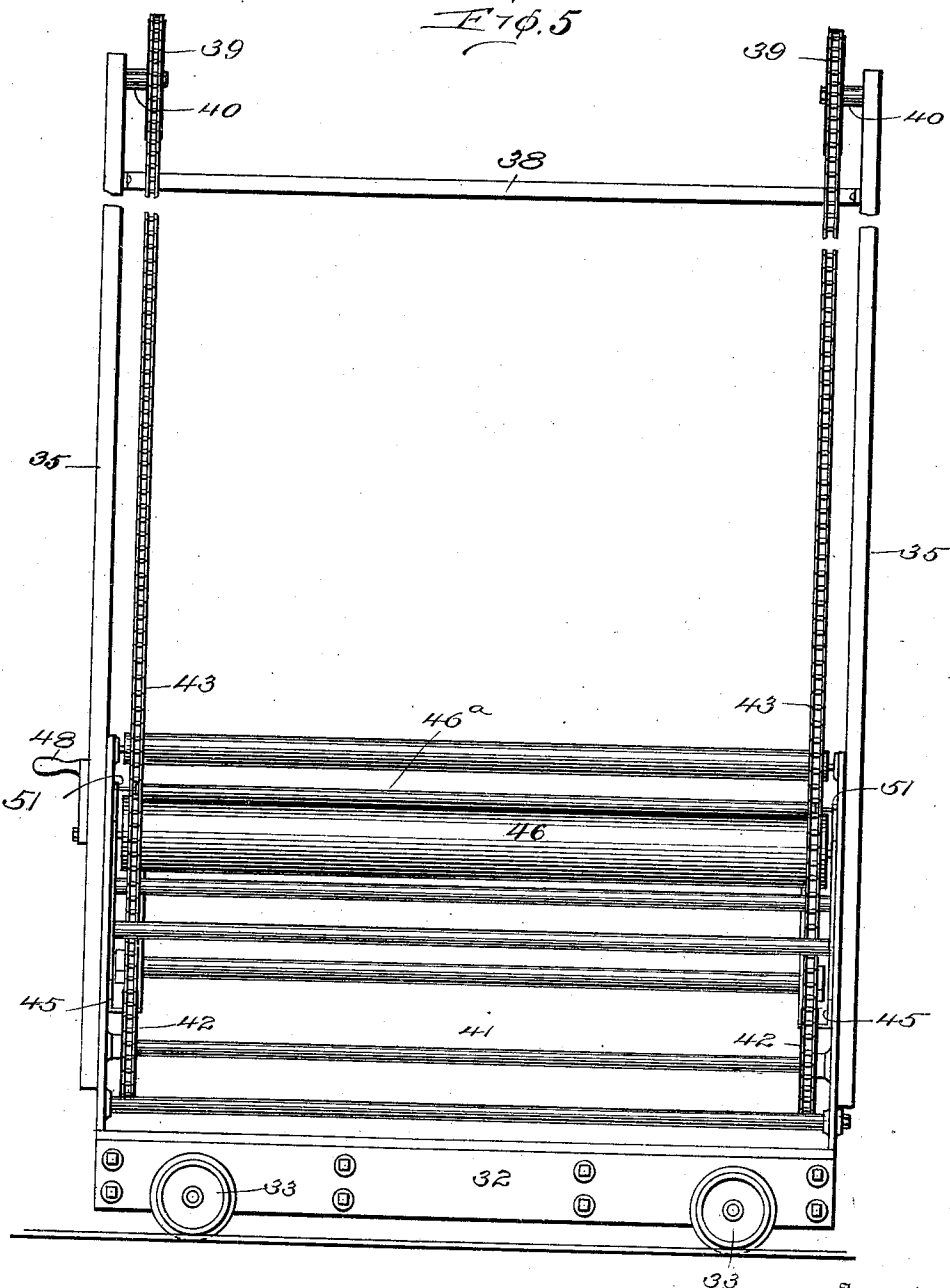
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4 SHEETS—SHEET 3.



