

Oct. 20, 1931.

T. L. McJOYNT
PAD FILLING APPARATUS

1,828,673

Filed Feb. 4, 1930

3 Sheets-Sheet 1

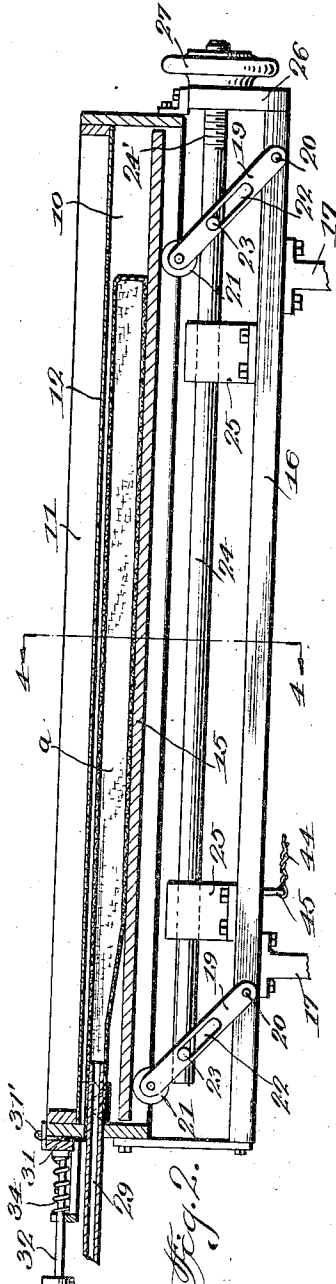


Fig. 2.

WITNESS

J. M. Marking

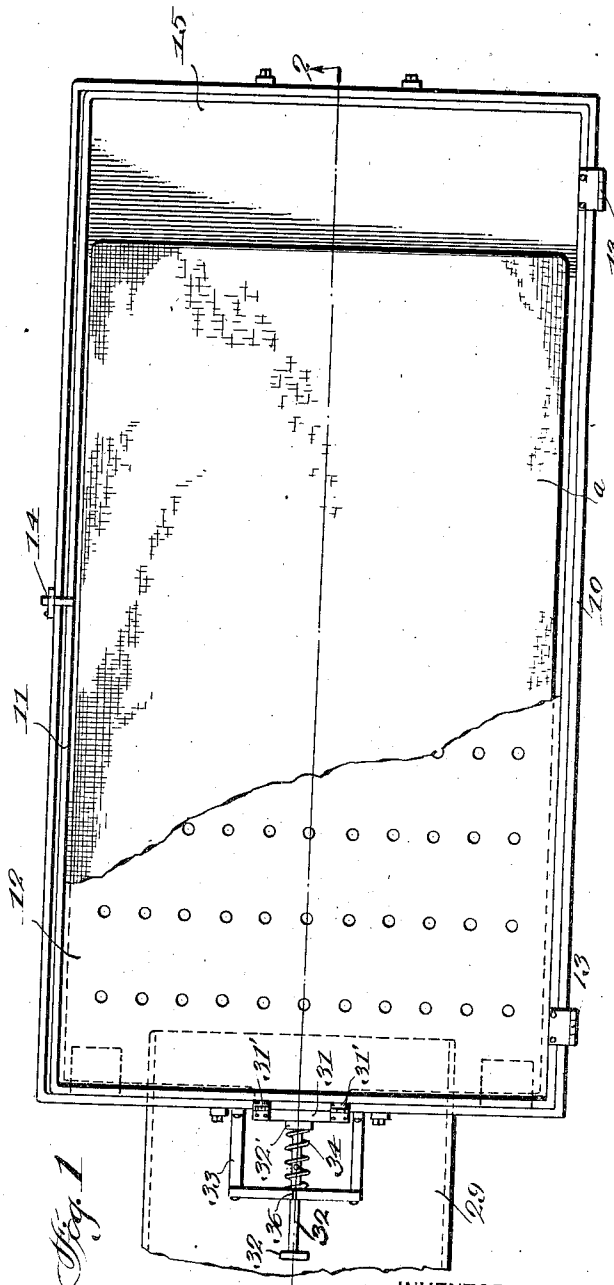


Fig. 1

INVENTOR

T. L. McJoynt

BY

Wm. C. Co.

