

(No Model.)

G. E. SMITH.
APPARATUS FOR HARDENING CUTLERY.

No. 477,785.

Patented June 28, 1892.

Fig. 1

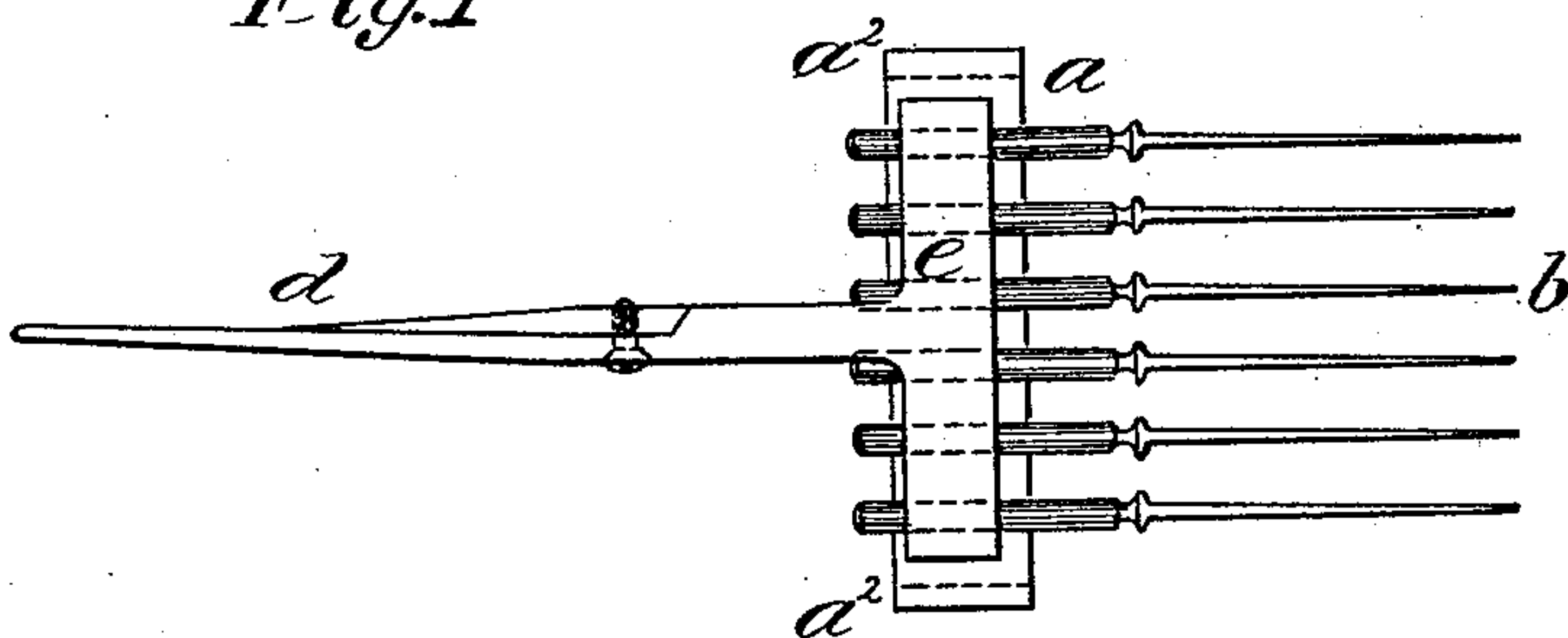


Fig. 2