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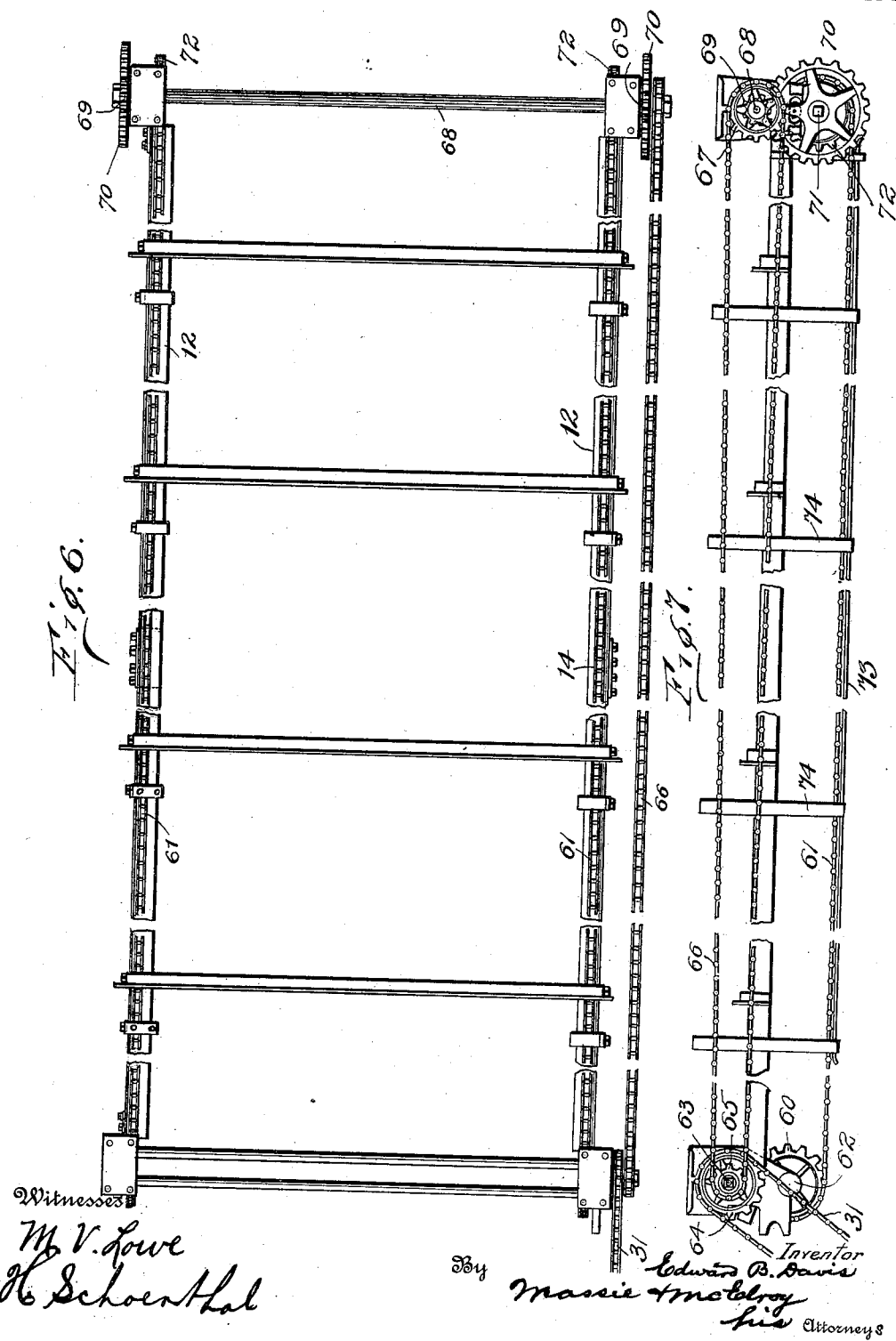
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4 SHEETS—SHEET 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR DRYING CLOTH.

981,621.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed February 15, 1910. Serial No. 543,953.

To all whom it may concern:

Be it known that I, EDWARD B. DAVIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Apparatus for Drying Cloth, of which the following is a specification.

My invention relates to apparatus for forming folds or festoons in cloth after it has been shrunk in order to put it in proper shape for drying.

My improved apparatus comprises a plurality of overhead tracks, a floor track at right angles to the overhead tracks at one end thereof, a truck arranged to run on the floor track, cloth-elevating and fold-forming mechanism carried by the truck and a number of cloth supports which are raised by the cloth-elevating mechanism and arranged to be delivered on to and carried transversely along the overhead tracks, the cloth supports being operated to carry the cloth in a series of depending folds or festoons.

