No. 734,491. PATENTED JULY 21, 1903.

F. BRADY.

RAILWAY VELOCIPEDE.

APPLICATION FILED FEB. 1, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

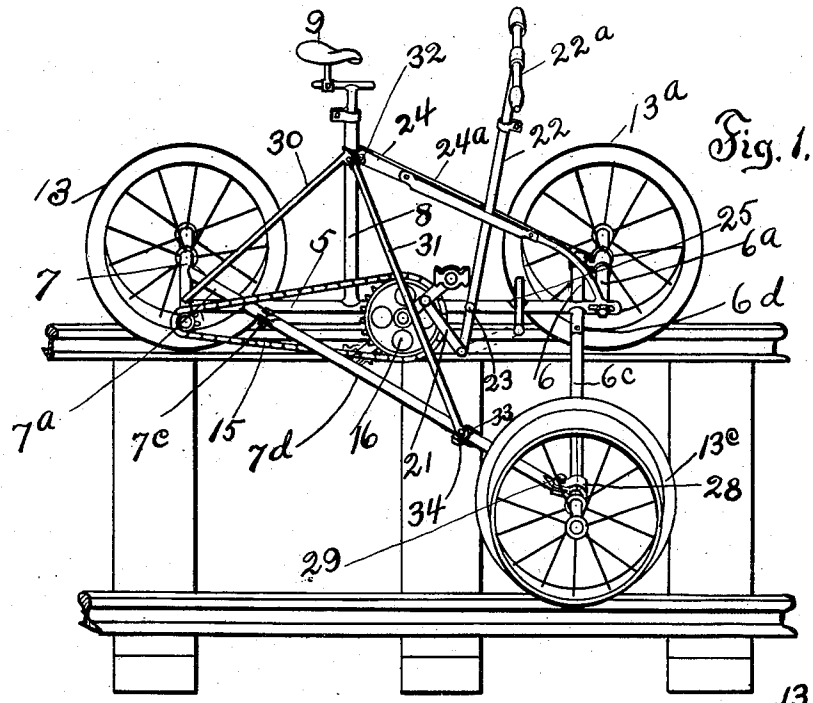

Fig. 1.

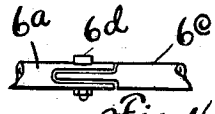

Fig. 4.

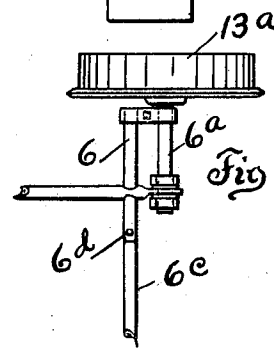

Fig 2.

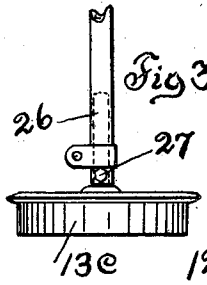

Fig 3.

Fig 5.

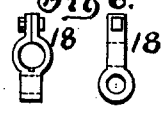

Fig 6.

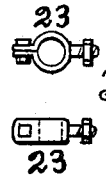

Fig 7.

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RAILWAY VELOCIPEDE.

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NO MODEL. 2 SHEETS—SHEET 2.

