No. 624,704. Patented May 9, 1899.

W. THARANDT.

CLOTH CUTTING MACHINE.

(No Model.) (Application filed Feb. 14, 1898. Renewed Mar. 17, 1899.)

2 Sheets—Sheet 1.

Fig. 1.

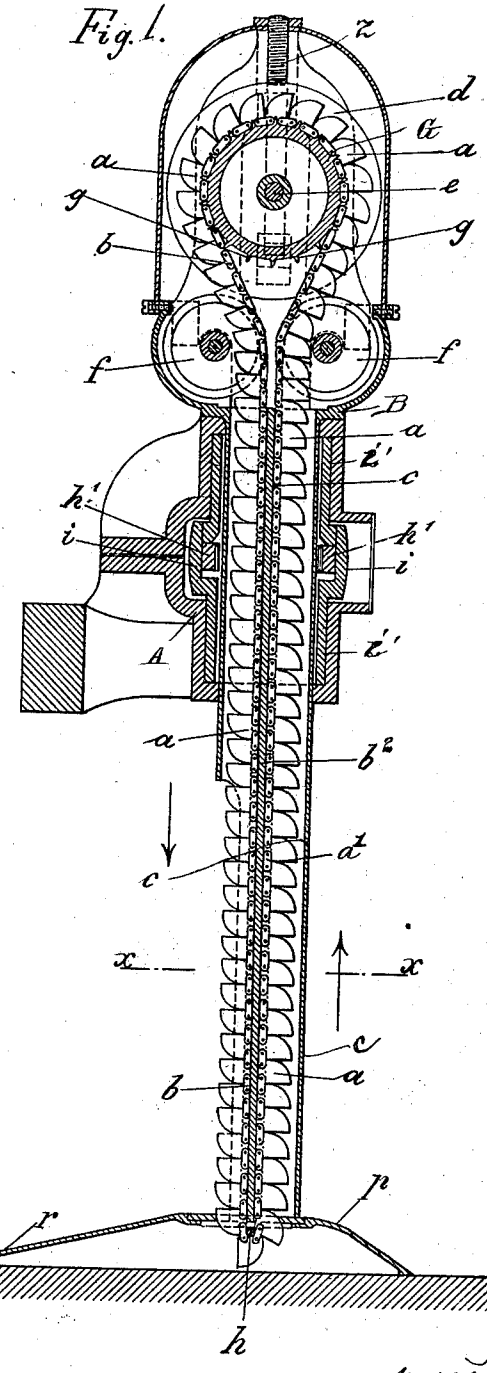
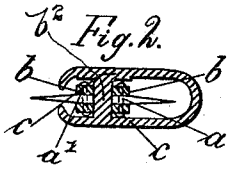


Fig. 2.



Witnesses
Geo. E. Sullivan
T. Rec'd Clift.

Inventor
Wilhelm Tharandt
by Fitz Attorneys
Mason Fenwick & Lawrence

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

No. 624,704.

Patented May 9, 1899.

