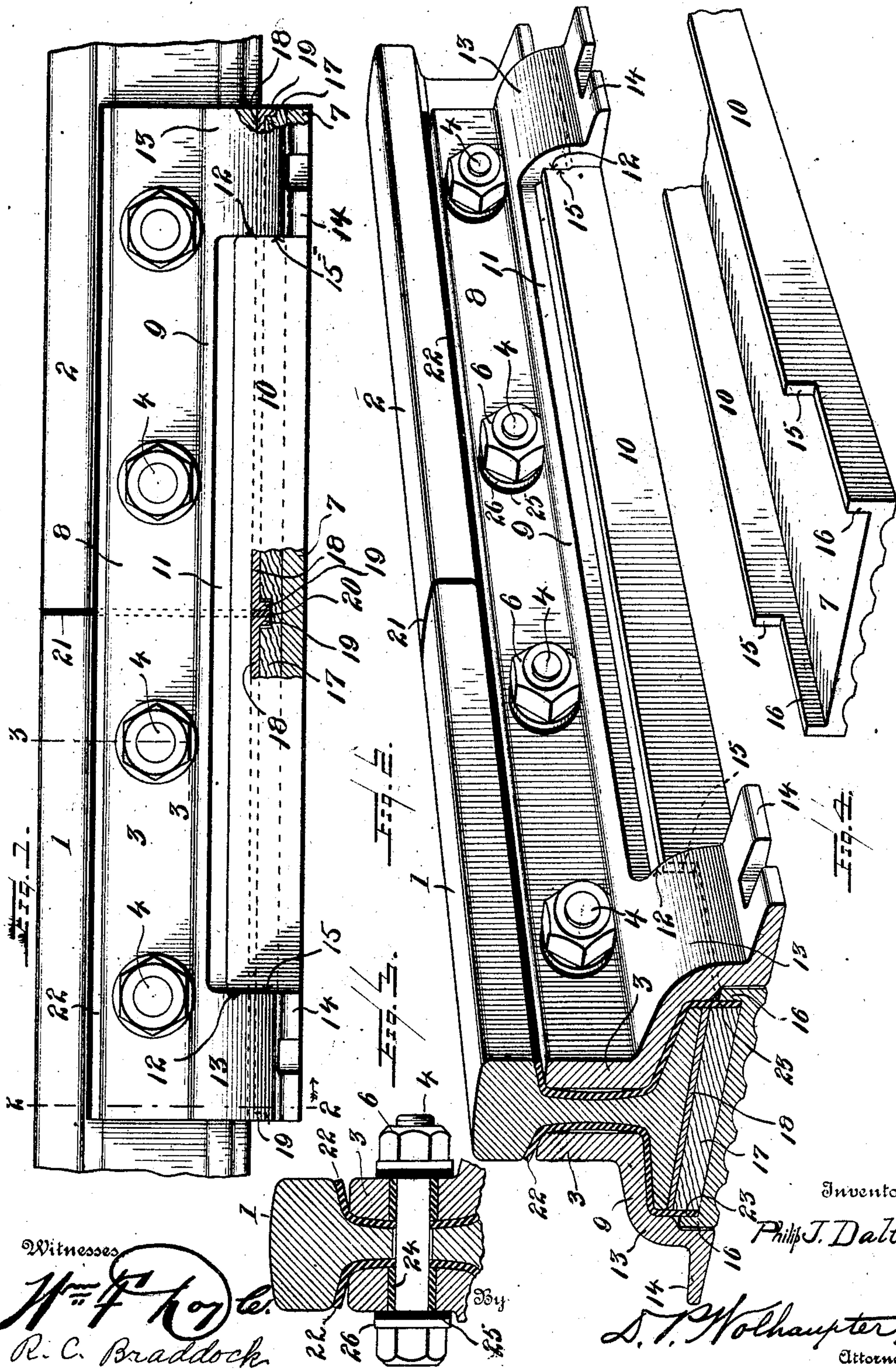


No. 877,057.

PATENTED JAN. 21, 1908.

