No. 682,922. Patented Sept. 17, 1901.

W. N. DUNN.

CLOTH PILER.

(Application filed Nov. 20, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

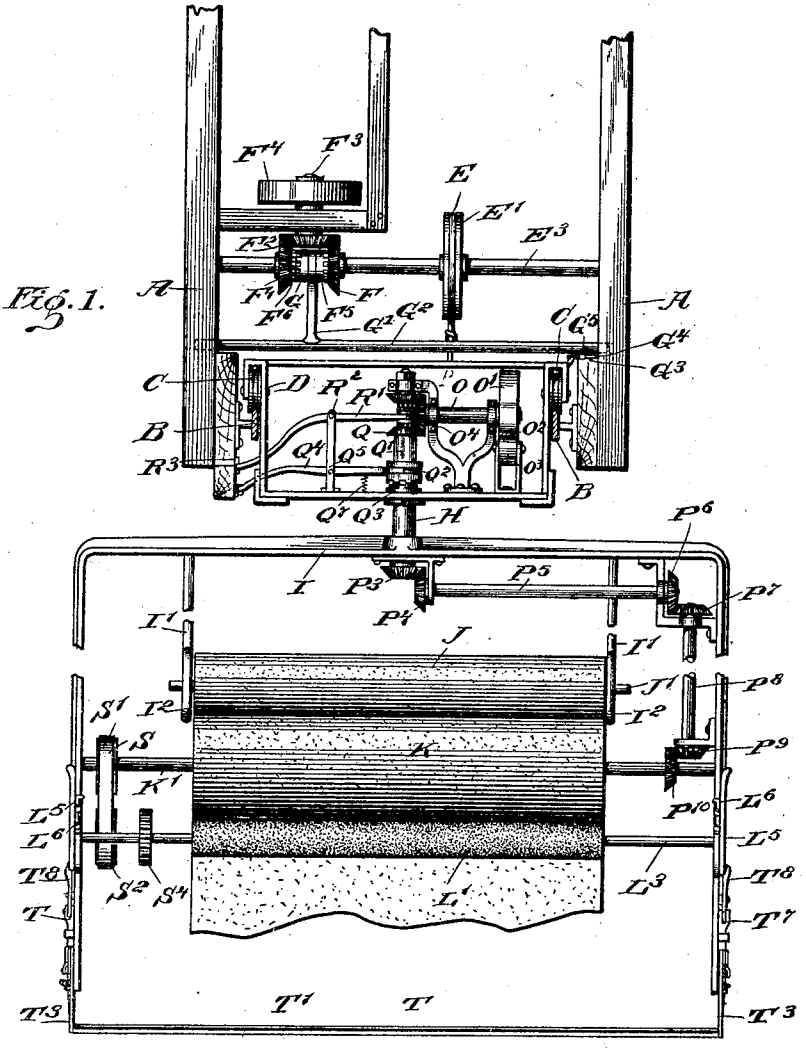
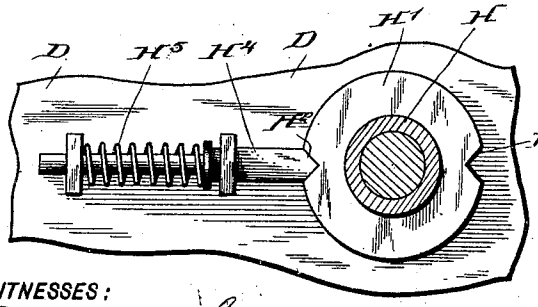


Fig. 6.



WITNESSES:

A. R. Appleman Jr.

Rev. J. Foster

INVENTOR

William N. Dunn

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 682,922. Patented Sept. 17, 1901.

W. N. DUNN.

CLOTH PILER.

(Application filed Nov. 20, 1900.)

(No Model.) 3 Sheets—Sheet 2.

