May 30, 1933. O. M. PANNIER 1,912,158

EMBOSSING SHEET METAL

Filed Sept. 26, 1931 2 Sheets-Sheet 1

Fig. 1.

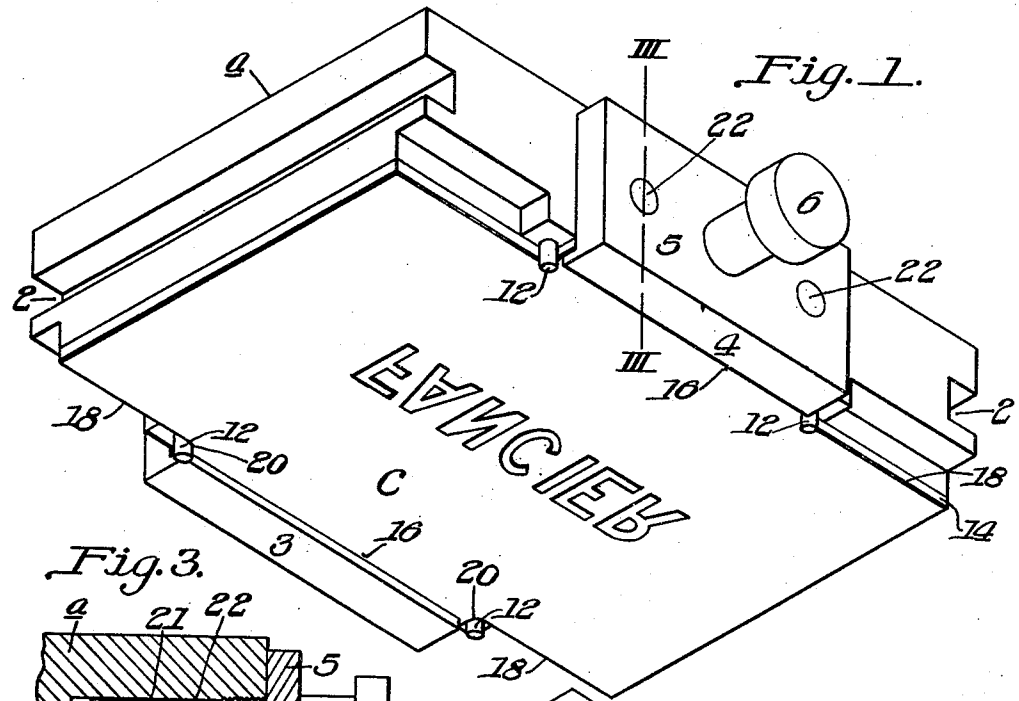


Fig. 3.

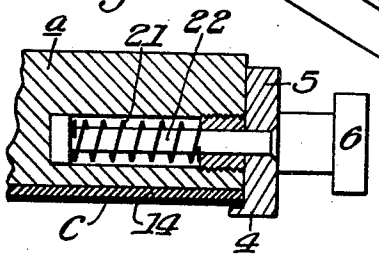


Fig. 2.

INVENTOR.
BY Oscar M. Pannier
C. M. Clark
ATTORNEY.

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Fig.5.

