May 12, 1936. T. L. McJOYNT 2,040,094

UPHOLSTERY PAD STUFFING MACHINERY

Filed May 29, 1933 3 Sheets-Sheet 1

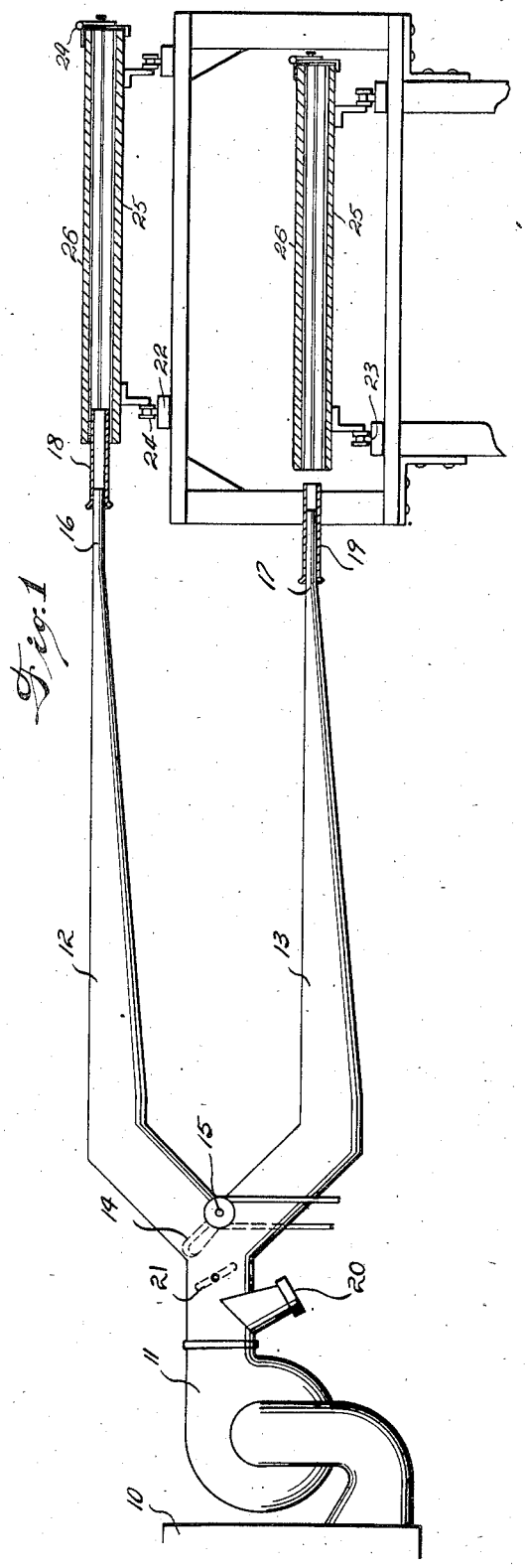


Fig. 1

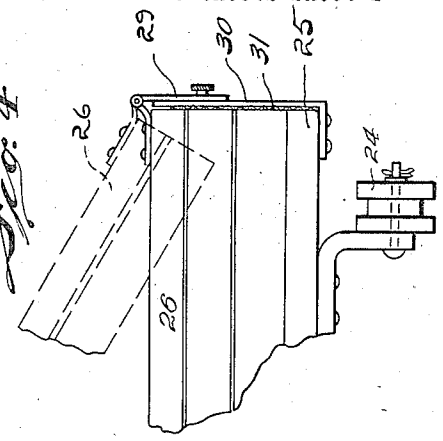


Fig. 4

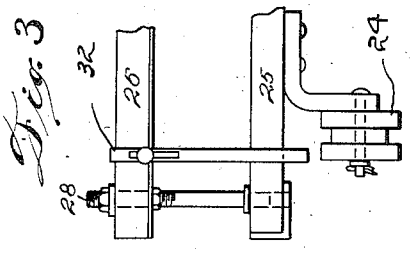


Fig. 3

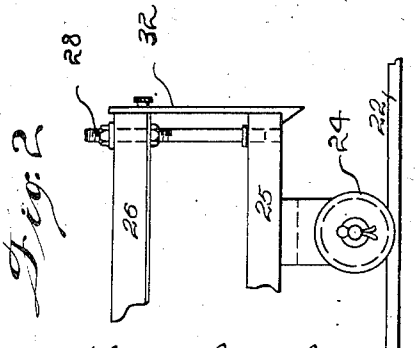


Fig. 2

Thomas L. McJoynt
INVENTOR
BY Frau. D. Tefft
ATTORNEY

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Fig. 6