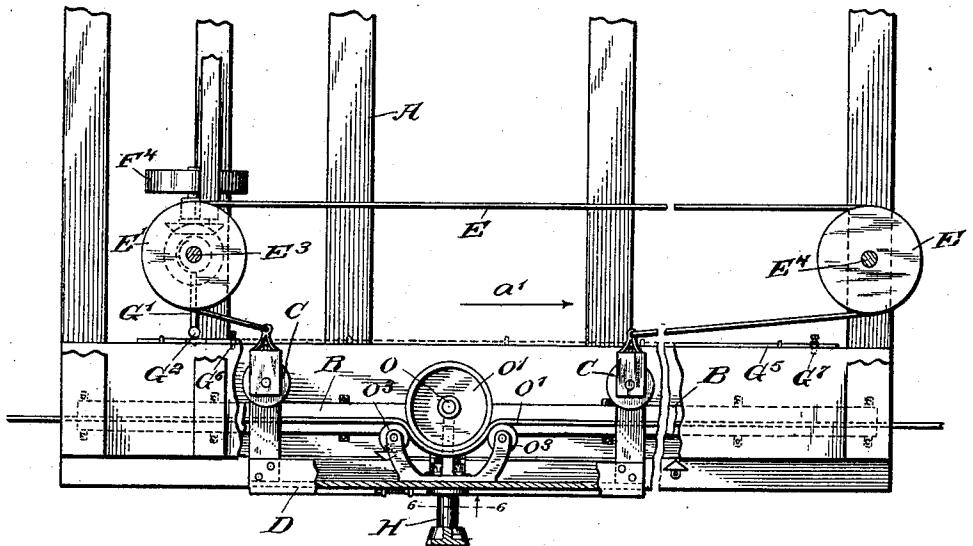


Fig. 2.

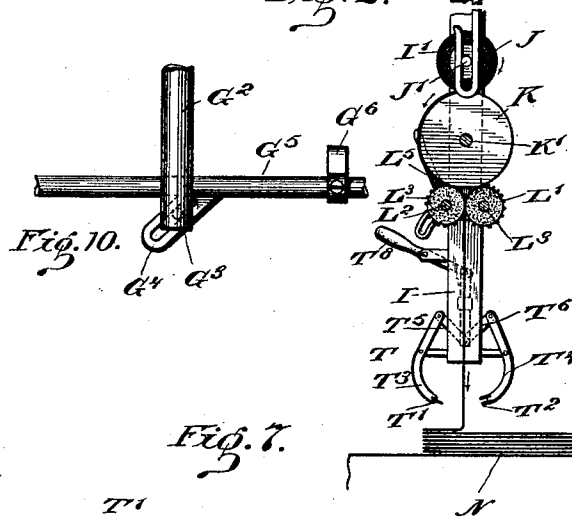


Fig. 7.

Fig. 10.

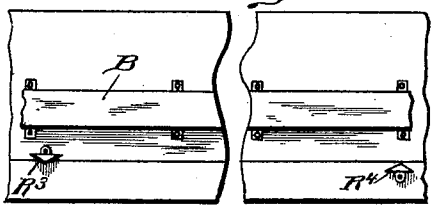


Fig. 9.

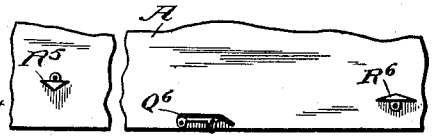
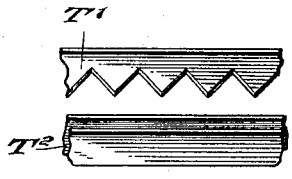


Fig. 9a.



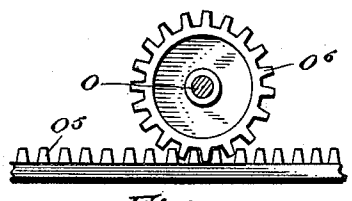


Fig. 8.

WITNESSES:
A. R. Appleman, Jr.
Rud. J. Hoosten

INVENTOR
William N. Dunn
BY Munn & Co.
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 682,922. Patented Sept. 17, 1901.

W. N. DUNN.

CLOTH PILER.

(Application filed Nov. 20, 1900.)

(No Model.) 3 Sheets—Sheet 3.

Fig. 3.