W. THARANDT.

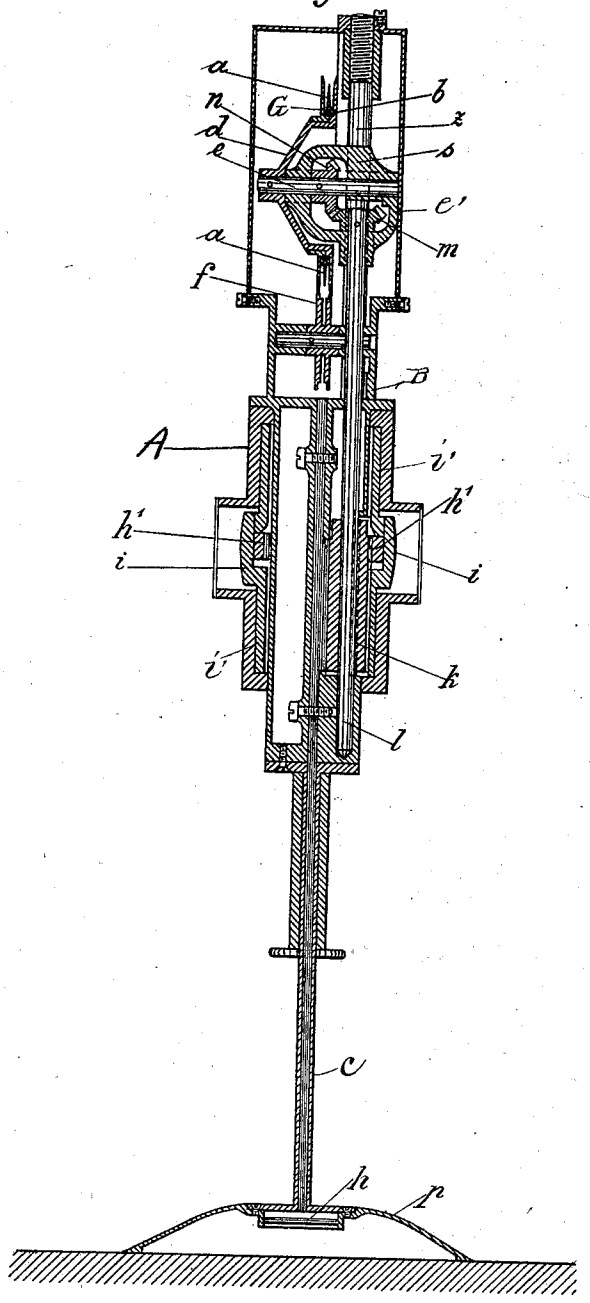
CLOTH CUTTING MACHINE.

(Application filed Feb. 14, 1898. Renewed Mar. 17, 1899.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.



Witnesses
Geo. E. Sullivan
T. Reed Clift.

Inventor
Wilhelm Tharandt
by his Attys
Mason Fenwick & Lawrence

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

UNITED STATES PATENT OFFICE.

WILHELM THARANDT, OF BERLIN, GERMANY, ASSIGNOR TO PHILIPPSOHN & LESCHZINER, OF SAME PLACE.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 624,704, dated May 9, 1899.

Application filed February 14, 1898. Renewed March 17, 1899. Serial No. 709,466. (No model.)

To all whom it may concern:

Be it known that I, WILHELM THARANDT, a subject of the King of Prussia, Emperor of Germany, residing at Berlin, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Cutting Devices for Machines for Cutting Cloth, (for which I have applied for a patent in Germany, dated August 28, 1897,) of which the following is a specification.

My invention relates to improvements in devices for cutting cloth; and it consists in a suitable support, a power-pulley, and a movable housing mounted in said support, carrying a knife-chain, and means for communicating movement from the said pulley to the said chain to actuate the latter.

It also consists in a suitable support, a housing mounted thereon, a knife-chain mounted in said housing with means for operating the same, the said chain comprising a series of knife-blades having curved cutting-surfaces for producing a shear cut.

It also consists in certain other novel constructions, combinations, and arrangements of parts, all as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved cloth-cutting device, taken upon the plane of the cutting-knives. Fig. 2 represents a detail horizontal sectional view upon the line x x of Fig. 1; and Fig. 3 represents a vertical sectional view through the cutting devices, taken on a plane at right angles to that of the section shown in Fig. 1.

The present invention is designed particularly for cutting stuffs of considerable thickness, especially where it is designed to cut sharp curves in the goods. The use of a series of knives enables me to accomplish this purpose much better than I could if I employed knife-disks, which would be necessarily larger, when cutting through thick stuff and could not be turned well in the thick layer of cloth in consequence of the arc-like form of the cut. All this difficulty is obviated by using the knife-chain as I contemplate in my invention.

