

J. C. CRAMP.
COMPOUND FISH PLATE FOR RAIL JOINTS.
APPLICATION FILED OCT. 14, 1909.

965,568.

Patented July 26, 1910.

2 SHEETS—SHEET 1.

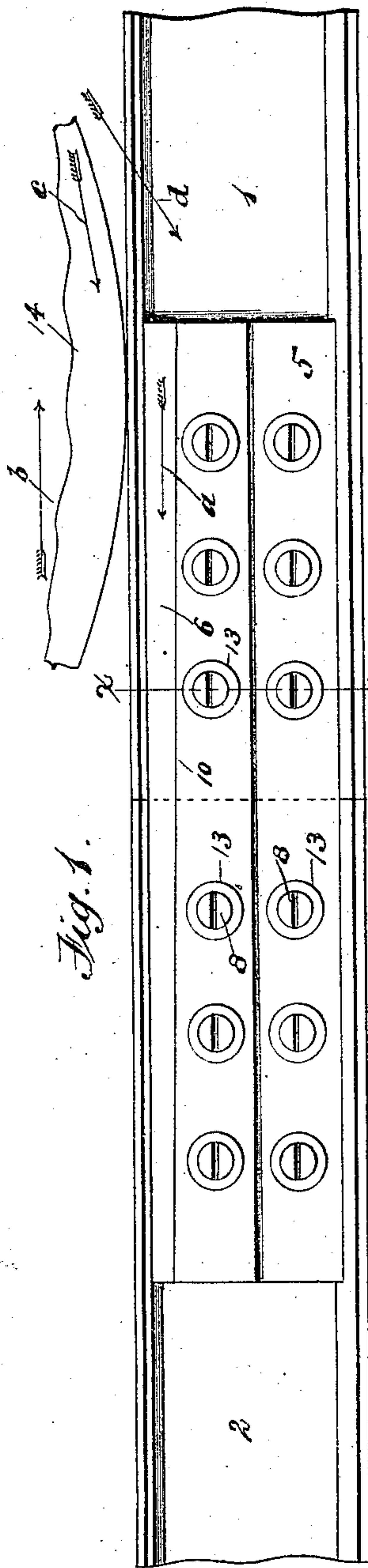


Fig. 1.

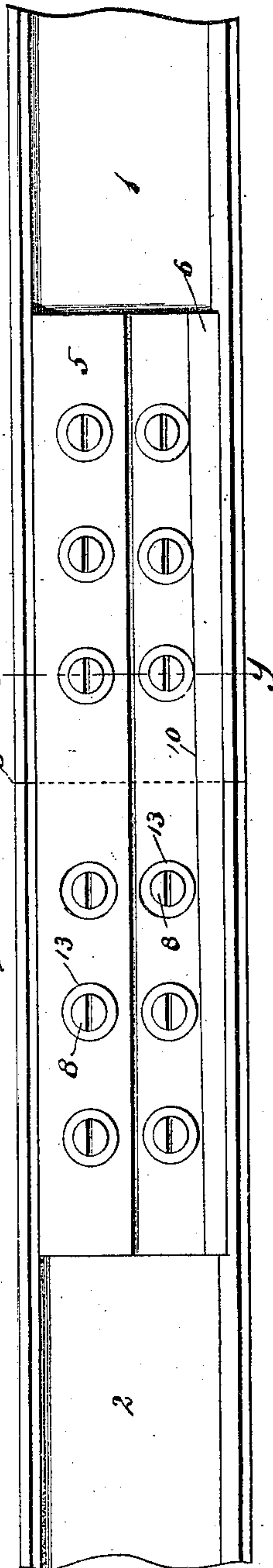


Fig. 3.

