

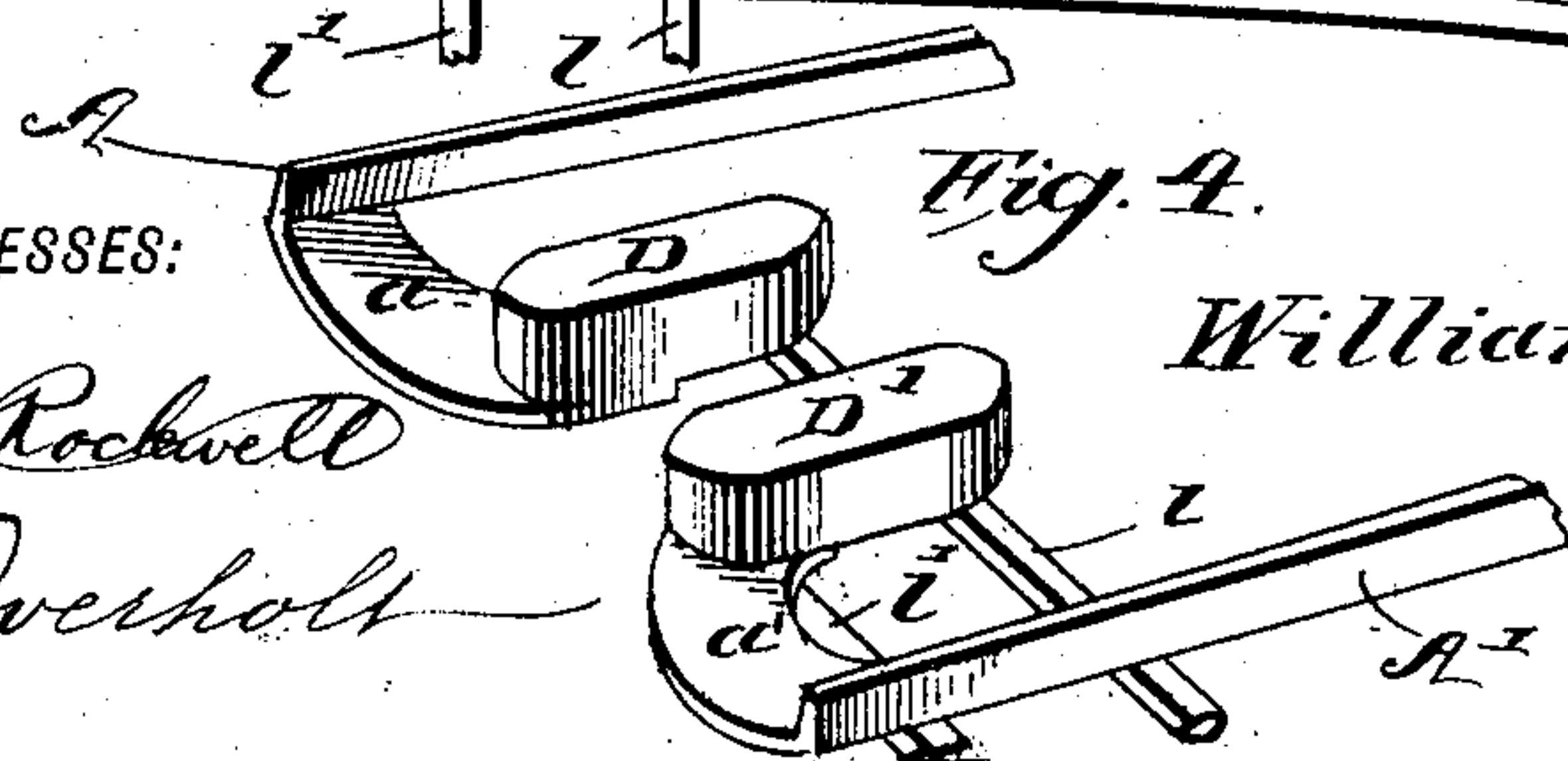