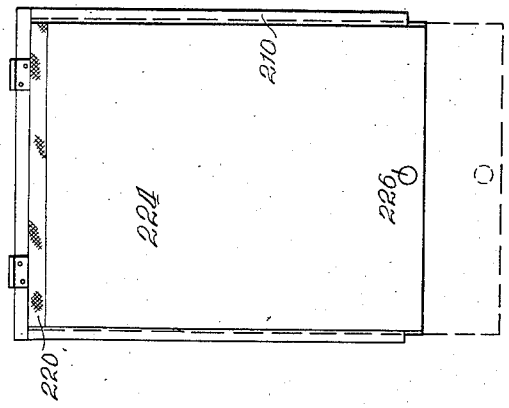


Fig. 7

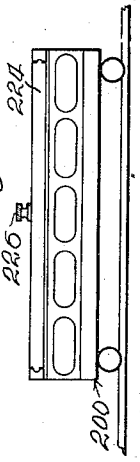


Fig. 8

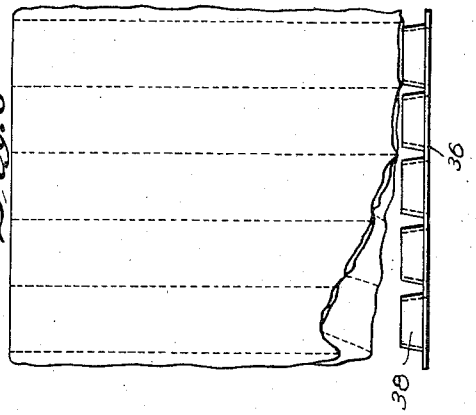
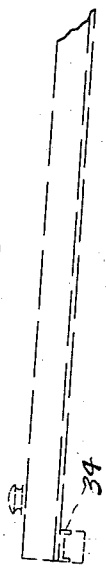
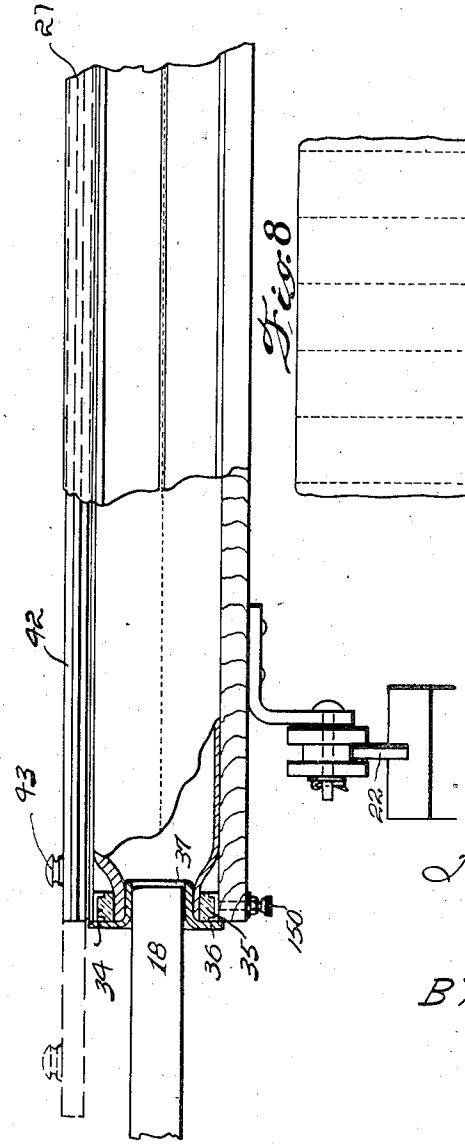


Fig. 5





Thomas L. McJoynt

INVENTOR

BY Frank D. Jeffs

ATTORNEY

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UPHOLSTERY PAD STUFFING MACHINERY

