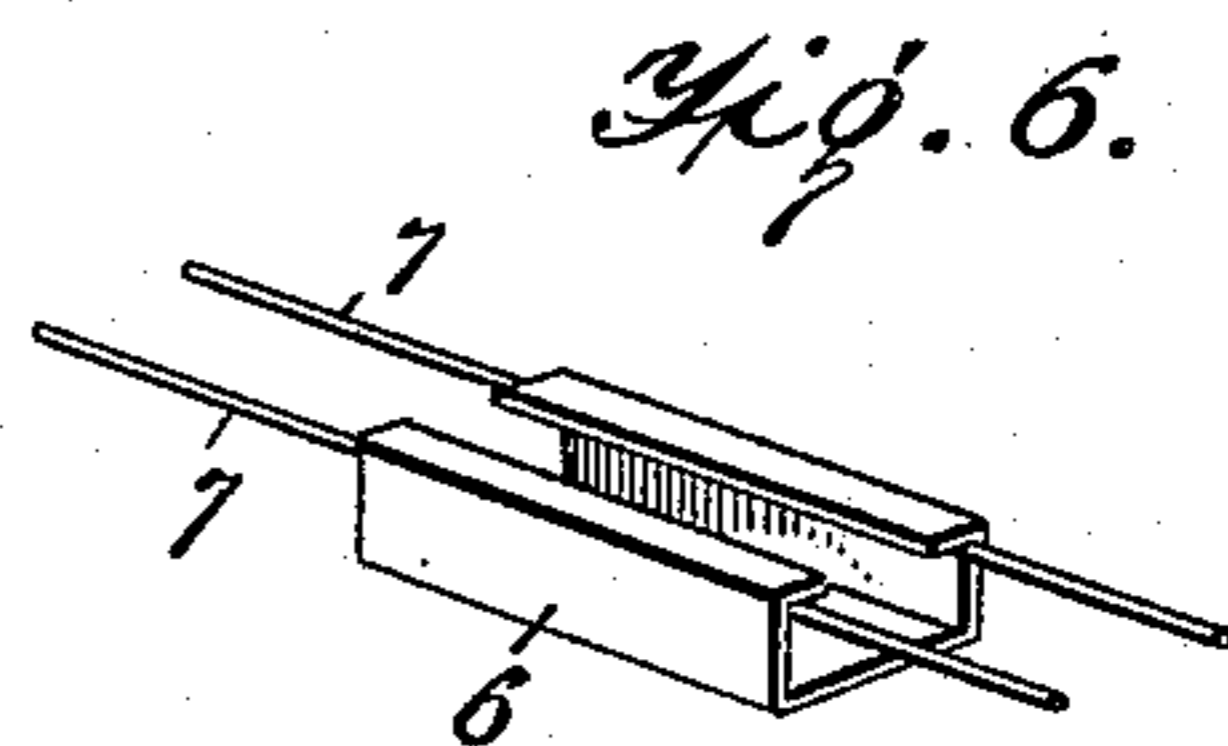
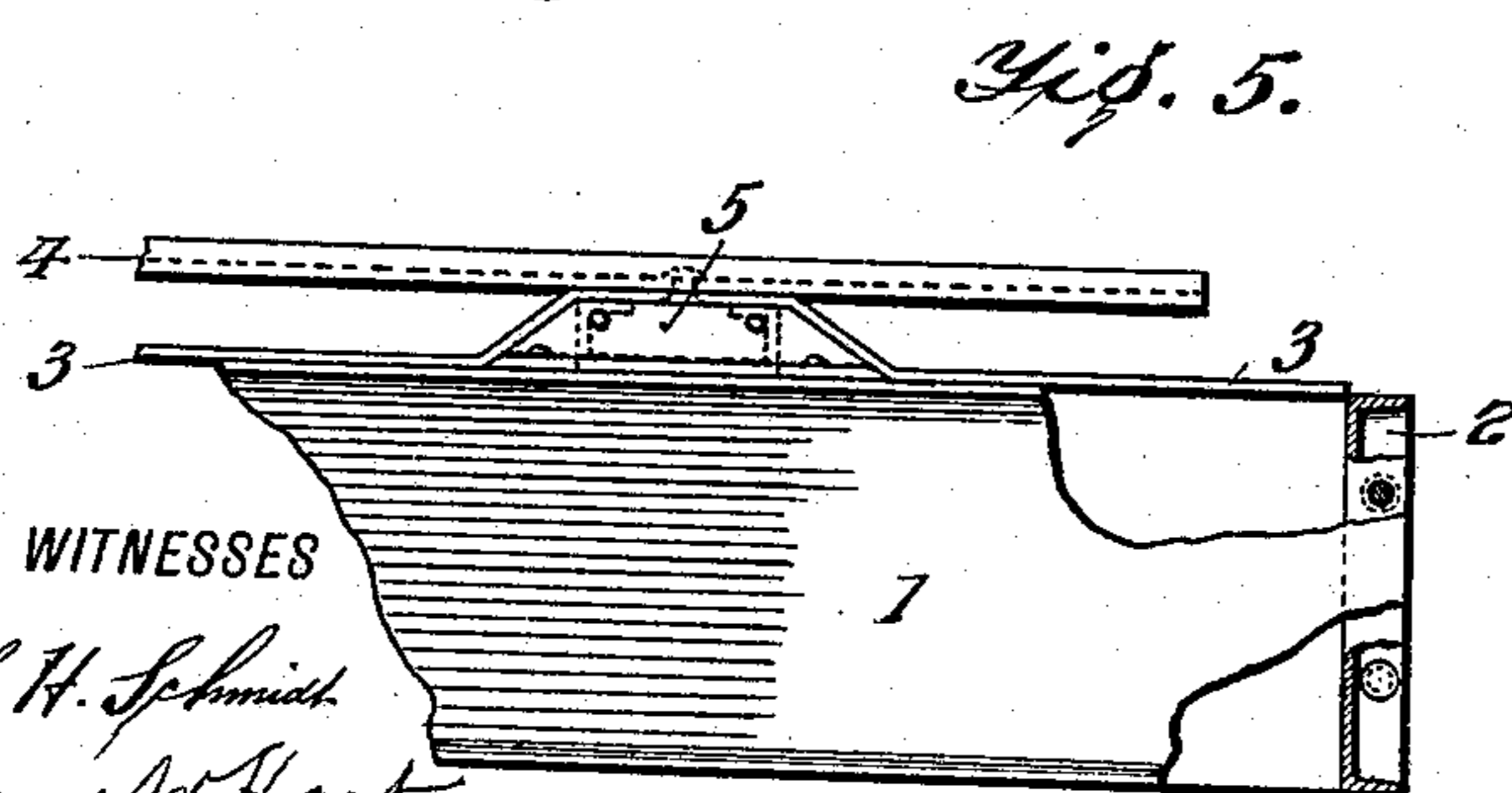