ATTORNEY

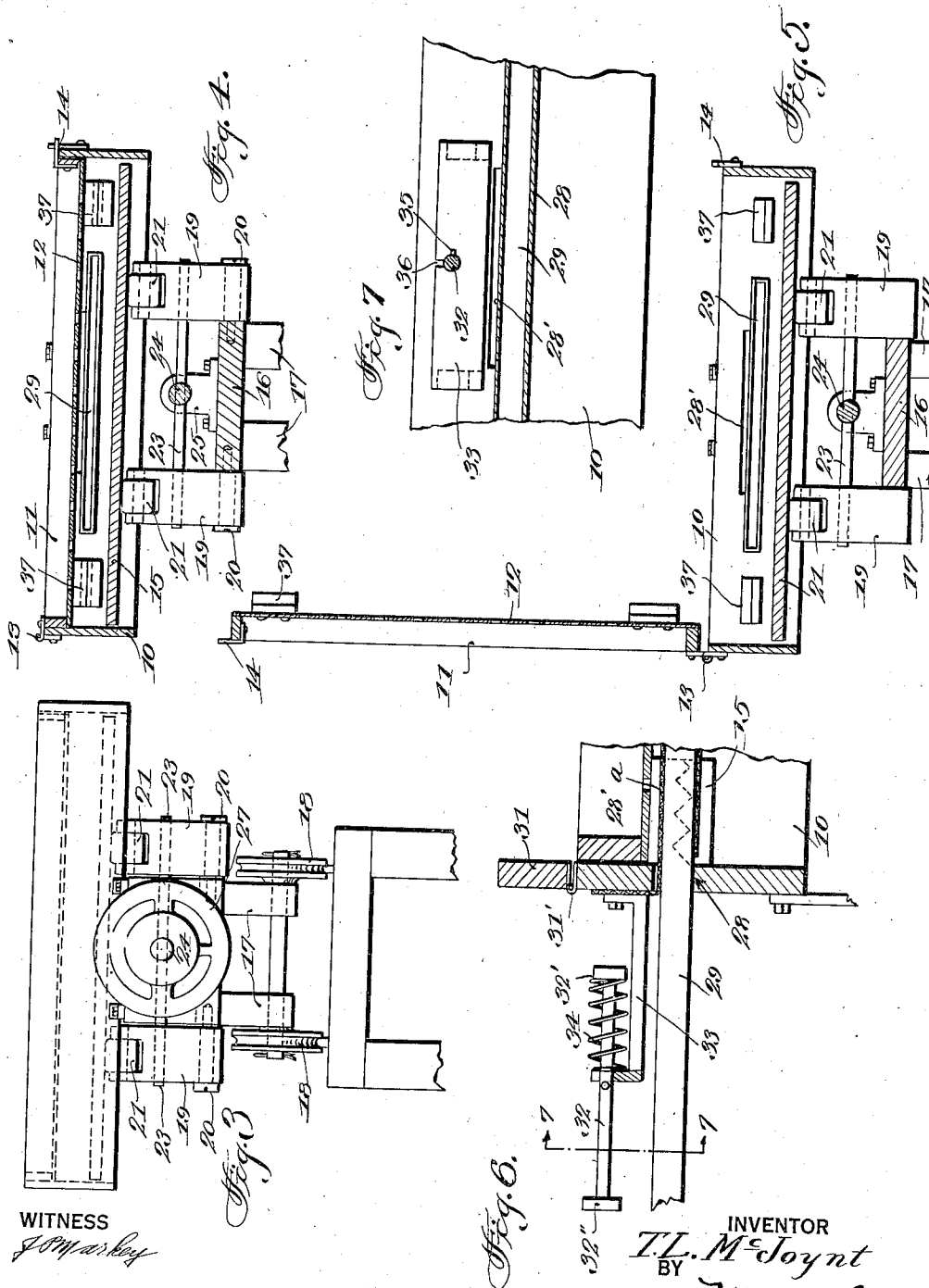
Oct. 20, 1931.

