No. 676,885. Patented June 25, 1901.

A. FRESCHL.

UPHOLSTERY.

(No Model.) (Application filed July 28, 1899.)

3 Sheets—Sheet 1.

FIG. 1.

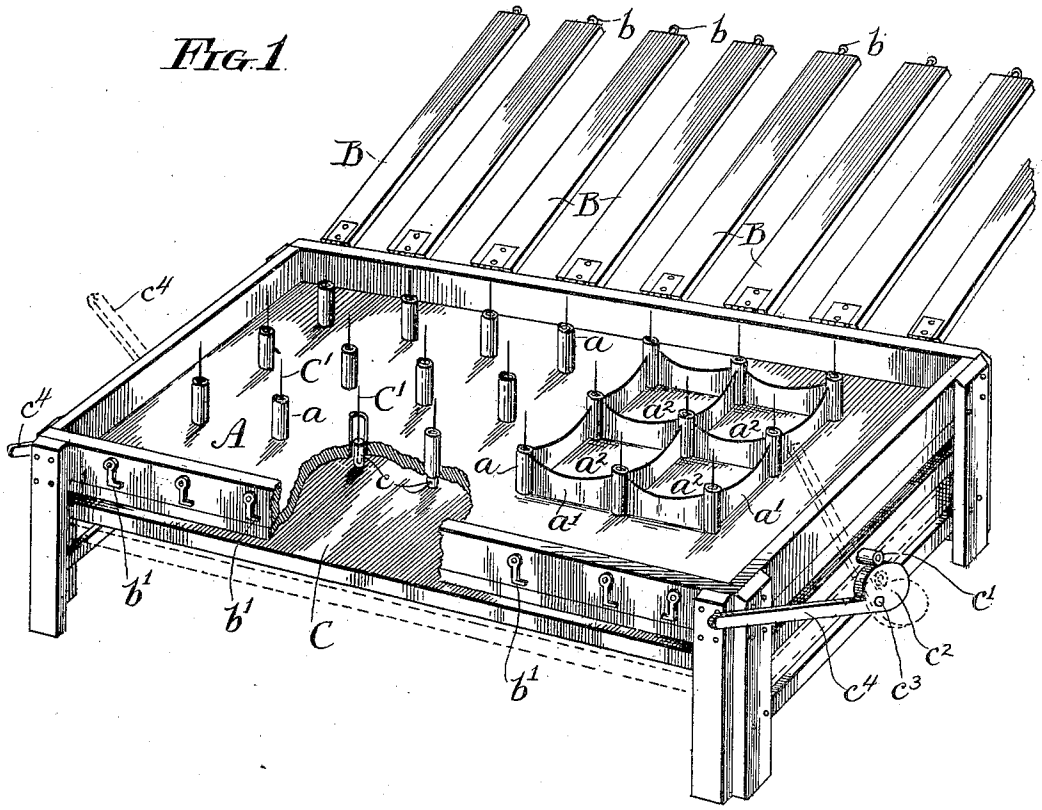
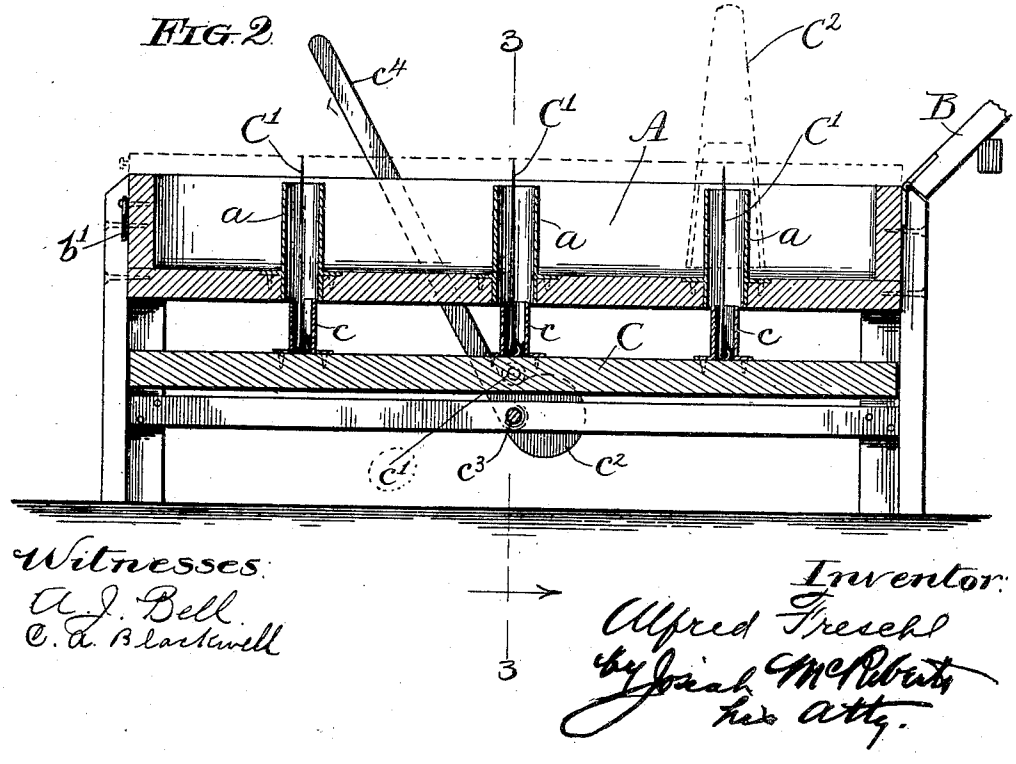


