

No. 726,170.

PATENTED APR. 21, 1903.

W. C. KIRKLAND.
RAILWAY TIE.

APPLICATION FILED OCT. 21, 1902.

NO MODEL.

Fig. 1.

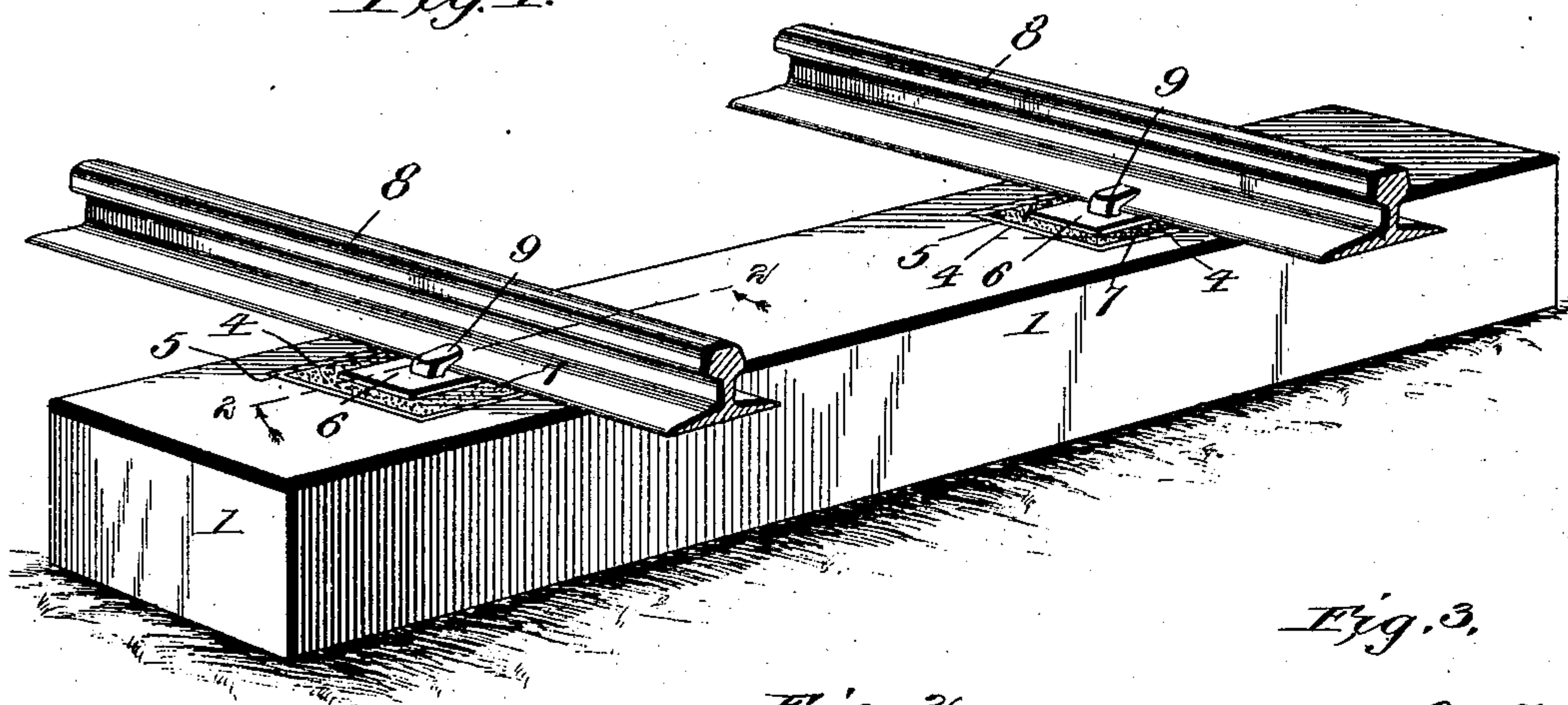


Fig. 2.