P. J. DALTON.
INSULATED RAIL JOINT.
APPLICATION FILED DEC. 7, 1906.

3 SHEETS—SHEET 1.

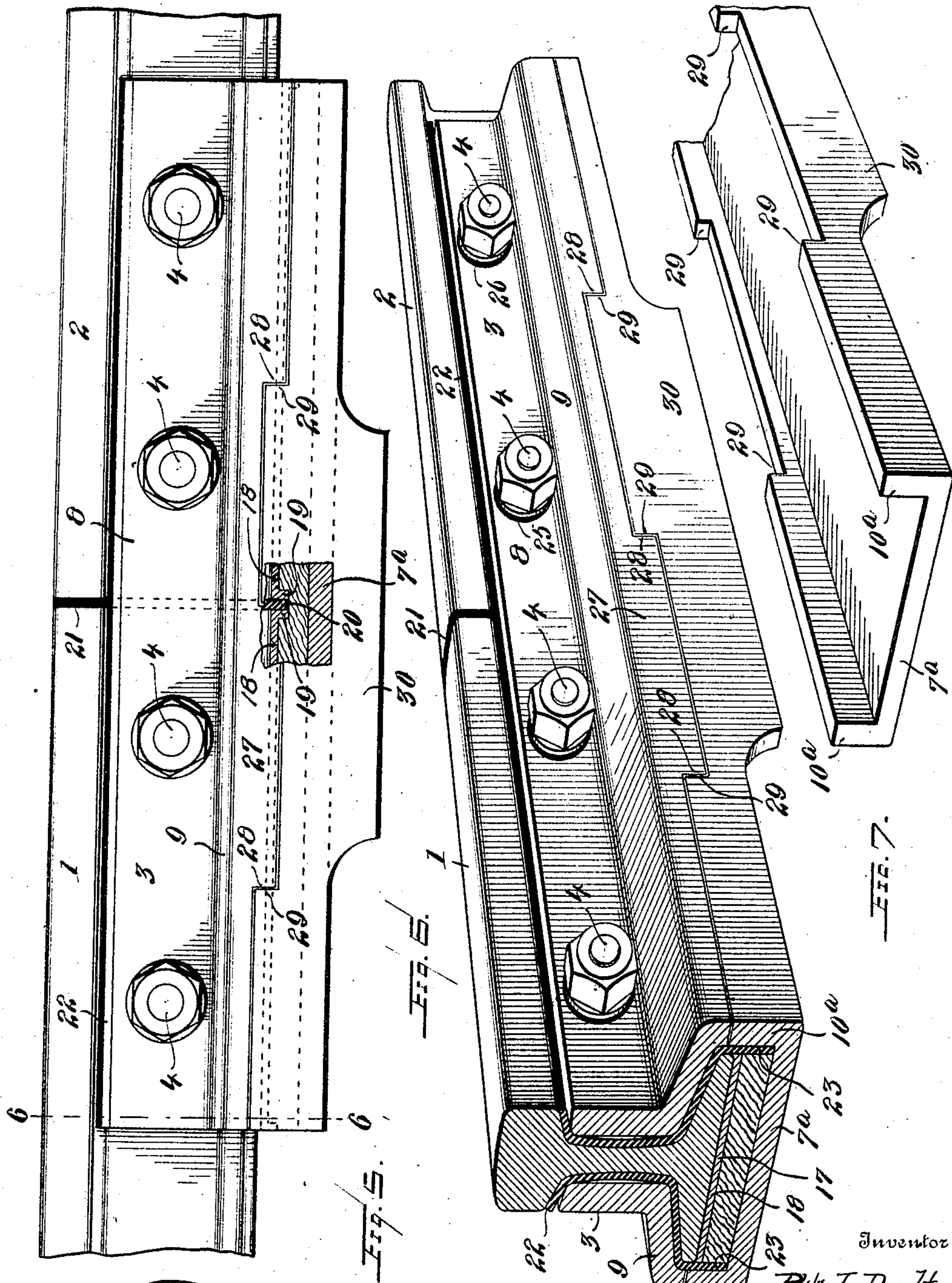


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Witnesses
R. C. Braddock.

