

E. DEL MANZO.
TIE PLATE.

(Application filed June 1, 1901.)

(No Model.)

Fig. 1.

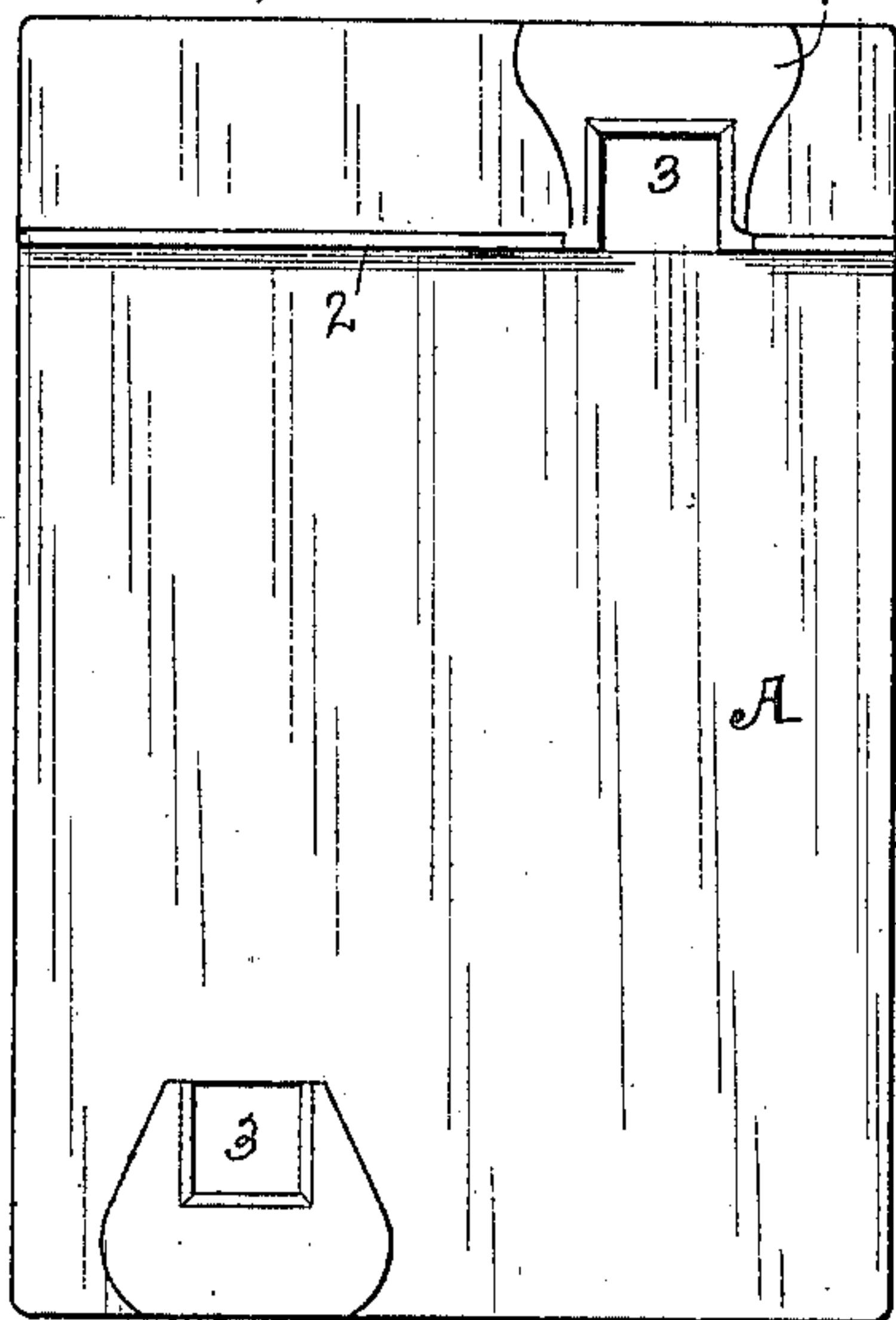


Fig. 3.

