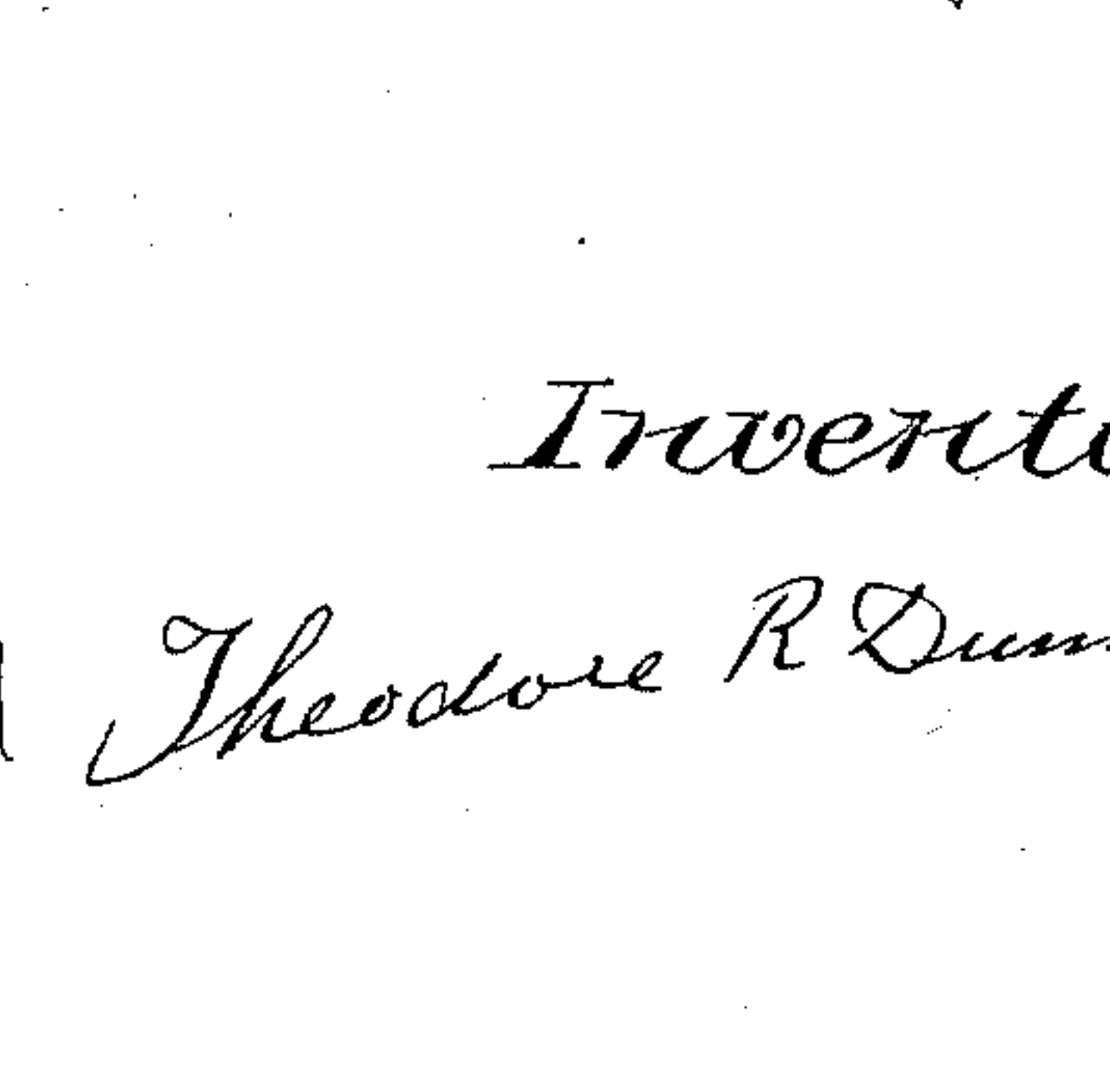
