(No Model.) 2 Sheets—Sheet 1.

W. H. ALLEN.

DIE FOR STAMPING AND EMBOSSING BOXES.

No. 279,118. Patented June 12, 1883.

Fig. 1.

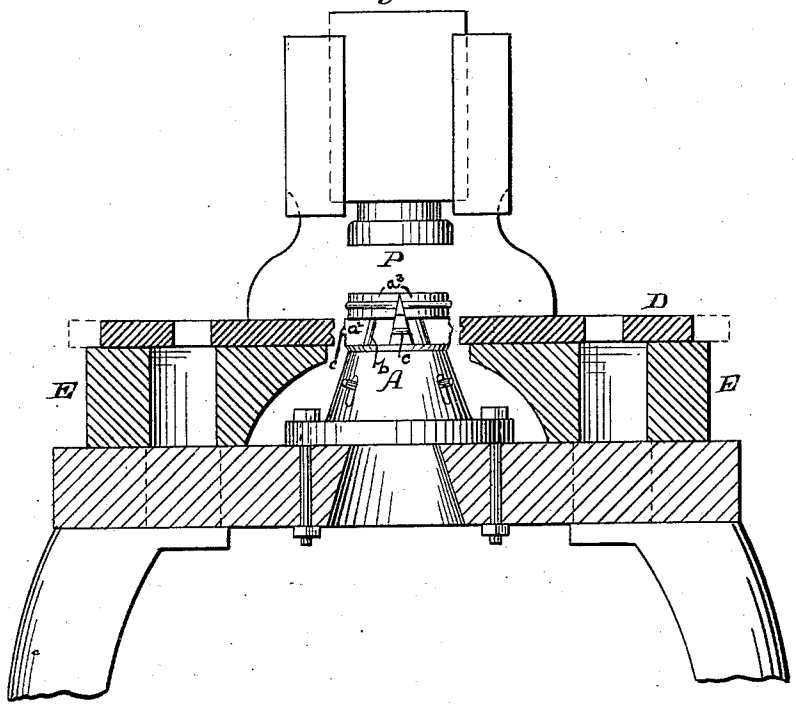
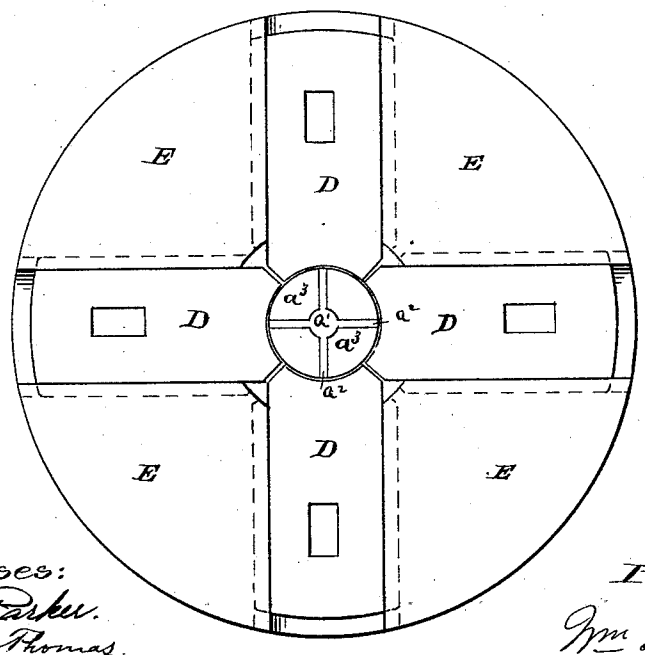


Fig. 2.



Witnesses:
Henry P. Parker.
Richard H. Thomas.

Inventor:
Wm. H. Allen,
by Earle & Smith
Atty.

N. PETERS. Photo-Lithographer. Washington. D. C.

(No Model.) 2 Sheets—Sheet 2.

W. H. ALLEN.

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Fig. 3.