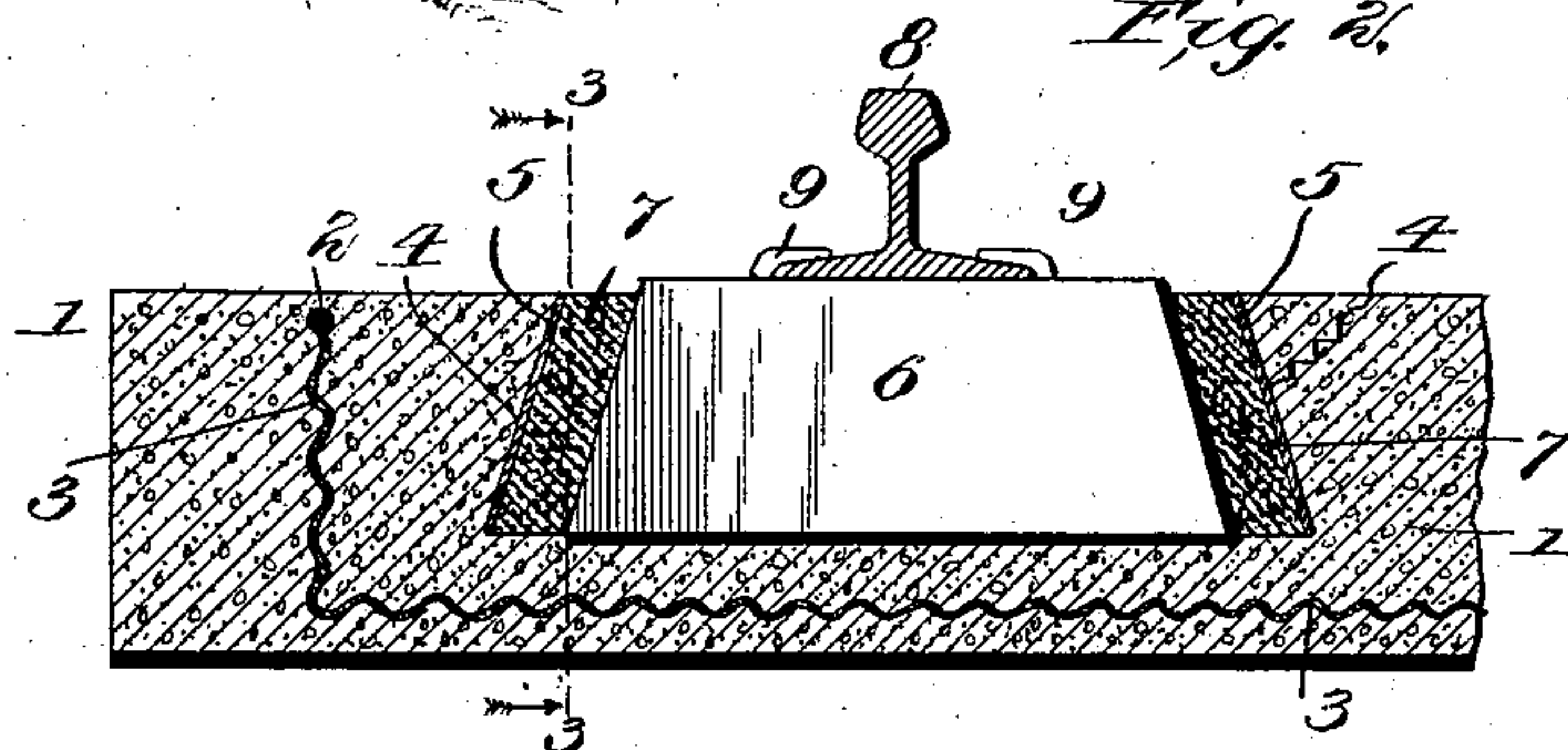


Fig. 3.

