

J. W. GLADSTONE.
OXID PLATE FOR PRIMARY BATTERIES.
APPLICATION FILED NOV. 8, 1904.

988,934.

Patented Apr. 4, 1911.

Fig. 1

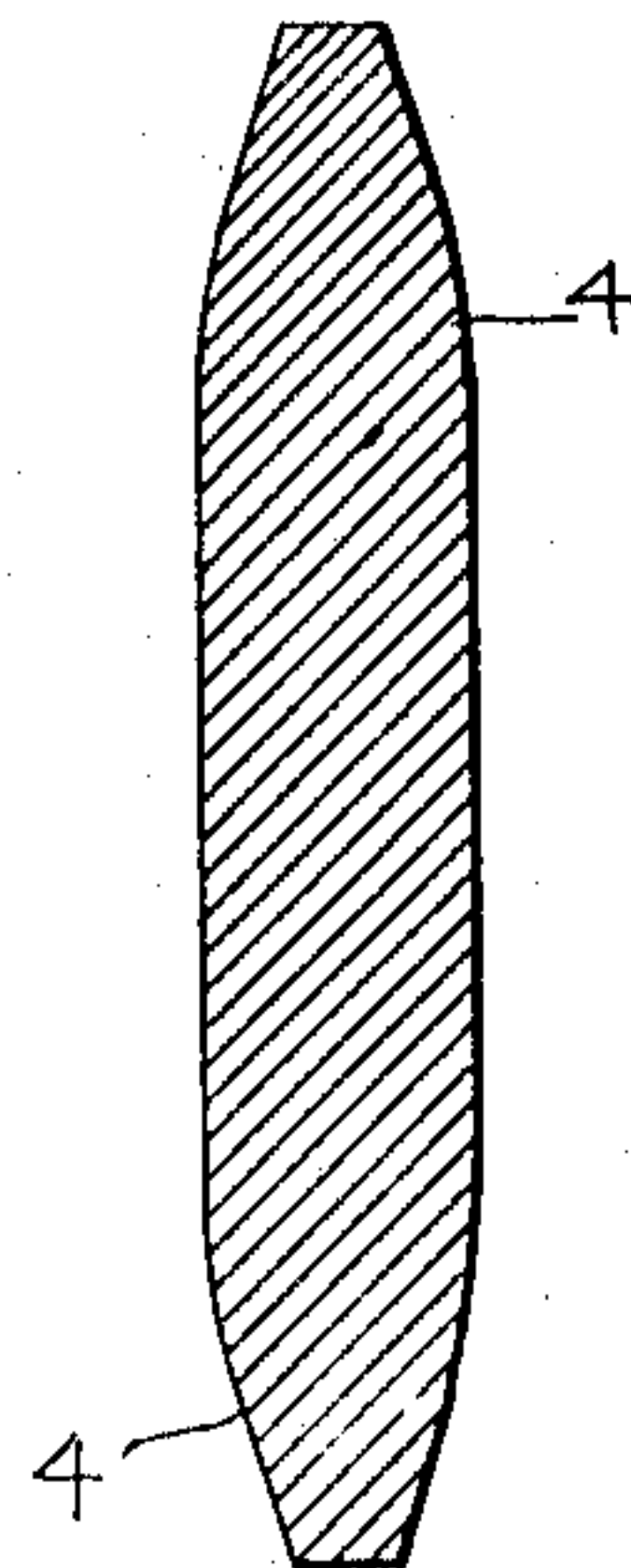
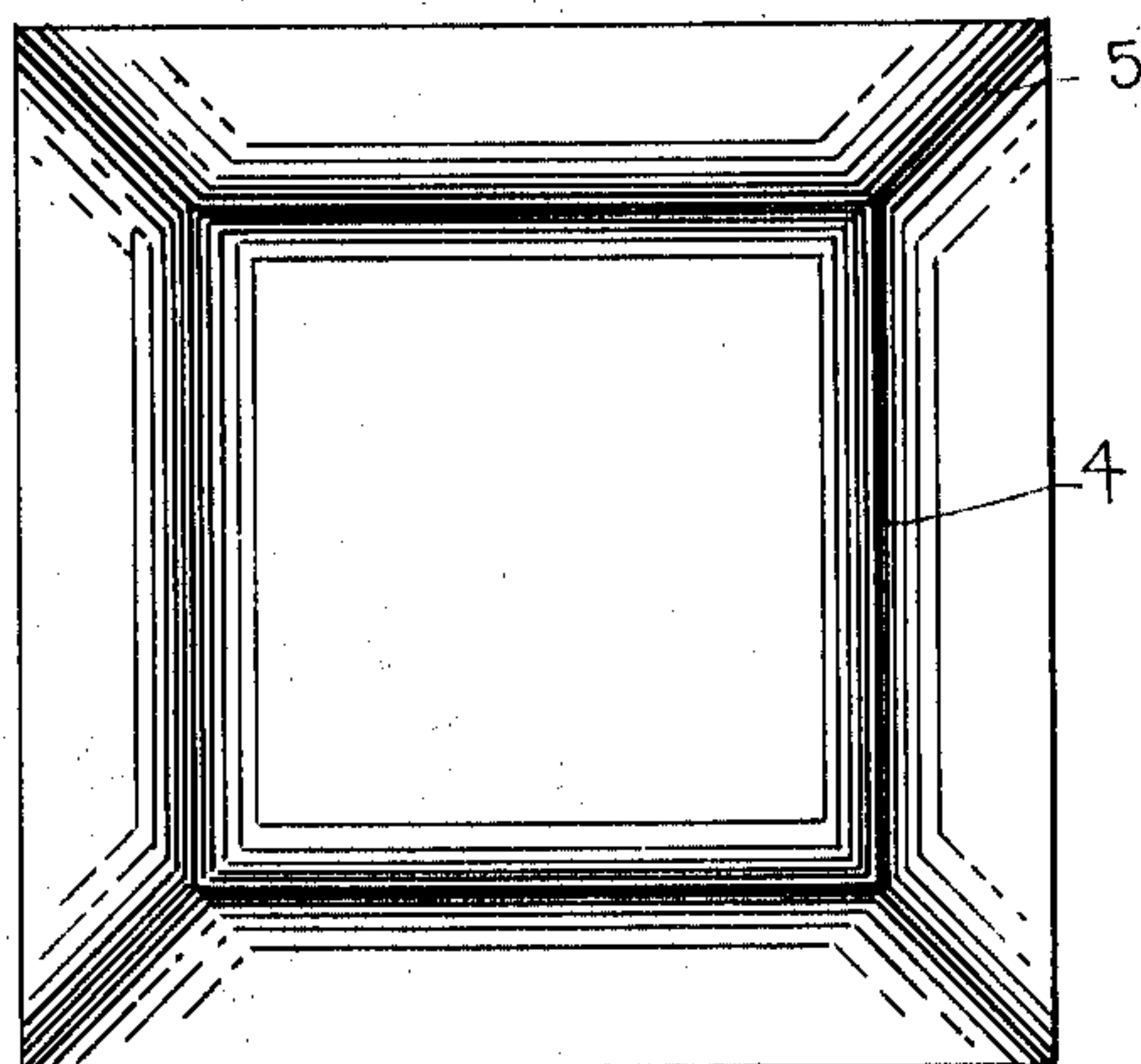