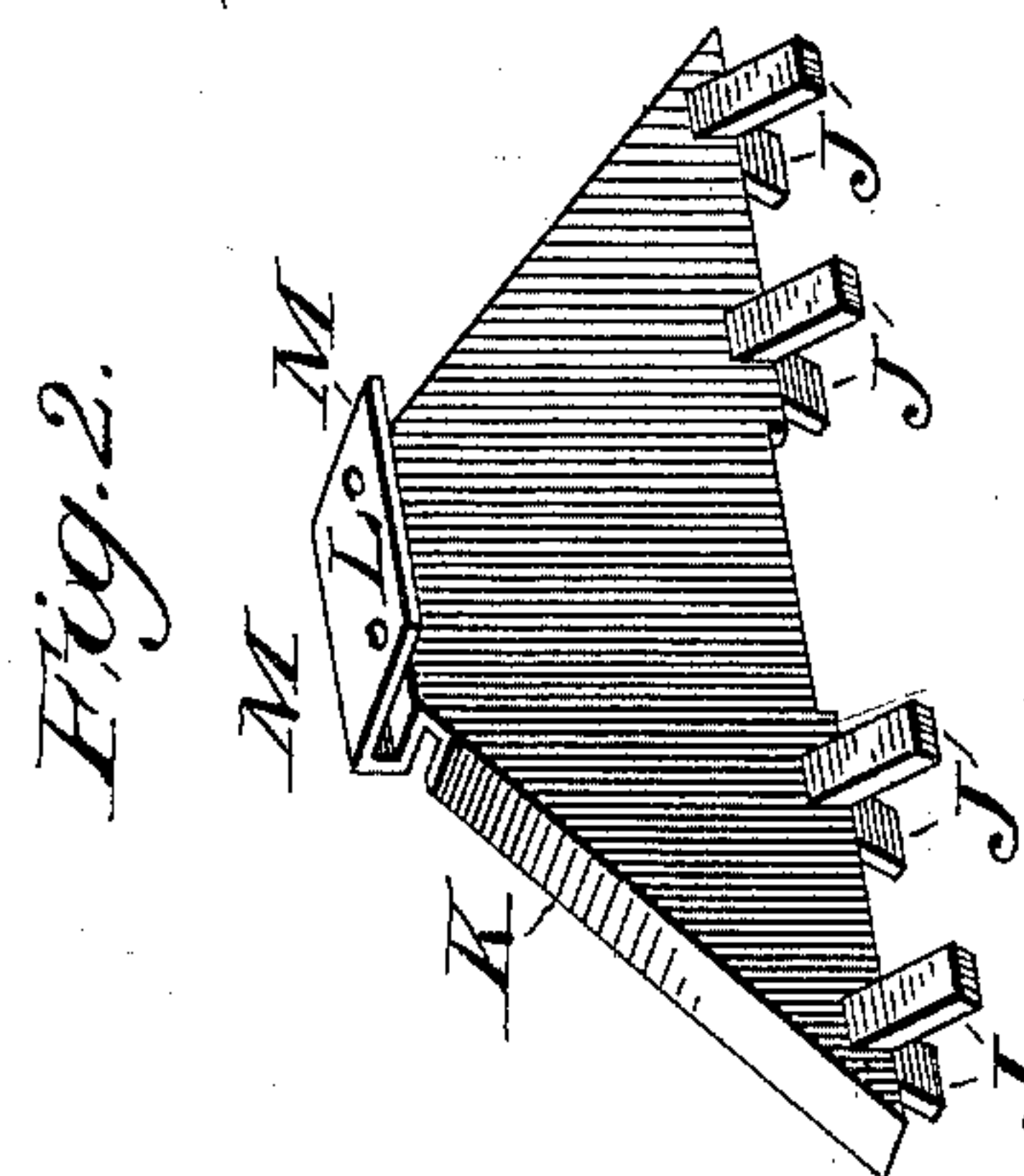