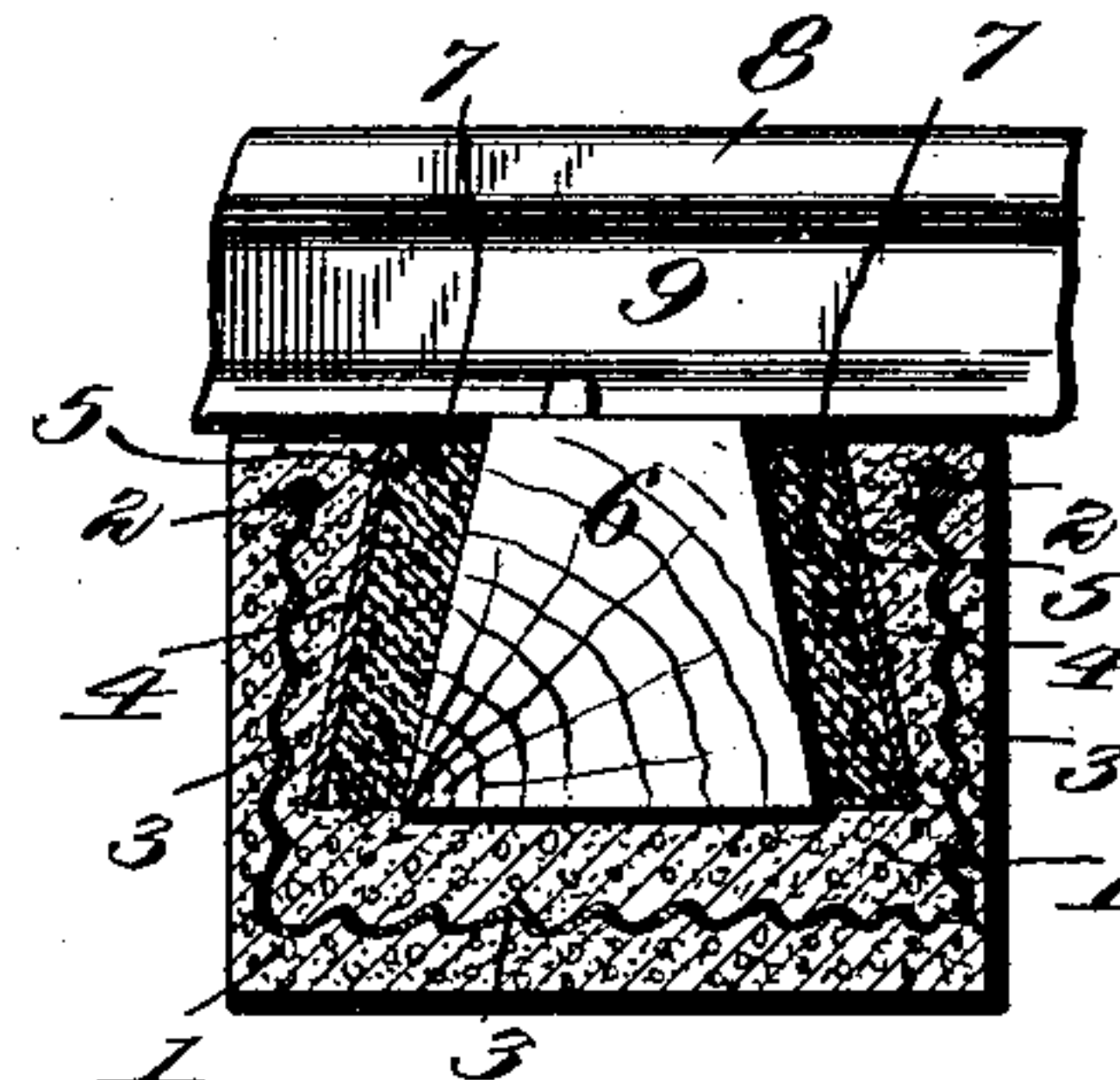


Fig. 4.