T. L. McJOYNT
PAD FILLING APPARATUS

1,828,673

Filed Feb. 4, 1930

3 Sheets-Sheet 2



WITNESS

J. M. McKay

INVENTOR

T. L. McJoynt

BY

Munn & Co.

ATTORNEY

Oct. 20, 1931.

T. L. McJOYNT
PAD FILLING APPARATUS

1,828,673

Filed Feb. 4, 1930

3 Sheets-Sheet 3

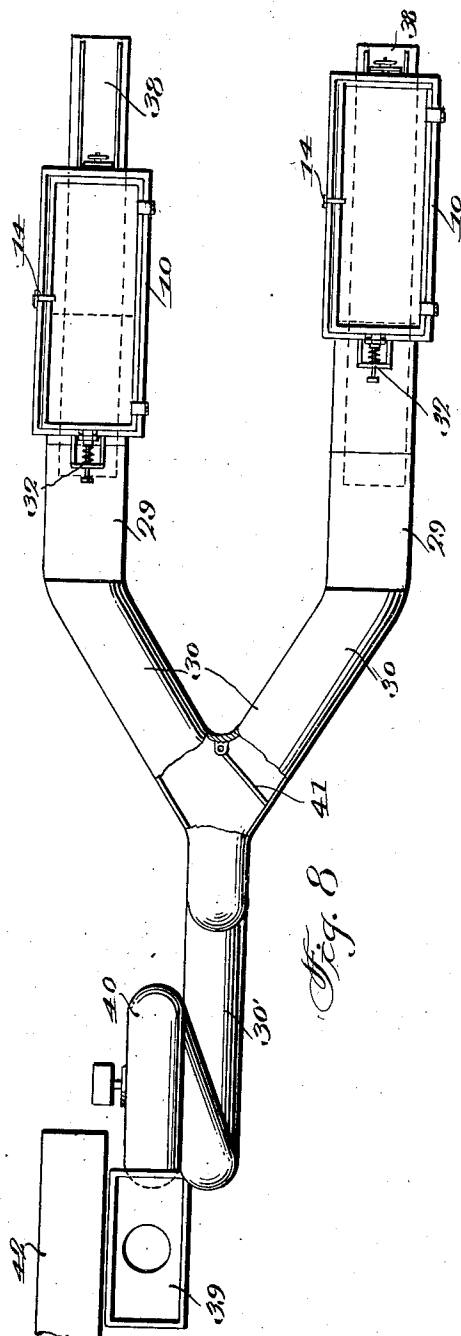


Fig. 8

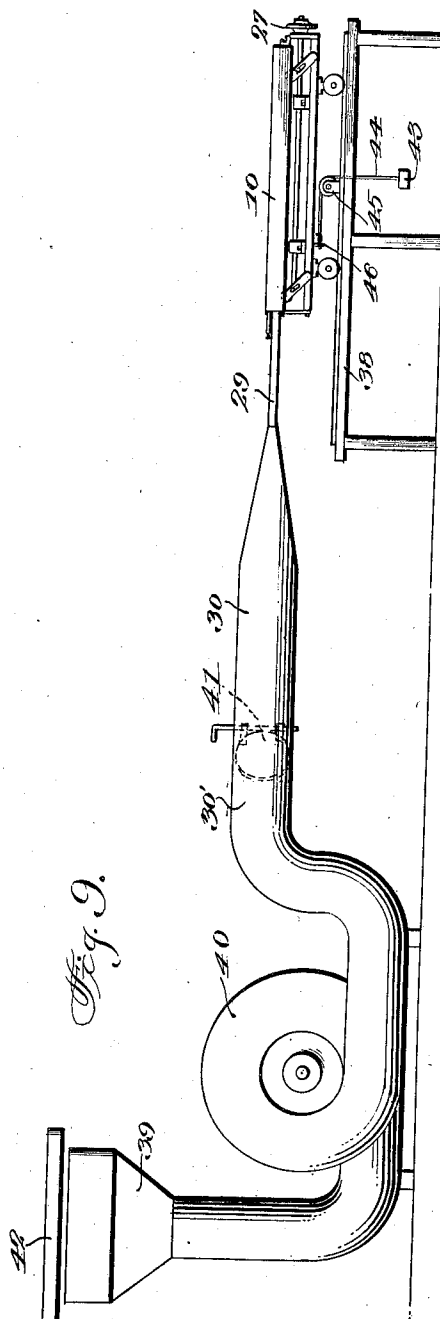


Fig. 9

WITNESS
J. Markey

INVENTOR
T. L. McJoynt
BY *Wm. & Co.*
ATTORNEY

UNITED STATES PATENT OFFICE

THOMAS L. McJOYNT, OF JANESVILLE, WISCONSIN

PAD FILLING APPARATUS

Application filed February 4, 1930. Serial No. 425,874.

This invention appertains to pad filling apparatus generally, and has for its more important objects to provide a type of the same wherein, first a proper amount of filling material is deposited into a pad envelope or bag in a continuous operation without any of the usual rolling or lumping up of the material and in a manner that cracks or crevices therein are eliminated; second that the quantity or weight of the filling material is determined principally by the capacity of the mold at any given moment in its operation, an adjustment of a part of the mold being provided for in order to vary its capacity correspondingly for pad envelopes or bags of different dimensions; third, the provision of tandem or two mold units permits of a substantially continuous filling operation over indefinite periods of time which makes for increased and more economical production and fourth, the continuous operation as aforesaid is performed in a manner that no beating, compressing or other supplemental operation is required in order for each pad envelope or bag to be completely and uniformly filled by each individual filling operation.

With the foregoing and other equally important objects and advantages in view, the invention resides in the certain new and useful combination, construction and arrangement of parts as will be hereinafter more fully described, set forth in the appended claims and illustrated in the accompanying drawings, in which:

