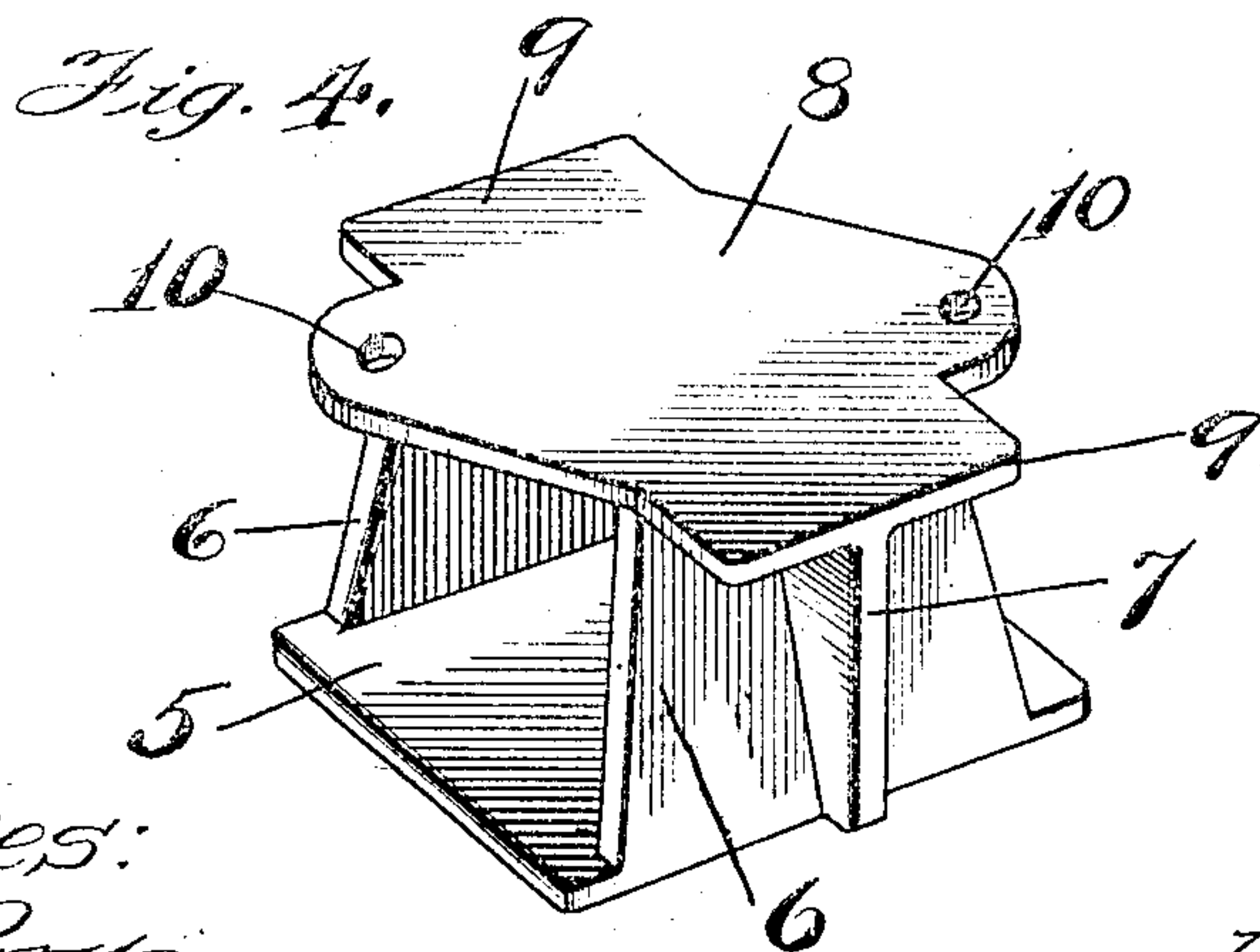
