Aug. 30, 1927. C. CHISHOLM 1,640,347

PRINTING CHASE

Filed Oct. 4, 1926

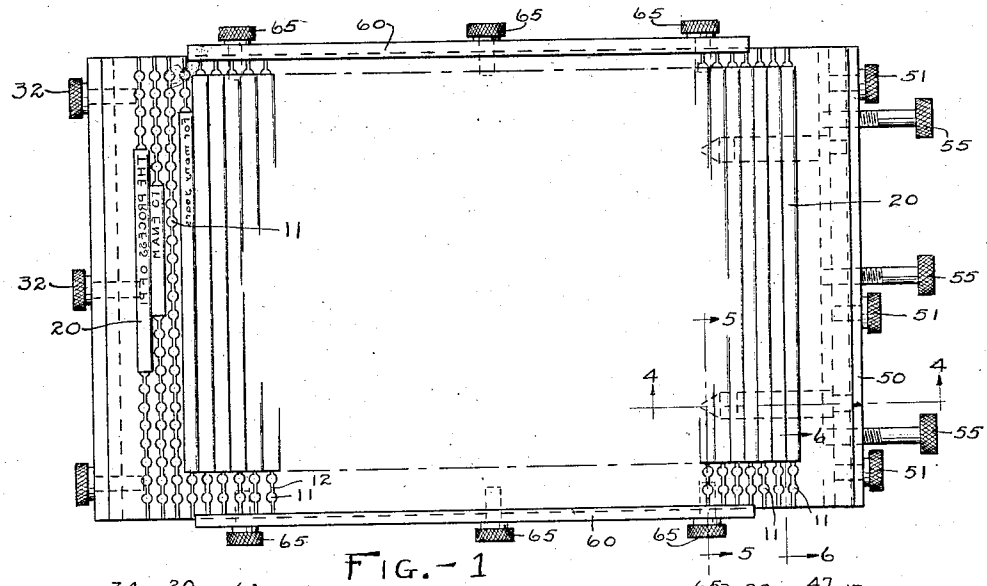


FIG.- 1

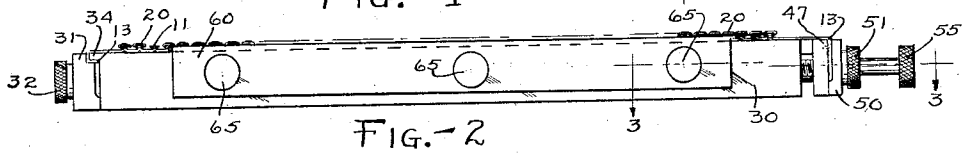


FIG.- 2

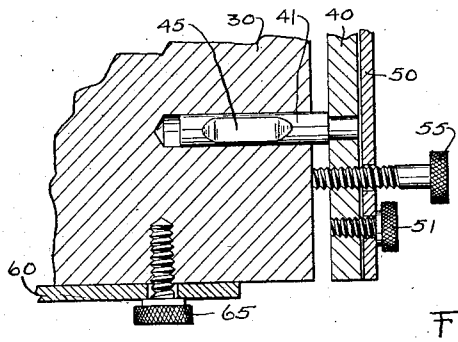


FIG.- 3

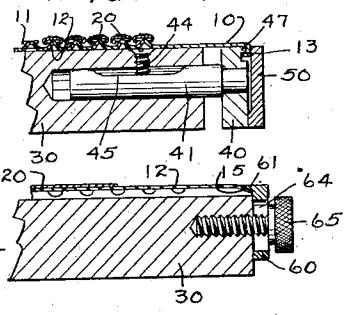


FIG.- 4

FIG.- 5

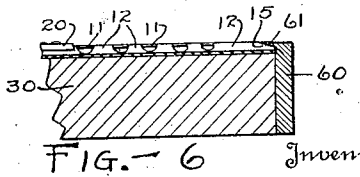


FIG.- 6

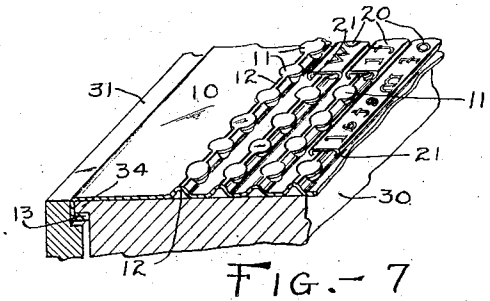


FIG.- 7

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Patented Aug. 30, 1927. 1,640,347

UNITED STATES PATENT OFFICE.

