

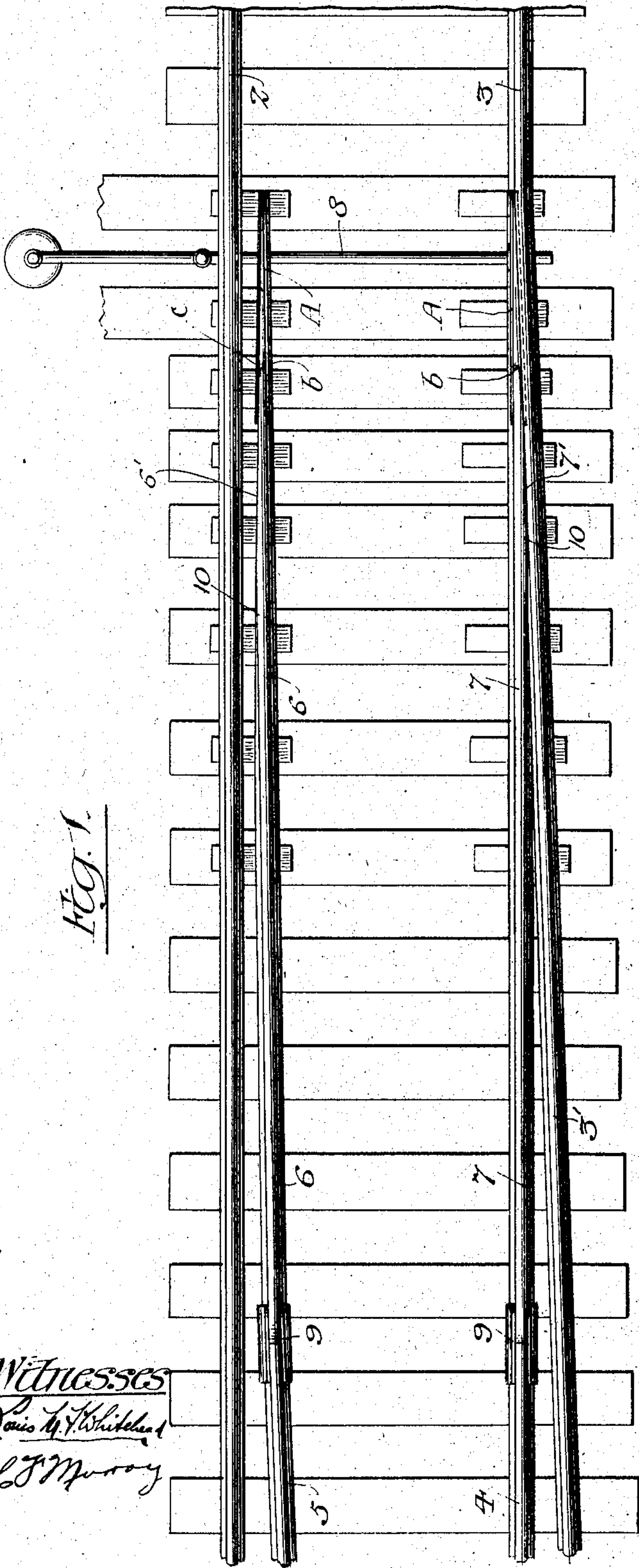
No. 786,780.

PATENTED APR. 4, 1905.

M. WATERS & W. M. MITCHELL.
RAILROAD SWITCH.

APPLICATION FILED DEC. 21, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 6.

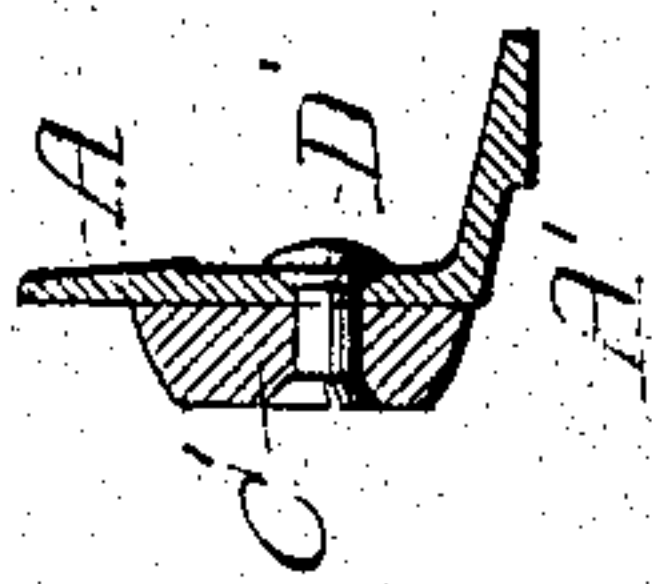


Fig. 5.