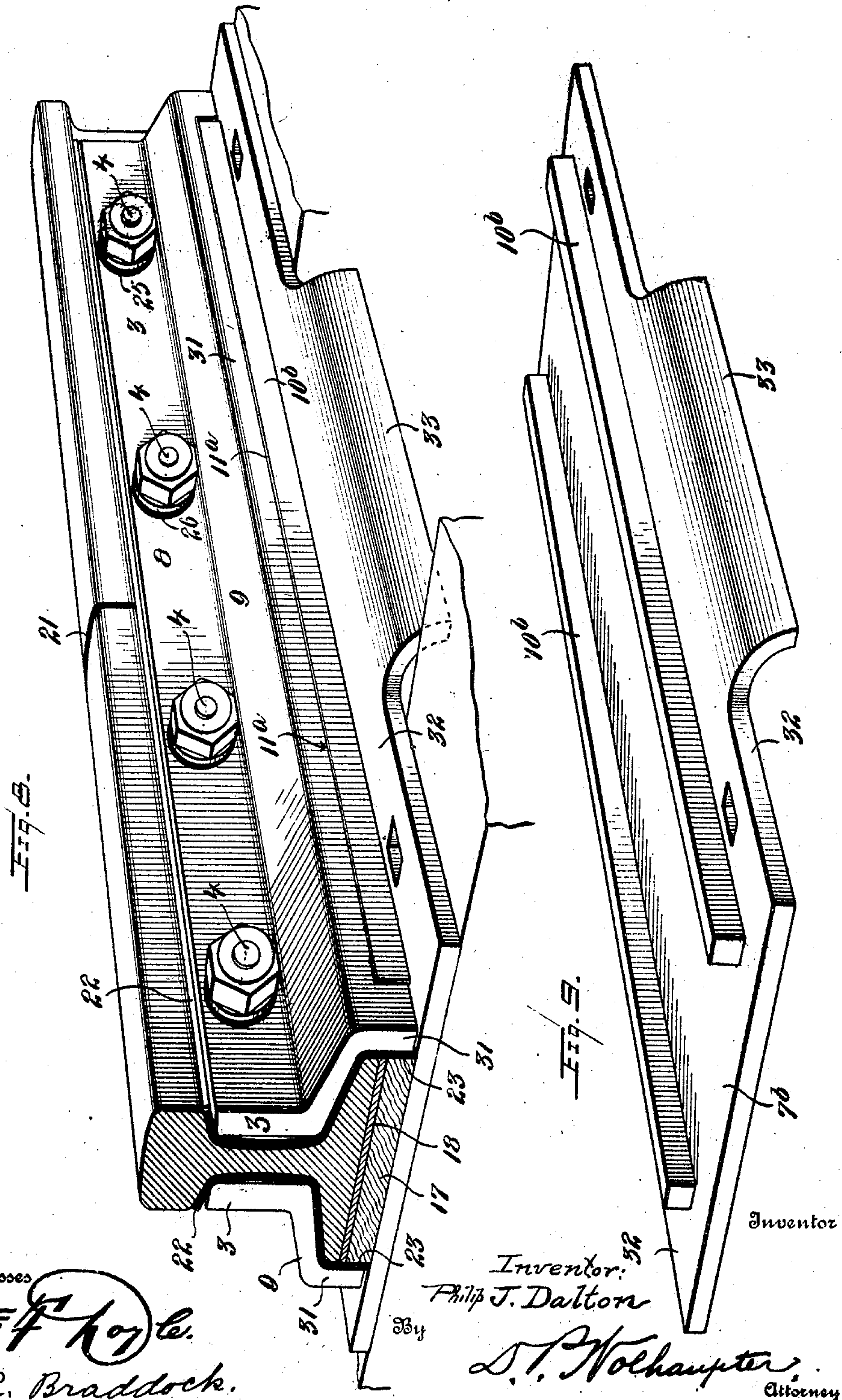
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Philip J. Dalton
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

PHILIP JOHN DALTON, OF JOLIET, ILLINOIS, ASSIGNOR TO THE RAIL JOINT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

INSULATED RAIL-JOINT.

No. 877,057.

Specification of Letters Patent.

Patented Jan. 21, 1908.

Application filed December 7, 1906. Serial No. 346,787.

To all whom it may concern:

Be it known that I, PHILIP JOHN DALTON, a citizen of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Insulated Rail-Joints, of which the following is a specification.

This invention relates to the subject of insulated rail joints, and has in view the provision of a practical and effective joint of this character.

