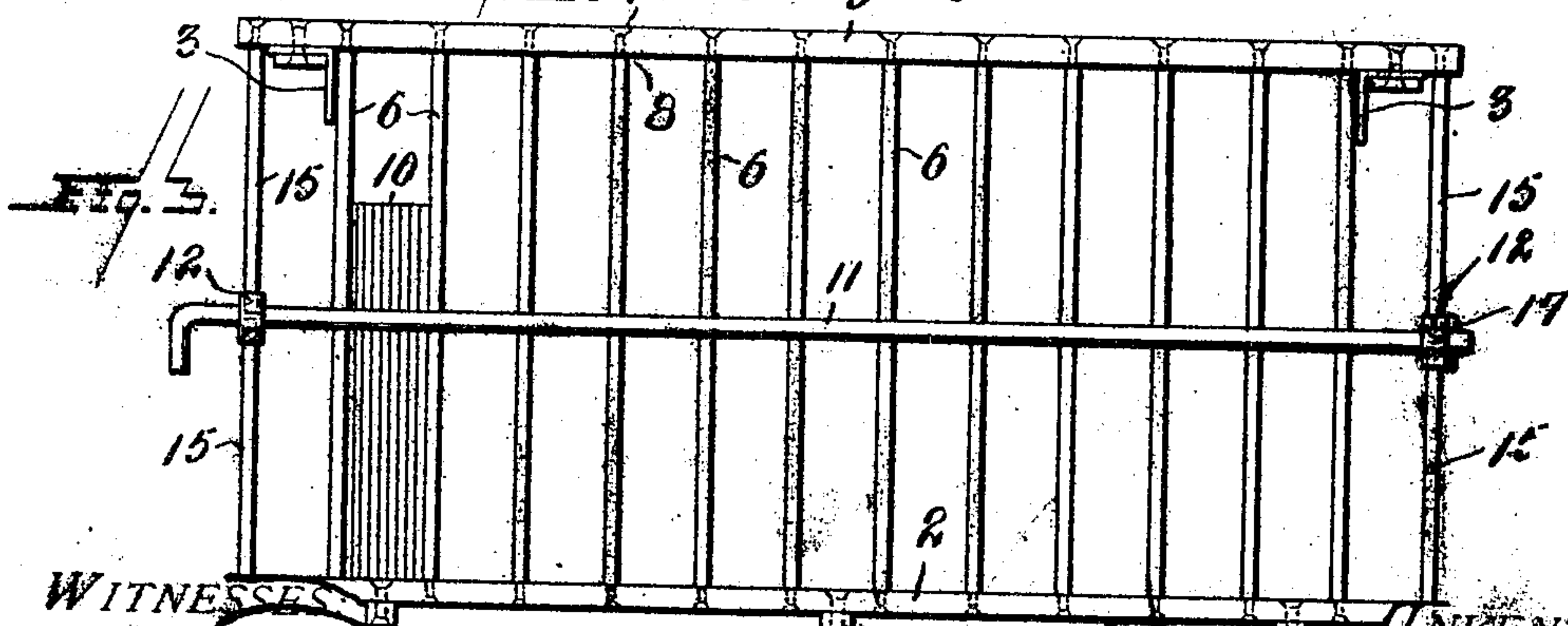
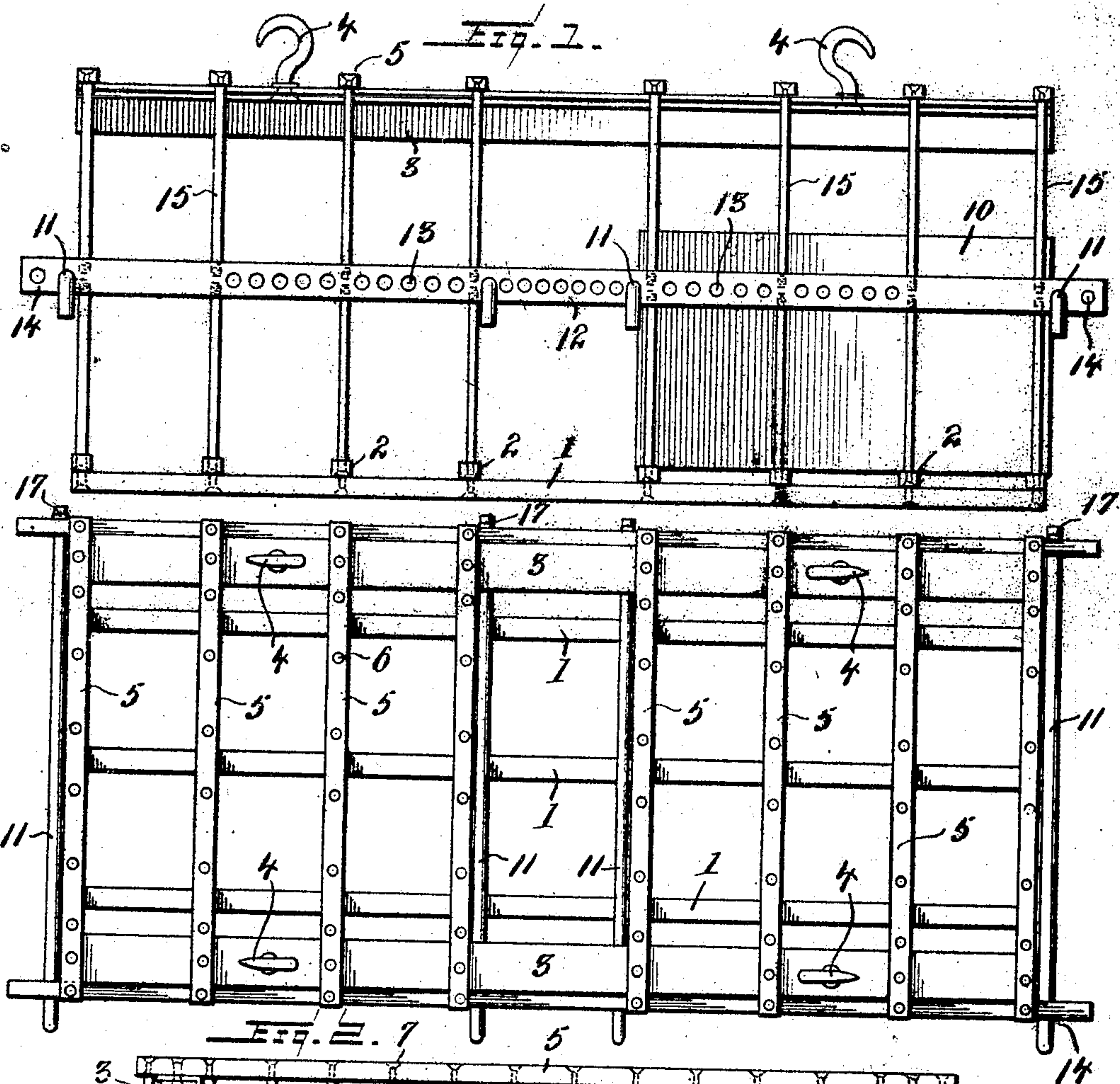