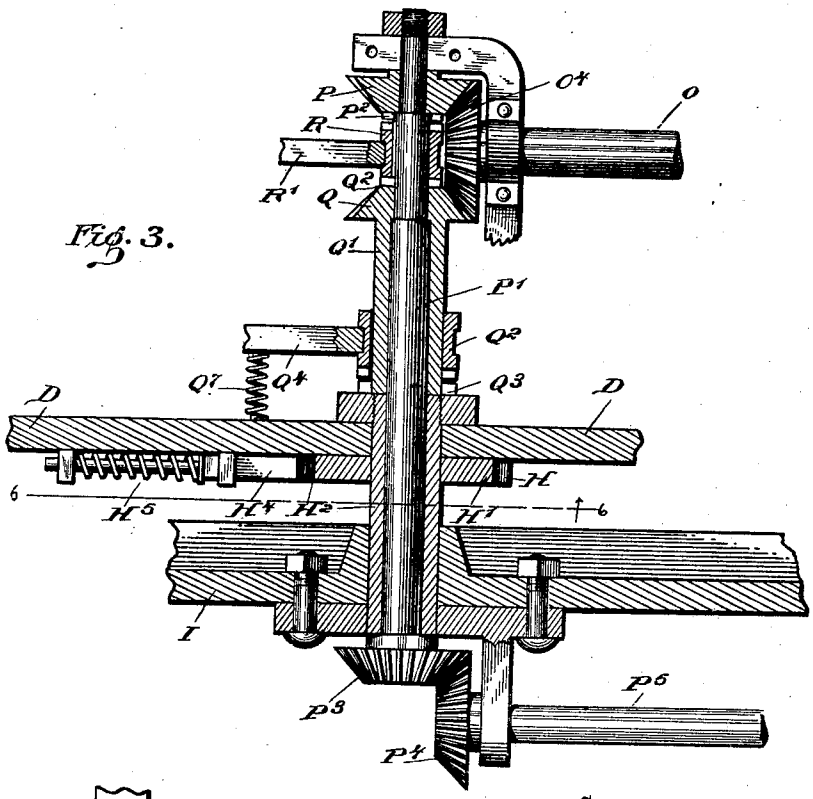
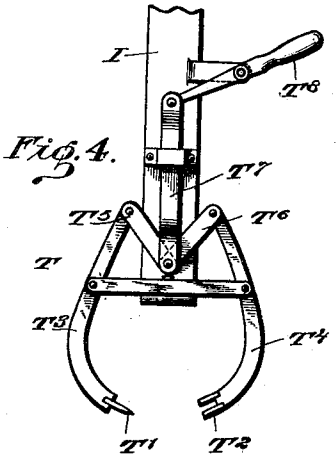


Fig. 4.



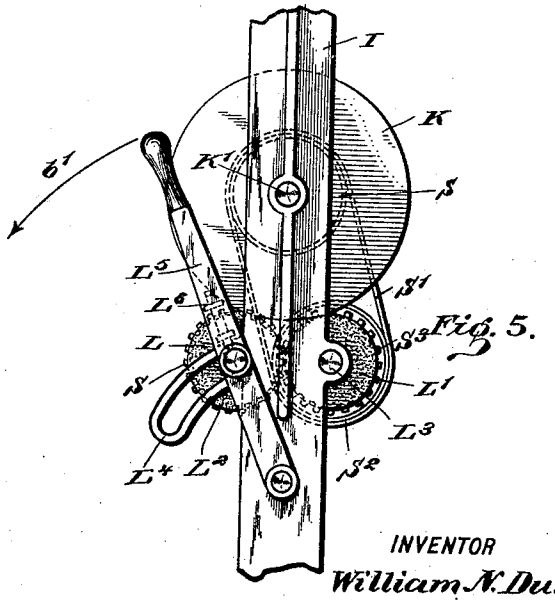


Fig. 5.

WITNESSES:

A. R. Applemans Jr.

Henry Hoster Jr.

INVENTOR

William N. Dunn

BY

Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM NELSON DUNN, OF MARTINSBURG, WEST VIRGINIA.

CLOTH-PILER.

SPECIFICATION forming part of Letters Patent No. 682,922, dated September 17, 1901.

Application filed November 20, 1900. Serial No. 37,115. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM NELSON DUNN, a citizen of the United States, and a resident of Martinsburg, in the county of Berkeley and State of West Virginia, have invented a new and Improved Cloth Laying or Folding Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved laying or cloth-folding machine which is simple and durable in construction, very effective in operation, and arranged to lay or fold cloth of any desired width or length and perfectly smooth, to insure proper cutting of trousers or other garments in a comparatively short time.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an end elevation of the improvement with the overhead track in section. Fig. 2 is a side elevation of the same with parts in section. Fig. 3 is an enlarged cross-section of the driving mechanism for the rolls in the roll-hanger. Fig. 4 is an enlarged side elevation of the cloth-cutting device. Fig. 5 is an enlarged side elevation of the guide-rolls for the cloth. Fig. 6 is an enlarged inverted sectional plan view of the locking device for the roll-frame sleeve, the section being on the lines 6 6 in Figs. 2 and 3. Fig. 7 is an enlarged perspective view of the cutting-knives separated, and Fig. 8 is an enlarged side elevation of a modified form of the driving mechanism for unwinding the cloth. Figs. 9 and 9^a are side elevations of the overhead track and the shifters for the clutch-levers of the rolling, driving, and reversing mechanism; and Fig. 10 is an enlarged plan view of the clutch-lever for the carriage driving-gear.

