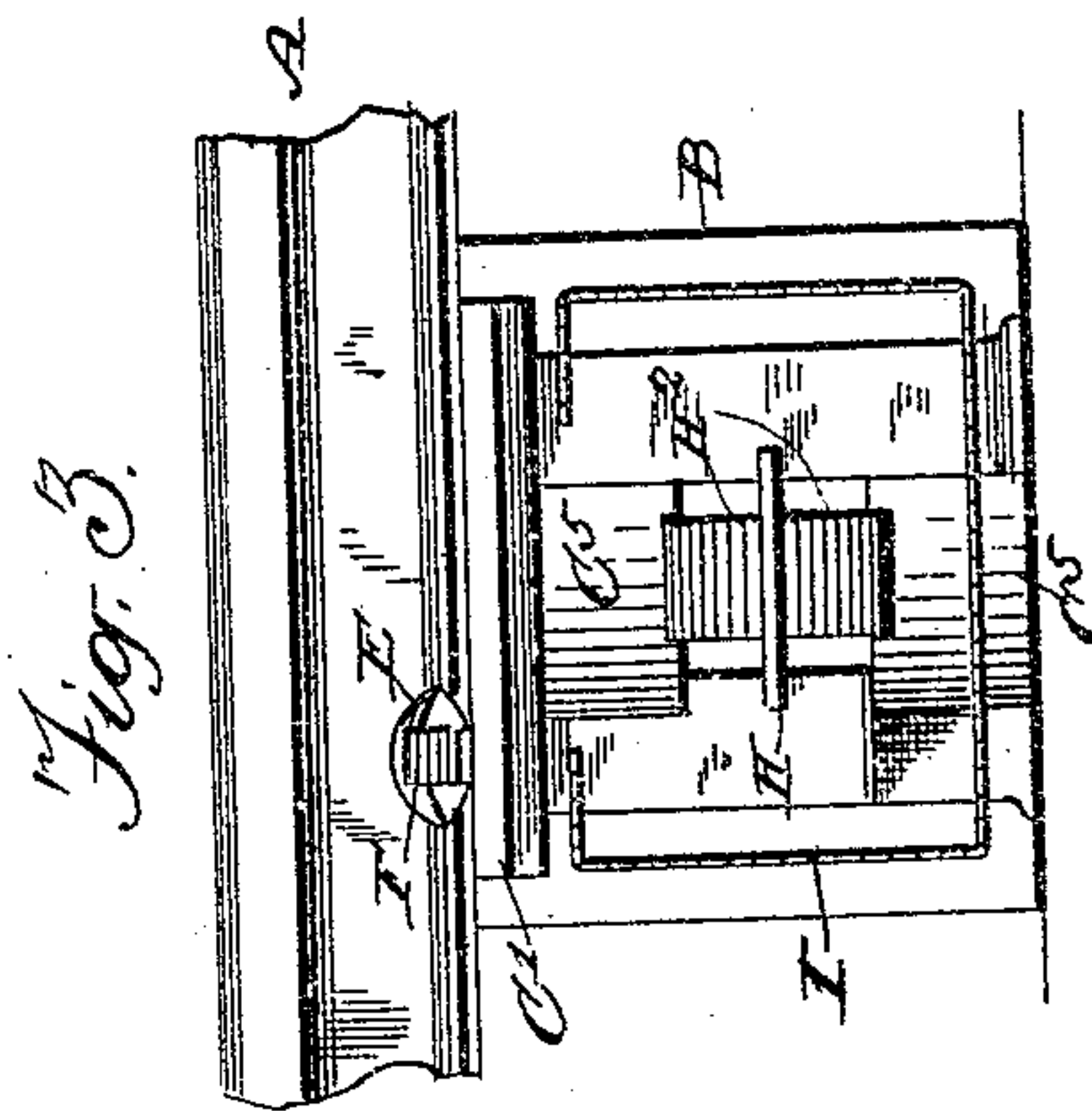
