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Patented Dec. 30, 1902.

D. S. HOOVER & F. H. WORKMAN.

RAILWAY SWITCH.

(Application filed Oct. 15, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

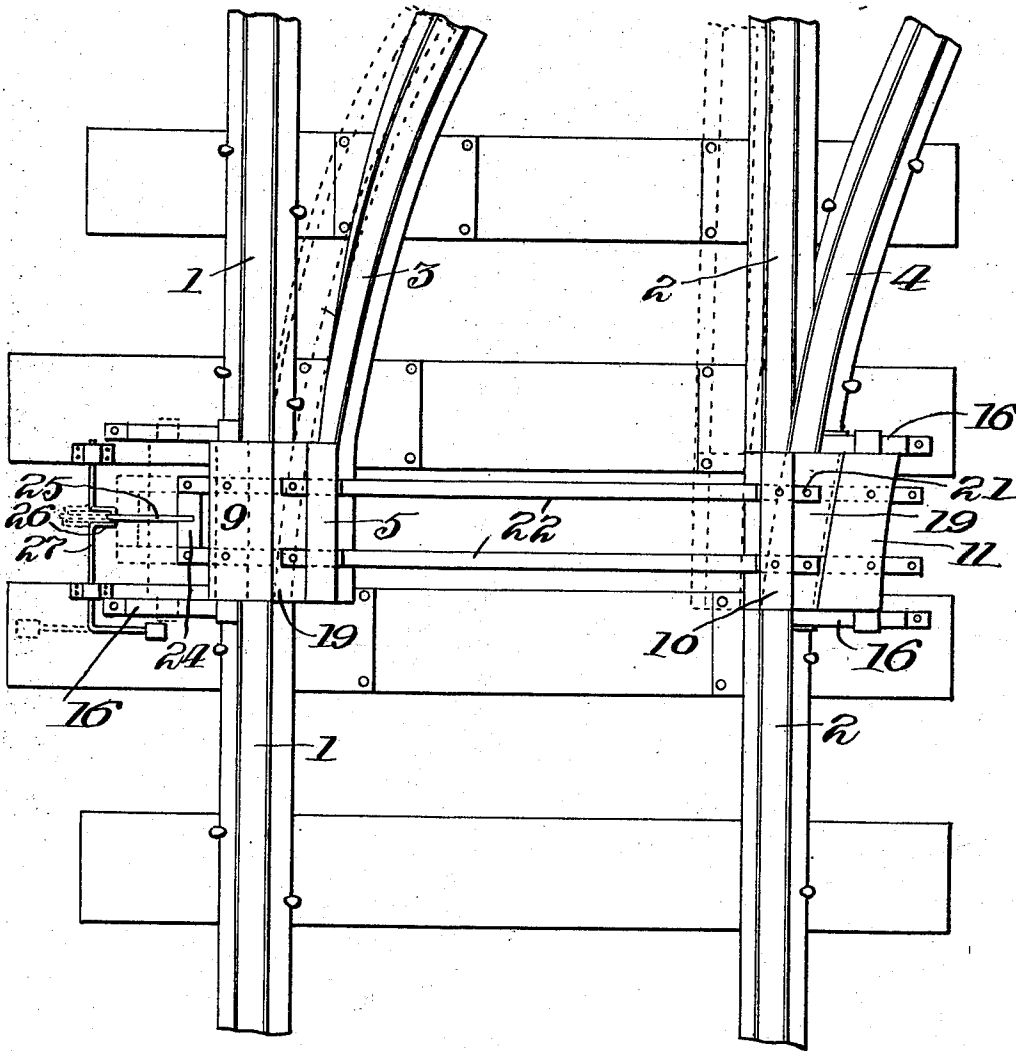
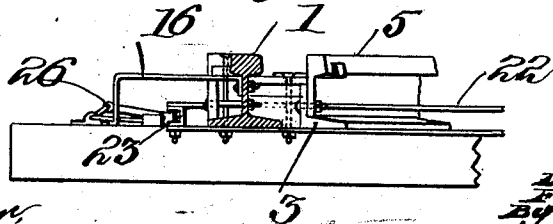


Fig. 2.