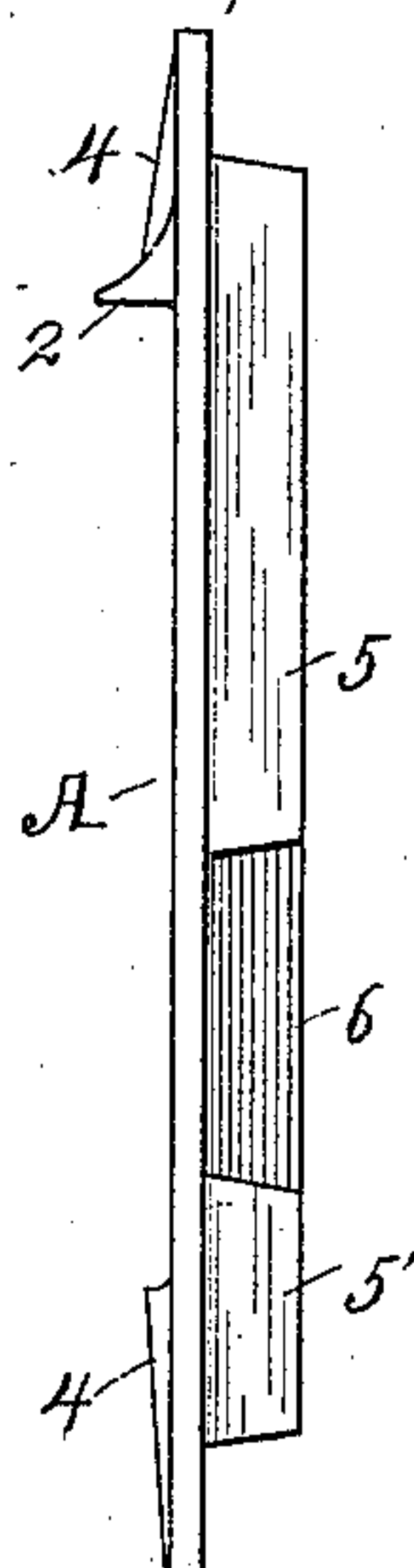


Fig. 2.