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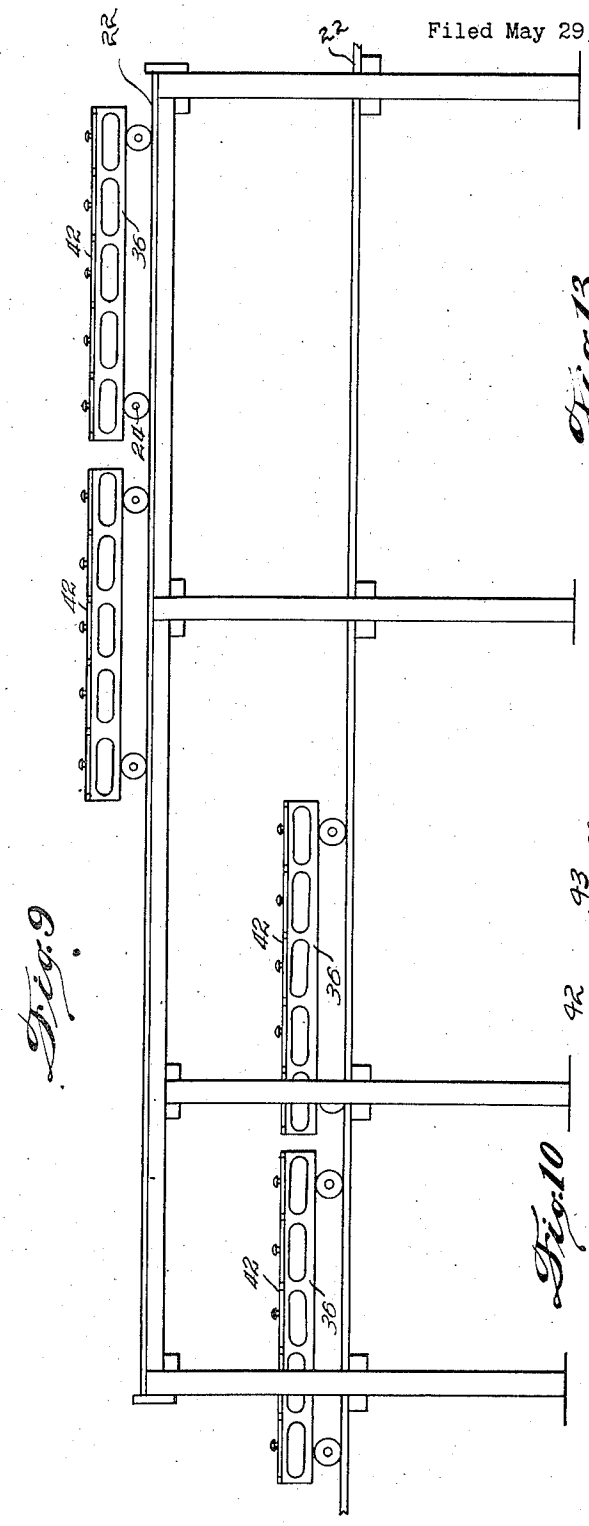


Fig. 9.

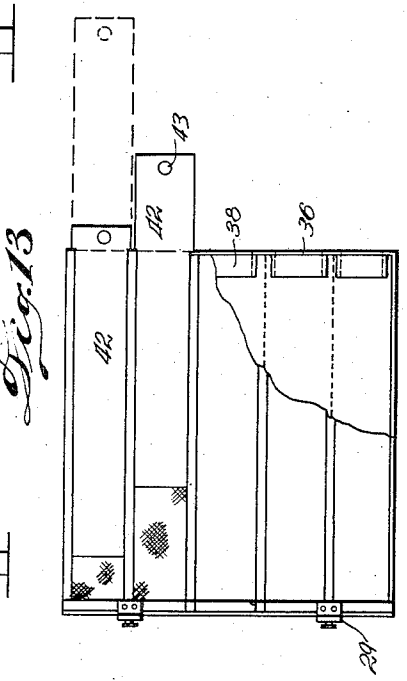


Fig. 13.