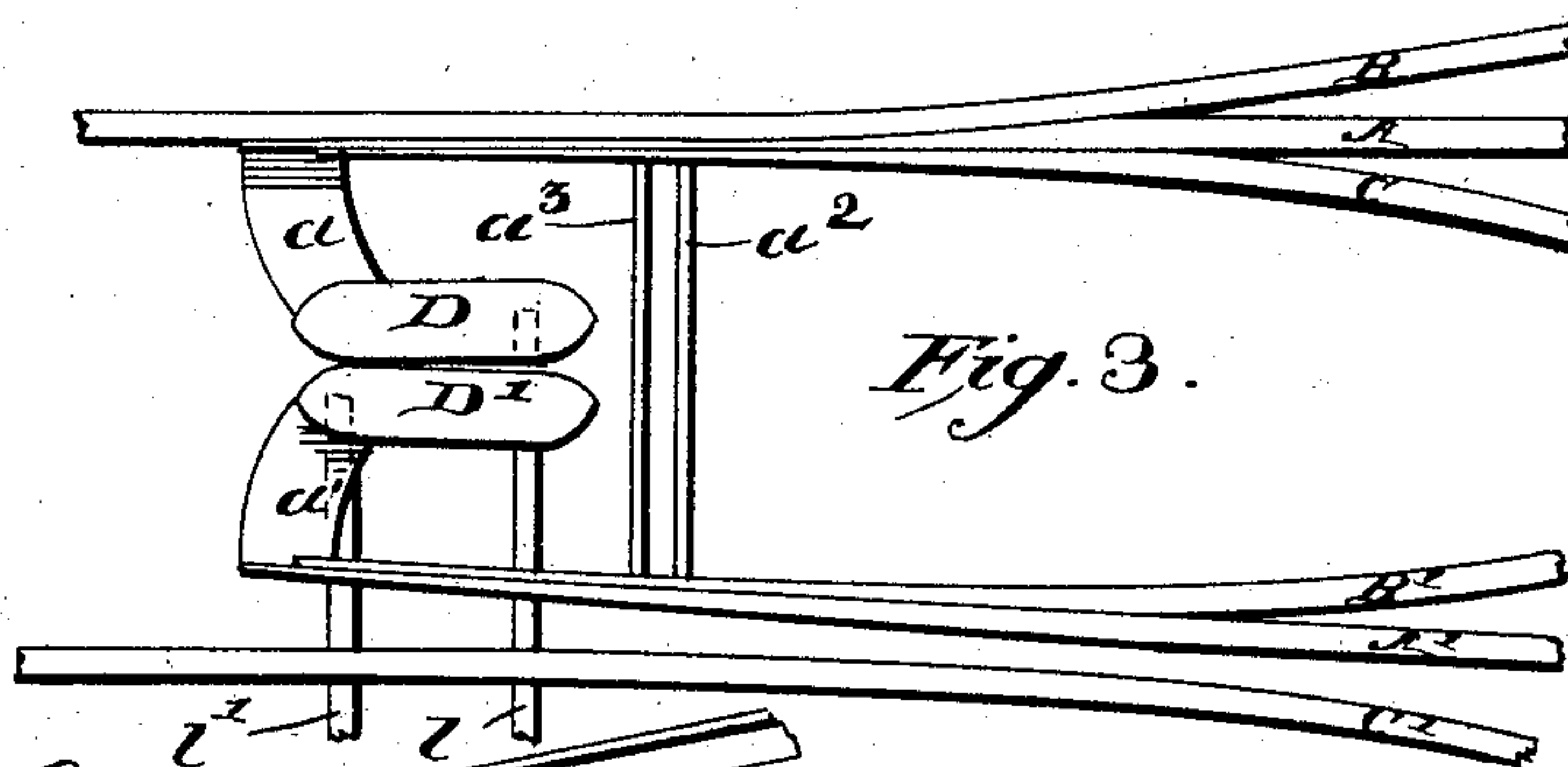
