L. C. McLOUTH.

PRESS.

APPLICATION FILED MAR. 23, 1914.

1,258,424. Patented Mar. 5, 1918.

Fig. 1.

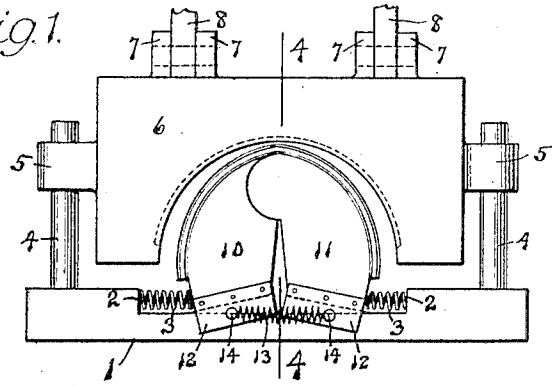


Fig. 2.

Fig. 5

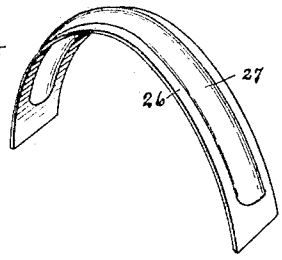


Fig. 4.

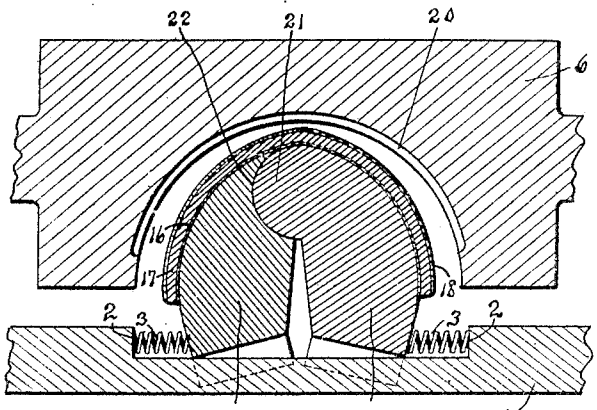


Fig. 3.

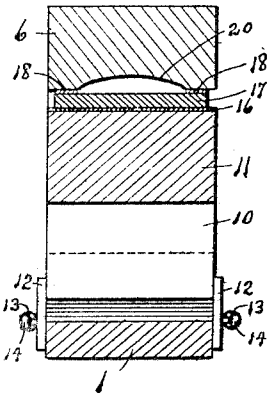
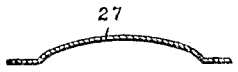
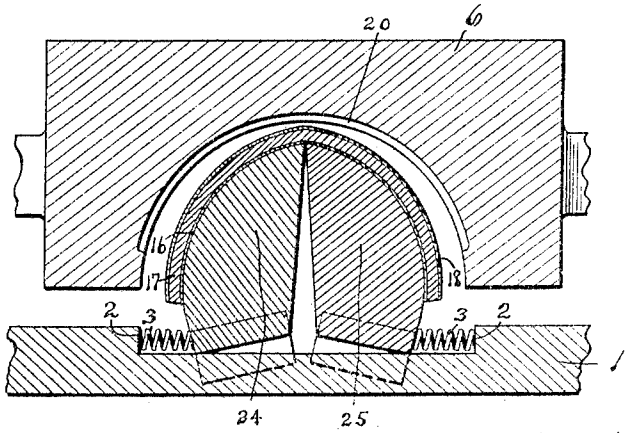


Fig. 6.





Witnesses

E. R. Barrett

L. M. Spencer.

Inventor

Lewis C. McLouth.

By Edward V. Pagelsen

Attorney

UNITED STATES PATENT OFFICE.

LEWIS C. McLOUTH, OF YPSILANTI, MICHIGAN, ASSIGNOR TO MICHIGAN CROWN FENDER COMPANY, OF YPSILANTI, MICHIGAN, A CORPORATION OF MICHIGAN.

PRESS.

1,258,424. Specification of Letters Patent. Patented Mar. 5, 1918.

Application filed March 23, 1914. Serial No. 826,496.