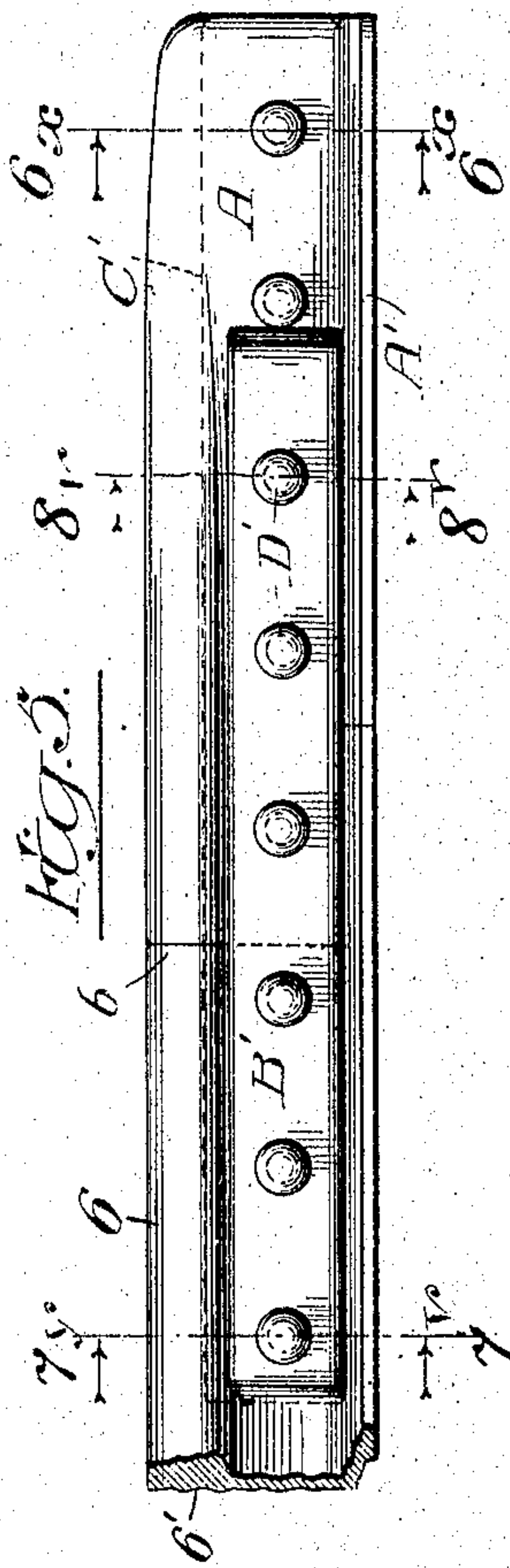
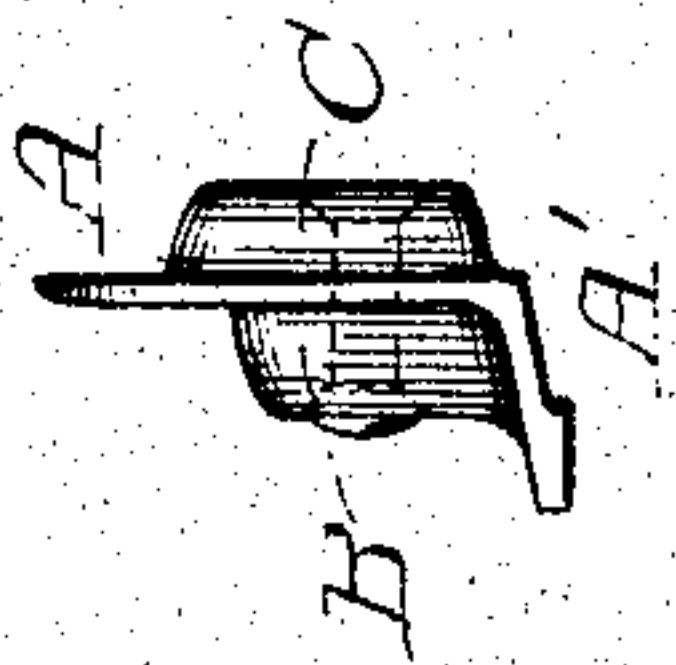


Fig. 2.

