MISCELLANEOUS INVENTIONS.

Messrs. James B. Campbell and Josiah Lindsay, of Mount Sterling, Ky., have patented a cheap and durable washboard, designed to force the water through the clothes by a more substantial resistance to the hand than is afforded by other washboards. The invention consists of metal rods running laterally across the face of the board, parallel to each other and at equal distances apart, and partly bedded in the board, grooves being made in the spaces between the rods, thus substituting the rods and the grooves between them for the corrugated metal sheet which commonly covers the face of a washboard.

An improved vehicle wheel has been patented by Mr. Charles W. Ball, of Macon, Ill. The object of this invention is to construct a light, durable, and easily adjusted vehicle wheel, cast from steel or other metal, with hub, spokes, and felly all in one piece.

Mr. Paul Gondolo, of Paris, France, has patented an improved process of manufacturing tannin extracts, which consists in the following consecutive steps: First, macerating the crude material containing the tannin in slightly acidulated water; secondly, neutralizing the free acid by an alkali or its equivalent, as described; thirdly, clarifying the solution by the introduction of blood, and then raising the temperature to the coagulating point of the blood, and finally separating from the tannin liquor the coagulated blood, with the salts and coloring matter, by filtration.

An improvement in oil stills, patented by Mr. Gerard Crane, of Salamanca, N. Y., consists in a novel arrangement of a small still within a larger or main still, and another small still outside of the main still, and a novel combination and arrangement of devices employed in connection therewith, whereby the process of distilling the oil is facilitated and hastened by enabling the oil to give off the more volatile products of distillation at the same time that the heavier products are being given off, and by means of the same fire for all of the stills.

An improvement in that class of devices known to the public as "bale-band tighteners," has been patented by Mr. Charles T. Christmas, of Riverton, Miss. It consists of two end curved and cross-pivoted bars, having on corresponding sides of the ends a swiveled slotted block and cam lever.

Mr. Gilman P. Richardson, of Bath, Me., has patented an improved means for fastening together the ends of the metal bands which serve to bind together the staves of large tanks, barrels, hogsheads, or tubs. It is made in the form of two strong tubes cast together, with their axes arranged obliquely to each other. Through the tubular openings in the tie the rounded ends of the band are to be projected, and then secured upon the opposite sides of the tie by screw nuts.

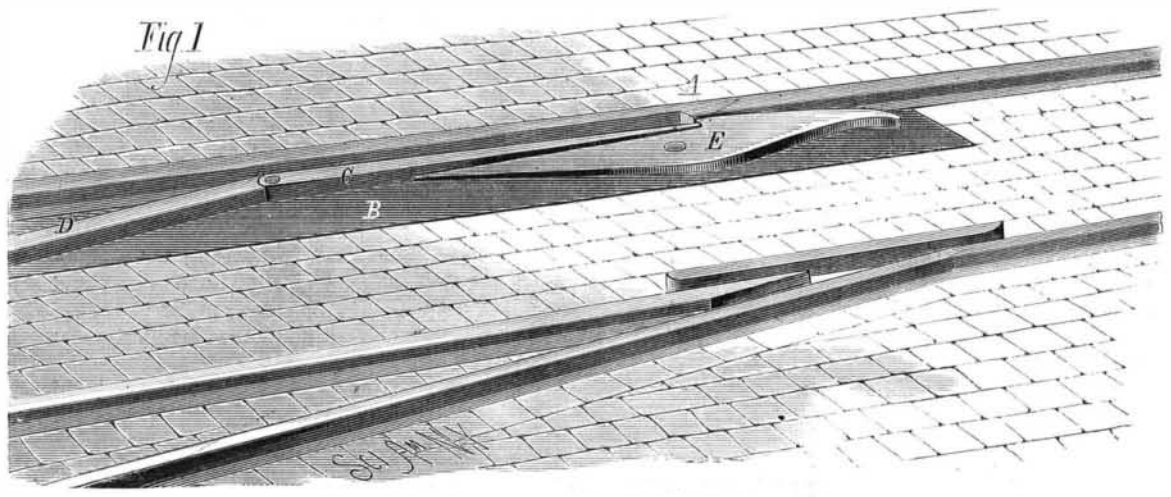
Mr. Montraville W. Atwood, of Clayton, N. Y., has patented a center-board that may be applied to any boat, but is specially adapted to a row-boat, without interfering with the oarsmen, and be contained within a box that is water-tight, excepting at its bottom or keel opening, which box may be arranged beneath thwart of the boat. It consists of a center-board constructed of two or more pieces or leaves, so that they may be folded and opened and elevated and depressed at pleasure by means of a bolt and lever, the center-board being contained in a low water-tight box above the bottom of the boat.

