

(No Model.)

4 Sheets—Sheet 1.

G. T. GLOVER.
STEAM LOGGING MACHINE.

No. 554,260.

Patented Feb. 11, 1896.

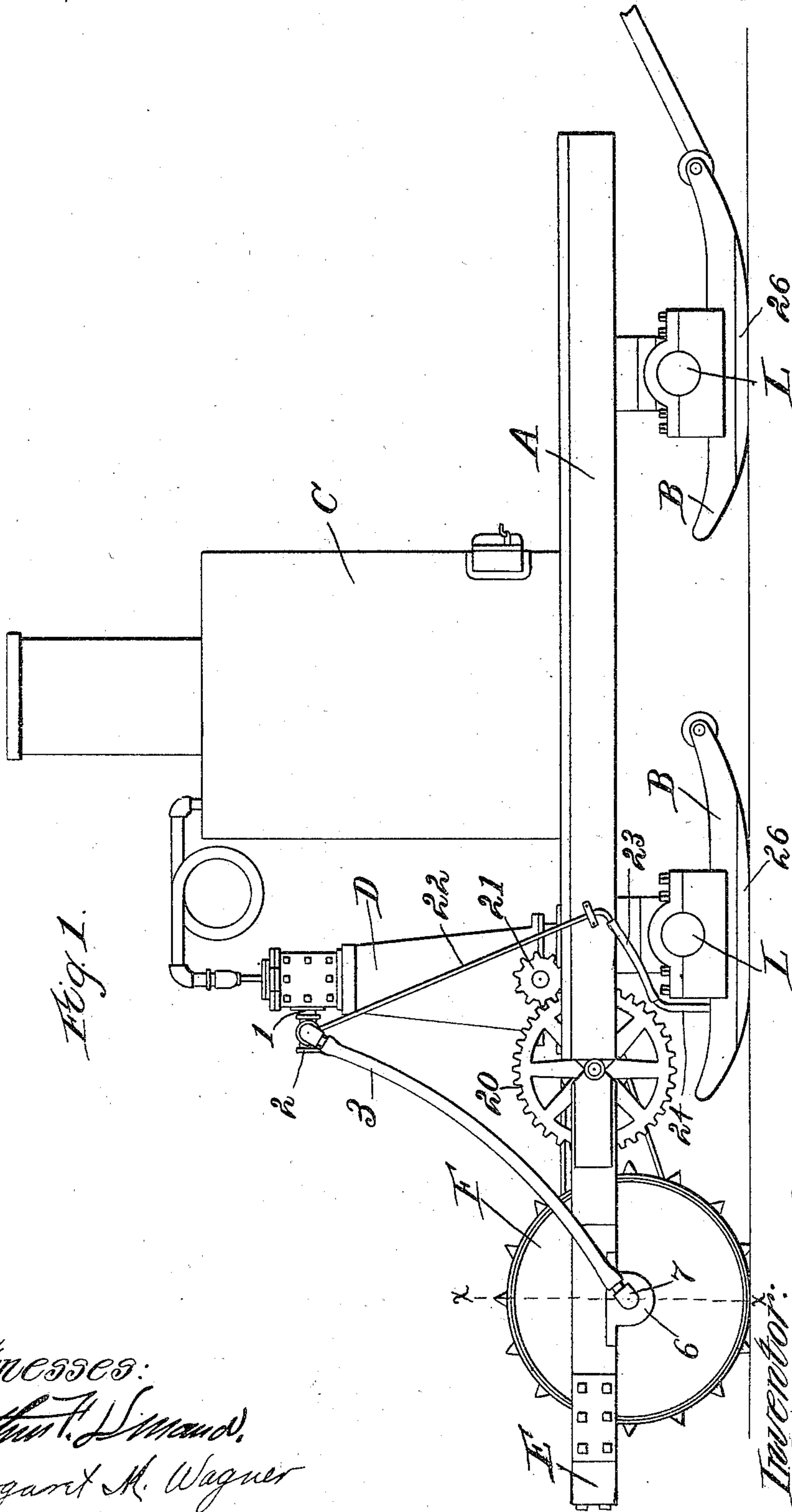


Fig. 1.

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Inventor:
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By Chas. S. Page Atty.