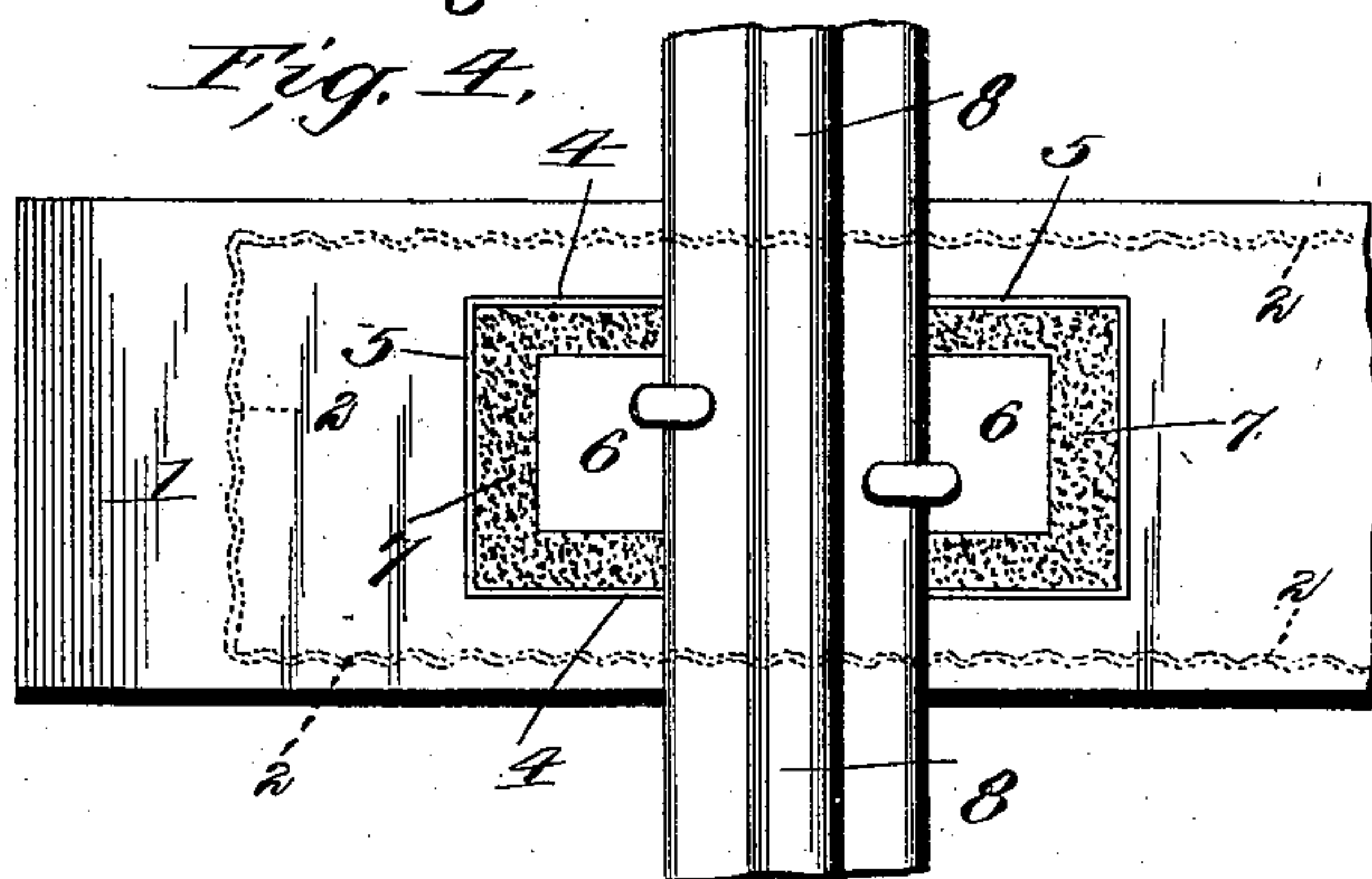


Fig. 5.

