(No Model.)

J. B. GREEN.

CRUCIBLE TONGS.

No. 341,473. Patented May 11, 1886.

Fig. 3.

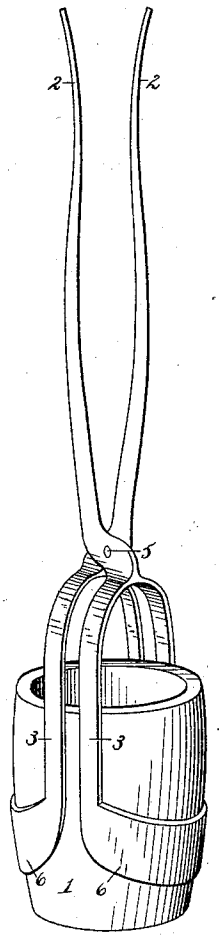


Fig. 1.

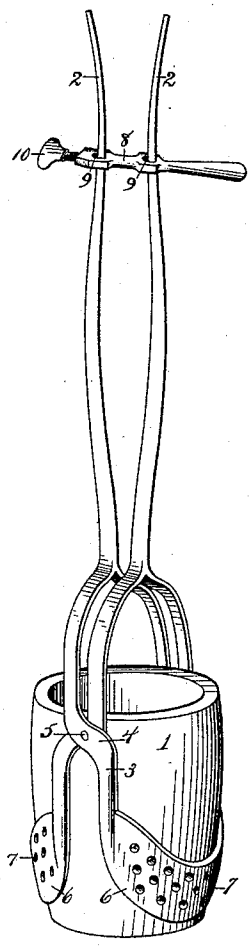
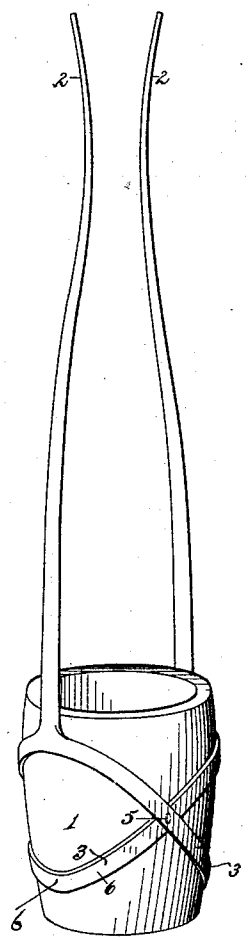


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

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CRUCIBLE-TONGS.

SPECIFICATION forming part of Letters Patent No. 341,473, dated May 11, 1886.

Application filed March 2, 1886. Serial No. 193,811. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. GREEN, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Crucible-Tongs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to improve the construction of crucible-tongs without in any manner increasing the expense of producing them, the especial object held in view being to produce tongs which will grip the crucible firmly and hold it securely, but which at the same time will not crush the crucible or press it out of shape, nor will the crucible have the slightest tendency to spring the jaws.

With these ends in view I have devised the novel construction of crucible-tongs of which the following description, in connection with the accompanying drawings, is a specification, numbers being used upon the drawings to indicate the several parts of the device.

Figure 1 is an elevation of a crucible, showing my novel tongs in elevation as applied thereto, and also showing the adjustable clamp which I use upon the handles. Fig. 2 is a similar view illustrating a slight change in the construction of the device, and Fig. 3 a similar view illustrating another change in the construction.

1 indicates a crucible. It will of course be understood that in use the crucibles are set down in the furnace and are subjected to intense heat, the metal within them being in a fluid condition when ready for removal. It is of course an essential requirement in tongs for this purpose that the handles shall be so constructed and so pivoted as to give ample room for skimming the surface of the molten metal in the crucible. The great objection to the tongs of this class now in use is, that they are so constructed that in order to get a firm hold upon the crucible they are obliged to clamp it with great pressure, the result being that large numbers of crucibles are destroyed or rendered unfit for use by being crushed out of shape. Another objection has been, that if the crucibles were made sufficiently strong to resist the pressure of the tongs it made them more expensive, added greatly to their weight and the consequent inconvenience of lifting them from the furnace, and, furthermore, that they tended to spring the jaws and flanges of the tongs out of shape. These objections are wholly overcome in my improved construction.