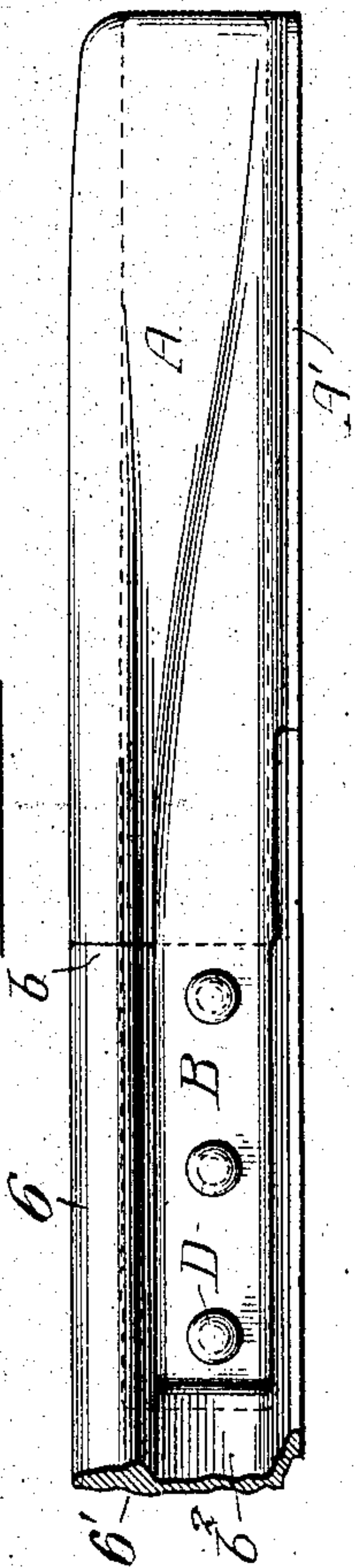


Fig. 7.

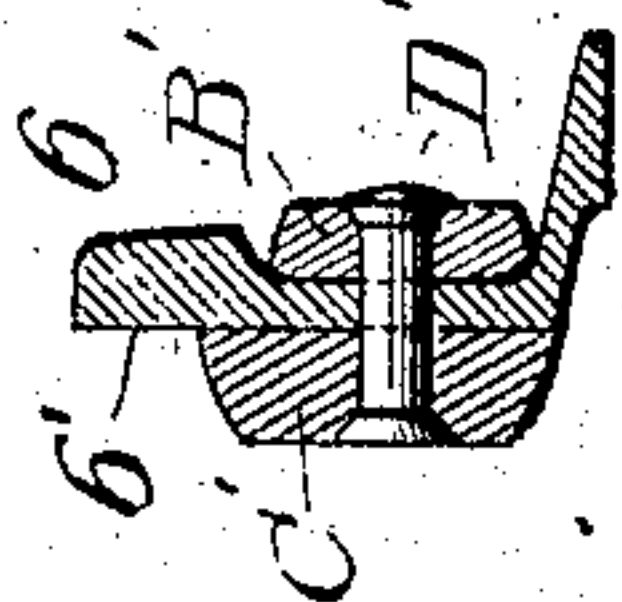


Fig. 4.