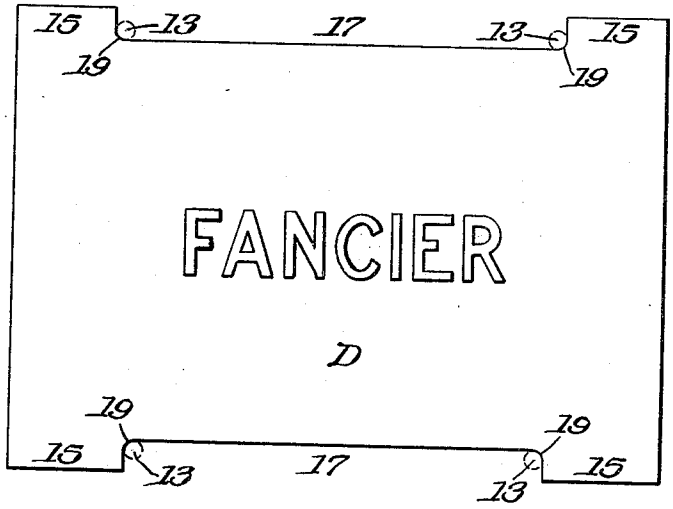
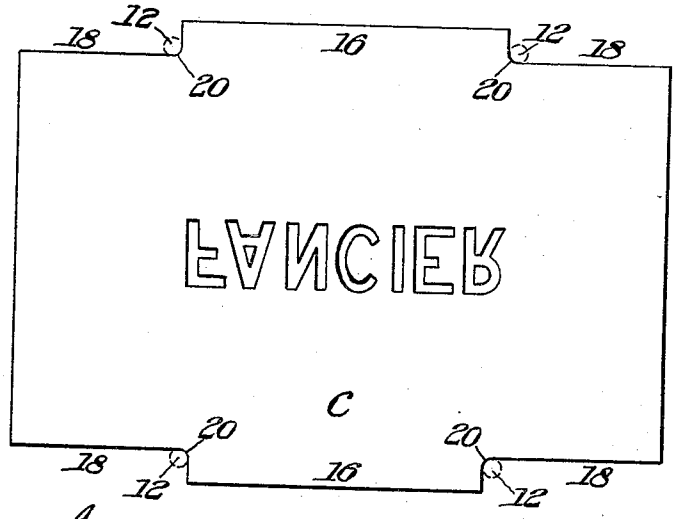
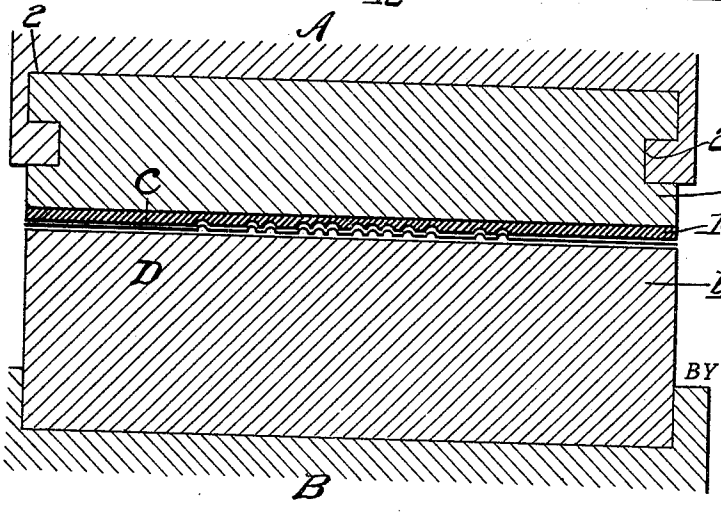


Fig.6.





2 Fig.4.

a

14

b

INVENTOR.
Oscar M. Pannier
BY
C. M. Clarke
ATTORNEY.

Patented May 30, 1933 1,912,158

UNITED STATES PATENT OFFICE

OSCAR M. PANNIER, OF KILBUCK TOWNSHIP, ALLEGHENY COUNTY, PENNSYLVANIA, ASSIGNOR TO PANNIER BROTHERS STAMP COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

EMBOSSING SHEET METAL

Application filed September 26, 1931. Serial No. 565,231.

My invention refers to the art of embossing or stamping sheet metal or the like, and consists of an improvement in means for applying it.

In the usual operations of stamping or embossing tags, plates, boxes, containers, etc. of sheet metal, it is customary to subject the sheet metal blank to the action of deforming male and female dies. These may be of metal having corresponding projecting and recessed portions or of individual type members and a co-acting matrix, or other equally expensive and complicated means whereby to stamp the blank conformably when subjected to pressure between such pair of male and female members.

In my present improvement I utilize a pair of sheet metal embossing dies which themselves have been first deformed by subjection to pressure between deforming male and female type or other equivalent means so as to produce in the sheet metal coacting and interfitting male and female character-forming dies.

The sheet metal embossing dies thus formed of suitably strong and resistant metal are then used when suitably mounted, as embossing elements on interposed sheet metal blanks.

In a prior patent of William J. Pannier, Jr., No. 1,856,928 is shown and described a construction in which the members of a pair of sheet metal die members are constructed and adapted for mounting in opposing heads, one being relatively movable toward the other, for operation on an interposed sheet metal blank. In such construction the stamping members are provided with lateral flanges for insertion and holding engagement at the edges of the head and base member of a stamping or embossing machine or press, and of constructions facilitating proper placement and prevention of mistake.

In my present invention the stamping sheet metal members are continuously plane or flat, except as to the projecting and receiving stamping characters, and are otherwise differently formed at their opposite side or end portions, for registering engagement with cooperating guiding and limiting abutments and flanges whereby to positively ensure proper placement of each member in its appropriate head or base.