CLIFTON CHISHOLM, OF CLEVELAND, OHIO, ASSIGNOR TO THE AMERICAN MULTIGRAPH CO., OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PRINTING CHASE.

Application filed October 4, 1926. Serial No. 139,294.

The object of this invention is to provide a simple and effective device for holding a flexible printing blanket in a flat condition and "type high," so that it may be used as a unit in a printing press. My flexible blanket comprises a sheet of metal provided with raised projections on which I mount embossed printing strips, the edges of which are flanged inwardly to project beneath the edges of the projections. Such a flexible blanket is adapted, for instance, for mounting on a curved drum in an assembly machine, as illustrated in my prior Patent No. 1,557,755 issued October 20, 1925, and thereafter transferred to a suitable rotary machine by which it may be used to print. The present invention provides means for holding this blanket with its embossed strips in a flat form.

As illustrated in the drawings, Fig. 1 is a plan of my chase, comprising a flat support, a blanket and means for stretching it and holding it on the support; Fig. 2 is an edge elevation thereof; Fig. 3 is a horizontal section through a portion of the supporting and stretching mechanism, as indicated by the line 3—3 in Fig. 2. Figs. 4, 5 and 6 are fragmentary vertical sections as indicated by the correspondingly numbered lines in Fig. 1; Fig. 7 is a perspective of a portion of the loaded chase, involving the support, the blanket and overlying embossed strips.

In the drawings, 10 indicates a sheet metal blanket which is provided with rows of undercut projections 11, on which are mounted embossed strips 20. As shown, the projections 11 comprise a series of buttons or discs stamped up from the metal sheet and connected with it in the direction of the row but disconnected on opposite sides thereof, while between the projections are stamped corrugations 12, which rise to the height of the tops of the projections. Such construction makes a continuous support for the embossed strip and at the same time provides overhanging edges beneath which the inwardly curved edges 21 of the strips may extend. The extreme end portions of each corrugation are bent downwardly toward the base plane of the blanket (as shown in Figs. 5 and 6) to allow for more ready installation of the embossed strips.

I have found that the flexible blanket may be very readily mounted for printing on a railed drum by bending inwardly the extreme edges of the blanket, such extreme edge portion being doubled on itself to provide an inwardly projecting rib adapted to hook over and extend beneath the head of a rail, as shown in my patent referred to. Such hooked-over and doubled ends are illustrated herein at 13.

In my present invention, I provide a flat supporting plate 30 which is of such height that when the blanket with embossed strips thereon is held flat on the plate the distance from the base of the plate to the top, all the characters on the strip will be exactly the standard height for type. I provide means for anchoring one end of the blanket means for pulling on the other end to stretch it and means for engaging and holding down the two side edges. The means shown for accomplishing these results will now be described.

At ont end of the plate 30 I provide a bar 31 adapted to be drawn toward the plate by screws 32, screwing through the bar into the plate. The plate has a slightly overhanging edge 34 adjacent the bar and the rib 13 on the end of the plate is adapted to hook around and beneath this edge between it and the bar; then the tightening of the screws 32 effectively locks the blanket at that end to the plate 30, as shown in Fig. 2.

In a manner similar to that described, I lock the other end of the blanket 10 to a clamp which is movable relative to the plate 30. For this purpose I provide a bar 40 having projecting inwardly from it and rigidly carrying pins 41 slidable in correspondingly shaped openings 35 in the plate. The bar may be held against permanent separation from the plate by set screws 44 screwed into the plate and projecting into recesses 45 in the pins, if desired. The bar 40 is provided with an overhanging ledge 47 similar to the ledge 34 on the plate 30. Accordingly, the rib 13 on that end of the blanket may hook over this ledge.