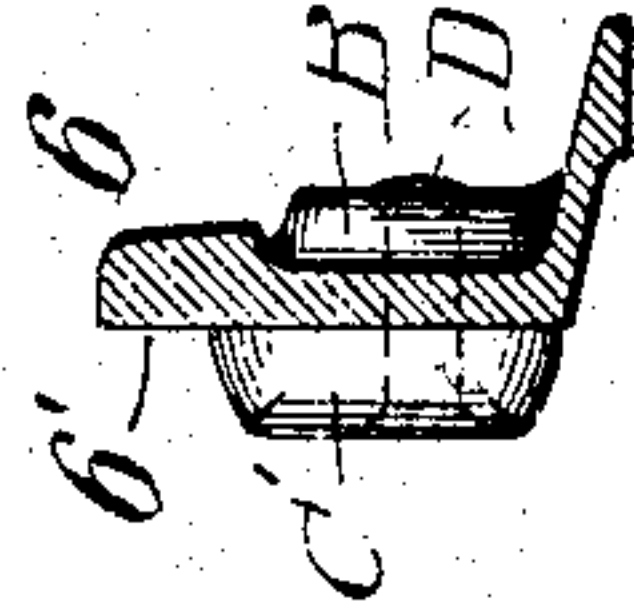
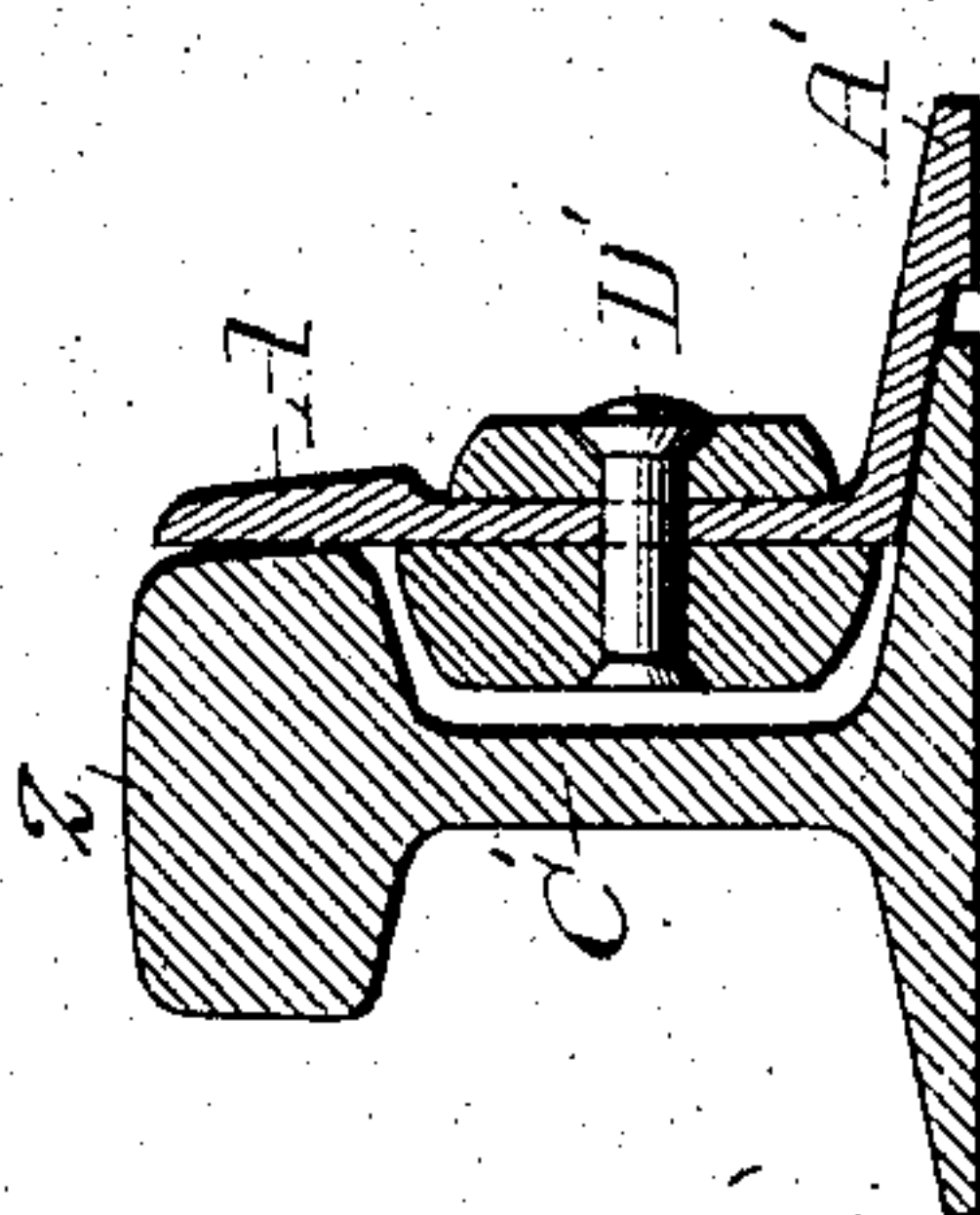


Fig. 8.