Fig. 2

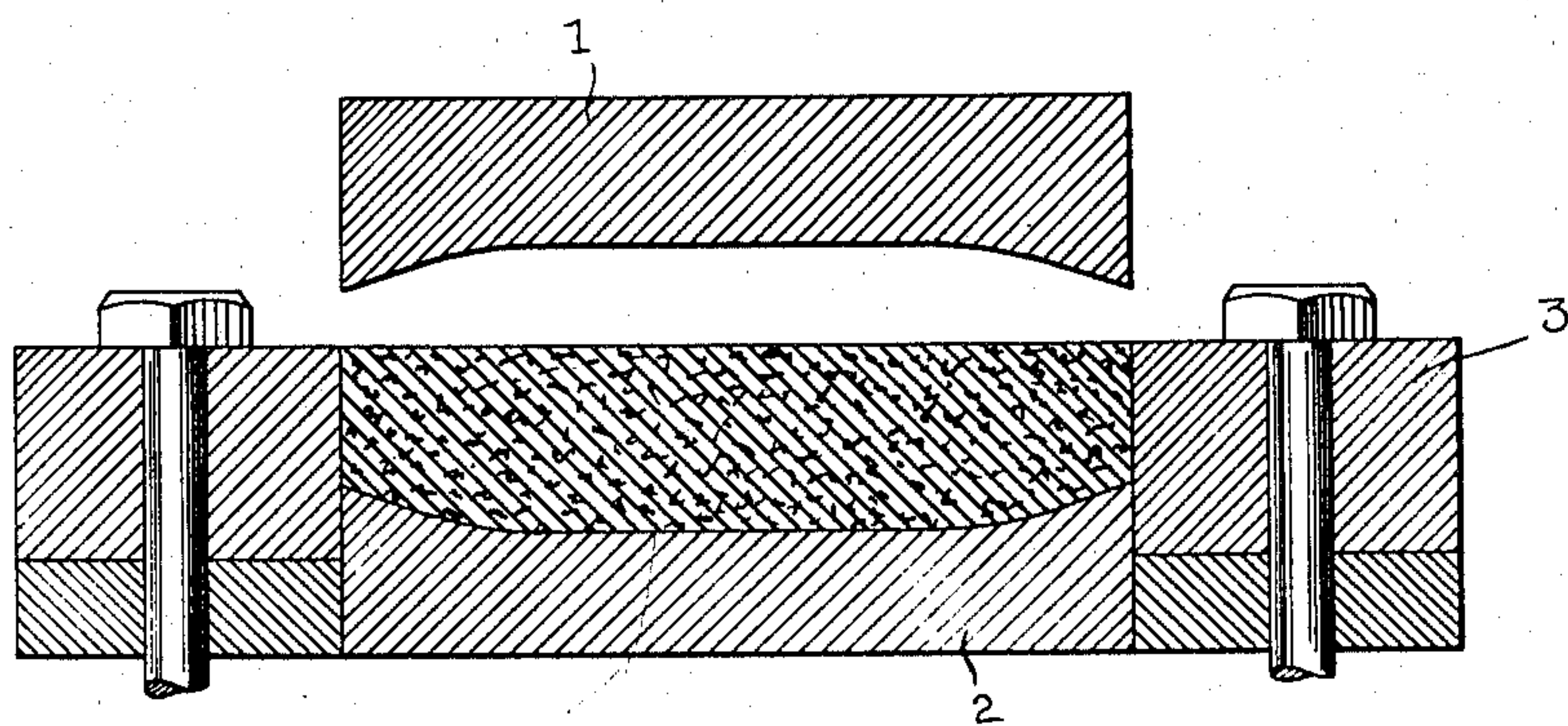


Fig. 3

Witnesses:
Robert M. Sutphen.
Dyer Smith

Inventor:
James W. Gladstone
by Frank L. Brown
His. Atty.

UNITED STATES PATENT OFFICE.

JAMES W. GLADSTONE, OF WEST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THOMAS A. EDISON, INCORPORATED, OF WEST ORANGE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

OXID PLATE FOR PRIMARY BATTERIES.

988,934.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed November 8, 1904. Serial No. 231,852.

To all whom it may concern:

Be it known that I, JAMES W. GLADSTONE, a subject of the King of Great Britain, and a resident of West Orange, in the county of Essex and State of New Jersey, with post-office address West Orange, New Jersey, have invented certain new and useful Improvements in Oxid Plates for Primary Batteries, of which the following is a specification.

My invention relates to the construction of compressed oxid plates for primary batteries and more particularly to such plates when composed of copper oxid molded by being mixed with a slight amount of alkaline water and hardened or agglomerated by heating to a red heat.

The object of my invention is to form such a plate having a protecting edge of greater density than the interior portions thereof whereby the main body of the plate is protected by a comparatively hard protecting edge so formed as to obviate danger of the edge chipping and breaking away from the main body of the plate.

Reference is made to the accompanying drawings wherein:

Figure 1 is an elevation of my new plate; Fig. 2 is a vertical section through the center thereof; and Fig. 3 is a transverse section of the press or die preferably used in manufacturing said plate.

The press for forming the plates is composed of upper and lower dies 1 and 2 and a die 3 extending around the die 2 which forms side walls therefor. The lower die 2 is of the configuration shown and the material which goes to make up the plate is placed in the pocket formed by the dies 2 and 3.

The upper die 1, which is held in and operated by a suitable press is of the same configuration as the die 2 and is adapted to be forced into contact with the material which forms the plate as shown in Fig. 3.

The adjacent faces of the dies 1 and 2 are of the shape shown in Fig. 3 whereby when the dies are brought together and the material compressed there results a plate the

