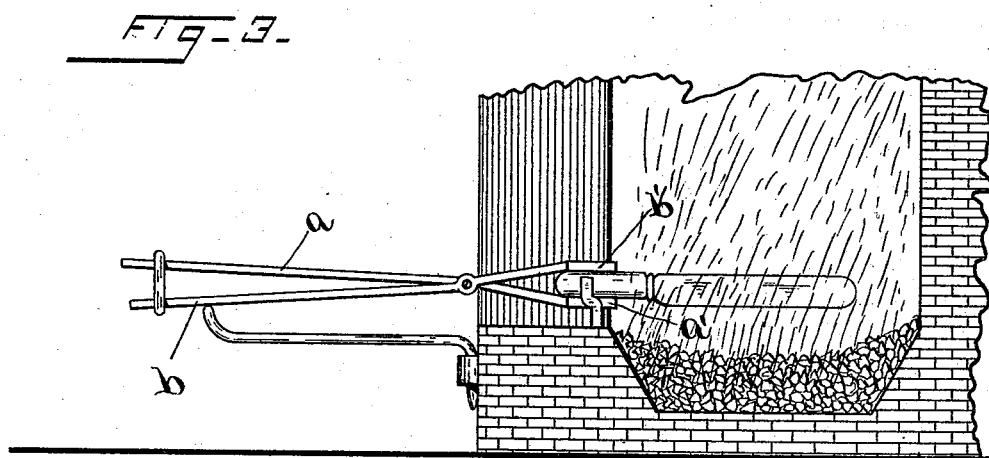
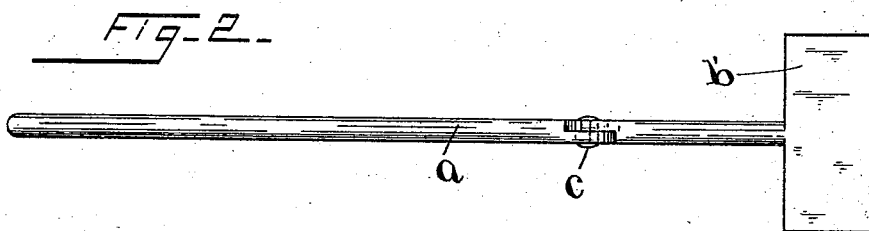
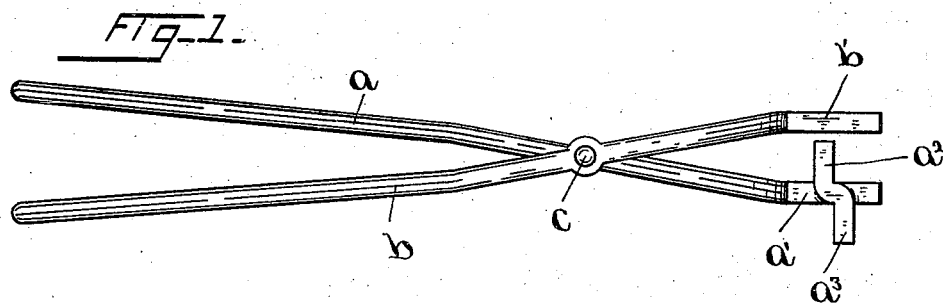


(No Model.)

G. W. WATROUS & C. B. SNOW.
TONGS FOR USE IN HARDENING CUTLERY.

No. 490,778.

Patented Jan. 31, 1893.



Witnesses

Benzo M. Luther.
Allen Terry

Inventors
George W. Watrous
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By Attorney
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UNITED STATES PATENT OFFICE.

GEORGE W. WATROUS AND CHARLES B. SNOW, OF NORWICH, CONNECTICUT.

TONGS FOR USE IN HARDENING CUTLERY.

SPECIFICATION forming part of Letters Patent No. 490,778, dated January 31, 1893.

Application filed September 12, 1892. Serial No. 445,610. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. WATROUS and CHARLES B. SNOW, both citizens of the United States, and residents of Norwich, New London county, Connecticut, have made certain new and useful Improvements in Tongs for Use in Hardening Cutlery, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings, in which—

Figures 1 and 2 are, respectively, side and plan views of tongs embodying said improvements and Fig. 3 illustrates the manner of using the same in connection with a hardening furnace.

The object of our invention is to provide special tongs, combining strength with lightness, by means of which a number of knives may be conveniently held during the operation of hardening and tempering.

Referring to the drawings $a-b$ denote the handles of our tongs, the same being formed of metallic bars connected in the usual manner by a bolt or screw c . The jaw of bar b is formed of a simple plate b' , extending transversely to the length of the complete tongs but the companion jaw a' is of peculiar construction for purposes which we will explain. Each end of the jaw a' is provided with two lateral projections, one of which a^2 extends toward the jaw b' and forms a stop to limit the movement of the jaws toward each other. Similar projections a^3 extend outward from the jaw a' and form legs or standards that serve to support the jaws, and cutlery held therein, in such manner that when placed in a furnace the products of combustion may

circulate freely around the jaws and cutlery (see Fig. 3). The projections a^2 also serve to support the cutlery against lateral displacement.

When it is desired to use tongs of our improved form to support knives during the operation of hardening, the handles of said knives are arranged side by side upon the lower jaw a' filling the space between the upright extensions a^2 . The handles $a-b$ are then grasped, the upper jaw or plate b' is firmly closed upon the upper edges of said handles and the knives are then introduced into the furnace, as in Fig. 3 where they are allowed to remain until properly heated when they are removed and plunged into a hardening bath of oil or other suitable material, being as easily held and controlled by the tongs as if the knives were handled separately. The projections a^2-a^3 are preferably formed integral with plate a' said plate being slitted near each end and turned upward and downward as shown.

We find that in practice tongs of our improved construction greatly facilitate the process of hardening.

Having described our invention, we claim:—

As an improvement in tongs, the combination of two plate-jaws, one having projections a^2 extending toward the companion jaw, and also outward projections a^3 forming feet to support the complete tongs, all substantially as specified.

GEORGE W. WATROUS.
CHARLES B. SNOW.

Witnesses:

FRANK H. ALLEN,
ALLEN TENNY.