

No. 815,364.

PATENTED MAR. 20, 1906.

F. N. MIHILLS.
RAIL TIE.

APPLICATION FILED FEB. 23, 1905.

2 SHEETS—SHEET 1.

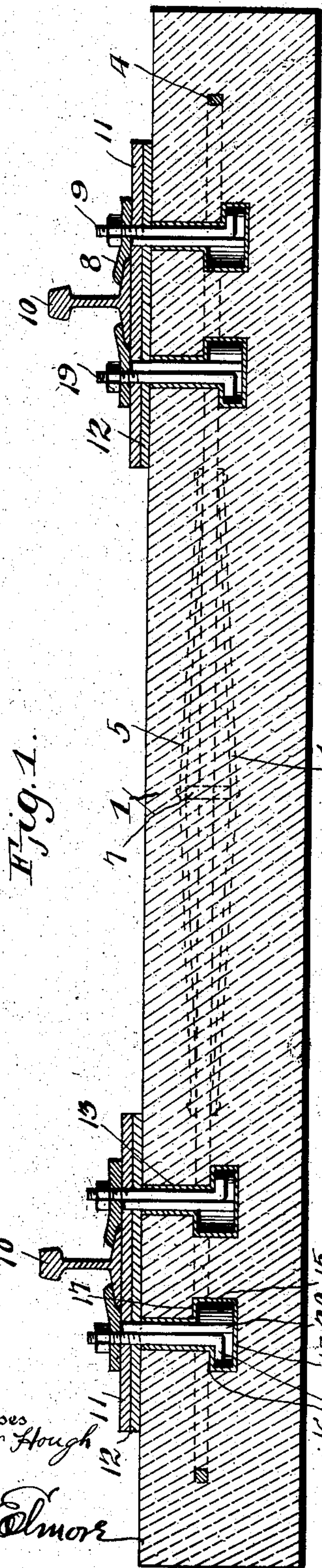


Fig. 1.

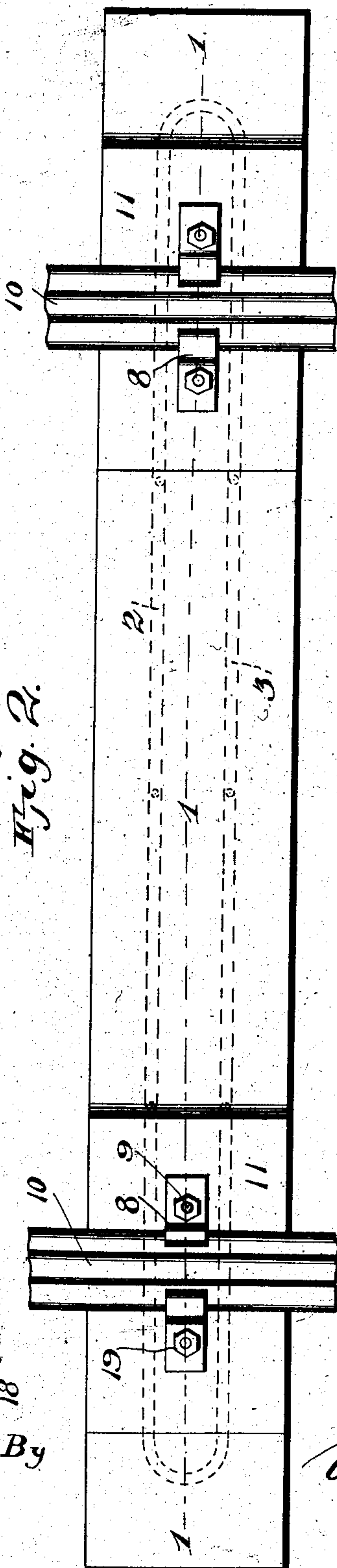
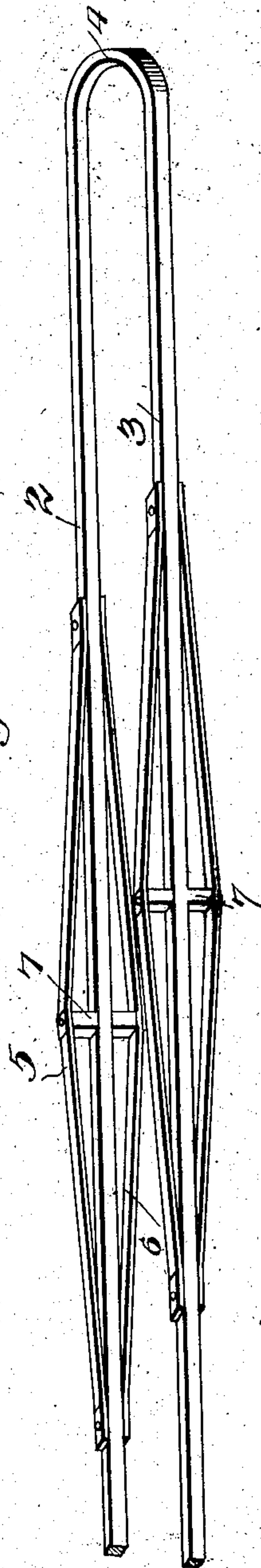