To all whom it may concern:

Be it known that I, LEWIS C. McLOUTH, a citizen of the United States, and a resident of Ypsilanti, in the county of Washtenaw and State of Michigan, have invented a new and Improved Press, of which the following is a specification.

This invention relates to means for crowning or embossing plates of sheet metal, and its object is to provide a device whereby such embossing may be performed upon sheets which are generally substantially semi-cylindrical.

This invention consists in combination with a base and a female die whose operative face is substantially that of the finished article, of a male die consisting of two parts normally held together and which can be expanded or separated in such a manner that the sheet metal is forced against the operative face of the female die with great pressure.

This invention further consists in the details of construction illustrated in the accompanying drawing and particularly pointed out in the annexed claims.

In the accompanying drawing Figure 1 is a front elevation of this improved device. Fig. 2 is a central transverse section of the same substantially parallel to the front face shown in Fig. 1. Fig. 3 is a similar section showing a modified form of male die. Fig. 4 is a section on the line 4—4 of Fig. 1. Fig. 5 is a perspective view of the finished material. Fig. 6 is a cross section of the same.

Similar reference characters refer to like parts throughout the several views.

While this improved device may be employed for embossing sheet metal for any other purposes, it is particularly adapted for embossing or "crowning" the fenders which extend around the rear wheels of automobiles, in substantially the manner shown in Figs. 5 and 6 of the drawings. This crowning can be done in many ways where the curve of the fender is not very great, but when the fenders are to be used in connection with the rear wheels of vehicles it is often desirable that they shall be substantially semi-circular in longitudinal cross section. Where such construction is desired this present device is peculiarly adapted for the crowning or embossing.

In the drawings, 1 is a base, either of timber or cast iron, having shoulders 2 against which the springs 3 engage. From this base or any other proper support the upright guides 4 may extend and pass through the ears 5 formed on the female die 6. Lugs 7 on the upper side of the female die are connected to links 8 of any desired type by means of which the female die 6 may be moved up and down. While this female die may also be made of wood, it is preferably made of iron.

The male die is formed of two pieces 10 and 11 which rest on the base 1 and are prevented from sliding laterally thereon by means of the guides 12. The lower ends of these parts are held together by means of the springs 13 which extend between the pins 14, or by the springs 3, or by all of them together.

Extending over the members 10 and 11 is a plate 16 of thin sheet metal, and on this sheet metal rests a pad 17 of some elastic material, preferably rubber. Along the edges of this pad are placed the narrow strips 18 of strong flexible material, preferably leather.

The lower or inner face of the female die 6 is of the exact form which it is desired to impart to the sheet metal. When the female die 6 is lifted free of the male die, the springs will force the lower ends of the parts 10 and 11 of this male die together, after which the blank of the sheet metal of proper width and length will be laid over this male die, the edges of the blank resting on the strips 18. The machine will then be started and the female die 6 permitted to descend. It will first press against the edges of the blank over the leather strips 18, immediately above the central line of the male die, and compress the edges of the pad at this point. This will result in the blank being forced up into the middle portion of the shallow groove 20 formed in the female die, but not until the edges of the blank metal have been so firmly gripped between the female die and the leather strips 18 that no crimping or folding is possible. As the female die descends, the outer edges of the parts 10 and 11 of the male die will begin to move away from each other, and the result will be that pressure will begin to travel longitudinally of these leather strips 18 and of the pad 17 toward the ends thereof and that slowly the crown 27 will be formed

on the sheet metal blank without permitting the edges thereof to crimp. This gradual separation of the lower portions of the male die permits the production of a fender 26 having a high crown 27 extending from end to end thereof (or nearly so as shown), and also the production of a crowned fender of more than 180 degrees of arc in length. The shoulders 2 limit the spreading movement of the lower ends of the members of the male die and thereby avoid wedging of the male die in the female die. The springs 3 cause the ends of the members of the male die to again approach each other when the dies are separated.

While Fig. 2 shows a connection between the parts 10 and 11 formed by constructing the part 11 with a semi-cylindrical portion 21 that is adapted to slide in the corresponding groove 22 of the part 10, this is not always necessary, as for many types of fender the parts 24 and 25 shown in Fig. 3 will be found to answer perfectly. These two parts contact along their adjacent upper edges and the small groove between these edges is covered by means of the sheet-metal plate 16.

