

(No Model.)

W. H. ADDICKS.
METALLIC RAILWAY TIE.

No. 539,210.

Patented May 14, 1895.

FIG. 1

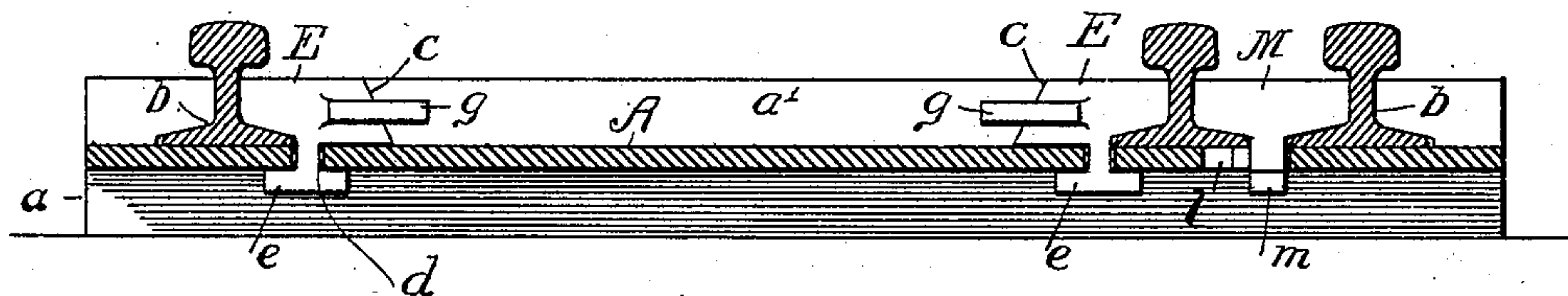


FIG. 2

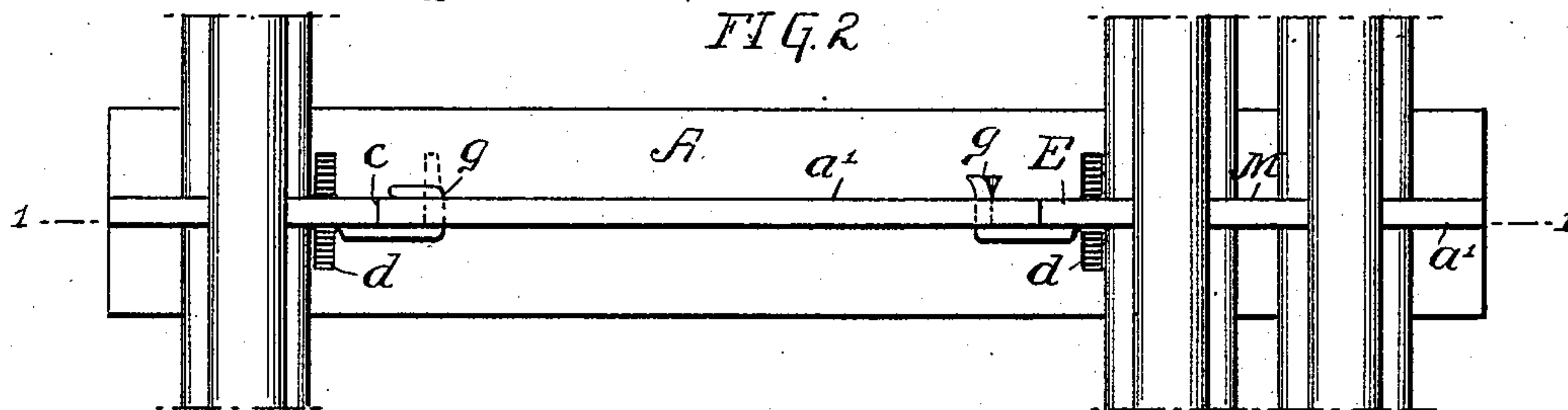


FIG. 6

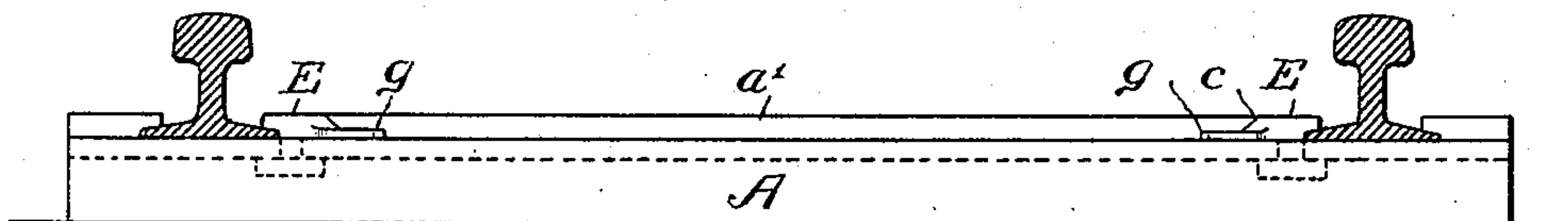


FIG. 4

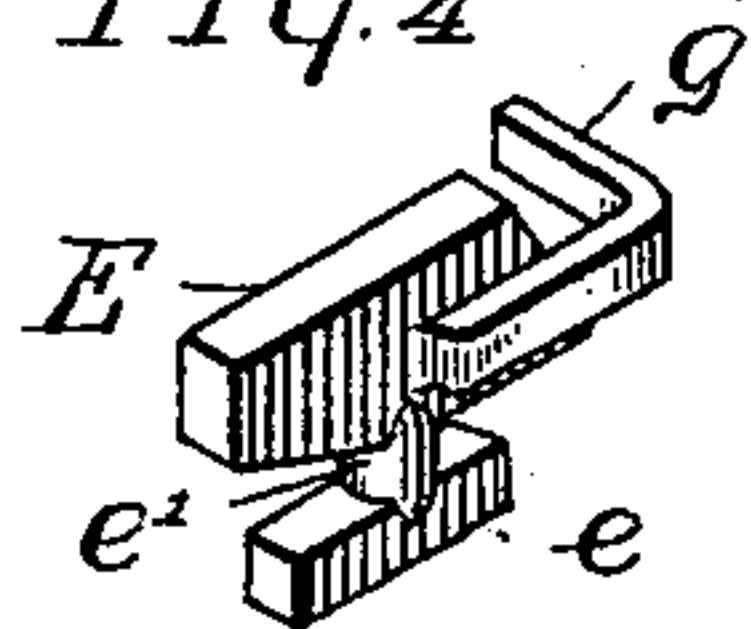


FIG. 3

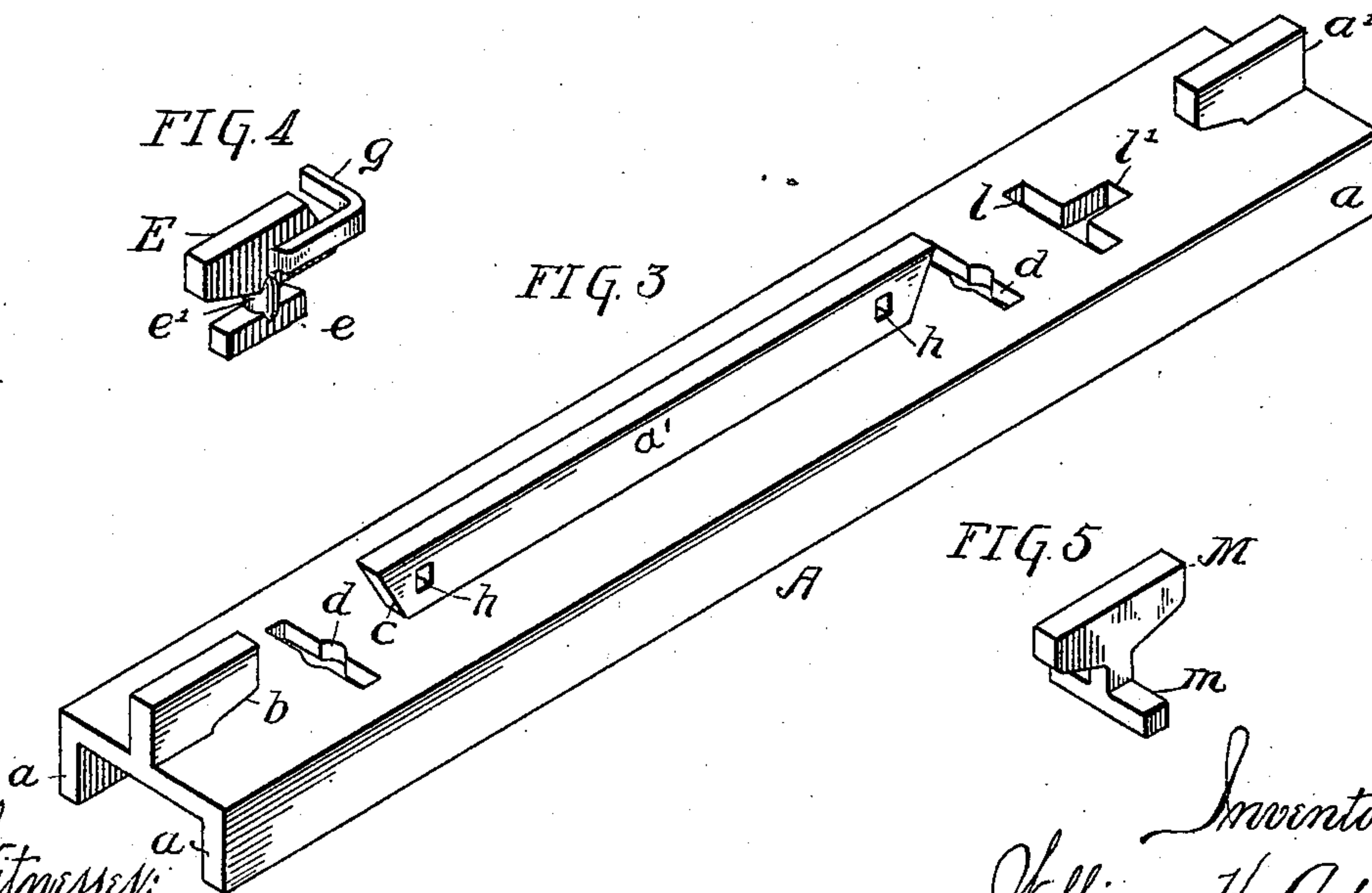
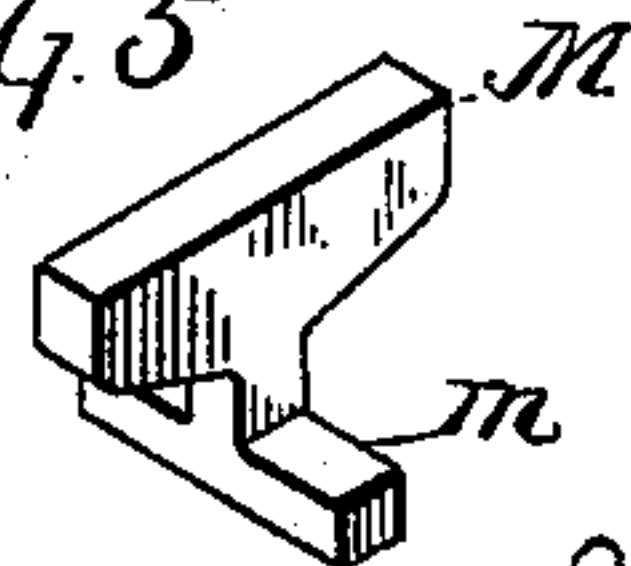


FIG. 5



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UNITED STATES PATENT OFFICE

WILLIAM H. ADDICKS, OF PHILADELPHIA, PENNSYLVANIA.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 539,210, dated May 14, 1895.

Application filed January 23, 1895. Serial No. 535,895. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ADDICKS, of the city of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improvement in Metallic Railway-Ties, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of metallic railway ties in which the tie is especially shaped for the purpose of securing the rails in position, its object being to provide a secure and economical construction of tie, which, in connection with auxiliary fastening devices of simple character, may be employed to hold the rails in place, as more fully set forth hereinafter. In my improved construction herein described the necessity for the employment of spikes, screws, &c., is obviated, and a firmer locking construction provided. In constructions where spikes, screws, &c., are employed they are always liable to work loose under the vibrations consequent upon the passage of trains. The parts necessary to the complete construction of my invention herein described are reduced to a minimum, and these parts are constructed so as to be interchangeable and can be readily replaced. In this construction the line and gage of the rails so adjusted will be accurate and positive, and can be readily set into position without loss of time and labor, as for instance, not only in the original construction of the line but in case of accidental destruction or derangement of the line.

In the accompanying drawings, Figure 1 is a sectional elevation on the line 1 1, Fig. 2, of a railway-tie constructed in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of the tie proper. Fig. 4 is a perspective view of one of the rail-fastening keys. Fig. 5 is a similar view illustrating a form of key and spacing-block which may be placed between one of the rails and a guard-rail at bridges, curves, or switches; and Fig. 6 is an elevation of a slightly-modified construction of tie.