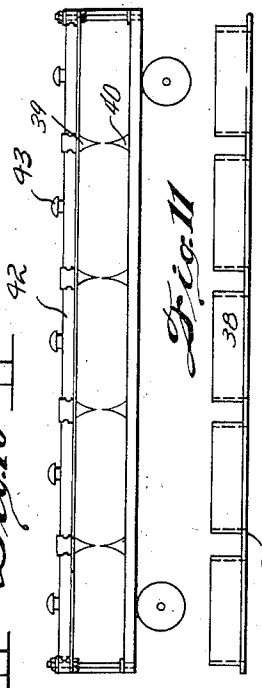


Fig. 10.

Fig. 11.



Fig. 12.

Thomas L. McJoynt
INVENTOR
BY Paul W. Jeffe
ATTORNEY

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UNITED STATES PATENT OFFICE

2,040,094

UPHOLSTERY PAD STUFFING MACHINERY

Thomas L. McJoynt, Janesville, Wis.

Application May 29, 1933, Serial No. 673,360

8 Claims. (Cl. 226—43)

My invention relates generally to improved means for stuffing upholstery pads or the like, the mechanism employed in the stuffing process being somewhat the same as that disclosed in my co-pending applications Number 669,112 and 670,436 filed May 3, 1933 and May 11, 1933 respectively, covering Upholstery pad stuffing machinery, the difference between the aforementioned pending application and the structure disclosed herein being in the construction of the mold used in conveying the pad to the filling nozzle and the method of supporting the pad within the said mold.

The main object of the invention is to provide improved means to accelerate mechanical pad stuffing methods heretofore employed. The principle of stuffing pads employed by me in those devices I have invented is to confine the pad within an open ended mold, distend the sewn partitions within the pad by mechanical means, connect the said distension means with a source of stuffing supply and then, through the medium of air pressure, blast the stuffing into the pad, slowly withdrawing the distension means as the pad fills up ahead of it.

Inasmuch as the cloth in one side of the pad is porous and the mold inclosure on the top side is perforated, the air pressure generated by the blast fan will be expelled through the pores of the pad material and the perforated top of the mold as the solid distension means is pulled away from the inner end of the pad. Inasmuch as there is a direct solid connection from the hopper to the end of the solid distension means, the air pressure will be approximately the same from the fan to the end of the distension means, thus insuring the carrying of the disseminated stuffing to the very end of the pad with sufficient force as to cause it to be firmly packed ahead of the distension means.

The principle of the invention disclosed in this application is identically the same except that a different means is employed to accomplish the result. Whereas metal tubes have been used to distend the pad sleeves in the process of filling and the said tubes connected with a filling nozzle and then withdrawn from the pad onto the filling nozzle, the device disclosed herein provides for inclosing of the sewn apertures in the pad to be filled in a manner as to confine the sleeves so formed in said pad as to prevent the escape of air from the said sleeve inclosure, thus assuring air pressure and a consequent flow of material from the blast fan to the end of the section of the said pad without the use of the distension tubes above mentioned.

To better understand the invention, reference should be had to the accompanying drawings in which:

Fig. 1 is a side plan view of the mechanism employed in the filling operation, the parts shown being partially in section and partially in plan;

Fig. 2 is a fragmentary plan view of a mold disclosing the locking means therefor;

Fig. 3 is a fragmentary plan view of a mold disclosing more details of the locking means;

Fig. 4 is a fragmentary plan view of the said mold disclosing the rear end construction thereof;

Fig. 5 is a fragmentary sectional view of the said mold;

Fig. 6 is a top plan view of a modification of the mold;

Fig. 7 is a front plan view of the modification disclosed in Fig. 6;

Fig. 8 is a top plan view of a sewn pad and plate for distending the open ends in the sleeves formed by the sewing of the said pad;

Fig. 9 is a side elevation of the carriage used for conveying pads to the filling nozzles;

Fig. 10 is a front elevation of a mold with the distending plate removed therefrom;

Fig. 11 is a top plan view of the pad distending plate;

Fig. 12 is a front plan view of the said distending plate; and

Fig. 13 is a top fragmentary plan view of the said mold.

In the drawings the numeral 10 is used to designate a hopper from which stuffing is drawn into a blast fan 11 and from thence blown into chutes 12 and 13 alternately.