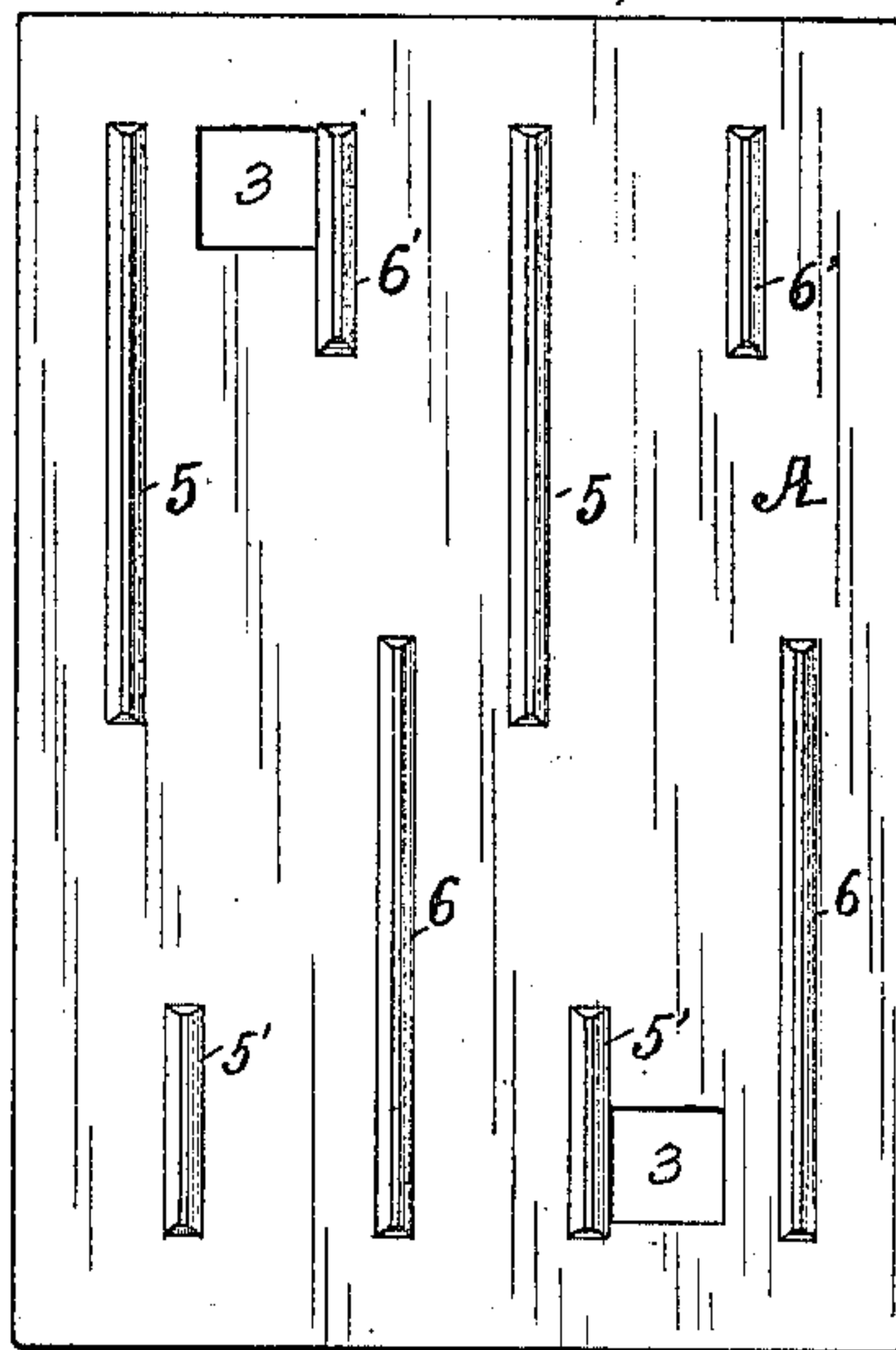


Fig. 4.