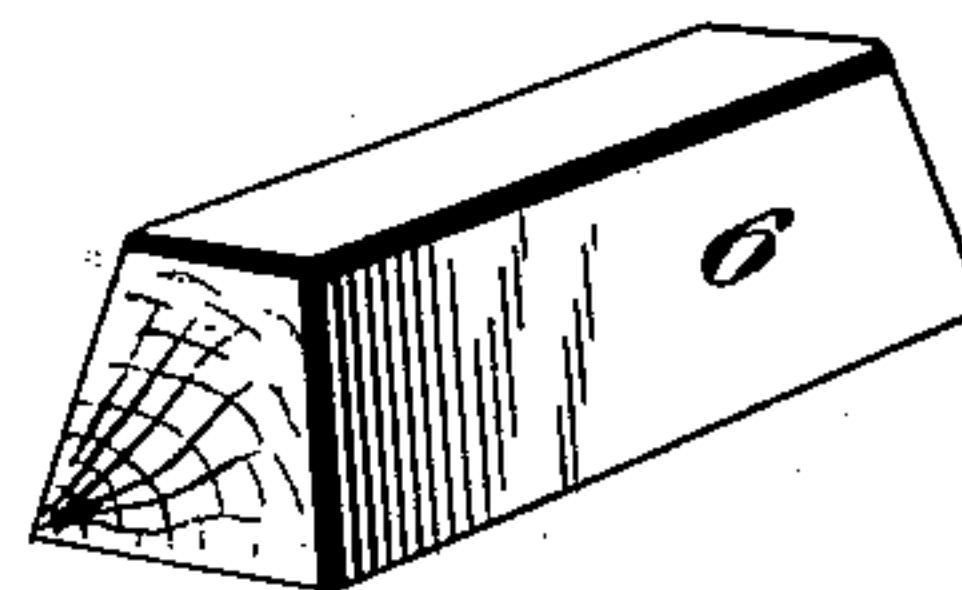
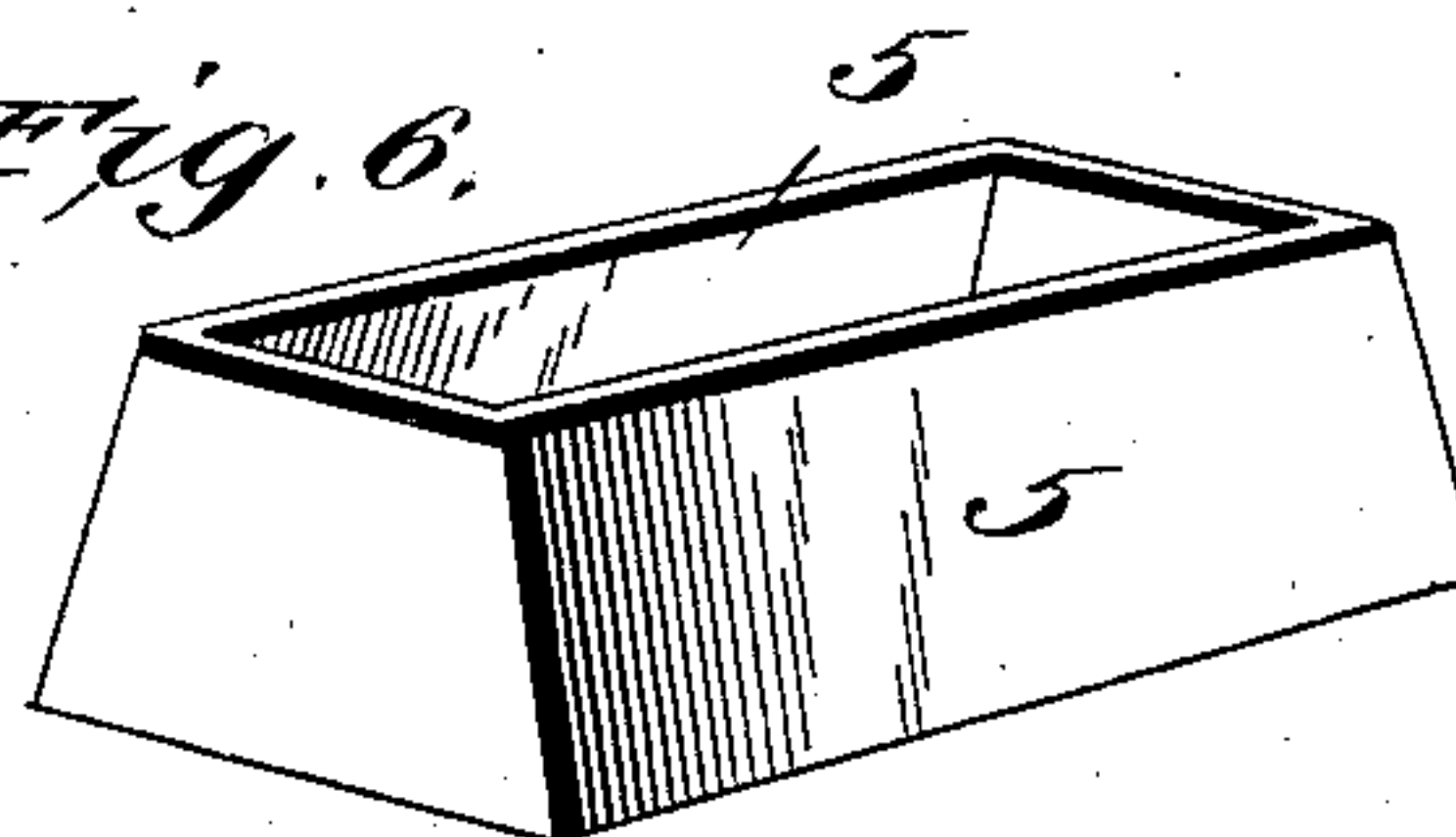