An improved spring hinge has been patented by Mr. George Keene, of Chicago, Ill. The improvement consists in placing the pintles of the gate or door forward of its rear edge, which is provided with a downward projection, and in applying a spiral spring to the lower pintle, so that its free ends project backward on each side of the projection on the gate or door, but do not bear against it except when the gate or door swings, being at other times in contact with studs which are fixed in the pintle bracket.

IMPROVEMENT IN RAILWAY SWITCHES AND CROSSINGS.

We give herewith three engravings representing some recent improvements in railroads patented by Mr. John B. Carey, and now being introduced by the Carey Switch Company, of Boston, Mass. Fig. 1 shows a switch especially intended for street railways, and designed to afford a means of operating the switches of street railways without the necessity of leaving the car to operate it.

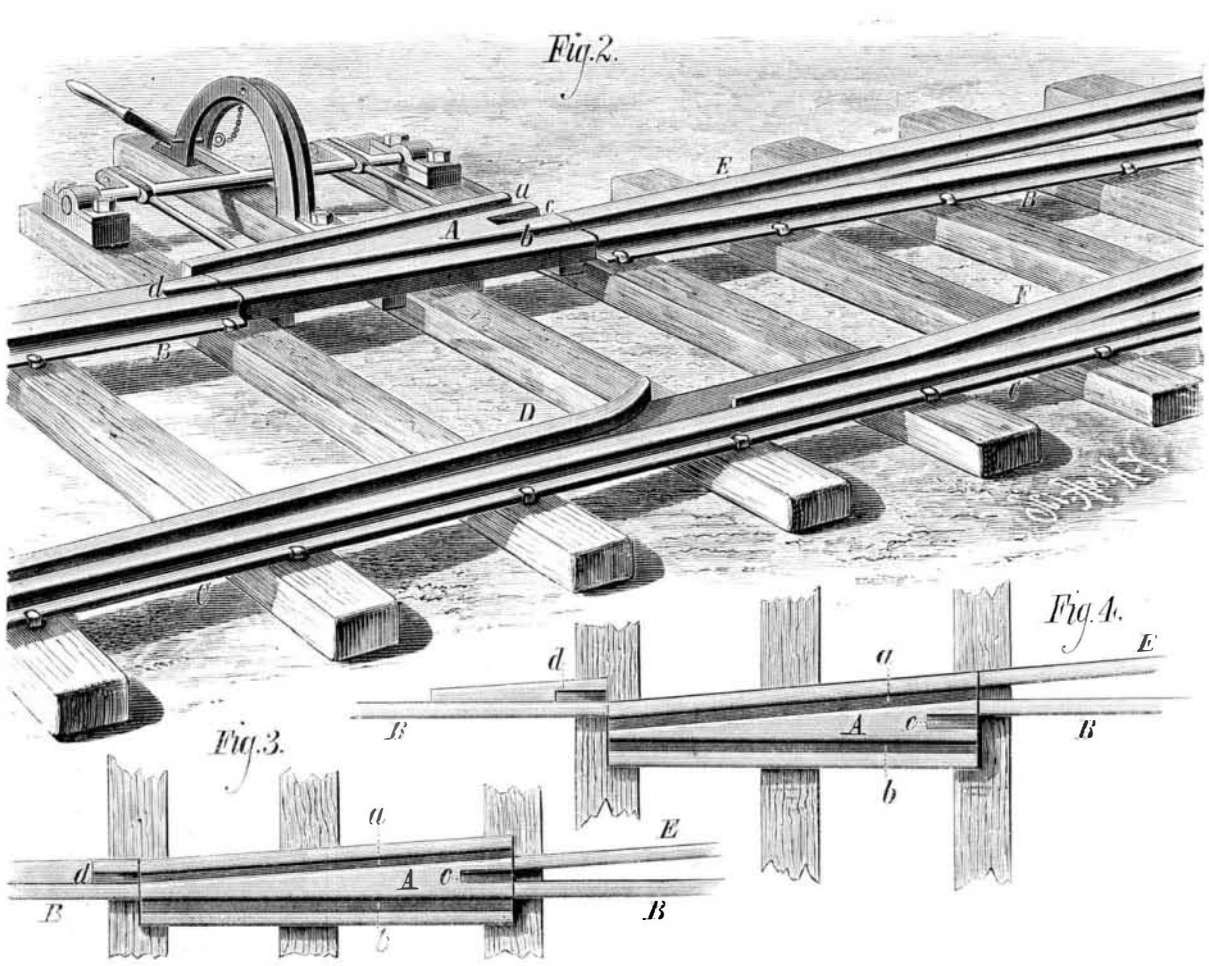
The main track rail, A, and the other portions of the switch are supported by a base plate, B. The swinging