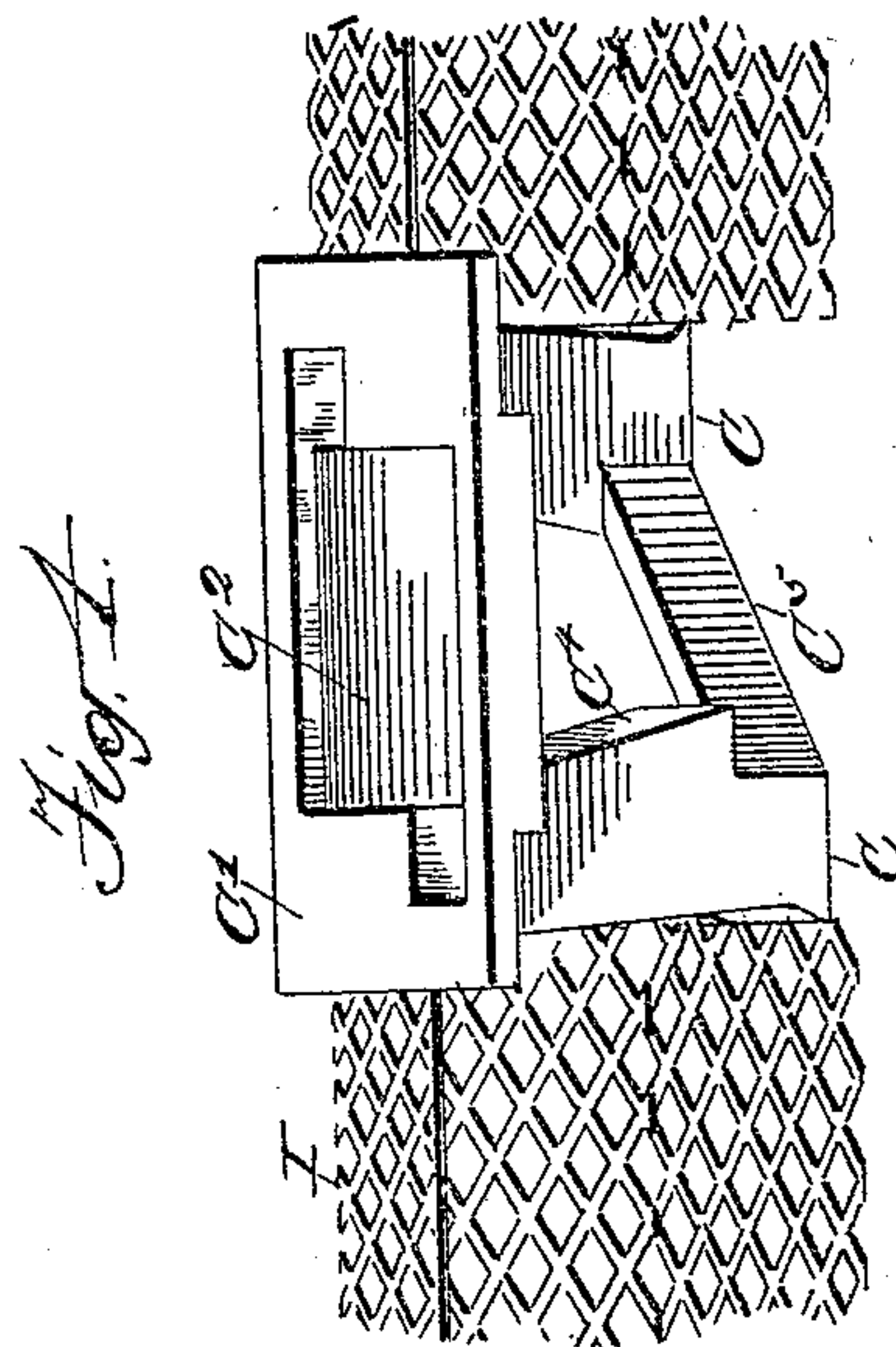
