(No Model.)

F. C. CANNON.

DIE FOR FORMING CARRIAGE LAMP LININGS.

No. 457,557. Patented Aug. 11, 1891.

Fig. 1

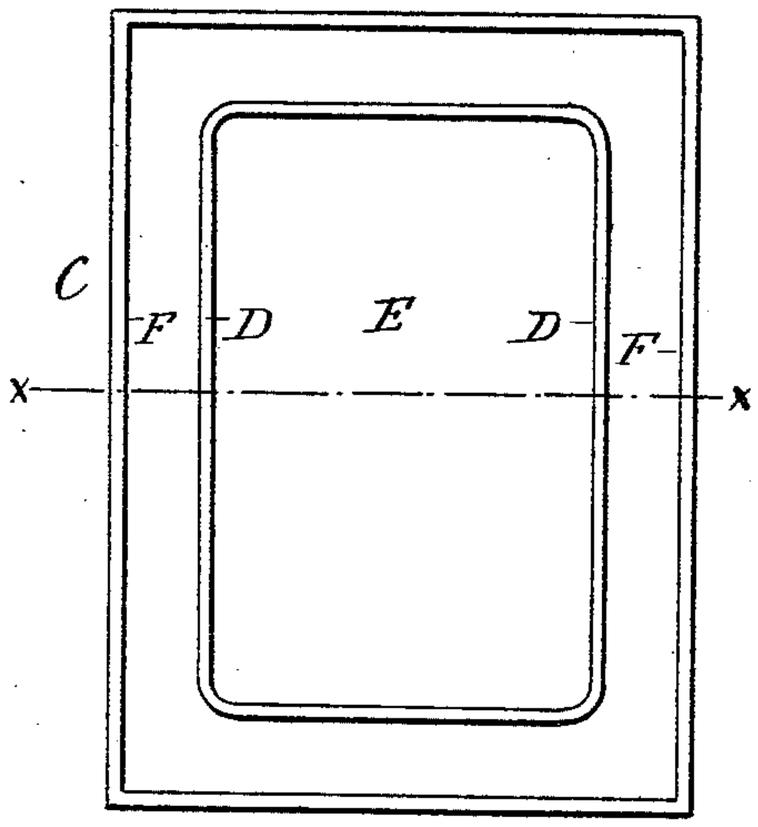


Fig. 2

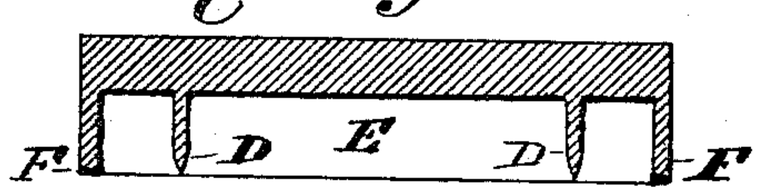


Fig. 3

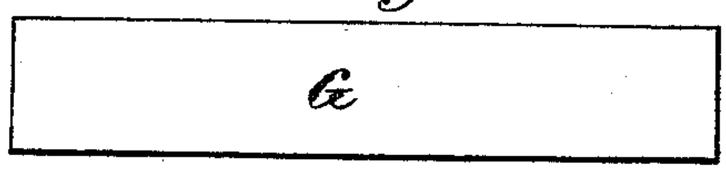


Fig. 5.

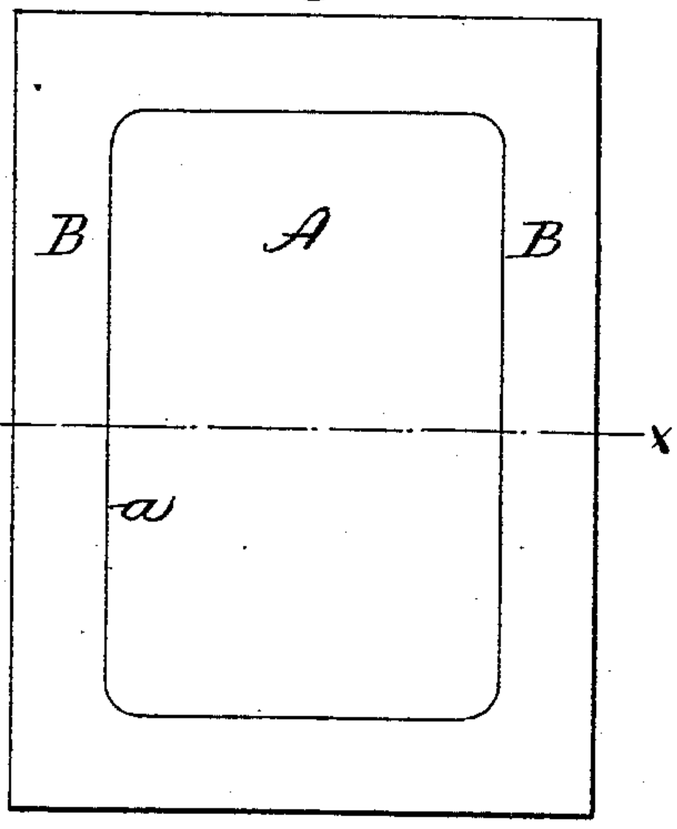


Fig. 4.

