2 Sheets—Sheet 1.

M. TOWNSEND.

Knit Fabric for Mattresses, &c.

No. 222,752. Patented Dec. 16, 1879.

Fig. 2.

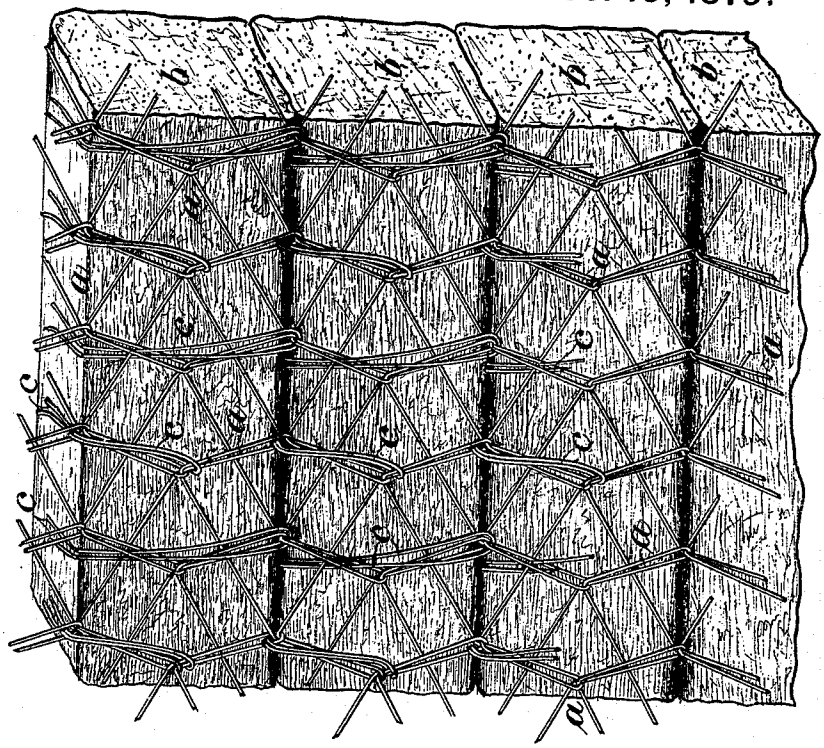
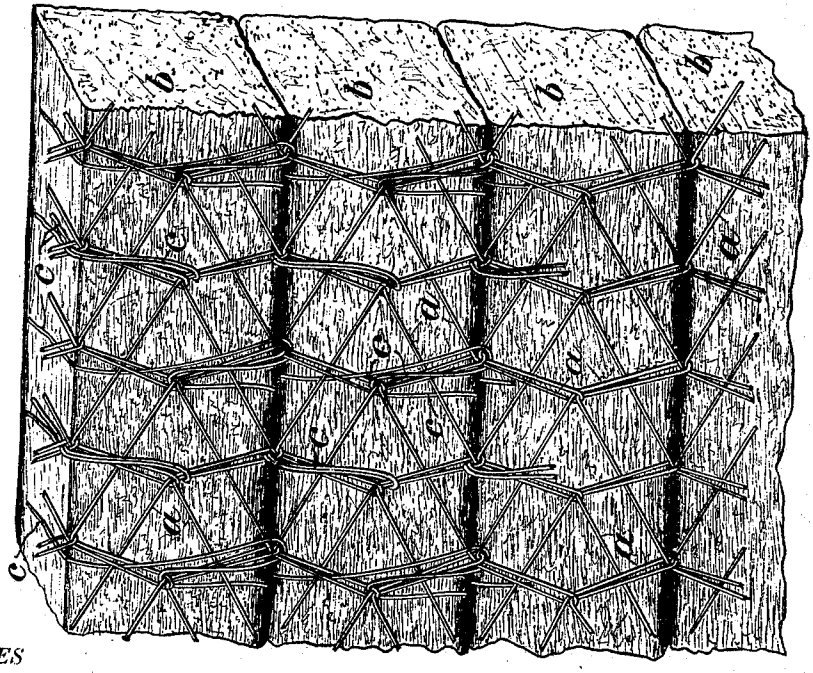


Fig. 1.