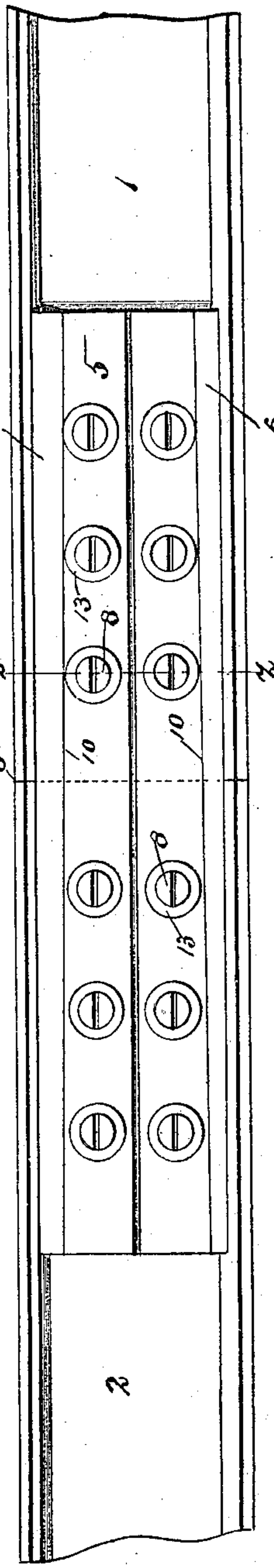


Fig. 5.

WITNESSES:

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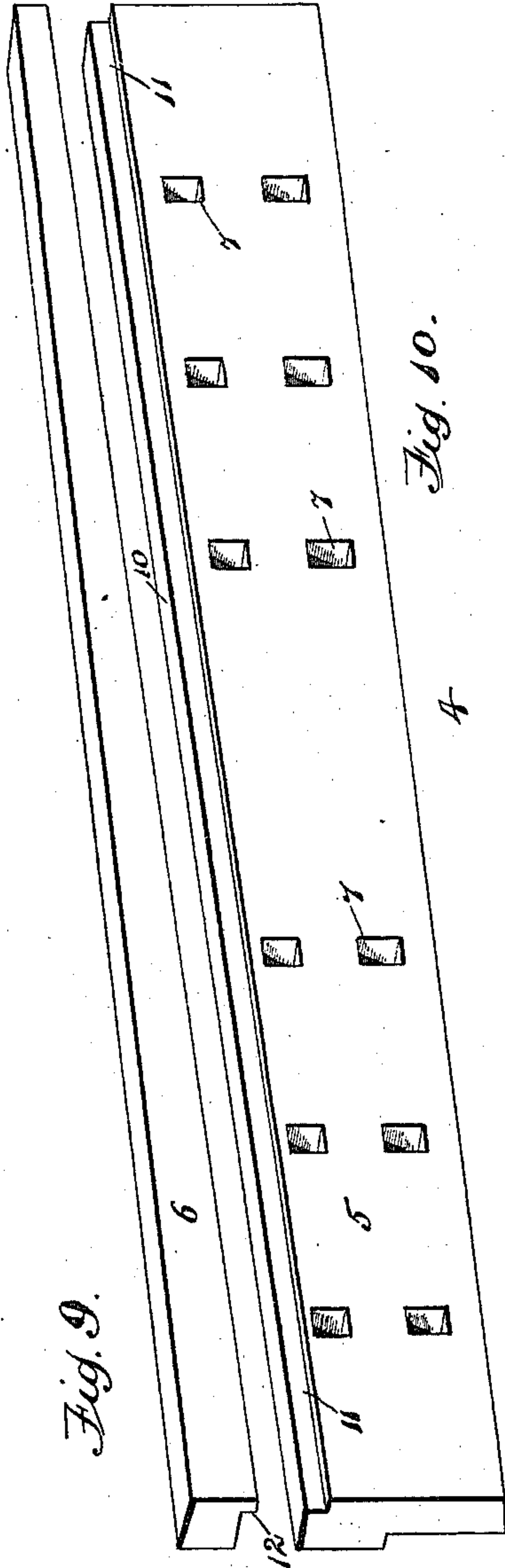
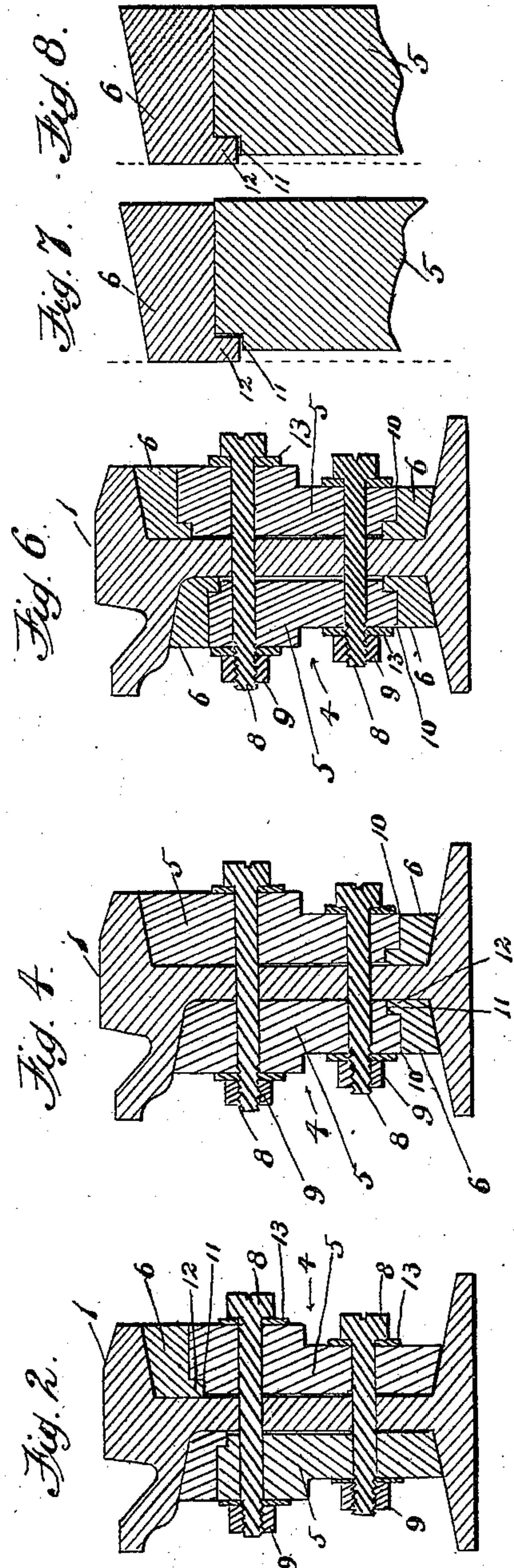
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UNITED STATES PATENT OFFICE.