In the drawings showing one preferred embodiment of the invention:

Fig. 1 is a perspective view showing the mounting of the stamping plate on the under side of its operating head;

Fig. 2 is a similar view showing the lower coacting stamping member similarly mounted on the upper face of its supporting base;

Fig. 3 is a partial vertical section on the line III—III of Fig. 1;

Fig. 4 is a transverse vertical section on the line IV—IV of Fig 2 and showing the upper head and stamping member in operative relation thereto in closed position;

Fig. 5 is a plan view of the lower stamping plate;

Fig. 6 is a similar view of the upper stamping plate.

Referring to the drawings, A represents a plate holding base in operative relationship to the lower reciprocable head B of a stamping or embossing machine or press, or in reverse arrangement as may be preferred.

Slidably or otherwise mounted in head A, as by tongue and groove engagement 2, for easy placement and removal, is the upper coacting pressing head *a*. The lower stationary supporting anvil or base member head *b* is fixedly mounted on and secured to the base B by any suitable means.

At the rear lower edge of head *a* is an inwardly extending fixed flange 3, while at the opposite or front edge is a similar flange 4 extending inwardly from a holding plate 5. Plate 5 is normally retracted by one or more internal springs 21 acting on connecting pins 22 and provided with a withdrawal button or handle 6. Said flanges are adapted to engage opposite interfitting edge portions of the upper stamping plate C for firm holding thereof.

In a similar manner the lower base *b* is provided at the endmost portions of its rear upper edge with inwardly extending flanges 7 for holding engagement of corresponding portions of the lower stamping member D, while arranged along the front endmost up-

per edge portions are similar flanges 8 extending inwardly from a spring-retracted head 9 having a projecting button or handle 10. Bar 9 is cut out for clearance along its upper middle edge portion as at 11 for facilitating insertion of the lower stamping member D.

Extending downwardly from the front and rear edge portions of upper head *a* are four short studs or pins 12 adapted to engage with corresponding notches or sockets in the front and rear edge portion of the upper stamping plate C, while similar studs 13 are similarly located, for engagement with the corresponding angular socket portions of the lower stamping member D.

For the purpose of providing a somewhat resilient cushion mounting for the female one of the stamping plate members, as C, I utilize a bedding or base 14 of sheet rubber or the like, against which the plate C bears so as to provide interposing resistance between it and its mounting head *a*. Such bedding may be itself of a shape corresponding to the general outline of its superimposed member C, or may be provided with a mounting sheet metal base of such form, and adapted to interfit with the flanges and studs in the same manner.

As clearly shown in Figs. 5 and 6 the stamping plates D and C are of different formation, the plate D having at its corners extended portions 15 adapted to interfit beneath the flanges 7 and 8, while the upper plate C is provided at its middle portion with extensions 16 of the same general kind and for the same purpose, as to flanges 7 and 8. Plate D is correspondingly recessed inwardly as at 17, and plate C is alternately recessed as at 18.

The corner angles or sockets 19 between the projecting portions 15 and recess 17 are preferably rounded or fileted as shown, for engagement with the studs 13 when in operative position, while the similar angles or sockets 20 of plate C engage the studs 12 of head *a*.

By such construction and arrangement the interfitting edges of the pair of stamping plates are materially different in shape, and the opposite edge portions of each plate are different in dimensions longitudinally. That is to say, the projections 15 along one edge of plate D are materially shorter than the corresponding projections at the other side, with a corresponding difference in length of the recesses 17. In the same manner projection 16 at one edge of plate C is materially longer than the corresponding projection at the other edge, with corresponding variation in the length of the recesses 18. Each edge portion of each plate is thus individually and distinctively different from all other edge portions.

By such construction and arrangement it is rendered impossible to make any mistake in placing the stamping plates in position, either as to upper or lower, or as to front or back portions of each plate, thereby insuring proper placement of both plates in the machine for registering and operating relationship.

The advantage of such construction is that in changing the plates, the pair of plates may be indiscriminately stored and one set of plates may be taken out of the machine and put away and substituted by another pair of plates, each of which can only be located in proper position because of the impossibility of being placed otherwise. In this manner delay and any especial care in substituting one set of plates for another is avoided and the operation of changing plates is rendered certain and expeditious.