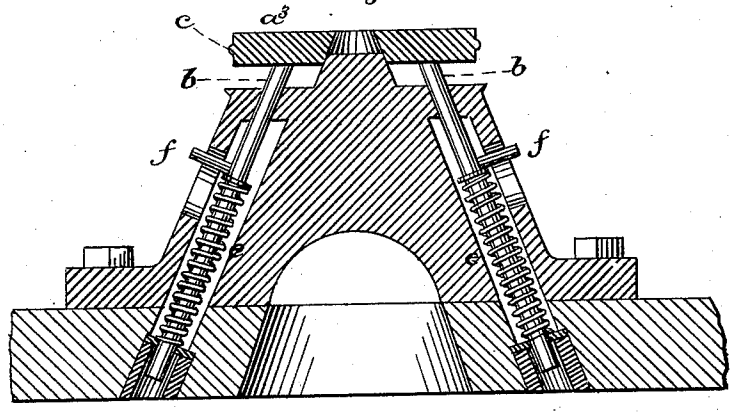
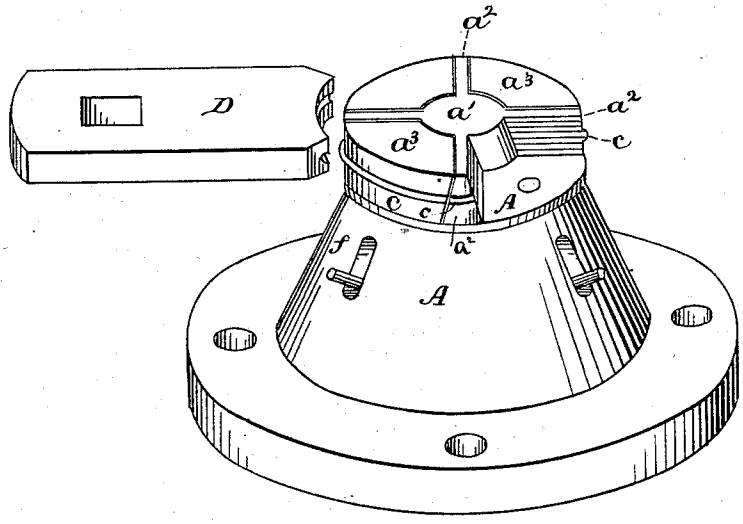


Fig. 4.



Witnesses:
Henry E. Parker.
Richard H. Thomas

Inventor:
Wm. H. Allen
by Earle H. Smith
Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM H. ALLEN, OF BROOKLYN, NEW YORK.

DIE FOR STAMPING AND EMBOSSING BOXES.

SPECIFICATION forming part of Letters Patent No. 279,118, dated June 12, 1883.

Application filed February 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ALLEN, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Dies for Stamping and Embossing Boxes, Cans, and other Articles, whereof the following is a specification.

The invention is herein shown and described as applied to the forming of a bead on the periphery of circular boxes, but may be applied to other articles and purposes.

It consists, primarily, in a new structure of compound die for the inner surface of the box, part of which die is stationary and part movable, in a manner that expands and solidifies the whole die when operating on a box, and is then susceptible of partial separation and contraction, in order to remove the box more readily and introduce a blank box. With the compound die is combined in operation a series of swaging-blocks adapted to act laterally on the box to swage the bead thereon.

In the drawings hereto annexed, and which illustrate my invention, Figure 1 shows the compound die in elevation as it may be used in a press with swaging-blocks. Fig. 2 is a plan or top view, enlarged, of the compound die and swaging-blocks. Fig. 3 indicates a vertical section, exhibiting details of movable parts. Fig. 4 is a perspective view of the exterior of the compound die as with one of the movable sections taken away, the better to illustrate the form and structure of the stationary part of the die.