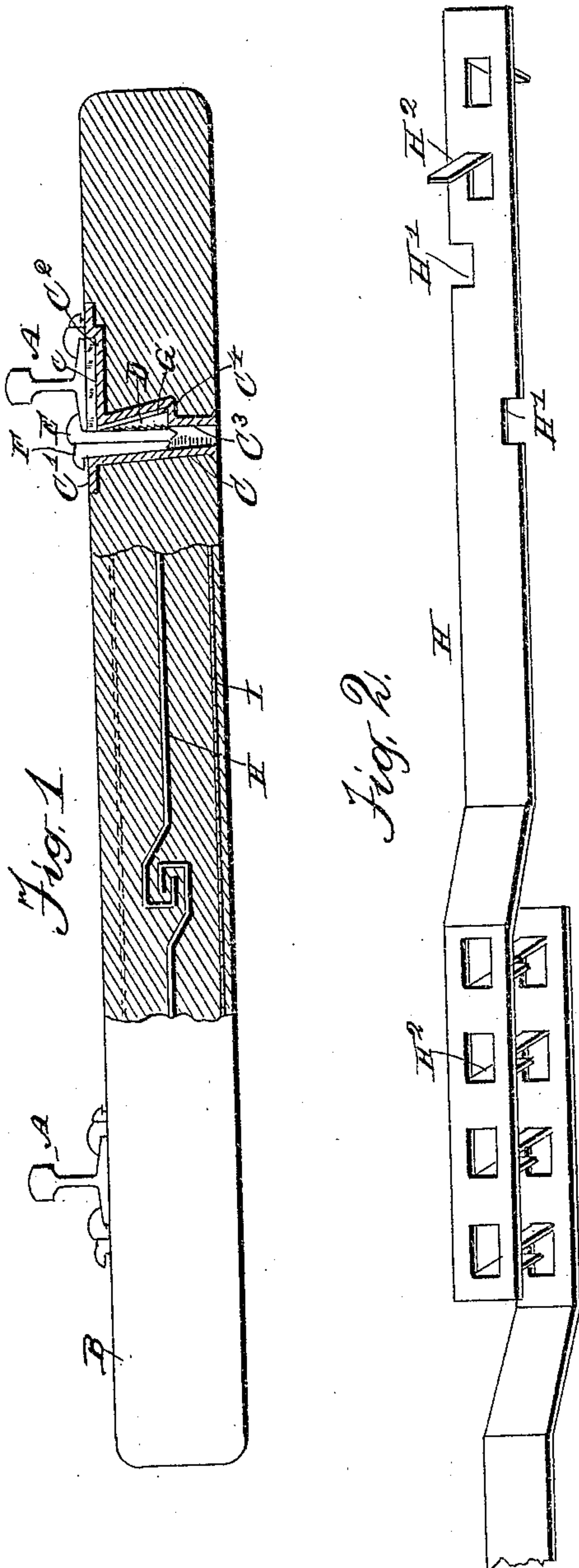