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UNITED STATES PATENT OFFICE.

MINOR WATERS, OF NEW ALBANY, INDIANA, AND WILLIAM M. MITCHELL,
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RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 786,780, dated April 4, 1905.

Application filed December 21, 1904. Serial No. 237,847.

To all whom it may concern:

Be it known that we, MINOR WATERS, residing at New Albany, Floyd county, Indiana, and WILLIAM M. MITCHELL, residing at Louisville, Jefferson county, Kentucky, citizens of the United States, have invented a certain new, useful, and Improved Railroad-Switch, of which the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to railroad-switches, and has special reference to improvements in switch-rails and the points thereof.

The object of our invention is to make railroad-switches safer and to render them more durable.

A further object of the invention is to provide a railroad-switch of such form and construction that it may be kept in the best of condition for a fraction of the cost which is commonly connected with the maintenance of switches.

The particular object of our invention is to provide a railroad-switch whereof the switch-rails shall be composed of two or more parts each and shall be capable of being repointed with new metal at any time.

A further object is to provide a switch with sectional point-rails which may be repointed without removing them from the track.

The switch point-rails of railroad-switches as ordinarily constructed are manufactured from ordinary stock-rails, such rails being tapered—that is, planed off on both sides until a sharp point or “feather-edge” is formed. It is this feather-edge which joins or bears against the main rail of the track. The outer side of the switch-point presents the appearance of being beveled or mitered and bears against the main rail for a distance of several feet. From the last point of contact with the main rail (termed the “heel”) the switch-rail is of substantially the normal full rail-section, having as much strength as the main rails of the track. The tapered point of the

rail, however, is much weaker, and this is particularly true of the extreme points of the switch-rails, which are frequently broken off by wheel blows and in every case wear or crumble away with a few weeks' heavy traffic. Many railroad wrecks are directly chargeable to the breaking of switch-points and to the blunting of said points. It is the practice to frequently inspect all switches upon a railroad and to remove a switch point-rail as soon as its end has been blunted to any considerable degree. The wearing away of sometimes not more than eighteen inches of the rail at its point is sufficient to cause the discarding of the whole switch point-rail, even where the point has not been actually broken. As switch point-rails must be of definite length, the discarded rails cannot simply be replanned or finished and then replaced in the track, but must be actually replaced by new rails. Replacing of switches forms one of the large items of expense in connection with the maintenance of every railroad.

A chief purpose of this invention is to largely avoid and to minimize the cost of switch maintenance, and with this object in view in carrying out our invention we employ tapered point-rails to bear against the main rails, but which are initially blunted or truncated, and finish them by attaching points or point-sections thereto, which sections may be replaced or renewed at slight cost.

An incidental purpose of our invention is to utilize old or discarded switch point-rails by cutting off the point portions of the tapered ends thereof and attaching new points, which shall preferably be of better quality and capable of withstanding usage for a longer time than the original integral points.

Other objects of the invention and the exact nature thereof will be described hereinafter and will be made apparent in the appended claims, to which reference is made.

Our invention will be more readily under-

stood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a railroad-switch 5 embodying our invention. Fig. 2 is an elevation of the gage side of the tapered, truncated end of our novel switch-rail, showing the point portion in the form of a casting or forging provided with splice parts for its at- 10 tachment to the truncated end of the body portion of the switch-rail. Fig. 3 is an end view of the switch-point. Fig. 4 is a view of the opposite end, taken from Fig. 2, showing the tapered, reduced end of the switch-rail in 15 section. Fig. 5 is an elevation of the gage side of a modified form of the switch-rail, wherein the point portion, or point-section, is attached to the switch-rail by separate splice bars or plates. Figs. 6 and 7 are sec- 20 tional views on the lines 6^x 6^x and 7^y 7^y, respectively, of Fig. 5; and Fig. 8 is an enlarged cross-sectional view of our switch-point on the line 8^v 8^v of Fig. 5.

