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PATENTED AUG. 20, 1907.

I. Q. A. PEAVEY.
SNOW LOCOMOTIVE.

APPLICATION FILED NOV. 16, 1904.

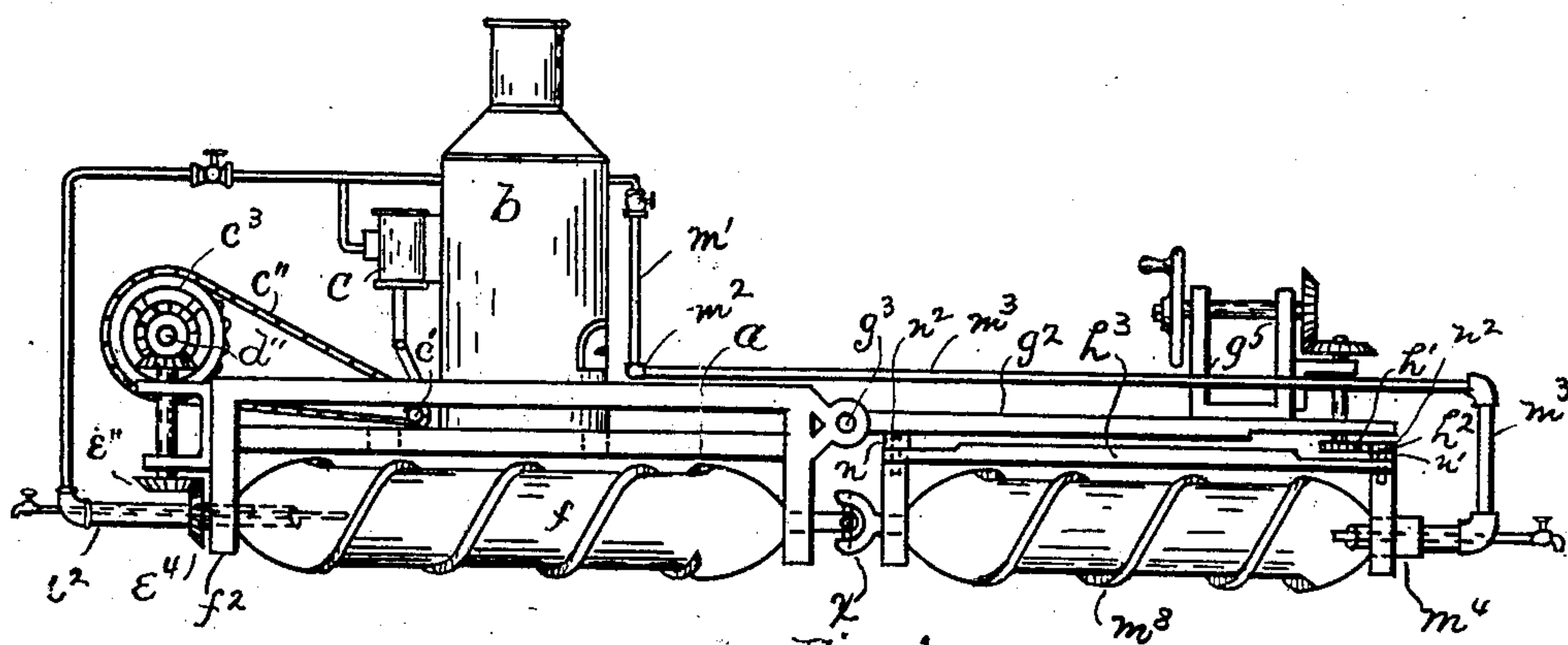


Fig. 1.