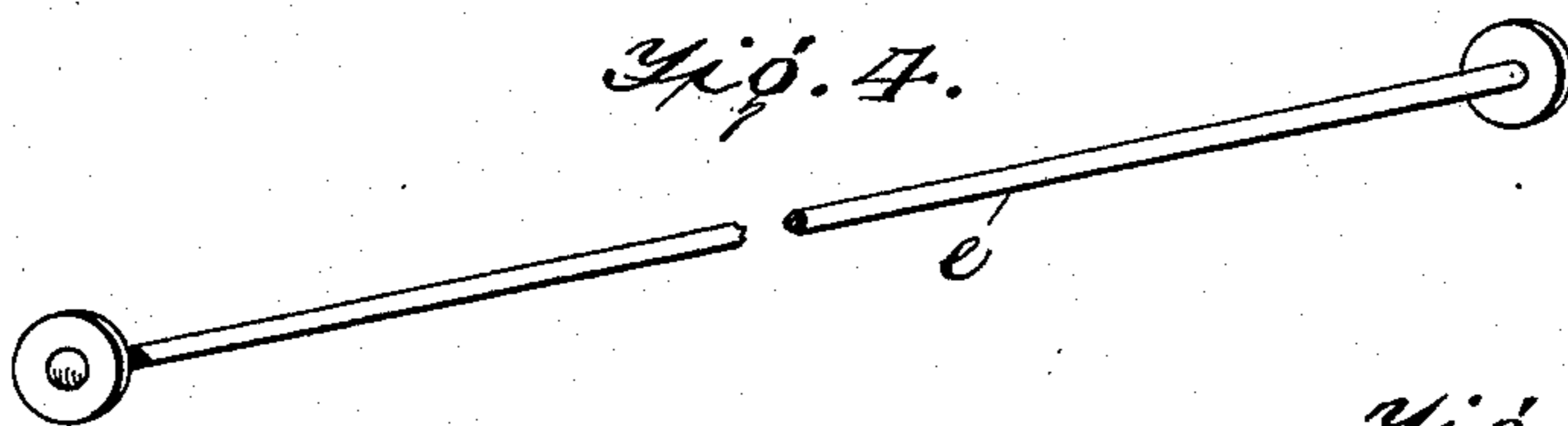