Briefly described, our invention consists in 25 a railroad-switch having a switch point rail or rails made blunt and of less than required length in combination with point-sections that are fastened to the blunt tapered ends of the switch-rails, and, further, our invention 30 particularly resides in a new article of manufacture which is constituted by said point-section equipped with plates or plate portions for attachment to the body of the switch-rail.

Referring now to the drawings, 2 represents the straight main rail; 3, the main rail leading to the siding 3'; 4, the main rail parallel with 2, and 5 the siding-rail parallel with the rail 3'. 35

6 is the switch point-rail connected to rail 5 and adapted to coöperate with the rail 2, and 7 is the switch point-rail connecting the rails 3 and 4. These switch point-rails are 40 connected by the usual yoke 8 and may also be connected by bridle-rods.

9 9 represent the switch point connections with rails 4 and 5.

The switch point-rails 6 and 7 are truncated or cut off abruptly, but except for the 50 blunt ends *b* thus formed are exactly like other switch point-rails, their outer sides 6' 7' being beveled to fit against adjacent main rails. The inner or gage sides of the switch-rails may also be beveled to a less extent. If 55 desired, the switch point-rails may be cut off squarely; but we prefer to make the cut irregular or notch the end of the rail, as shown in Figs. 2 and 5, a portion of the flange extending beyond the end of the web and ball 60 of the rail. The end of the switch-rail extends some distance beyond the point or heel 10, where the switch-rail engages the main rail.

A represents the switch point portion or section in each case, the same being attached 65 to the blunt, reduced end of the main portion or body of the switch-rail. (See Figs. 1 and 2.) The outer end of the point A and also a portion of the top is sharpened to a feather, 70 edge, as required, and the point portion increases in width toward its inner end until it reaches substantially the dimensions of the reduced end of the point-rail body. The inner end of the point-section is made to fit the 75 notched end of the switch-rail, and the switch-point, being formed of wrought or cast metal, is conveniently provided with splice extensions or projections upon its side. The extension B on the gage side and the extension 80 C on the outer side of the switch-point embrace the web *b*² of the switch point-rail, and the point is securely fastened to said rail by means of a number of rivets D. We prefer that the extension B shall merge with the 85 flange portion A' of the point near the end thereof; but on the outer side of the switch-point we allow the extension C to extend the full length of the point or section A, the extra thickness of such extension being accom- 90 modated within the side cavity of the main rail, as indicated in Fig. 8. If desired, the integral extension or splice plate portion B of the switch point-section A may be provided with a horizontal flange, also integral, with a view to stiffening the joint between 95 the point-section and the body of the rail to better withstand lateral pressure. There are, however, few instances in which it is necessary to thus strengthen the point-section, for as the whole switch-point lies flat 100 against the side of the main rail the said main rail always takes up the lateral thrust of the wheels which may be in the act of passing the point. It is preferable that the switch point-section shall be made of better, 105 tougher, or harder material than the body of the switch-rail, greater durability and also greater freedom from breakage being thus insured.

It will be obvious that our switch point- 110 section may partake of the common form of the point portion of a switch-rail and that it is not necessary to form the attaching means integrally with the section. The point, whether of rail-steel, wrought-steel, or of 115 cast metal, may be effectively and safely fastened to the reduced truncated end of the switch-rail by means of separate plates B' C', as shown in Figs. 5, 6, and 7. In such cases it is our practice to extend the rivets D' 120 through the thin or web portion of the section A and both plates B' C'. The inner plate B' should be lower than the outer plate C' in order that it shall not interfere with the passage of the wheel-flanges. 125

It will be obvious that numerous modifi-

cations of our invention will readily suggest themselves to one skilled in the art, and therefore we do not confine the invention to the specific constructions herein shown and described.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A railroad-switch, having sectional switch point-rails, the tapered points of which are each formed of two abutting tapered portions, substantially as described.

2. A railroad-switch having truncated, tapered switch point-rails and short point-sections attached to and filling out the truncated ends of said rails, substantially as described.

3. A railroad-switch, comprising the usual main rails and suitably-connected point-rails, wherein each point-rail has a point or tapered end of usual form but composed of two tapered portions or sections suitably joined, the extreme point-sections being separately renewable, substantially as described.