FIG. 2.



Witnesses:
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C. A. Blackwell

Inventor:
Alfred Freschl
by Josiah McPherson
his atty.

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(No Model.) (Application filed July 28, 1899.) 3 Sheets—Sheet 2.

FIG. 3

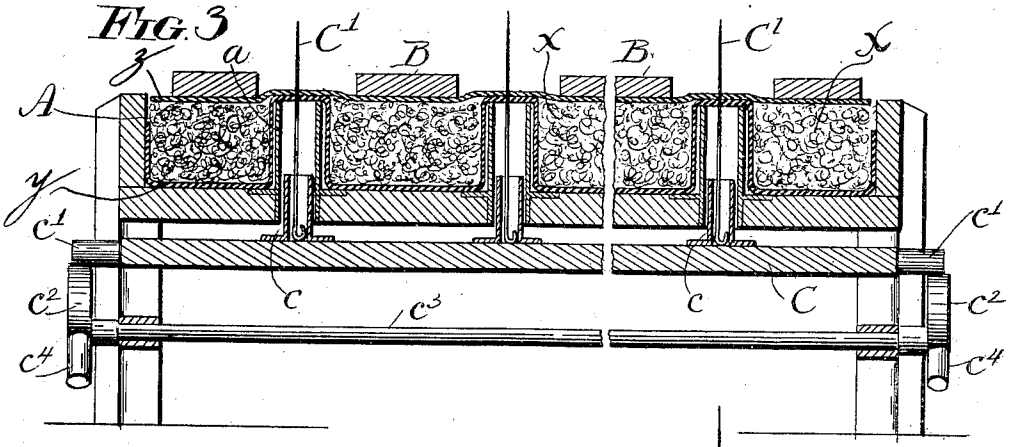


FIG. 4

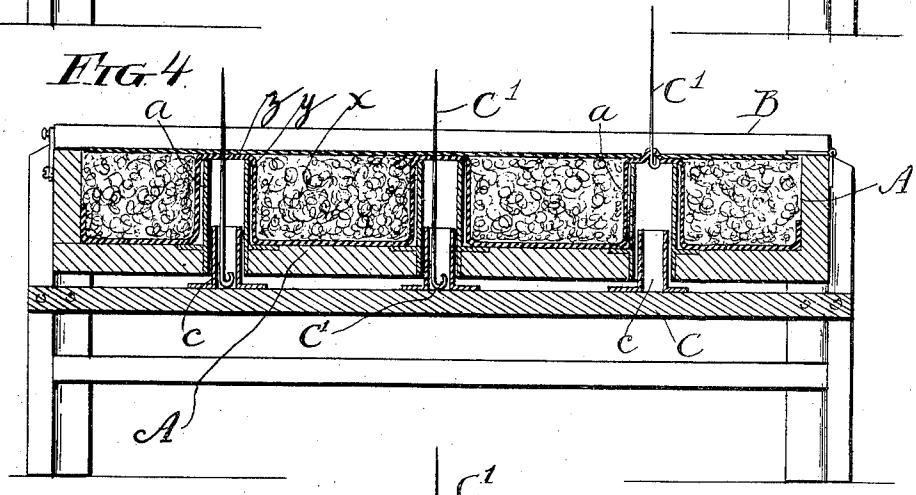


FIG. 4a

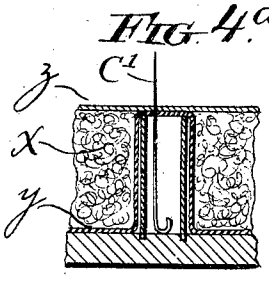


FIG. 5

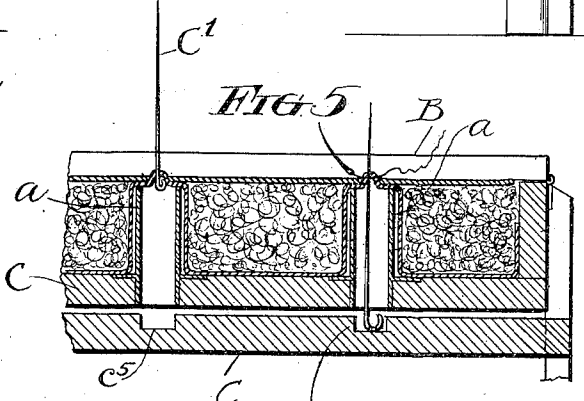
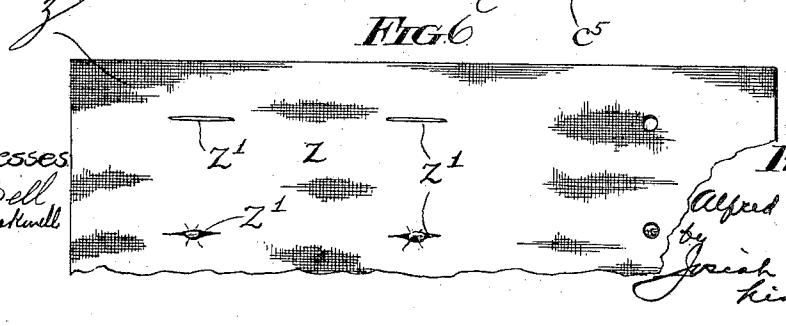


FIG. 6



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(No Model.) (Application filed July 28, 1899.)