As in the construction of the former application, it will thus be apparent that in providing the sheet metal embossing plates C and D with any desired configuration or character-forming projections and depressions, they are mounted in pairs, one closely against the other and subjected to the deforming action of the male type or die member and the female type or die member, acting on an interposed blank together. Any desired number of embossing characters may be completely developed on plates C and D to comprise the entire subject matter to be stamped throughout so much of the area of the plates together as will transmit to the sheet metal blanks to be operated upon, the desired characters.

By means of the above described construction I am enabled to cheaply and quickly manufacture pairs of sheet metal embossing die members, each having its own individual characters or deforming projections and depressions, each of which pairs is capable of satisfactory and efficiently embossing several thousand of the thin sheet metal blanks acted upon.

I thereby avoid and save the expense of making a large number of heavy dies in the manner now usually employed, and when worn out, any such particular pair of embossing plates may be readily reproduced in the same manner as above described, using blanks having the characteristic edge formation above described or any alternative arrangement thereof.

The advantages of the invention and its adaptation to a great variety and range of work will be readily understood and appreciated by all those familiar with the operation of embossing sheet metal. It may be adapted to a great variety of characters, letters, figures, or the like, and is continuously efficient and operative, while the continuously flat form of the plates facilitates economical storage. The invention is in no way limited as to size, design, or other par-

ticular features described and illustrated, and may be changed or varied by the skilled mechanic in adapting it to its intended use within the scope of the following claims.

What I claim is:

1. A pair of continuously plane sheet metal embossing plates having registering male and female deformations respectively, each plate being provided at one of its edge portions with an individual and distinctive abutment-engaging formation for placement location on a plate holder having arresting abutments out of register with a companion plate holder.

2. A pair of continuously plane sheet metal embossing plates having registering male and female deformations respectively, one plate being provided at one of its edge portions with an individual and distinctive projecting and receding abutment-engaging formation alternating with and different from similar projecting and receding portions on its other edge, the other companion plate having differently spaced similar projecting and receding formation for registering placement location on a plate holder.

3. A pair of continuously plane sheet metal embossing plates having registering male and female deformations respectively each plate being provided at one of its edge portions with an individual extended and receded abutment-engaging formation different from its other extending and receding edges and from the holding edges of its companion plate for placement on an upper and lower plate holder, whereby one of said plates is located in registering relation to its companion plate.

4. A pair of continuously plane sheet metal embossing plates having registering male and female deformations respectively, one plate being provided at its opposite edges with alternating outermost extending and inner receding portions with intervening shoulders for limiting engagement with arresting abutments of a plate holder, the other plate having outermost receding portions and inner extending portions for identification of each plate of a pair.

5. In combination with the stamping plate holder of a press having longitudinally spaced abutments and a retaining flange at one edge portion, and a spring-retracted holding flange at the other edge portion, a stamping plate having similarly spaced abutment-engaging shoulders and lateral extensions engageable by said flanges.

6. In combination with the stamping plate holder of a press having longitudinally spaced abutments and an inwardly extending retaining flange at one edge portion and a movable retaining flange at the opposite edge portion of the plate holder, a stamping plate having similarly spaced abutment-engaging shoulders and oppositely extending portions engageable with said flange.

7. In combination with the stamping plate holder of a press having longitudinally spaced abutments and an inwardly extending retaining flange at one edge portion and differently spaced abutments and a movable flange at another edge portion, a stamping plate having correspondingly spaced abutment-engaging shoulders and extending portions at corresponding edges engageable with said abutments and flanges.

8. In combination with the stamping plate holder of a press having longitudinally spaced abutments and an inwardly extending retaining flange at one edge portion and differently spaced abutments and a spring-retracted flange at another edge portion, a stamping plate having correspondingly spaced abutment-engaging shoulders and extending portions at corresponding edges engageable with said abutments and flanges.

9. In combination, a flat plate supporting base having at opposite sides a pair of non-registering abutments and a fixed and movable retaining flange respectively, a co-operating plate holder having a similar pair of non-registering abutments out of register with those of the base, and a fixed and movable flange respectively, and a pair of stamping plates each having correspondingly located abutment-engaging shoulders and flange-engaging portions.

10. In combination, a flat plate supporting base having at opposite sides a pair of non-registering abutments and a fixed and movable retaining flange respectively, a co-operating plate holder having a similar pair of non-registering abutments out of register with those of the base, and a fixed and movable flange respectively, and a pair of stamping plates provided with co-operating stamping deformations and having correspondingly located abutment-engaging shoulders and flange-engaging portions.

In testimony whereof I hereunto affix my signature.

OSCAR M. PANNIER.