To this end the invention contemplates an insulated rail joint embodying in its construction a firm and substantial metal base support for the rails and a thorough insulation of all of the joint parts.

A further object of the invention is to provide a strong and effective base insulation constituting a part of the supporting base which receives the load or weight of the traffic on the rails, while at the same time being so designed and arranged as to be firmly supported or braced against tendency to flow under the pressure of the load on the rails.

Another object of the invention is to provide a construction wherein the mechanical and insulating elements of the joint are interlocked and held against relative displacement, while there is preserved the feature of separability of all of the joint parts and insulation for convenience and facility in assembling and separating the same.

With these and many other objects in view, which will more readily appear to those familiar with the art as the nature of the invention is better understood, the same consists in the novel construction and arrangement of parts hereinafter more fully described, illustrated, and claimed.

The essential features of the invention are necessarily susceptible to modification without departing from the scope of the invention, but a preferred embodiment thereof is shown in the accompanying drawings, in which:

Figure 1 is a side elevation of an insulated rail joint constructed in accordance with this invention. Fig. 2 is a sectional perspective view on the line 2—2 of Fig. 1. Fig. 3 is a detail cross sectional view on the line 3—3 of Fig. 1. Fig. 4 is a detail in perspective of a section of the form of base plate embodied in the construction shown in Figs. 1, 2, and 3. Fig. 5 is a side elevation of a modified form of rail joint embodying the invention. Fig. 6

is a sectional perspective view on the line 6—6 of Fig. 5. Fig. 7 is a detail perspective view of a section of the form of base plate embodied in the joint shown in Figs. 5 and 6. Fig. 8 is a sectional perspective view of another modification embodying the invention. Fig. 9 is a detail in perspective of the modified form of base plate employed in the construction shown in Fig. 8 of the drawings.

Like references designate corresponding parts in the several figures of the drawings.

The improvements contemplated by this invention are susceptible to embodiment in different forms of joints, but in all adaptations the same essential features are preserved. However, the construction claimed is well exemplified by the form of insulated rail joint shown in Figs. 1, 2, 3, and 4 of the drawings, and referring first to this construction, it will be observed that the joint illustrated in said figures includes in its general organization the adjacent service or running rails 1 and 2; the opposite side angle bars 3, the joint bolts 4 having the usual head and nut members 5 and 6, and a main metal base plate 7 having a separable interlocking engagement with both angle bars, as will presently appear. The side angle bars 3 are of duplicate design and construction, and each of the same is provided with a main splice bar portion 8 having the usual bolt holes for the reception of the joint bolts 4, and with a foot flange 9 overlying the base flange of the rails, as plainly shown in Fig. 2 of the drawings.

A distinctive feature of the present invention resides in so constructing the foot flanges 9 of the angle bars that the same are formed with what may be characterized as shouldered base fastening sections which have a separable interlocking engagement with the upstanding girder flanges 10 arising from the longitudinal side edges of the base plate 7 and preferably forming an integral part of the latter.

The shouldered section of the foot flange of each angle bar may be provided in a variety of ways, but in the joint shown in the group of Figs. 1 to 4 inclusive, the construction referred to is provided by forming the foot flange of each angle bar with an extended cut-out keeper notch 11. This notch extends for a greater portion of the length of the angle bar and produces at the ends thereof of the base holding shoulders 12. Also, the pro

long cut-out keeper notch 11 of each angle bar forms, at the bottom corners thereof, the terminal securing legs 13 which are disposed in substantially vertical planes, and project below the plane of the rail bases, said terminal securing legs being provided at their lower ends with outturned spiking flanges 14.

The base support or base plate 7 is preferably designed to extend the full length of the joint to afford a substantial support for both rail ends, and the same preferably consists of a solid body portion provided with the said integral side upstanding girder flanges 10 which are designed to project upwardly to any desired length and fit into the keeper notches 11 of the angle bars. The end portions of the girder flanges which project upwardly into the keeper notches 11 between the oppositely located terminal securing legs 13, are formed with upright retaining shoulders 15 which oppose and cooperate with the base holding shoulders 12 of the angle bars, thereby providing what has been termed a separable interlocking engagement between the angle bars and the base plate. This serves to securely lock and hold the same against longitudinal displacement, while lateral displacement of the base plate is entirely obviated by reason of the fact that the side girder flanges 10 thereof project above the plane of the rail bases, and, beyond the holding shoulders 12 thereof, the girder flanges are narrowed, as indicated at 16; to form flange extensions lying behind and against the terminal securing legs 13. The said base plate 7 may also be provided, if desired, with a corrugated bottom surface as suggested in Fig. 2 of the drawings.