Figure 1 is a top plan view of a practical embodiment of a single mold unit with a portion of the perforated top wall or cover of the mold broken away to show a pad envelope or bag positioned therein;

Figure 2 is a vertical longitudinal section, taken on the line 2—2 of Figure 1;

Figure 3 is an end elevation of the filling mold and its movable support;

Figure 4 is a vertical transverse section, taken on the line 4—4 of Figure 2;

Figure 5 is a view similar to that of Figure 4 but showing the top part or cover of the mold in open position;

Figure 6 is a fragmentary vertical section

through the forward end wall of a mold and showing the clamp means for securing a pad envelope or bag in position over the inserted end of a filling material feed spout or nozzle;

Figure 7 is a vertical transverse section, taken on the line 7—7 of Figure 6;

Figure 8 is a plan view of the complete assembly of a two mold unit system; and

Figure 9 is a side elevation of the latter.

Referring to the drawings, wherein like characters of reference designate corresponding parts throughout the several views thereof, and more particularly to Figures 1 to 7, inclusive, the embodiment of the invention as shown therein by way of example only, is constituted in a substantially rectangular or oblong mold body 10 which is normally open at its top and bottom sides. A cover is provided for the top side and consists of a frame 11 of a shape to fit within the mold body 10, with its top edges flush with those of the latter. The opening through the frame 11 is closed by a wall 12, which is secured to the lower edges of the side and end members thereof. This closure wall 12 is preferably made of perforated sheet metal and of a gauge to lend a proper rigidity thereto for purposes to be hereinafter more fully explained.