On a suitably-constructed overhead framework A is arranged an overhead track B, on which are mounted to travel wheels C, journaled in a carriage D, having a traveling movement forward and backward on said overhead track B to feed the cloth in layers on a table, as hereinafter more fully described. The carriage D is connected at opposite ends with the ends of a band E, extending over pulleys E' E^2, having their shafts E^3 E^4 journaled in suitable bearings in the overhead framework A. On the shaft E^3 are mounted loosely bevel gear-wheels F F', in mesh with opposite sides of bevel gear-wheel F^2, secured on the lower end of a vertically-disposed shaft F^3, journaled in suitable bearings on the framework A, as is plainly indicated in Fig. 1.

On the shaft F^3 is secured a pulley F^4, over which passes a belt connected with other machinery for imparting a rotary motion to said pulley F^4 and the shaft F^3 to rotate the bevel gear-wheel F^2, which in turn rotates the bevel gear-wheels F F' in opposite directions. The inner faces of the bevel gear-wheels F F' are formed with clutch members F^5 F^6, adapted to be engaged by a double clutch G, mounted to slide on and to turn with the shaft E^3 and adapted to engage either of said clutch members F^5 or F^6. Thus when the double clutch G engages the clutch members F^5 then the shaft E^3 is driven by the gear-wheel F in one direction, and when the double clutch G is shifted out of mesh with the member F^5 and in mesh with the member F^6 then the shaft E^3 is rotated in an opposite direction to the bevel gear-wheel F^2 and the said clutch G. When the shaft E^3 is rotated in one direction, then the pulley E' imparts a traveling motion to the band E to draw the carriage forward in the direction of the arrow a', and when the carriage reaches the end of its travel then the clutch G is automatically shifted, as hereinafter more fully described, to reverse the motion of the shaft E^3, so that the band E causes the carriage D to travel backward in the inverse direction of the arrow a'. When the carriage reaches the end of its return stroke, the clutch G is again shifted back to the position shown in Fig. 1, so that the carriage D again moves forward in the direction of the arrow a'. In order to shift the double clutch G for the purpose described, the clutch is engaged by a shifting-arm G', projecting from a shifting rod G^2, extending transversely and mounted to slide in suitable bearings carried on the overhead framework A. One outer end of the rod G^2 (see Figs. 1 and 10) is pro-

vided with a downwardly-extending pin G^3, engaging an elongated slot in an angular arm G^4, projecting from a longitudinally-extending rod G^5, mounted to slide in suitable bearings in the overhead framework A. On the rod G^5 are adjustably held the lugs G^6 G^7, (see Fig. 2,) adapted to be engaged by the carriage D when the latter reaches the end of its travel, so that a shifting motion is given to the said rod G^5, which by the angular arm G^4 and the pin G^3 imparts a transverse sliding movement to the rod G^2 and the arm G′ to shift the double clutch G and engage either of the clutch members F^5 F^6, according to the direction in which the rod G^2 is moved by the action of the carriage D reaching either end of its travel. By moving the lugs G^6 G^7 farther apart or nearer together more or less travel can be given to the carriage, according to the length to be given to the layers or folds. On the carriage D is journaled a sleeve H, supporting at its lower end a roll-hanger I in the form of a U-shaped frame having depending hangers I′ with elongated bearings I^2 at their lower ends for receiving the ends of the shaft J′ of the cloth-roll J, containing the cloth to be laid in layers or folds over the table, as hereinafter more fully described. The roll J rests loosely on the top of a large drum K, preferably made of wood and having its shaft K′ journaled in the side arms of the hanger I, and below this drum K are arranged feed-rolls L′ L′, of felt or other suitable material, having their shafts L^2 L^3 journaled in suitable bearings in the side arms of the hanger I. The drum K rotates in unison with the travel of the carriage D, and the feed-rolls L L′ are driven from the shaft K′ of the drum K, so that the cloth passed from the roll J around the drum K and then between the feed-rolls L L′ is caused to unwind when the carriage D travels forward or backward, so that the unwound cloth is laid in layers or folds on a table N, as indicated in Fig. 2. By having the elongated bearings I′ for the roll-shaft J′ a large roll of cloth can be placed in position in the roll-hanger, and as the cloth unwinds and the roll diminishes in size the shaft readily accommodates the bearings I′, so that the roll J rests at all times on the top of the drum K.

