J. E. CHENETTE.

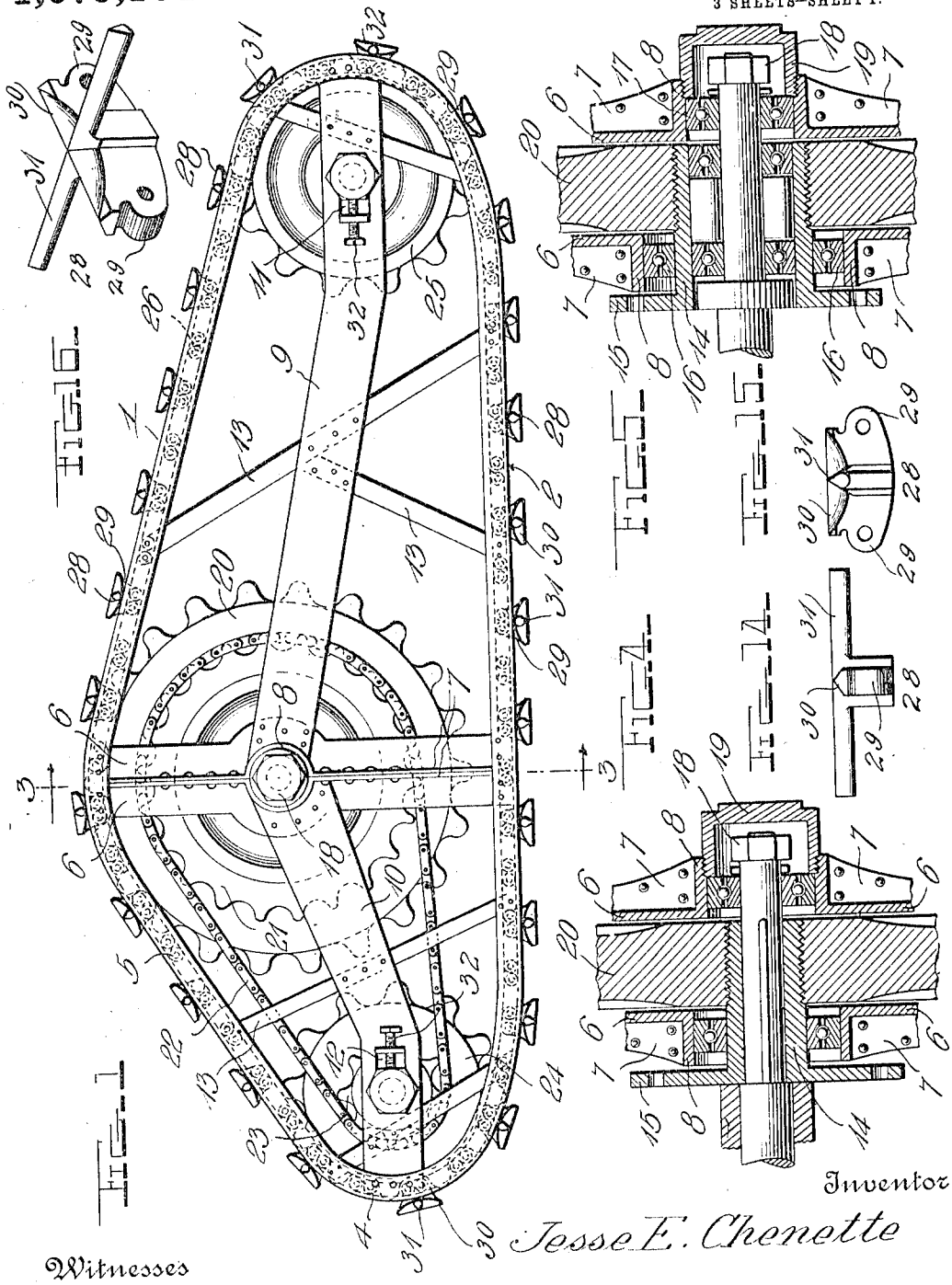
DOUBLE RUNNER.

APPLICATION FILED JAN. 2, 1912.

1,079,164.

Patented Nov. 18, 1913.

