

(No Model.)

T. J. GILMARTIN.
RAILWAY RAIL JOINT.

No. 504,302.

Patented Aug. 29, 1893.

Fig. 1.

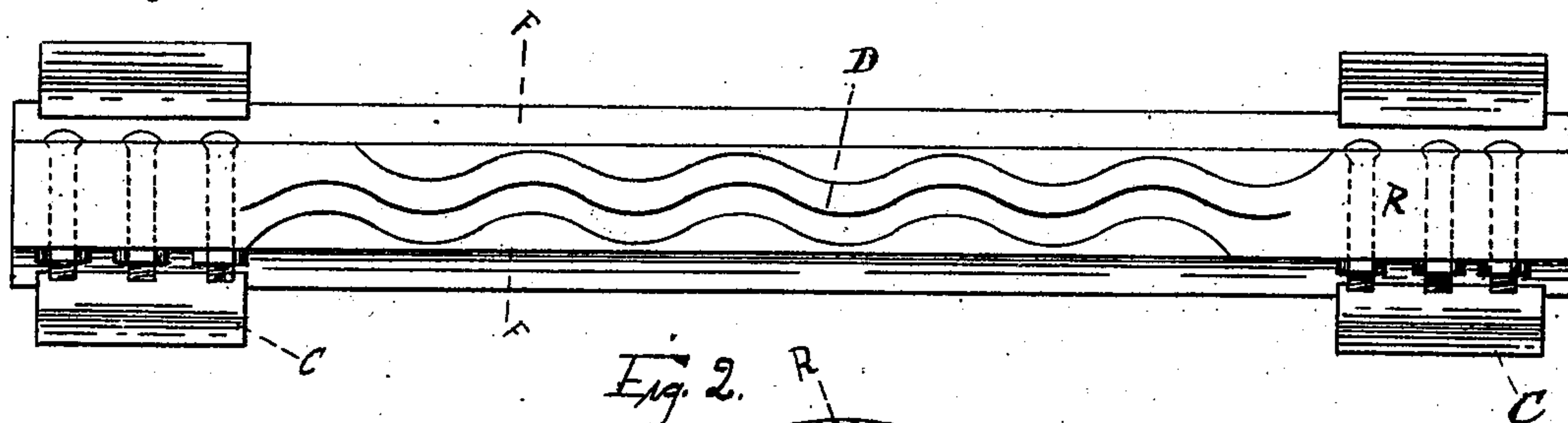


Fig. 2.

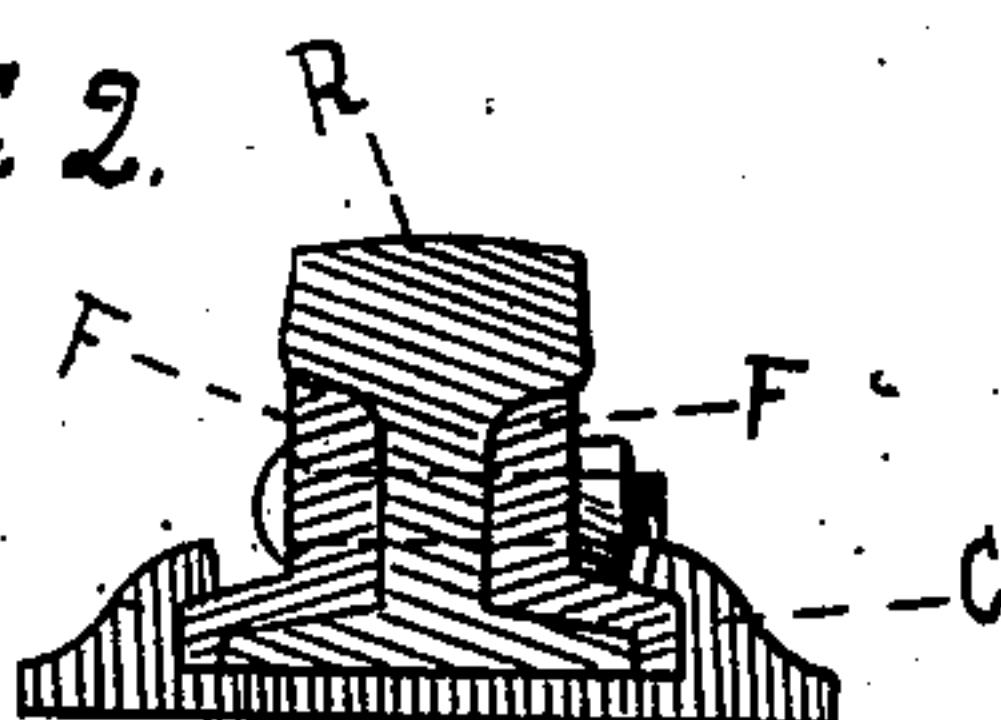


Fig. 3.