3 Sheets—Sheet 3.

FIG. 7

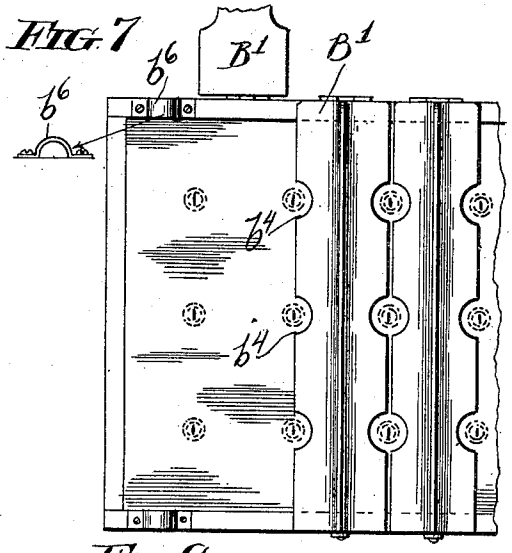


FIG. 8

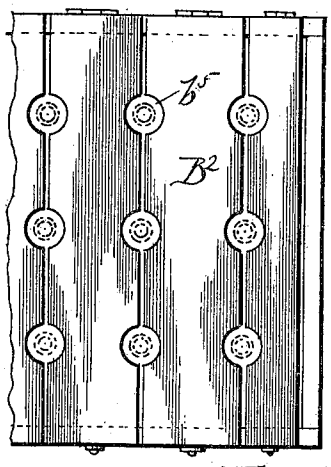


FIG. 9

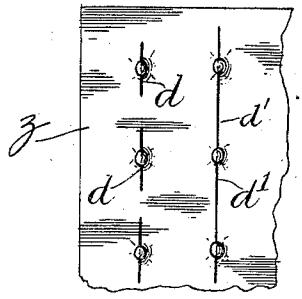


FIG. 10

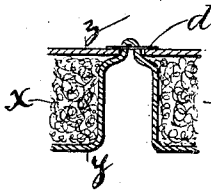


FIG. 11

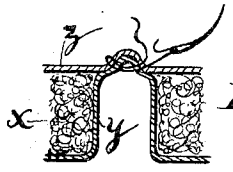


FIG. 12

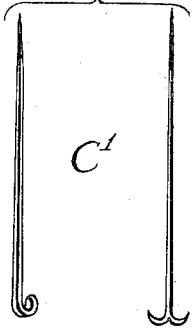


FIG. 13

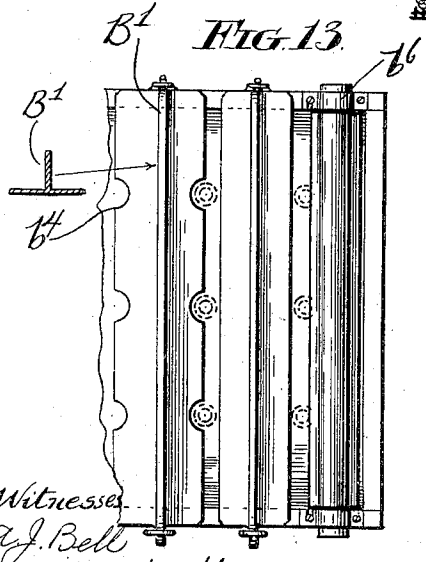
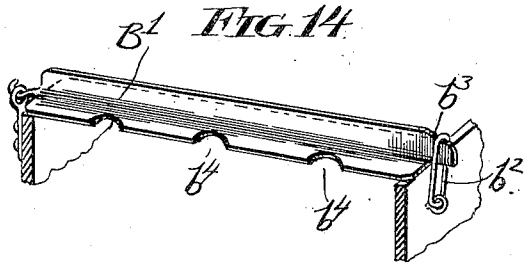


FIG. 14



Witnesses:
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Inventor:
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his Atty.

UNITED STATES PATENT OFFICE.

ALFRED FRESCHL, OF CHICAGO, ILLINOIS.

UPHOLSTERY.

SPECIFICATION forming part of Letters Patent No. 676,885, dated June 25, 1901.

Application filed July 28, 1899. Serial No. 725,428. (No model.)

To all whom it may concern:

Be it known that I, ALFRED FRESCHL, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Upholstery; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to upholstery, and especially to an apparatus or machine which is designed for doing plaited upholstered work, such as cushions, seats, and backs for sofas, carriages, and the like; and its object is to produce a machine in which work of this character may be expeditiously accomplished.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, consisting of three sheets, and in which like letters of reference refer to like parts, Figure 1 is a perspective view of one form of apparatus upon which an upholstered pad or cushion is formed. Fig. 2 is a transverse and Fig. 3 a longitudinal central vertical section of the apparatus shown in Fig. 1 on the lines 2 2 and 