UNITED STATES PATENT OFFICE.

OSCAR B. WILSON, OF COLLINSVILLE, ILLINOIS.

COATING STOCK-BELLS WITH BRASS.

SPECIFICATION forming part of Letters Patent No. 234,900, dated November 30, 1880.

Application filed July 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, OSCAR B. WILSON, of Collinsville, Illinois, have made a new and useful Improvement in Making Stock-Bells and Imparting the Tone Thereto, of which the following is a full, clear, and exact description.

Stock-bells, to give them the proper tone and appearance, and to render them more durable, are made of sheet-iron and coated with brass. The brass should be applied evenly to the bell, and especially to that portion near the mouth of the bell termed the "sound-bow." It is also desirable to apply as much brass as possible to the iron, and when the bell is finally withdrawn from the furnace, and is ready for tempering, it is important to chill it at as high a temperature as is practicable, for the higher the temperature at which the coated bell is chilled the better the tone imparted to the bell.

Now, in coating stock-bells with brass the practice hitherto has been as follows: The bells, finished saving the coating in question, are nested, particles of brass being placed in each bell and upon the outer side of the lowest bell in the nest. The nest is then generally put in an iron case, open at the top; but whether the iron case is used or not the nest is carefully wrapped in a wrapper made of red clay. While the clay wrapper is yet moist and plastic the package is put in the oven or furnace and subjected to the requisite heat for applying the brass to the iron. When at the proper temperature the package is withdrawn from the furnace and rolled around upon a floor for the purpose of distributing the molten brass and bringing it in contact with all parts of the bells. The package, as soon as the brass is distributed upon the iron, is plunged into cold water for the purpose of giving the tone to the bell. The package comes to pieces upon being thus chilled, the clay wrapper being destroyed.

This procedure is objectionable for several reasons. At least one-fourth of the bells are imperfectly coated, the clay wrapper is apt to crack, admitting air to the bells and preventing the brass from attaching to the iron, the upper bells in the nest nearly always being defective. The brass also escapes through the cracks in the wrapper and is wasted upon the furnace-hearth—in practice about one-half of the brass being lost. In order to supply sufficient heat it is often necessary to place charcoal within the package. The operation requires considerable labor, time, and fuel, the clay having to be baked, as well as the metal having to be heated. Moreover, after the package has been withdrawn from the furnace the clay wrapper cools rapidly during the rolling of the packages, and in consequence the bells have cooled somewhat before they can be tempered, and to that extent the tone of the bells is impaired.

To obviate all the various difficulties referred to, and to provide for properly and thoroughly and evenly coating stock-bells with brass, and without waste of material, and with much less expense, and at the same time to improve the tone of the bells, are the aim of this improvement, which is substantially as follows: The nest of bells, having the particles of brass, as before, in place of being wrapped in clay, as described, is put in a crucible of a shape suitable for holding the nest. The mouth of the crucible is then tightly closed with a clay cover and placed in the furnace. In a comparatively short time—about one-third of the time hitherto required—the bells are sufficiently heated to receive the brass. The crucible is then withdrawn from the furnace and rolled upon its side upon the floor, for the purpose of distributing the molten brass, as before described. The coated bells while highly heated are then plunged in cold water.

Not only is none of the brass lost during the operation, but, owing to the crucible retaining its heat much longer—from six to ten times as long as the clay wrapper above described—than the wrapper hitherto used, more of the brass adheres to the iron. The air is also effectually prevented from entering and coming in contact with the iron. The bells are thoroughly and evenly coated with brass, and without any roughnesses.

Further, and especially owing to the fact that the crucible retains its heat, as above described, more time is afforded for the rolling operation, and the bells, at the moment of tempering, are at a much higher degree of heat than when the clay wrapper is used, and

in consequence a better tone can be imparted to them.

In practice the clay cover inclosing the mouth is broken in and the nest of bells taken out of the crucible and then plunged in the water-bath, thus allowing the crucible to be used over and over again.

Any suitable cover for the crucible may be used in place of the clay cover named.

I claim—

The herein-described improvement in the mode of coating and toning stock-bells, which consists in inclosing, heating, and rolling the bells with brass in a crucible, and while highly heated plunging the coated bells in cold water, substantially as set forth.

O. B. WILSON.

Witnesses:
CHAS. D. MOODY,
JNO. N. STRAAT.