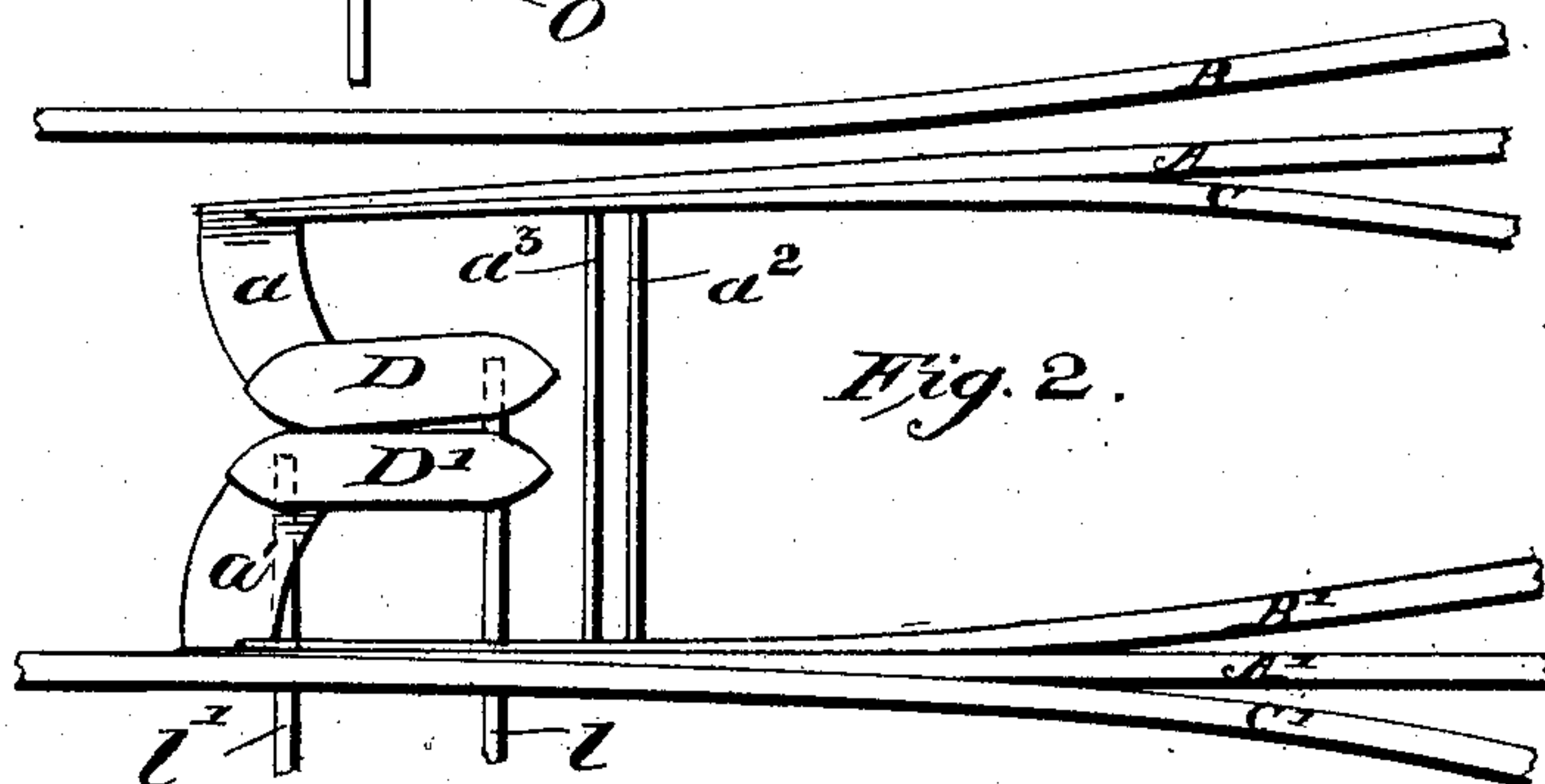