3 3. Figs. 4, 4^a, and 5 are transverse sectional views of different forms of apparatus adapted to the same work as that of Fig. 1, but embodying certain modifications in their details of construction. Fig. 6 is a detailed view of the backing or burlap employed and shows the manner of preparing the same as is preferable. Figs. 7 and 8 are top plan views of molds or formers, showing different or modified constructions of the pressers. Fig. 9 is a detail of the rear of a cushion, showing different methods of uniting or anchoring the cover and back. Figs. 10 and 11 are detailed views showing the relative positions of the parts comprising the cushion and different methods of uniting the same. Fig. 12 is a view showing two forms of draw-pins that may be used. Fig. 13 is a view showing pressers of ⊥ shape; and Fig. 14 is a detail of the same, showing the means of connecting these pressers to the mold.

The pad or cushion which is produced by my improved upholstering apparatus consists of a filling x, of hair, excelsior, or similar material, a cover y, of cloth, leather, or the like, and a bottom or back z, of burlap, cardboard, or other suitable material. The covering is tufted by dividing the filling into a number of elevated rounded or diamond-shaped projections, and the cover and back are secured together between the elevations or projections at the base of the cushion by suitable fastening or anchoring means, which may pass through either the two thicknesses of material constituting the cover and back or through only the material of the cover when the latter has been drawn through perforations or slits in the back.

