The present invention relates to an apparatus for drying and forming stereotype matrices prior to casting stereotype plates, for use in newspaper printing presses, or the like, from the matrices. Such a matrix drying and forming machine is commonly referred to in the art as a master former, and will be so referred to hereinafter for convenience.

A conventional master former includes two generally hemicylindrical drying and forming assemblies one of which is movable into nesting relation with the other to dry and form a matrix inserted therebetween. It will be understood that one of the drying and forming assemblies is convex and the other is concave to receive the convex assembly in nesting relation. At least one of the drying and forming assemblies comprises an evacuable chamber having connected thereto a vacuum pump for removing moist air from the vicinity of the matrix. In the preferred embodiment of the present invention, the concave drying and forming assembly is pivotally mounted on the base for movement into and out of nesting relation with the convex drying and forming assembly, and includes the evacuable chamber. With this construction, to which the present disclosure will be restricted as a matter of convenience, the convex drying and forming assembly is commonly referred to as the base or base assembly and the concave drying and forming assembly is commonly referred to as the chamber or chamber assembly.

A general object of the present invention is to provide an improved master former, and particularly an improved master former having the foregoing construction.

The base assembly of a master former of the foregoing nature conventionally includes a substantially hemicylindrical frame on which other components of the base assembly, such as heaters, insulation, a cover, and the like, are mounted. After prolonged usage, distortion of this frame tends to occur as the result of repeated engagement of the base assembly by the concave chamber, such distortion primarily taking form of curling of the longitudinal edges of the frame inwardly toward each other. The effect is to impair the mechanical fit between the base assembly and the chamber and the seal therebetween, both of which are undesirable.

An important object of the invention is to overcome the foregoing disadvantages of prior base-assembly frames by providing means interconnecting circumferentially spaced portions of the frame for maintaining its desired substantially hemicylindrical configuration.

An object in connection with the presently preferred embodiment of the invention is to provide bracing means interconnecting the longitudinal edges of the hemicylindrical frame for preventing them from curling inwardly toward each other. A related object is to provide interengaged track means and track follower means extending diametrically across the hemicylindrical frame, and respectively connected to the longitudinal edges thereof, for preventing curling of such longitudinal edges inwardly toward each other.

The hemicylindrical frames of master-former base assemblies are frequently provided with longitudinally-extending strip-type resistance heaters rigidly mounted on the convex sides thereof. This construction tends to impair the mechanical fit between the base assembly and the chamber, and the seal therebetween, and an important object of the invention is to overcome this disadvantage by resiliently mounting the strip heaters on the convex side of the frame so that the heaters may yield toward the frame. More particularly, an object is to provide spring means individually connecting the heaters to the frame and permitting the heaters to yield toward the frame independently of each other.

Another object of the invention is to improve heat distribution to the matrix from the base-assembly heaters by superimposing on the heaters a substantially hemicylindrical, perforated sheet, and by superimposing on such perforated metal sheet an imperforate metal sheet overlying a major, central area of the perforated metal sheet.

Another, primary object of the present invention is to provide a master former having a control system which automatically regulates the total length of the drying and forming cycle, and the portion thereof during which shrinking of the matrix is permitted, thereby eliminating any necessity for manual control.

An object in connection with one embodiment of the invention is to control the total drying and forming cycle, and the portion thereof during which shrinking is permitted, by means of a timer or timers.

Another object in connection with another embodiment of the invention is to control the total drying and forming cycle, and the portion thereof during which shrinking is permitted, in accordance with the humidity of the air in the vicinity of the matrix, and, more particularly, in accordance with the humidity of an air sample withdrawn from the chamber. Another object in connection with this invention is to provide humidity sensing means for establishing the total length of the drying and forming cycle, and the length of the portion thereof during which shrinking is permitted, and to provide sampling means communicating with the chamber for withdrawing an air sample therefrom to the humidity sensing means.

A further object of the invention is to provide means for initially evacuating the chamber to a matrix therein and to hold the matrix in place in the chamber until the master former has been closed, i.e., until the chamber has been pivotally engaged with the base assembly, with the matrix inserted therebetween. After this initial period of energization of the means for evacuating the chamber, the evacuating means is de-energized, in either of the ways hereinafter outlined, to permit shrinking to occur, and, thereafter, the evacuating means is re-energized, in either of the ways outlined, until the drying and forming cycle has been completed.