Referring to the drawings, A represents the tie provided with two lower depending flanges, *a*, so as to form a channel bar, with a centrally located rib, *a'*, on its upper sur-

face, extending longitudinally of the tie, and being interrupted or cut away at the points where the rails lie in order that the base of the rails may rest directly upon the broad upper surface of the main body of the tie, and be secured thereon through the medium of the central rib.

The rib, *a'*, is cut away and recessed at *b* to conform to the base and web of one side of the rail, and at *c* is cut away at an angle, as shown more clearly in Fig. 1. To one side of the base of each rail the upper surface of the tie is provided with a slot, *d*, extending preferably in a line parallel with the length of the rail.

The securing key, E, is formed of a block of metal of a thickness about equal to that of the rib, *a'*, and on one side is so shaped as to conform to the contour, in cross-section, of one side of the base and vertical web of the rail, and on the opposite side or end is cut away at an angle corresponding to the angle at which the rib, *a'*, is cut at *c*, and is of a size to fill the space intervening between the end of the rib at *c* and the inner surface of the rail, to snugly fit therein and to hold the rail, laterally considered, rigidly in position. On one face of the key is secured a tongue, *g*, which may be bent around at a right angle to the length of the key, as shown in Fig. 4, and when in position is adapted to enter an opening, *h*, formed in the rib, *a'*, and then bent to lock the key in position. The base of the key is provided with a tongue, *e*, the length of the tongue *e*, being somewhat less than the length of the slot, *d*, connected with the main body of the key by the shank, *e'*, the latter at its central portion being provided with slightly curved walls forming an opening in which the shank or neck, *e'*, of the key may readily turn.

In assembling the parts the rail is first laid in position on the tie and pressed against the portion, *b*, of the rib, *a'*, and the key, E, is turned at a right angle to the length of the rib, *a'*, and its tongue, *e*, is passed through the slot, *d*. The key being then turned it comes into alignment with, or practically forms a continuation of, the rib, *a'*. This turning of the key causes one of its ends to come into contact with the web and base of the rail and its opposite end to pass under and in contact

with the portion, *c*, of the rib, *a'*, while at the same time its tongue, *g*, will have passed through the opening, *h*, and can then be turned parallel with the rib, or given a slight twist, as shown in Fig. 2, in order to prevent its return. When the key is in place it is prevented from turning by this bending or twisting of the tongue, *g*, and is prevented from rising by reason of the inclined face, *c*, of the rib, *a'*, and its locking tongue, *e*, which has been passed through the slot, *d*, and then turned until it is at a right angle to such slot.

The surface of the walls, *c*, transversely considered, is at a right angle to the length of the tie. When, therefore, the key is locked with its inner end abutting against the surface, *c*, the liability to lateral displacement of the rails is positively provided against. The rails cannot spread owing to the outer portion of the rigid rib, *a'*, and they cannot be forced inwardly, as above stated, as the inner edge of the key, *E*, coinciding with the lines of the walls, *c*, against which it abuts, is held firmly by the inner portion of the rib, *a'*, against any inward movement.

In Fig. 6 I have illustrated a modification of the invention in which the height of the rib, *a'*, is materially reduced, and the fastening devices operate only on the base or lower flange of the rail, to be employed principally where lateral support is not especially desired.

Where a double, or guard rail, is used, as at curves, bridges, crossings, or switches, the outer rail is first placed in position against the specially shaped portion, *b*, of the rib, *a'*, as shown to the right of Figs. 1 and 2. The upper surface of the main body of the tie is provided with a T-shaped slot, *l*, *l'*, the portion, *l*, extending at a right angle to the length of the tie while the portion, *l'*, is formed immediately in line with the rib, *a'*. After the first, or outer rail, has been placed in position the base, *m*, of a spacing block or key, *M*, is passed through the portion, *l*, of the slot, and the key is then moved up in the portion, *l'*, until it is in contact with the rail. The second rail is then placed in position, and locked as in the first instance with a key, *E*.