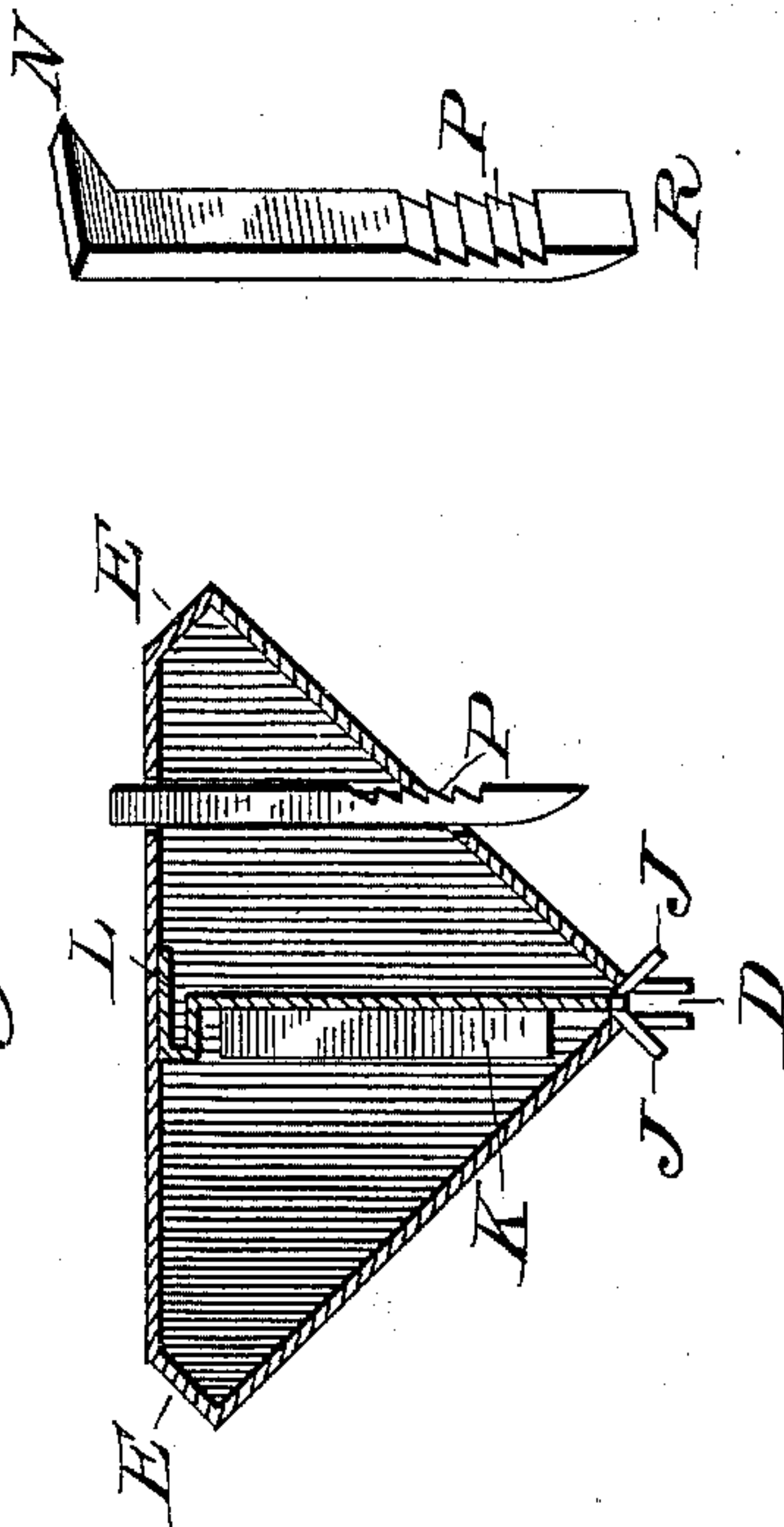