Still another object of the invention is to provide means for latching the chamber in its closed position, wherein it is in nesting relation with the base assembly, and to
provides means for automatically releasing the latching means upon completion of the drying and forming cycle. Yet another, and important, object of the invention is to provide means for closely regulating the matrix temperature control of the operating cycle by heating the chamber with heating having a lower total heat output than the heaters of the base assembly, and which involves the use of a single thermostat means in the chamber for controlling the heaters of each chamber of the base assembly.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features and results thereof which will be evident only to those skilled in the master former art in the light of this disclosure, may be achieved with the exemplary embodiments of the invention described in detail hereinafter and illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of a master former which embodies the invention;

FIG. 2 is an enlarged, fragmentary sectional view taken as indicated by the arrowed line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view taken along the line 3—3 of FIG. 2;

FIG. 4 is an enlarged, fragmentary sectional view taken along the arrowed line 4—4 of FIG. 3;

FIG. 5 is an enlarged perspective view of a heater mounting spring embodied in the invention;

FIGS. 6 and 7 are semiautomatic views of alternative base-assembly frames of the invention;

FIG. 8 is a schematic view illustrating diagrammatically one embodiment of the electrical circuitry of the master former of the invention and;

FIG. 9 is a fragmentary schematic view illustrating diagrammatically an alternative electrical circuit utilizing humidity control of the operating cycle of the master former in accordance with the invention.

Referring initially to FIG. 1 of the drawings, the master former of the invention is indicated generally therein by the numeral 10 and is preferably provided with a suitable supporting structure 12 shown as including a housing 14 having various controls mounted on the front 16 thereof. The basic components of the master former 10 are generally hemicylindrical, drying and forming assemblies 20 and 22, the assembly 20 being convex and the assembly 22 being concave and the two being interengageable in nesting relation. In the particular construction illustrated, the assembly 20, which is referred to hereinafter as the base or base assembly, is mounted directly on the supporting structure 12 in a manner to be described, while the assembly 22, hereinafter referred to as a chamber, is pivotable relative to the supporting structure, about one of the longitudinal edges of the chamber, into and out of nesting relation with the base 20.

The chamber 22 is provided on its concave side with a foraminous or perforated wall 24 against which a matrix to be dried and formed is adapted to be seated by a vacuum developed within the chamber. The necessary vacuum is produced within the chamber 22 by an evacuating means which includes a main vacuum pump 26 located within the housing 14 and driven by a motor 28, preferably an electric motor, therewith. The inlet of the main vacuum pump 26 is connected to the chamber 22 through a passage and manifold system which includes a hollow handle 32 for handling the chamber 22 between its open position, shown in FIG. 1 of the drawings, and its closed position, wherein it is displaced downwardly over the base 20 in nesting relation therewith. The supporting structure 12 carries a latch 34 engageable with a keeper on the chamber 22 to latch the chamber in its closed position. The latching means formed by the latch 34 and the keeper 36 is releasable by a solenoid 38, FIGS. 8 and 9. When energized, moves the latch 34 to an operative position to disengage the keeper 36. The weight of the chamber 22 is counterbalanced by a counterweight, not shown, connected to the chamber on the rear side of the master former 10. The chamber 22 contains electrical resistance heaters 40, FIG. 8, which are not shown in detail, but which may be similar to the strip-type electrical resistance heaters 62 hereinafter described in connection with the base 20.

The entire base 20 is so mounted on the supporting structure 12 that it can float back and forth laterally as the chamber 22 is opened and closed, such floating acting accomplished in essentially the same manner as disclosed in the Baker patent mentioned. As shown in FIGS. 2 and 3, the base 20 is provided at each end thereof with two diametrically opposed rollers 42 which engage a complementary track 44 on the supporting structure 12. Thus, the base 20 may shift back and forth laterally relative to the supporting structure 12 to minimize interference with opening and closing of the chamber 22. Interengageable stops 45 and 47, on the supporting structure 12 and the base 20, respectively, limit the lateral shifting movement of the base.

The master former 10, as thus far described, may be similar in structure to that disclosed in the aforementioned Baker patent, reference to which is hereby made for a more detailed description.