In the accompanying drawings:—Figure 1 shows a side elevation of a cloth-folding apparatus, embodying my improvements. Fig. 2 shows an end view of a plurality of overhead tracks which are shown in side elevation in Fig. 1. Fig. 3 is a detail view in perspective of one of the bars which support the cloth during the folding operation. Fig. 4 is a front view and Fig. 5 is a rear view of the cloth-folding and forming mechanism. Fig. 6 is a plan view, and Fig. 7 is a side view of overhead tracks in which the carrying chains are driven from the rear instead of from the front of the apparatus, as shown in Fig. 1.

The fabric to be dried is brought in a uniformly wet condition and in a roll to my improved apparatus. This comprises a plurality of overhead tracks, a floor track at right angles to the overhead tracks at one end of the latter, a truck arranged to run on the floor track, cloth-elevating and fold-forming machinery carried by the truck, and a plurality of cloth-supports raised by the cloth-elevating machinery and arranged to be delivered onto and carried transversely along the overhead tracks, such cloth-supports carrying the cloth in a series of depending folds.

The overhead tracks each comprise a pair

of rails, 12, which in the present instance have a cross-section in the form of an angle, the leg of one rail facing toward the leg of the other rail. The horizontal legs form the supporting track or bearing for the cloth-supports. These consist of a plurality of bars, 13, most advantageously of wood, each bar having its two ends square in cross-section for a short distance back from the respective end, the part of the bar intermediate the two squared portions being of any desired form, but preferably round in cross-section. The bars are arranged to extend from one rail to the other of a track, the ends resting upon the upper surfaces of the horizontal legs of the respective angle rails, these squared ends allowing the bars to slide along the track while preventing said bars from rotating on their axes. The cloth-supports are of such a length as to receive cloth of the maximum width which is to be used. In order to slide said cloth-supports or bars along the respective track, suitable cloth-support-moving means is provided as a permanent part of the overhead apparatus. This moving means in the present instance comprises a pair of endless chains, 14, one for each rail, and means for moving these two chains synchronously in the direction of the length of the track, each endless chain having the lower surface of its upper member about level with the upper surface of the horizontal leg of its respective rail, the said upper member of each chain running lengthwise of the rail, just over the same. The chains pass around suitable sprocket wheels at each end. The sprocket wheels, 16, at that end of the track most remote from the cloth-elevating and fold-making apparatus, which will be termed the rear end of the track, are journaled on stub shafts, 17, carried by depending arms, 18, secured to the rail hangers, 19, which hold the ends of the respective rails.

The sprocket wheels, 20 at the front end of the track are arranged to be driven synchronously by suitable driving mechanism, that employed in the present instance being as follows: Each front sprocket wheel, 20, is fixed to a short shaft, 21, rotatable in a suitable bearing, 22, supported by an arm, 23, depending from the corresponding rail hanger, 24, and upon this shaft, outside the bearing, is fixed a gear wheel, 25. Above the horizontal plane of the track rails is ar-

ranged a transverse shaft, 26, carried in
 suitable overhead journal bearings, 27, this
 shaft having two gear pinions, 28 and 29,
 one at each end, these pinions being ar-
 5 ranged to mesh with the respective gear
 wheels, 25, which drive the front sprocket
 wheel shafts. The transverse shaft also has
 at one end, preferably the right hand end, a
 sprocket wheel, 30, fixed to it and arranged
 10 to receive a sprocket chain, 31, which hangs
 toward the floor and serves as a means for
 operating the track mechanism by hand
 from the floor whenever necessary. Fur-
 15 thermore this sprocket chain, 31, may be
 connected to suitable driving mechanism on
 the cloth-elevating and fold-making appa-
 ratus as will be fully explained hereinafter.