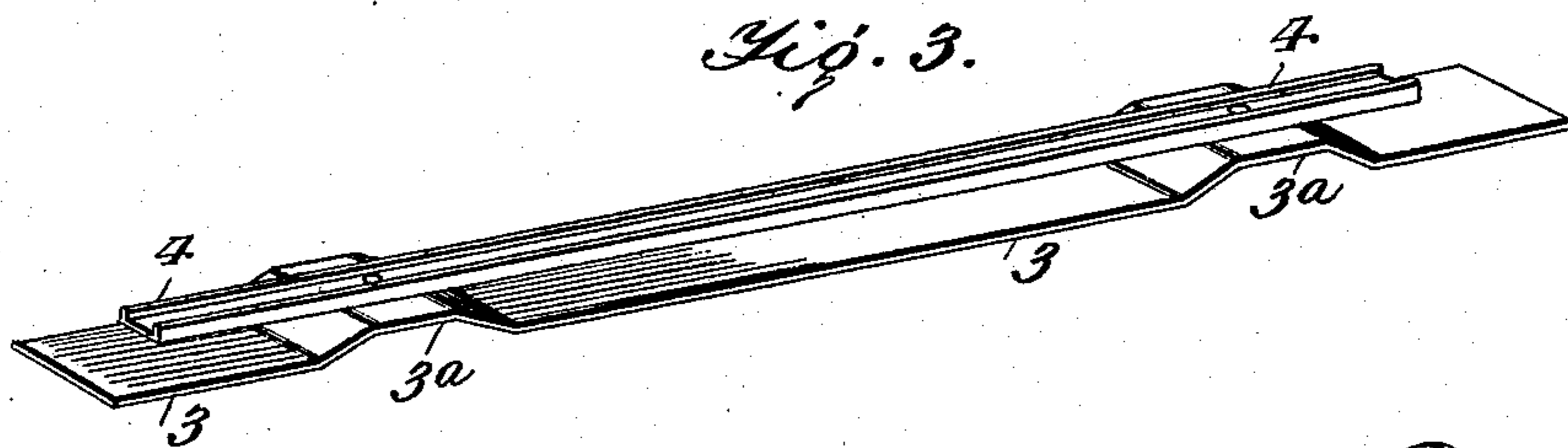
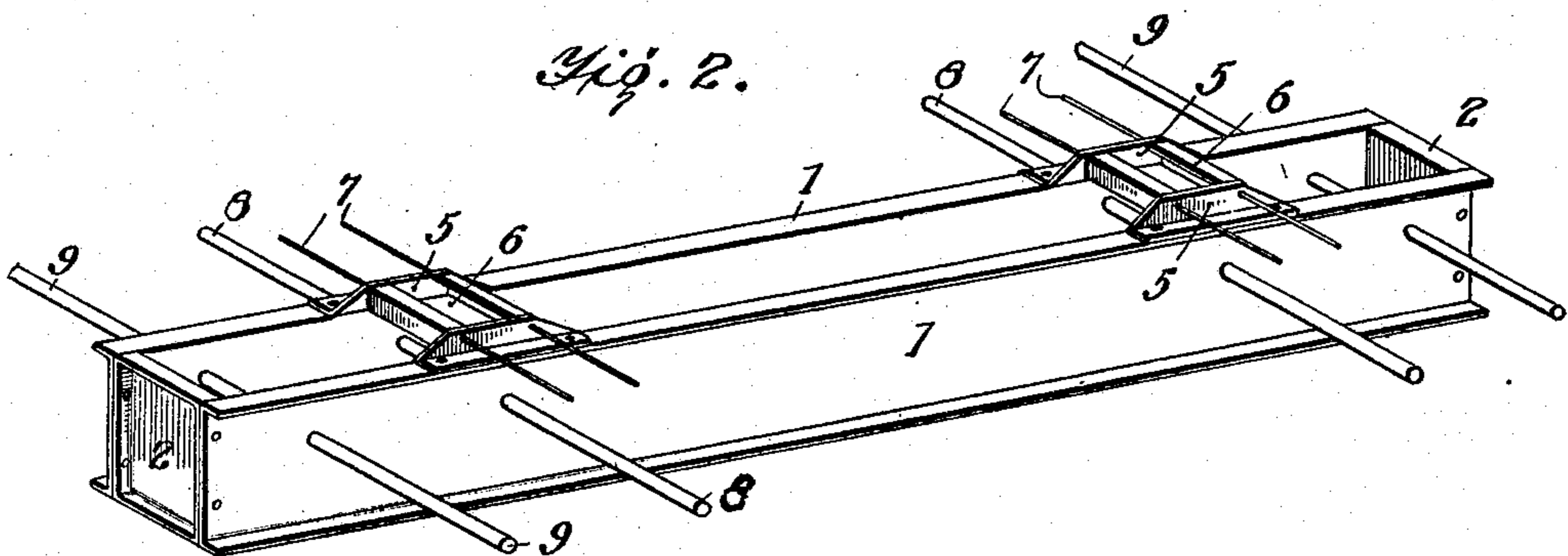