The base 20 includes a substantially hemicylindrical frame 46 which, as shown in Patent No. 1,960,697, granted May 29, 1934 to Albert W. Cochran et al., may comprise essentially two semiconductor bands 48 at the respective ends of the base, the four rollers 42 being suitably mounted on the respective ends of each band. In prior master formers, frames comparable to the frame 46 tend to become distorted in use, such distortion frequently taking the form of curling of the longitudinal edges of the frame, i.e., the ends of the bands 48, inwardly toward each other. The result is impairment of the mechanical fit between the chamber 22 and the base 20, and impairment of the seal achieved between these members around the edges of a matrix inserted therebetween. To overcome these difficulties, the master former 10 of the present invention incorporates yieldable bracing means supporting the frame to prevent the edges being forced inward toward each other when the frame is cycled through the various stages of the forming process.}

In the embodiment under consideration, the bracing means 50 includes a longitudinal spaced track or track means 52 suitably rigidly connected to the frame at longitudinal spaced points along one edge thereof. For example, the tracks 52 may be suitably rigidly connected to the respective band ends which constitute one longitudinal edge of the frame 46. Suitably rigidly connected to the opposite longitudinal edge of the frame 46 are longitudinally spaced track followers or track follower means 54 respectively engaging the tracks 52. In the particular construction illustrated, the tracks 52 are longitudinally-facing channels which engage the respective track followers 54 thereinto, the latter comprising generally U-shaped supports 56 inserted into the channels 52 and carrying rollers 58 engageable with the flanges of the channels.

With the foregoing construction while the frame 46 can flex to permit the longitudinal edges thereof to move toward and away from each other as the chamber 22 is opened and closed, such flexing being caused by curling or rolling of the longitudinal edges of the frame inwardly toward each other because of the restraining influence of the tracks 52 and the track followers 54 in
engagement therewith. Consequently, the desired substantially hemicylindrical configuration of the frame 46 is preserved even after prolonged service, which is an important feature.

The base 20 includes circumferentially spaced, longitudinally extending, strip type, electrical resistance heaters 62 which are mounted on the outer, convex side of the frame 46. The heaters are rigidly connected to the frame 46, e.g., are rigidly connected at their respective ends to the respective bands 48. An important object of the present invention is to improve the physical fit between the base 20 and the chamber 22, and to improve the seal attained therebetween around the edges of a matrix, by resiliently mounting the strip heaters 62 on the bands 48. This is accomplished by utilizing spring means to connect the respective heater ends to the respective bands. Each such spring means includes a leaf spring 64, preferably having the configuration best shown in FIG. 5 of the drawings, interposed between the corresponding heater band and the corresponding band. A bolt 66 extends through each heater end, the corresponding leaf spring 64, and the corresponding band 48, each leaf spring being so oriented as to bias the corresponding heater end outwardly away from the corresponding band. Consequently, when the chamber 22 is closed, the heaters 62 are capable of yielding radially inwardly toward the frame 46 to minimize any tendency to distort the frame, and to thus achieve an excellent mechanical fit and an excellent seal between the base and the chamber, which are important features of the invention.

To achieve maximum uniformity of heat distribution from the base heaters 62 to a matrix between the base 20 and the chamber 22, a substantially hemicylindrical, perforated metal sheet 68 overlies the base heaters. In the construction illustrated, the perforated metal sheet 68 is shown as directly contacting the base heaters 62. Overlying the perforated metal sheet 68 is a complementary, imperforate metal sheet 70 so that it leaves the margins of the perforated metal sheet exposed, as best shown in FIG. 1 of the drawings. Preferably, the imperforate metal sheet 70 covers roughly three-quarters of the perforated metal sheet 68. We have found that the addition of the imperforate metal sheet 70 to the perforated metal sheet 68 materially improves the uniformity of heat distribution and results in a superior matrix.

The base 20 includes various other components which are conventional. For example, it includes a blanket 72 of heat insulating material overlying the metal sheets 68 and 70, and includes a cover 74 overlying the insulating blanket. The longitudinal edges of the cover are interconnected by tension springs 76 which keep the cover tight. Additionally, the base 20 may be provided with a blanket of heat insulating material, not shown, radially inwardly of the frame 46. Also incorporated in the base 20 are the requisite electrical connections to the heaters 62, it being thought unnecessary to describe same herein.

FIGS. 6 and 7 of the drawings illustrate alternative base-assembly frames and alternative bracketing means for maintaining the desired substantially hemicylindrical configurations thereof. These will now be described.