Fig. 6.



WITNESSES:

Frederic Bradford
Geo. S. Brock

INVENTOR

William C. Kirkland

BY *Munn & Co.*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM CHARLES KIRKLAND, OF NEW ORLEANS, LOUISIANA.

RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 726,170, dated April 21, 1903.

Application filed October 21, 1902. Serial No. 128,114. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CHARLES KIRKLAND, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Railway-Ties, of which the following is a specification.

My invention relates to certain novel improvements in railway cross-ties constructed of a combination of concrete, expanded or woven metal metallic rods, wooden or equivalent resilient blocks, cement or cement mortar, and hollow metal cases inclosing the cement.

The object of my invention is to produce a tie which shall possess great strength, be capable of resisting great pressure and strains, unaffected by heat or cold or the action of the elements, and easily and quickly repaired, and one which will obviate the necessity of use of bolts and nuts for fastening the rails.

To these ends my invention consists in certain novel features of construction, arrangement, and combination of parts and materials, as will be hereinafter fully described, and pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a tie with rails attached. Fig. 2 is a central longitudinal section of one end of a tie. Fig. 3 is a transverse section through one end of a tie. Fig. 4 is a top plan view of one end of a tie. Fig. 5 is a detail perspective of the resilient block. Fig. 6 is a detail perspective view of the metallic inclosing frame which forms a slip-joint.

In carrying out my invention I make the main body of the tie 1 of concrete composed of sand, cement, and rock or other suitable material having the property of setting or hardening and molded into the desired shape and size, in which is embedded near its upper surface and adjacent to its edges the wire frame 2, said wire frame being preferably corrugated. Embedded in the concrete and close to the surface of both sides and bottom is the trough-like framework 3, composed, preferably, of expanded metal. Near both ends of the tie where the rails are to be supported are formed recesses 4, in which fit the metallic frames 5, which are open at the top and bottom. These frames are somewhat larger at the bottom than at the top, having a substantially trapezium or wedge shape and being

thereby securely held in the recesses in the ties. Seated within these metallic frames 5 are the wooden or equivalent resilient blocks 6, said blocks being similar in shape to though smaller than the said frames 5, and the area of lower surface of the wooden blocks 6 is slightly less than that of the upper opening of the metallic frame 5, and the sides of the blocks 6 are substantially parallel with those of the inclosing metallic frames 5. After the blocks 6 have been placed in position within the metallic frames 5 plastic material, cement, or preferably coal-tar 7 is poured in between the outer faces of said blocks and the inner wall of the metallic frames 5 and allowed to set or harden, and thus hold the wooden blocks solidly in the tie and forming a jacket for the blocks. By this means the block is placed in the tie subsequent to the setting or hardening of the concrete, which is necessary, for if the wood were placed in the concrete before it hardens the cement will be cracked. The wooden block having been securely set by the cement or coal-tar jacket or joint 7 and the ties properly positioned, the rails 8 are secured to the said blocks by spikes 9, driven well into the wood. The upper surface of the wooden blocks 6 may be slightly above the surface of the tie, flush with it, or even slightly below it, and it may be coated with coal-tar to preserve it from the action of the elements.

The cement or coal-tar surrounding the wooden blocks, while forming a joint or jacket and securely binding it to the tie by virtue of its wedge shape, also permits the ready removal of the block should it eventually decay and replacing of the same.