In order to positively rotate the drum K in unison with the forward-and-backward travel of the carriage D, the following device is provided: On the carriage D is journaled a transversely-extending shaft O, carrying a pulley O′, under which passes a belt O^2, extending longitudinally and secured at its ends to the overhead framework A or other suitable supports. The belt O^2 is held in frictional contact with a portion of the peripheral surface of the pulley O′ by pulleys O^3, journaled in suitable bearings carried by the carriage D, so that when the latter moves forward and backward the belt O^2 by traveling over the peripheral surface of the pulley O′ rotates the latter, and consequently the shaft O, in either a forward or backward direction, according to the direction in which the carriage D is traveling. Instead of the fixed belt O^2 and pulley O^3, I may employ a fixed rack O^5 and a pinion O^6, secured on the shaft O. (See Fig. 8.) On the inner end of the shaft O (see Figs. 1 and 3) is secured a bevel gear-wheel O^4, in mesh on opposite sides with bevel gear-wheels P and Q, of which the bevel gear-wheel P is mounted to rotate loosely on a vertically-disposed shaft P′, mounted to turn in the sleeve H, previously mentioned. The bevel gear-wheel Q is secured on or forms part of a sleeve Q′, mounted to rotate loosely on the shaft P′, and on the opposite faces of the gear-wheels P and Q are formed clutch members P^2 Q^2, adapted to be engaged by the double clutch R, mounted to slide on and to turn with the shaft P′. The clutch R is engaged by a shifting lever R′, fulcrumed at R^2 on the carriage D, (see Fig. 1,) and the free end of this shifting lever R′ is adapted to be engaged by shifters R^3 R^4, carried on the overhead framework A and adjusted thereon relatively to the position of the lugs G^6 G^7, so that said lever is automatically shifted when the carriage moves to an end position, as hereinafter more fully described. During the forward travel of the carriage the clutch R is in mesh with the clutch member P^2, so that the rotary motion given to the bevel gear-wheel P by the bevel gear-wheel O^4 is transmitted to the shaft P′, so that the latter rotates in unison with the shaft O during the major portion of the travel of the carriage. The lower end of the shaft P′ carries a bevel gear-wheel P^3, in mesh with a bevel gear-wheel P^4, secured on the inner end of a transversely-extending shaft P^5, journaled in suitable bearings in the roll-hanger I, as indicated in Figs. 1 and 2. On the outer end of the shaft P^5 is secured a bevel gear-wheel P^6, in mesh with a bevel gear-wheel P^7, secured on the upper end of a shaft P^8, likewise journaled in suitable bearings on the hanger I, and on the lower end of said shaft P^8 is secured a bevel gear-wheel P^9, in mesh with a bevel gear-wheel P^{10}, secured on the shaft K′ of the drum K. On the shaft K′ is secured a pulley S, over which passes a belt S′, also passing over a pulley S^2, secured on the shaft L^3 of the feed-roll L′, and on said shaft L^3 is secured a gear-wheel S^3, in mesh with a gear-wheel S^4, secured on the shaft L^2 of the other feed-roll L. Now when the drum K is rotated, as described, a rotary motion is transmitted by the pulleys S S^2 and belt S′ to the feed-roll L′ and a like motion is transmitted by the feed-roll L to the gear-wheels S^3 S^4. Thus the drum K and the feed-wheels rotate in unison.

In order to permit of conveniently placing the cloth between the feed-wheels L′ L′, the shaft L^3 is preferably mounted in ordinary bearings, while the shaft L^2 is journaled in elongated bearings L^4, and the ends of the shaft are in addition journaled in levers L^5,