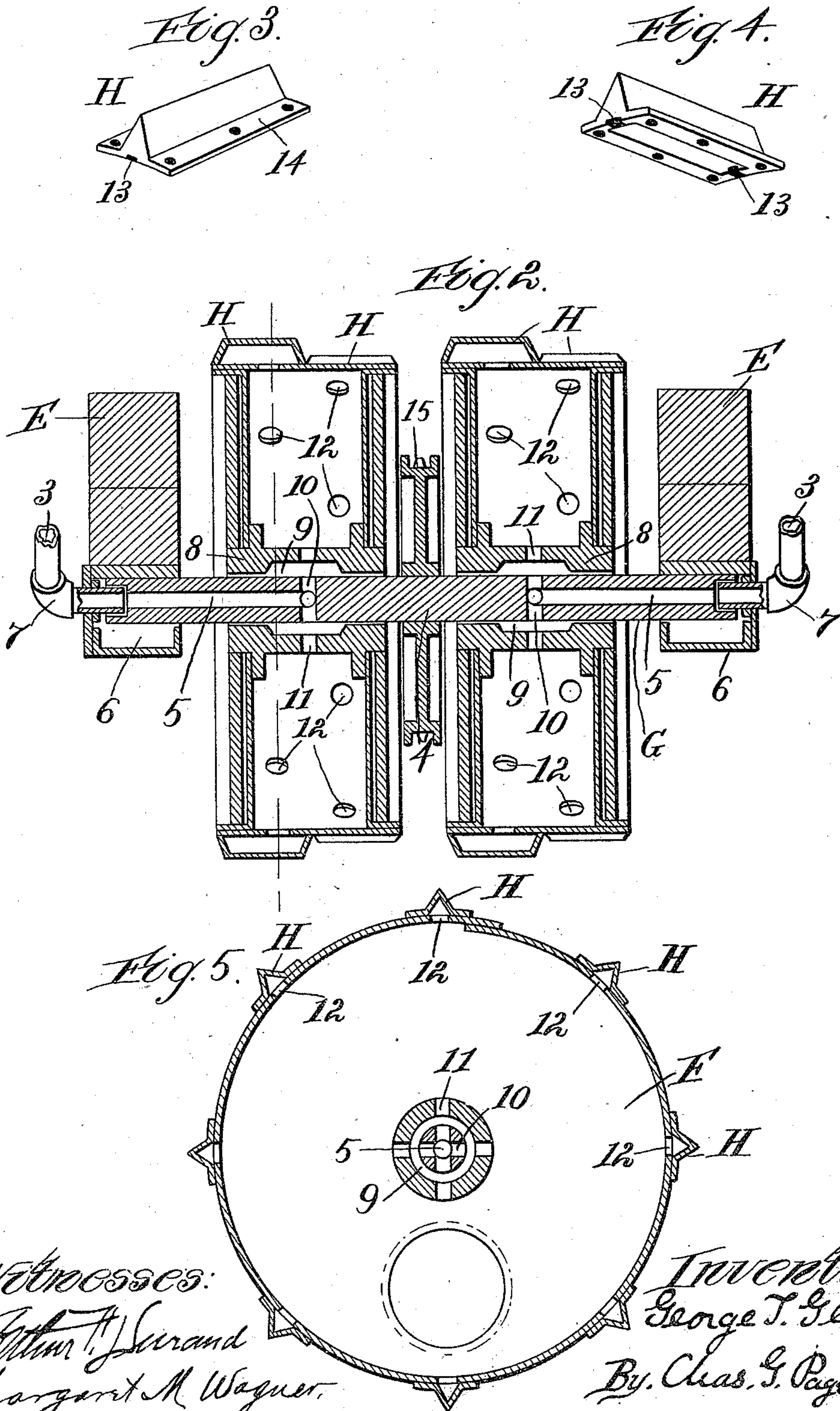
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