Fig. 2.

Fig. 3.



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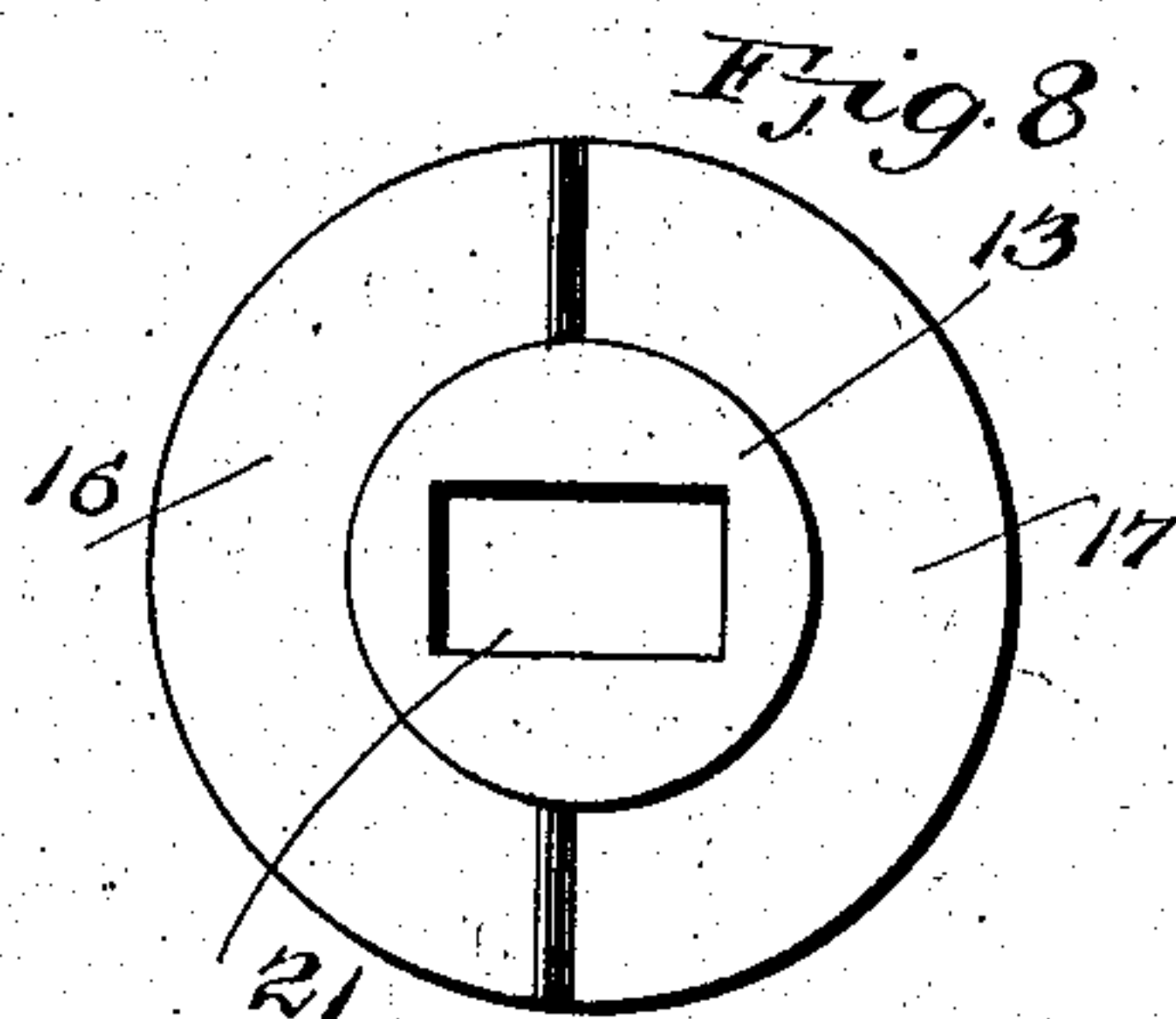
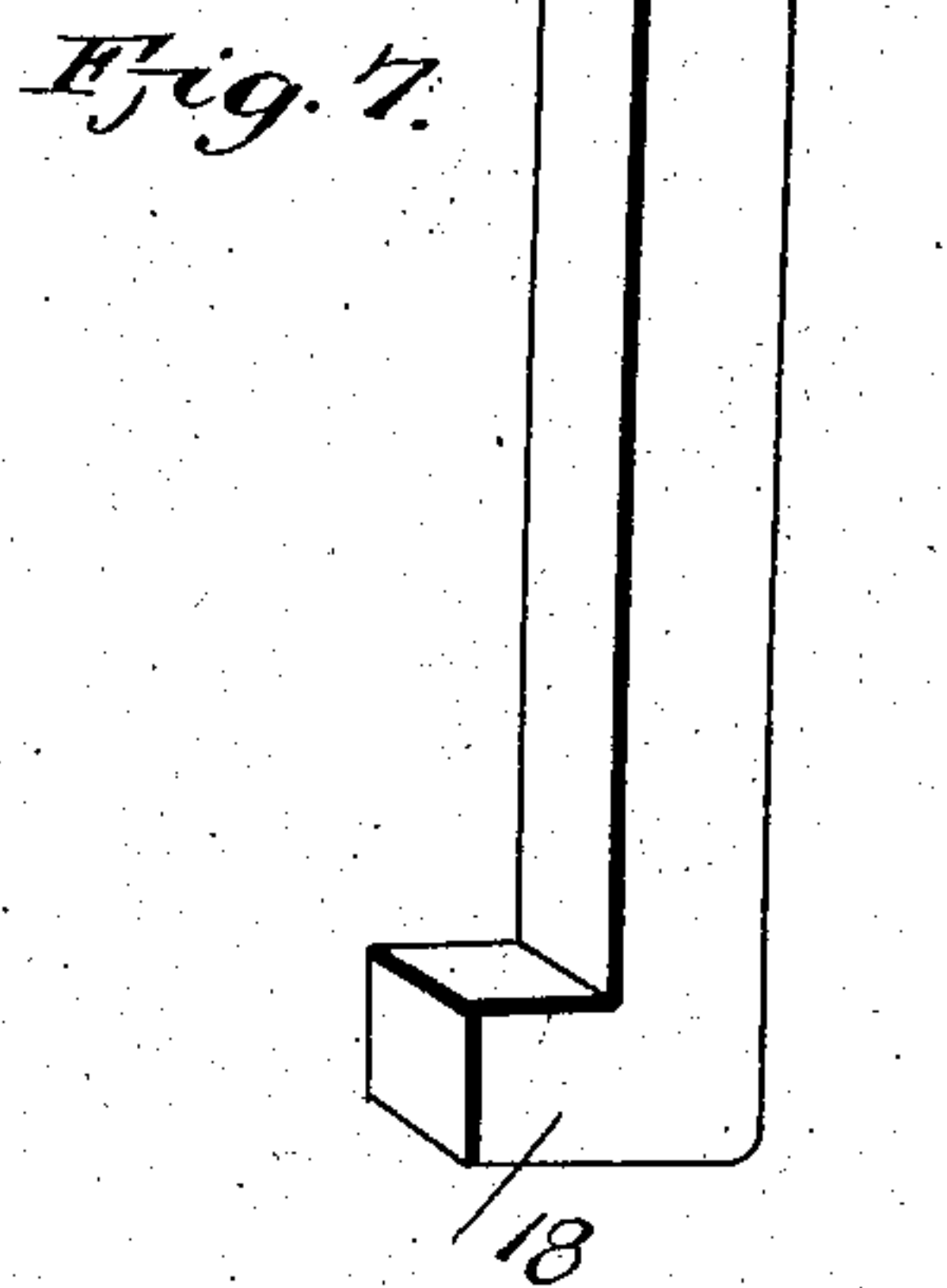