The details and proportions of this construction may all be varied to meet the different requirements without departing from the spirit of my invention as set forth in the following claims.

I claim:—

1. In a press for embossing plates of sheet metal, the combination of a vertically movable solid female die having a semi-cylindrical lower surface formed with a shallow circumferential groove, a base plate, an expansible male die comprising a pair of coacting members contacting at their upper edges and having their lower ends slidably mounted on said base plate, springs to normally hold the lower ends of these die members together, and a resilient pad extending over and around the upper surfaces of said male die and adapted to be forced into the entire shallow groove in the female die when the latter descends and forces the lower ends of the male die members to separate.

2. In a press for embossing plates of sheet metal, the combination of a base, a female die movable toward and from the base, and a male die mounted on the base and comprising two members whose upper ends remain in contact and whose lower ends are separable to permit them to conform to the operative surface of the female die.

3. In a press for embossing plates of sheet metal, the combination of a base, a female die movable toward and from the base, a male die mounted on the base and comprising two members whose upper ends remain in contact and whose lower ends are separable to permit them to conform to the operative surface of the female die, and a pad of resilient material extending over the operative surface of the male die.

4. In a press for embossing plates of sheet metal, the combination of a female die having a curved operative face provided with a groove, a base plate, a pair of separable members mounted on the base and constituting the male die, springs to normally hold the separable members toward each other, a pad of resilient material extending over the male die, and strips of flexible material extending along the edges of the pad and adapted to be engaged by the female die.

5. In a press for embossing plates of sheet metal, the combination of a female die having a curved operative face provided with a groove, a base plate, a pair of separable members mounted on the base and constituting the male die, springs to normally hold the separable members toward each other, a pad of resilient material extending over the male die, strips of flexible material extending along the edges of the pad and adapted to be engaged by the female die, and a sheet of thin metal between the pad and the male die.

6. A press comprising a female die having a curved opening therein, a collapsible male die adapted to be received in the curved opening in the female die, one of said dies being movable in respect to the other, said male die comprising two members having coöperating bearing surfaces at the end nearest the female die whereby they are operatively joined and having curved outer surfaces corresponding to the curved opening in the female die, means for causing the other ends of the members of the male die to spread apart as the movable die approaches the other die, and means for limiting the spreading movement of the lower ends of the members of the male die whereby wedging of the male die in the female die is avoided.

7. A press comprising a female die having an opening therein curved in longitudinal cross-section and also curved in transverse cross-section, a collapsible male die adapted to be received in the opening in the female die, one of said dies being movable toward and from the other, said male die comprising two members having coöperating bearing surfaces at the end nearest the female die whereby they are operatively joined, and having outer surfaces curved to correspond to the longitudinal curvature of the boundary of the opening in the female die, a sheet of resilient material upon the surface of the male die, means for causing the other ends of the members of the male die to spread apart as the movable die approaches the other die, means for limiting the spreading of said other ends of the members of the male die whereby wedging of the

male die in the female die is avoided, and means for causing the ends of the members of the male die to again approach each other when the dies are separated.

8. A press comprising a female die having an opening therein curved in longitudinal cross-section and also curved in transverse cross-section, a collapsible male die adapted to be received in the curved opening in the female die, one of said dies being movable in respect to the other, said male die comprising two members having coöperating bearing surfaces at the end nearest the female die whereby they are operatively joined, and having outer surfaces curved to correspond to the longitudinal curvature of the boundary of the opening in the female die, a resilient pad upon the last-named surfaces of the male die, means whereby the ends of the members of the male die opposite the bearing surfaces are caused to spread apart as the movable die approaches the other die, and means for limiting the spreading movement of said ends of the members of the male die whereby wedging of the male die in the female die is avoided, said bearing surfaces on the members of the male die being of relatively large radius whereby wearing of the pad upon the male die is reduced.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

LEWIS C. McLOUTH.

Witnesses:
HUGO W. KREINBRING,
HARRY J. FERRELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."