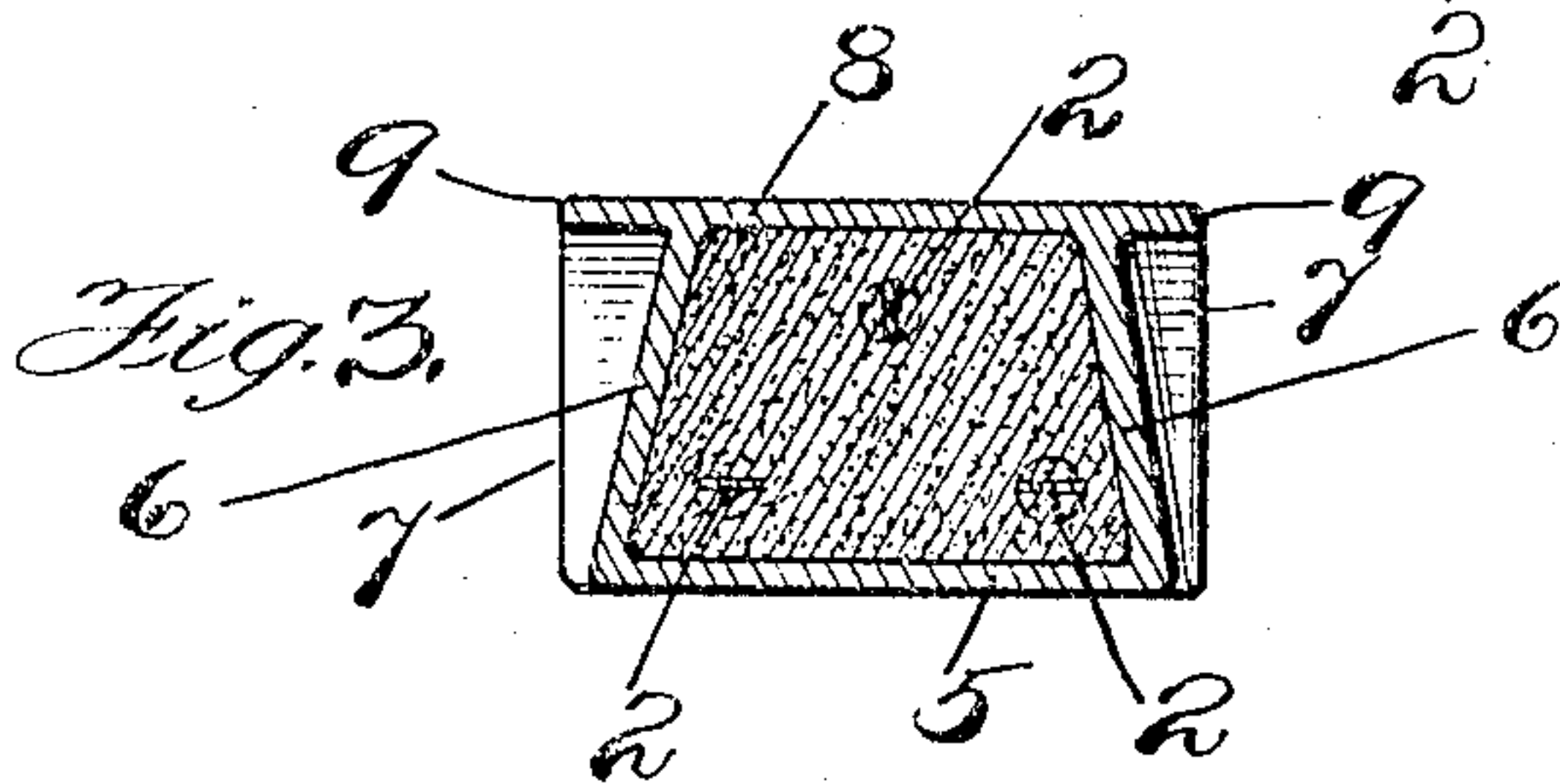
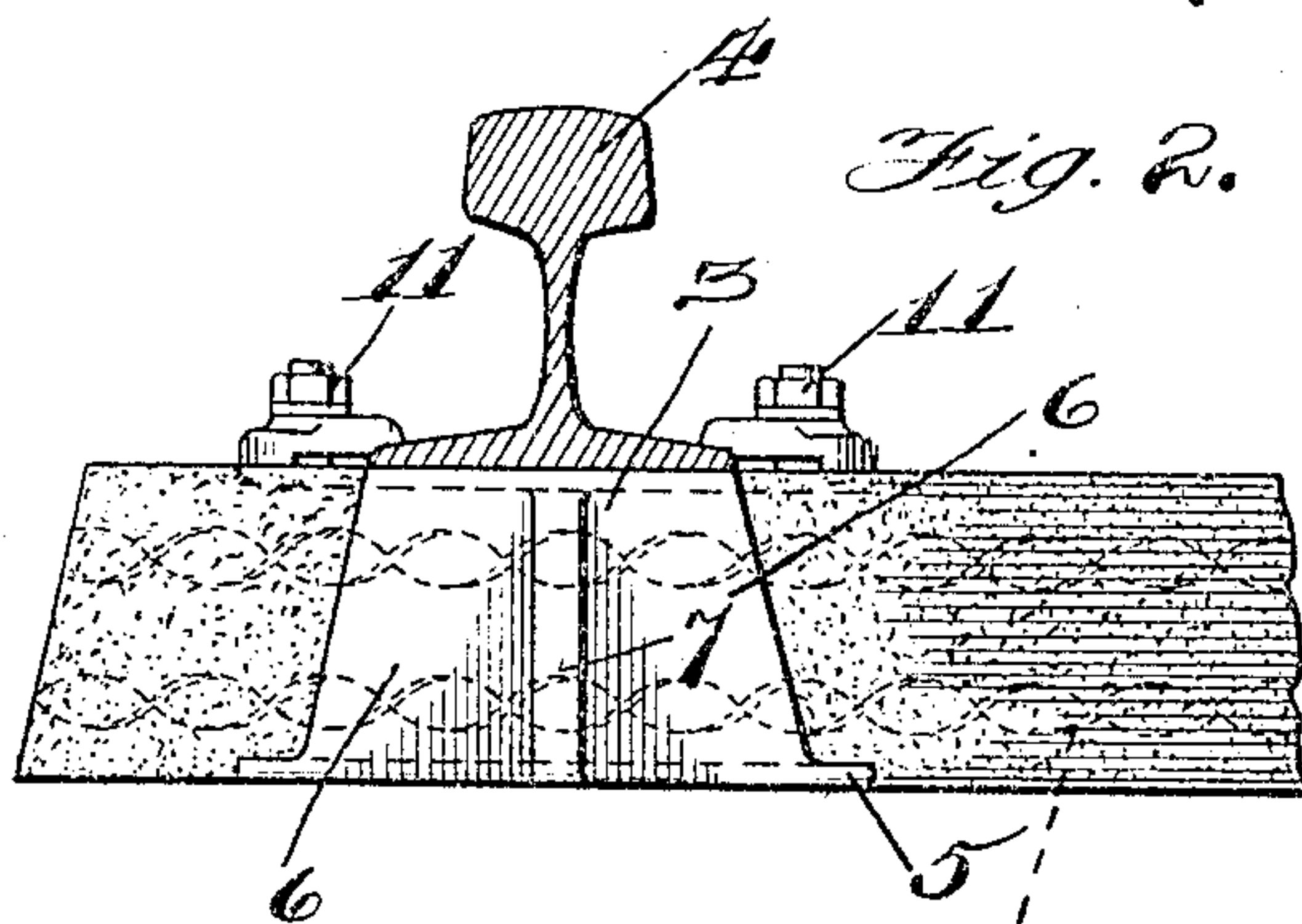