A valve 14 having its axis at 15 controls the flow of material from one chute to the other by manual adjustment by the stuffing operators so that the operation of pad stuffing is carried on continuously, there being no necessity of shutting off the blast fan while one operator changes the loading nozzle from one section of a pad to another. This is due to the fact that while one operator is filling one section of his pad, the operator of the other nozzle is adjusting his nozzle as to fill a section in the pad before him. Therefore, a continuous flow of the material to one operator or the other is preserved. This portion of my invention is covered in my Patent Number 1,828,673 granted October 20, 1931 and in my other co-pending applications, Serial Numbers 665,735 and 669,112 filed April 12, 1933 and May

3, 1933 respectively, and for that reason it is not thought necessary or essential to discuss the said process in detail except as it pertains to the invention covered by the claims herein.

The numerals **16** and **17** are used to designate nozzles, the larger tubular ends of which are fixed to the open ends of chutes **12** and **13**; the said nozzles **16** and **17** are reduced from a point about two feet from the ends thereof to a contour which is semi-elliptical in cross section, thus providing an exhaust orifice which is semi-elliptical in contour. The reason for the particular shape of the exhaust orifice will be explained hereinafter.

Tubes **18** and **19** are telescoped over the nozzles **16** and **17**, the contour of the said tubes being semi-elliptical in cross section and their lengths being approximately the lengths of the semi-elliptical extensions of the nozzles **16** and **17**.

An emergency exhaust **20** is positioned between the fan **11** and the valve **14** so that when, for some reason or other, it is necessary to shut off both filling nozzles, an auxiliary means is afforded of diverting the stuffing as it comes from the blower. This auxiliary exhaust is usually connected back to the hopper so that in the interim of total shut-off of the nozzle (which is accomplished by closing a valve **21** located directly ahead of the emergency exhaust orifice) stuffing is diverted to the exhaust orifice and from thence back into the hopper, thus preventing a congestion of material back of the valve **21**. The auxiliary exhaust valve in addition to the stuffing diversion valve **14** is controlled by either of the two nozzle operators by means of ropes or levers.

A track frame, on which are mounted parallel spaced tracks **22** and **23**, is positioned adjacent the orifices of the nozzles, the said tracks being so spaced as to permit the alignment of pad molds with the exhaust orifices of the staggered parallel nozzles, one of the said nozzles being positioned to fill pads in molds riding on one track and the other to fill pads on the adjacent track.

In order to facilitate the travel of the molds along the track, the said molds are provided with flanged wheels **24**, said wheels being affixed to the bottom of the molds.

The mold per se, the construction of which is the essence of the invention described herein, has a solid bottom **25** and a perforated hinged top **26**. As shown in Figure 13, the hinged top **26** consists principally of a wire mesh screen and a supporting marginal frame. The top and bottom members of the said mold are relatively adjustable through the medium of bolts and nuts **28** and adjustable hinge members **29**. The rear end of the said mold is also perforated and consists of a frame **30** to which a screen **31** is affixed.

Locking members **32** are provided, the said locking members being affixed to the hinged top of the said mold and the bottom ends of the said locking members are so formed as to cause the top to be locked to the base when the said hinged top is in closed position. These locking members are also adjustable so that the lock is operative at any adjustment of the height of the mold. The end opposite the hinged end of the mold, which we will hereafter designate as the front end, is open and the top and bottom members of the mold are spaced from each other through the medium of the adjustable members **28**.

A rubber friction member **34** extends across the front end of the hinged top on the underside thereof, and on the bottom of the said mold adjacent to and aligned with the top friction member is another rubber friction member **35**. Both of the said rubber friction members are shown in Figure 5 to be set in channel strips by which the same are supported. The lower friction member is adjustable relative to the top friction member through the medium of adjustable nuts and bolts **150**. The function of the heretofore described friction members will be explained hereinafter.