The said compound die is made up of the main or stationary portion, consisting of the base A, central boss, a', and fins a^2, all of which form or are formed of one solid piece, and the sections a^3, which will be termed "quadrants," though they might take the shape of sextants or other divisions of the circle. On the periphery of the die is formed a bead, *c*, in relief, (or other design.) The base A of the die is to be firmly secured in a suitable stamping-press in any usual manner. Surrounding the die are a series—four, by preference—of laterally-moving swaging-blocks, D, each formed with a concave face corresponding with the contour of the ribbed or beaded portion of the die, and each having portions of a concave groove therein conforming to the bead *c* aforesaid on the die. The swaging-blocks are fitted to slide in guideways in a support, E, (seen in section in Fig. 1,) and are to be moved toward and away from the die by any of the means common in analogous cases.

Above the die is the usual plunger, P, for pressing the blank or box down and holding it upon the die.

The quadrants a^3 are each affixed to guiding-rods *b*, set in bearings arranged at an angle of, say, about fifteen degrees from the perpendicular—*i.e.*, with the longitudinal axis of the die—so that each quadrant or movable section is susceptible of a movement longitudinally or up and down, and with such movement is caused to approach or recede from the axis of the die. In other words, the die by this means is contracted and expanded simply by the up and down movement of the quadrants or movable sections.

In order that the die shall present a solid surface over every part when a blank or box thereon is operated upon by the plunger and swaging-blocks, the sides of the central boss, a', the fins a^2, and the sides of the quadrants contiguous thereto are formed on such an angle, respectively, with regard to the axis of the die as that such contiguous surfaces will be maintained in contact at all times; and when the quadrants are brought down hard upon the base *a* of the die they, with the stationary part a', a^2, and a^3, form practically a solid die on every surface covered by the blank or box operated upon.

It will now be understood that in operation the blank or box to be embossed or beaded is placed, bottom up, over the die, when the latter is in the contracted and elevated condition shown in Fig. 1. The plunger is then brought down upon the box, forcing it, with the sections a^3, downward, and expanding the die to its normal size, (illustrated in Fig. 4,) whereupon the swaging-blocks are forcibly pressed against the sides of the die and box, as shown in Fig. 2, striking up the bead thereon. They are then caused to retire, as indicated in Figs. 1 and 4, the plunger is raised, and the quadrants a^3 by suitable means are caused to rise, and being moved inward by their guide-rods in the act of rising, the die is thus contracted, and the box or other article may then be removed. The means seen in the drawings for raising the section a^3 are springs *e*, acting from beneath against cross-pins *f*, fixed in the guide-rods, such springs being com-

pressed in the downward action of the sections; but other means than springs may be used.

I am aware that expanding dies have been known, but not of the construction hereinbefore described; nor have any swaging-blocks ever before been combined in action with such compound die.

In applying my improvements to use I do not confine myself to special forms where they may be varied within the invention.

I claim as my invention—

1. In a compound die for swaging or embossing the sides of boxes, the fixed portion consisting of the base, the central boss, and the fins, in combination with the movable sections adapted to move toward and from a common axis with a longitudinal motion imparted to such movable sections.

2. In combination, the fixed central portion or boss, the quadrant-sections movable with reference thereto, and the base having ways for the guiding-rods *b* affixed to each section.

3. The combination, with the central boss and the fins made with sloping sides, of the quadrant-sections having their several sides formed at angles corresponding, respectively, with the sides of said boss and fins contiguous therewith.

4. In combination, the fixed central portion or boss, the sections or movable portions, the guide-rods thereof, and means of elevating the sections to contract the die after the same has been depressed and expanded for operating on a box or blank.

5. The compound expanding and contracting die composed of the base, the central boss, the fins, and the movable sections having a bead or other design thereon, in combination with a series of laterally-acting swaging-blocks, each having the counterpart of the bead formed in their operative faces.

6. In combination, the boss, the fins, and the base in one stationary part, and the quadrant-sections forming together a movable part or portion, each section having guide-rods and springs acting beneath the sections to elevate them in contracting the die, as set forth.

WILLIAM H. ALLEN.

Witnesses:
EARLE H. SMITH,
JAMES M. TULLY.