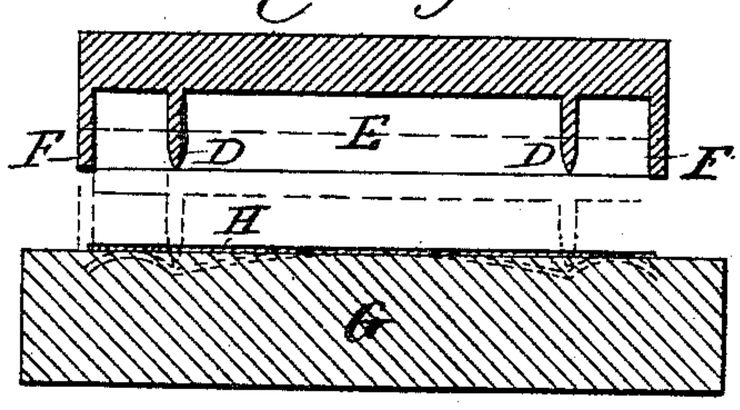


Fig. 6

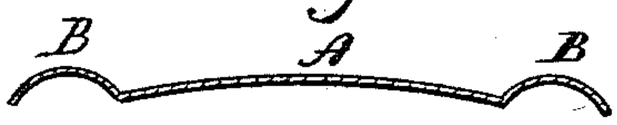


Fig. 7

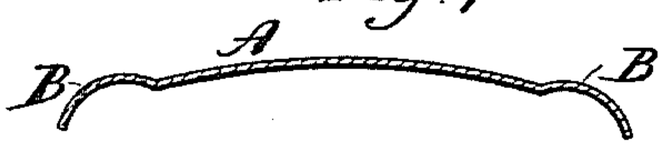
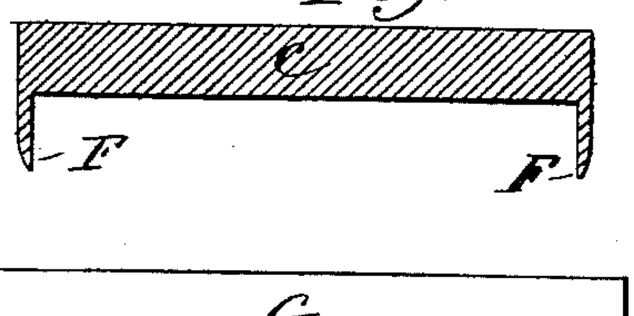


Fig. 8



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UNITED STATES PATENT OFFICE.

FREDERICK C. CANNON, OF NEW HAVEN, CONNECTICUT.

DIE FOR FORMING CARRIAGE-LAMP LININGS.

SPECIFICATION forming part of Letters Patent No. 457,557, dated August 11, 1891.

Application filed March 2, 1891. Serial No. 383,455. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK C. CANNON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Dies for Forming Carriage-Lamp Linings; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a face view of the die; Fig. 2, a transverse section on line *x x* of Fig. 1; Fig. 3, an end view of the elastic block. Fig. 4, a transverse section illustrating the operation. Fig. 5, a face view of the lining; Fig. 6, a transverse section of the same on line *x x* of Fig. 5; Fig. 7, a transverse section showing modification in the shape of the lining; Fig. 8, a modification.

This invention relates to an improvement in dies for shaping that class of carriage-lamp linings in which the central portion presents a concave or convex surface, as the case may be, the surrounding portion forming a body which in some cases is itself made of convex or concave shape in transverse section and in other cases is made plain. The central surface and the border come together so as to form a defined line between the central portion and the border. One of these linings is represented in Figs. 5 and 6, Fig. 5 being a front or face view, and Fig. 6 a transverse section. In this illustration the central or convex portion A is represented as in the form of a parallellogram with the angles rounded. The said central portion A presents a convex surface outside, as seen in Fig. 6, and the border B is also of similar convex surface. The two convex surfaces coming together, as before stated, produce a line *a* around the central portion between it and the border. This line is clearly defined. The convexity is slight, but yet enough to produce an apparent convex surface. The lining may be produced so that the reverse or concave side may be the outside, if desired. In some lamps the whole surface of the lining is made convex or concave. Heretofore these linings have been shaped by hand, working the metal from the top by means of burnishing-tools, it being impracticable to strike or shape the lining by dies such as usually employed in the striking up of sheet metals, for the reason that the sheet-metal blank from which the lining is to be made is first electroplated and burnished, and the employment of metal dies for striking up such metal would injure the polished surface.