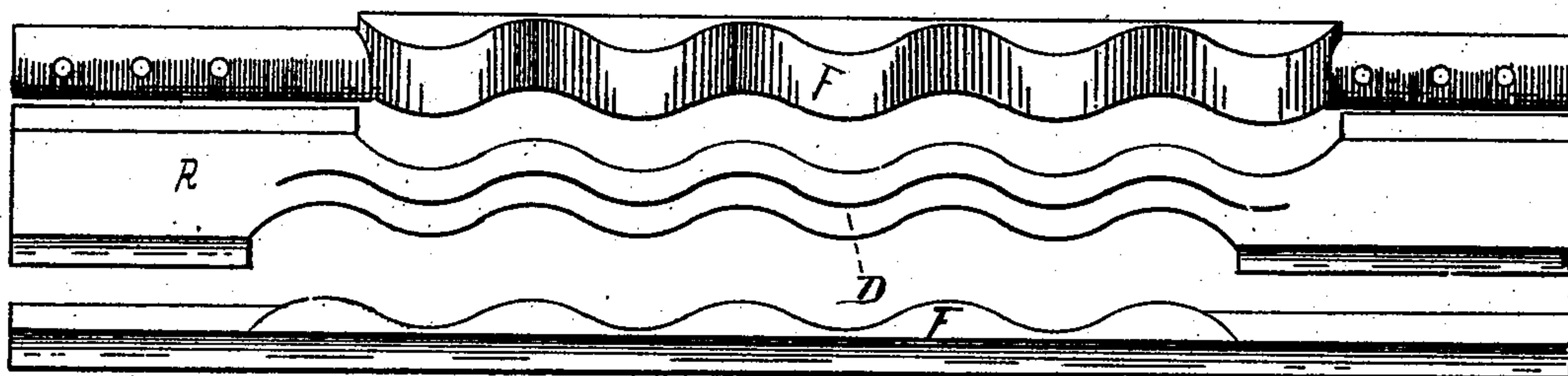
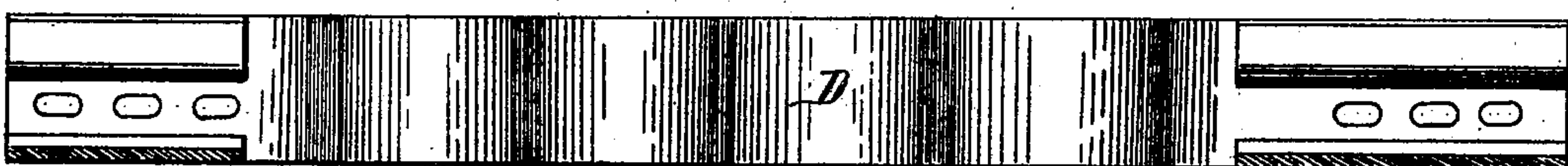


Fig. 4.



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RAILWAY-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 504,302, dated August 29, 1893.

Application filed March 6, 1893. Serial No. 464,709. (No model.)

To all whom it may concern:

Be it known that I, THOMAS JOSEPH GILMARTIN, a citizen of the United States, residing at Ogden, in the county of Weber, Territory of Utah, have invented a new and useful Railway-Rail Joint, of which the following is a specification.

My invention relates to improvements in rail expansion joints, whereby a permanently smooth track and continuous rail are provided, and the invention consists in the novel construction of the joint, which is herein-after more fully set forth and claimed.

The object of my improvement is to provide an expansion joint that will automatically absorb and nullify the longitudinal movement in railway rails, due to expansion and contraction, or other natural causes, while at the same time presenting a uniformly smooth and continuous surface for the wheels. I attain this object by the mechanism illustrated in the accompanying drawings, which are referred to as part of this specification, and in which—

Figure 1 is a top plan of the rail joint constructed in accordance with my invention. Fig. 2 is a vertical sectional view of a rail, showing a method of fastening the fish plates in position. Fig. 3 is a top plan of the joint, showing both fish plates removed or set away from the main part of the joint; and Fig. 4 is a side view of the joint, with the fish plates removed, and exposing the side of the expansion device.

Similar letters refer to similar parts throughout the different figures.

D., (Figs. 1, 3 and 4) represents a corrugated steel plate, or a set of such plates, in which the expansion or contraction of the rails is taken up, and forms the basis of my invention.

C., (Figs. 1 and 2) is a clutch which may be used to hold the fish plates (F. F.) solidly in place.

R., (Fig. 1) indicates the bolts passing through the slotted holes, shown in Fig. 4, which may also be used to hold the fish plates, F. F., securely in position.

The plates, D., are made in corrugated form, the corrugations being elongated and running lengthwise of the rail. One or more plates, D., may be used, and the ends thereof are

welded solidly to the rails. If more than one plate is used, they are fitted closely to each other, as shown in the drawings, and may be connected together by any suitable means, or each plate may be welded to the rail, without having any connection with any of the other plates, D., each plate acting independently of every other. In the drawings, I have shown two such plates, D., but I do not confine myself to this number, it being distinctly set forth that any number of the plates, D., may be used, without departing from my invention. These corrugated plates, D., are set upon edge, and, being welded solidly to the rails, the top or edge thereof presents an even, solid and smooth wearing surface to the wheels of railway trains, and they are made sufficiently strong vertically to bear the weight of trains, without danger of fracture. The corrugated plate, or plates, D., welded to the rails, by reason of the peculiar form thereof, are weaker longitudinally than the rails, and the effect of expansion and contraction in the rails, due to changes in temperature or other causes, is that of slightly shortening or lengthening the corrugations in the plates D., automatically, and this is accomplished without affecting the relative positions of the tops or edges of the plates, D., with which the wheels come in contact. The plates, D., if more than one is used, shall be closely fitted to each other, so that when the rails contract, the joint, D., will lengthen, or expand correspondingly, and the plates, D., by reason of such expansion, will be drawn solidly against each other, thereby presenting as smooth and solid a surface to the wheels as the rail, itself. When the rails are expanded, and the corrugations in plates, D., correspondingly shortened, the plates, D., will separate slightly from each other laterally but still present a smooth and even wearing surface for the wheels.