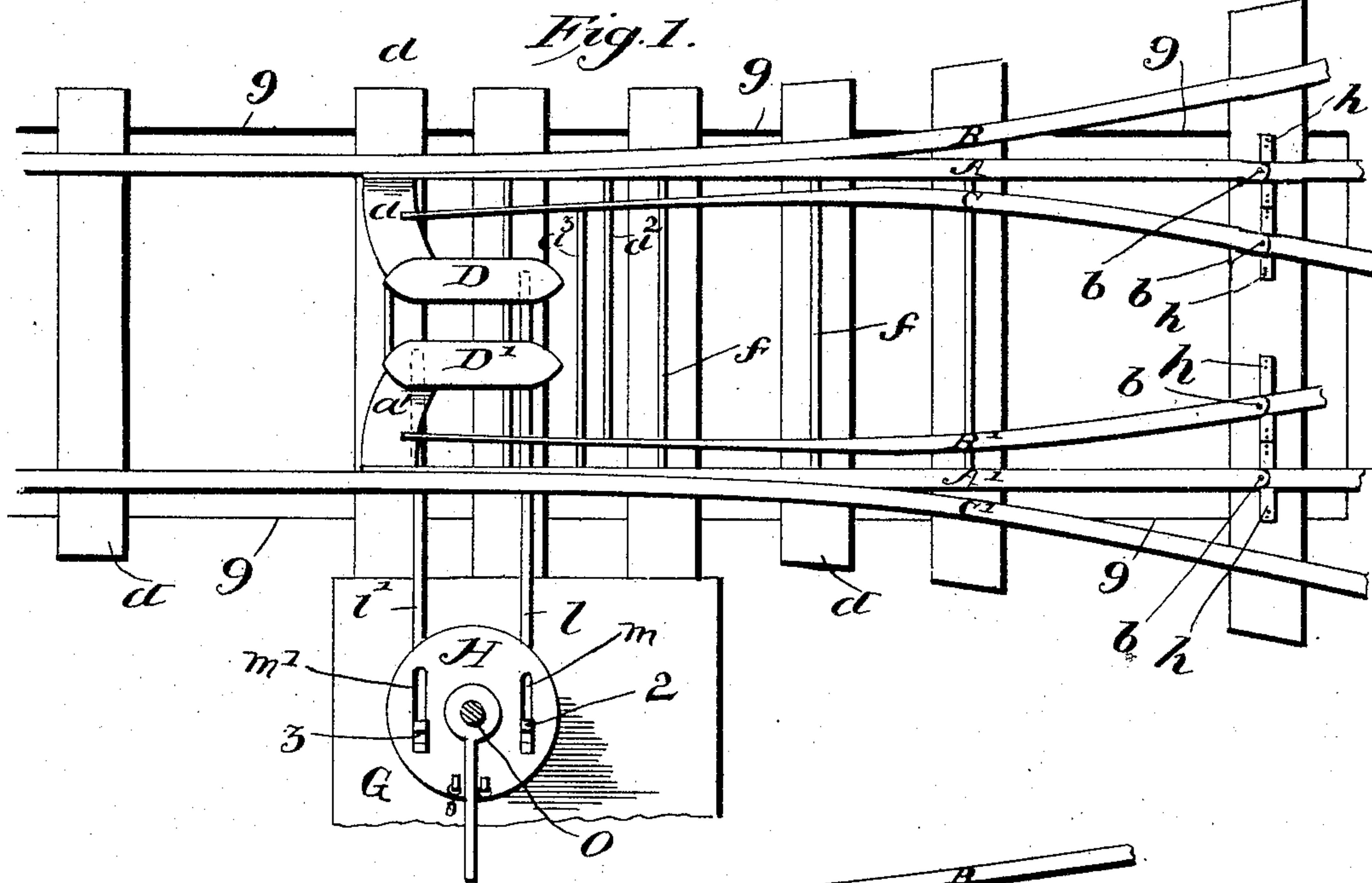
No. 790,158.