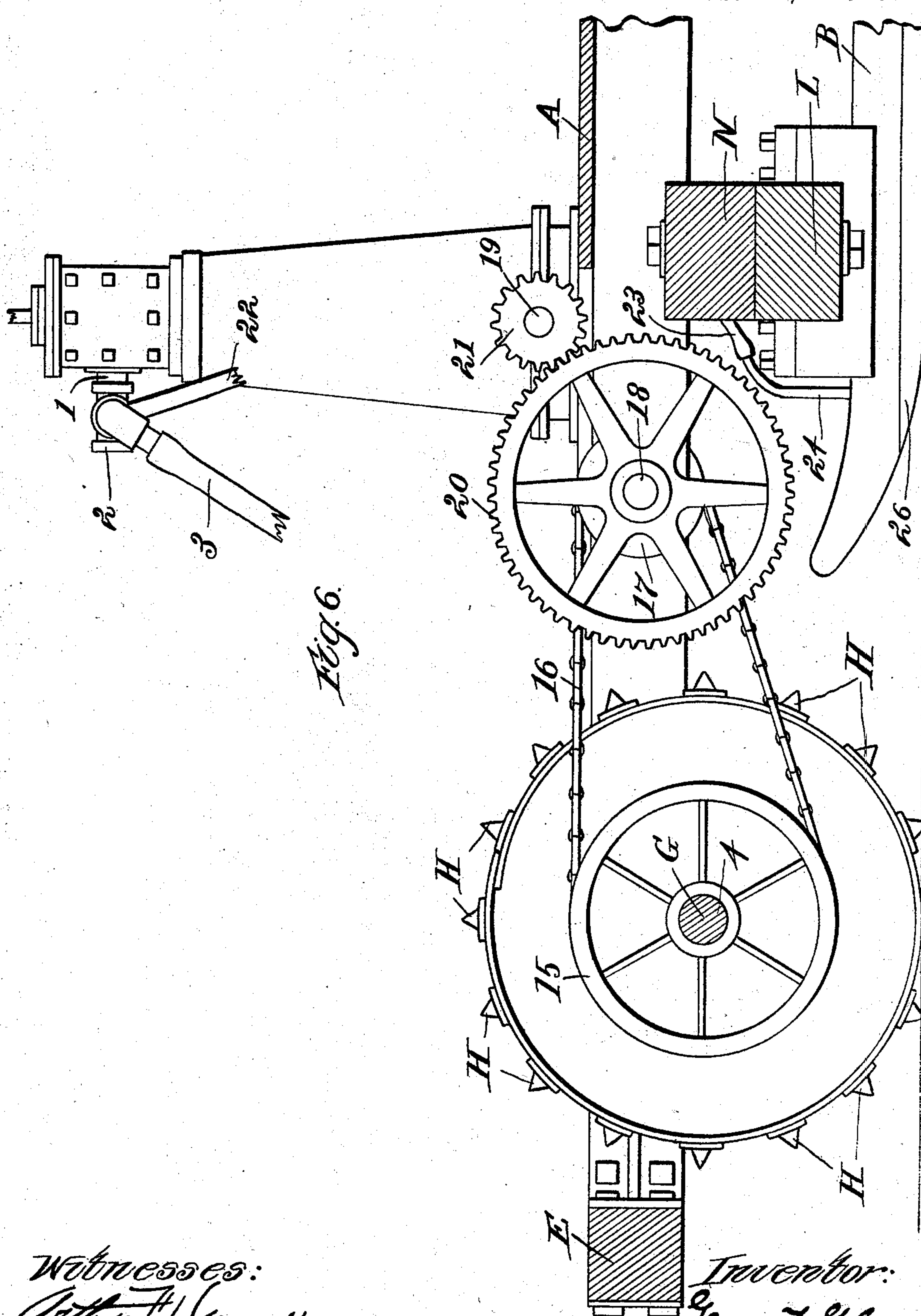
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