When it is desired to renew a block of wood, all that is necessary is to remove the block by chipping off the cement or coal-tar joint at the slip-joint formed by the metallic frame 5 between it and the concrete. A new wooden block is then set in the opening and plastic cement or coal-tar again poured in between it and the metallic frame 5 and allowed to set or harden. It will be seen that I do away with all bolts or clips in renewing the wooden blocks and that as all the metallic parts are incased by concrete and cement except the spike holding the rail said metallic parts will be completely protected from rust and action of the elements. The strength of the tie may

be increased by using a stronger grade of expanded or woven metal and by increasing the number of the rods forming the frame 2.

The metallic case 5 prevents any possibility of the splitting of the wood, and while it is preferred to use this metallic frame, yet it is not absolutely necessary, as the same opening in the concrete could be molded and a piece of tar-paper substituted for the said metallic frame in order to make a slip-joint between the concrete tie 1 and the cement or coal-tar joint 7 to enable its removal and restoration for the purpose of renewing the wood block 6 without difficulty.

The number of wires in the frame 2 may be increased, if desired, to give greater strength to the tie.

It will be perceived that I produce a tie or sleeper which is far superior to the ordinary wood tie so commonly used, one which is practically indestructible, being unaffected by the elements, and in which the requisite elasticity is attained through the use of the wood or resilient blocks to which the rails are to be spiked, and that said blocks being surrounded by a plastic material unaffected by the elements will last a very long time and to which the spikes can be readily driven, it having been found by experience that this method of securing rails to ties is much superior to the use of bolts, nuts, or clips, which are likely to become rusty and set, so that they have to be broken to remove them.

The surfaces of the walls of frame 5 may be smooth, roughened, or corrugated, as desired.

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

1. A railway tie or sleeper composed of concrete or cement, metallic rods and expanded metal embedded in the same, resilient blocks seated in recesses or openings in the upper face of the tie, a metallic frame surrounding said blocks and fitting in said recesses or openings, and a plastic joint capable of hardening, between the resilient blocks and their inclosing metallic frames.

2. A railway tie or sleeper composed of concrete or cement and wedge-shaped resilient blocks embedded in its upper face adjacent to its ends.

3. A railway tie or sleeper composed of concrete or cement, resilient blocks seated there-

in, metallic frames inclosing said blocks and a cement or plastic jacket between said blocks and metallic frames.

4. A railway tie or sleeper composed of concrete or cement and having recesses in its upper face, wedge-shaped metallic frames open at the top seated in said recesses, resilient wedge-shaped blocks seated in said recesses within the metallic frames, and a plastic joint or jacket between the said blocks and metallic frames, the said metallic frames forming a slip-joint between the body of the tie and the resilient blocks whereby the said blocks and plastic joint or jacket may be readily removed.

5. A railway tie or sleeper composed of concrete or cement and provided with recesses in its upper face, resilient blocks embedded wholly or partially in said recesses, and a plastic cement joint or jacket of different consistency from the body of the tie between said blocks and the walls of the recesses, and binding the blocks to the tie.

6. A railway tie or sleeper composed of concrete or cement and having recesses in its upper surface, a block or blocks embedded in the said recesses, a cement or plastic jacket surrounding the sides of said blocks and capable of hardening or setting, and a frame interposed between said jacket and the walls of the recesses, and adapted to form a slip-joint to permit the ready removal of the blocks and the surrounding plastic jackets.

7. A railway tie or sleeper composed of concrete or cement, a wire frame embedded therein near its upper surface, a reticulated frame embedded in said tie, and resilient blocks embedded in the upper surface of the tie.

8. A railway tie or sleeper composed of concrete or cement having recesses in the upper face, wedge-shaped resilient blocks seated in said recesses, wedge-shaped metallic frames having open top and bottom seated in said recesses and surrounding said blocks, the area of the base of said blocks being less than the area of the upper opening of said metallic frames, and a plastic jacket capable of hardening interposed between the said blocks and surrounding metallic frames.

WILLIAM CHARLES KIRKLAND.

Witnesses:

ALFRED F. THÉARD,
ALFRED RAYMOND.