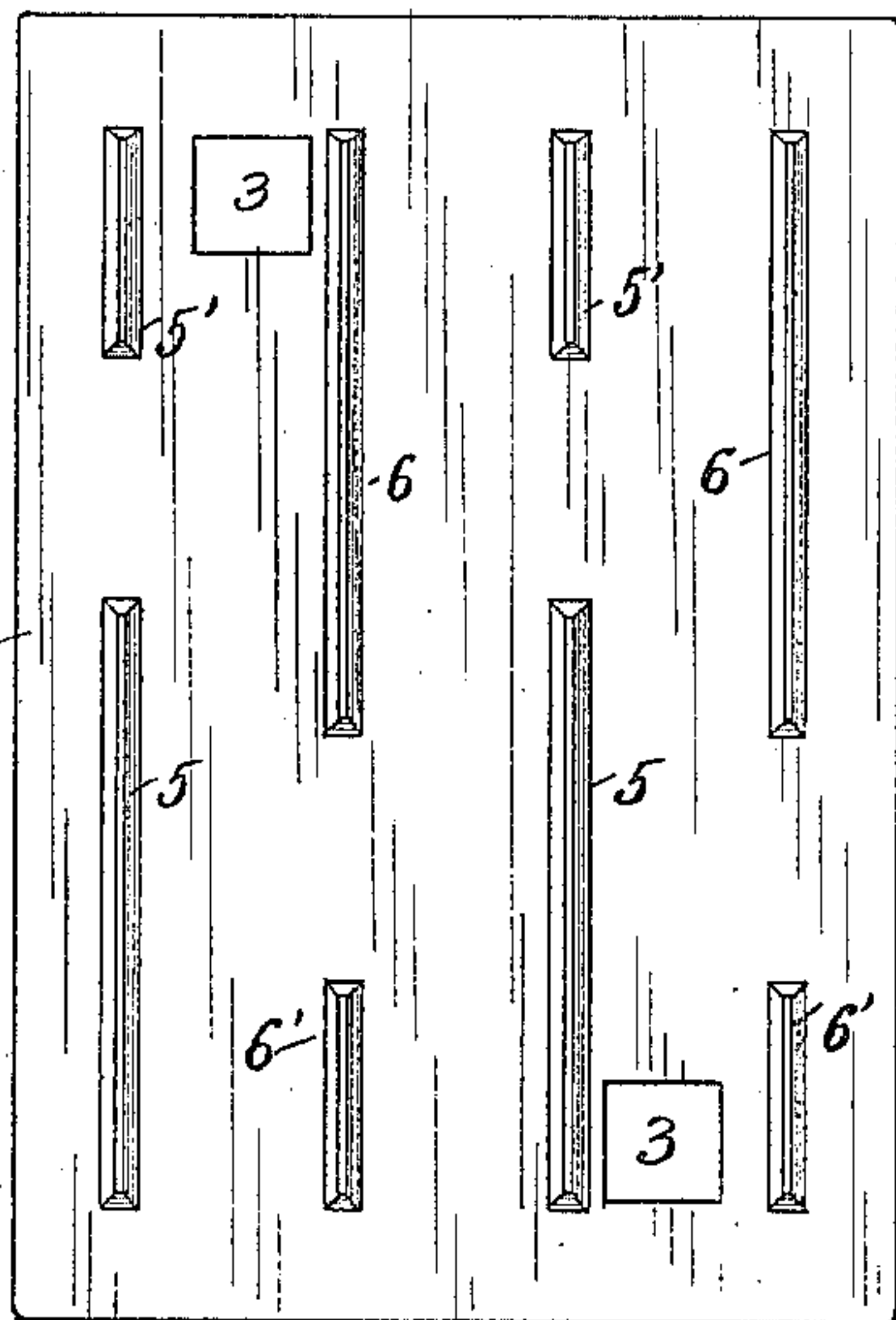
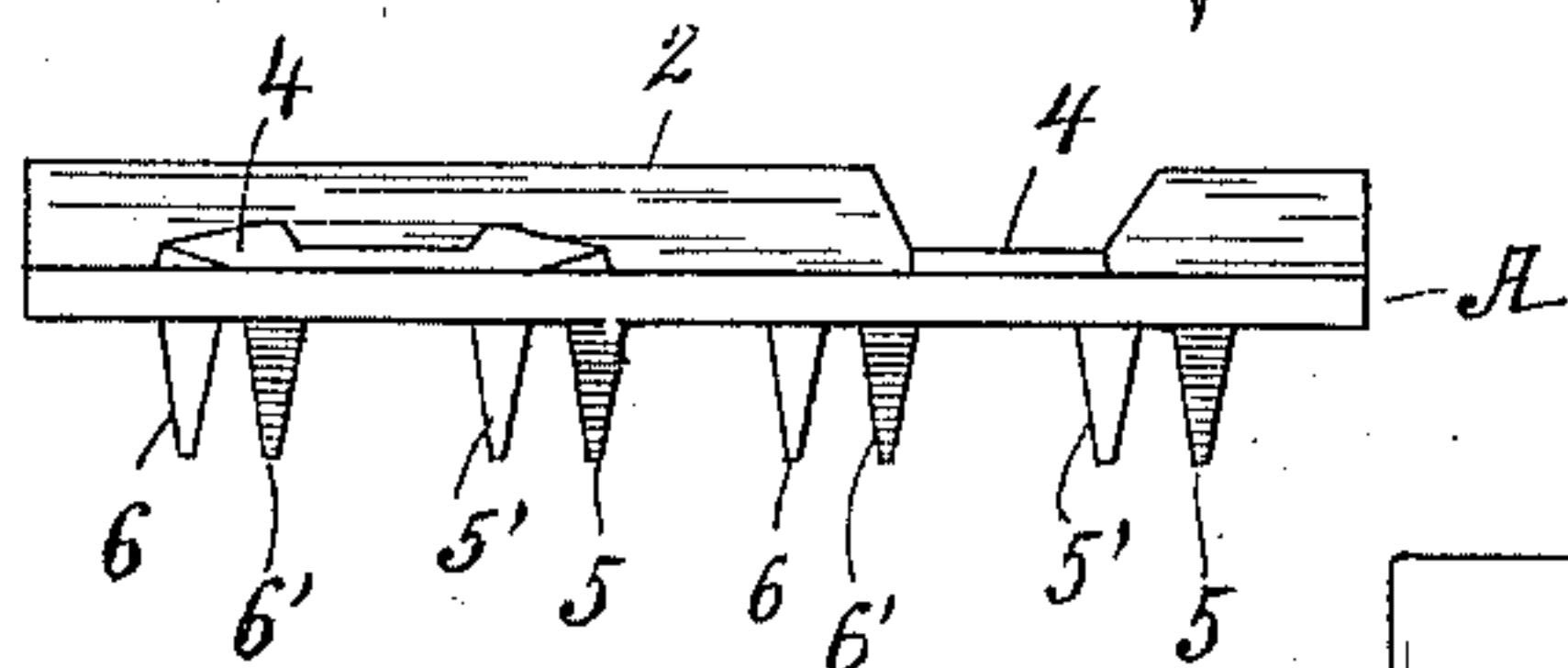