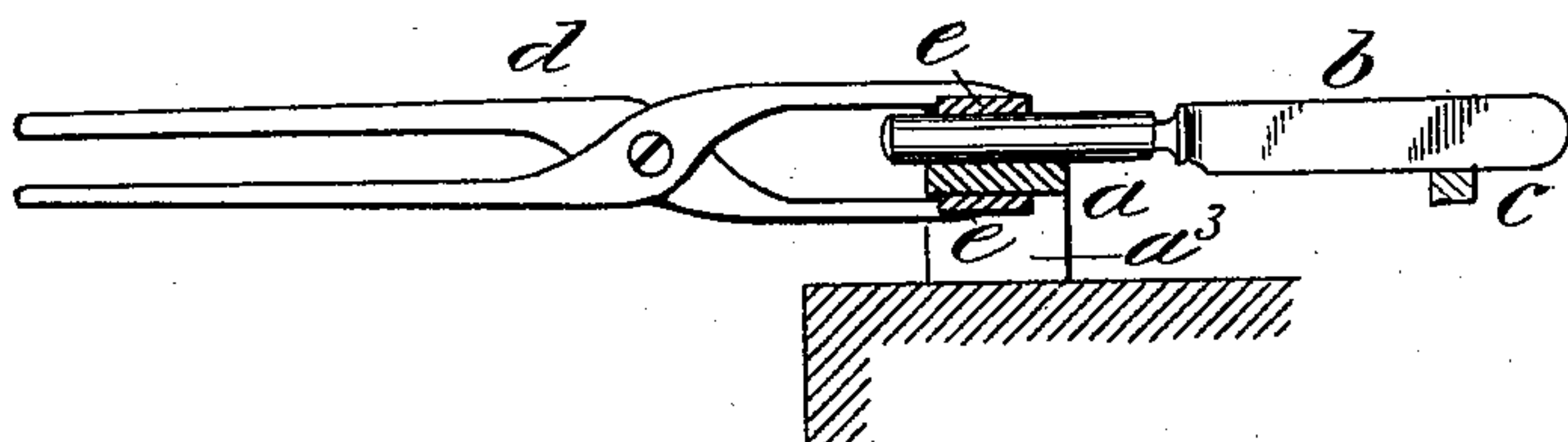
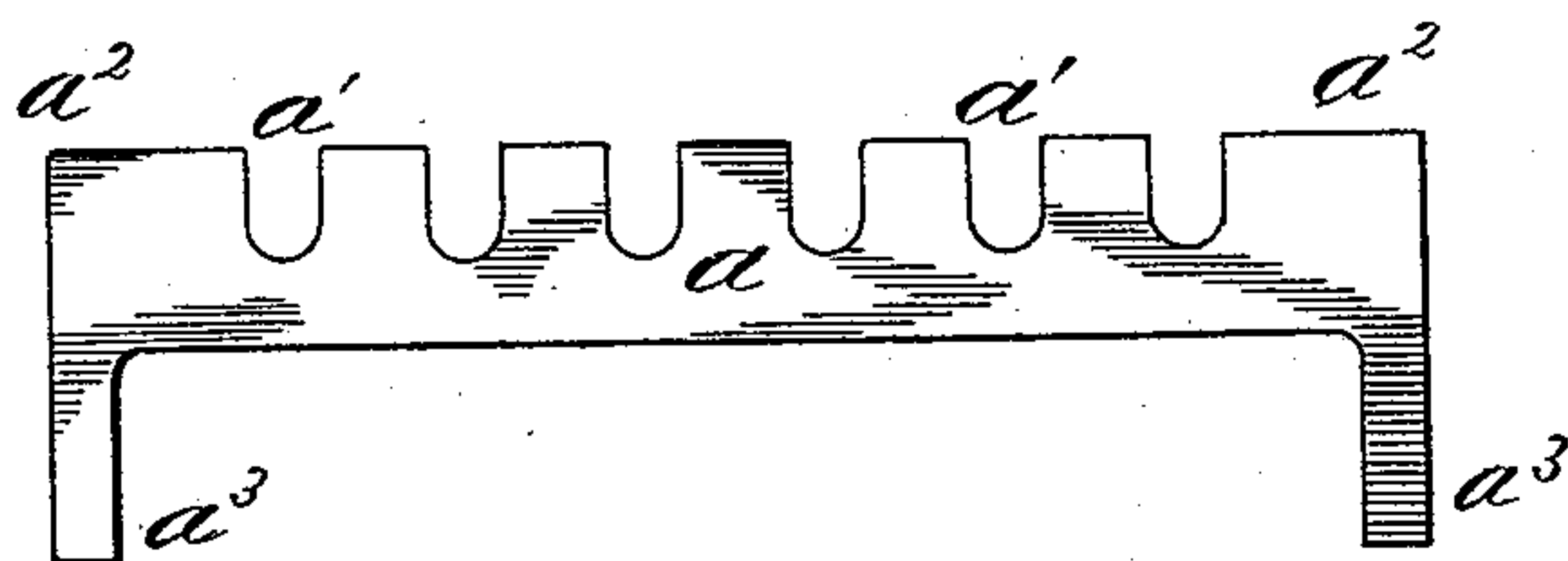


Fig. 3



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE E. SMITH, OF GLASTONBURY, CONNECTICUT.