Referring first to FIG. 6, illustrated therein is a substantially hemicylindrical base-assembly frame 80 which is divided approximately into halves 82, each frame half being substantially one-quarter of a cylinder. The two frame halves 82 are pivotally interconnected by a longitudinal pivot means 84 parallelling the longitudinal edges of the frame 80. One end of a fluid motor 86 of the reciprocating type is connected to the pivot means 84, and the other end thereof is pivotally connected, at 88, to adjacent ends of links 90. The other ends of the links 90 are totally connected to the respective longitudinal edges of the frame 80. With this construction, the fluid motor 86, which is preferably an air cylinder, constantly biases the frame 80 into the desired substantially hemicylindrical configuration. At the same time, the frame 80 can flex to facilitate opening and closing movement of the chamber 22.

Turning now to FIG. 7 of the drawings, illustrated therein is a substantially hemicylindrical base-assembly frame 92 which includes circumferentially arranged segments 94, shown as four in number. Adjacent edges of the segments 94 are interconnected by longitudinal pivot means 96 which incorporate circumferential slots 98 permitting the segments to telescope circumferentially relative to each other, as well as to pivot relative to each other, so as to permit some variation in the diameter of the frame 92. A central manifold 100 connects fluid motors 102 of the reciprocating type, preferably air cylinders, which extend radially to and are pivotally connected at their outer ends to the respective frame segments 94. As will be apparent, air pressure supplied to the air cylinders 102 through the central manifold 100 acts to maintain the desired substantially hemicylindrical configuration of the frame 92 while permitting contraction of the frame to facilitate opening and closing movement of the chamber 22.

Thus, all of the embodiments of the invention hereinbefore described have in common a means interconnecting circumferentially spaced portions of a base-assembly frame for maintaining the desired substantially hemicylindrical configuration thereof, while permitting temporary deformation of the frame.

Turning now to FIG. 8 of the drawings, the electrical-circuitry embodiment of the invention which is illustrated therein is shown in highly diagrammatic, simplified form for convenience (the same being true of the modification illustrated in FIG. 9). An important feature of this embodiment is the base heaters 40 and the base heaters 62 have different total heat outputs (the total heat output of the chamber heaters 40 being lower than the total heat output of the base heaters 62), and are all controlled by a single thermostat 104 carried by the chamber 22 centrally thereof, as shown in FIG. 1 of the drawings. (Merely as an example, there may be seventeen 350-watt base heaters 62 and sixteen 200-watt chamber heaters 40.) We have found that using such a heat output differential, with the chamber heaters 40 having the lesser heat output, and utilizing a single, central thermostat 104 in the chamber 22 for controlling all of the heaters, results in extremely close temperature control, and much closer temperature control than can be attained with independent base and chamber thermostats, which is an important feature of the invention. Controlling chamber temperature is preferred. Being all metal chamber 22 can dissipate or build up heat faster than the well insulated base 20. Higher heat output of base unit 20 is necessary to cause matrix to achieve a semi-cylindrical form with its casting base on the concave side.

Continuing to consider the circuitry of FIG. 8 of the drawings, the main vacuum pump motor 28 is controlled by a switch 106 which is closed upon closing of a push-button start switch 108, an operative connection between the switches 108 and 106 being indicated by the dotted line 110. Interposed between the switches 108 and 106 is a time delay unit 112 (which may be a commercially-available pneumatic timer) which opens the switch 106 after a predetermined time interval, e.g., twelve seconds. With this construction, upon momentary closure of the push-button start switch 108, the main vacuum pump motor 28 is energized for a length of time sufficient to seat a matrix to be dried and formed in the chamber 22, and to permit movement of the chamber into and latching thereof in its closed position.