To provide for the insulation of the mechanical elements referred to, the invention contemplates as one of the prominent features thereof the employment of a main insulating base piece 17. This base piece preferably consists of a filler or filler block of wood, lignum vitæ preferred, which is seated on and confined within the flanged base plate or base support 7, and is intended to extend the full length of the base plate to provide a firm and substantial insulating base support for both rail ends. In connection with the base filler piece or block 17 there may be employed, if found desirable or practical, a pair of metallic bearing plates 18 interposed between the flat top surface of the base piece or block 17 and the rail bases. In the use of these bearing plates, as shown in the drawings, one of the same is associated with each rail end so that the latter has its individual bearing plate support on top of the insulating base piece or block 17. In order to properly and firmly secure the individual bearing plates 18 in position, the same are preferably provided with the flanged ends 19 constituting terminal holding flanges deflected downwardly and seated in recesses

provided therefor in the base piece or block 17. The inner flanged ends 19 of the separate bearing plates are spaced apart, and receive in the interval therebetween the base member 20 of the insulating end post 21 interposed between the rail ends, said base plate member 20 projecting below the rail bases and serving to effectually insulate the separate bearing plates. However, any other practical insulating expedient may be employed for insulating the two bearing plates 18. The angle bar insulation, of the joint described, is preferably completed by using side insulating sheets 22 interposed between the rail sides and the rail adjoining faces of the angle bars. These insulating sheets 22 follow the conformation of the rail sides and angle bars and are provided with bottom apron extensions 23 which project downwardly in vertical planes below the rail bases and lie at the outer side edges of the base plate 17 and the bearing plates 18 between such edges and the girder flanges 10 of the base plate, thus securing a very compact and effective base insulation for the joint.

The joint bolts 4 are insulated by means of any of the well known bolt insulations, preferably by means of insulating sleeves or bushings 24 arranged within the bolt holes of the angle bars, and the insulating washers 25 at the inner sides of the head and nut members of the bolts. In connection with the insulating washers 25 there are associated the usual metal backing washers 26.

In the form of the invention shown in Figs. 5, 6, and 7 of the drawings, it will be observed that there is shown a modification in the construction which provides for the separable interlocking engagement between the angle bars and the upstanding girder flanges of the base plate. This modification suggests the expedient of forming the pendent edge portion 27 of the foot flange 9 of each angle bar with a plurality of alternated reversely disposed holding shoulders 28 which interlock with the complementary matching correspondingly arranged retaining shoulders 29 formed on and along the upper edge of the side girder flanges 10^a of the base plate 7^a. This modified form of base plate 7^a is illustrated as having a plain body portion instead of the corrugated bottom surface of the plate 7 previously referred to, and in addition to having the series of reversely disposed and alternated shoulders 29, said modified form of base plate 7^a is formed at opposite side edges thereof, and intermediate its ends, with the pendent stiffening flanges 30 which serve to stiffen and reinforce the base plate in the vertical plane of the joint between the meeting ends of the rails. In other respects the modified structure shown in Figs. 5, 6, and 7 is substantially the same as the construction of joint already described and similar reference

characters will apply to similar parts in the two forms of joints.

In the form of joint shown in Figs. 1 and 2 of the drawings the keeper notch 11 in the angle bars extends well into the inclined portion of the foot flange overlying the rail flanges, but a modification of this construction is suggested in Figs. 8 and 9 of the drawings wherein the foot flanges 9 of the angle bars are illustrated as being provided at their outer edges with pendent flange extensions 31 in which are formed long keeper notches 11^a within which register plain, comparatively low, girder flanges 10^b arising from opposite portions of the body of the base plate 7^b. These girder flanges 10^b are illustrated as terminating within the plane of the keeper notches 11^a of the angle bars, and the body portion of the base plate is continued out to the ends of the joint, to afford a full length support for the insulating base piece or block. In addition to the girder flanges 10^b the modified form of plate 7^b is preferably constructed with the side spiking flanges 32 arranged outside of the vertical plane of the flanges 10^b and provided between the ends of the plate body with pendent stiffening flanges or girders 33.