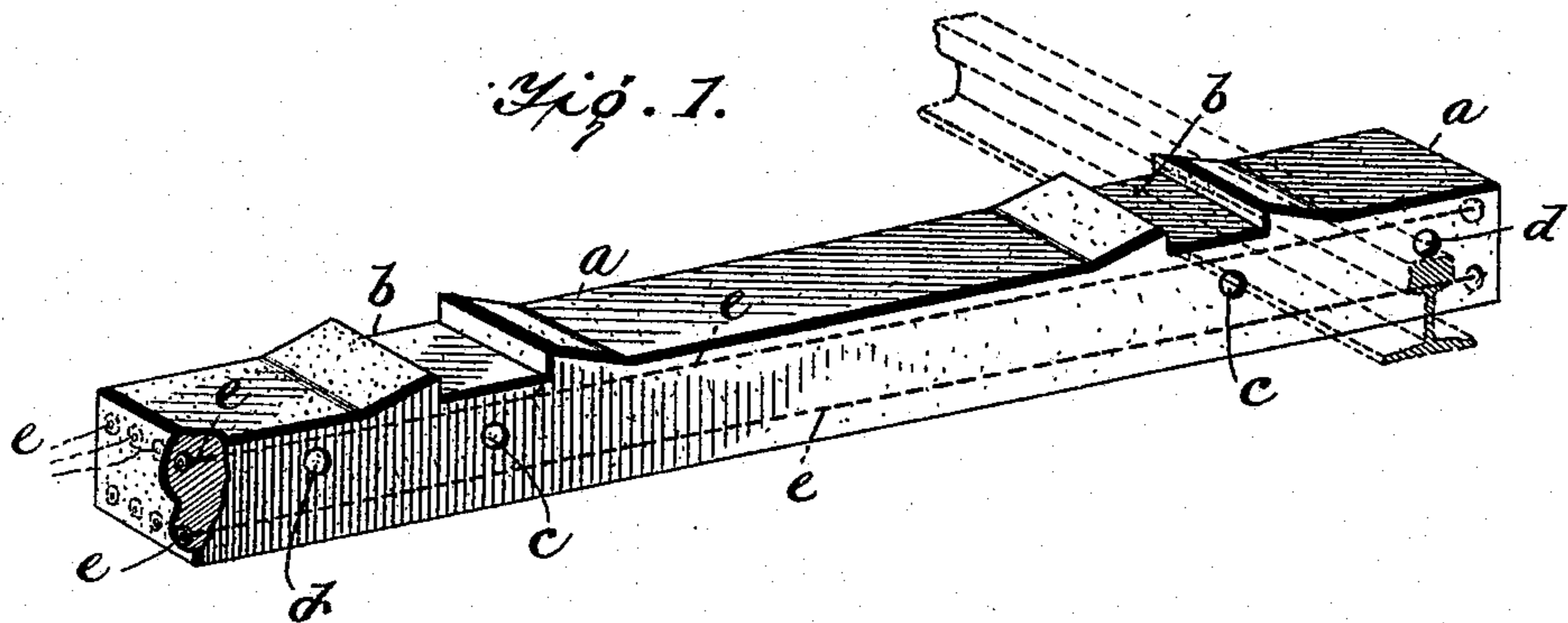