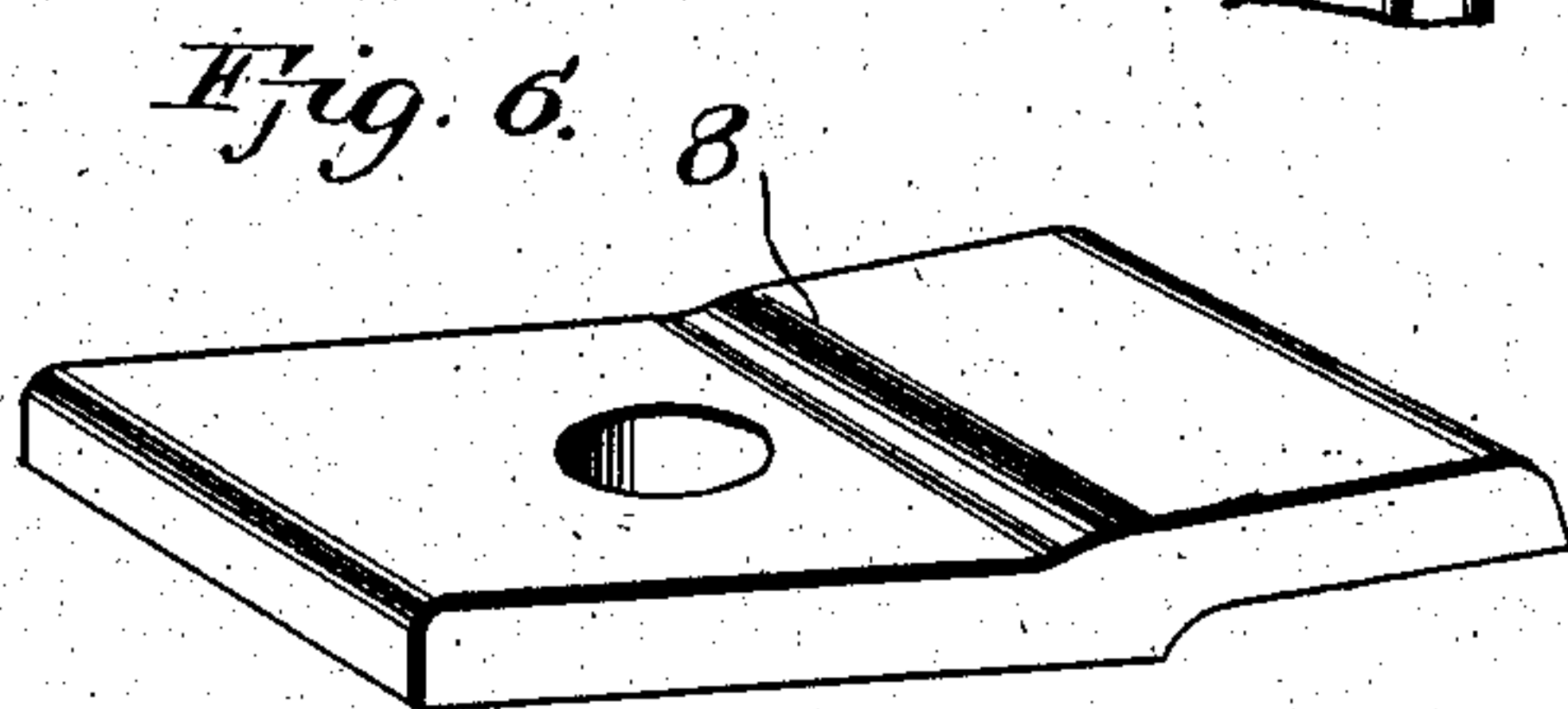
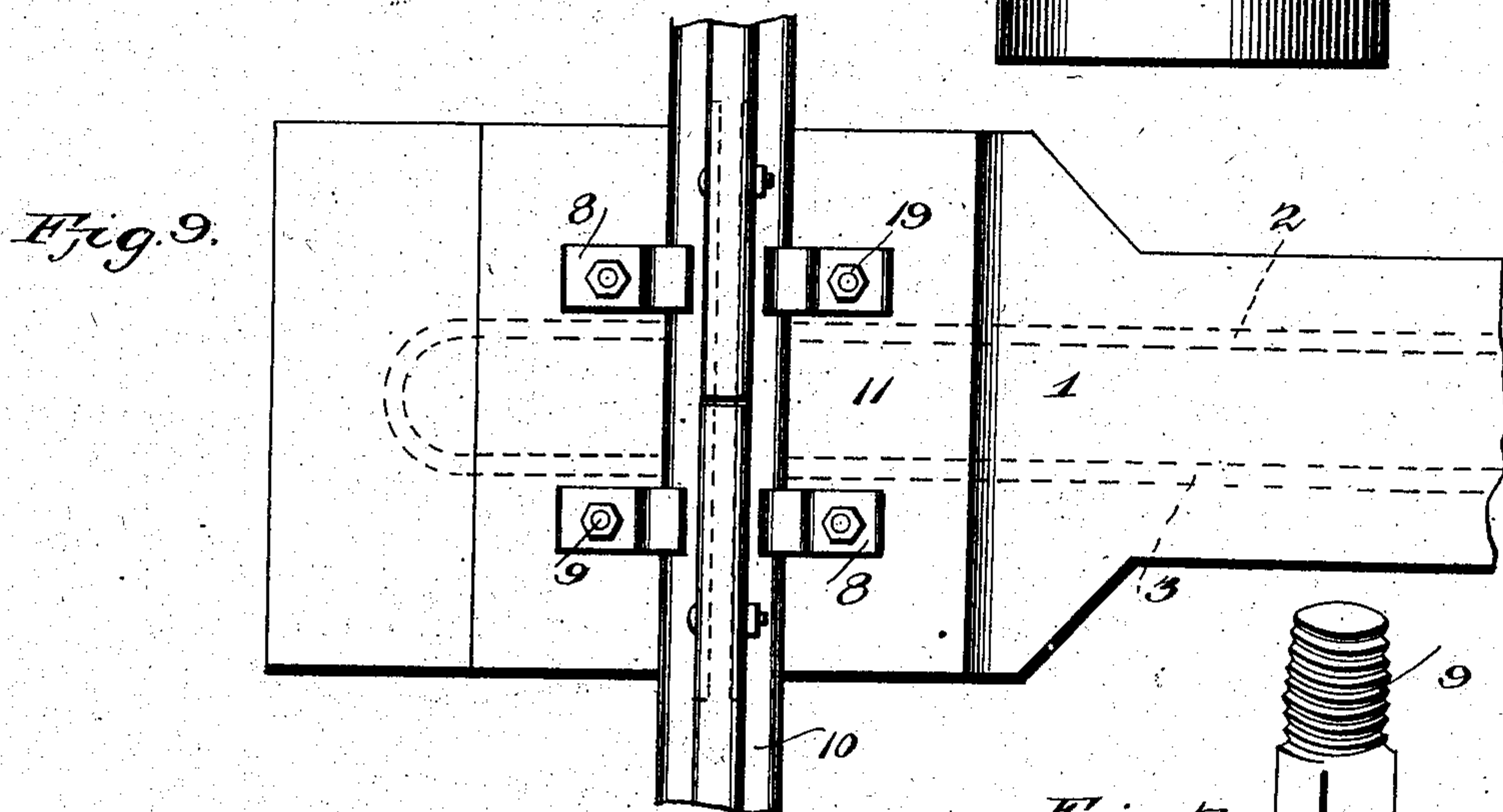