APPARATUS FOR HARDENING CUTLERY.

SPECIFICATION forming part of Letters Patent No. 477,785, dated June 28, 1892.

Application filed August 17, 1891. Serial No. 402,881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. SMITH, of Glastonbury, in the county of Hartford and State of Connecticut, have invented certain

5 new and useful Improvements in Apparatus for Hardening Cutlery, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

10 My invention relates to the manufacture of knives and like articles of cutlery; and its object is to provide an improved method of and means for hardening knives in the process of manufacture.

15 My invention consists in the means for hardening knives and in details of the several parts composing the apparatus and in their combination, as more particularly hereinafter described, and pointed out in the

20 claims.
Referring to the drawings, Figure 1 is a detail top or plan view showing a hardening-bar supporting a number of knives in the furnace. Fig. 2 is a detail view in section

25 through the bar and the tongs. Fig. 3 is an elevation of the bar.

In the manufacture of cutlery prior to my invention the knife-blanks after forging are laid along the edge of a furnace in proper

30 position to be heated and with the ends of the handles usually overhanging the edge at sufficient distance to enable a number of them to be grasped by a pair of tongs that usually holds them with the blades turned flatwise in the same plane, in which position they are then dipped into a bath, and thus

35 hardened. By this method the blanks are liable to become warped, so as to require subsequent manipulation to straighten before

40 tempering and finishing.
In the practice of my invention the knives are supported on a hardening-block *a*, that is placed on the edge of the furnace and supports the handles of the knife-blanks *b*, while

45 the blades rest upon a bar *c*, the blanks being supported edgewise and with the ends of the handles overlying the bar *a*. As soon as the knife-blanks are sufficiently heated the pair of tongs *d*, having wide grasping-jaws *e*, is

50 used in such manner that one of the jaws underlies the block, while the other overlies the handles of the knives on the upper sur-

face of the block and by the pressure clamps the block and handles, so that said block and the knife-blanks are together lifted from the furnace and plunged into the bath for hard- 55 ening. By this manner of heating, holding, and dipping the knife-blanks all warping of the blades is prevented and I am enabled to handle a much larger number of knives at one time and more conveniently than has been possible under any other prior method. I prefer to make the hardening-block with a series of handle-sockets *a'*, arranged side by side along the upper surface of the block be- 60 tween the end pieces *a''*, that are located, usually, on the extreme ends of the block and between which the knife-handles in either instance must be placed. At each end of the block legs *a'''* are provided for supporting it in such manner as to allow the one jaw of the tongs to be inserted below the block while the latter is resting in the furnace. It is an advantage to lift the block and the knife-blanks together from the furnace for the purpose of dipping the blanks in the bath; but 75 it is possible by providing one of the jaws of the tongs with a duplicate of the sectional block that supports the knife-blanks to readily pick up any desired number of the knives from a socketed hardening-block without removing the latter from the furnace, and I do not limit myself to the particular construction of the block herein illustrated.

I claim as my invention—

1. In combination with a furnace, a blank-supporting block *a*, having upward-projecting shoulders *a''*, and the tongs *d*, having the broad grasping-jaws *e*, all substantially as described. 85

2. In combination with a hardening-block having on its upper surface a series of sockets adapted to hold in an edgewise position the handles of a series of knife-blanks and having on the under side the supporting-legs, 90 a pair of tongs having a jaw adapted to overlie a series of the knife-blanks located in the blank-holding sockets, and an opposing jaw adapted to grasp the under side of the hardening-block, all substantially as described.

GEORGE E. SMITH.

Witnesses:

CHAS. L. BURDETT,
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