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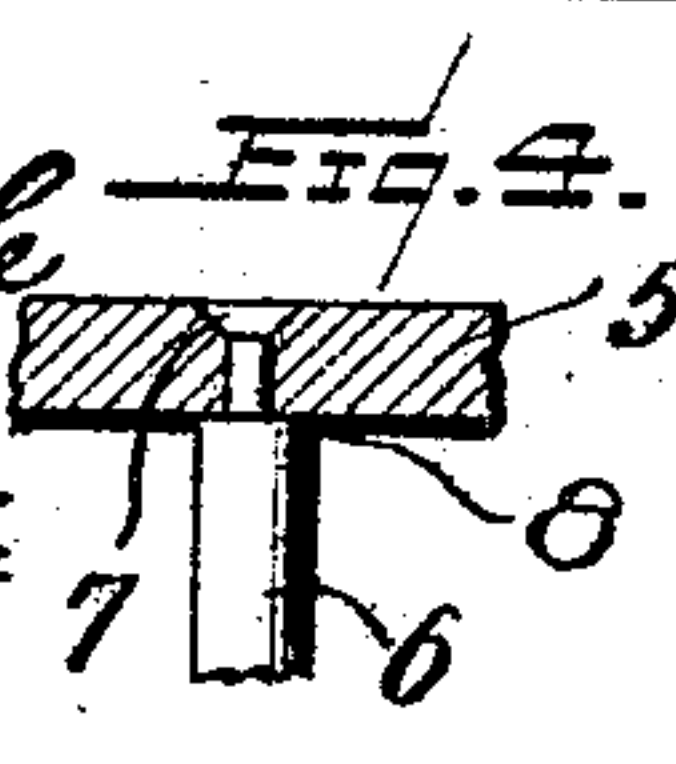
W. H. RICHARDS.
PICKLING CRADLE.