J. P. DONOVAN.
 APPARATUS FOR MOLDING CONCRETE RAILWAY TIES.
 APPLICATION FILED SEPT. 14, 1908.

937,026.

Patented Oct. 12, 1909.



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APPARATUS FOR MOLDING CONCRETE RAILWAY-TIES.

937,026.

Specification of Letters Patent.

Patented Oct. 12, 1909.

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To all whom it may concern:

Be it known that I, JAMES PETER DONOVAN, a citizen of the United States, residing at Georgetown, in the county of Scott, State of Kentucky, have invented an Improvement in Apparatus for Molding Concrete Railway-Ties, of which the following is a specification.

My invention is embodied in a box-like body or mold proper provided with certain accessories whereby concrete railway ties, also fence-posts, building-blocks, and the like, may be produced with facility and despatch.

The details of construction, arrangement, and combination of parts are as hereinafter described and shown in the accompanying drawing, in which—

Figure 1 is a perspective view of a concrete railway tie such as my improved apparatus is adapted to mold. Fig. 2 is a perspective view of the entire molding apparatus, save the top or cover. Fig. 3 is a perspective view of the top or cover. Fig. 4 is a perspective view of one of the reinforcing rods for the tie or other molded article. Fig. 5 is in part a side view and in part a section of one end of the entire apparatus. Fig. 6 is a perspective view of one of the rail-seat forms with its removable supports.

The concrete railway tie *a*, shown in Fig. 1, has the usual oblong rectangular form and is provided with molded rail-seats *b*, also transverse holes *c*, *d*, the former (*c*) being adapted to receive bolts which secure the rail fastenings (not shown), and the latter (*d*) serving for the passage of wires or small rods controlling switches, block-signals, etc. The tie proper is reinforced by steel rods *e* having enlarged or disk-like heads, as shown in Fig. 4. These rods are arranged in two series of four, one being located near the bottom, and the other near the top surface, of the tie.