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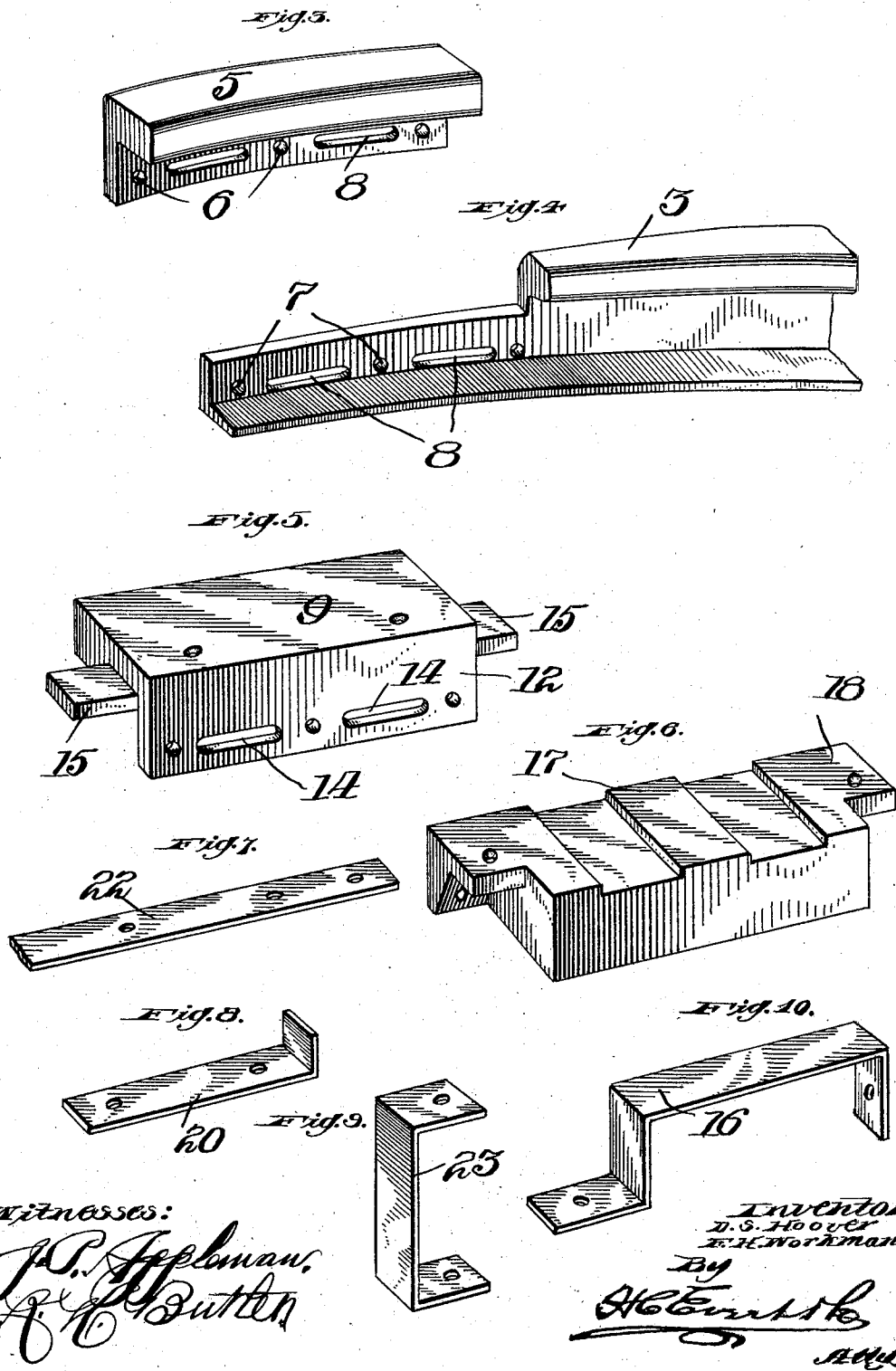
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UNITED STATES PATENT OFFICE.

DANIEL S. HOOVER, OF ALLEGHENY, AND FRANK H. WORKMAN, OF
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RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 717,403, dated December 30, 1902.

Application filed October 15, 1902. Serial No. 127,374. (No model.)