The main vacuum pump motor 18 is also controlled by a shrunk timer 114 and a main timer 116 which provide a current path paralleling that provided by the switch 106 and which are controlled by the start switch 108.
The shrink timer 114 and the main timer 116 are commercially-available automatic reset timers requiring no detailed description. Briefly, the shrink timer 114 includes a shrink timer switch 118 which is connected in series with the main vacuum pump motor 28 and which is normally open. The main timer 116 includes a main timer switch 120 which is interposed between the shrink timer switch 118 and the main vacuum pump motor 28 in series therewith. The main timer switch 120 is normally in a closed position with respect to the main vacuum pump motor 28. With this construction, after opening of the switch 106, the main vacuum pump motor 28 cannot be energized by the shrink timer switch 118 is closed by the shrink timer 114, thus permitting shrinkage of the matrix being dried and formed during the interval for which the shrink timer is set. Subsequently, the main timer 116, after a predetermined time interval depending upon the setting of the main timer, opens the main timer switch 120, with reference to the main vacuum pump motor 28, to again de-energize the main vacuum pump motor, this marking the end of the operating cycle. At the same time, the main timer switch 120 moves into a position to energize the solenoid 38 for releasing the chamber latch 34, permitting the chamber to open.

When the over-all operation of the master former 10 with the electrical circuitry of FIG. 8 of the drawings, the former is initially placed in operation by closing a main switch 122, which results in energization of the chamber and base heaters 40 and 62 under the control of the thermostat 104, the temperature being indicated by the indicator 124 on the front of the housing 14. Normally, the heaters 40 and 62 remain energized constantly, under the control of the thermostat 104, so that the master former 10 is always ready for operation when needed.

When a matrix is to be dried and formed, it is placed against the concave side of the chamber 22 and the start switch 108 is actuated momentarily. This results in closure of the switch 106 for a period of time sufficient to seat the matrix and to permit movement of the chamber 22 into its closed position, whereupon the time delay unit 112 opens the switch 106 to de-energize the main vacuum pump motor 28. Momentary closure of the start switch 108 also starts the shrink and main timers 114 and 116 through the circuitry disclosed, these timers including holding circuits which cause them to continue to run after momentary closure of the start switch 108. After the time interval for which the shrink timer 114 is set has elapsed, the shrink timer closes the shrink timer switch 118 to start the main vacuum pump motor 28 again. Once the shrink timer 114 then stops. During the interval for which the shrink timer 114 is set, the matrix is permitted to shrink to the desired extent. Ultimately, the time interval for which the main timer 116 is set elapses, whereupon the main timer actuates the main timer switch 120 to open the circuit to the main vacuum pump motor 28 and to close the circuit to the solenoid 38 for releasing the chamber latch 34. At this time, the main timer 116 also stops and both timers automatically reset in preparation for the next operating cycle. The dried and formed matrix may now be removed from the master former 10 for subsequent casting of a corresponding stereotype plate.

Turning now to FIG. 9 of the drawings, duplicated in this figure is a portion of the electrical circuitry of FIG. 8, and added thereto is a control system for regulating the operation of the main vacuum pump motor 28 in accordance with the humidity of the air adjacent the matrix being dried and formed. As shown in FIG. 9, a continuous sample stream of the air in the chamber 22 is drawn through a humidity sensor or sensing means 126 and a relief valve 128 by a sampling vacuum pump 130. The humidity sensor 126 is a commercially-available unit so that a detailed description is not necessary. As long as the humidity of the air constituting the sample stream is above a predetermined value, switches 132 and 134 controlled by the humidity sensor 126 are open and closed, respectively. The switch 132 is in parallel with the shrink timer switch 118, and the switch 134 is in series with the main timer switch 120. When the humidity of the air in the sample stream has been reduced to a predetermined level, e.g., a relative humidity of 15%, which marks the end of the shrinking portion of the complete operating cycle, the humidity sensor 126 closes the switch 132 to re-start the main vacuum pump motor 28. When the matrix has been dried sufficiently, which may, for example, correspond to a relative humidity of 4% in the sample stream, the humidity sensor 126 opens the switch 134, with reference to the main vacuum pump motor 28, and thus stops the main vacuum pump motor. At the same time, the main switch 134 is moved to a position to energize the solenoid 38 for releasing the chamber latch 34.

It will be noted that if the switches 132 and 134 are not actuated by the humidity sensor 126 within the respective time intervals for which the shrink and main timers 114 and 116 are set, these timers will actuate the switches 118 and 120 to override the humidity sensor. For this reason, the shrink and main timers 114 and 116 are preferably set for time intervals about 50% higher than normal, thus providing sufficient shrinkage and total times, under normally anticipated conditions of matrix moisture content, to achieve the desired humidities at the end of the shrinking phase of the total cycle and at the end of the total cycle.

Although exemplary embodiments of the invention have been disclosed herein for purposes of illustration, it will be understood that various changes, modifications and substitutions may be incorporated in such embodiments without departing from the spirit of the invention as defined by the claims which follow.