4. In a railroad-switch, a truncated switch point-rail having a truncated, tapered end, to rest against a main rail, in combination with a short, tapered point-section abutting the truncated end of the switch point-rail and rigidly joined thereto, substantially as described.

5. A switch point-rail having a truncated, tapered end to rest against a main rail, in combination with a point-section abutting the truncated end of said rail and having side plates riveted to the web portion of the point-rail, substantially as described.

6. A switch point-rail having a truncated, tapered end to rest against a main rail, in combination with a complementary, tapered switch point-section abutting the truncated end of said rail, to also rest against the main rail, and means for rigidly securing the said section and point-rail together, substantially as described.

7. A switch point-rail having a truncated tapered point or end of less than normal length, in combination with a short, tapered switch-point proper attached to the truncated end of said rail, said point proper completing the said rail, and formed of more serviceable metal, substantially as described.

8. A switch point-rail having a tapered point that is truncated and therefore of less than normal length in combination with a short, tapered point section or extension abutting the reduced end of said rail, and a plate projection upon the outer side of said point-section, said plate being rigidly secured to the point-rail and substantially conforming to the shape of the inner side cavity of a stock or main rail, substantially as described.

9. A switch point-rail having a truncated

tapered end and therefore of less than normal length, in combination with a short, complementary point-section, completing said rail, and strengthening plates or extensions projecting from the large end of said point-section and secured to opposite sides of the point-rail, substantially as described.

10. A switch-rail having a truncated, tapered point, in combination with a complementary point-section abutting said switch-rail and having integral side plates or splices together embracing the web of the switch-rail and rigidly secured thereupon, substantially as described.

11. A switch-rail having a truncated, tapered end to rest against a main rail, in combination with a complementary, tapered point-section having parallel integral plate extensions embracing the web portion of the switch-rail and rigidly secured thereto, the plate extension upon the gage side of said section being of less height than the other extension, substantially as described.

12. A truncated switch-rail partially pointed and blunted as described, in combination with a complementary, tapered point-section equipped with plate extensions embracing the switch point-rail, and rivets extending through said rail and extensions, substantially as described.

13. The new article of manufacture, comprising a short, tapered, complementary switch-rail point for attachment to the truncated end of a split-point switch-rail, the wide end of said complementary point being of substantially one-half the width of a switch-rail, substantially as described.

14. A switch point-rail of less than normal length, having a truncated, tapered end to rest against a main rail, in combination with a tapered-point-completing section abutting the truncated end of said rail and provided with an integral plate or splice projection rigidly jointed and riveted to the end of said point-rail, substantially as described.

15. A suitably-tapered switch point-rail having a truncated, notched end, in combination with a complementary tapered point-section fitting the notched truncated end of said rail, and side plates upon said complementary pointed section riveted to said switch-rail, substantially as described.

16. In a railroad-switch, the main rails, in combination with the switch point-rails having their outer sides beveled at the ends upon planes that intersect the planes of their webs, said point-rails being truncated upon transverse planes, substantially coincident with the intersections of the bevel and web planes thereof, short, tapered complementary point-sections fitting the truncated ends of said point-rails and means securing the comple-

mentary points upon respective point-rails, substantially as described.

17. A rolled-steel switch point-rail for railroad-switches, having a tapered, truncated end to rest against a main rail, in combination with a complementary tapered point to also rest against the said main rail, respective sides of said point-rail and said point being in the same vertical planes, and means securing said point on said point-rail, substantially as described.

18. A rolled-steel switch point-rail for railroad-switches, having a tapered, truncated end to rest against a main rail, in combination with a complementary tapered point to also rest against the said main rail and abutting the truncated end of said point-rail, said complementary point being a steel casting,

and means for securing said point to said point-rail, substantially as described.

In testimony whereof witness my hand, this 15th day of December, 1904, at New Albany, Floyd county, Indiana, in the presence of two witnesses.

MINOR WATERS.

Witnesses:

GEO. A. NEWHOUSE,
ARTHUR EMRICH.

In testimony whereof witness my hand, this 15th day of December, 1904, at Louisville, Jefferson county, Kentucky, in the presence of two witnesses.

WILLIAM M. MITCHELL.

Witnesses:

E. J. HACKETT,
H. O. WIELAND.