In Fig. 1 I have illustrated a construction in which the handles 2 of the tongs divide into branches 3 at a sufficient distance above the top of the crucible to allow ample room for skimming. These branches curve over the top of the crucible and extend downward substantially parallel with each other upon opposite sides thereof. About midway of the length of the branches they bend forward, as at 4, and cross each other, then extend downward substantially parallel with each other again, forming jaws 3. The branches of the handles on opposite sides are pivoted together at the point of intersection, as at 5. The exact location of the bend in the handles, and consequently the location of the pivots, is not an essential feature of my invention. The pivot may be slightly above the top of the crucible or slightly below it. I preferably so construct the jaws that the pivotal point will in use be slightly below the top of the crucible, as clearly shown in Fig. 1. This gives ample leverage upon the crucible, although this portion of the jaws does not press upon it, as will be more fully explained. As stated above, the lower portion of each jaw is parallel with its mate, the two pairs of jaws being diametrically opposite to each other when upon the crucible. The lower ends of the jaws extend downward about two-thirds of the distance from the top to the bottom of the crucible, and each jaw is connected with the nearest jaw upon the opposite side by a curved flange, 6. The contour of these flanges corresponds exactly with the external contour of the crucible, the bottoms of the flanges extending downward nearly to the bottom thereof. The object of this construction is to provide, as it were, a perfect cup, in which the crucible rests, and which holds it firmly, but which at the same time exerts no special pressure upon any portion of the crucible. The construction, in fact, is such that no great pressure can be brought to bear upon

any portion of the crucible, so that there is no danger of crushing it or of pressing it out shape, nor, on the other hand, is there the slightest danger of springing the jaws of flanges of the tongs out of shape.

7 indicates perforations in the flanges, which admit air to the surface of the crucible, so that heat is not held thereby, as it would be if the flanges were solid, nor are the flanges themselves as highly heated by the crucible.

8 indicates a clamp for holding the jaws in such a position as to retain the crucible. The body of the clamp is provided with two elongated openings, 9, through which the handles pass.

10 is a set-screw, which enters the clamp from one end, passes through to one of the openings, and when turned up bears against the handle in said opening, so as to hold the clamp firmly in any position in which it may be placed. The handles are curved inward from the top, then downward again, so that the pressure of the flanges upon the crucibles will be increased by forcing the clamp downward upon the jaws. This clamp, so far as I am aware, is novel, it being the only one which may be locked at any desired position upon the handles.

In the modified form illustrated in Fig. 2 the branches of the handles and the jaws are made continuous with each other. The handles extend down upon opposite sides of the crucible, below the top, then bifurcate, curve outward around the crucible, and unite with the jaws, which cross each other and are pivoted at the point of intersection. The jaws grasp the crucible in precisely the same manner as in the other form, the only difference being that the branches of the handles also press upon the crucible with sufficient firmness to assist in holding it securely in position.

In the form illustrated in Fig. 3 the flanges are formed substantially as in Fig. 1; but the jaws, instead of crossing each other, extend upward on opposite sides of the crucible, then curve over the top thereof and unite together. The jaws then curve forward, cross each other, being pivoted at the point of intersection, and unite with the handles, which then extend upward, as in the other form.

The essential principle in all the forms is, that the crucible is held without pressure in a cup formed by the flanges, being retained there by simply holding the jaws together.

It will of course be understood that the details of construction may be varied within reasonable limits without departing from the spirit of my invention.

I claim—

1. The bifurcated handles, which curve outward and downward, then extend forward, cross each other, and unite with the jaws, which latter then extend downward parallel with each other, being pivoted at the point of intersection, in combination with flanges secured to one jaw of each pair, said flanges being curved downward and outward, to correspond with the contour of the crucible, forming a cup in which the latter is held.

2. The combination, with the flanges and jaws of a crucible-tongs, of handles which curve inward, then outward, and a clamp having openings to receive the handles, and a set-screw which engages one of the handles, whereby the handles may be locked in any desired position to hold the crucible firmly.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN B. GREEN.

Witnesses:
A. M. WOOSTER,
C. E. RUGGLES.