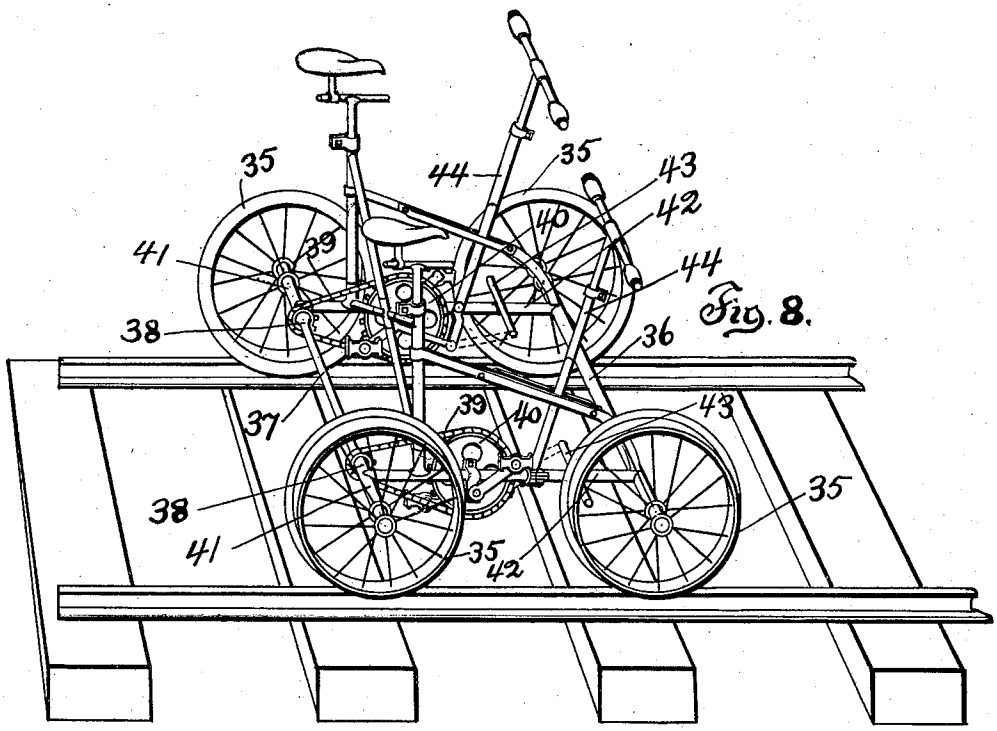

Fig. 8.

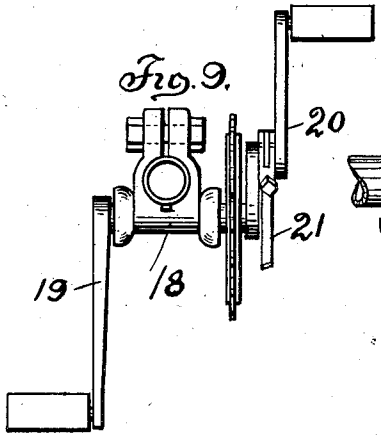

Fig. 9.

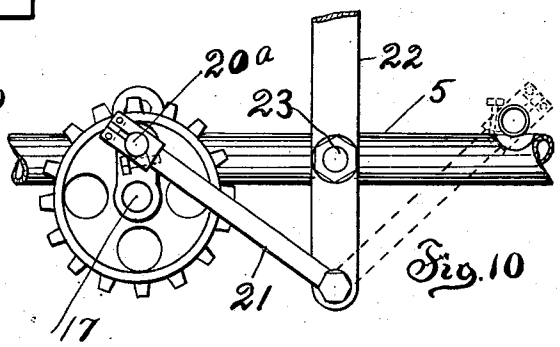

Fig. 10.

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No. 734,491. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

FRANK BRADY, OF DENVER, COLORADO.

RAILWAY-VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 734,491, dated July 21, 1903.

Application filed February 1, 1902. Serial No. 92,168. (No model.)

To all whom it may concern:

Be it known that I, FRANK BRADY, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Railway-Velocipedes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in railway-velocipes; and it consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a perspective view illustrating the preferred form of my improved machine. Fig. 2 is a top view of the front wheel or the wheel directly in front of the rear wheel of the tricycle, showing its connections. Fig. 3 is a similar view of the third wheel or the wheel occupying the opposite rail from that engaged by the front wheel. Fig. 4 illustrates a joint in the front axle-bar. Fig. 5 is a section taken through the rear frame-bar and the hub of the rear wheel. Fig. 6 illustrates in detail a clamp for connecting the crank-shaft with the main frame-bar, the same being shown in two positions and on a smaller scale than in Fig. 9. Fig. 7 shows in detail the fulcrum of the hand-lever in two positions. Fig. 8 is a perspective view of a four-wheeled machine embodying my improvements, except the folding features which are peculiar to the tricycle form of the machine. Fig. 9 is a detail view of the crank-hanger construction. Fig. 10 illustrates the hand propelling devices, the pitman being shown in two positions, one connected and the other detached from the pedal-crank.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a longitudinal frame for connecting the front and rear transverse bars 6 and 7, respectively, which are rigidly connected with the bar 5. An upright bar 8 is also rigidly connected with the bar 5. The saddle 9 is connected with the upper extremity of the bar 8.