Cooperating with the movable bar 40 is a clamping bar 50 which is adjustably secured to it by screws 51 passing through the clamping bar 50 into the movable bar 40. By this means the end of the blanket is effectively clamped between the bars 40 and 50. Screws 55 passing loosely through the bar 50 are threaded in the bar 40 and bear against the end of the plate 30. By turning

these screws the movable clamping frame, comprising the bars 40 and 50 and the screws 51, is forced to recede from the plate 30, thus stretching the blanket.

Unfortunately when sheet metal blankets are formed as described with the corrugations and the overhanging lips, the whole blanket has a tendency to take a very shallow trough form extending lengthwise thereof; that is to say, the parts on each side of the longitudinal center slightly curve upwardly when the blanket is lying on a flat support. This distortion is automatically overcome when the blanket is bent around a segment or drum as when used on the multigraph. I have found however, that when it is attempted to draw the blanket flat for use in a flat form as in this invention, even though it be subjected to the maximum allowable stretching pull, the edge portions will still not lie strictly flat. Accordingly, I have provided means on each side of the support for engaging the edge portions of the blanket for holding it down on the flat support.

Each edge engaging member above referred to comprises a bar 60 having at its upper edge an inwardly extending lip 61 which is adapted to overhang the edge portion of the blanket. This bar has vertical slots 64, and clamping screws 65 pass through these slots and are threaded into the support 30.

As already mentioned the end portions of the corrugations beyond the endmost buttons are bent downwardly on the blanket as shown at 15 in Figs. 5 and 6 to enable the ready installation of the embossed strips on the blanket. I provide the lips 61 on the locking bars 60 of such form that their under surface is complementarily and thus they may readily engage these inclined portions of the corrugations and obtain an effective hold on the blanket, while the top surfaces of the bars are below the printing plane.

In making up my flat form the loaded blanket is first anchored at one end by the clamping bar 31 and then locked at the other to the movable clamp 40, then it is stretched by turning in the screws 55 to bring it nearly as practical into a plane; then the edge bars 60 are manually pressed downwardly to hold the edge portion of the blanket firmly on the base 30 and the screws 65 are tightened to lock these edge bars.

It will be seen that the construction is simple and at the same time is effective to readily clamp the ends of the blanket, draw it taught, and hold it in flat form. Thereafter the whole device may be used as a unit in a printing press and locked in place for printing in the usual manner. Accordingly, by supplying a user with this clamping chase he is enabled to use the same blanket interchangeably in a flat press or a rotary machine, as a multigraph, for instance.

It should be noted that the flexible blanket described with the overlying embossed strips is covered broadly in my prior Patent No. 1,438,580; that the raised buttons are covered in the patent of W. J. Demming No. 1,438,584 and the corrugations between the buttons in the patent of B. J. Craig No. 1,438,582, all issued December 13, 1922 to my assignee The American Multigraph Company.

I claim:—

1. The combination of a flexible printing blanket, a flat support and means adapted to stretch the blanket on the support and hold it at its opposite ends, and means engaging the side edges of the blanket, all of said means conjointly holding the blanket on the support with the printing characters in a plane, and type high.

2. The combination of a flexible plate, embossed strips mounted thereon, and a flat support provided with means engaging the ends and opposite side edges of the plate to hold the plate with the characters on the strips in a plane and type high.

3. The combination with a flexible plate provided with means for holding printing strips, a flat support therefor having at one end means for anchoring one end of the flexible plate and at the other end means for stretching said sheet, and at the sides means for holding down the side margins of the flexible plate.

4. The combination of a flat plate, means for anchoring one end of a blanket thereto, a pair of bars at the other end, means for clamping the other end of the blanket between them, means for moving said pair of bars away from the end of the plate, and means engaging the side margins of the blanket and serving to hold them down on the plate.

