(No Model.)

G. E. SMITH.

METHOD OF HARDENING CUTLERY.

No. 487,337. Patented Dec. 6, 1892.

Fig. 1.

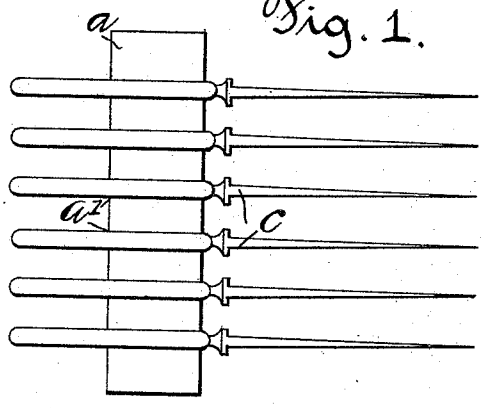


Fig. 2.

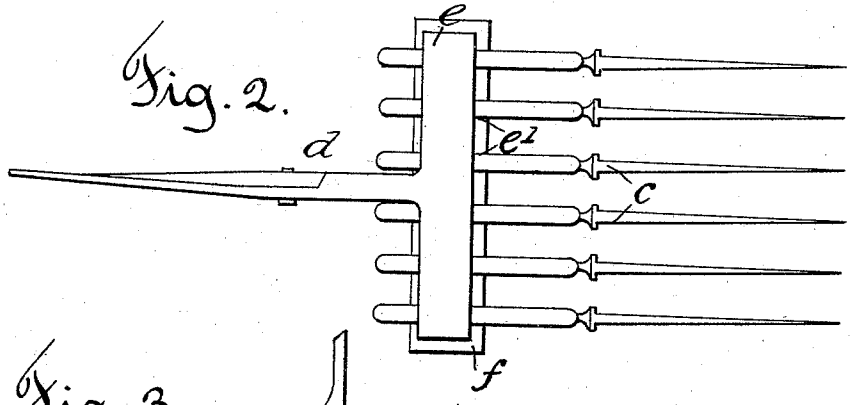
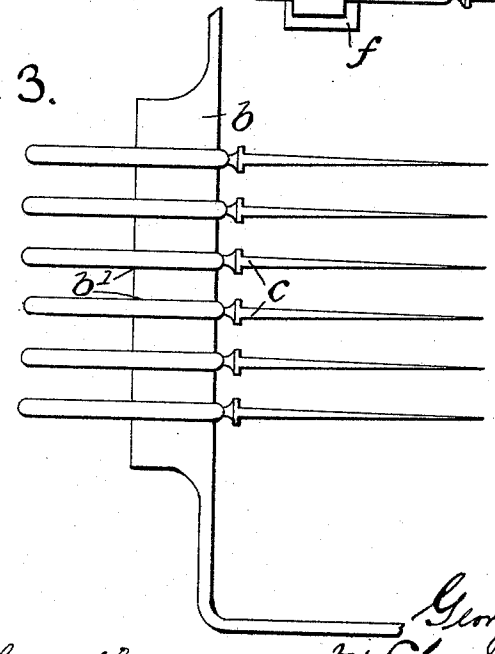


Fig. 3.



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UNITED STATES PATENT OFFICE.

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METHOD OF HARDENING CUTLERY.

SPECIFICATION forming part of Letters Patent No. 487,337, dated December 6, 1892.

Application filed May 17, 1892. Serial No. 433,276. (No specimens.)

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 new and useful Improvements in Methods of 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.

The object of my invention is to provide a method of hardening cutlery that will enable a saving to be made not only in the time employed in the hardening process, but also in the length of time that may be needed to keep the fire for the purpose.

To this end my invention consists in the method or process of hardening cutlery and in the details of the same, as more particularly hereinafter described, and pointed out in the claim.

Referring to the drawings, Figure 1 is a detail top view showing the filling-block with a number of blanks in place on a bench. Fig. 2 is a plan view showing the blanks held in a pair of tongs and being transferred to the holding-rack on the furnace. Fig. 3 is a detail plan view of the blanks in place on the rack of the furnace.

Before my invention it has been the custom in the manufacture of cutlery to place a blank on the edge of a furnace, holding it by suitable means until the blade has become thoroughly heated, and then remove the blanks one by one from the furnace and plunge them in a hardening-bath.

In the practice of my invention a filling-block *a* (see accompanying drawings) is placed on a bench or table in a convenient position to enable the blanks to be filled into the sockets *a'*, that are formed in the upper edge of the block, and to be removed from such filling-block by means of a suitable tool and placed in a holding-rack *b* on the edge of a furnace in proper position to hold the blanks with the blade portions over the fire. The filling-block *a* is provided with a number of sockets in its upper edge, which are adapted to receive and to hold in a somewhat regular position, with the blades extending all in one direction, a number of the blanks *c*, and the holding-rack *b* has a series of sockets *b'* substantially corresponding in interval and number with the sockets in the filling-blank.

Any desirable number of blanks (usually from twelve to forty-eight, according to the kind of work being done) are placed in the filling-block by the workman and then removed from such filling-block by means of the tongs *d*, that has the broad jaws *e f*, one of which has a series of sockets *e'* corresponding in number and interval with the sockets in the filling-block, and while held in such tongs the blanks are removed from the filling-block and placed in the sockets *b'* in the holding-rack *b* of the furnace. As soon as the blades are heated to the proper degree and extent they are lifted out of the holding-rack by means of similar tongs and while tightly grasped therein are removed from the furnace and placed in a suitable bath for hardening the blades.

Prior to my invention it has been the custom to place blades singly on the edge of a furnace and remove them singly from the furnace and plunge them in a hardening-bath. By providing a filling-block on a bench or table adjacent to the furnace and making the holding-sockets in both the block on the bench and in the rack on the furnace of equal number and interval so far as the spaces between the centers of the sockets are concerned and using the tongs with the duplicate sockets I am enabled in a given time (as actual experiment has shown) to do nearly three times the amount of work. Where the output of a shop in a given day has required a given number of furnaces and of hands to attend to the hardening, I have tested my within improvement in comparison with the old methods and have found that the work can be done with about a third the number of hands or the fires dispensed with for at least a half of each day, and a saving is thus effected not only in wages, but in cost of fuel.

It is preferred that the filling-block and the holding-rack shall each be provided with a number of sockets; but it is possible to practice the invention without regard to the breadth of the socket or whether one or more blanks are held in such socket. A single socket of a width sufficient to hold all of the blanks that are to be handled at once will

serve the purpose, the tongs of course having a socket or sockets corresponding to the socket or sockets in the holding-block and the rack.

I claim as my invention—

The improved method of hardening cutlery, which consists in placing the blanks in a filling-block on a table or like support, then simultaneously removing such blanks, as by means of tongs, from the filling-block on the table to a holding-rack on the furnace, and finally simultaneously removing the blanks from the furnace and plunging them in a hardening-bath, all substantially as described.

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