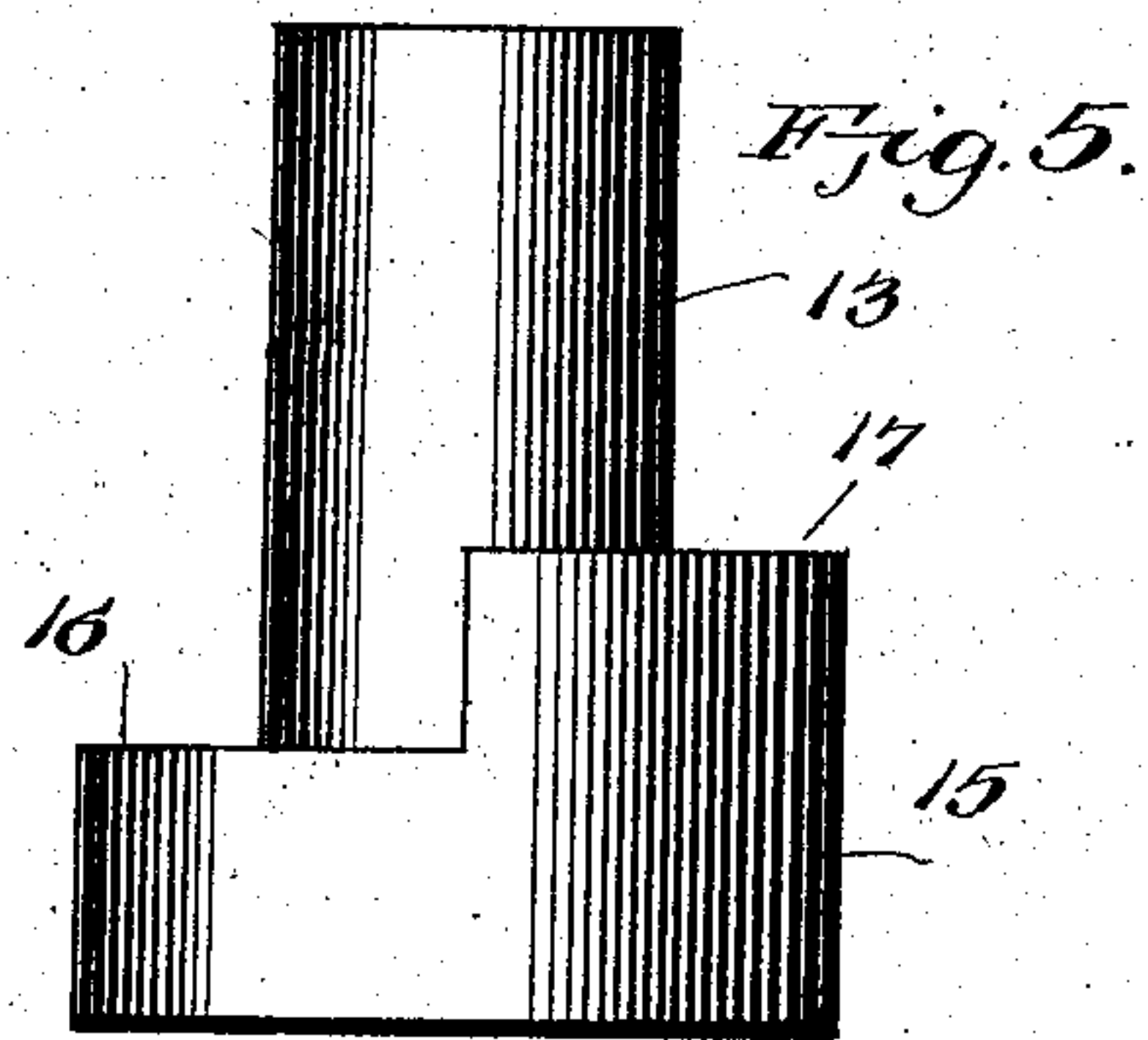
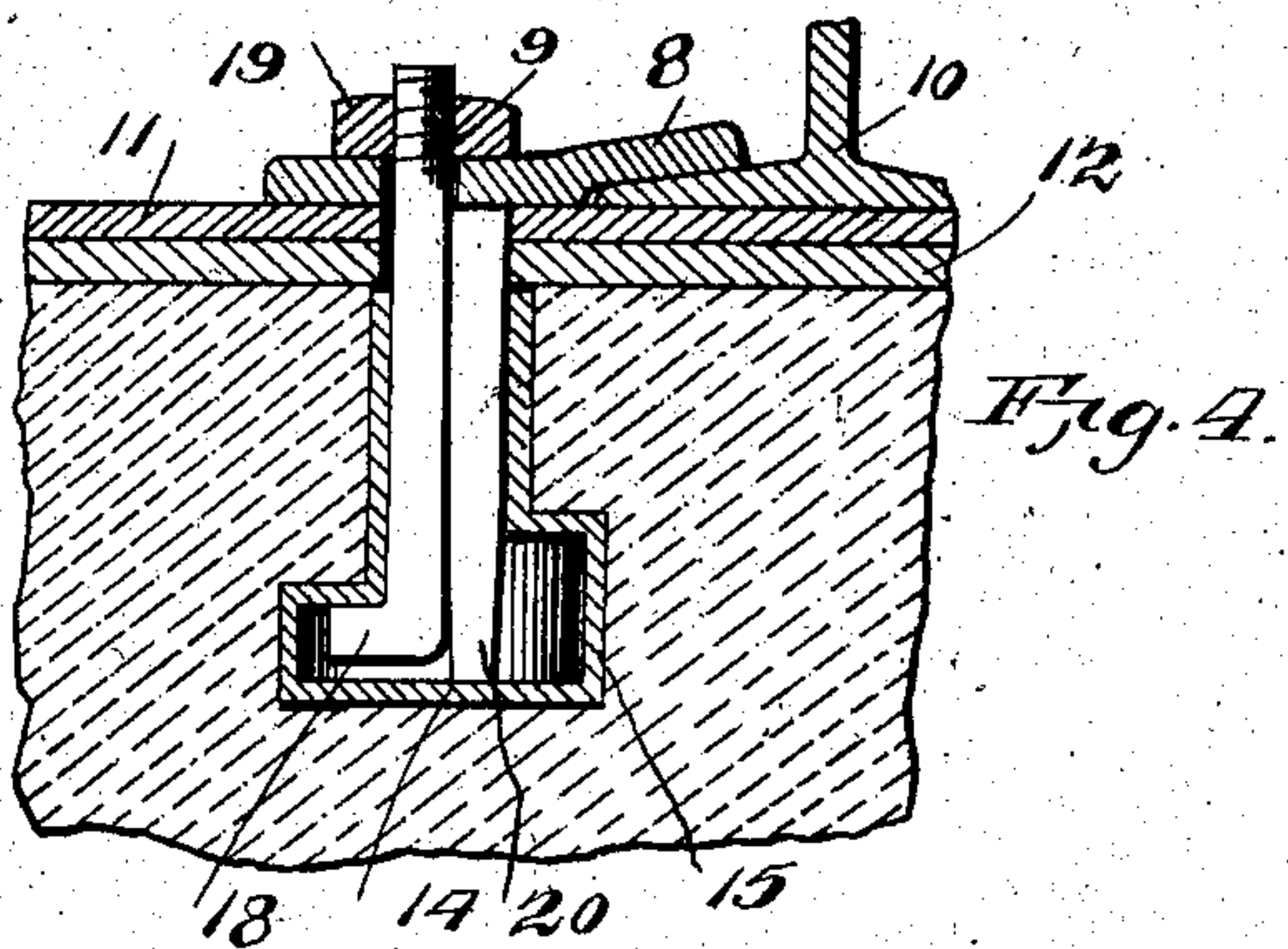
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