The object of my invention is the construction of dies by which linings may be readily and perfectly shaped; and the invention consists in a die constructed as hereinafter described, and particularly recited in the claims.

I will first describe the invention as for making a lining having a center A and a border B, so as to present a convex surface outward, and such as shown in Figs. 5 and 6.

The die consists of a plate or body C, on the face of which is a rib D, in shape corresponding to the defined line required between the border and central portion of the lining. The edge of this rib is made quite sharp and projects from the body C so far as to form a space E of considerably greater depth than the extent of convexity required for the lining. Outside the rib D is another rib F, surrounding the rib D, distant therefrom somewhat less than the width of the border. Its edge should present substantially a flat surface, and it is in a plane with relation to the rib D corresponding to the position required for the edge of the plate in relation to the line between the border and the center.

In Fig. 2 the die is represented as having the rib F in the same plane with the edge of the rib D. This completes the die proper.

The companion to the die C is an elastic block G, preferably of india-rubber, and is of a size as large or larger than the die, and preferably presents a flat surface toward the die.

In operation the blank H for the lining is made from sheet metal, such as usually employed in the manufacture of lamp-linings, and is laid upon the elastic block G, beneath the die C, as seen in Fig. 4. The die is carried by any of the usual mechanisms for operating such dies, preferably a press. The blank is placed in proper relation to the die C, and then the die C is brought down onto the blank, as seen in broken lines, Fig. 4, the rib F striking the blank near the edge, so as to press it hard upon the block G. The rib D

also strikes upon the surface of the metal, and the ribs are forced upon the metal. The elastic block G, giving way under the ribs, as represented in broken lines, the metal between the ribs and the elastic block is forced into the block, while the metal between the ribs, having no force applied thereto, will be thrown up between the ribs by the elasticity or non-yielding of the elastic block, and so that the sharply-defined line *a*, surrounding the border, will be produced in the blank, the edges held by the rib F, so as to prevent the metal curling, and the metal will be thrown up within the said line into convex shape within the rib D, and the metal between the rib D and the rib F will in like manner be thrown up into convex shape, as seen in Fig. 6, and so as to produce a convex border.

It will be understood that the shape of the ribs is made corresponding to the shape required for the lining. The shape represented will be sufficient to enable others skilled in the art to adapt the invention to various shapes required.

If it be desired to make the border in a plane somewhat different from that of the center C—as, for illustration, as seen in Fig. 7, in which the border is represented as thrown back or below the plane of the center—the ribs are arranged in corresponding planes, but always so that the outside rib F may come to a bearing upon the border portion, so as to prevent its curling. The convex surface thus produced is the outer or exposed surface of the lining, and which surface is plated and burnished before the shaping operation is produced, such shaping operation in no way injuring that surface, for the reason that the surface, except on the line defining the two parts, does not come in contact with metal.

In case the concave surface is desired for the outside, then the blank will be reversed, and that which is to be the outside will lie upon the block.

In case the surface of the lining is to be made convex or concave throughout, then the rib D is dispensed with, as seen in Fig. 8, the outer rib being adapted to strike the surface, as before, and when brought upon the blank lying on the block the block and blank will be compressed, as indicated in broken lines, Fig. 8.

From the foregoing it will be understood that the blank is placed upon the elastic block with that side which is required to be concave next the block, so that the block may operate to force the metal up inside the space within the rib.

It will be understood that the center of the blank may be previously struck, spun, or otherwise formed in any desired shape, and then the remaining surfaces formed either convex or concave, as before described.

I claim—

1. The herein-described die for producing concavo-convex-shaped carriage-lamp linings, consisting of the body constructed with a rib upon its face, the outline of said rib corresponding to the outline of the concavo-convex shape to be produced, and so as to leave a space upon the face of the block within the said rib, combined with an elastic companion block, substantially as described.

2. A die for shaping carriage-lamp linings, consisting of the body C, constructed with the ribs D and F upon its face, the rib D within the said rib F, and so as to form clear spaces on the face of the die within the rib D and between the said ribs D and F, combined with the elastic block G, substantially as and for the purpose described.

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

FREDERICK C. CANNON.

Witnesses:

FRED C. EARLE,

LILLIAN D. KELSEY.