No. 673,822. Patented May 7, 1901.

L. L. SAGENDORPH.

PROCESS OF MANUFACTURING DIES FOR FORMING METALLIC PLATES.

(Application filed Oct. 10, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

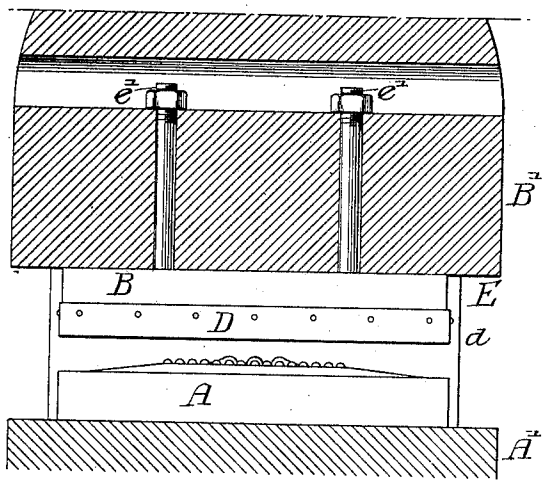


Fig. 2.

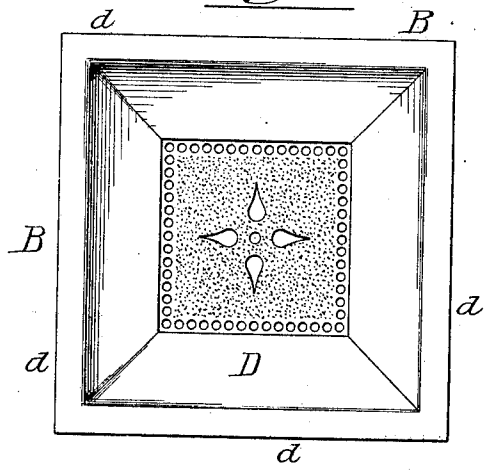
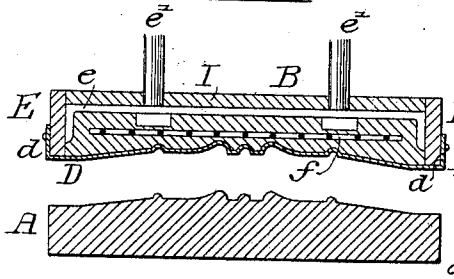


Fig. 3.



Witnesses:-

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Louis W. T. Schofield

Inventor:-

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by their Attorneys:-

Howson & Howson

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(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

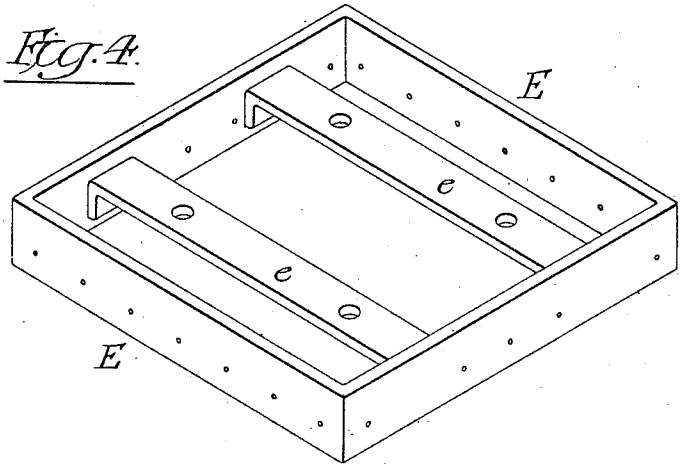


Fig. 6.

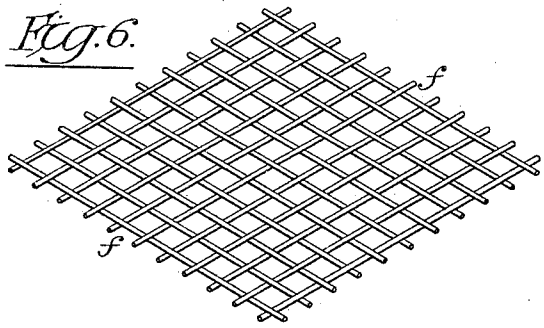
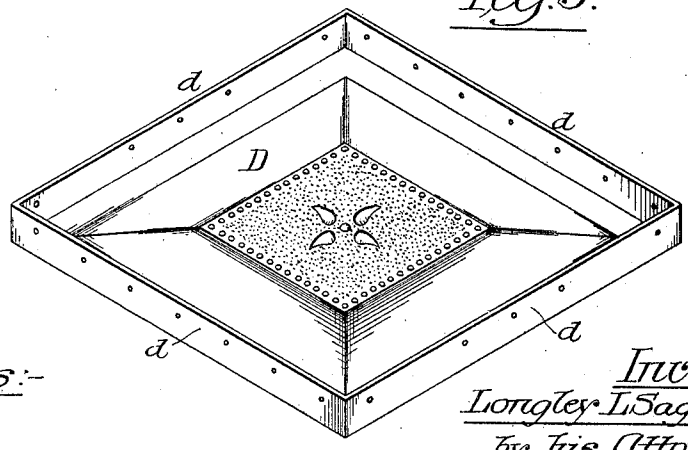


Fig. 5.