To all whom it may concern:

Be it known that we, DANIEL S. HOOVER, residing at Allegheny, in the county of Allegheny, and FRANK H. WORKMAN, residing at Freedom, in the county of Beaver, State of Pennsylvania, citizens of the United States of America, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in switches, and relates particularly to that class of switches employed on steam-railroads, though may be advantageously used in connection with other railway-lines.

The invention has for its main object to construct a switch in which there is presented to the tread of the wheels a full rail-tread both when the switch is in position for the straight track and in position for the side track.

Another object of our invention is to dispense with switch or side-track rails feathered or tapered so as to fit against the straight-track rails, which is an objectionable feature, as the feathered or tapered ends of these rails soon become damaged, owing to the fact that there is insufficient metal to withstand the battering of the wheels passing over same.

With the above and other objects in view the invention further consists in the novel construction, combination, and arrangement of parts, as will be hereinafter more specifically described, and then particularly pointed out in the claims, and in describing the invention in detail reference will be had to the accompanying drawings, forming a part of this application, and wherein like numerals will be employed for designating like parts throughout the different views, in which—

Figure 1 is a top plan view of our improved switch in position. Fig. 2 is a cross-sectional view through one rail of the track, showing a portion of the switch in side elevation. Fig. 3 is a detail perspective view of a part of the movable rail-section of the switch or side track. Fig. 4 is a detail perspective view of the movable rail-section that carries the sec-

tion shown in Fig. 3. Fig. 5 is a detail perspective view of the movable rail-section which forms a part of the main-track rails on one side when the switch is set for main-track traffic. Fig. 6 is a like view of the bearing-block for the movable rail-sections forming a part of the main track. Fig. 7 is a detail perspective view of a part of one of the rods forming the bridle of the switch-throwing mechanism. Fig. 8 is a like view of one of the braces for the movable rail-section. Fig. 9 is a like view of one of the braces employed at the ends of the rods forming the bridle of the throwing mechanism. Fig. 10 is a detail perspective view of one of the guides upon which the movable rail-sections of the main-track rails travel.

In the accompanying drawings, 1 2 indicate the main rails of the straight track, and 3 4 indicate the rails leading to the side track. These side-track rails are differently shaped at the ends which connect with the main track. The rail 3 is movable, while the rail 4 is spiked to the cross-ties in similar manner to the main-track rails and remains stationary. In order to neatly join the rail 4 with the rails 2, the flange of the rail 4 on one side is cut away, as will be seen by reference to Fig. 1, and the end of the rail 4 is brought practically flush with the end of the rail 2, which it engages. The rail 3 has its flange or base cut away on the side adjacent to the rail 1, as will be seen by reference to Fig. 1, and this rail 3 has its tread slightly tapered on the side adjacent the rail 1, so that when shifted over into position for the side track, as seen in dotted lines in Fig. 1, it will neatly engage the side of the rail 1, the end of its tread being practically flush with the end of the tread of rail 1, as is the case with rails 2 and 4. This rail 3 has its tread cut away at the end, (see Fig. 4,) and mounted on this cut-away portion is a rail-section 5. (See Fig. 3.) This rail-section 5 has a tread of the same surface as the main-rail tread. It is secured to the rail 3 by bolts or rivets passed through apertures 6, provided therefor in the web of the rail-section 5, and through apertures 7 in the web of the rail 3, as seen in Fig. 3 and Fig. 4. The web of the rail-section 5

tion 5 and the web of the rail 3 are also provided with slots 8, which register and receive the rods forming the bridle of the switch.