FRANK N. MIHILLS, OF BOSTON, MASSACHUSETTS.

RAIL-TIE.

No. 815,364.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed February 23, 1905. Serial No. 247,005.

To all whom it may concern:

Be it known that I, FRANK N. MIHILLS, a citizen of the United States, residing at Arlington Heights, Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Rail-Ties, of which the following is a specification.

This invention relates to railway-ties, and has for its objects to produce a comparatively simple inexpensive device of this character which will be exceedingly strong and durable, one to which the rails may be readily and firmly attached, one wherein spreading of the rails, owing to one or more of the ties becoming fractured, is obviated, and one which in practice will be practically indestructible through the action of climatic or elemental changes.

Further objects of the invention are to provide simple and efficient means for securing the rails to the ties, one wherein the rails will be maintained firmly and securely in place, and one wherein the ties will, to a measurable extent, be relieved of the vibrations to which the rails are in practice subjected.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a central longitudinal section taken on the line 1 1 of Fig. 2. Fig. 2 is a top plan view of the tie and portions of the rails. Fig. 3 is a detail perspective view of the binding member or core. Fig. 4 is an enlarged detail view, partly in section, of a portion of the tie and the rail-attaching devices. Fig. 5 is an enlarged side elevation of one of the bolt-receiving boxes or sockets. Fig. 6 is a perspective view of one of the rail-engaging plates. Fig. 7 is a similar view of one of the retaining-bolts. Fig. 8 is a top plan view of the box shown in Fig. 5. Fig. 9 is a top plan view showing the manner of attaching the meeting ends of a pair of rails to a modified form of tie.

Referring to the drawings, 1 designates a tie composed of cement, concrete, or analogous material and having embedded therein during the molding operation a binding member or core 2, preferably composed of steel and of the form shown, comprising parallel side bars 3 and integral rounded ends 4, formed continuous with the side bars, there being riveted or otherwise attached to each

of the bars 3 at a point adjacent its longitudinal center a brace 5, comprising upper and lower oppositely-disposed truss-plates 6, spaced at their longitudinal center from the bar 3 by means of spacing members, preferably in the form of strut-blocks 7.

It will be understood that in forming the tie the binding member or core is placed in a suitable mold prior to filling the latter with plastic material, which is thereafter allowed to harden, and that the core thus strengthens the tie, which latter, through the medium of the braces 5, receives the greatest amount of strength at its otherwise weakest point, or, in other words, at that portion of the tie which in practice extends between the rails, whereby liability of the tie becoming fractured is minimized. It will be observed, however, that should the tie in practice become broken the binding member 2 will, owing to its peculiar form, serve to securely bind together the portions of the tie and prevent spreading of the rails.

