

E. W. SPERRY.
HARDENING DIES.

No. 86,467.

Patented Feb. 2, 1869.

Fig. 1.

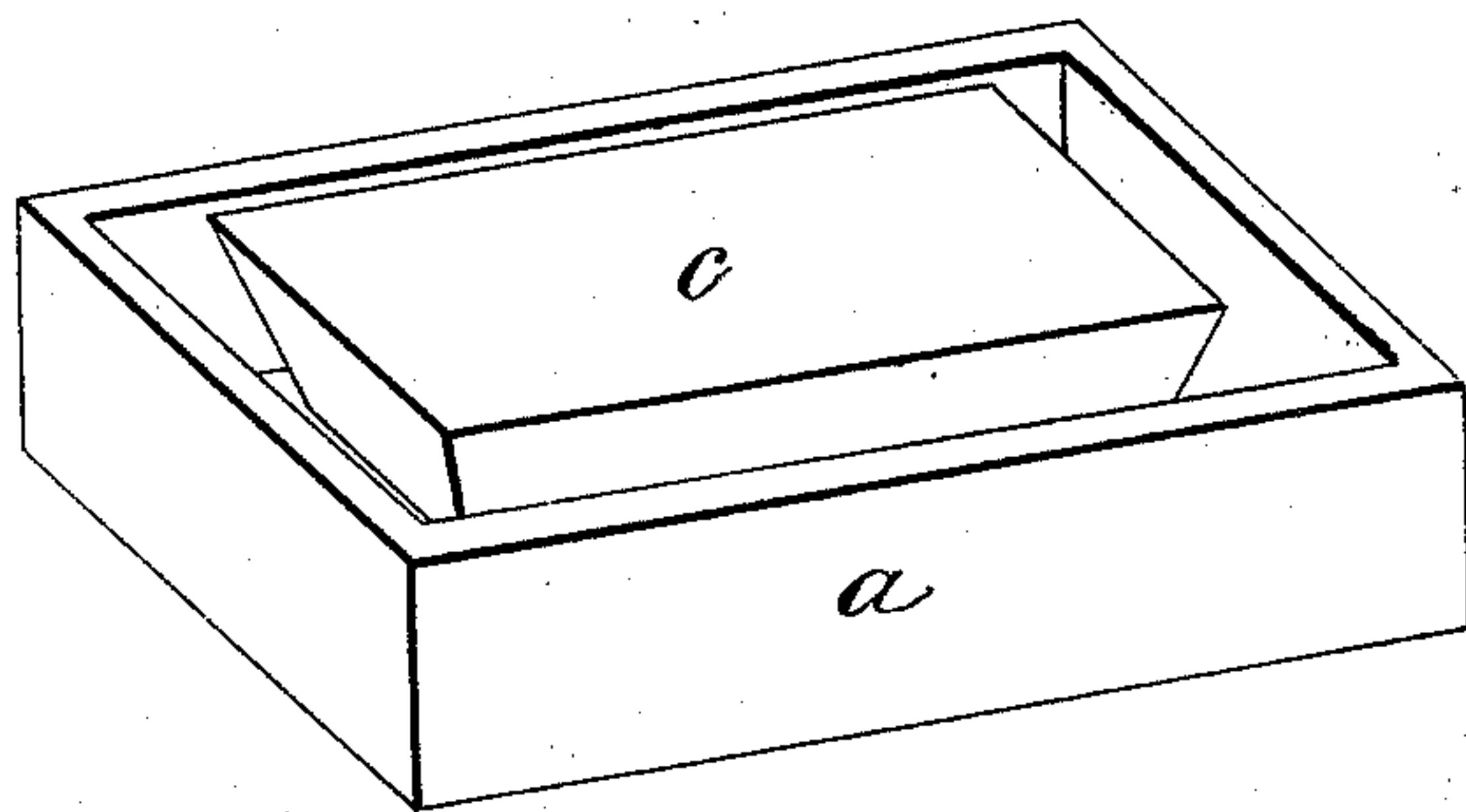
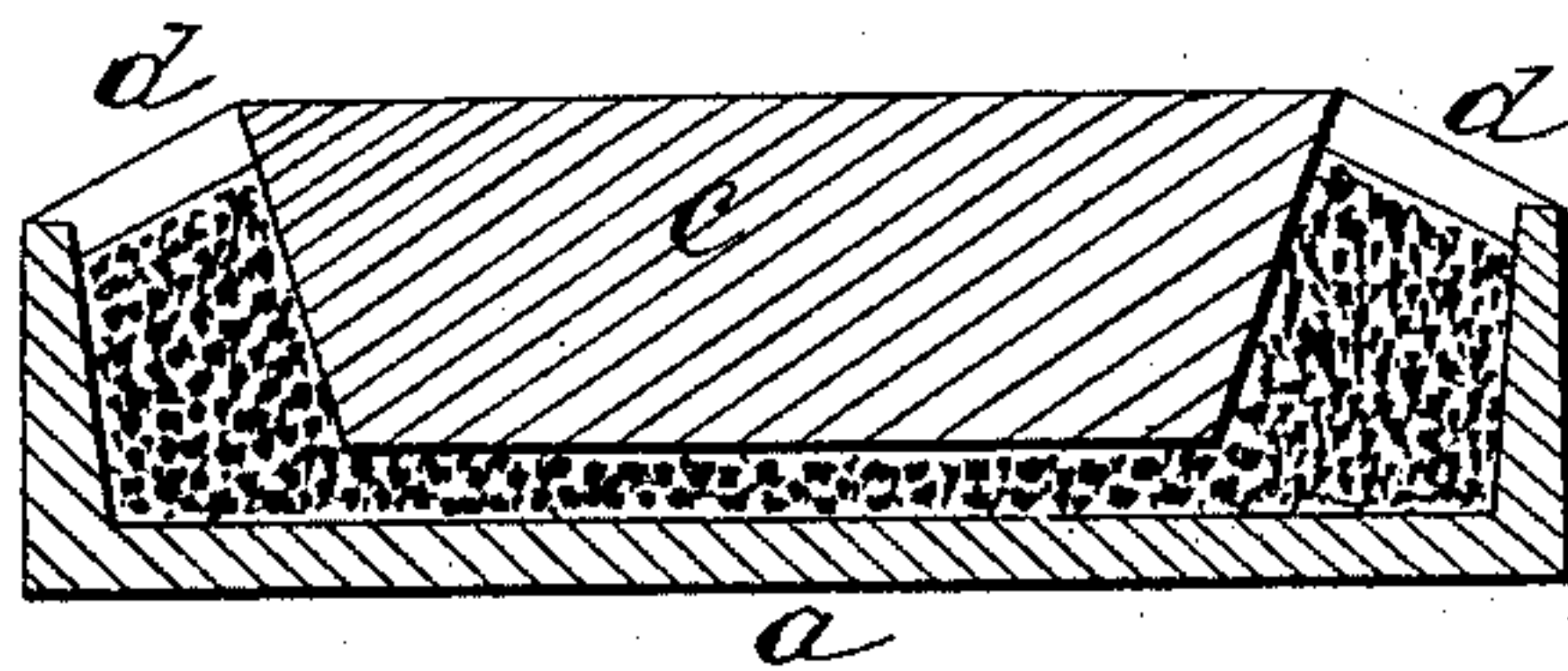