F. H. MILLER.
RAILWAY TIE.
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Patented Apr. 19, 1910.

955,345.



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RAILWAY-TIE.

955,345.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK H. MILLER, a citizen of the United States, residing at Stanwood, in the county of Cedar and State of Iowa, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

This invention relates to railway ties made of reinforced plastic material such as cement or concrete, and has for its object to provide a strong and durable tie adapted to admit of the easy attachment of rails thereto, or their removal therefrom, and with provision for a little elasticity in the mounting of the rails.

The nature of the invention is fully disclosed in the description and claims following, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of a tie embodying my invention, partly sectional, the middle portion being in a central, vertical plane, and the right hand end being in a nearer plane through one of the pockets that hold the spikes. Fig. 2 is a perspective view of a central reinforcement, similar in the main to that shown in Fig. 1, but differing in the formation of the inner end portions. Fig. 3 shows an end outline of the tie with a fragment of rail thereon, and the spike-holding pockets and reinforcements in the position in which they are molded in the tie. Fig. 4 is a perspective view to give a clearer illustration of the spike-pockets and the reinforcement which nearly surrounds them.

In the drawing, A designates an ordinary tee-rail, and B the body of a railway tie formed of plastic material, such as concrete, or cement and sand. In the tie, at proper distance apart are embedded the rail-holding and supporting devices. Of these, C is a sort of chair, formed of cast-iron, or otherwise, having a broad top C¹, in which is sunk a recess C², which forms a seat for a block of wood, or the like, *c*, to form a slightly elastic support for the rail. In practice a block of "end-wood" (the grain running vertically) is preferred. Depending from the top-plate are two tubular parts C³, which may be called spike chambers, preferably set near diagonally opposite corners. In one side of each chamber is a vertically inclined offset C⁴ to receive a wedge-shaped serrated block D of hardened steel. Against the serrated face of this block lies the spike E, held immovably against the serrated block by a wedge or key

F between the spike and the slightly inclined outer wall of the spike-chamber. To allow for variations in the width of bottom flanges in rails of different weight, space-strips G may be provided to insert between the back of the serrated block and the adjacent wall of its pocket when a heavy rail is used. This will serve to bring the serrated face of the block flush with the outer edge of the rail-flange, so that the spike, when in position, bears against the edge, as it should.

The spike-chambers connecting with each top-plate should be tied together by diagonal cross-ties or ribs C⁵, separated in the middle to permit reinforcing bars H to pass through. These are provided with notches H¹ at the sides, to engage the adjacent spike-chambers. They are also provided with a series of tangs H² to prevent the possibility of slippage in the body of the tie. In the case of ties used on roads not equipped with electrical block-signal systems, or otherwise electrified, a single bar would serve for the whole tie, each end being notched for a spike-chamber, or, to be accurate, a pair of such chambers. But in most cases it is desirable to so construct the ties that the rails are insulated from each other, and this is done by using a pair of reinforcing bars, overlapping at or near the middle of the tie, with their ends interlocking, but not touching, as clearly shown in Figs. 1 and 2. In this case the interlocking bars, molded fast in the concrete tie bind the tie unbreakably together.

The tie is also reinforced a little way beneath its outer surface by a stirrup-like shell or trough of "expanded steel" I bent lengthwise into practically the gutter-like form indicated in Figs. 3 and 4.

It will be understood that holes are cut in the bottom to receive the spike-holders, and the in-turned flanges at the top are notched for the same purpose. This gives a light, but strong tensional reinforcement near the skin of the tie, with which it is intimately incorporated through its open meshes.

Having thus described my invention, I claim:

1. In a railway tie, the combination of a body of plastic material, and rail-holding devices, comprising a pair of spike-chambers for each rail, connected above and below, each chamber having an inclined offset to take a serrated spike-holding block, a

spike-holding block seated in said offset, a space-block to adjust the serrated block with respect to the rail-flange, a spike for each chamber, and a wedge adapted to force the spike into contact with the serrated face of said block.

2. In a railway tie, the combination of a body of plastic material, a rail-supporting device molded therein, the same comprising a pair of spike-chambers for each rail, and means substantially as described for retaining the spikes, diagonal cross-bars connecting the spike-chambers above and below the center, and a reinforcing bar molded in the tie and extending through the opening between the spike-chambers.

3. In a railway tie, the combination of a body of plastic material, a rail-supporting device molded therein, the same comprising a pair of spike chambers for each rail, and means substantially as described for retaining the spike, a recess for a block of slightly elastic material, a slightly elastic block mounted therein, diagonal cross-bars connecting the spike-chambers above and below the center, and reinforcing bars extending through the openings between the spike chambers.

4. In a railway-tie, the combination of a plastic body, rail-holding devices for each rail, molded in said body, and a pair of reinforcing bars passing through said rail-holding devices, and interlocking without direct contact at their inner ends.

5. In a railway tie, the combination of a plastic body, rail-holding devices for each rail molded in said body, and a pair of reinforcing bars passing through the rail-holding devices, and engaging with them, and formed to interlock at their inner ends, without direct contact.

6. In a railway tie, the combination of a plastic body, rail-holding devices for each rail molded therein, and a trough-like reinforcement of reticulated metal, such as "expanded steel", provided with openings for the spike-holding devices at the top and bottom, and with its vertical sides outside them, molded in the body of the tie.

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

FRANK H. MILLER.

Witnesses:

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