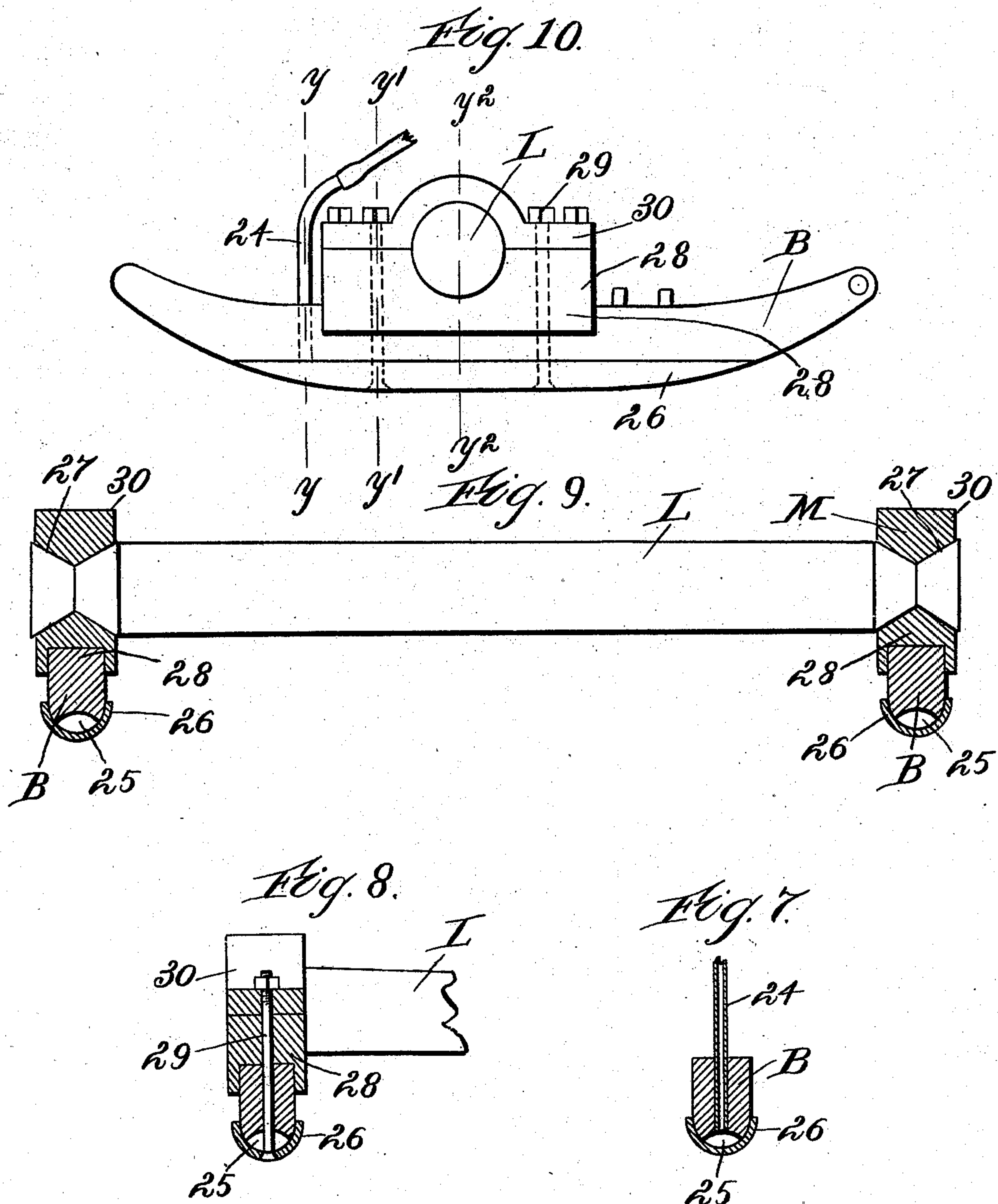
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UNITED STATES PATENT OFFICE