It will be noticed that the opposite ends of the key or spacing block, *M*, are both shaped to conform to the contour of the sides of the main rail and the guard rail, so that both rails will be firmly clamped and held down in position on the tie.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the railway tie having on its upper surface a recessed rib one wall or edge of each recess being so shaped as to conform to the contour of one side of the web and base of a railway rail and the opposite wall or edge being inclined, there being in the upper surface of the main body of the tie a slot, as *d*, extending at an angle to the

length of the tie, with a locking key having one end so shaped as to conform to the contour of one side of the base and web of the railway rail and its opposite end being inclined at an angle corresponding to the angular wall of the recess in said rib, a tongue formed integral with and extending parallel to the length of the key, said tongue being adapted to enter the slot, *h*, and means for locking said key in position, substantially as specified.

2. In a metallic railway tie having a centrally disposed longitudinal recessed rib, recessed for the reception of the rails, a removable locking key having a downwardly projecting shank and a keyed head provided at the lower end thereof adapted to fit into and through a recess provided in the base of the tie, the upper surface of the head of the shank constructed to impinge against the lower surface of the base of the tie when the key is turned against the rail in its locking position tending to prevent upward displacement, said key being formed at one end to fit upon and against the inner walls of the rail and at the opposite end having an inclined surface increasing toward the base conforming in shape to the outer end of the inner central portion of the rib and adapted to positively abut against the same at a right angle to the length of the rib, and an L-shaped pin provided horizontally upon the side of said key, the L-portion adapted to enter and protrude through an orifice provided in the central portion of the rib near its outer end and to be clinched in said orifice, substantially as described.

3. A metallic railway tie comprising a channeled base plate and a recessed longitudinal rib, the outer end portions of the rib constructed to bear upon and against the outer side of the base and web of the rail, a removable key adapted to a transversely disposed slot, said key having its outer end constructed of a shape to enable said end to bear upon and against the inner portion of the base and web of the rail, the opposite end of said key to abut against the outer end of the inner portion of the central rib, and a locking pin provided upon said locking key adapted to engage with the rib through an orifice provided therein for the purpose, substantially as described.

4. A metallic railway tie having an upper longitudinally disposed recessed rib, the inner portions of the outer ends of said rib formed by the recesses constructed to bear upon and against the outer portion of the base and neck of the rail, a transversely disposed slot provided in each recess, a removable key adapted to be engaged in said slot and to lock the tie in position, said key having one end of a shape adapted to bear upon and against the inner portion of the base and neck of the rail, and having in the opposite end an abutting portion with its plane at a right angle to the line of its length adapted to abut against a similarly shaped end of the centrally dis-

posed portion of the longitudinal rib and locking pin provided upon said key adapted to protrude into and through an orifice provided in said rib and to be clinched therein, substantially as described.

5 5. The combination of a metallic tie having an upper longitudinal rib provided with a recess of a width greater than the combined widths of a rail and guard rail, and securing
10 keys adapted to slots provided in the upper surface of the main body of the tie for locking the said rails in position upon the tie, and a spacing block having a contour at its opposite ends adapted to conform to the upper
15 surface of the base of the rails, an integral downwardly projecting neck an elongated key head provided upon the lower end of said neck adapted to pass through a T-shaped slot provided in the base of said tie, said head
20 adapted to engage against the under surface of the upper portion of said tie when slid into locking position in the shank of the T and to hold said spacing block against vertical displacement, substantially as described.

25 6. The combination of the tie having an upper rib provided with a recess of a width greater than the combined widths of a rail and guard rail and securing keys adapted to slots provided in the upper surface of the
30 main body of the tie and to fill that portion of the recess not occupied by the rail and the

guard rail with means for locking such keys in position, substantially as specified.

7. The combination of the tie, A, having an upper rib, a' , provided with a recess having
35 walls, b , and c , there being in the upper surface of the tie a slot, d , extending at an angle to the length of the tie, a locking key, E, having a lower tongue, e , adapted to pass through
40 said slot, d , and a locking tongue, g , secured to or formed integral with said key and adapted to extend through an opening in the rib, a' , substantially as specified.

8. The combination of the tie, A, having an upper rib, a' , provided with a recess of a width
45 greater than the combined widths of a rail and a guard rail there being in the upper surface of said tie slots, d , l , l' , a key or spacing block, M, having a base portion, m , adapted to enter the slot, l , and to confine the adjacent
50 faces of the rail and the guard rail and a filling block or key, E, having a tongue, e , adapted to the slot, d , and a locking tongue, g , adapted to an opening, h , in the rib, a' , substantially
55 as specified.

In witness whereof I have hereunto set my hand this 19th day of January, A. D. 1895.

WILLIAM H. ADDICKS.

Witnesses:

C. PERCY WILLCOX,
HORACE PETTIT.