PATENTED MAY 16, 1905.

W. H. SAMMONS.
RAILROAD SWITCH.

APPLICATION FILED DEC. 29, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

W. S. Rockwell
E. E. Overholt

INVENTOR

William H. Sammons

BY Munn & Co.

ATTORNEYS

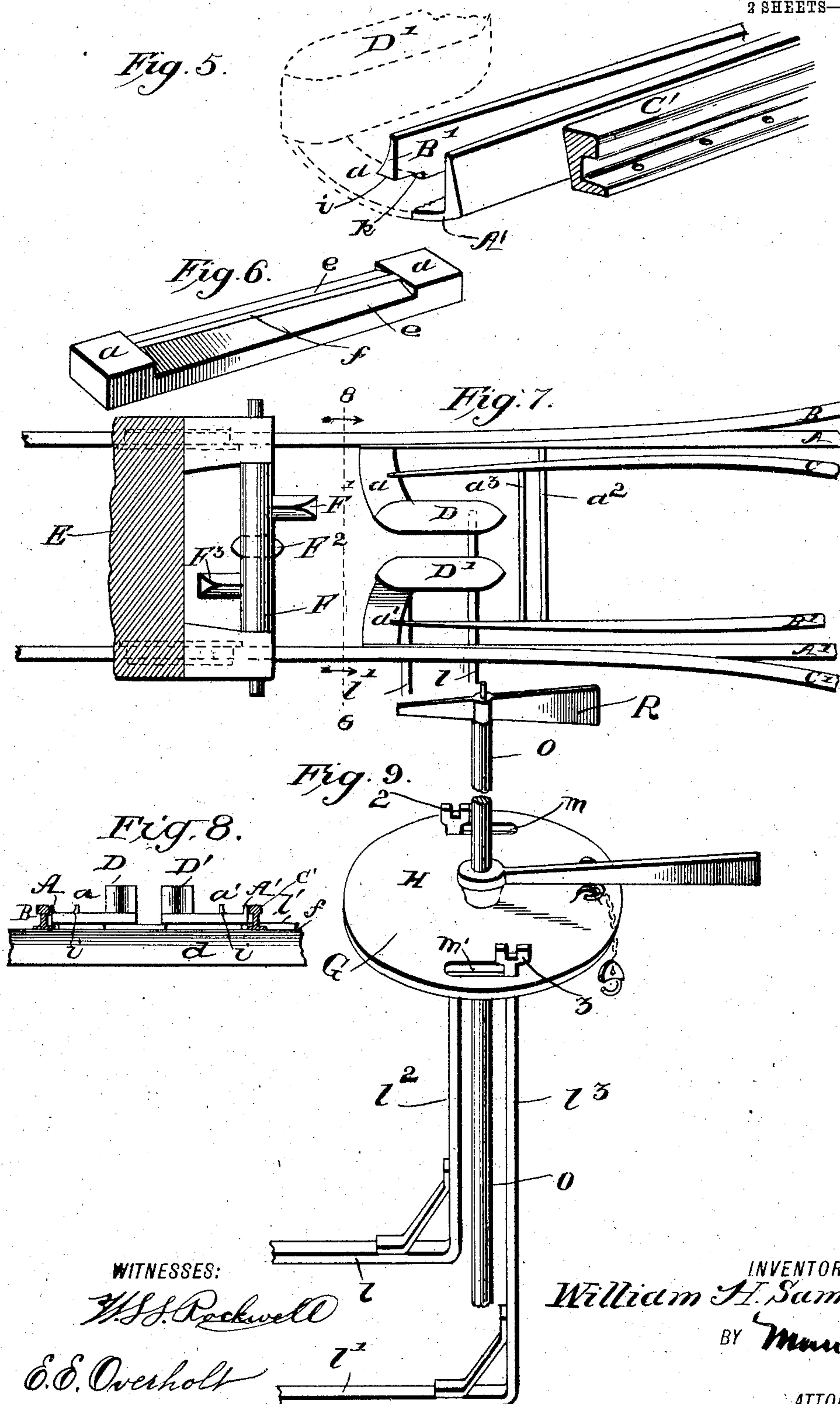
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UNITED STATES PATENT OFFICE.

WILLIAM HENRY SAMMONS, OF NORTH BEND, OREGON.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 790,158, dated May 16, 1905.

Application filed December 29, 1904. Serial No. 238,801.

To all whom it may concern:

Be it known that I, WILLIAM HENRY SAMMONS, a citizen of the United States, and a resident of North Bend, in the county of Coos and State of Oregon, have invented a new and useful Improvement in Railroad-Switches, of which the following is a specification.

The object of my invention is to provide a three-way switch and means to be carried by a locomotive or street-car for operating the switch therefrom.

The invention consists in certain novel features of construction and combinations of parts, as will be set forth and claimed in the appended specification, reference being had to the accompanying drawings, which form a part of this application, and in which—

Figure 1 is a top plan view of my switch, showing the position of the parts when the main line is in use. Fig. 2 shows the position of the parts when the left switch is in use. Fig. 3 shows their position when the right switch is open. Fig. 4 is a perspective of the switch-blocks attached to the switch-points of the main-track rails. Fig. 5 is a view illustrating the shape of the movable points at their forward ends and showing the adjacent outer or fixed rail in cross-section at a point somewhat to the rear of said ends, the switch-block being shown in dotted lines. Fig. 6 is a perspective of the kind of cross-tie preferably used with my improved switch. Fig. 7 is a view somewhat similar to Fig. 1 and also shows switch-operating mechanism carried upon the front end of a locomotive or car. Fig. 8 is a sectional view taken on line 8 8 of Fig. 7, and Fig. 9 is a perspective of the switch-stand used with my improved switch when it is desired to operate the same by hand.