A rectangular shaped distension plate **36** closes the front of the mold when an empty pad to be filled is positioned therein. Said plate **36** has orifices **37**, the edges of which are inturned to form collars **38**; the said orifices are semi-elliptical in contour and are adapted to receive the telescopic sleeves **18** and **19** in the process of filling pads. However, the dimensions of the said orifices and the telescopic sleeves are determined by the size of the sleeves in the pad to be filled, the sleeves in the said pad being formed by sewing the said pad across its width as to form pockets for the stuffing. It is also to be noted that the number of the orifices in the plate is determined by the number of sleeves sewn in the pad to be filled. The same applies to the filling nozzles. Since the stuffing mechanism is principally designed for automobile pads where great quantities of similar size pads are to be stuffed, the sections in the pads are usually of uniform size and therefore only one set of plates is necessary. However, the mechanism is so designed as to permit the majority of it to be used when another size pad adapted to take more or less stuffing and having more or less sleeves formed in it is to be used, the amount of stuffing to be put in the pad being determined by the height of the mold, which invention is described and claimed in my Patent Number 1,828,673 granted October 20, 1931 heretofore mentioned.

The construction of the mold herein described includes separating strips **39** and **40** which are affixed to the top and bottom members of the mold adjacent one another. These separating strips run from the front to the rear end of the mold and are spaced as to provide an inclosure between the sewn spaced sleeves in the pad when the pad is mounted in the mold. Therefore, when the pad is positioned in the mold and the cover closed, the adjacent separating strips contact the sewn portion of the pad partitions and thus separately close each sleeve in the pad, the edges of the separating strips being so spaced from one another when the mold is closed as to tightly press the strips of cloth between them. The said separating strips are readily removable so that when the height of the mold is changed, separating strips of greater or lesser depth may be inserted to compensate for the change in the height of the mold.

Wooden slides **42** are fitted into the hinged top of the frame directly over the screen by tongue and groove connections. These slides are adapted to be pulled towards the operator through the medium of handles **43** and are so spaced as to cover the individual sleeves in the pad. Thus, when the slides are in closed position and the hinged cover is locked, the sections of the pad within the mold are separately fixed in a tight inclosure.

The operation of my device is as follows:

The open ends of an unfilled pad are slipped over the collars **39** on the plate **37**. The assembled pad and plate are positioned in and on the mold in the manner described in my co-pending

application, Serial Number 670,436 filed May 11, 1933. The hinged cover is closed on the mold, the friction members then contact the plate collars and thus the open ends of the pad are firmly locked on the plate collars in the front end of the said mold. The closing of the cover will also cause the separating strips to contact the sewn portions of the pad, thus isolating each section of the said pad.

A filling nozzle is inserted into the number 1 orifice in the plate and when the stuffing material is diverted to the said nozzle, the stuffing will be blown into that section of the pad, there being no exit for the air until it reaches the perforated rear end of the mold. Immediately the operator pulls the closure **42** adjacent the section of the pad being filled towards him, the speed of withdrawal being determined by the speed with which the pad fills up ahead of the rear edge of the said slide, the process being similar to the withdrawal of the metal tubes described in my copending applications.

When one section or sleeve of the pad has been filled, the operator diverts the flow of filling to the other operator and at the same time withdraws the tube employed in the previous filling operation and introduces it into the immediately following or into another sleeve in preparation for the filling of that new sleeve. In this way, the filling operation is continued with an alternating supply of material between the two operators until both pads have been filled.

Of course, when a particular sleeve is filled, the operator having charge of that sleeve may divert the flow of filling material to the other operator through actuation of the valve **15**.

As the pads are filled they are rolled out of the way for the placing of new pads in loading position, attention in this regard being invited to Figure 1 in which it is illustrated that the molds receiving the pads are provided with the wheels **24** that are shown to be mounted on parallel tracks.

In the form of invention illustrated in Figures 6 and 7, the mold is generally designated by the numeral **200** and is provided with a top **210** hingedly mounted as indicated at **212** and having a body of wire mesh screen **220** extending over the major portion of the surface thereof for the escape of the air by which the filling material was introduced into the adjacent pad. In this form of invention, the screen **220** is initially covered by a single closure strip or member **224** and such closure member **224** is shown to be provided with a handle **226** by which the closure may be moved to air discharging position in consonance with the filling of the pad.

Thus, it will be seen that the form of invention illustrated in Figures 6 and 7 differs from the matter disclosed in the other figures principally in the fact that there is provided but a single member **224** which initially extends over that part of the pad to be filled and is retractable in consonance with the filling of the pad to the end that the escape of air is prevented until such air has deposited the filling carried thereby at the farthermost available point within the pad.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. In a mechanism for filling upholstery pads having spaced parallel rows of stitching defining separate parallel sleeves for the reception of a filling, a mold embodying upper and lower complemental sections having means defining a compartment for the reception of a pad, and spaced parallel separating strips carried by the opposed side of the sections and extending longitudinally thereof and projecting into said compartment for pressure contact with the sewn portions of the pad, means to lock the sections together with said spaced strips extending longitudinally of said rows of stitching in pressure contact with the adjacent portions of the pad.