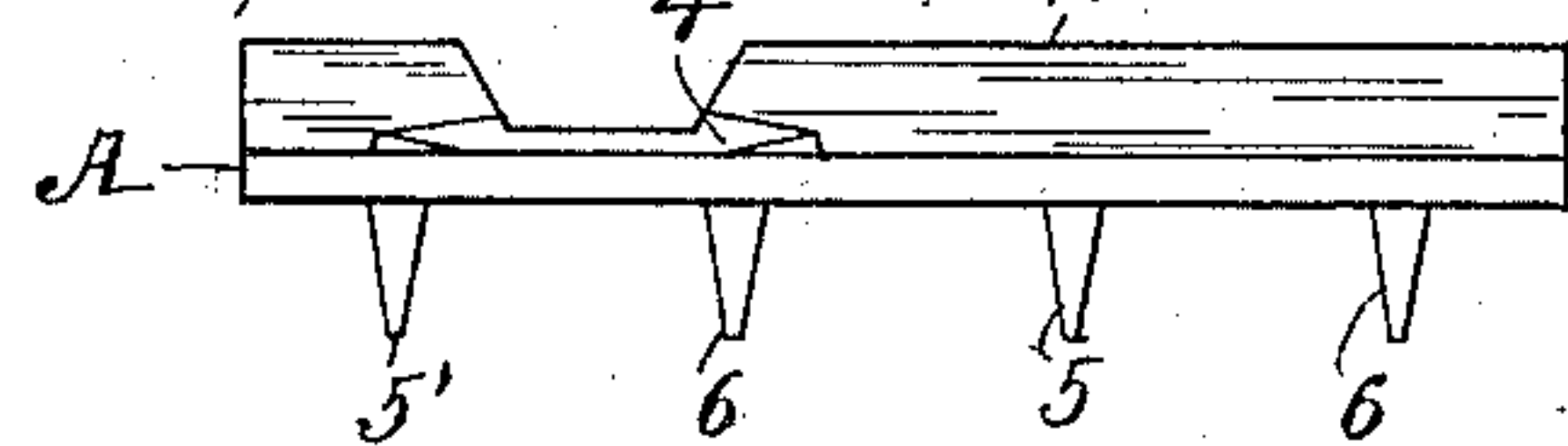


