No. 732,804. PATENTED JULY 7, 1903.

C. P. WALTER.

CLOSURE FOR THE ENDS OF TUBING EMPLOYED IN METAL BEDS.

APPLICATION FILED MAR. 28, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

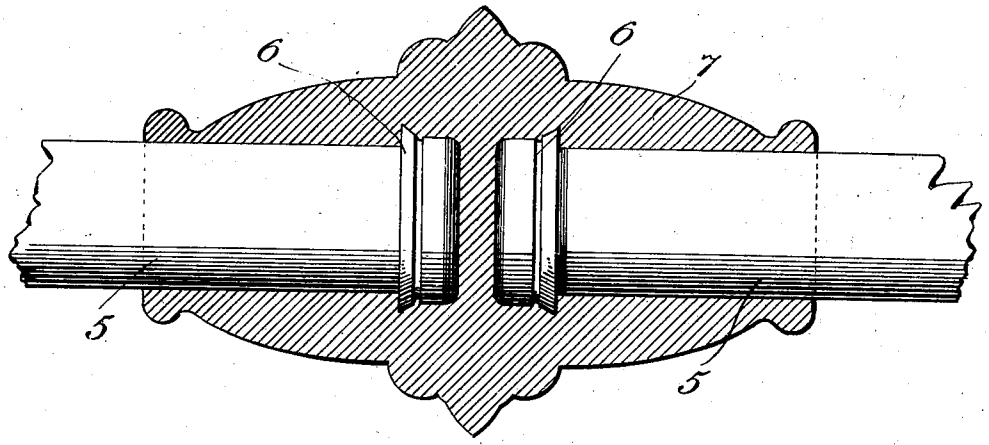


Fig. 1.

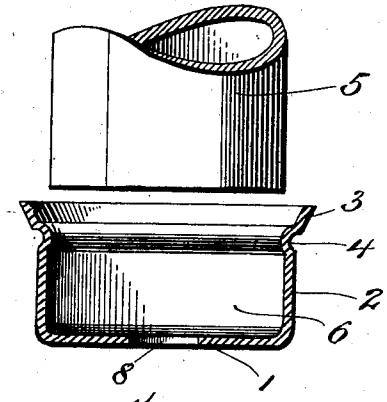


Fig. 2.

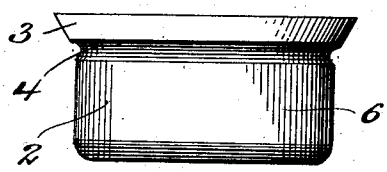


Fig. 3.

Witnesses:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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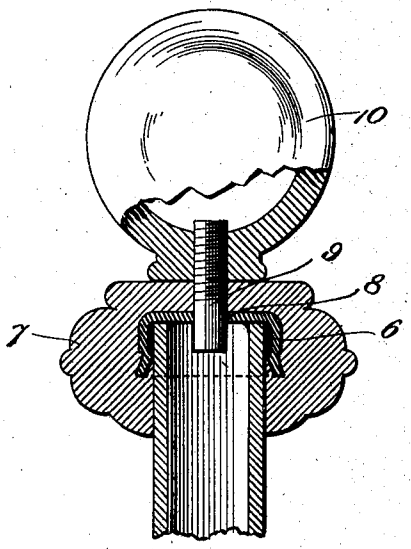
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APPLICATION FILED MAR. 28, 1903.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.



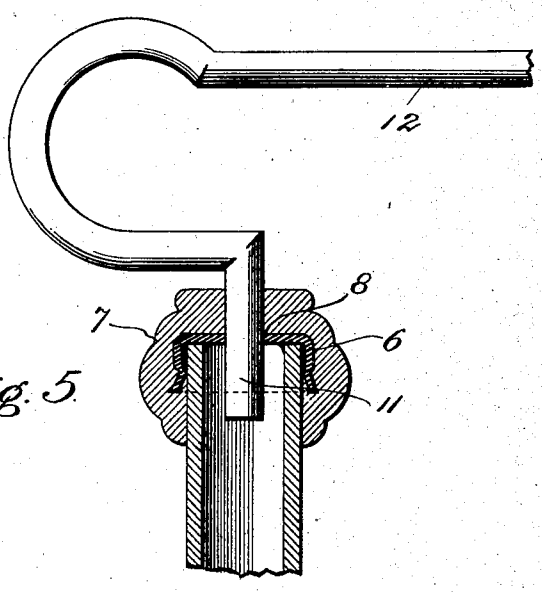


Fig. 5.

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No. 732,804. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

CHRISTIAN P. WALTER, OF CHICAGO, ILLINOIS.

CLOSURE FOR THE ENDS OF TUBING EMPLOYED IN METAL BEDS.

SPECIFICATION forming part of Letters Patent No. 732,804, dated July 7, 1903.

Application filed March 28, 1903. Serial No. 150,050. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN P. WALTER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Closures for the Ends of Tubing Employed in Metal Beds, of which the following is a specification.

This invention relates to improvements in the art of manufacturing metal beds, and refers more particularly to the method employed of connecting, by means of chills, the intersecting or meeting ends of the metal tubes employed therein. The usual method of connecting intersecting or ends of tubes in this class of beds is to place such intersecting parts or ends in metal molds and after closing the same and securing them in position to pour the hot metal in the molds, such metal after chilling forming the usual connection between the parts. For the purpose of preventing the hot metal gaining access to the tubes various means have been employed, the most usual being to plug the ends of said tubes. Such method, however, like all the rest, is subject to objections, one serious objection being that the plugs often split the tubes, so as to render the plugs inefficient for the purpose in view, so that on the whole, so far as I am aware, an efficient economic means for overcoming the evil and accomplishing the desired result has never been attained.