2. In a mechanism for filling upholstery pads having spaced parallel rows of stitching defining separate parallel sleeves for the reception of a filling, a mold embodying upper and lower complemental sections having means defining a compartment for the reception of a pad, and spaced parallel separating strips carried by the opposed side of the sections and extending longitudinally thereof and projecting into said compartment for pressure contact with the sewn portions of the pad, means to lock the sections together with said spaced strips extending longitudinally of said rows of stitching in pressure contact with the adjacent portions of the pad, said upper section being provided with perforations extending over the major portion of the pad for the passage of air, spaced parallel guides carried by the outer side of the upper section and extending longitudinally of the sleeves of the pad, and imperforate closure strips slidably carried by said guides and individually covering the perforations outwardly of the associated sleeves of the pad, there being means whereby the imperforate slides may be selectively withdrawn to uncover the adjacent perforations in consonance with the filling of the individual sleeves.

3. In a mechanism for filling upholstery pads having spaced parallel rows of stitching defining parallel sleeves for the reception of filling, upper and lower sections having means cooperating in forming a compartment for the reception of an upholstery pad, the upper section of the mold being formed with perforations for the discharge of air and extending over the sleeves of the pad for the major portion of the length of such sleeves, guide strips carried by the upper section immediately outward of the rows of stitching in the pad, and imperforate closure strips carried by said guide strips immediately outward of the sleeves to individually cover the perforations adjacent to the associated sleeves and being selectively retractable to individually uncover the perforations of the associated sleeves in consonance with the filling of such sleeves.

4. In a mold for filling pads having spaced parallel sleeves for the reception of a filling, a pair of sections having means cooperating in defining a compartment for the reception of a pad, one of said sections being provided with perforations extending over the major portion of the pad for the passage of air, and imperforate closure strips covering said perforations, and being located immediately outward of the sleeves in parallel relation thereto and being individually retractable to progressively uncover the perforations adjacent to the associated sleeves in consonance with the filling of the pads.

5. In a mold for filling pads having spaced parallel elongated sleeves for the reception of a filling, a member having a compartment for the reception of a pad and a filling that is introduced into the elongated sleeves of the pad by way of a column of flowing air, said member being provided with an inlet for the reception of a column of flowing air and the filling carried thereby, and separate elongated closures initially covering the said elongated sleeves and the adjacent portion

of the compartment and being movable to uncover the sleeves and the adjacent portion of the compartment in consonance with the filling of the sleeves for the escape of air.

6. In a mold for filling pads with a filling material that is furnished thereto in a column of flowing air, a member having a compartment for the reception of a pad and a filling that is introduced into the pad by way of a column of flowing air, said member being provided with an inlet for the reception of a column of flowing air and the filling carried thereby, and a closure initially covering that part of the pad to be filled and being movable to uncover such part of the pad in consonance with the pad filling operation for the escape of air.

7. In a mold for filling pads with a filling material that is furnished thereto in a column of flowing air, a member having a compartment for the reception of a pad and a pad filling that is introduced into the pad by way of a column of flowing air, one end of said member being formed with an inlet for the reception of a column of air and the filling suspended therein and the opposite end of the member being open for the discharge of air, and a closure member initially covering one side of that part of the pad that is unfilled and being movable to uncover the pad in consonance with the pad filling operation for the escape of air.

8. In a mold for filling pads with a filling material that is furnished thereto in a column of flowing air, a pair of complemental sections having means cooperating in the formation of a compartment for the reception of a pad and a filling that is furnished to the pad by way of a column of flowing air, one of said sections being provided with perforations extending over a substantial portion of the pad for the discharge of the air by which the filling was furnished to the pad, and a closure strip covering said perforations and located immediately outward of the pad, there being means for the movement of the closure strip to perforation uncovering position concurrently with the filling of the pad for the escape of air.

THOMAS L. McJOYNT.