JOSEPH C. CRAMP, OF PHILADELPHIA, PENNSYLVANIA.

COMPOUND FISH-PLATE FOR RAIL-JOINTS.

965,568.

Specification of Letters Patent. Patented July 26, 1910.

Application filed October 14, 1909. Serial No. 522,672.

To all whom it may concern:

Be it known that I, JOSEPH C. CRAMP, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Compound Fish-Plates for Rail-Joints, of which the following is a specification.

My invention, while broadly relating to the general class of railroad rails, yet more particularly relates to that branch of the class noted, which comprises, among other devices, those which are designed to secure railroad rails together, when said rails are placed in position for use in a road bed, and to this end, the said invention contemplates the provision of peculiar means for locking the abutting ends of said rails firmly together, and for maintaining the upper surfaces or treads of the said rails, continuously in the same plane, and under the utmost strains, and shocks consequent upon, and due to the movement thereon of truck wheels, thus not only preventing the hammering action of the truck wheels upon the rail ends, which hammering action is due to the deflection of one end of two abutting rail ends, under the weight of the truck and its load, and which would result were not the rails provided with locking devices, either similar to, or constructed in accordance with my invention, but also fulfilling the further purpose of materially increasing the life, or service of the rails themselves.

To the ends above outlined, the invention consists essentially in what might be termed, a compound fish plate, having a construction and arrangement of parts, and adapted for service in securing the abutting ends of railroad rails together, substantially in manner and form, as is hereinafter described and claimed, and illustrated in the accompanying drawings, which form a part of this application, and wherein:

Figure 1 is a side elevation of the abutting ends of two railroad rails, held together, and securely in position for use with upper surfaces, or treads in perfect alinement, by my invention. Figure 2, is a slightly enlarged transverse section, of one of the rails and locking device, shown in Fig. 1, said figure taken on the line *x, x*, of Fig. 1. Figs. 3, and 5, respectively show, in side elevation, the abutting ends of two rails, connected together by my improved locking device, or compound fish plate, the first named being

shown as applied to the rail in different manner from that shown in Fig. 1. Figs. 4, and 6, respectively illustrate slightly enlarged transverse sections of Figs. 3, and 5, Fig. 4, being taken on the line *y, y*, of Fig. 3, and Fig. 6, taken on the line *z, z*, of Fig. 5. Figs. 7, and 8, illustrate like sectional views through a portion of the compound fish plate, the said views being taken for the purpose of facilitating description of the device, and, Figs. 9, and 10, taken together illustrate, in perspective, my improved rail locking device, or compound fish plate, in which figures, the two parts, which comprise the device, are shown as separated to clearly set forth the peculiar construction of each thereof.