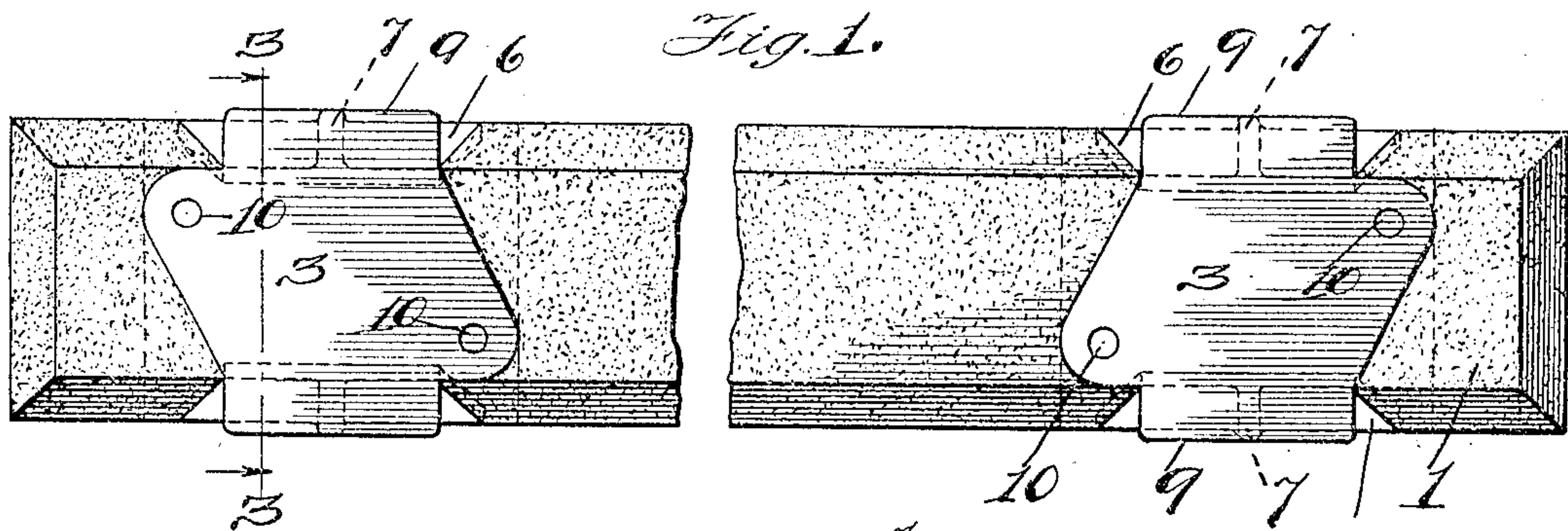