fulcrumed on the hanger I and adapted to be locked thereto by a suitable locking device L^6. (Shown in Figs. 1 and 5.) When it is desired to pass the cloth between the rolls L L', the levers L^5 are unlocked and swung outward in the direction indicated by the arrow b' (shown in Fig. 5) to move the feed-roll L away from the roll L' and also from the drum K. The operator can now pass the cloth upon the drum K, between the rolls L L', and then the operator swings the levers L^5 back to a forward position and locks the same in place, so that the rolls L L' firmly engage the cloth on opposite sides, and when the rolls are rotated then they, in conjunction with the drum K, feed the cloth downward upon the table. When it is desired to lay cloth during both the forward and return stroke of the carriage, then the carriage travels forward in the direction of the arrow a', the clutch R being in mesh with the member P^2 to rotate the shaft P' in one direction and to cause the cloth to be fed forward onto the table, and when the carriage reaches the end of its travel and is about to return the operator can pull lever T^8 at the desired time and cut the cloth while it is still moving, or the machine can be automatically operated more accurately by suitable devices controlled by the carriage D, and, still another way, lug G^7 on rod G^5 can be set so as to allow carriage D to move same to such a position that clutch G will be free from clutch F^5 and clutch F^6, therefore allowing carriage D to stop. Then lever T^8 can be pulled down to cut cloth. Then operator can move rod G^5, which shifts rod G^2, and shifting-arm G' therefore puts clutch G in mesh with clutch F^6 and carriage starts on its return. Then the lever R' engages the shifter R^4 (see Fig. 9) and receives a swinging motion to move the clutch R into mesh with the clutch member Q^2, so that the gear-wheel Q, driven by the gear-wheel O^4, rotates the clutch R and shaft P' in the same direction it had before, although the gear-wheel O^4 and shaft O rotate in an opposite direction during the return movement of the carriage D, as previously mentioned. It is understood that the carriage D engages the lug G^7 at about the same time that the shifting lever R' engages the shifter R^4, so that the return movement of the carriage coincides with the shifting of the clutch R from the bevel gear-wheel to the gear-wheel Q to insure a continuous feeding of the cloth onto the table during both the forward and return stroke of the carriage. When the carriage reaches the end of its return stroke and moves in contact with the lug G^6, then at the same time the shifting lever R' moves in engagement with the shifter R^3, so that the clutch R is moved out of engagement with the member Q^2 of the gear-wheel Q and into mesh with the member P^2 of the gear-wheel P, and the above-described operation is repeated.

When it is desired to lay cloth with two layers of cloth laid face to face and the grain of the layers running in the same direction, then the feeding of the cloth ceases during the return stroke of the carriage, and the hanger is given a half-turn during the return stroke. For this purpose the track B is provided with shifters R^5 R^6, (shown in Fig. 9^a,) arranged to actuate the lever R' and hold the clutch R in mesh with the member P^2 during the forward stroke of the carriage and to move the clutch R into neutral or non-active position during the return stroke of the carriage—that is, out of mesh with both clutch members P^2 and Q^2. To give the hanger I the desired half-turn, the following device is provided: On the sleeve Q' is mounted to turn and to slide a clutch Q^2, adapted to engage a clutch member Q^3, secured to the sleeve H, so that when the clutch Q^2 is in mesh with the clutch member Q^3 a rotary motion is given to the sleeve H to turn the hanger I and the parts carried thereby. In order to control the turning of the hanger I, the clutch Q^2 is engaged by a shifting lever Q^4, fulcrumed at Q^5 on the carriage D and adapted to be engaged at its outer end by a shifter Q^6 in the form of a lever and located between the shifters R^5 R^6. (See Fig. 9^a.) During the forward movement of the carriage D the lever Q^4 simply lifts and then drops the shifter Q^6; but on the return stroke of the carriage the lever Q^4 engages the beveled end of the shifter, so that the lever receives a swinging motion, and thereby moves the clutch Q^2 into the clutch member Q^3 and holds it in mesh until a half-turn is given to the hanger by the sleeve Q', clutch Q^2, member Q^3, and sleeve H. As soon as the lever Q^4 moves off the shifter Q^6 a spring Q^7 moves the lever Q^4 and the clutch Q^2 back into the normal inactive position. (Shown in Fig. 3.) In order to hold the hanger I in position against accidental turning, the sleeve H is provided with a collar H', (see Fig. 6,) having notches H^2 H^3, located diametrically opposite each other and adapted to be engaged by a bolt H^4, mounted to slide in suitable bearings attached to the under side of the carriage D. A spring H^5 presses the bolt H^4, so as to hold the same in engagement with the corresponding notch H^2 or H^3 to prevent the sleeve H, and consequently the holder I, from accidentally turning.