Fig. 2.



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EGBERT W. SPERRY, OF WOLCOTTVILLE, CONNECTICUT.

Letters Patent No. 86,467, dated February 2, 1869.

IMPROVEMENT IN HARDENING DIES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EGBERT W. SPERRY, of Wolcottville, county of Litchfield, and State of Connecticut, have invented certain new and useful Improvements in Hardening Dies; and to enable others skilled in the art to make and use the same, I will proceed to describe its construction and operation, by referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this invention consists in the mode or process of hardening dies, as follows:

A fire-proof box is first prepared, a little longer and wider than the length and width of the die, and about the same in depth as the depth of the die. Into the bottom of this box is placed a layer of pulverized charcoal. Then the face of the die is placed upon the surface of the charcoal-dust, (after smearing the die-face with a preparation of ivory or bone-black;) then filling-up the side and end space with charcoal, closely packed, to a point near the top edge of the box; then filling the remaining space, from the edge of the box to the edge of the die, with fire-clay.

After this has been done, the box is laid on the grate of a furnace, and a fire kindled over and around it, and heated to a temperature to produce a white heat on the upper surface of the die, (the bottom proper of the die,) after which the box with the die is removed and allowed to stand until the exposed surface has so far cooled as to prevent it from hardening by immersion in hardening-fluids. Then the die is quickly lifted from the box and immersed in the hardening-fluid, the result of which is, the face of the die will be hardened, so as to resist the action of a file, while the base, or bottom proper of the die, will remain susceptible to the action of a file.

In the accompanying drawings—

Figure 1 is a box, with the die placed therein upside or face down.

Figure 2 is a section cut lengthwise through the centre of the box, showing the box, charcoal, die, and fire-clay.

a is the box, which is made larger in width and breadth than the die, for the purpose of providing packing-room for charcoal. The depth of the box is about the same depth of the die, so that when the die is placed upon the packing, the upper side will be above the side of the box.

b is the charcoal-packing, which surrounds the die, (under side, sides, and ends,) nearly to the upper edge thereof.

c is the die.

d is the fire-clay, which closes the space over the charcoal between the edge of the box and the edge of the die.

Thus I am enabled to carbonize the face of the die, and decarbonize the base or bottom of the die, and prevent any scale from forming on the face, and harden the face without hardening the base, thus doing away with the ordinary process of first hardening and then tempering the die, whereby so many dies are cracked and utterly destroyed.

I believe I have thus shown the nature, operation, and advantage of this invention, so as to enable others skilled in the art to make and use the same therefrom.

What I claim, therefore, and desire to secure by Letters Patent, is—

The process of hardening dies, substantially as shown and described.

E. W. SPERRY. [L. s.]

Witnesses:

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