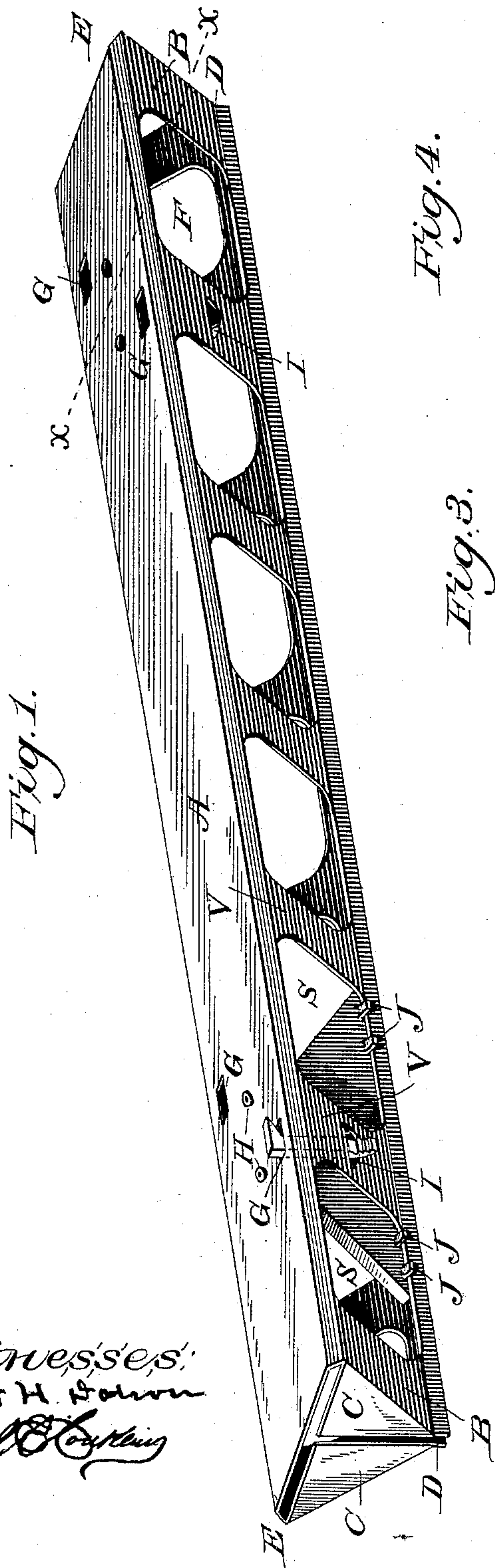