GEORGE T. GLOVER, OF CHICAGO, ILLINOIS.

STEAM LOGGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 554,260, dated February 11, 1896.

Application filed November 4, 1895. Serial No. 567,834. (No model.)

To all whom it may concern:

Be it known that I, GEORGE T. GLOVER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Steam Logging-Machines, of which the following is a specification.

My invention relates to steam logging-machines of the kind embodied in Letters Patent of the United States heretofore granted to me and severally numbered and dated as follows, to wit: No. 342,596, dated May 25, 1886; No. 360,584, dated April 5, 1887; No. 394,851, dated December 18, 1888; No. 455,394, dated July 7, 1891, and No. 426,006, dated April 22, 1890.

It will be observed that in said patents the tractors or traction-engines are not only designed for hauling logs, but also for forming ice-roads, along which the loaded log-sleds can be drawn—that is to say, the machine is adapted for melting down the snow so that the same may be converted into an ice-bed during the severe cold which is prevalent in the northern logging regions during the winter season.

The objects of my present invention are, first, to more thoroughly and effectively heat a traction wheel or roller employed in a steam logging-machine; second, to provide more convenient and efficient means for heating said wheels; third, to provide certain improvements in the construction of runners and means for heating the same, and finally to provide certain novel and improved details, all as hereinafter set forth.

In the accompanying drawings, Figure 1 represents in side elevation a steam logging-machine embodying my invention. Fig. 2 is a section taken through Fig. 1 on line xx on a larger scale. Figs. 3 and 4 each represent one of the traction-wheel teeth. Fig. 5 represents a section through one of the traction-wheels on a plane at right angles to its axis. Fig. 6 represents, on a larger scale than Fig. 1, the rear portion of the machine partly in elevation and partly in section on a vertical plane through the middle line of the machine. Fig. 7 is a section taken transversely through one of the runners on line yy of Fig. 10, and Fig. 8 is a like section on line $y'y'$ of the same figure. Fig. 9 is a longitudinal central section on line y^2y^2 of Fig. 10, the beam being

shown in elevation. Fig. 10 represents one of the runners in elevation and illustrates certain vent-pipes applied to the runner.

The engine-truck A can for certain purposes be mounted upon wheels, but as a special and preferred arrangement it is supported upon runners B. The engine-truck carries a boiler C and engine D, from which the traction propelling wheel or wheels can be driven.

The frame or truck E of the traction propelling attachment is desirably arranged in rear of the engine-truck, and is hinge-connected with the same for purposes fully set forth in certain of my said former patents. The traction propelling attachment is herein provided with a couple of hollow traction-wheels F which are driven from the engine and heated by either exhaust or live steam, (but preferably by the exhaust,) so as to melt down the snow and thereby permit the same to become converted into a suitable ice-bed along the road, it being understood without special illustration that in place of the two comparatively short traction wheels or rollers herein shown a single long hollow traction wheel or roller can be employed.

With reference to the mode or system herein illustrated for heating the hollow traction wheels or rollers, the exhaust-pipe 1 of the engine D is provided with a T end 2 from which certain flexible steam-pipes are arranged to lead to various parts of the machine for purposes hereinafter described, the pipes 3 thus connected with the exhaust being arranged to discharge into a hollow axle G upon which the hollow wheels F are secured.

The axle G can be chambered or made hollow through portions of or throughout its entire length, but where it is provided with a couple of hollow wheels set apart, so as to provide space between them for driving connection with the engine, the axle can be made with a solid middle portion 4, and hollow end portions 5, as in Fig. 2. The end portions of the axle work in boxes 6 on the traction propelling-truck, and these boxes are provided with steam-couplings 7 having their outer ends arranged to connect with pipes 3 and their inner ends connected with the hollowed ends of the axle by swivel-joints in order that the axle may receive steam from its allotted

supply-pipes and at the same time turn with the wheels.

The hub 8 of each wheel has its bore provided with an annular enlargement 9 forming a chamber or passage which receives steam from the hollow axle through ports 10 in the latter, and discharges the steam into the hollow wheel through ports 11 in the hub. The wheels are each provided with a set of hollow or chambered teeth 12 which have their chambers in open communication with the chambers of the wheels through ports 12 in the perimeters of the latter, it being observed that one or more of such ports can be allotted to each chambered tooth. By the foregoing arrangement each wheel will be heated by the steam discharged into it from its allotted supply-pipe, and also the teeth will be heated by the steam admitted into them from the hollow wheel. The teeth as well as the untoothed peripheral portions of the wheels will therefore be heated, and hence the snow will be effectively melted, and all danger of its sticking to the teeth avoided. Where the teeth are made separate from the wheel and bolted upon the same, water of condensation will usually find its way out between the wheel and base portions of the teeth, although each tooth can have its base portion provided with one or more outlet-channels 13, as in Figs. 3 and 4.

For the broader purposes of my invention the teeth can be cast with the wheels, but as a special and preferred arrangement the teeth are made separate from the wheels. Each tooth is made oblong and of V shape in cross-section, and is provided with base-flanges 14, which can be bolted upon the perimeter of the wheel. The teeth are also preferably beveled at their ends, and the flanges may also be beveled along their edges, so as to more effectively prevent clogging. While each hollow or chambered tooth could extend from end to end of its allotted wheel or roller, it preferably extends a portion only of such length, and with such arrangement the teeth are desirably positioned in two series respectively at opposite sides of the middle of the wheel, with the teeth of one series alternately in point of position with the teeth of the other series, so that the teeth of one series shall lie opposite the spaces between the teeth of the other series.