The body or mold proper of my improved molding apparatus is formed of two narrow and extended sides 1 and rectangular end pieces 2, all of which are made of channel-iron and secured together by bolts or rivets as shown.

In Fig. 3, and also in Fig. 5, there is shown a removable top, or cover, 3, for the mold proper, the same being formed of plate metal and provided with a longitudinal handle and stiffening bar 4, which is constructed of channel-iron. This top 3 has two up-

ward bends or arches 3^a which are located the same distance apart as the rail-seats *b* formed in the tie. To the upper side of the box-like mold formed of parts 1, 2, there are secured angle-irons 5 and between them are arranged and supported, removably, forms 6, for use in molding the rail-seats *b* of the tie. These rail-seat forms are supported by rods 7 which pass through holes in the angle-irons 6 and are readily removable. The seat forms are provided, as shown best in Fig. 6 with inward flanges that in practice rest upon the rods 7.

Another attachment of the mold form 1, 2, is rods 8 and 9 which pass through the same transversely and are used for forming the holes *c*, *d*, in the tie.

The manner of using my improved molding apparatus is as follows: The bottomless box or mold form 1, 2, is placed upon a smooth flat surface of cement which has been previously washed with liquid clay so that the concrete placed in the mold will not adhere at the bottom. Then concrete is poured in to the height of 1½ or 2 in. Next, four reinforcing rods *e* are laid on the concrete within the form, and then an additional quantity of concrete is filled in up to within 1½ or 2 in. from the top of the mold. Four more reinforcing rods *e* are then laid in and the mold is next filled to the top. The concrete is carefully tamped around the cross rods 8 and 9 before pouring in the last layer of concrete. The next step is to put in place the rail-seat forms 6 and to support them by rods which are inserted through the holes in the angle-irons 5. The concrete is then carefully worked up between the angle-irons 5 and under the seat forms 6 in order to properly mold the rail-seats of the tie. The top of the concrete body is then smoothed off and the top or cover 3 is applied as shown in Fig. 5. This top or cover is of such dimension that it would fit between the sides 1 and ends 2 of the mold form. After the concrete has taken its initial set, the rods 7, 8, 9, are drawn out, the top 3 and the seat-forms 6 being left in place on the concrete. The next step is to remove the box-like form 1, 2, from the molded body within it. For this purpose, the body 1, 2, is lifted by means of suitable implements and thus raised clear of the concrete tie which remains on the cement surface. To facilitate this separation of the mold from the tie, the mold is preferably made slightly wider at

the bottom than at the top. The seat-forms and top 3 being left on the concrete tie when the box is lifted, they pass down through the latter and serve to protect the top edges of
5 the tie from being broken while the mold is being lifted.

When the apparatus is used for molding fence-posts or building blocks, the rail-seat forms 6 will obviously be dispensed with,
10 and also the rods 8 and 9, the holes in the sides 1 through which they pass being then closed by some suitable device.

In practice, for facility and rapidity of work, ten molding apparatuses may be used
15 for each shift so that concrete may take its initial set in the first of the series while concrete is being placed in the last or tenth mold.

What I claim is:

20 1. The improved molding apparatus comprising a box-like form or body which is open at top and bottom, removable rods extending transversely through the same, rail-seat forms and detachable supports for the

same arranged on the body, and a removable top or cover having arches to accommodate the rail-seat forms, as shown and described.

2. The combination with the box-like form open at top and bottom and composed of parts 1, 2, secured together, of rail-seat forms 6 and angle-irons arranged opposite each other, and detachable devices serving to support the said forms during the molding operation, substantially as described.

3. The combination with a box-like mold form, and seat forms having detachable supports arranged upon the said form, of a top or cover having arches to accommodate the seat forms and made of less dimension than the interior of the mold form, as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES PETER DONOVAN.

Witnesses:

JAMES BRADLEY,

JAMES CAMPBELL CANTRILL.