The movable rail-sections of our improved switch comprise one of the rails 2, the rail 3, with its rail-section 5, a rail-section 9, which forms a part of the main rails at one side of the track, a movable rail-section 10, which forms a part of the main rails at the opposite side of the track, and a movable section 11, which forms a part of the side-track rail at the side of the track having the rail-section 10. The movable rail-sections 10 11 act in the same manner as the rail-sections 5 9 and are practically the same in construction, except as to shape, as required by one being at one side and the others at the opposite side of the track. The movable rail-section 9 (see detail Fig. 5) has a tread which forms a part of the main rails when in the position shown in Fig. 1. This rail-section also has a depending flange or web 12, provided with slots 14, which aline with the slots 8 and receive the bridle-rods. This rail-section also carries extending lugs 15, which slide on guide-bars 16, (see detail Fig. 10,) these guide bars or rails having one end secured to one of the cross-ties and the other end bolted to the web of the main rail. A bearing-block 17 (see detail Fig. 6) is bolted or otherwise secured to the webs or base-flanges of the rails 1 at one side of the track and at the other side is similarly secured to one of the rails 2 and to rail 4. To this end it is preferably constructed with apertured lugs 18, which lie on the base-flanges of the adjacent rails and are bolted to said base-flanges. This bearing-block is provided in its upper face with recesses to receive the upper bars or rods of the bridle. One of these blocks 17 is mounted under the rail-section 9, and a like one is mounted under rail-section 10. The rail-sections 10 11 are similar in construction to sections 5 and 9, except that section 11 is curved to conform to rail 4. Both are provided in their flanges with slots to receive the bridle-rods, and the section 11 has extending lugs 15 on the ends to slide on the guide-bars 16, provided therefor. The sections 5, 9, 10, and 11 may be secured to the bridle-rods by bolts passing down through the same and through the rods, as shown. In order to prevent dirt, ballast, or the like dropping in under the sections, so as to interfere with easy movement thereof, plates 19 are placed between the sections 5 and 9 and between the sections 10 11. The sections 5 and 9 are provided with braces 20. (See detail Fig. 8.) These braces are fastened by bolts 21, passing through the bridle-rods, the braces for section 10 being also fastened by the bolts which pass through said section. Two pair of bridle-rods 22 are provided, the rods of each pair being disposed one above the other and the pairs being parallel. Each pair is spaced at the ends by brackets 23, which are bolted to the rods. At their one end the

rods are connected together by a cross-bar 24, connected by link 25 to the bell-crank 26 of the throwing-lever 27. This latter is mounted in a suitable bearing on two of the cross-ties, as shown in Fig. 1. The rod 25 may be attached to any suitable switch-stand.

In Fig. 1 the switch is shown in full lines in position for travel on the main track and in dotted lines is shown shifted to position for travel on the side track. It will be observed that when in position for travel on the main track the sections 9 and 10 form a part of the main rails 1 and 2. When the switch-lever is thrown, the section 9 is moved to the outside of the rails 1 and the section 5 is moved into the position between the ends of the rails 1, thus forming a continuation of one of the rails 1 onto the rail 3. This movement has shifted one of the rails 2 and section 10 in the same direction as sections 5 and 9, moving section 11 into position between the ends of one of the rails 2 and rail 4, so as to form a continuation from one of the rails 2 onto the rail 4. It will be observed that practically the same tread-surface is presented to the wheels of the train whether the switch be set for main or side track, presenting a better joint and adding greatly to the life of the switch.

While we have herein shown and described a practical embodiment of our invention, yet it will be observed that in the practice of the same various changes may be made in the details of construction without departing from the general spirit thereof.

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

1. In a switch, the combination with main rails, one of which is movable, and the others of which are stationary, of a stationary side-track rail and movable side-track rail, the rail-sections carried by the movable side-track rail, a rail-section carried by the movable main rail, bridle-rods connected to said rail-sections, separate rail-sections secured to the said bridle-rods and adapted to be moved in unison therewith and with the first-mentioned rail-sections, and means for operating the bridle-rods for shifting said rail-sections, substantially as described.

2. In a switch the combination with the main rails, one of which is movable and the side-track rails, one of which is movable, of a rail-section connected to the movable side-track rail, a rail-section connected to the movable main-track rail, one of said rail-sections forming a part of the side track and the other of said rail-sections forming a part of the main track, bridle-rods secured to said rail-sections, separate rail-sections secured to said bridle-rods, one of said last-named rail-sections forming a part of the side track, and the other of the last-named rail-sections acting to form a part of the main track, means connected to the bridle-rods for shifting the movable side-

track rail and the movable main-track rail in unison with the rail-sections, substantially as described.

3. In a switch, the combination with the
5 main rails one of which is movable and the side-track rails one of which is movable, of four rail-sections two of which coast with the main track and two of which coast with the side track, said rail-sections being movable
10 laterally of the track in unison, and means

for shifting said rail-sections to pass the train to the main track or side track, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

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FRANK H. WORKMAN.

Witnesses:

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