3 SHEETS—SHEET 1.



Witnesses

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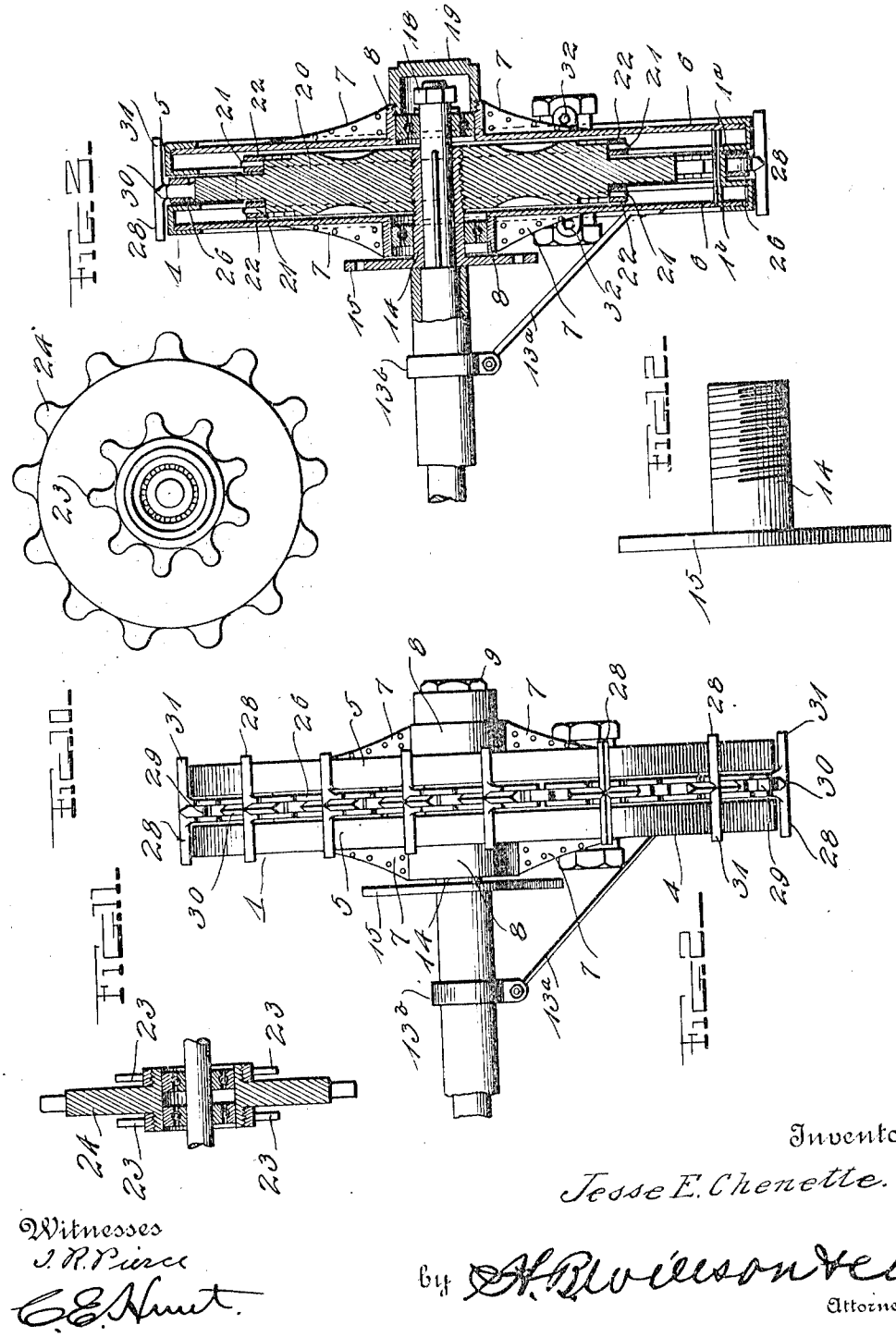
DOUBLE RUNNER.

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3 SHEETS—SHEET 2.



Witnesses

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DOUBLE RUNNER.

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Patented Nov. 18, 1913.

1,079,164.