Secured to the tie 1 by means of engaging members or clips 8, in turn retained in place by fastening members or bolts 9, is a pair of rails 10 of usual construction and arranged in the customary spaced parallel relation, there being arranged beneath each of the rails and to wholly cover the adjacent portion of the tie a steel or other metal wear-plate 11, between which and the tie there is in turn situated a cushioning member or plate 12, of wood or fibrous material, which is coextensive in area with the plate 11 and serves in practice to relieve the tie of vibrations incident to the rails, these plates being secured in place by means of the bolts 9, which pass through suitable openings 12' in the plates.

Embedded in the tie 1 at appropriate points are metal boxes 13, constituting sockets to receive the bolts 9, and each having at its lower end semicircular enlargements 14 and 15 of unequal heights and presenting shoulders or abutments 16 17, disposed at relatively different vertical elevations, these shoulders being designed for engagement by an angular engaging portion 18, formed at the lower end of each of the bolts 9, while upon the upper ends of the latter and in threaded engagement therewith are nuts 19, designed for engagement, as usual, with the clamping-plates 8 to hold the latter in secure engagement with the base-flanges of the rails, the bolts being in turn maintained in position with their angular portions 18 engaging one

of the shoulders in the socket by means of keys or wedges 20, which are entered vertically into the sockets in contact with the respective bolts. It is to be noted in this connection that the openings 12' are of a size to receive not only the bolts 9, but also the upper ends of the wedges 20, which are of suitable length to project into the openings.

In practice the bolts 9 are entered into their respective sockets through rectangular openings 21 in the top of the latter and after having the portions 18 properly engaged with the shoulders 16 are locked in such engagement by means of the wedges or keys 20, which, it will be observed, are, together with the bolts 9, of sufficient cross-sectional area to wholly fill the body portions of the sockets 13. The bolts having been placed in position, plates 11 and 12 are next positioned and the rails 10 seated thereon, after which the plates 8 are seated upon the bolts and secured by means of the nuts 19. In the event of it becoming necessary or desirable to place a greater number of plates 11 or 12 beneath either of the rails for leveling the latter relatively the lower portions 18 of the bolts are engaged with the shoulders 17, the bolts being thereafter secured by means of the keys 20 in the manner heretofore explained, this arrangement of the parts being possible owing to the fact that the openings 12' are of a size to receive the bolts 9 and also the ends of the wedges 20, whereby the bolts 9 may be moved to the inner ends of the openings 12' and the wedges introduced at the outer ends of the latter for holding the bolts in place.

In Fig. 9 is illustrated a slight modification of the device, in which the tie employed at the joint between a pair of rails is formed with extra wide ends; the meeting ends of the rails being secured to said tie by means of the clips 8, held in place by bolts 9, which in turn are entered into metal boxes in the tie and held by means of fastening keys or wedges in the manner heretofore explained, it being understood in this connection that aside from forming the tie with extra wide ends to

accommodate the meeting ends of the rails the construction and operation of the parts are identical with those above described.

From the foregoing it is apparent that I produce a simple inexpensive tie which in practice will be strong and durable and simple and efficient means for attaching the rails to said tie together with means for effectually relieving the ties of vibrations incident to the rails, it being understood that in attaining these ends various minor changes in the details herein set forth may be resorted to without departing from the spirit of the invention.

Having thus fully described the invention, what is claimed as new is—

1. An artificial-stone tie having a binding member embedded therein, said binding member comprising a longitudinal bar and end engaging portions, and a brace attached to the bar and comprising opposite upper and lower trusses and spacing members between the trusses and bar.

2. An artificial-stone tie having a binding member embedded therein and comprising a pair of spaced parallel bars and end portions connecting said bars, a brace upon each of the bars adjacent the longitudinal center of the tie, said brace comprising upper and lower trusses attached to the bar, and spacing-blocks between the trusses and bar.

3. A tie provided with a socket having a pair of shoulders disposed at comparatively different elevations, a rail seated upon the tie, a plate arranged beneath the rail and fastening means for the rail and plate including a bolt having an angular portion adapted for engaging with either of said shoulders, and a wedge entered into the socket in contact with the bolt for maintaining said angular portion and shoulder in engagement.

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

FRANK N. MIHILLS.

Witnesses:

H. M. PLINTER,
ALFRED D. HURD.