5. The combination of a plate adapted to support a flexible blanket, means for stretching the blanket lengthwise on the plate, and side bars adjustably secured to the plate and having inwardly projecting edge flanges to overhang the margins of the blanket and clamp it to the plate.

6. The combination with a flexible blanket and printing members thereon, of a flat supporting plate, a bar at one end thereof, means for forcing said bar toward the plate to clamp the end of the blanket, a pair of bars at the other end of the plate, means for clamping the other end of the blanket between said pair of bars, means for moving said pair of bars away from the end of the plate, and bars adapted to be clamped to the sides of the plate and having lips over hanging the blanket and plate for holding the margins of the blanket tight on the plate.

7. The combination of a plate having a flat top surface, a flexible printing blanket, means for stretching the blanket over the plate, bars extending along opposite sides of the plate and having transverse slots, screws passing through said slots into the plate and serving to clamp the bars, and the inwardly extending flanges on the bars adapted to overhang the margins of the blanket.

8. The combination with a flat plate, of a flexible blanket having raised corrugations with laterally projecting lips along their tops, embossed printing strips resting on said corrugations and having flanged edges underhanging the lips, the extreme ends of the corrugations being inclined downwardly toward the general plane of the blanket, bars adjustably secured to the sides of the support and having lips with inclined under surfaces, said lips overhanging the inclined end portions of the corrugations of the blanket, and means for stretching the blanket along the support.

9. The combination with a flexible plate provided with raised projections, embossing printing strips mounted on and retained by said projections, a flat support therefor having at one end means for clamping one end of the flexible plate and at the other end a pair of clamping bars slidably guided by the support beyond the end thereof, and means for forcing such bars away from said end to stretch said sheet, said flat support flexible plate and embossed strips serving to present the character faces type high above the base plane of the support, and the clamping device being located entirely between said base plane and the printing plane, whereby the whole device may be used as a chase in a printing press.

10. The combination with a flexible printing blanket, of a flat plate adapted to support said blanket, said plate being sufficiently less than type high so that the face of the strips will stand type high from the base plane of the plate, a pair of clamping bars less than type high adapted to engage and hold the end of the blanket, and means less than type high between the clamping bars and the end of the plate and slidably guiding said clamping bars to enable them to move as a unit toward and from the end of the plate, and means less than type high for forcing the clamping bars away from the end of the plate, whereby a printing form is provided adapted to be mounted as a unit in a printing press.

11. The combination of a flat plate, a pair of clamping bars at one end thereof, pins carried by one of said bars and extending into the end portion of the plate and slidable therein, means for locking the bars together and thereby clamping the end of the blanket, and means for forcing the two bars as a unit away from the end of the plate.

12. The combination of a plate adapted to support a flexible form, a bar at the end of the plate, pins carried by the bar and slidable horizontally in the plate, another bar on the outer side of the bar first mentioned, clamping screws for clamping the two bars together, and screws passing through the bars mentioned and threaded in one end of them and bearing at their free ends against the end of the plate, whereby the bars may be drawn away from the end of the plate.

13. The combination of a flat plate, a flexible blanket adapted to be supported thereby, means at one end of the plate for clamping rigidly thereto one end of said flexible blanket, a pair of bars side by side at the other end of the plate, pins carried by the inner of said bar and slidably mounted in said plate, screws passing through the outer of said bars and threaded in the inner bar for clamping the end of the blanket between them, and screws passing through both bars and threaded in one of them and bearing against the ends of the plate and thereby adapted to force said bars as a unit away from such end.

14. The combination of a flat plate, a clamping bar at one end thereof, a pair of clamping bars at the other end thereof, means for locking said pair together, pins carrying said pair and slidably engaging the plate, means for forcing said pair of bars as a unit away from the end of the plate, and bars engaging the opposite side of the plate respectively and each having a longitudinal flange overhanging the top of the plate, said side bars having transverse slots and screws passing through said slots and threaded into the plate for adjustably clamping the bars thereto.

In testimony whereof, I hereunto affix my signature.

CLIFTON CHISHOLM.