Referring to the drawings, wherein similar numerals of reference denote similar parts, in the several figures of the drawing, numerals 1, and 2, designate respectively, each a portion of a track rail of the ordinary well known form, and 3, the point at which the said rails abut.

It will be observed, by reference to the accompanying drawings, and particularly to Figs. 2, 4, and 6, thereof, which figures show the track rail in cross section, that the rail chosen for the purpose of illustrating my invention, and the method of adapting the same for use, in connection with railroad rails is of that form which is more particularly employed in urban, or inter-urban traffic, *i. e.* rails for use in connection with trolley, cable, or animal propelled vehicles, I do not however desire to confine its use solely to this description of rail, as it will be obvious, upon examination, that the device is equally applicable for use upon railroad rails, which are employed in connection with steam, (or other motive power) driven vehicles, for heavy traffic, or freightage.

Having thus made clear the use and purpose of my invention, and the connection in which it is to be employed, I will now proceed to describe such invention, and the method in which it is to be applied for use in connection with a railroad rail, first stating that for the purpose of simplifying such description, I shall hereinafter designate, and refer to such invention as a compound fish plate.

To proceed, the numeral 4, designates my improved compound fish plate, the same consisting essentially in two parts 5, and 6, one

of which 5, I provide with a series of apertures 7, which extend through said part 5, for the passage of securing bolts 8, which preferably provided with heads upon one end, are at the other end screw threaded to receive nuts 9, as shown. The bolts 8, extend through the apertures 7, in the part 5, of the fish plate 4, and through corresponding apertures formed through the web of the rail, and operate to securely hold all the parts together, when the same are in position for use, as will be readily understood. I preferably incline one of the edges 10, of the part 5, from end to end of said part, thus imparting thereto a wedge shaped form, and I provide one of the edges of said incline with a rabbet 11, to receive a lip 12, which is formed upon one of the side edges of the remaining part 6, of the compound fish plate 4, as shown.

By reference to the drawings, it will be noted that the part 6, of the compound fish plate, is also inclined upon one of its edges, preferably upon that which carries the lip 12, and that it is consequently wedge shaped also. Further, by reference to the drawings, it will be noted that the inclined edges of the parts 5, and 6, of the compound fish plate, are so arranged, as regards each other, that when they, the said parts 5, and 6, are in contact, and in position for use, the outer edges of the compound fish plate, thus formed, will be parallel each with the other, to fit snugly against the upper, and the lower flanges of the rail, when the said compound fish plate is in position, as shown in the drawings, to which end the said upper, and lower faces, or edges of the fish plate, are beveled transversely to fit the said flanges.

By reference to the drawings, and particularly to Figs. 7, and 8, it will be observed that the parts 5, and 6, of the compound fish plate vary as regards thickness, the part 5, being the thinner, whereby, when the said parts are together, and in position for use upon the rail, the inner surface of the part 5, will not bear upon the rail, but instead thereof the rabbeted edge of the part 5, will bear upon the lip 12, of the part 6, of the fish plate, and effectually prevent any movement of said part 6, or between said parts 5, and 6.

When it is desired to increase the pressure of the fish plate, between the upper, and the lower flanges of the rail, it is only necessary to slightly loosen the strain of the bolts 8, and thus permit the surface of the rabbet 11, to fall away from the lip 12, see Fig. 10, whereupon the part 6, can be driven forward, it being a wedge, after which the desired pressure necessary to draw the fish plates and rail together, can be applied to the bolts, as will be readily understood.

As is shown in Fig. 10, I preferably make the apertures 7, which are formed through the part 5, oblong, so that the slight lateral adjustment, which it is sometimes necessary to impart to the part 5, shall not operate in any way to strain the bolts 8, which extend through the apertures 7. Washers 13, may be placed between the heads of the bolts 8, and the surface of the fish plate, and also between the nuts upon the bolts and said fish plate, if desired.

By reference to the transverse sections, shown in Figs. 2, 4, and 6, it will be seen that the upper, and the lower edges of the compound fish plate, closely impinges upon the lower surface of the upper flange of the rail, and the upper surface of the lower flange of said rail, and that consequently it is only necessary to maintain close contact between the surfaces of said fish plate, and said flanges, to maintain the treads of the rails in perfect condition. The compound fish plate herein shown, may be constructed in any desired manner, that is to say, by casting, rolling, or forging, and I therefore do not confine myself to any particular method of constructing the same, it only being necessary to so form the component parts of said plate, that it shall conform to the conditions herein set forth, when in position for use.