APPLICATION FILED JUNE 16, 1906.



WITNESSES

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WILLIAM H. RICHARDS, OF CANONSBURG, PENNSYLVANIA.

PICKLING-CRADLE.

No. 837,120.

Specification of Letters Patent.

Patented Nov. 27, 1906.

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To all whom it may concern:

Be it known that I, WILLIAM H. RICHARDS, a citizen of the United States, residing at Canonsburg, in the county of Washington, State of Pennsylvania, have invented certain new and useful Improvements in Pickling-Cradles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a pickling-cradle, and particularly to a device of this character adapted for carrying plates to be submerged in a pickling-vat.

The invention has for an object to provide a novel and improved construction of the crate by which the same is materially strengthened to resist the pressure of the plates carried thereby during the pickling operation and also provided with adjustable means by which said plates may be held against any horizontal movement upon each other or relative to the cradle and also supported vertically, thus adapting the cradle for use with plates of any height therein.

Other and further objects and advantages of the invention will be hereinafter set forth, and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a side elevation of the cradle. Fig. 2 is a plan thereof. Fig. 3 is an end view. Fig. 4 is a detail section showing the riveted rods, and Fig. 5 is a similar view showing the attachment of the rods to the holding-bars carried thereby.

Like numerals of reference indicate similar parts throughout the several views of the drawings.

The cradle may be composed of any desired material, preferably of cold-rolled brass, and of any desired size or configuration. As showing a preferred construction of parts I have illustrated a series of longitudinally-extending bars 1, connected at intervals by cross-bars 2, to form a base for the cradle, the top of which is formed from longitudinally-extending bars 3, preferably of angle construction, as shown, and which are provided at each side with the connecting devices, such as hooks 4, to receive a chain extending to the lifting means. Between these bars 3 a series of cross-bars 5 are disposed and lie in alinement with the bars 2, to which they are connected by means of the vertically-disposed rods 6, secured to the bars in any desired manner, but preferably by riveting or enlarging the heads 7 of the bars, as shown

in Fig. 4, so as to fill a recess in the cross-bar and to provide a bearing-shoulder 8 against the opposite face thereof, so that the rod 6 will be retained against any relative movement to the opposite cross-bar, which it connects. By this means an absolutely rigid construction of cradle is secured, in which the danger of damage or breakage from the weight of the plates is entirely avoided, and the latter firmly supported for their entire height by contact with the bars 6, thus preventing the bending over of the tops of the plates by their movement in the acid-bath.

The plates 10 are inserted in batches at the ends of the cradle and between the vertical bars thereof, which form a series of pockets, while for the purpose of retaining these inserted plates against longitudinal or endwise movement in the cradle-holding pins 11 have been provided and are mounted at their opposite ends in the holding-bars 12, which are provided with a series of apertures 13, so as to permit an extending adjustment of these pins for plates of different lengths. The free ends of this bar 12 are also provided with apertures 14 to receive the holding-pins in contact with the outer ends of the plates when inserted. This holding-bar may be mounted in various manners, preferably by means of a series of rods 15 at each side of the cradle, which are threaded into the bar 12 at their ends 16, while the outer ends thereof are riveted to the cross-bars 5, as shown in Fig. 4. This method of connection supports the holding-bar against any motion, and thus renders the position of the pins absolute, when adjusted to the length of the plate to be held. The holding-pins may be retained in position when inserted by any suitable means—for instance, a cotter or linch pin 17, inserted therethrough.