The letters A and A' designate the rails of the main track, B and B' the rails of the left-hand track, and C and C' the rails of the right-hand track. The outer rails B and C' of the two side tracks, respectively, are continuous and fixed, while all the other rails terminate in movable points at the beginning of the switch, with the points of the main track lying next the fixed rails and the inner rail-points C and B' of the two side tracks lying inside the points A and A' and terminating slightly

short of these latter points. The switch-points are all pivoted to the main track at their rear ends by bolts *b*, extending downwardly into one of the cross-ties. The switch-blocks D and D' are rigidly connected with the switch-points A and A' of the main track at the forward ends of said points, the connection being effected by broad lateral bars *a* and *a'*, which project inwardly toward each other and support said blocks midway between the sides of the track at the opening of the switch. These blocks are elongated and are vertically rounded to blunt points at their front and rear ends and extend upwardly into a plane above the top of the track. The switch-points A and B' are pivotally connected together and held suitably spaced apart by the spreader-bar *a*², while the points A' and C are similarly connected by a like bar *a*³. These bars are preferably located near the forward ends of the switch-points, and each pair of connected points may have more than one spreader-bar, if desired. When the switch-blocks D and D' are separated from each other to open the main track, as illustrated in Fig. 1, the space between them is equal to the space between the points A and C and between the points A' and B'—that is, all three of these spaces are equal.

From the arrangement described it will be seen that with the main track open, as illustrated in Fig. 1, if one of the switch-blocks be then moved to its inward position it will abut against the other block when the two points it controls come in contact with the two points controlled by said other block—that is, each switch-block forms a stop to properly limit the movement of the other block and of the two points controlled thereby when the device is operated to open the switches. If the left block D be moved inwardly, the left switch will be opened, as illustrated in Fig. 2. If the right block D' be moved inwardly, the right switch will be opened, as illustrated in Fig. 3. In both these cases it will be observed that the switch-blocks are in engagement with each other, one being in its innermost position and the other in its outermost, the innermost block being the one nearest to the outer track of the open switch in each

case. If when one switch is open it is desired to open the other switch, all that is necessary is to move the outermost block to its inward position, since this movement of the
 5 outer block will carry the other block with it, and thereby all four of the switch-points be moved together—as, for instance, in Fig. 2 (which shows the left switch open) if the block D' be moved inwardly as far as it can
 10 go it will carry the block D with it, thereby simultaneously bringing the switch into the position illustrated in Fig. 3, which shows the right switch open and the left switch closed. When one switch is open and it is desired to
 15 close the same (without opening the other switch) in order to open the main track, in that case it is only necessary to move the block outwardly which controls the open switch in question. The two blocks will then
 20 be separated, as shown in Figs. 1 and 7.

In order that my switch may be operated at will by an engineer or motorman, I provide the front part of the locomotive or car E (see Fig. 7) in advance of its forward
 25 wheels with a rotatable shaft or cylinder F, carrying the switch-operating shoes F', F², and F³. These shoes are of the shape illustrated in Fig. 7 of the drawings and are adapted to be brought down into engagement with
 30 the switch-blocks by rotating the cylinder F; but they are so located upon the cylinder with reference to its circumference that only one of them can extend downwardly at a given time. These shoes are so positioned longitudinally of the cylinder as to bring the middle
 35 shoe F² when turned downwardly directly between the switch-blocks D D', so as to separate them, and thereby open the main track, as shown in Figs. 1 and 7. If the shoe F' be
 40 turned downwardly, it will engage the block D, moving the same inwardly and opening the left switch, while the shoe F³ is adapted to engage the block D' and open the right switch. The thickness of the middle shoe F² is such
 45 that when it passes between the switch-blocks they are both forced to their outward limit, while the other shoes operate, one to force both blocks as far to the right as they can go and the other to force them both as far to the
 50 left as they can go—that is, the shape of the ends of the blocks and shoes and their thickness and relative positions and the distance of movement of the blocks are all so proportioned and related to each other that no matter
 55 what position the blocks are in the proper one or both can be unfailingly engaged by one of the shoes to operate the switch in any manner desired.

The blocks D and D' project upwardly above
 60 the top of the tracks, as already stated, the object of which is to permit them to be easily engaged by the operating-shoes without bringing the shoes down into the plane of the rails. The cylinder F, carrying these operating-
 65 shoes, is rotated and held in any desired po-

sition by suitable means (not shown) under the control of the operator. The switch-blocks D and D' are of a length greater than the distance from the operating-shoes back to the foremost wheels of the locomotive or
 70 car, by which arrangement the switch-blocks are held in the desired position by the shoes till said foremost wheels have taken the proper rails.