The traction wheel or wheels employed can be driven from the engine by any system of gearing or power-transmitting connection, and where one long wheel or roller is used as a substitute for the two herein shown such driving connection can of course connect with the wheel or axle at one end of the latter. Where, however, a couple of wheels are used, a sprocket 15, Fig. 6, can be secured upon the axle midway of the wheels and connected by a drive-chain 16 with a sprocket 17 on a counter-shaft 18 on the engine-truck, and said counter-shaft can be connected with

and driven from the engine-shaft 19 through the medium of gears 20 and 21. The runners are also desirably steam-heated, and to such end can be supplied with either live or exhaust steam, although for the purpose of economy they are heated by exhaust-steam taken from the T end 2 of the exhaust-pipe. Pipes 22, Figs. 1 and 6, are herein shown for supplying the rear runners, it being understood, however, that when desired similar pipes can also be employed for supplying the forward runners.

Each of the supply-pipes 22 is at a point between the engine-truck and runner provided with a jointed or flexible section 23, so as to permit the pipe to accommodate itself to any rocking movement on the part of the runner, a simple arrangement being to provide the runner with a nipple 24, to which one end of a flexible pipe-section 23 can be attached.

As a matter of special construction each runner is provided along its under side with a channel 25 and a shoe 26, which is bolted to the runner, as in Fig. 8, in which way the runner can be made of wood and provided with a metal shoe, which will be heated by steam admitted into the chamber formed between the shoe and the wall of the channel. The pipe or nipple 24 is arranged to discharge into one end of channel 25 in the runner, and the opposite end of the runner is open sufficiently to permit the escape of water of condensation.

The runners are arranged to tilt or rock upon their allotted axles or beams L, and to permit such independent motion on the part of the runners and at the same time prevent them from slipping off from the beams L each beam is provided at each of its ends with an annular depression or groove formed by double bevels 27, Fig. 9, and each said grooved portion of the beam is fitted within a two-part bearing M. The lower portion, 28, of each bearing M is recessed so as to receive and fit upon the upper portion of its allotted runner, and the bolts 29 employed for bolting the upper portion, 30, of the bearing down upon said lower portion, 28, can also be used for bolting the lower bearing portion, 28, upon the runner. By reason of the foregoing construction the runner, and if desired the bearings M, can be made of wood. Each beam L can also be made of wood and bolted to a bolster N, as in Fig. 6.

What I claim as my invention is—

1. A toothed traction wheel or roller having teeth provided with heating-chambers, substantially as and for the purpose set forth.
2. A toothed traction wheel or roller having teeth provided with heating-chambers, and means suitable for supplying said chambers with steam, substantially as and for the purpose set forth.

3. A hollow traction wheel or roller having teeth provided with heating-chambers com-

municating with the interior of the hollow wheel or roller, substantially as set forth.

4. A hollow traction wheel or roller having teeth provided with heating-chambers, communicating with the interior of the wheel or roller, and means suitable for supplying steam to the interior of the hollow wheel or roller, substantially as set forth.

5. A hollow traction wheel or roller arranged upon a hollow axle having its passage connected with the interior of the wheel or roller, and chambered teeth arranged upon the wheel or roller and having their chambers connected with the interior of the same, substantially as set forth.

6. The combination with an axle provided with a steam-conducting passage, of a hollow traction-wheel having its hub provided with a steam-passage arranged about the axle and communicating with the steam-passage of the axle and the interior of the hollow wheel

through the medium of ports, substantially as set forth.

7. The combination with a hollow wheel or roller of the axle rigid with the wheel or roller and provided with a steam-conducting passage for supplying the interior of the wheel or roller, boxes in which the ends of the axle are journaled, and a steam-coupling having a swivel connection with the axle and connected with a suitable source of steam-supply, substantially as set forth.

8. The runner provided with a groove and a shoe fitted to the runner so as to close over the groove which latter forms a heating-chamber which is supplied with steam, substantially as set forth.

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Witnesses:

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