The cover thus provided, is hinged as at 13, at one of its longer sides to an adjacent side of the mold body 10; while a latch device 14 is provided at its opposite side to lock it in closed position. The lower side of the mold body 10 is closed by a movable bottom wall 15 which is arranged to be adjusted relatively to the upper wall 12, when the cover is disposed in its closed position and in order to vary the depth of the space between the same.

The mold proper, as thus constructed and arranged, is to be suitably supported in longitudinally centered relation above and from a relatively narrow elongated base 16 carried on the upper ends of pairs of standards 17 rising from wheeled supports 18.

The movable bottom wall 15 is to be adjusted vertically of the lower open end of the mold body 10 by means of pairs of arms 19, which are pivoted at their lower ends, as

at 20, to the opposite sides of the elongated base 16. These arms 19 have rollers 21, journaled in bifurcations formed in their upper ends and arranged to bear against the bottom side of the wall 15, and are longitudinally slotted, as at 22, at their centers for sliding engagement with the adjacent ends of rods or pins 23 projecting diametrically and horizontally from an actuating shaft or rod 24. This shaft or rod 24 is mounted for sliding movement in suitable bearings or supports 25 mounted in spaced relation along the longitudinal center of the elongated base 10 and has its rearwardly directed end projected through a bearing plate 26 rising from the rear end of the base. The rear end of the shaft or rod 24 is screw threaded, as at 24', for engagement with the complementally screw threaded hub bore of a hand wheel 27 which, when turned, bears against the outer side of the bearing plate 26 and causes the shaft or rod to move endwise, in either direction, in its bearings 25. This endwise movement of the shaft or rod 24 correspondingly varies the angle of inclination of the arms 19 and consequently the bottom wall 15 of the mold body 10 is raised or lowered as the case may be.

In the use of the mold apparatus so provided, a pad envelope or bag *a* to be filled with a suitable material such as cotton, is to be laid flat upon the movable bottom wall 15, with its mouth or open end directed toward the forward end wall of the mold body 10, which wall is horizontally slotted, as at 28, to receive therethrough the flattened discharge spout or nozzle 29 of a material feed conduit or pipe 30.

As best shown in Figures 2 and 6, when the discharge spout or nozzle 29 is inserted inwardly of the opening 28 in the forward end wall of the mold body 10, it is also inserted inwardly of the mouth of the pad envelope or bag *a* in order to discharge the material directly into the latter. To prevent accidental disengagement of the pad envelope or bag from the spout or nozzle 29 and to otherwise facilitate the engagement of the latter therewith, during its insertion into the slotted opening 28, a portion of the fabric at the mouth or open end of the envelope or bag *a* is first drawn outwardly of an upwardly offset portion 28' of the slotted opening 28 and is then engaged between the outer side of the front end wall of the mold body 10, and a clamp bar 31, the latter being hingedly attached, as at 31', to the top edge of the adjacent mold body wall.

This clamp bar 31 is held against the engaged portion of the envelope or bag fabric by means of a horizontal plunger 32 which is supported for sliding movement in the outer connected portion of a substantially U-shaped bracket or yoke 33, the latter being secured to the outer side of the adjacent end wall of

the mold body 10 for the purpose. The plunger 32 is tensioned against the clamp bar 31 by means of a coil spring 34 mounted thereon in interposed relation between the bracket or yoke 33 and an enlargement or head 32' carried at the inner end of the plunger. The outer end of the plunger 32 is preferably formed with an enlargement or head 32'' to provide a finger piece to facilitate manipulation of the plunger to and from operative position.

Projecting laterally from the plunger 32 at an intermediate point thereon, is a latch pin or lug 35, which is to be alined with a slot 36 opening upwardly through the top edge of the connected portion of the bracket or yoke 33 during the operative movements of the plunger but it is to be moved out of registry therewith by a partial turning movement of the plunger 32 in order to lock the latter in its outwardly disposed or inoperative position. Thus, when the plunger is forced outwardly against the tension of the spring 34 and the plunger is given a slight turn either to the right or left, the projection or pin will engage the outer side of the bracket or yoke, when the plunger will be held inoperative and the enlarged end of the envelope or bag fabric may thereafter be freed from the clamp bar 31.