Journaled in the rear frame-bar 7, which is tubular for the purpose, is a spindle 12, to which is made fast the rear wheel 13, which is constructed after the manner of a car-wheel and flanged to hold it in place on a railway-rail. To the inner extremity of this spindle or the extremity remote from the wheel 13 is made fast a small sprocket-wheel 14, connected by means of a chain 15 with a larger sprocket-wheel 16, fast on a crank-shaft 17, mounted on the frame-bar 5 by means of a bearing 18, clamped to the said bar. The extremities of this shaft are provided with pedal-cranks 19 and 20. The crank 20 is provided at a suitable distance from the shaft with an offset forming a wrist-pin 20^a, with which one extremity of a pitman 21 is connected The opposite extremity of this pitman is connected with the lower arm of a hand-lever 22, fulcrumed on the frame-bar 5, as shown at 23. This lever extends upwardly through a guide-slot 24^a, formed in a frame-bar 24, which extends from the upper part of the bar 8 to the forward extremity of the bar 5. The upper extremity of the lever 22 is provided with a cross-bar 22^a, conveniently located and within easy reach of the hands of the rider while sitting on the saddle 9. The foot-pedals and hand-lever may be used separately or conjointly, as may be desired. If it is not desired to use the hand-lever, the pitman 21 is detached from the crank 20 and connected with one extremity of a foot-rest 25, mounted on the frame-bar 5, as indicated by dotted lines in Figs. 1 and 10. If the rider does not wish to use the pedals, he places his feet on the foot-rest and operates the machine by the use of the hand-lever alone.

Forward of the frame-bar 6 and parallel therewith is a short axle 6^a, on which the forward wheel 13^a is journaled. One extremity of this axle protrudes through a slot formed in the forward extremity of the frame-bar 5 and is fastened by nuts, which are screwed thereon on opposite sides of the bar 5. This slot permits the setting of the forward wheel slightly at an angle to the line of the track or the plane of the rear wheel. In machines

of this class the tendency of the third wheel is to drag and cause the machine to run off the track. The aforesaid adjustment of the forward wheel overcomes this tendency, and this adjustment becomes practicable by providing a special axle for the forward wheel independently of the axle-bar upon which the third wheel is journaled. The frame-bar 6 is provided with a hinged extension 6^c, in the outer extremity of which is inserted a stub-axle 26, on which the third wheel 13^c is journaled. The bar 6^c is tubular, and the axle 26 is adjustable longitudinally therein to regulate the distance between the wheels 13^a and 13^c to correspond with the distance between the track-rails. The axle 26 is held in the adjusted position by a set-bolt 27. The hinge-joint 6^d between the parts 6^a and 6^c is formed, as shown in the drawings, by inserting a tongue formed on one part in a slot formed in the end of the other part and passing a bolt through registering apertures formed on the engaging parts. This bolt forms a pivot or hinge pin upon which the part 6^c is allowed to turn, as hereinafter explained. Rigidly connected with the frame-bar 7 is a short bar 7^a, which extends toward the wheel 13^c or in a direction obliquely across the frame-bar 5. To the outer extremity of the bar 7^a is hinged, as shown at 7^c, an extension-bar 7^d. As shown in the drawings, this joint 7^c is substantially the same as shown in Fig. 4, and therefore need not be described more in detail. The extremity of the bar 7^d remote from the hinge-joint is connected with the outer extremity of the axle-bar 6^c by means of a clamping-collar 28, passed around the axle-bar extremity and embracing the extremity of the bar 7^d, which is connected with the collar by a bolt, as shown at 29. A rigid brace-bar 30 extends from the bar 7 to the upper part of the bar 8. A frame-bar 31 connects the upper part of the bar 8 with the bar 7^d. The upper extremity of the bar 31 passes between the members of a bifurcated lug fast on the bar 8 and is connected therewith by a bolt 32. The opposite extremity of the bar 31 is connected by a bolt 34 with a clamping-collar 33, adjustable on the bar 7^d.

When the machine is in use, the rider, seated on the saddle 9, works the pedal-cranks with his feet in the manner common to riders of tricycles and other similar machines propelled by foot-power. The hand-lever at the same time is moved back and forth, whereby the power of the hands and feet coöperate to propel the machine. If it is not desired to use the hands, the pitman 21 is disconnected from the crank 20 and connected with the foot-rest, as aforesaid. This holds the lever 22 rigid or locks it against movement. When the feet are not in use in propelling the machine, they are placed upon the foot-rest 25. When the machine is not in use, it may be folded into small compass for shipment by removing the bolts 32 and 29. When the bolt 32 is removed, the upper extremity of the bar 31 is free, and the said bar may be moved downwardly to a position parallel with the bar 7^d. When the bolt 29 is removed, the forward extremity of the bar 7^d is free, and the said bar may be moved toward the bar 5 from the hinging-point 7^c as a center. The axle-bar 6^c and the wheel 13^c may then be swung rearwardly on the bolt 6^d as a center until the wheel 13^c engages the wheel 13, the two wheels in this case occupying a position at right angles to each other.