We claim:

1. In a stereotype matrix drying and forming machine, the combination of:
   (a) a supporting structure;
   (b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
   (c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
   (d) one of said assemblies being movable relative to the other into said nesting relation;
   (e) said convex assemblies including deformable substantially hemicylindrical frame having diametrically opposed longitudinal edges capable of inward movement toward each other; and
   (f) means, including yieldable bracing means interconnecting circumferentially spaced portions of said frame, for constantly biasing said 126 within the longitudinal edges thereof away from each other so as to constantly tend to maintain said substantially hemicylindrical configuration of said frame while permitting temporary inward movement of said longitudinal edges thereof toward each other.

2. In a stereotype matrix drying and forming machine, the combination of:
   (a) a supporting structure;
   (b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
   (c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
   (d) one of said assemblies being movable relative to the other into said nesting relation;
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(e) said convex assembly including a deformable substantially hemicylindrical frame having diametrically opposed longitudinal edges capable of inward movement toward each other;

(f) means, including yieldable bracing means interconnecting circumferentially spaced portions of said frame, for constantly biasing said longitudinal edges thereof away from each other so as to constantly tend to maintain said substantially hemicylindrical configuration of said frame while permitting temporary inward movement of said longitudinal edges thereof toward each other;

(g) heaters extending longitudinally of said frame on the convex side thereof; and

(h) spring means respectively connecting said heaters to said frame and permitting said heaters to yield toward said frame independently of each other.

3. In a stereotype matrix drying and forming machine, the combination of:

(a) a supporting structure;

(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;

(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;

(d) one of said assemblies being movable relative to the other into said nesting relation;

(e) said convex assembly including a deformable substantially hemicylindrical frame having diametrically opposed longitudinal edges capable of inward movement toward each other; and

(f) means, including yieldable bracing means interconnecting said longitudinal edges of said frame, for constantly biasing said longitudinal edges of said frame away from each other so as to prevent inward curling of said longitudinal edges toward each other while permitting temporary inward movement of said longitudinal edges toward each other.

4. In a stereotype matrix drying and forming machine, the combination of:

(a) a supporting structure;

(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;

(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;

(d) one of said assemblies being movable relative to the other into said nesting relation;

(e) said convex assembly including a deformable substantially hemicylindrical frame having longitudinal edges; and

(f) interengaged track means and track follower means extending diametrically across said frame, and respectively connected to said longitudinal edges of said frame, for preventing curling of said longitudinal edges of said frame inwardly toward each other while permitting said longitudinal edges to move toward and away from each other.

5. In a stereotype matrix drying and forming machine, the combination of:

(a) a supporting structure;

(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;

(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;

(d) one of said assemblies being movable relative to the other into said nesting relation;

(e) said convex assembly including a deformable substantially hemicylindrical frame having longitudinal edges; and

(f) interengaged track means and track follower means extending diametrically across said frame, and respectively connected to said longitudinal edges of said frame, for preventing curling of said longitudinal edges of said frame inwardly toward each other while permitting said longitudinal edges to move toward and away from each other.

6. In a stereotype matrix drying and forming machine, the combination of:

(a) a supporting structure;

(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;

(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;

(d) one of said assemblies being movable relative to the other into said nesting relation;

(e) said convex assembly including a substantially hemicylindrical frame;

(f) heaters mounted on the convex side of said frame;

(g) a perforated metal sheet overlying said heaters; and

(h) an imperforate metal sheet overlying a major central area of said perforated metal sheet.

7. In a stereotype matrix drying and forming machine, the combination of:

(a) a supporting structure;

(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;

(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;

(d) one of said assemblies being movable relative to the other into said nesting relation;

(e) means for lateching said movable assembly in said nesting relation;

(f) one of said assemblies including an evacuable chamber having a perforated wall facing the other of said assemblies;

(g) means connected to said chamber for evacuating same;

(h) means for initially energizing said evacuating means;

(i) automatic means for subsequently de-energizing said evacuating means and for thereafter re-energizing same and for ultimately again de-energizing same; and

(j) means for releasing said latching means upon the second de-energization of said evacuating means.