In order that the cover 11 may be rigidly supported inwardly of the upper side of the mold body 10, when in its closed or locked position, pairs of companion lugs 37 are secured to the underside of the closure wall 12 of the cover and to the inner sides of the front and rear end walls of the mold body, so that the lugs carried by the cover will rest upon those carried by the mold body when the cover is closed. The opposed faces of these lugs 37 are preferably serrated in order to interlock one with the other when the cover 11 is closed.

In the preferred installation of the pad forming apparatus as thus constructed and arranged, it is contemplated that two of the mold units will be employed, and, to that end, parallel trackways 38 are provided, one to support each of the units in proper position relative to the discharge spouts or nozzles 29 and in order that the latter will pass into the slots 28 in the forward end walls of the molds, when the latter are moved forwardly along the trackways for the purpose.

These spouts or nozzles 29 are formed at the free ends of oppositely disposed conduits or pipe sections 30 leading from a common supply conduit or pipe section 30', which, in turn, leads from a material supply hopper or the like 39. Connected in the conduit or pipe section 30' is a blower 40 which draws the material from the hopper 39 and forces the same under air pressure to and outwardly of the discharge spouts or nozzles 29 and into the pad envelopes or bags *a*.

The discharge spouts or nozzles 29 are of a length that they will project well into the mold bodies 10 when the latter are advanced along the trackways 38 to positions of start of the filling operation, in order that the filling material will be packed by the air pressure progressively away from the closed ends of the pad envelopes or bags *a*, as the mold bodies or units 10 are moved rearwardly along the trackways 38. During this rearward movement of the mold bodies or units 10 the discharge spouts or nozzles 29 will be gradually drawn out of the same and also from the envelopes or bags *a*. As the material is fed from the discharge spouts or nozzles 29 the compressed air will act to cause the mold units to traverse the trackways in a rearward direction and will thereafter escape outwardly through the pad fabric and through the perforations in the closed walls 12 of the covers 11.

In the operation of the two unit systems thus provided, the two mold units are to be alternately operated, so that, by providing a cutoff or valve 41 at the point of connection of the two branch conduits or pipes 30 with a common feed pipe 30', the material can be readily diverted from one conduit or pipe 30 to the other at the completion of each filling operation.

By adjusting the movable bottom wall 15, of each of the mold units, a selected thickness of pad can be formed at any given filling operation and each adjustment thereof will accurately determine the amount of the filling material to be used so that such amount will be uniform throughout any number of completed pads of the same size and thickness. This adjustment is to be readily accomplished by the manipulation of the hand wheel 27 in a proper direction of rotation, when the shaft or rod 24 will be moved endwise to cause the angle of inclination of the arms 19, on which each of the movable walls 15 is supported, to be varied to dispose the latter in properly spaced relation to the top wall 15, which spaced relation will fix the thickness of the pad to be formed.

As shown in Figures 8 and 9, the blower 41 will be arranged to be driven from a suitable source of power (not shown) and the filler material will be fed to the hopper 39 by means of a belt 42 leading from a usual form of willow picker or shredder (not shown) to which the raw cotton or other filler material is to be fed by hand directly from bales of the same. As soon as the filled pads are removed from the mold bodies 10, the open ends of the same are to be closed and sewed.

As shown in Figure 9, the rearward movement of each of the mold units along the trackway 38 during the feeding of the filler material into the pad envelopes or bags *a* as before stated is effected primarily by the action of the air pressure discharged into the

mold bodies with the filler material, but this movement may be accelerated, if desired, by giving the trackways 38 a slight inclination in a forward direction, in order that the weight of the units will cause them to move rearwardly at an increased speed from momentum or by means of a counter-weight 43 suspended from a cable 44 which is passed over a pulley 45 mounted on each of the trackways 38 and attached, as at 46, to the under side of the supporting base 16 toward the forward end thereof.