As seen in Fig. 1 of the drawings, a supporting-bearing, as A, is employed, which may be carried by any suitable supporting-frame, (not shown)—as, for instance, pivoted extension-arms, adapted to permit of a wide range of movement on a work-table. The bearing A is preferably arranged vertically, with an enlarged central portion, and is adapted to receive a power-pulley, as i. The pulley i is provided with a central belt-engaging portion and end bearing portions, as i' i', which extend into the bearing A. A belt may engage the said pulley upon its central portion and connect the same with any suitable source of power for revolving it in the bearing A. Interiorly of the pulley i is formed an internal gear, as h'. The pulley i and its bearing portions i' i' are hollow and are adapted to surround a movable housing, as B, in which is mounted the cutting-knife chain, the said movable housing being adapted to extend above and below the bearing A, as clearly seen in the drawings. The upper portion of the movable housing B is larger than the bearing and power-pulley, and may rest upon the bearing A when the movable housing is in its lowest position, as seen in Figs. 1 and 3 of the drawings. The housing B carries a guide c, which extends centrally through the said housing B and downwardly below the bearing A for guiding the knife-chain which moves therein. A central guide portion, as b^2, is formed in the guide c and divides the upwardly and downwardly moving parts of the knife-chain, separating them the proper distance from each other. The knife-chain b comprises a series of knife-blades a a, which are connected together by means of links, as a', preferably riveted to each side of the knife-blades. The knife-blades are preferably provided with curved cutting-surfaces, as seen in the drawings, so that when each knife engages the cloth to be cut it will act upon the same with a draw or shear cut. The knife-chain passes upwardly upon one side of the partition b^2 in the guide c and over a pulley, as G, mounted in the upper part of the housing B. The pulley G revolves upon a shaft e, carried by a housing, as e'. The pulley G is preferably provided with grooves upon its periphery to receive the knife-chain, and in said grooves are formed a series of projections or pins, as g, adapted to extend between the links a' of

the chain. These pins serve to actuate the chain and prevent its slipping upon the driving-pulley G. In order to bring the chain together again below the said pulleys G, guide-pulleys *f f* are mounted in the housing B upon suitable shafting, the said pulleys being provided with peripheral grooves to receive the knives and their links, as clearly seen in Figs. 1 and 3 of the drawings. The chain then passes downwardly through the guide *c* upon the other side of the partition b^2. To the lower end of the guide *c* is secured a suitable foot, as *p*, and a slot is formed in the said foot to permit the knife-chain to enter the same at the base of the guide *c*. An anti-friction-roller, as *h*, is mounted in the foot *p*, around which the knife-chain can pass in its operation. The foot *p* is made of sufficient height to prevent the knives from striking the table or other support upon which the foot may rest, and the said foot is preferably provided with an elongated central portion, as at *r*, to guide the goods or stuffs to be cut to the knives. The guide *c* is provided upon one side with a cut-away or slotted portion through which the cutting edges of the knives *a* may project to engage the stuffs to be cut as the chain moves downwardly.

In order to actuate the pulley G for driving the knife-chain, a bevel-gear, as *n*, is secured to the shaft *e*, which meshes with a corresponding bevel-gear *m*, mounted upon a vertical shaft, as *l*, which finds suitable bearing in the housing B. The lower end of the shaft *l* extends downwardly through the bearing A interiorly thereof and carries a pinion, as *k*, which is made of considerable length, the teeth of the said pinion being adapted to engage an internal gear *h'*, formed interiorly of the power-pulley *i*. The power received by the pulley *i* is thus adapted to be communicated to the pinion *k* and the shaft *l* and then through the bevel-gearing *m* and *n* to the pulley G for actuating the knife-chain, as heretofore described.

The pulley is mounted in the bearing A and is incapable of vertical movement therein; but the housing B, which moves interiorly of the said pulley, can be moved up and down to a limited degree. It is desirable to have this capability of movement in the housing B in order that the foot *p* may accommodate itself to any unevenness of the surface of the table or other support upon which it rests.

It will be apparent from the above description that although the housing B may be held at a higher or lower point in the pulley *i* and bearing A, yet the length of the pinion *k* will permit of said change in the parts without affecting this ability to communicate movement to the knife-chain.

It will be seen by reference to Fig. 3 in the drawings that the pinion *k* is made of sufficient length to permit of a considerable movement of the housing B without disengaging the operating-gearing or affecting its operation in the least.

As the knife-chain after constant use is liable to become stretched on account of the wearing of its pivotal points, it is desirable to be able to take up the wear, and for this purpose I secure the frame *e'* to a screw-shaft, as *z*, the upper end of the said shaft engaging a screw-threaded bearing formed in the cap or covering-frame secured to the upper end of the housing B. By turning the screw-shaft *z* the frame *e'* may be raised and the pulley G be thus lifted, so as to take up any slack in the chain.