The objects of my invention, as will be surmised from the foregoing statement, are to produce a cheap, simple, and efficient means of permanently closing the ends of the tubes thus used, whereby access of the hot metal thereto will be impossible, and also to provide for accurately centering and firmly holding the bolt, on which is threaded the usual brass ball employed at the top of a post or the end of a bent or scroll-like form.

My invention, as will hereinafter appear, consists in a metal cap designed to be applied permanently to the ends of the tubes and to conform to the usual variance therein and to effectually prevent the ingress of the hot metal, whereby the process of applying the chills is facilitated and cheapened and a better joint made possible, and also in a perforated cap similarly constructed and adapted to receive the end of a threaded stud or bolt or the stem of a scroll-like form.

Referring to the drawings, Figure 1 is a longitudinal sectional view of a chill and the meeting ends of two tubes connected thereby, the latter being shown in side elevation and provided with my invention. Fig. 2 is a longitudinal sectional view of my cap, the same being shown enlarged and before application to the end of a tube. Fig. 3 is an elevation of the cap shown in Fig. 2 and, as in said figure, shown enlarged or exaggerated. Figs. 4 and 5 are views similar to Fig. 1, illustrating the manner of employing the cap for centering and supporting the ball-supporting stud of a post and the stem of a scroll-like form.

Similar figures of reference indicate similar parts in all the figures of the drawings.

As will be readily understood, the cap hereinafter described may be most conveniently struck up from sheet metal, and it will also be understood that it is my intention to supply the same to the manufacturing trade in different gages to suit manufacturers employing both large and small tubing.

The cap consists of a circular base 1 integral with and struck up from which is a surrounding annular wall 2 of suitable depth. The article thus formed constitutes a blank, which is submitted to the operation of a series of transversely-approaching segmental crimpers and a descending die, both of which form parts of an organized machine devised for the purpose, and as a result of which operation there is produced at the upper end of the wall a flare 3 and immediately below the same an internal bead or annular swell 4.

Of course I do not mean to limit my invention to the manner herein suggested for producing the same, as the bead and flare may be produced in any simple and desired manner, such merely being a suggestion of one way of accomplishing the end in view. Again, I do not wish to limit the invention to the integral form of cap, though I deem such integral form as the most practicable form.

In practicing the invention a cap of suitable gage is applied to the end of each of the tubes to be joined by the chill, a hammer being employed for setting the caps in position,

so that the latter having a driving fit the ends of the tubes are thus successively closed. The internal diameter of the caps about agree with the external diameter of the tubes to which they are fitted, and consequently the diameter of the caps at the beads 4 is slightly less than the external diameter of the tubes. The tubes being split, the edges of the latter are drawn snugly together, and also any irregularities in the tube, in so far as its annulation is concerned, which is often the case, is compensated for. So, also, is any variation in the diameter of the tube compensated for, so that as a result the tube is made snug and tight at the point where the chill is to be formed.

In Fig. 1, 5 5 designate two tubes, 6 the caps, and 7 the metal chill formed around the caps and tubes, all as will be readily understood by those familiar with metal-bed construction.

In Fig. 4 I have illustrated how the cap may be utilized in centering and connecting the ball-supporting stud on the upper end of a corner-post. In this instance the cap is formed with a center aperture 8, into which the stud 9 is snugly fitted and the chill cast therearound, as before described. The upper end of the stud or bolt is threaded, as is usual, and the brass ornamental ball 10 screwed thereon. So, also, in Fig. 5 the cap is formed with the central aperture 8, the aperture receiving in this instance the stem 11 of scroll-like form 12.

Having described my invention, what I claim is—

1. A joint employed in metal beds, consisting of a plurality of tubes, caps closing and fitting over the ends of said tubes, and a chill formed about the ends and caps.

2. A joint employed in metal beds, consisting of a plurality of tubes, a cap having a driving fit on each of said tubes and closing the end thereof, and a chill formed about said closed ends and caps.

3. As a new article of manufacture, a closure-cap adapted to be applied to the end of a tube in metal-bed manufacturing, preliminary to the application of the chill and to be inclosed thereby, the same comprising a circular end and an annular surrounding wall terminating in its open end in a flare.

4. As a new article of manufacture, a closure-cap adapted to be applied to the end of a tube in metal-bed manufacturing, preliminary to the application of the chill and to be inclosed thereby, the same consisting of a circular end and an annular surrounding wall terminating at its open end in a flare and intermediate the wall provided with an internal bead.

5. As a new article of manufacture, a closure-cap adapted to be applied to the end of a tube in metal-bed manufacturing, preliminary to the application of the chill and to be inclosed thereby, the same consisting of a circular end and an annular surrounding integral wall provided with flared edge.

6. As a new article of manufacture, a closure-cap adapted to be applied to the end of a tube in metal-bed manufacturing, preliminary to the application of the chill and to be inclosed thereby, the same consisting of a circular end and a surrounding annular wall provided with an internal bead or swell.

7. As a new article of manufacture, a circular closure-cap adapted to be applied to the end of a tube in metal-bed manufacturing, preliminary to the application of the chill and to be inclosed thereby, the same comprising a flared wall having an internal bead or swell and an apertured bottom adapted to receive a stud or stem.

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

CHRISTIAN P. WALTER.

Witnesses:
F. J. JENG,
E. J. SCHAGER.