Fig. 5.

Witnesses:
C. K. Kenney.
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Fig. 6.



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UNITED STATES PATENT OFFICE.

ERNEST DEL MANZO, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO WISCONSIN
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TIE-PLATE.

SPECIFICATION forming part of Letters Patent No. 680,767, dated August 20, 1901.

Application filed June 1, 1901. Serial No. 62,755. (No model.)

To all whom it may concern:

Be it known that I, ERNEST DEL MANZO, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Tie-Plates, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

As usually constructed in this country the steel rails forming the tracks of railways are laid on wood ties disposed transversely of the rails and embedded in the road-bed of the railway. For directly supporting the rails on the wood ties metal tie-plates are interposed between the rails and the wood ties with reference to forming a bearing and support for the rail that will rest on a considerable surface of the wood tie, and thereby adequately support the rail on the tie. It is desirable that these tie-plates should be sufficiently strong and rigid to prevent their breaking or bending, and at the same time to avoid expense in construction it is desirable that they should be of no greater weight than is necessary for the required strength and rigidity. It is also important that these tie-plates should be as little as possible liable to rust or oxidation. To secure these desirable features I preferably construct my improved tie-plate of malleable iron or rolled or pressed steel, thereby securing strength, with tenacity and comparative non-liability to rust, and by their peculiar construction I secure the required rigidity with a minimum weight. It is also desirable that these tie-plates should to the greatest extent possible be so secured in place on the wood ties that they will not become displaced laterally thereon by the lateral strain of trains running on the track. This has been accomplished to some extent by the means heretofore in use, especially on hard-wood ties; but as the supply of hard-wood ties is mostly exhausted and railways are more and more being compelled to use ties of soft wood—cedar, spruce, and analogous woods—it is more than ever important to provide the best possible means for securing the tie-plate to the tie against lateral displacement in connection with suitable strength of the tie to obviate breaking

or bending of the tie-plate in connection with a minimum weight.

My invention has for its object the production of an improved tie-plate embodying all these valuable features; and the invention consists of the tie-plate herein shown, described, and claimed and its parts and combinations of parts or the equivalents thereof.

In the drawings, Figure 1 is a top plan view of my improved tie-plate. Fig. 2 is a plan of the under side of the tie-plate. Fig. 3 is an edge view of the tie-plate looking at it from the right of the plate, as shown in Fig. 1. Fig. 4 is an end view of the plate looking at it from the lower end, as shown in Fig. 1. Fig. 5 is an under side view or plan of a slightly-modified form of my improved tie-plate. Fig. 6 is an end view of the modified form shown in Fig. 5.

My improved tie-plate is constructed integrally, advisably, of malleable iron, and consists of the flat rectangular body part A, having on its upper surface, near one end thereof, a flange or ridge 2, extending in a straight line across the body part, which ridge is adapted to receive the flange or base of the rail against it, thereby preventing the rail from slipping on the tie-plate in the direction against which it is resisted by this ridge. In use this ridge or flange on the tie-plate is at the outer side of the rail. Spike-holes 3 3 through the body of the plate are provided, adapted for inserting spikes and driving them into the wood tie. About the spike-holes 3 3 I advisably thicken the body part of the tie-plate and preferably by bosses 4 4, having the form of the head of the spike and so beveled on the upper surface as to receive the head of the spike thereon in a close fit.