3 SHEETS—SHEET 3.

FIG. 6

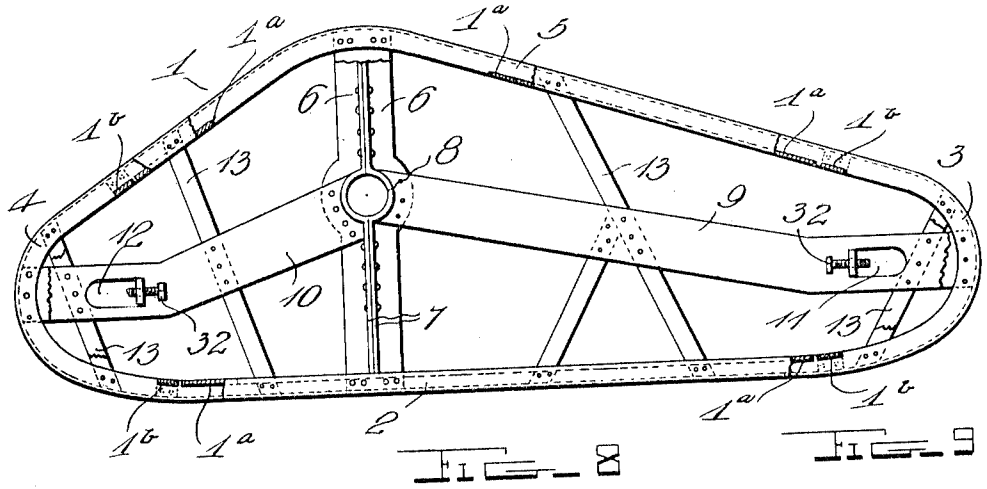
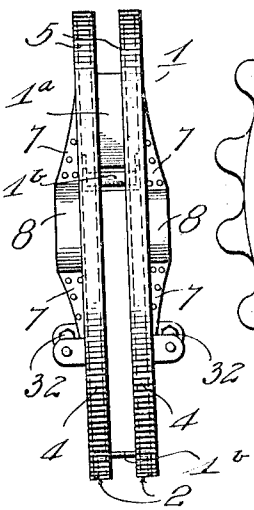
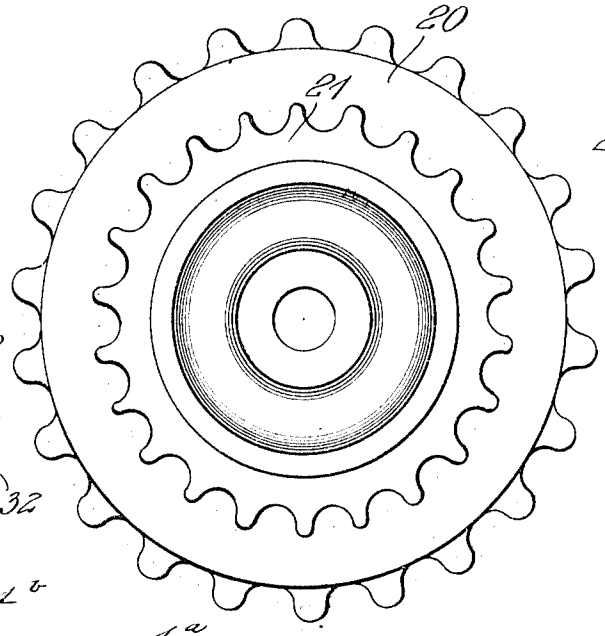


FIG. 8

FIG. 9

FIG. 7





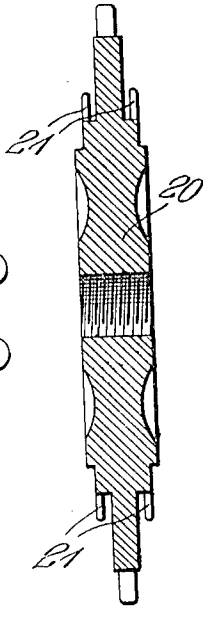
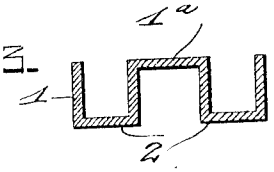


FIG. 13.



Witnesses

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UNITED STATES PATENT OFFICE.

JESSE E. CHENETTE, OF MONTPELIER, VERMONT.

DOUBLE RUNNER.

1,079,164. Specification of Letters Patent. Patented Nov. 18, 1913.

Application filed January 2, 1912. Serial No. 668,986.

To all whom it may concern:

Be it known that I, JESSE E. CHENETTE, a citizen of the United States, residing at Montpelier, in the county of Washington and State of Vermont, have invented certain new and useful Improvements in Double Runners; 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.

This invention relates to improvements in combined runners and traction attachments for vehicles.

One object of the invention is to provide an attachment of this character comprising double runners connected by an integral web and having revolubly mounted therein sprockets with which is engaged a traction chain having thereon a plurality of shoes adapted to engage the ground or to dig into the snow or ice whereby the chain is enabled to obtain a firm grip on the surface over which the vehicle is traveling.