In Figs. 6 and 7 are illustrated a modified
 form of the overhead track apparatus in
 20 which the carrier chains are driven from the
 rear instead of from the front. In this con-
 struction the front sprocket wheels, indi-
 cated at 60, around which pass the track-
 chains 61, are rotatably mounted on stub-
 25 shafts 62. Above one of the sprocket wheels
 60, is a stub-shaft 63, upon which are rev-
 olubly mounted two sprocket wheels 64 and
 65, fixed to each other, the smaller sprocket
 wheel 64 being arranged to receive the pend-
 30 ent drive chain such as was indicated at 31
 in the construction previously described.
 The other sprocket wheel 65 is arranged to
 receive the front end of a horizontal drive
 35 chain 66, which passes around a sprocket
 wheel 67 at the rear of the machine, the lat-
 ter being fixed on a shaft 68, which extends
 across the rear of the machine and is pro-
 vided with two pinions 69, in mesh with
 40 gear-wheels 70, fixed on short shafts 71, pro-
 vided with sprocket wheels 72, around
 which pass the rear ends of the respective
 track-chains 61. By this construction the
 track-chains are operated from the rear so
 45 as to draw the upper members of each track-
 chain toward the rear.

In order to avoid the swaying of the
 lower members of the track-chains each is
 supported in a suitable manner as by the
 rails, one of which is indicated at 73, each
 50 rail being supported by suitable hangers 74.

The cloth-elevating and fold-making ap-
 paratus consists in the present instance of
 a base, 32, mounted on wheels, 33, to form
 a truck which runs in the floor track, 34,
 55 running transversely to the overhead tracks
 and at the front of the same. Upon the
 base is mounted a suitable framework hav-
 ing two upward-extending inclined arms,
 35, pivoted on the framework as indicated
 60 at 36 and provided with means for permit-
 ting the inclination of the arms to be varied.
 In the present instance the lower end of each
 arm is provided with a sectional gear, 37,
 meshing with toothed quadrants, 37^a, fixed
 65 on a transverse shaft, 37^b, arranged to be

operated by a hand lever 37^c. By mov-
 ing this hand lever 37^c the arms 35, can
 be swung to a limited extent to vary their
 inclination and then the lever released,
 a suitable stop 37^a being provided to hold
 70 the arms at the desired position. In order
 that the arms may move together, and to
 stiffen the structure, the arms are connected
 near the top by suitable means, as for ex-
 75 ample a stirrup, 38, which extends outward
 toward the front of the machine. At the
 upper ends of the arms and inside the same
 are mounted sprocket wheels, 39, carried on
 stub-shafts, 40, fixed in the arms. In the
 80 framework is journaled a shaft, 41, having
 two sprocket wheels, 42, fixed upon it in line
 with the respective sprocket wheels 39, at
 the upper ends of the inclined arms, and
 around the corresponding pairs of sprocket
 85 wheels pass sprocket chains, 43, for elevat-
 ing the cloth-supports, each chain being pro-
 vided with projections, 44, at suitable in-
 tervals. A suitable race-way is provided in
 the framework to feed the cloth-supports or
 90 bars to the elevator chains, this race-way in
 the present instance consisting of two in-
 clined track-members, 45, of channel cross-
 section secured to the inside of the frame-
 work at opposite ends thereof and having
 95 their flanges facing each other, the cloth-
 supports or bars, 13, being placed upon this
 race-way at the front end and sliding down
 between the flanges into the path of the pro-
 jections or bracket arms, 44, on the elevator
 100 chains, which projections lift the bars one
 by one at predetermined intervals, the up-
 per flanges of each channel being cut away
 at the ends nearest the chains, in order to
 allow the cloth-supports to be lifted out of
 105 the race-way. The projections on the eleva-
 tor chains are relatively few in number and
 the intervals between them on the respective
 chains determine the lengths of the folds in
 the cloth. Above the lower sprocket wheels,
 42, for the elevator chains is mounted a
 110 main roller, 46, whose arbors are journaled
 in the framework, one arbor extending out-
 side the framework where it is provided
 with a sprocket pinion, 47, outside of which
 115 is a suitable means for applying power to
 operate the mechanism, this consisting in
 the present example of a hand crank, 48. A
 sprocket chain, 49, passes around the sprocket
 pinion, 47, and around a sprocket wheel, 50,
 120 fixed on the shaft, 41, which drives the ele-
 vator chains. The framework is provided
 with two brackets, 51, which are slotted at
 their upper ends to receive the arbors of a
 presser roll, 46^a, which may ride over the
 125 main roll and by its weight serves to hold
 the cloth in contact with the latter. At the
 front of the framework, means is provided
 for mounting a roll of cloth, as for example
 by providing slots, 52, in the framework to
 130 receive the arbor of a roller, as indicated at

10' on which the roll of cloth is wound. The cloth-elevating and fold-making apparatus may also be provided with means for driving the overhead track mechanism, this consisting in the present instance of a sprocket wheel, 54, provided with a hand crank, 55, and mounted on a stud, 56, carried by an adjustable holding device, comprising two rods, 57, movable longitudinally in sockets which can be clamped by a hand nut, 58.