By reference to the drawings, Fig. 1, it will be understood that strains, or shocks due to, and caused by the movement of the truck wheels upon the rails, above the abutting ends of said rails, can be made to maintain the hold of the fish plate edge upon the rail flange, to which end the compound fish plates may be so applied to the rails, that the movement of the truck wheels upon said rails shall be in direction opposite to that in which it is necessary to force the part 6, of the compound fish plate, when it is desired to increase the pressure of said fish plate upon the flanges of the rails, as hereinbefore described. When the parts are arranged as thus described, it will be noted that the strains, and shocks referred to, will have a tendency to maintain resistance against movement of the contacting points of the fish plate, and rail.

To clearly demonstrate, and establish the fact set forth above, let it be assumed that the compound fish plate, shown in Fig. 1, is so applied to the rail, that movement of the part 6, of said fish plate, in the direction of the arrow *a*, is necessary to increase the pressure of said plate upon the rail flanges, further let it be assumed that movement of a truck wheel, upon the rail, is normally in the direction indicated by the arrow *b*. If now the conditions noted above be fulfilled, it will be found that the rotation of the truck wheel (a part of which is shown at 14,) will be in the direction indicated by the

arrow *c*, and that jars, or shocks due to the movement of the truck wheels, will exert pressure upon the rail in the direction indicated by the arrow *d*, and that such jars, or shocks, will be passed by the flanges directly to the part 6, of the fish plate, thus tending to increase, rather than to lessen the grip, and pressure of said part 6, upon the rail flange.

10 In Fig. 3, I show the part 6, of the fish plate, as bearing upon the lower flange of the rail, instead of the upper flange, as is the case in the arrangement of parts set forth in Fig. 1, while in Fig. 5, I show both the upper and the lower edges of the fish plate as provided with a part similar in construction to the part 6. In each case however, the conditions which obtain in the arrangement of the parts shown in Fig. 1, and as hereinbefore described, are to be observed.

25 Modifications in detail of construction, may be made in the device herein described, without departing from the spirit, or sacrificing the advantages of said device, and I therefore claim the right to make such modifications as shall properly fall within the scope, and limit of this invention.

30 Having thus described my invention, I claim, and desire to secure by Letters Patent:

1. A compound fish plate comprising a wedge shaped member provided with apertures for the passage of securing bolts, a wedge shaped member of greater thickness than the apertured member and adjustable longitudinally upon said apertured member, and means to positively hold the adjustable member from movement after it is adjusted and in operative connection with said apertured member and in position upon the ends of two abutting track rails, substantially as described.

45 2. A compound fish plate comprising a wedge shaped member having apertures formed therethrough for the passage of securing bolts and having a groove or rabbet formed in one of its inner edges to receive a locking lip, a wedge shaped member longitudinally adjustable upon and of greater thickness than said apertured member and provided with a locking lip to engage the

groove or rabbet in the apertured member, and securing bolts to hold the members comprising the compound fish plate in continuous engagement with each other and with the abutting ends of two track rails, substantially as described. 55

3. In a compound fish plate for rail joints a member having one of its edges inclined throughout its extent and provided upon its inner surface with a groove or rabbet to receive a locking lip and further provided with a series of apertures for the passage of securing bolts and with a laterally inclined outer edge to closely fit the rail flange, in combination with a member of greater thickness than said rabbeted member and inclined throughout its extent upon one of its edges to contact with the inclined edge of the apertured member and provided with a lip which extends within the groove or rabbet of said apertured member and further provided with a laterally inclined outer edge to fit the rail flange, and bolts whereby the separate members of the compound fish plate are immovably clamped together and to the rails, substantially as described. 60 65 70 75

4. A compound fish plate comprising a wedge shaped member apertured for the passage of securing bolts and having one of its edges provided with a groove or rabbet to receive a locking lip, a wedge shaped member longitudinally adjustable upon the apertured member and provided with a locking lip of a thickness greater than the depth of the groove or rabbet in the apertured member to extend within said groove or rabbet when the apertured and the adjustable members are in operative connection and position and cause the surface of the member provided with the locking lip to project beyond the surface of the apertured member, and securing bolts to hold said apertured and longitudinally adjustable members in continuous engagement with each other and with the abutting ends of two track rails, substantially as described. 80 85 90 95

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

JOSEPH C. CRAMP.

Witnesses:

JAS. D. WINCHELL,
JOSEPH F. BYRNE.