Another object is to provide a runner and traction attachment adapted to be mounted on an axle spindle to take the place of the wheel thereon.

With these and other objects in view the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a side view of a runner and traction device constructed in accordance with the invention; Fig. 2 is an end view thereof showing the same applied to the axle of a vehicle; Fig. 3 is a vertical cross sectional view on the line 3—3 of Fig. 1; Fig. 4 is an enlarged vertical sectional view through a portion of the main sprocket and the runners showing the construction and arrangement of the same when keyed to an axle and driving shaft; Fig. 5 is a similar view showing the construction and arrangement of the parts when driven by a chain drive; Fig. 6 is a side view of the runners with the sprockets, gears, and chains removed, parts being broken away and in section. Fig. 7 is an end view thereof; Fig. 8 is a side view of the main driving gear and sprocket; Fig. 9 is a cross sectional view thereof; Fig. 10 is a side view of the driving pinion and smaller sprocket; Fig. 11 is a cross sectional view thereof; Fig. 12 is a detail side view of the supporting and driving sleeve for the main sprocket; Fig. 13 is a detail cross sectional view through one side of the runner to more clearly show the cross sectional formation thereof; Fig. 14 is a side view of one of the traction shoes; Fig. 15 is an end view thereof; and, Fig. 16 is an inverted perspective view of the same.

Referring more particularly to the drawings, my improved runner comprises parallel channel iron inner and outer sections or bars 1 spaced a suitable distance apart and connected at their inner edges by an integral web 1^a. The runner bar comprises a flat ground engaging portion 2, curved or rounded ends 3 and 4, and inclined upper members 5 as shown. The ground engaging portions 2 of the runner and the top portions 5 are connected together at the point where the same are the greatest distance apart by pairs of vertically disposed supporting bars 6 having on their inner edges lateral outwardly projecting bearing flanges 7 which are curved outwardly between their ends to form a bearing 8 to receive the axle spindle and the runner attaching member whereby the runner is attached to the axle as will be hereinafter more fully described. The bars 6 are firmly braced and secured to the opposite ends of the runners by front and rear longitudinally disposed combined brace and bearing bars 9 and 10, the inner ends of which are riveted to the plates 6 while the outer ends thereof are riveted to the flanges of the curved ends of the runner bars. The outer portion of the bars 9 and 10 are disposed horizontally and have formed therein bearing openings 11 and 12 the purpose of which will be hereinafter described. The runner bars and the bearing bars 9 and 10 are braced by a series of diagonally arranged brace bars 13 secured to the flanges of the upper and lower members of the runner bars and to said bearing bars as shown. The runner bars are braced laterally by inclined brace bars 13^a secured to the supporting bars 6 and to collars 13^b arranged on the vehicle axle as shown.

Revolubly engaged with the bearing flanges 8 of the inner section of the runner is a bearing box and runner attaching sleeve 14 which, when the runners are applied to a driving axle, is adapted to be keyed to the axle spindle as shown in Fig. 4 of the drawings and which when applied to stationary axles is revolubly mounted on the spindle.

of the axle as clearly shown in Fig. 5 of the drawing in which instance ball and roller bearings are arranged between the spindle and the sleeve or box as shown. On the inner end of the sleeve or box 14 is formed an annular radially extending flange 15 which, in the form of the box shown in Fig. 4 may have applied thereto a braking mechanism and which when employed as shown in Fig. 5 has bolted or otherwise secured thereto a driving sprocket with which the chain drive of the vehicle is engaged. When the runner is thus applied to the box 14 and the latter engaged with the spindle of the axle, a ball bearing 16 is arranged between the bearing flange 8 of the inner runner section and a ball bearing 17 is preferably arranged between the bearing flange 8 of the outer runner section, and the outer end of the spindle as shown. The axle spindle is provided with the usual tap or retaining nut 18 and the outer end of the bearing flange 8 of the outer runner section is preferably internally threaded and has secured therein a cap 19 which covers the tap 18 and outer end of the spindle. The portion of the sleeve or box between the sections of the runners is externally threaded and onto said threaded surface is screwed the main driving sprocket 20 of a traction mechanism hereinafter described, said sprocket being thus driven by the sleeve or box either through the axle as shown in Fig. 4 or by a chain drive as described in connection with Fig. 5. The sprocket 20 in addition to its teeth for engaging the traction chain has annular series of teeth 21 arranged on opposite sides of its body and constituting driving gears connected by a pair of chains 22 with similar series of teeth 23 constituting pinions formed on the sides of a supplemental traction sprocket 24 revolubly mounted in the bearing apertures 12 of the brace and bearing bars 10 of the runners, said sprocket and its pinions 24 when thus arranged being adapted to work in the rear curved or rounded ends of the runners as shown. The driving gears 21 and driven pinions 23 are smaller than their respective sprockets, with the result that the chain or other connection between the gears and pinions are at their lower sides elevated above the first-engaging stretch of the traction chain so that dirt in the latter is not communicated to the former.