The fish plates, F. F., (Figs. 1, 2, and 3) form an important part of my invention. These fish plates are made longer than the corrugated plates, D., and may be bolted solidly through the rail, beyond the ends of the plates, D., by means of the bolts, R., passing through the slotted bolt holes, shown in Fig. 4. The fish plates, F. F., are made preferably of steel, and in peculiar form, one side being shaped so as to

fit into the corrugated plates, D., and the other side being perfectly smooth, and corresponding with the alignment and general contour of the top of the rail, and forming a guide for the flange of the wheel. The top, or edge of the fish plates, F. F., is made to conform to, and is level with the edge of the corrugated plates, D., and they assist in supporting the wheel. The corrugated plates D are welded to both rail ends in order to make the rail continuous. The fish plates F F are not welded to the rail but support the corrugated plates D and are held in place by the bolts R or the clutch C or both. They, like the corrugated plates, D., are set upon edge, and are made strong enough, and may have adequate bearing upon the flanges of the rails beyond the ends of the joint, D., or upon the ties to carry trains with safety in case one or all of the corrugated plates, D., should break.

The slotted bolt holes shown in Fig. 4. are provided in the rail, through which the bolts, R., fastening the fish plates, F. F. to the rail, pass. This is to admit of expansion or contraction of the rail without breaking the bolts.

A suitable clutch, C., passing under the rail or joint, may be provided to hold the fish plates firmly in position, in lieu of the bolts, or in connection therewith. It will be noticed that the fish plates, F. F., are fixed rigidly to the rails, and are made practically stationary, while the corrugated plates, D., being welded to the rails, must move slightly, as the rails expand or contract. To admit of this movement of the corrugated plates, D., the fish plates, F. F. are constructed in peculiar form. The side of the fish plates, coming in contact with the corrugated plates, D., is shaped substantially the same as the corrugated plates, D., but differs sufficiently therefrom to allow the corrugated plates D., to expand or contract with the rail; that is, the form of the corrugated or rolling side of the fish plates, which comes in contact with the plates, D. is varied sufficiently from that of the plates, D. to admit of the necessary longitudinal action of the plates, D., to take up, or absorb the expansion or contraction of the rail. It will, therefore, be seen that while the fish plates, F. F., come in contact with the corrugated plates, D., they do not fit into the corrugations in plates, D., perfectly. Herein lies the value of my invention. The corrugated plates, D., and the fish plates, F. F. act in combination to provide a smooth bearing surface for the wheels, while either one possesses adequate vertical strength to carry a train safely, in case of breakage of the other, and the longitudinal movement of the rails, due to expansion or

contraction, being absorbed automatically in the plates, D., while the fish plates fixed rigidly in position, preserves the continuity of the rail, and completes the contour of the rail, presented to the wheels.

The corrugated plates, D., and the fish plates, F. F., may be made of any suitable metal, but preferably of steel, and the application of the expansion joint for the purpose intended is made specially efficient and simple by welding the corrugated plates, D., electrically to the rails at both ends, thereby providing a permanently smooth track, and a continuous rail of any desired length.

I am aware that prior to my invention an expansion railway rail joint was invented made of a block of metal serrated or partially cut through from opposite sides to take up the expansion and contraction in the rails due to atmospheric changes, and to reduce the size of the spaces between the rails; the said joint having certain auxiliary supports fastened to the sides of the rails and the expansion device for the purpose of strengthening the joint but forming no part of the top of the rail with which the wheels come in contact, and to this construction broadly I make no claim.

The particular value and novelty of my invention is two fold. First. Expansion and contraction in the rails due to atmospheric changes or other causes are automatically absorbed and nullified by the corrugated plates D, while the peculiar rolling form thereof entirely eradicates all lateral openings or spaces between the rails, thereby providing a uniformly smooth and continuous rail. Second. The fish plates F. F. by reason of their peculiar shape are made to form part of the top of the rail with which the wheels come in contact, and while confining the corrugated plates D or expansion device laterally, are made sufficiently strong vertically to support the wheels in case of breakage of the expansion device D.

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

The expansion railway rail joint, consisting of the corrugated plate or plates, D., welded to the rails, and the fish plates, F. F., connected to the rails by means of the bolts, R., or the clutch C., or both,—the whole adapted to absorb and nullify the longitudinal movement of the rail, due to expansion and contraction, or other natural causes.

THOMAS JOSEPH GILMARTIN.

Witnesses:

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