From the foregoing, it will be observed that by having the discharge spouts or nozzles 29 project far into the mold bodies 10 and the bags or envelopes *a* at the start of the filling operation, the filler material will be progressively packed into the envelope or bags under the action of the air pressure and in a manner that no cracks or crevices will be left in the completed filling; that, by having the individual pads confined within an adjustable mold during the filling operation of pads of a given size will, when completed, be of a uniform weight; and that the contents of each pad will, by reason of the progressive feeding of the filler material thereto as aforesaid, not require any beating or compressing either during the filling operations or thereafter.

Without further description, it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention or its scope as claimed.

I claim:

1. In a pad filling apparatus, a filler material discharge means, air pressure means for feeding the material to said discharge means, and movable means for supporting a pad envelope in position for the engagement of the open end thereof with said discharge means when said supporting means is moved toward the latter, said supporting means being adapted to be moved away from said discharge means under the action of the air pressure and progressively throughout the filling operation.

2. In a pad filling apparatus, a filler material feed conduit, a blower in said conduit for feeding the material to the discharge end thereof, and movable means for supporting a pad envelope in position for the engagement of the open end thereof over the said discharge end of said feed conduit when said supporting means is moved toward the latter, said supporting means being adapted to be moved away from said conduit under the action of the air pressure from said blower and progressively throughout the filling operation.

3. In a pad filling apparatus, a filler ma-

terial feed conduit, a plurality of discharge nozzles at one end of said conduit, air pressure means for feeding the material through said feed conduit to said discharge nozzles, and movable means arranged to support pad envelopes on the same and in position for the engagement of the open ends thereof over the complemental of said discharge nozzles when the supporting means is moved toward the latter, said supporting means being adapted to be moved away from said discharge nozzles under the action of the air pressure and progressively throughout the filling operation.

4. In a pad filling apparatus, a filler material feed conduit, a plurality of discharge nozzles at one end of said conduit, air pressure means for feeding the material through said feed conduit to said discharge nozzles, and a movable means cooperative with each of said discharge nozzles and adapted to support a pad on each of the same and in position for the engagement of the open end thereof over a complemental of the discharge nozzles when the supporting means is moved toward the latter, each of said supporting means being adapted to be moved away from its respective discharge nozzle under the action of the air pressure and progressively throughout the filling operation.

5. In a pad filling apparatus, a filler material feed conduit, a plurality of discharge nozzles at one end of said feed conduit, air pressure means for feeding the material through said feed conduit to said discharge nozzles, a trackway leading to each of said discharge nozzles, and a movable means on each of said trackways and adapted to support a pad envelope on the same and in position for the engagement of the open end thereof over the complemental of said discharge nozzles when the supporting means is moved toward the latter, said supporting means being adapted to be moved away from said discharge nozzle under the action of the air pressure and progressively throughout the filling operation.

6. In a pad filling apparatus, a filler material feed conduit, a plurality of discharge nozzles at one end of said feed conduit, air pressure means for feeding the material through said feed conduit to said discharge nozzles, a trackway leading to each of said discharge nozzles, a movable means on each of said trackways and adapted to support a pad envelope on the same and in position for the engagement of the open end thereof over the complemental of said discharge nozzles when the supporting means is moved toward the latter, said supporting means being adapted to be moved away from said discharge nozzles under the action of the air pressure and progressively throughout the filling operation, and means for controlling

the flow of filler material to each of said discharge nozzles.

7. In a pad filling apparatus, a filler material feed conduit, a plurality of discharge nozzles at one end of said feed conduit, air pressure means for feeding the material through said feed conduit to said discharge nozzles, a trackway leading to each of said discharge nozzles, a movable means on each of said trackways and adapted to support a pad envelope on the same and in position for the engagement of the open end thereof over the complemental of said discharge nozzles when the supporting means is moved toward the latter, said supporting means being adapted to be moved away from said discharge nozzles under the action of the air pressure and progressively throughout the filling operation, means for controlling the flow of filler material to each of said discharge nozzles, and means for accelerating the movement of said movable means away from the said discharge nozzle.