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UNITED STATES PATENT OFFICE.

LONGLEY L. SAGENDORPH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO HARLAN P. LLOYD, OF SAME PLACE.

PROCESS OF MANUFACTURING DIES FOR FORMING METALLIC PLATES.

SPECIFICATION forming part of Letters Patent No. 673,822, dated May 7, 1901.

Application filed October 10, 1900. Serial No. 32,631. (No specimens.)

To all whom it may concern:

Be it known that I, LONGLEY L. SAGENDORPH, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Processes of Manufacturing Dies for Forming Metallic Plates, of which the following is a specification.

The object of my invention is to reduce the cost of manufacture of dies for striking up sheet-metal plates and other objects. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of the upper and lower dies with the plunger and bed-plates in section. Fig. 2 is an inverted plan view of the upper die. Fig. 3 is a sectional view of the upper and lower dies; and Figs. 4, 5, and 6 are perspective views showing parts of the upper die detached.

My invention is especially applicable to dies for striking up sheet-metal plates. For this work the dies require to be renewed at intervals and a large number of dies are essential, owing to the different patterns required. It will be understood, however, that the products of my process can be used for stamping any material and for any purpose without departing from my invention.

Heretofore in the manufacture of dies for striking up metallic plates the dies were made entirely of metal, and in patents granted to me, No. 616,976, dated January 3, 1899, and No. 639,096, dated December 12, 1899, I have described and claimed dies and the process of making same in which a soft-metal die is faced with a hard-metal plate. Therefore I lay no claim to this feature.

I will now describe my present invention:

A is the lower die, and B the upper die. In the present instance the lower die is the hard-metal die, cut to the desired design and hardened in the ordinary manner. The upper die B has a metallic facing D, of sheet metal or other suitable metal, which is pressed, preferably, by means of the lower die A and cast-metal die. This cast-metal die is cast from the lower die A and kept simply for the purpose of reproducing the metallic facing-plate D.

E is the frame of the upper die, quadrangular in the present instance, and having one or more cross-bars *e*. These cross-bars are perforated for the passage of the posts *e'*, by which the die is secured to the plunger B', the lower die being confined to the bed A', as shown in Fig. 1.

The metallic face-plate D has a flange *d*, which is secured to the frame E by rivets, screws, or other means of fastening, as shown in Fig. 3, and between the cross-bars *e* and the face-plate D, I preferably insert a strip of metallic lathing, bars, strips, or wire-cloth *f*. The frame is filled with plastic or molten material I, which will set or harden to form a rigid backing for the metallic face-plate D. The material I is held together by the lathing *f*, which prevents it from cracking, and the bolts *e'* are also held in position by the material I.

The material I that is filled in the plate to support the face-plate of the die may be concrete, cement, rubber, lead, Babbitt metal, or any material which can be poured into the frame so as to fill in the crevices of the die-plate or any plastic material which can be forced into the crevices and which will become hard and sustain the pressure to which the die is subjected.

In large dies—for sheet-metal work, for instance—I preferably use concrete or cement; but in small dies I may use a rubber composition, lead, or any metal which has a lower melting-point than the plate. Thus I provide a mass of homogeneous material to sustain the pressure against the metallic face-plate. This material can be readily replaced if it should disintegrate or crack after the die has been used, and the face-plate when worn can also be readily replaced when necessary.

In practice when it is desired to make a standard metallic ceiling-plate, for instance, I will strike up a number of face-plates D by means of the die A and the cast-metal die and make up several dies B, keeping some of the face-plates in reserve, so that should one of the dies B need refacing the old plate D can be removed, as well as the cement or other filling material, and a new face-plate attached to the frame and fresh material poured into the frame.

It will be understood that while I have shown a quadrangular frame the frame may be round, oval, or, in fact, any shape desired, according to the pattern and the shape of the article to be pressed.

My process can also be used for both the upper and lower dies, if desired, where the material to be formed by the dies is such that the dies will withstand the pressure and where the two faces of the material differ in contour or design, as my invention relates to improvements in the process of manufacturing dies for any purpose.

I claim as my invention—

1. The process of manufacturing dies, said process consisting in forming the design in a metal die and hardening the said die, making a casting from the hard-metal die, striking up a sheet-metal face-plate between the hard-metal die and the casting, hardening the said sheet-metal face-plate, applying a backing to the face-plate in a plastic or molten condition and allowing the material to set or harden, substantially as described.

2. The process of manufacturing dies, said process consisting in forming the design in a metal die, making a casting from the same, striking up a sheet-metal face-plate between the metal die and the casting, applying a backing to the face-plate in a plastic or molten condition, substantially as described.

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

LONGLEY L. SAGENDORPH.

Witnesses:

WILLIAM E. BRADLEY,

JOS. H. KLEIN.