Revolubly mounted in the bearings 11 of the bearing and bracing bars 9 and in the opposite ends 3 of the runners is an idle sprocket 25 with which and with the main sprocket 20 and supplemental sprocket 24 is engaged a traction sprocket chain 26, said chain being adapted to travel in the space between the channel bars 1 of the runners and on the web 1^a. It will be noted that where the sprockets are located the web 1^a which connects the channel bars is cut out to form passages sufficiently long to permit the teeth of said sprocket to project through the web and between the channels to engage the links of the sprocket chain 26. At suitable positions and preferably at the ends of the passages in the webs for the sprockets 24 and 25 the channel iron runner bars are rigidly braced by channel iron brace bars 1^b which are riveted or otherwise rigidly secured to the inner sides of the runner bars as shown.

Secured to the traction chain 26 and preferably in alternate spaces between its links are shoes 28, each of which preferably comprises a body portion in the form of a flat block having its ends slightly reduced and rounded to form integral attaching lugs 29 which are adapted to be engaged by the adjoining links of the chain and which are riveted or otherwise pivotally connected to said links, thus forming practically a part of the chain. The outer edges of the blocks extend beyond the outer edges of the chain and have formed thereon longitudinally disposed V-shaped ground engaging ribs 30 and said edges have also rigidly secured thereto or formed integral therewith transversely disposed ground engaging bars 31 having sharp or V-shaped outer edges which together with the V-shaped ribs 30 bite into the ground or surface over which the runner is passing and thus insure a firm grip on said surface. The bars 31 extend beyond the opposite sides of the blocks to a considerable distance to provide an increased gripping or traction engagement with the ground. By providing both the longitudinal gripping ribs 30 and the transverse gripping bars 31 a resistance is offered in both directions and the shoes thus prevented from slipping either longitudinally or laterally.

The sprockets 24 and 25 are adjustably secured in their bearings in the bars 10 and 9 by adjusting screws 32 whereby the slack is taken up in the traction chain and in the drive chain 22 as will be readily understood.

From the above description it will be seen that when power is applied to the shaft or hub of the main sprocket 20, its teeth engage the traction chain as indicated at the top of Fig. 1 and drive said chain in either direction around the runner; and its driving gears 21, connected by the chains 22 with the driving pinions 23, cause the supplemental sprocket 24 to rotate in the same direction as the main sprocket 20. The teeth of this supplemental sprocket engage the traction chain at a point where the latter makes a sharp bend as seen, and therefore the links of this chain are in engagement with said teeth for a distance almost half way around the sprocket. It follows that the rotation of the latter simultaneously with that of the main sprocket 20 greatly

assists in the movement of the traction chain over the runner in either direction, and yet by the construction described it is not necessary to apply the power to more than one point which by preference is the axle or hub of the main sprocket and the main driving gears.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

1. In a traction device of the class described, the combination with a runner comprising two spaced channeled members connected by an integral web so as to produce a peripheral groove around the runner, the web having openings at points, and sprockets whose teeth project through said openings; of a chain whose links travel in said groove and engage said teeth, and shoes each consisting of a body pivoted within the line of the chain and traveling within said groove, and transverse earth-engaging portions carried by the body and projecting laterally outward over the channel members of the runner.

2. In a traction device of the class described, the combination with a sleeve adapted to be mounted on an axle spindle, means for rotating said sleeve, a main sprocket fast on the latter, and a runner in which the sleeve is journaled; of a traction chain passing around the periphery of the runner and engaging the teeth of said sprocket, a supplemental sprocket journaled in the runner and its teeth also engaging said chain, and means for connecting the main and supplemental sprockets so that power from the former will be imparted to the latter, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JESSE E. CHENETTE.

Witnesses:

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BENJAMIN A. SUMNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."