When the cloth-elevating and fold-forming apparatus is to be used it is brought opposite the desired overhead track, and the downward extending sprocket chain, 31, of the said overhead track mechanism is placed around the sprocket wheel, 54, whereupon the axis of the latter is moved downward to tighten the same and is clamped in this position. Then by turning the hand crank, 55, the overhead track mechanism is set in action.

The manner of using this apparatus is as follows: The race-way is filled with cloth-supports and the elevator chains moved to lift one from the race-way to a slight extent. The roll of cloth is mounted in the fold-forming apparatus by inserting the arbors of the roller on which the cloth is wound in the slots, 52, in the framework. The end of the cloth is then led between the rollers 46 and 46^a and drawn out horizontally between the two inclined arms, 35, and over the particular cloth-support at that time on the elevator chains, the cloth being drawn out beyond the said cloth-support a distance equal to the length of a fold. By then rotating the crank, 48, the cloth is drawn from its roll and the first cloth-support is elevated, thereby elevating the first fold of cloth. At the proper time a second cloth-support is caught by the projections on the elevator chains and elevated until it comes into contact with the underside of the cloth and lifts the same to form another fold. By continuing to rotate the crank, 48, the cloth is formed into folds and the various cloth-supports elevated. As the cloth-supports reach the top of the apparatus their ends enter the respective track rails and rest upon the endless chains of the overhead track apparatus. By then turning the crank, 55, the said endless chains, 14, are moved to carry the cloth-supports along the said track toward the rear, the cloth hanging in folds between the supports. When one track has been filled with cloth-supports carrying folds of cloth, the chain, 31, is removed from the sprocket wheel, 54, the inclined arms, 35, are swung forward to disengage the said arms from the overhead track mechanism, and the truck moved along the track until the cloth-

elevating and fold-making mechanism is opposite an empty track whereupon the inclined arms are lowered and the sprocket chain, 31, of such overhead track mechanism is placed on the sprocket wheel, 54. Thereupon the operation may be continued as before. When the cloth has hung until it is dry, it may be removed from either end of the track, but preferably at the rear, and is folded or plaited into bales or bolts.

What I claim is:

1. In a cloth-hanging apparatus, the combination, with a plurality of overhead tracks, of a cloth-elevating and fold-forming apparatus movable transversely to the overhead tracks and arranged to fold and elevate folds of cloth to any one of the overhead tracks, and means on the overhead tracks for holding said folds.

2. In a cloth-hanging apparatus, the combination, with a plurality of overhead track mechanisms, each having rails and means for moving cloth-supporting devices along said rails, of a cloth-elevating and fold-forming apparatus movable into line with any overhead track mechanism, and arranged to fold cloth onto said cloth-supports and elevate the latter to the respective overhead track mechanism.

3. In a cloth-hanging apparatus, the combination, with an overhead track comprising two rails, and cloth-supports arranged to travel on said rails, endless chains inside the respective rails and means for supporting and moving said chains, of a movable cloth-elevating and fold-forming mechanism arranged to elevate cloth-supports and cloth to the overhead track, and driving means carried by said cloth-elevating and fold-forming mechanism and arranged to be engaged with the means for driving the endless chains of the overhead tracks, whereby the latter are operated from said driving means.

4. In a cloth-hanging apparatus, the combination with a plurality of overhead tracks, each having rails and means for moving the cloth-supporting devices along said rails, of a cloth-elevating and fold-forming apparatus comprising a truck movable transversely to the overhead tracks, the upwardly extending inclined arms carried by the truck, means for varying the inclination of these arms, and cloth-elevating devices supported by said arms.

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

EDWARD B. DAVIS.

Witnesses:

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HARRIE C. LITTLE.