WITNESSES

F. G. Raymond 2d

Wm A. Skinkle.

INVENTOR

Matthew Townsend

By his Attorney Wm B. H. Dowse.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

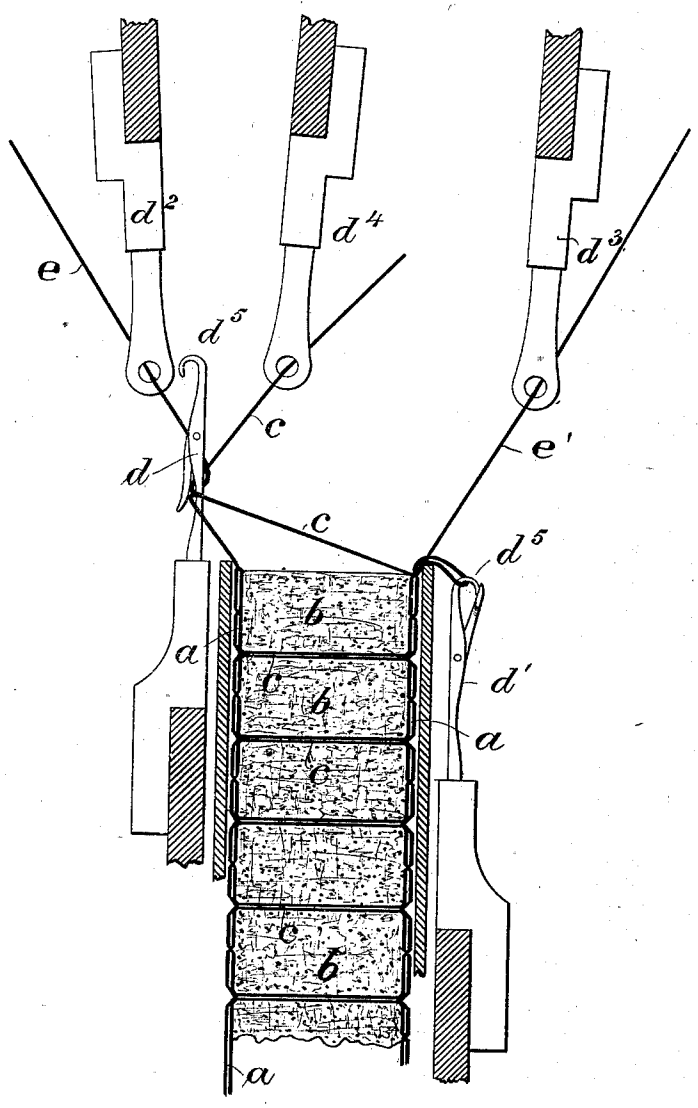
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M. TOWNSEND.

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Fig. 3.



WITNESSES

C. A. Raymond 2d

Wm. A. Skinkle.

INVENTOR

Matthew Townsend

By his Attorney Wm. B. H. Dowson.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MATTHEW TOWNSEND, OF CANTON, MASSACHUSETTS; GEORGE FREDERICK SUMNER, ADMINISTRATOR OF ESTATE OF SAID TOWNSEND, DECEASED, ASSIGNOR, BY MESNE ASSIGNMENT, TO MARIA T. SUMNER, OF SAME PLACE.

IMPROVEMENT IN KNIT FABRICS FOR MATTRESSES, &c.

Specification forming part of Letters Patent No. **222,752**, dated December 16, 1879; application filed June 28, 1878.

To all whom it may concern:

Be it known that I, MATTHEW TOWNSEND, of Canton, in the county of Norfolk and Commonwealth of Massachusetts, have invented an Improvement in Knit Fabrics for Mattresses, &c., of which the following is a specification.