Sometimes it is necessary to operate the
 75 switches by hand, and to meet this requirement the switch-blocks D and D' are connected to a suitable switch-stand G, Figs. 1 and 9, by the operating-rods *l* and *l'*, respectively. This stand is provided with the usual day and
 80 night targets showing when the switch is open and when closed. The rods *l* and *l'* are bent at their outer ends to form the upwardly-extending sections *l*² and *l'*², the upper ends of which latter are bifurcated at 2 and 3 and
 85 project upwardly through the slots *m* and *m'* in the plate H of the switch-stand. These bifurcated ends are adapted to be engaged by the operating lever or handle N of the stand. The plate H is supported at its center upon
 90 the staff O, and the handle N is rigidly connected at its inner end with this staff, so that the target P, carried at the upper end of the staff, will always indicate the true position of
 95 the switch. It will be observed that the construction of the switch-stand is such that it never interferes in any way with the operation of the switch by the shoes carried upon the locomotive or car.

The cross-ties underlying the switch-points
 100 are preferably formed as illustrated in Fig. 6, the flat end portions *d d* serving to support the outer fixed rails B and C' of the track and the space between said ends being inclined downwardly from the longitudinal cen-
 105 ter of the tie toward either side thereof, forming the top of the tie between its end portions *d d* into two inclined faces *e e*. At the longitudinal center of the tie at the apex of the two inclined faces *e e* I secure a half-
 110 round iron bar *f*. These bars serve to reduce the friction between the switch-points and the cross-ties, while the inclined faces *e e* at the tops of the ties serve to cause snow and dirt to work off the ties and fall down
 115 into the pit usually located underneath the switch and outlined in Fig. 1 by the lines *g*. At the rear ends of the switch-points where they are pivoted to the track I provide the strong side braces *h h* on each side of a switch-
 120 point to relieve the bolts *b* from lateral strain and to render the tracks quite as strong at their switch-joints as elsewhere.

From Fig. 5 it will be seen that the fixed rails B and C' are cut away (slightly under-
 125 cut) at their inner sides throughout that portion of their extent which is engaged by the switch-points A and A', respectively. This arrangement keeps these sides from catching snow, dirt, &c. The rails A and A' are suit-
 130

ably tapered toward their bottoms to give them broader bases and to compensate for the undercut on the inner sides of the fixed rails to cause them to fit said sides when brought into contact therewith.

As already pointed out, the points A and A' extend forwardly in advance of the points C and B', so that the wheels of a car or locomotive take the points A and A' first. From the forwardly-projecting portions of the points A and A' the switch-block bars *a* and *a'* extend inwardly past the switch-points C and B', the extreme forward ends of which latter are supported upon said bars *a* and *a'*, respectively, and are flattened at their bases to give them a broader bearing-surface *i* upon these bars. (See Figs. 5 and 8.) These flattened portions *i* are cut away on their bottoms, as indicated at *k* in Fig. 5 of the drawings, to compensate for the thickness of the bars *a* and *a'*, so that the tops of these switch-points will be in the same plane with the tops of the other switch-points and of the main track.

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

1. A three-way railroad-switch having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends with the main track and disposed adjacent the inner sides of said fixed rails and coöperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends of said points, the outer movable point at each side of the track being pivotally connected with and spaced from the inner movable point at the other side of the track, and means rigidly connected with said first-named points and held between said second-named points and adapted to be engaged and operated from a locomotive or car.

2. A three-way railroad-switch having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points adjacent the inner sides of said fixed rails and coöperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switches and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends of said first-named points, the outer movable point at either side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, and switch-blocks rigidly connected with said first-named points

and held between said second-named points, and adapted to be engaged and operated from a locomotive or car.

3. A three-way railroad-switch, having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points adjacent the inner sides of said fixed rails and coöperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switches and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends of the latter the outer movable point at either side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, and switch-blocks rigidly connected with said first-named points and held between said second-named points, the space between an outer movable point at one side of the track and the inner movable point connected therewith at the other side of the track being sufficiently less than the width of the railway-track to permit the easy passage of the car-wheels through the open side of the switch, and the space between the switch-blocks being also equal to this space, whereby when the blocks are moved as far as possible from each other, the main track will be open and the space between each of the inner movable points and their adjacent outer movable points will be equal and when either switch-block is moved inwardly to its farthest limit, the track which it controls will be opened and the other tracks simultaneously closed, and the block controlling the closed switch will come in contact with and form an abutment for the block controlling the open switch, said blocks being adapted to be engaged and operated from a locomotive or car.

4. A three-way railroad-switch having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends, with the main track, and disposed adjacent the inner sides of said fixed rails and coöperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends of said points, the outer movable point at either side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, rigid bars extending inwardly from the forward ends of said first-named points, and switch-blocks carried upon said bars between said second-named switch-points, the forward ends of the latter sliding upon said switch-block bars.