In the construction shown in Fig. 4 there are four wheels (designated 35) mounted on front and rear axles 36 and 37, respectively. The front wheels are journaled on their axle, while the rear wheels are fast on the axle 37, which is provided with small sprocket-wheels 38, connected by chains 39 with large sprocket-wheels 40, mounted on crank-shafts, substantially in the same manner as shown in Fig. 9 and heretofore explained in detail. The front axle 36 is connected with two short frame-bars 41 in the rear by longitudinal bars 42, upon which the foot-rest 43 as well as the crank-shafts are mounted. There are two hand-levers 44 connected and operated substantially as heretofore described when speaking of the hand-lever 22 in the other form of construction. The four-wheeled machine as shown in the drawings is constructed to accommodate two riders, there being two saddles and two sets of propelling mechanism. It may, however, be constructed for a single rider. This machine is operated the same as the tricycle, but is not constructed to fold for shipment, as is the tricycle. Hence for a single rider the tricycle is preferred.

Having thus described my invention, what I claim is—

1. In a railway-velocipede, the combination with a suitable frame, track-wheels, a pedal crank-shaft, and means for transmitting motion from said shaft to one of the wheels of the machine, of a hand-lever fulcrumed on the frame, a pitman connected at one extremity with one arm of the hand-lever and detachably connected with one of the pedal-cranks, a foot-rest mounted on the frame and projecting into the plane of the pitman, whereby when the pitman is detached from the pedal-crank, it may be connected with the foot-rest, thus locking the hand-lever against movement, substantially as described.

2. In a railway-velocipede, the combination with the track-wheels, front and rear axles for said wheels, and a longitudinal frame-bar connecting said axles, of a pedal crank-shaft mounted on said longitudinal frame-bar, a sprocket-wheel fast on said shaft, a chain connecting said sprocket-wheel with the sprocket on the spindle of the rear wheel, a hand-crank fulcrumed on the longitudinal frame-bar, and projecting below the same, a pitman connected with the lower arm of said lever at one extremity and detachably connected with one of the pedal-cranks at the opposite extremity, a foot-rest fast on the said frame-bar forward

of the crank-shaft, and projecting into the plane of the pitman, whereby when the latter is detached from the pedal-crank, it may be thrown forward and attached to the foot-rest, thus locking the hand-lever against movement.

3. In a railway-tricycle, the combination with the track-wheels, of a triangular frame mounted on the wheels, an upright bar mounted on said frame for supporting the saddle, a brace-bar detachably connected with the upright bar and pivotally connected with the diagonal bar of the triangular frame, at its opposite extremity, the diagonal bar and the front axle-bar of the frame being detachably connected and jointed to permit the machine to fold, substantially as described.

4. In a railway-tricycle, the combination with the track-wheels, and a frame, including a forward axle-bar upon which the third wheel is journaled, and a separate axle-bar for the forward wheel, the frame being slotted to receive the last-named axle-bar extremity and permit adjustment, and nuts applied thereto for holding the separate axle-bar in the adjusted position, substantially as described.

5. In a railway-tricycle, the combination with the track-wheels, and a frame including a forward axle-bar for the third wheel, and a separate and distinct axle for the forward wheel, said last-named axle being adjustably connected with the frame, which is slotted to receive the separate axle extremity, and means for holding the separate axle in the adjusted position, substantially as described.

6. In a railway-velocipede, the combination with a suitable frame, track-wheels, a pedal crank-shaft and means for transmitting motion from said shaft to one of the wheels of the machine, of a pedal-crank fast on said shaft and provided with an offset intermediate its extremities, a hand-lever fulcrumed on the frame, and a pitman pivotally connected at one extremity with one arm of the hand-lever, its opposite extremity being detachably connected with the offset of the pedal-crank, a foot-rest fast on the frame forward of the crank-shaft, and projecting into the plane of the pitman, whereby when the latter is detached from the pedal-crank, it may be thrown forward and attached to the foot-rest thus locking the hand-lever against movement, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK BRADY.

Witnesses:
DENA NELSON,
A. J. O'BRIEN.