On the lower surface of the body of the tie-plate I provide a considerable number of high thin elongated ribs 5 5' and 6 6'. These ribs on the under surface of the plate are elongated or extend at a right angle to the ledge 2 on the upper surface of the plate, and these ribs on the under surface therefore extend transversely of the direction of the rail when placed on the tie-plate and in the direction of the length of the wood cross-tie, into the material of which these ribs are sunk when the tie-plate is placed in position on the

cross-tie. The ribs 5 and 6 are what I term "long" ribs and extend, respectively, in series from near one edge of the plate to beyond its middle transverse line, the series 5 5 alternating with the series 6 6. The construction is such that there is no medial portion of the plate transversely that is not strengthened by the ribs 5 5 or 6 6, and in fact the ribs 5 5 and 6 6 pass each other and the middle transverse line of the tie-plate, so that the middle portion of the plate is strengthened against breaking or bending by these overlapping ribs; but these ribs 5 5 and 6 6 do not extend entirely across the plate, and short supplemental ribs 5' 5' and 6' 6' are provided, which are located on the plate in the space beyond the ribs 5 5 and 6 6, which would not otherwise be occupied by any ribs by reason of the ribs 5 5 and 6 6 not extending from their initial points near their respective edges of the plate too much beyond the middle transverse line of the plate. I also preferably locate these shorter ribs 5' and 6' severally at one side of the lines of extension of the several ribs 5 and 6, thus placing the ribs that are located at one side of the plate in non-alinement with the ribs that are located at the other side of the plate, or, in other words, the two series of ribs are staggered. By thus breaking the ribs 5 and 5' and 6 and 6' up into these numerous sections I provide a larger number of ends of ribs, which when the ribs are embedded in the wood ties form such large number of stops or shoulders resting against the wood and adapted to prevent the lateral movement of the tie-plate on the tie. Also by the preferable arrangement shown in Figs. 2 and 4, in which the ribs at one end of the plate are in non-alinement with the ribs at the other end of the plate, I provide a construction in which no two ribs or sections of ribs will enter the tie between the same longitudinal fibers thereof, (if the fibers are straight,) which if it occurred would tend to more completely split the tie, but so as to enter the tie between different fibers or strands of the wood, and thus compact or crowd together the fibers of the wood, so as more securely to hold the tie-plate.

The modified form of construction shown in Figs. 5 and 6 differs from the other form only in that the ribs 5 and 5' and 6 and 6' are respectively placed in alinement longitudinally instead of in non-alinement, as shown in Fig. 2. The desired strength of the plate

medially is secured, as in the form shown in Fig. 2, by the elongated ribs 5 5 and 6 6, which extend to and overlap each other at the medial transverse portion of the plate, and the great number of shoulders or end bearings of the ribs is also secured in this form, as in the form shown in Fig. 2.

What I claim as my invention is—

1. A tie-plate, comprising an integral metal plate having on its under surface two series of long, high, thin, parallel, elongated ribs, one series extending from near one edge to beyond the middle transverse line of the plate, and the other series extending from near the opposite edge of the plate to beyond the middle transverse line of the plate, the two series overlapping each other at their inner ends at the middle portion of the plate, and similar elongated but shorter ribs supplemental to said long ribs in the spaces at the ends of the long ribs but separated a distance therefrom.

2. A tie-plate, comprising an integral metal plate having on its under surface two series of long, high, thin, parallel, elongated ribs, one series extending from near one edge to beyond the middle transverse line of the plate, and the other series extending from near the opposite edge of the plate to beyond the middle transverse line of the plate, the two series overlapping each other at their inner ends at the middle portion of the plate, and similar elongated but shorter ribs supplemental to said long ribs in the spaces at the ends of the long ribs but separated a distance therefrom, the ribs being severally in non-alinement endwise with every other rib on the plate.

3. A tie-plate, comprising an integral metal plate having on its under surface two series of long, high, thin, parallel elongated ribs, one series extending from near one edge to beyond the middle transverse line of the plate, and the other series extending from near the opposite edge of the plate to beyond the middle transverse line of the plate, the two series overlapping each other at their inner ends at the middle portion of the plate.

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

ERNEST DEL MANZO.

Witnesses:

A. L. MORSELL,
ANNA V. FAUST.