5. A three-way railroad-switch having its

extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends with the main track and disposed adjacent the inner sides of said fixed rails and cooperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends thereof, the outer movable points at either side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, switch-blocks connected to said first-named points and held between the second-named points and shoes carried upon the locomotive or car in advance of the front wheels thereof for operating said switch-blocks, the length of the blocks being greater than the distance from said operating-shoes to said foremost wheels.

6. A three-way railroad-switch having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends with the main track and disposed adjacent the inner sides of said fixed rails and cooperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends thereof, the outer movable point at either side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, switch-blocks connected to said first-named points and held between the second-named points, and shoes carried upon the locomotive or car in advance of the front wheels thereof, said shoes being adapted to be rotated in a direction to bring them into engagement with said blocks to operate the same, the length of the blocks being greater than the distance from said operating-shoes to said foremost wheels.

7. A three-way railroad-switch having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends with the main-track rails and disposed adjacent the inner sides of said fixed rails and cooperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points, the outer movable points at each side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, switch-

blocks connected to said first-named points and held between said second-named points and a rotatable member carried upon the locomotive or car in advance of the front wheels thereof, and provided with rigid shoes adapted to be brought in pendent position to pass between or on the sides of said blocks to operate the several switch-points as required.

8. A three-way railroad-switch having its extreme outer rails rigid and forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends with the main-track rails and disposed adjacent the inner sides of said fixed rails and cooperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points, the outer movable points at each side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the tracks, switch-blocks connected to said first-named points and held between said second-named points and projecting above the top of the railway-track, a rotatable member carried upon the locomotive or car in advance of the front wheels thereof, and operating-shoes rigidly carried upon said member and spaced from each other circumferentially and longitudinally thereupon and adapted by the proper rotation of said member to be projected downwardly one at a time into position to engage said switch-blocks to operate the switch, the middle shoe being adapted to pass between said blocks to separate the same from each other to open the main track and close both switches, and the other shoes being each adapted when brought into operative position to pass on the outer side of a block so as to control one of the switches said shoes when in their lowermost or operative position being above the top of the railway-track.

9. In a three-way railroad-switch, outer fixed rails forming an unbroken continuation of the main track at the mouth of the switch, a pair of movable switch-points connecting at their rear ends with the main track and disposed adjacent the sides of said fixed rails and cooperating therewith to form a continuation of the main track, a second pair of movable switch-points forming the terminations of the curved inner rails of the switch-tracks and disposed adjacent the inner sides of said first-named movable points and terminating short of the ends of said points, the outer movable point at either side of the track being pivotally connected with and held spaced from the inner movable point at the other side of the track, flat bars rigidly connected to the extreme forward ends of said first-named points and extending inwardly therefrom, and switch-blocks carried by said bars between said sec-

ond-named points, said fixed rails being cut
away on their inner sides for a distance rear-
wardly from the mouth of the switch to provide
said sides with undercut walls, said first-named
5 switch-points being tapered at their forward
portions and provided with flat sides, the outer
sides of said tapered portions being adapted
to fit the undercut walls of the fixed rails,
the second-named points being also tapered at
10 their forward portions with the outer sides of
their tapered portions adapted to fit in flat
engagement with the inner sides of the tapered
portions of the first-named points, the extreme
forward ends of said second-named points be-
15 ing broadened at their lower sides and resting
upon said switch-block bars said broadened
bottoms being cut away to compensate for the
thickness of said bars, to permit the tops of
said points to be flush with the top of the
20 track.

10. A three-way railroad-switch having its
extreme outer rails rigid and forming an un-
broken continuation of the main track at the

mouth of the switch, a pair of movable switch-
points adjacent the inner sides of said fixed 25
rails and cooperating therewith to form a con-
tinuation of the main track, a second pair of
movable switch-points forming the termina-
tions of the curved inner rails of the switches
and disposed adjacent the inner sides of said 30
first-named movable points and terminating
short of the ends of said first-named points,
the outer movable point at either side of the
track being pivotally connected with and held
spaced from the inner movable point at the 35
other side of the track, and a switch-stand hav-
ing connection with the switch and adapted to
operate the same by hand, said stand being
arranged to leave the switch always free to
be operated from a train and carrying a target 40
movable with the switch for indicating the
position of the switch at all times.

WILLIAM HENRY SAMMONS.

Witnesses:

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F. M. RUMMELL.