STREET RAILWAY SWITCH.

tongue, C, is pivoted at the end of the branch track, D, in the usual way, and is capable of being acted on by the lever, E, which is pivoted to the base plate, B, near the free end of the tongue, C, and has a curved end which projects beyond the end of the tongue, so that it may be engaged by the flange of a car wheel when it is desirable to switch the car from the main to the branch track. The tongue, C, is recessed on its under side, and contains a spring which is attached to its pivot and tends to keep the free end of the tongue away from the main track. As a car approaches a siding or turnout on to which it is to be switched, and as the front wheels of the car arrive opposite the curved end of the lever, E, the car is pulled by the draught animals toward the side of the track opposite the lever; the result is that the end of the lever is forced inward toward the center of the track, thereby crowding the opposite end and the free end of the switch tongue in the opposite direction, thus isolating the main track and opening the branch, the tail of the lever, E, being of less height than the portion of the switch against which it abuts, in order that it may present no obstruction to the flanges of the wheels as they pass along the tongue. When the lever and tongue are in their normal position—that is, when the main track is open—their meeting faces are parallel, and the pivot of the lever forms a stop to the inward movement of the tongue and determines the extent to which it is moved by its spring. When the car returns from the turnout to the main track the "dummy," so called, upon the side of the track opposite the tongue and lever diverts the car toward and upon the main track, the wheels of the car upon the switch side crowding the tongue, C, outward against the main rail and permitting of the passage of the flanges of the wheels between the tongue and the lever. The length of the free end or nose of the lever is equal to or somewhat greater than the distance between the axles of the cars, in order that the front wheels of the car, in running from the main track to the turnout, shall not pass by the pivot of the lever until the rear car wheel has entered between the lever and the rail. This switch has been six months in operation at Chestnut and Thirty-third streets, Philadelphia, and is said to work perfectly. Fig. 2 shows, in perspective, a switch adapted to steam railroads, and which, it is claimed, will prevent the derailment of a car whatever the arrangement of the switch or the direction of the train. In this switch a triple rail sliding frog, A, is employed; the main track rail, B, having in it an opening for receiving the frog and in which the frog slides transversely. The main rail, C, is continuous throughout, and is provided with a guard rail, D, supported by a plate resting on the ties. This guard rail terminates at one end at a point opposite the center of the frog, A. The space between the guard rail, D, and the rail, C, is tapering, being the largest at a point opposite the middle of the frog, A. This space is large enough to allow the wheels on one side of a car or locomotive to pass obliquely on the plate from one side to the other of the point of the branch rail, F.

The movable frog is operated by means of a lever in the usual way, and may be held in either of its positions by a pin passing through the switch operating lever and its curved guides. The legitimate operation of this switch is as follows, taking for the first example the position of parts shown in Fig. 2, that is, with both rails of the main line intact, the frog being at its extreme outward position: In this position it is hardly necessary to explain that both rails of the main line are intact; but when a car, for instance, upon the turnout, is approaching the switch in this position, that is, with the switch misplaced for the turnout, the front and hind wheels of the car in succession, upon the side next the frog, on leaving the turnout rail, E, traverse the central tongue or reserve rail, A, until the end of the rail, B, is reached, when they will enter the groove or channel, d, ascend its inclined bottom, and ride upon the top of the block or plate, and travel along the latter, the flanges of the wheels upon the opposite side of the car in the meantime engaging with and being guided by the guard rail, D, compelling the car to travel obliquely in relation to the main track until the point of convergence of the guard, D, and rail, C, is reached, when the guard rail leads the tread of the wheels upon its own side to and upon the adjacent part of the rail, and those upon the opposite side of the car from the block, to and upon the rail, B, switching the car in safety from the turnout to the main track should the switchman neglect to shift his switch.



STEAM RAILWAY SWITCH.

When the movement of the hand lever is reversed, and it is lowered in the opposite direction, as shown in Fig. 4, the switch is set for the legitimate use of the turnout, and establishes direct connection between the turnout rail, E, and the end of the main rail, B. In this instance, if a car is approaching the switch from the right hand, the car is switched off legitimately from the main line to the turnout.

As the car travels in the opposite direction the result is the same practically, except that the order of the movements is reversed. While the wheels of the car nearest the frog travel from the turnout to the main track over the frog rail