The reference-letter A indicates a mold or former which is mounted upon a suitable framework and which is provided with a plurality of upwardly-projecting tufting-guards or plaiting-tubes a, which are arranged to correspond with the number and location of the tufts to be formed in the cushion or pad and which register with openings in the baseboard of the mold or, if preferred, may extend through the base, as in Fig. 2. The mold may be provided, if desired, between the upwardly-projecting tufting-tubes with a plurality of strips a', which are set edgewise on the board longitudinally and transversely thereof and intersect each other at said tubes, thereby forming on said base-plate a plurality of separate pockets a^2, within which the outer covering of the cushion may be depressed to form the cells therein. Said pockets enable the cells to be formed with greater accuracy than where said partitions are absent; but their use in this apparatus is entirely optional.

The compressor for pressing the filling material into the cells of the cover is composed of independent sections or boards B, which are hinged to the rear edge of the mold, there being one such presser for the space between each two rows of tufting-tubes and between the end rows of tubes and the ends of the mold. The pressers are provided with pins or projections b, which are engaged by suitable latches b' to hold them securely in position to compact the filling material. It is of course understood that any suitable form of fastening device may be employed in this relation.

Beneath the mold and mounted on the framework of the apparatus is a pin-board C, which may be provided with a plurality of cups or seats *c* to receive the lower and bent ends of the draw-pins C′, in number and arrangement corresponding with the tufting-tubes of the mold, the relation of parts being such that normally the upper end of each cup rests within the lower end of its corresponding tufting-tube. The pin-board is provided at either end with an ear or projection *c*′, which rests upon a cam c^2. These cams are mounted upon a through-shaft c^3, which is journaled in the framework of the machine, so that when either cam is operated by its handle c^4 the opposite one is of course correspondingly moved in order that the ends of the board C may move in parallelism toward and from the mold.

The draw-pins C′ normally rest within the cups or seats *c* and are formed with any suitable projections upon their lower ends, which will prevent their being drawn through the cover and which will draw or push the cover slightly upward when operated, all as fully hereinafter set forth. I have shown two forms of these draw or push pins in Fig. 12; but it is to be understood that I do not in any way limit myself to these specific constructions, as it is obvious that any form of projection will answer the purpose for which these pins are designed that will deflect the cover. The pins are of sufficient length to extend slightly above the tops of the tufting-tubes, even when the pin-board is in its lowered position, as clearly shown in Figs. 1 and 2, for a purpose to be presently described.

The method of making a cushion or pad with the apparatus thus far described is as follows: The flexible cover material *y* is placed with its finished face downward on the mold over the tufting-tubes *a*, said cover preferably having been provided with a plurality of suitably spaced and positioned apertures or holes, through which the ends of the pins C′ are adapted to project, or provided on its inner surface with suitably spaced and positioned marks to indicate where said pins should pierce in order to give the required amount of fullness for making the plaits or tufts, all in accordance with the predetermined pattern. This outer cover is then pressed downwardly into the spaces between the tufting-tubes, which constitute separate pockets, thereby forming in the upper surface of said cover between the tubes a plurality of cells in which the filling *x* is to be pressed. The outer covering is preferably tucked about the plaiting-tubes by the use of the tucking-peg C^2 of the construction disclosed in my prior patent, No. 592,508, granted to me October 26, 1897. As shown in Fig. 2, these pegs fit over the tucking-tubes and cover the upwardly-projecting ends of the draw or push pins C′, whereby the workman is protected from the points of these pins in the operation of placing the filling material upon the cover. With this arrangement the cover may be pressed down over all the tubes at once and depressed between them to form all the cells before the filling is begun, as the upwardly-projecting points of the pins serve to properly position the cover. When the cells have thus been formed, the filling material is put into the mold by hand, and the compressors B are then shut down over the mold to press the filling into the cells to produce the required firmness in the cushion. After the filling has been suitably compressed the pressers B are unlocked and turned up upon their hinges, the tufting-pegs C^2 are removed, and the back *z*, of burlap or other suitable material, is then applied over the filling material as it rests in the mold in the cells formed in the cover. This burlap or back *z* will desirably be previously provided with a plurality of small apertures *z*′ of any desired shape, as in Fig. 6, which correspond in arrangement and location with the tufting-tubes of the mold. When the back *z* is placed upon the mold, the compressors B may, if desired, again be thrown down and locked in their operative position, although this is not necessary for the successful operation of the machine. With this arrangement of parts the ends of the pins C′ project through the openings *z*′ of the back *z*, as clearly shown in Fig. 2. The cams c^2 are then operated to raise the pin-board C to its elevated position, as shown in Figs. 1 and 3, which operation thrusts the pins C′ upward sufficiently far so that they may be grasped by the hand of the operator for their further manipulation. When the pins have been thus projected upwardly, the operator, beginning at either end of the machine, takes hold of one of the pins of the first row with one hand and draws it upwardly until its bent end coming in contact with the face of the cover *y* draws or deflects the cover at this point slightly through the corresponding opening in the back *z*, as clearly shown in Figs. 5 and 10, and with the other hand he passes a suitable pin, wire, threaded needle, or other suitable anchor through that portion of the cover *y* which projects through the opening *z*′ of the back *z*. Repeating this operation, which may be rapidly performed, the operator soon completes the entire cushion or pad, the draw or push pins C′ falling back into their places in their seats as the operator releases his hold upon them.