In the operation of the invention the plates are inserted from the end of the cradle, which has been found the most convenient and economical method of handling the plates, and the holding-pins then inserted in position so as to contact with the ends of the plates to retain them against any movement longitudinally of the cradle. The plates or sheets are disposed in side contact with the vertical bars or rods of the crate, as shown in Fig. 2, and are thus effectually held against bending over the top, which frequently occurs when the plates extend above the holding means and is due to the pressure of the liquid in the vat during the movement of the

cradle therein. This arrangement also prevents the plates from overlapping the bars, and when so bent throwing out the acid from the vat, thus causing loss and waste, besides
 5 damaging the sheets and delaying the work, as they are thus rendered impracticable for plating purposes.

The construction of the cradle is such that the weight is removed from the corner-posts
 10 and carried by the cross-bars, which, being connected by the vertical rods, form the series of pockets and provide an absolutely rigid and strong construction in which the walls of the pockets are retained in proper alinement
 15 for the ready introduction of the plates or sheets therein, while the riveted connection between these parts prevents any liability of breakage or disconnection which frequently occurs in the ordinary construction of cradle
 20 from cast-brass or other acid-proof material. This construction practically increases the number of pockets or receptacles in the cradle from thirteen to fifteen in a cradle of the same outside dimensions and a carrying capacity of twenty per cent. more plates, due to
 25 the light construction of the rods and other parts which is permitted, while the actual weight of the cradle to be lifted is thereby greatly reduced. This construction of rigid
 30 cradle prevents a rocking motion of the plates while the cradle is in motion, but keeps the plates practically upright, which is essential in the pickling process in order to give the acid an opportunity to work between
 35 each individual plate and clear the same in the most efficient manner, which is a great saving of the acid and also prevents spilling of the plates into the acid, which destroys both the plates and the acid.

40 Having now described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. A cradle comprising top and bottom bars at the opposite sides thereof, a series of
 45 cross-bars, vertically-disposed series of rods connecting the cross-bars at the top and bottom of the cradle to form parallel series of open-ended pockets extending for the height thereof and holding means extending across
 50 said pockets and adapted to be released from holding position.

2. A cradle comprising top and bottom

bars at the opposite sides thereof, a series of cross-bars, vertically-disposed series of rods
 55 connecting the cross-bars at the top and bottom of the cradle to form parallel series of pockets extending longitudinally thereof, holding-bars disposed at the opposite sides of the cradle, and holding-pins adjustably
 60 mounted in said bars.

3. A pickling-cradle comprising top and bottom bars at the opposite sides thereof, series of cross-bars, vertically-disposed rods provided at their opposite ends with a shoulder in contact with the cross-bars and a riv-
 65 eted head extending through said bars, holding-bars at the opposite sides of the cradle, supporting-rods carried by the cross-bars and threaded into said holding-bars, and holding-pins adjustably mounted in said bars. 70

4. A pickling-cradle comprising supporting-bars, vertical rods extending between the same to form a series of open-ended pockets, and removable holding means extending
 75 transversely of the cradle to engage the ends of the plates inserted therein.

5. A pickling-cradle comprising supporting-bars, vertical rods extending between the same to form a series of pockets, apertured holding-bars at each side of the cradle, and a
 80 holding-pin inserted through said bars.

6. A pickling-cradle comprising supporting-bars, vertical rods extending between the same to form a series of pockets, apertured holding-bars at each side of the cradle, a hold-
 85 ing-pin inserted through said bars, end portions of the holding-bars extending beyond the cradle and provided with adjusting-apertures, and holding-pins inserted in said end portions. 90

7. In a pickling-cradle, a frame provided with a series of ways or pockets therein, means carried by said frame to contact with the end of a plate or sheet inserted in said pocket, and removable means to engage the
 95 opposite end of said plate to retain it in position.

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

WILLIAM H. RICHARDS.

Witnesses:

CHARLES REESE, Jr.,
 W. J. REESE.