peripheral portions of which have been more fully compressed than the interior portion.

The result of the operation is the production of a compressed plate having a perfectly uniform condensed strengthening edge all the way around; each edge forms a frame, the edges of which are compressed the most, while said frame gradually merges in a decreasingly dense state into the main portion of the plate. As will be seen the desired result can be obtained without the use of any special skill or care in the disposition of the material in the mold so that the plate may be more cheaply produced and with more uniform results. To further avoid the liability of chipping on the face of the plate, or cracking in the process of manufacture, I propose to round the corners where the bevel of the edges joins the face of the plate so that the one surface shall gradually merge into the other. This is indicated by the shading at 4, Fig. 1, and is shown in the sectional view, Fig. 2. The same gradual merging or rounding may also exist at the corners where the bevel edges meet as at 5. The additional advantage of this form of plate is that in the process of making the plate the pressure on the material does not change abruptly from the beveled portion where the reduction of thickness and hence the pressure is greater to that upon the plane face of the plate where the compression and condensation are less and hence the consequent liability of cracking is materially lessened.

Having described one embodiment of my invention what I claim and desire to protect by Letters Patent is:

As an article of manufacture, a compressed copper oxid plate having the main body thereof of uniform thickness and density and with all the edges thereof merging gradually from the said main body to an extreme outside edge of uniform lesser thickness and uniform greater density than said main body, the plane of the main body of said plate sloping or merging gradually to said outside edges without abrupt change of surface and the density of the main body of

said plate merging gradually into said outside edges without abrupt change of density whereby the main body of the plate is protected by a comparatively hard protecting
5 edge so formed as to obviate danger of chipping and of breaking from the main body of the plate.

Signed at New York in the county of New York and State of New York this 1st day of November A. D. 1904.

JAMES W. GLADSTONE.

Witnesses:

C. F. TISCHNER, Jr.,
A. FRANKENTHAL.