While the pins C′ may be used to advantage in drawing or pushing the material to position to be readily caught by the anchor, it is apparent that these pins perform the useful function of positioning the cover *y* and back *z* upon the tufting-tubes and that when so positioned they may be readily sewed together by means of a coarse thread and a bent needle, which will readily pass through both thicknesses of the material without the necessity of raising the pins to deflect the same.

In Figs. 4, 4^a, and 5 I have shown an ap-

paratus in which a movable pin-board is not employed, thus greatly cheapening and simplifying the construction. In the form of apparatus shown in Fig. 4ª no separate pin-board whatever is employed, the tufting-tubes themselves serving as cups or seats for the draw-pins. In this construction the bottom board of the mold is imperforate and the tufting-tubes do not extend through it. The tubes may of course be let into the bottom board, if desired, as in Fig. 4ª, or may be merely secured upon its top, as in Fig. 4. In Figs. 4 and 5 the old and commonly-used type of perforated mold is employed and is associated with a pin-board C, which is in fixed position with relation thereto. In these figures the pins rest upon the board C, which may, if desired, be bored out or otherwise provided with suitable seats c^5 for the pins.

The operation of making a cushion with either of the forms shown in Figs. 4, 4ª, and 5 is essentially the same as that described in connection with the apparatus shown in Figs. 1, 2, and 3, the main difference being that in the constructions shown in Figs. 4, 4ª, and 5 the pins C′ normally extend far enough above the material to enable the operator to secure a hold upon them, while in the other construction they are raised to this position by means of the cams or other suitable mechanism. These various forms of molds described in connection with the different constructions shown in Figs. 1, 4, 4ª, and 5, respectively, may be provided with any suitable form of compressor or presser-board B. As disclosed in Fig. 1, this consists of a series of independently pivoted or hinged boards of ordinary rectangular form, one for each division between the adjoining rows of tufting-tubes and for the end rows. It is of course obvious that the form of these compressors may be varied without in any manner departing from my invention. Thus they may be flat rectangular pieces, as in Figs. 7 and 8 or as in Figs. 13 and 14. These compressors may be in the form of ⊥-shaped angle-irons B′, which may be removably hinged to the rear edge of the mold, their front ends being confined in operative position to compress the material by means of the hinged staples b^2, which are secured to the front edge of the mold and lock into recesses b^3 in the vertical web of the compressor. These compressors may be of any desired width; but it is preferable that they shall substantially fill the mold when down, so as to suitably and perfectly compress the filling material after the manner of the common and well-known follow-board. To accomplish this, I prefer to make them of such width that the adjacent edges of the adjoining pressers shall come close together, not quite touching, however, and to recess the edges, as at b^4 and b^5, respectively, to provide suitable spaces or openings for the tufting tubes and pegs. By this construction the entire surface of the filling material is compressed and there is room between the adjacent edges of the pressers to insert an anchor wire or thread to secure a row of turfts.