In order to permit of cutting the cloth at the ends of the layers or folds, a cutting device T is provided, carried on the lower end of the hanger I and constructed as follows: Transversely-extending knives T' T^2 are held on arms T^3 T^4, fulcrumed on the hanger I and pivotally connected by links T^5 T^6 with slides T^7, mounted to slide on the side arms of the hanger I, the upper ends of the slides being connected with levers T^8 under the control of the operator. Normally the knives T' T^2 stand apart, as shown in Figs. 2 and 4, so that the cloth can pass from the feed-rolls L L' to the table, and when the feeding of

the cloth ceases, as above described, then the operator swings the levers T^8 downward, so that the knife-arms T^3 T^4 swing shut and the knives T' T^2 cut the cloth in a straight line, after which the operator moves the levers T^8 back to the forward position to open the knives T' T^2, as shown in Fig. 2. Although I have herein stated that the knives T' T^2 are manually actuated, it is evident that the same may be automatically operated by suitable devices controlled by the carriage D. The blade of the knife T' is preferably serrated, as indicated in Fig. 7, and the knife T^2 is made of two blades spaced apart for the serrated blade of the knife T' to pass between them. The knife T^2 is preferably made with flat edges instead of sharp edges, the flat edges having little sharp sprays or twigs (not shown) to keep the cloth from slipping either way while the knife T' is cutting the cloth. The carriage D can be stopped at any time by the operator shifting the rod G^5 by hand to give sufficient time to the operator for cutting the cloth at the end of the fold or layer.

By adjusting the lugs G^6 G^7 and the shifters for the levers R' and G^4 the cloth can be laid in folds or layers of any desired length. If desired, the machine may be used in a reverse manner for rolling up cloth by revolving the feed-rollers L L' and drum K in a reverse direction.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A cloth laying or folding machine, provided with a carriage mounted to travel above a table on which the cloth is to be laid or folded, a cloth-roll hanger revolubly supported from the carriage and means for unwinding the cloth only during the forward travel of the carriage and turning the cloth-roll hanger during the return travel of the carriage said means being controlled by the travel of the carriage, as set forth.

2. A cloth laying or folding machine, comprising an overhead track, a carriage mounted to travel thereon, a roll-hanger revolubly supported from said carriage and adapted to support a cloth-roll, an unwinding device for unwinding the cloth from the said roll, and means for driving said unwinding device and turning the roll-hanger from said carriage, as set forth.

3. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll, means for operating the drum from the carriage and a pair of feed-rolls under said drum and rotating in unison therewith, to unwind the cloth on said cloth-roll, as set forth.

4. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll, a pair of feed-rolls under said drum and rotating in unison therewith, to unwind the cloth on said cloth-roll, and means for rotating said drum and said feed-rolls from said carriage, as set forth.

5. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll means for operating the drum from the carriage, feed-rolls below the drum and rotating in unison therewith, and a cutting device for cutting the cloth, as set forth.

6. A cloth laying or folding machine, comprising an overhead carriage, a roll-hanger supported by said carriage and adapted to support a cloth-roll, a drum mounted to turn in said hanger and forming a support for the cloth-roll, feed-rolls below the drum, and means for opening the feed-rolls, to permit the insertion of the cloth, as set forth.

7. A cloth laying or folding machine, comprising an overhead track, a carriage, mounted to travel thereon, a roll-hanger mounted to turn on said carriage and adapted to support the cloth-roll, and means for turning the said hanger from the carriage and during the travel of the same, as set forth.

8. A cloth-folding machine, comprising an overhead track, a carriage mounted to travel thereon, means for imparting a forward-and-backward travel to said carriage, a roll-hanger revolubly supported from said carriage, an unwinding device for unwinding the cloth from the cloth-roll, a driving mechanism for actuating said unwinding device, said driving mechanism being controlled by the forward-and-backward movement of the carriage, and means, substantially as described, for periodically turning said hanger said means being controlled by the travel of the carriage, as set forth.

9. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger supported from the carriage, a drum mounted in the hanger and adapted to form a support for the roll, means for operating the drum from the carriage, a feeding device below the drum for feeding the cloth from the roll over the drum, and means for operating the feed device from the said drum, substantially as described.

10. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls mounted in the roll-hanger below the drum and geared

together, and means for operating one of the feed-rolls from the drum, substantially as described.

11. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for causing the carriage to travel back and forth on the track, of a roll-hanger suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls mounted in the hanger below the drum, means for operating the feed-rolls from the drum, and a cutting device carried by the roll-hanger for cutting the cloth, substantially as described.

12. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger revolubly suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls below the drum, means for operating said rolls from the drum, and means for turning the roll-hanger, said means being controlled by the travel of the carriage, substantially as described.

13. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for imparting a back-and-forth movement of the carriage on the track, of a roll-hanger revolubly suspended from the carriage, a drum mounted in the roll-hanger and adapted to form a support for the roll, means for operating the drum from the carriage, feed-rolls mounted in the hanger below the drum and geared together, means for operating one of the feed-rolls from the drum, and a cutting device carried by the roll-hanger for cutting the cloth, substantially as described.

14. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and operated from the carriage-operating means, a drum mounted in the hanger and adapted to form a support for the cloth-roll, gearing between the said shaft and the shaft of the drum, and a feeding device arranged below the drum and operating in unison therewith, substantially as described.

15. In a cloth-folding machine, the combination with a track, a carriage mounted to travel back and forth on the track, and means for operating the carriage, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and operated from the carriage-operating means, a drum mounted in the roll-hanger and adapted to form a support for the cloth-roll, gearing between the said shaft and drum, feed-rolls below the drum and geared together, and means for operating one of the feed-rolls from the said drum, substantially as described.

16. In a cloth-folding machine, the combination with a track, a carriage mounted thereon, and means for operating the carriage to cause it to travel back and forth on the track, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage, a horizontal shaft mounted in the carriage and geared with the upper end of the vertical shaft, means for operating the horizontal shaft by the travel of the carriage, a drum mounted in the roll-hanger, gearing between the drum and the lower end of the vertical shaft, and a feeding device below the drum and operated therefrom, substantially as described.

17. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for causing the carriage to travel back and forth on the track, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and provided at its upper end with two gear-wheels mounted loosely thereon and spaced apart, said gear-wheels having clutch-faces, a double clutch mounted on the shaft between the gear-wheels to slide on and turn with the said shaft, means for moving the clutch alternately in engagement with the clutch-faces of the said gear-wheels, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the said gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a cloth-feeding device mounted in the roll-hanger, and means for operating the feed device from the lower end of the said vertical shaft, substantially as described.

18. In a cloth-folding machine, the combination with a track, a carriage mounted on the track, and means for causing the carriage to travel back and forth on the track, of a roll-hanger suspended from the carriage, a vertical shaft mounted in the carriage and provided at its upper end with two loosely-mounted gear-wheels, spaced apart and having clutch-faces, a double clutch mounted on the shaft between the gear-wheels to slide on and turn with said shaft, a lever secured to the clutch, fixed shifters for engaging the lever to shift the clutch, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the before-mentioned gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a feeding device mounted in the roll-hanger and means for operating the feed device from the said vertical shaft, substantially as described.

19. In a cloth-folding machine, the combination with a track, a carriage mounted thereon, and means for causing the carriage to travel back and forth on the track, of a sleeve journaled in the carriage, a roll-hanger carried by the sleeve, a vertical shaft mounted in the sleeve and provided at its upper end with two loosely-mounted gear-wheels

spaced apart, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the before-mentioned gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a feeding device mounted in the roll-hanger, means for operating the feeding device from the vertical shaft, and means for locking the sleeve to one of the gear-wheels, substantially as described.

20. In a cloth-folding machine, the combination with a track, a carriage mounted thereon, and means for causing the carriage to travel back and forth on the track, of a sleeve journaled in the carriage and having a clutch-face at its upper end, a roll-hanger carried by the sleeve, a vertical shaft mounted in the sleeve and provided at its upper end with two loosely-mounted gear-wheels spaced apart, one of the said gear-wheels being carried by a sleeve on the shaft, a horizontal shaft mounted in the carriage and provided with a gear-wheel meshing with the before-mentioned gear-wheels, means for operating the horizontal shaft by the travel of the carriage, a feeding device mounted in the roll-hanger, means for operating the feeding device from the said vertical shaft, a clutch mounted on the sleeve of the said gear-wheel, a lever for operating the clutch, and fixed shifters with which the lever engages, substantially as described.

21. In a cloth-folding machine, the combination with a track, and a carriage mounted thereon, of pulleys, a band passing over the pulleys and having its ends secured to the carriage, gear-wheels loosely mounted on the shaft of one of the pulleys, said gear-wheels being spaced apart and having opposing clutch-faces, a double clutch mounted between the gear-wheels, a transversely-sliding shifting rod having an arm engaging the clutch and provided with a pin at one end, a longitudinally-sliding rod provided with an angular arm having a slot in which the pin of the shifting rod projects, and stops for the carriage on the longitudinally-sliding rod, substantially as described.

22. In a cloth-feeding machine, the combination with a roll-hanger, of a drum mounted in the hanger, feed-rolls mounted in the hanger below the drum, one of the feed-rolls being mounted in elongated bearings, and a lever pivoted to the hanger and in which the ends of the shaft of the feed-roll which is mounted in elongated bearings, is mounted, substantially as and for the purpose set forth.

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

WILLIAM NELSON DUNN.

Witnesses:

THOS. L. DUNN,

F. H. GRAICHEN.