(No Model.)

T. R. DUNNING.
METALLIC RAILWAY TIE.

No. 426,637.

Patented Apr. 29, 1890.



Witnesses:
Robert H. Brown
Edward J. Dunning

Inventor:
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UNITED STATES PATENT OFFICE.

THEODORE R. DUNNING, OF MIDDLETOWN, NEW YORK.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 426,637, dated April 29, 1890.

Application filed January 25, 1890. Serial No. 338,159. (No model.)

To all whom it may concern:

Be it known that I, THEODORE R. DUNNING, a citizen of the United States, residing at Middletown, in the county of Orange and State of New York, have invented a new and useful Improvement in Metallic Railway-Ties, of which the following is a specification.

My invention relates to an improvement in metallic railway-ties; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a railway-tie embodying my improvement. Fig. 2 is the flanged metallic support to rest in the tie beneath the rail. Fig. 3 is a cross-sectional view of the same on the line *xx* of Fig. 1. Fig. 4 is the notched spike to fasten the rail to the tie.

The spike may be made of steel, and if desired to use four spikes at each end of the tie then they may be made with notches on either of their sides that lie at right angles to the projecting head of the spike.

The tie is made by first stamping out the several openings and cutting the ends of a plate of steel, after which it is pressed or molded into such form that it has a level top A, inwardly-sloping sides B, with their upper parts E outwardly flanged, and the bottom parts of the sides D flanged vertically. Holes or openings F, of an oblong shape, are made in the sides for the double purpose of allowing the tie to rest on the earth as an inverted trough and to save material. It will be seen that the openings F on either side of the tie are directly opposite to the partitions V on the other side, thus permitting the earth to readily enter the tie. The ends C are inwardly flanged to close or nearly close the ends of the tie to retain the ballast and to prevent lateral motion or creeping, which is also prevented by the openings in the sides. Longitudinal openings G are made in the top to receive the spike, and they are made long, so that the lower part of the long sloping spike-head may enter therein until the higher part of it shall engage the rail-flange; but where

the fish-joint is used the lower part of the head will engage it at a point nearer its back.

Openings T are made with a long upper edge, and when the notched part P of the spike is driven therein the long upper edge of the opening springs tightly into said notches, and by pressing the side of the tie inwardly the distance between the opening T and the top of the tie is lessened and the upper edge of the opening secures the highest notch that is possible, and when the side of the tie would regain its natural position a powerful grip is had on the rail-flange.

The spike may be loosened from the opening T by inserting a lever through the opening F and between the spike and the side of the tie.

The flanged support shown in Fig. 2 is made of soft steel, if desired, and has its top edge flanged at right angles, and then reversibly, so that the flat top L has its center resting on the top edge of the support. The sloping edge of the support is flanged at K to give it stiffness.

The spurs J are cut and pressed outward on each side of the lower edge of the support to inclose the two lower flanges D, while the straight bottom edge of the support rests on top of the flanges on the line S. The bottom edge of the support may be made long enough to engage the whole length of the openings F that lie next to the openings T. The thickness of the support is fully equal to both lower flanges D. The spurs M on the top of said support are adapted to enter the openings H in the top of the tie to keep it in place. The support is placed by springing apart the flanges D, and when the spurs M enter the openings H the top A is sprung, so as to permit the spurs J to pass over and inclose the flanges D.

A bearing-block or support is not needed in this tie, except where it is desired to use very light metal, such as of one-eighth ($\frac{1}{8}$) inch thickness. A vertical support is formed for the top of the tie also in that the earth enters the openings F, and their top edges being outwardly flanged the top of the tie has a foundation of its whole width and holds the ballast within. Those ties having a broad

base deep in the earth form a trough therein, in which the water gathers at times, which is spattered out with the earth by the trains, thus leaving a vacancy. This tie always has
5 a dry foundation, and there is no such trouble.

Having thus described my invention, I claim—

1. The tie made of one piece of metal that is bent to form nearly an equilateral triangle
10 and having a level top, in combination with inwardly-sloping sides B, which have their upper parts E outwardly flanged and the lower parts D vertically flanged and meeting at the bottom, and with the ends C inwardly
15 flanged at right angles, and with the openings F, adapted to give the tie a vertical support on the earth, and with said openings so formed that they are opposite to the partitions on the other side of the tie that lies
20 between the openings F, and with the openings T, having their upper sides or edges straight and having their lower sides or edges partly circular and with the said openings long, so as to provide a good spring, and
25 adapted to receive the notches P of the spike, and with the openings H, adapted to receive the spurs M of the support, substantially as described.

2. The tie, in combination with the support

resting therein and with its spurs M engaging the openings H, while its top L bears
30 against the top of the tie at points where the rail should cross and with its spurs J inclosing the flanges D, while the straight lower edge of said support rests on the top edges of
35 the flanges D, and with a spike having a long head that is sloping on its lower side, and with notches P in either side that lie at right angles to its projecting head N, and with its
40 notches engaging the upper edge of the opening T, while said spike rests therein at an angle of about forty-five degrees to the sloping side B, and with its upper part resting in the opening G, said sloping spike-head being
45 adapted to engage either the fish-joint or rail-flange, substantially as described.

3. The tie, in combination with the support having the flanges K on its sloping edges, and with a double flange L on its upper edge and with spurs M thereon, substantially as
50 described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

THEODORE R. DUNNING.

Witnesses:

ROBERT H. DOLSON,

EDWARD E. CONKLING.