It is obvious that where very heavy backing is used it is preferable to provide it with the slits or perforations z', as in Fig. 6, adapted to register with the pins for the passage of the cover therethrough, as it greatly facilitates the work. However, where a lighter grade of backing is employed or one that is more pliable it is equally obvious that such slits or perforations need not be provided, as the pressure of the curved end of the draw or push pin will be sufficient to deflect both thicknesses of material far enough to allow the anchor wire or thread to be passed therethrough, as clearly shown in Fig. 11. The character of the fastening or anchor is also immaterial, and this may be of any suitable form or material. For example, the operation of securing the cover and back may be performed by employing a strong cord or thread supplied with a suitable needle, which may be passed through both thicknesses of the material, as in Fig. 11, or through only the outer cover, as in Fig. 10, the thread being preferably carried the entire length of a row of tufts, the openings between the adjacent edges of the compressors permitting it to be drawn tightly against the outer face of the backing. Individual pins or clips of any suitable form may be employed at each tufter, as at d in Fig. 9, or a single anchor, as of wire, may be employed for each row of tufters, as at d' in Fig. 9, the slight space between each pair of compressors allowing the anchor to be easily and readily threaded through the cover material, close against the outer face of the backing. It is of course understood that suitable tufts or tuft-buttons may be sewed through the materials in the depressions between the elevations or projections to complete the appearance of the pad or cushion, if so desired.

In the operation performed with any of the forms shown the cells in the outer covering after it has been pressed into the pockets of the mold may all be filled at once over the entire surface of the mold and the backing z' applied to the same and independently secured over the different pockets, or each transverse row of pockets may be separately filled, the filling material compressed, and the backing z secured thereover in the manner above described before filling the next adjacent row, and so on until all the rows are completed, any order in filling the pockets or any number of them being followed as is most convenient to the operator or required by the size of the cushion.

It is obvious that various changes may be made in the construction of the apparatus without in any manner departing from the spirit and principle of my invention. Any desired form of operating means may be employed to raise the pin-board in the form of machine shown in Fig. 1, any suitable form of draw-pin may be employed that will per-

form the prescribed office or function, and the devices used to fasten the tufts at the bases of the projections or elevations may be varied at will. The compressors may be hinged or pivoted, or they may be simply held by suitable keepers, such as b^6 in Fig. 7, from which they are readily removed by a forward-and-backward sliding movement. By having the pressers thus detachably connected and as in Figs. 13 and 14 it is obvious that the number of pressers required for each mold may be greatly lessened, as the operator may use but two or even a single presser, completing one row of tufts and then using the same presser for the next, and so to the end. The same remark applies to the draw-pins, as the same set may, if desired, be used successively in connection with the various rows of tufting-tubes when the operator is making the cushion section by section. Any form of presser may be associated with any of the forms of mold shown in the drawings. Other changes will occur to those skilled in the art which are equally within the scope and spirit of my invention.

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

1. An upholstering apparatus including a mold provided with openings a series of independent draw-pins and means to support the pins.

2. An upholstering apparatus including a mold provided with tufting-tubes and draw-pins, normally supported within the tubes and adapted to deflect the upholstery material.

3. An upholstering apparatus including a mold provided with tufting-tubes, a pin-board providing seats for pins, and a series of independent draw-pins adapted to deflect the upholstery material.

4. An upholstering apparatus provided with tufting-tubes and draw-pins independently supported in said tubes.

5. An upholstering apparatus including a mold provided with tufting-tubes, independent draw-pins in said tubes to deflect the material and suitable compressors for the filling material.

6. An upholstering apparatus including a mold provided with tufting-tubes, independent draw-pins in said tubes to deflect the material and independently-operated compressors.

7. An upholstering apparatus including a mold provided with tufting-tubes, independent draw-pins in said tubes to deflect the material and detachable compressors.

8. An upholstering apparatus including a mold provided with tufting devices and independently-movable draw-pins arranged to position the fabrics and deflect the cushion-cover.

9. In an upholstering apparatus, a mold provided with tufting devices, vertically independently movable draw-pins, and means to compress the filling material.

10. In an upholstering apparatus, the combination of a mold provided with tufting-tubes, a presser adapted to compress the filling material around the tubes, and draw-pins adapted to deflect the material whereby the cover and back may be suitably secured together.

11. In an upholstering apparatus, the combination of a mold provided with tufting-tubes, means to compress the filling material, independent draw-pins to deflect the cover for the passage of suitable fastenings or anchors for securing the cover and back.

12. In an upholstering apparatus, the combination of a mold provided with tufting-tubes, independent draw-pins in the tubes to deflect the material and compressors having recesses to register with the tubes.

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

ALFRED FRESCHL.

Witnesses:
H. HYMAN,
L. JACOBSON.