H. H. CLOUGH.
CONCRETE RAILWAY TIE.
APPLICATION FILED SEPT. 4, 1906.



Witnesses:
Ed. D. Perry
J. B. Weir

Inventor:
H. H. Clough
by *James M. C. [Signature]*
ATTY.

UNITED STATES PATENT OFFICE.

HENRY H. CLOUGH, OF ELYRIA, OHIO.

CONCRETE RAILWAY-TIE.

No. 882,051.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed September 4, 1906. Serial No. 333,212.

To all whom it may concern:

Be it known that I, HENRY H. CLOUGH, a citizen of the United States, and a resident of Elyria, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Concrete Railway-Ties, of which the following is a specification.

In the use of railway ties made of cement concrete, one difficulty experienced has been the tendency of the concrete to break or crack beneath the rail under the sudden blow caused by the rapid passage of heavy rolling stock along the track, and while the stiffening irons which are ordinarily embedded in concrete ties tend to prevent their being cracked and broken in this manner, it is impracticable to wholly obviate the difficulty by means of such stiffening irons without using an amount of iron which renders the tie too heavy and too expensive for practical use.

The object of the present invention is to provide an improved construction in concrete railway ties by which this liability of the concrete to break or crack under the sudden shock of the passing locomotive or train is overcome without unduly increasing the weight and expense of the tie, and to this end the invention consists in the matters herein set forth and particularly pointed out in the appended claims and will be fully understood from the following description of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of a concrete tie constructed in accordance with my invention. Fig. 2 is a side elevation of a portion of said tie, showing the track rail in section. Fig. 3 is a transverse sectional detail taken on line 3—3 of Fig. 1. Fig. 4 is a perspective view of one of the metallic jackets which is used to inclose that portion of the tie at each end upon which the track is laid.

In said drawings, 1 designates the body of a tie and 2 any suitable stiffening irons, such as twisted iron bars, embedded in the body of the concrete so as to stiffen it.

3 are metallic strengthening casings or jackets which embrace the tie near its ends and at points beneath the track rails 4, when the latter are in place. These bands or jack-

ets may conveniently be formed of malleable cast iron, and consist of a base plate or web 5 which extends across the bottom of the tie, and of side plates or webs 6 which are made integral with the bottom plate 5 and extend upwardly along the sides of the concrete tie body, vertical ribs 7 being provided on the outer faces of the side plates 6 to strengthen the latter and increase the length of base support offered to the rail 4.

In the approved construction shown, also, each such casing or jacket is provided with a top web or plate 8 cast integral with the rest of the casing and forming a chair for the rail to rest upon. This top plate is shown as projecting beyond the side plates 6 at each of its ends 9 so as to form an extended seat or bearing for the rail, and such projecting ends 9 are shown as supported centrally by said ribs 7 of the side plates 6. The sides of the top plates 8 are furthermore shown as widened at the opposite corners and as provided with apertures 10 through which any suitable fastening devices 11 may be passed to secure the rail to the tie.

In making the tie, a pair of such casings or jackets 3 are placed in the mold in proper position near each end, with the stiffening irons 2 extending longitudinally through them. The concrete mixture is then dumped into the mold and compressed or tamped closely into and around the said jackets and stiffening irons, so that after the molding operation is complete and the concrete has set, all of the iron work, including the jackets 3, is firmly connected with the concrete and forms a substantial part of the tie structure. In operation the metallic jackets 3 take the brunt of the blow caused by the sudden passage of the locomotive or train over the track and distribute it along the tie, thereby so far relieving the intensity of the shock as to prevent the concrete from being cracked or broken beneath the rail, as it is otherwise likely to be. At the same time the weight of the tie is not so greatly increased as to render the tie impracticable to handle or too expensive to be employed.

I claim as my invention:—

A railroad tie comprising a concrete tie body and jackets inclosing said tie body at

points beneath the track rail and provided
with top plates forming seats for the rails and
projecting beyond the sides of the jackets,
said projecting ends being supported by ribs
5 extending up the exterior sides of the jackets,
substantially as and for the purpose set forth.
In testimony, that I claim the foregoing as

my invention, I affix my signature in pres-
ence of two subscribing witnesses, this 29 day
of July, A. D. 1906.

H. H. CLOUGH.

Witnesses:

WILLIAM THORNBURGH
MARTHA B. CLOUGH.