This invention has for its object a fabric particularly adaptable for use as a mattress, stair-pad, lining for cushions, and general upholstering purposes, and consisting of parallel layers of filling inclosed between sides, which preferably are knit as the fabric is constructed, and which are connected by tie-threads interposed between each layer of filling, thus, in effect, confining each strand of filling between the sides and two lines of tie-threads. This construction insures a very flexible, cheap, and elastic fabric.

In the drawings, Figure 1 is a view of the fabric in perspective, illustrating its knit sides, the parallel strands of filling interposed between the sides and the tie-threads. Fig. 2 is a rear view of the fabric shown in Fig. 1. Fig. 3 is a vertical cross-section of the devices employed in knitting the sides, and for feeding and looping the tie-threads. It also represents a vertical cross-section of the completed fabric.

I have adapted double-bar knitting mechanism as a basis into a machine for making this fabric, and the same is made the subject-matter of a separate application for patent.

The sides *a* are knit by this machine simultaneously and independently upon two sets of needles. The filling *b* is fed between the sides in successive layers as the sides are being formed, and the tie-threads *c* are passed from side to side between each strand of filling, and are looped into the stitches of each side as they are formed, thereby firmly uniting the two sides and binding the filling in place between them.

The mechanism for making this fabric should embrace two rows, *d d'*, of vertically-reciprocating needles, (see Fig. 3,) a separate line of oscillating and traversing carriers, d^2 d^3, for each row of needles, and an intermediate oscillating and traversing line of thread-carriers, d^4, for feeding the tie-threads transversely from one row of needles to the other.

The movement of each line of the carriers d^2 d^3 in relation to its respective line of needles *d d'* is such as is commonly employed in knitting a plain fabric, and the traversing movement of the line of carriers for the tie-threads may include two or three needles, as desired.

The carriers d^4 should have a movement from one line of needles to the other, either straight or diagonal, as desired, and they act to present the tie-threads alternately to each set of needles, so that they are looped on the stitches of the knitted sides as they are being formed.

In operation, after the strand *b* of filling has been passed between the sides *a*, the carriers d^4 are moved transversely over the strand, and, in connection with the carriers d^2 of that side, present the threads *e c* to the line of needles *d*, which are then at their highest level. Upon the completion of the traversing movement of the two carriers d^4 d^2, by which two threads are passed around each needle, the needles are lowered, thereby catching the threads by the hooks d^5. The carriers d^4 are then moved toward the other line of needles, *d'*, which are then at their highest point, and, with the carriers d^3, present the threads *c* and *e'* to these needles, pass them around the same, and then stop at a position between the lines *d d'* of needles, while the line of needles *d'* move downward, catching the threads *e' c* in their hooks. Of course the process of latching the needle *b* and throwing off the loops previously drawn down takes place upon the downward movement of each line of needles.

The carrier d^4 may, with the carrier d^3, again present the threads *c e'* to the line *d'* of needles, and form another row of stitches upon the same side, after which the filling-strand is again fed, and the movements of the carriers and needles continued in the order explained.

It will be observed that by this method of construction it is practically impossible for the filling to spread or to become matted or disturbed, and that there is thus insured a permanency of elasticity which is very desirable.

Reference is made to the machine for manufacturing mattresses, &c., in the application of Geo. F. Sumner, administrator of the estate of MATTHEW TOWNSEND, the within inventor, filed October 23, 1879, for further information concerning the construction and operation of the mechanism employed for making this fabric.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

The within-described fabric consisting of the knitted sides *a*, the filling *b*, interposed between said sides in successive layers, and the tie-threads *c*, connecting the two sides *a* and passing over each successive strand of filling, substantially as described.

MATTHEW TOWNSEND.

Witnesses:
WM. N. H. DOWN,
THOMAS M. SMITH, Jr.