8. In a stereotype matrix drying and forming machine, the combination of:

(a) a supporting structure;

(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;

(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in
nesting relation to form and dry a matrix inserted therebetween;
(d) one of said assemblies being movable relative to the other into said nesting relation;
(e) one of said assemblies including an evacuable chamber having a perforated wall facing the other of said assemblies;
(f) means connected to said chamber for evacuating same;
(g) means for initially energizing said evacuating means; and
(h) automatic means for subsequently de-energizing said evacuating means and for thereafter re-energizing same and for ultimately again de-energizing same.
9. In a stereotype matrix drying and forming machine, the combination of:
(a) a supporting structure;
(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
(d) one of said assemblies being movable relative to the other into said nesting relation;
(e) one of said assemblies including an evacuable chamber having a perforated wall facing the other of said assemblies;
(f) means connected to said chamber for evacuating same;
(g) means for initially energizing said evacuating means; and
(h) automatic timer means for subsequently de-energizing said evacuating means after a first time interval, and for thereafter re-energizing same after a second time interval, and for ultimately again de-energizing same after a third time interval.
10. In a stereotype matrix drying and forming machine, the combination of:
(a) a supporting structure;
(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
(d) one of said assemblies being movable relative to the other into said nesting relation;
(e) one of said assemblies including an evacuable chamber having a perforated wall facing the other of said assemblies;
(f) means connected to said chamber for evacuating same;
(g) means for initially energizing said evacuating means; and
(h) automatic timer means for subsequently de-energizing said evacuating means after a first time interval, and for thereafter re-energizing same after a second time interval, and for ultimately again de-energizing same after a third time interval.
11. In a stereotype matrix drying and forming machine, the combination of:
(a) a supporting structure;
(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure; and
(d) one of said assemblies being movable relative to the other into said nesting relation;
(e) one of said assemblies including an evacuable chamber having a perforated wall facing the other of said assemblies;
(f) means connected to said chamber for evacuating same;
(g) means for initially energizing said evacuating means; and
(h) automatic means for subsequently de-energizing said evacuating means after a first time interval, and for thereafter re-energizing same after a second time interval, and for ultimately again de-energizing same after a third time interval; and
(i) said automatic means including humidity sensing means, responsive to the humidity of the air in said chamber, for establishing the lengths of said second and third time intervals; and
(j) said automatic means including timer means for establishing the length of said first time interval.
12. In a stereotype matrix drying and forming machine, the combination of:
(a) a supporting structure;
(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
(d) one of said assemblies being movable relative to the other into said nesting relation;
(e) one of said assemblies including an evacuable chamber having a perforated wall facing the other of said assemblies;
(f) means connected to said chamber for evacuating same;
(g) means for initially energizing said evacuating means; and
(h) automatic means for subsequently de-energizing said evacuating means after a first time interval, and for thereafter re-energizing same after a second time interval, and for ultimately again de-energizing same after a third time interval; and
(i) said automatic means including humidity sensing means, responsive to the humidity of the air in said chamber, for establishing the lengths of said second and third time intervals; and
(j) said automatic means including timer means for establishing the length of said first time interval; and
(k) means communicating with said chamber for delivering air therefrom to said humidity sensing means.
13. In a stereotype matrix drying and forming machine, the combination of:
(a) a supporting structure;
(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
(d) said concave assembly being movable relative to the other into said nesting relation;
(e) said convex assembly including heating means;
(f) said concave assembly including heating means having a lower heat output than said heating means of said convex assembly; and
(g) thermostat means carried by said concave assembly only for controlling both of said heating means.
13. In a stereotype matrix drying and forming machine, the combination of:
(a) a supporting structure;
(b) a generally hemicylindrical, convex drying and forming assembly mounted on said supporting structure;
(c) a generally hemicylindrical, concave drying and forming assembly mounted on said supporting structure and engageable with said convex assembly in nesting relation to form and dry a matrix inserted therebetween;
(d) one of said assemblies being movable relative to the other into said nesting relation;
(e) said convex assembly including a deformable substantially hemicylindrical frame having longitudinal edges; and
(f) yieldable, radially extending, bracing means interconnecting a plurality of circumferentially spaced portions of said frame for maintaining said substantially hemicylindrical configuration of said frame while permitting temporary deformation thereof.

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WILLIAM F. O'DEA, Primary Examiner.
NORMAN YUDKOFF, Examiner.
J. P. ROBINSON, A. D. HERRMANN,
Assistant Examiners.