Various other modifications will suggest themselves to those skilled in the art, and it will therefore be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. In an insulated rail joint, the rails, side angle bars, a base plate, a filler block interposed between the base plate and the rail bases, and insulating means.

2. In an insulated rail joint, the rails, side angle bars, a flanged base plate, a filler block confined between the flanges of the base plate, and insulating means.

3. In an insulated rail joint, the rails, side angle bars, a base plate, a wooden block interposed between the base plate and the rail bases, and insulating means.

4. In an insulated rail joint, the rails, side angle bars, a flanged base plate, a wooden block confined between the flanges of the base plate and interposed between the latter and the rail bases, and insulating means.

5. In an insulated rail joint, the rails, side angle bars, a flanged base plate interlocked with both angle bars, a wooden block confined between the flanges of the base plate, and insulating means.

6. In an insulated rail joint, the rails, side bars, a base plate, a wooden block arranged on the base plate, and insulating means.

7. In an insulated rail joint, the rails, side bars, a flanged base plate, a wooden block arranged on the base plate between the flanges thereof, and insulating means.

8. In an insulated rail joint, the rails, side angle bars provided with pendent shouldered flange portions, a base plate having shouldered flanges interlocking with those of the angle bar, a filler block arranged on the base plate, and insulating means.

9. In an insulated rail joint, the rails, side angle bars provided at their bottom edges with pendent shouldered flange portions, a base plate provided with upstanding girder flanges registering and interlocking with the flange portions of both angle bars, an insulating filler interposed between the base plate and the rail bases, and insulating means.

10. In an insulated rail joint, the rails, side bars, a flanged base plate interlocked with both side bars, an insulating filler interposed between the base plate and the rail bases, and insulating means.

11. In an insulated rail joint, the rails, side bars, a flanged base plate, an insulating base block seated within the flanged base plate, and insulating means.

12. In an insulated rail joint, the rails, side angle bars, a base plate, an insulating base block seated on the base plate between the flanges thereof, and side insulating sheets interposed between the rails and angle bars.

13. In an insulated rail joint, the rails, side angle bars, a flanged base plate, an insulating base block seated on the base plate, and side insulating sheets having apron extensions projecting below the rail bases.

14. In an insulated rail joint, the rails, side angle bars, a flanged base plate, an insulating base block seated on the base plate, and side insulating sheets having apron extensions projecting below the rail bases and confined within the flanged base plate.

15. In an insulated rail joint, the rails, side angle bars, a flanged base plate, an insulating base block seated on the base plate, and side insulating sheets having apron extensions projecting below the rail bases and confined within the flanged base plate at the sides of the insulating base block.

16. In an insulated rail joint, the rails, side angle bars, a flanged base plate, an insulating base block seated within the base plate, and metal bearing plates interposed between said base block and the rail bases.

17. In an insulated rail joint, the rails, side angle bars, a flanged base plate, an insulating base block seated within the base plate, and a pair of metal bearing plates interposed between the base block and the rail bases, said metal bearing plates respectively receiving thereon one rail end and insulated from each other.

18. In an insulated rail joint, the rails, side angle bars, a flanged base plate having a separable interlocking engagement with both angle bars, an insulating base block seated within the base plate, metal bearing plates interposed between the base block and the

5 rail bases, and side insulating sheets having bottom apron extensions extending over the side edges of the insulating base block and bearing plates, and confined within the flanges of the base plate.

10 19. In an insulated rail joint, the rails, side angle bars, a base plate, an insulating filler block interposed between the base plate and the rail bases, and side insulating sheets interposed between the rails and angle bars.

20. In an insulated rail joint, the rails, side

angle bars, a base plate interlocked with both angle bars, an insulating filler block interposed between the base plate and the rail bases, and side insulating sheets interposed between the rails and angle bars.

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

PHILIP JOHN DALTON.

Witnesses:

BENJN. WOLHAUPTER,
D. J. EVANS.