It will readily be seen from the description of my invention that it is specially well adapted for the purpose of cutting stuffs of all degrees of thickness. As seen in the drawings, the blades *a* are preferably arranged close together, so as to present a practically continuous cutting edge to the stuff or cloth. This arrangement of the cutting edges to produce a practically continuous cutting edge possesses considerable advantage over the arrangement of cutters at a distance from one another, which would tend to produce a chopping action.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device for cutting cloth, the combination with a supporting-bearing, of a stationary pulley mounted therein, a movable housing mounted upon said bearing and extending through the same and a knife-chain mounted in the said movable housing, upon suitable pulleys, and gearing connecting the said pulley with the chain for actuating the latter, substantially as described.

2. In a device for cutting cloth, the combination with a supporting-bearing, of a power-pulley mounted therein, the said power-pulley being provided with a central aperture, a movable housing extending through the said bearing, a knife-chain mounted in the said movable housing, a pulley for actuating the said chain, a shaft having a pinion engaging the power-pulley at one end and a bevel-gear at the other, and a bevel-gear meshing therewith connected with the chain-pulley for actuating the said chain, substantially as described.

3. In a device for cutting cloth, the combination with a suitable bearing, of a power-pulley having an enlarged belt-engaging portion and end journal portions adapted to engage the said bearing, the said pulley and bearing having a central opening, a movable housing mounted in the said opening and carrying a knife-chain, the said housing having a guide formed therein for guiding the knife-chain, a supporting-pulley mounted in the upper portion of the said housing and adapted to engage the said chain for actuating the same, guide-pulleys also mounted in the said housing for guiding the knife-chain into the said guide, bevel-gearing connected with the said chain-supporting pulley, a pinion connected with the said bevel-gearing, an inter-

nal gear formed in the said power-pulley adapted to engage the said pinion, the construction being such that upon the power being communicated to the pulley, it will be communicated to the chain-supporting pulley for actuating the same, substantially as described.

4. In a mechanism for cutting cloth, the combination with a suitable supporting-bearing, of a power-pulley mounted therein, a housing also mounted upon the said support, a knife-chain carried by the said housing, upon suitable pulleys, and means for connecting the same with the said pulley for actuating the said chain, the said chain comprising knife-blades having curved cutting edges, whereby they are adapted to produce a draw or shear cut, substantially as described.

5. In a mechanism for cutting cloth, the combination with a suitable supporting-bearing, of a pulley mounted therein, an internal gear mounted in said pulley, a movable housing also mounted upon said bearing and carrying a knife-chain, a pinion adapted to engage the said internal gear, the said pinion being made of considerable length and means for operatively connecting the said pinion with the said knife-chain for actuating the same, the construction being such that the knife-carrying housing may be raised or lowered in the said bearing without disengaging the pinion from the internal gear, substantially as described.

6. In a mechanism for cutting cloth, the combination with a suitable supporting-bearing of a housing mounted therein, the said housing carrying a knife-chain, a pulley mounted in the said housing for supporting and actuating the said chain, a movable frame having a horizontal bearing and a vertical bearing, the said pulley engaging, by its shaft, the said horizontal bearing and a vertical shaft engaging the vertical bearing, bevel-gearing connecting the vertical and horizontal shafts and means for rotating the vertical shaft for communicating movement from the power-pulley to the chain-actuating pulley and a screw-shaft for adjusting the said latter frame with respect to the former housing to take up any slack or wear in the chain, substantially as described.

7. In a mechanism for cutting cloth, the combination with a suitable supporting-bearing, of a housing mounted therein, a knife-chain carried by the said housing, a pulley for supporting and actuating the said chain, guide-pulleys for receiving the chain edgewise and bringing the chain together below the said pulley, the said guide-pulleys having peripheral grooves for receiving the knife-blades and links to properly guide the same, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

WILHELM THARANDT.

Witnesses:

KARL HARTMANN,

JACOB PHILLIPPSOHN.