8. A pad forming mold comprising a base, a body open at its lower side supported above the base, a vertically movable bottom wall within the lower open side of said body and adapted to support a pad envelope on the same, and means for adjusting said bottom wall relative to the top wall of the body to vary the depth of the space between the same and to thereby determine the thickness of the completed pad said means comprising a plurality of arms pivoted to the base and engaging said bottom wall and a rod having connection with the arms and movable to vary the angular relation of the arms with respect to the base.

9. A pad forming mold comprising a base, a mold body open at its upper and lower sides supported above the base, a removable top wall for said body, a vertically movable bottom wall within the lower open side of said body and adapted to support a pad envelope on the same, and means for adjusting said bottom wall relative to the top wall of the body to vary the depth of the space between the same and thereby determine the thickness of the completed pad said means comprising a plurality of arms pivoted to the base and engaging said bottom wall and a rod having connection with the arms and movable to vary the angular relation of the arms with respect to the base.

10. A pad forming mold comprising a base, a rectangular mold body open at its upper and lower sides supported above the base and having a slotted opening in one of the end walls thereof, a cover for the upper open side of said body, means for securing said cover in fixed closed position, a vertically movable bottom wall within the lower open side of said body and adapted to support a pad envelope thereon with the mouth of the latter directed toward the said slotted

opening, and means for adjusting said bottom wall relatively to the top wall of the body to vary the depth of the space between the same and to thereby determine the thickness of the completed pad comprising a plurality of arms pivoted to the base and engaging said bottom wall and a rod having connection with the arms and movable to vary the angular relation of the arms with respect to the base.

11. A pad forming mold comprising a base, a rectangular mold body open at its upper and lower sides supported above the base and having a horizontal slotted opening in one of the end walls thereof, a support for said body and spaced below the same, a hinged cover for the upper open side of said body, means for locking said cover in closed position, a vertically movable bottom wall, within the lower open side of said body and adapted to support a pad envelope thereon with the mouth of the latter directed toward the said slotted opening, and means mounted on said base for adjusting said bottom wall relatively to the top wall of the body to vary the depth of the space between the same and to thereby determine the thickness of the completed pad comprising a plurality of arms pivoted to the base and engaging said bottom wall and a rod having connection with the arms and movable to vary the angular relation of the arms with respect to the base.

12. A pad forming mold comprising a base, a rectangular mold body open at its upper and lower sides supported above the base and having a horizontal slotted opening in one of the end walls thereof, a support for said body and spaced below the same, a hinged foraminated cover for the upper open side of said body, means for locking said cover in closed position, a vertically movable bottom wall within the lower open side of said body and adapted to support a pad envelope thereon with the mouth of the latter directed toward the said slotted opening, and means mounted on said base for adjusting said bottom wall relatively to the top wall of the body to vary the depth of the space between the same and to thereby determine the thickness of the completed pad comprising a plurality of arms pivoted to the base and engaging said bottom wall and a rod having connection with the arms and movable to vary the angular relation of the arms with respect to the base.

13. A pad forming mold comprising a rectangular mold body open at its upper and lower sides and having a horizontal slotted opening in one of the end walls thereof, said slotted opening being adapted to have a filler material discharge nozzle inserted inwardly thereof, a support for said body and spaced below the same, a hinged foraminated cover for the upper open side of said body,

means for locking said cover in closed position, a vertically movable bottom wall within the lower open side of said body and adapted to support a pad envelope on the same with the mouth of the latter directed toward the said slotted opening for subsequent engagement over the inserted end of the said discharge nozzle, clamping means carried by said body for securing the mouth end of the pad envelope in its engaged position over the said discharge nozzle, and means mounted on said base for adjusting said bottom wall relative to the top wall of the body to vary the depth of the space between the same and to thereby determine the thickness of the completed pad.

THOMAS L. McJOYNT.

85

90

95

100

105

110

115

120

125

130