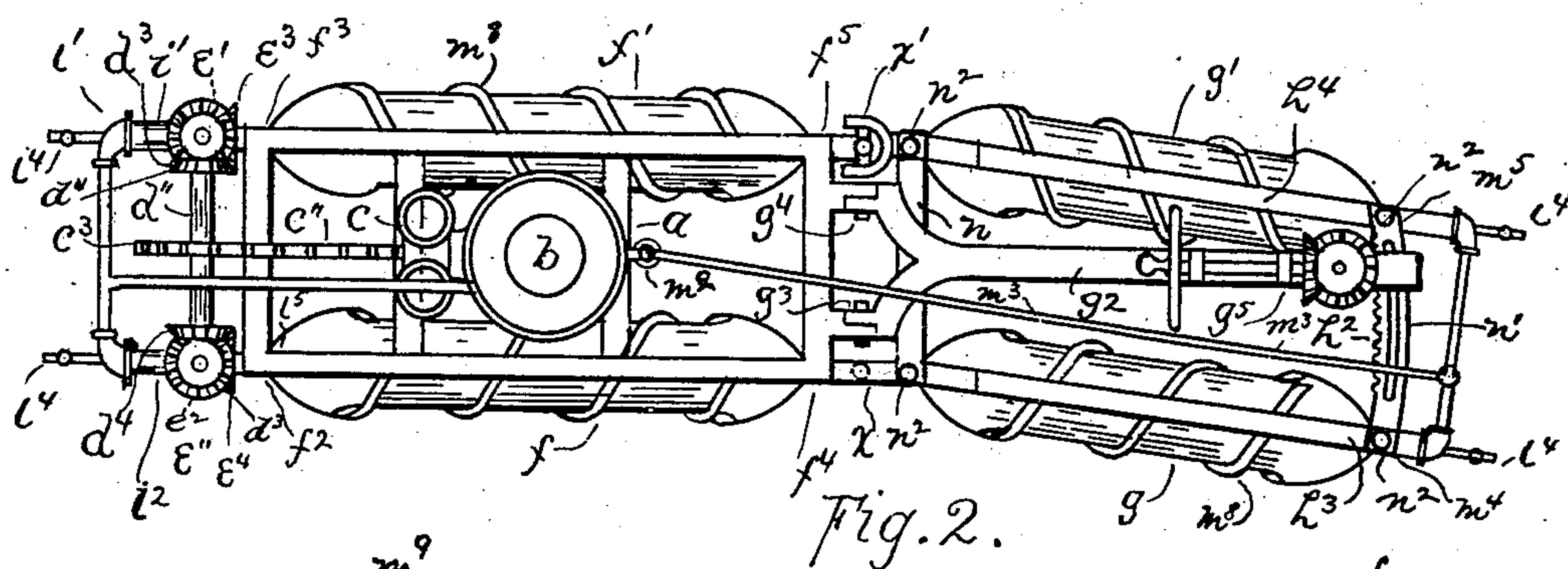


Fig. 2.

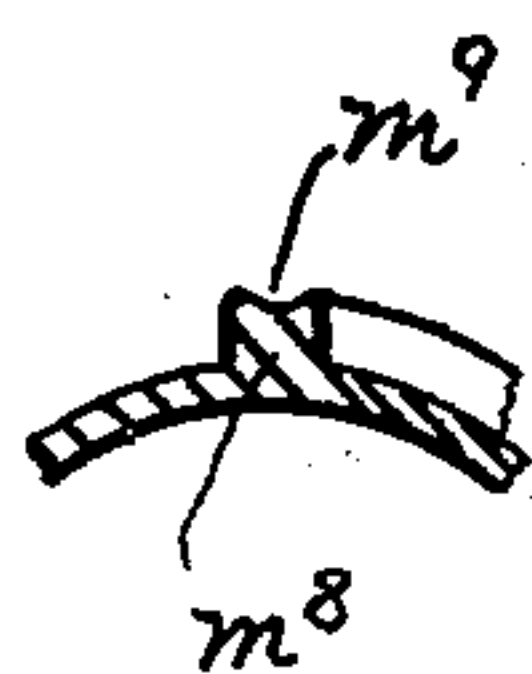


Fig. 3.

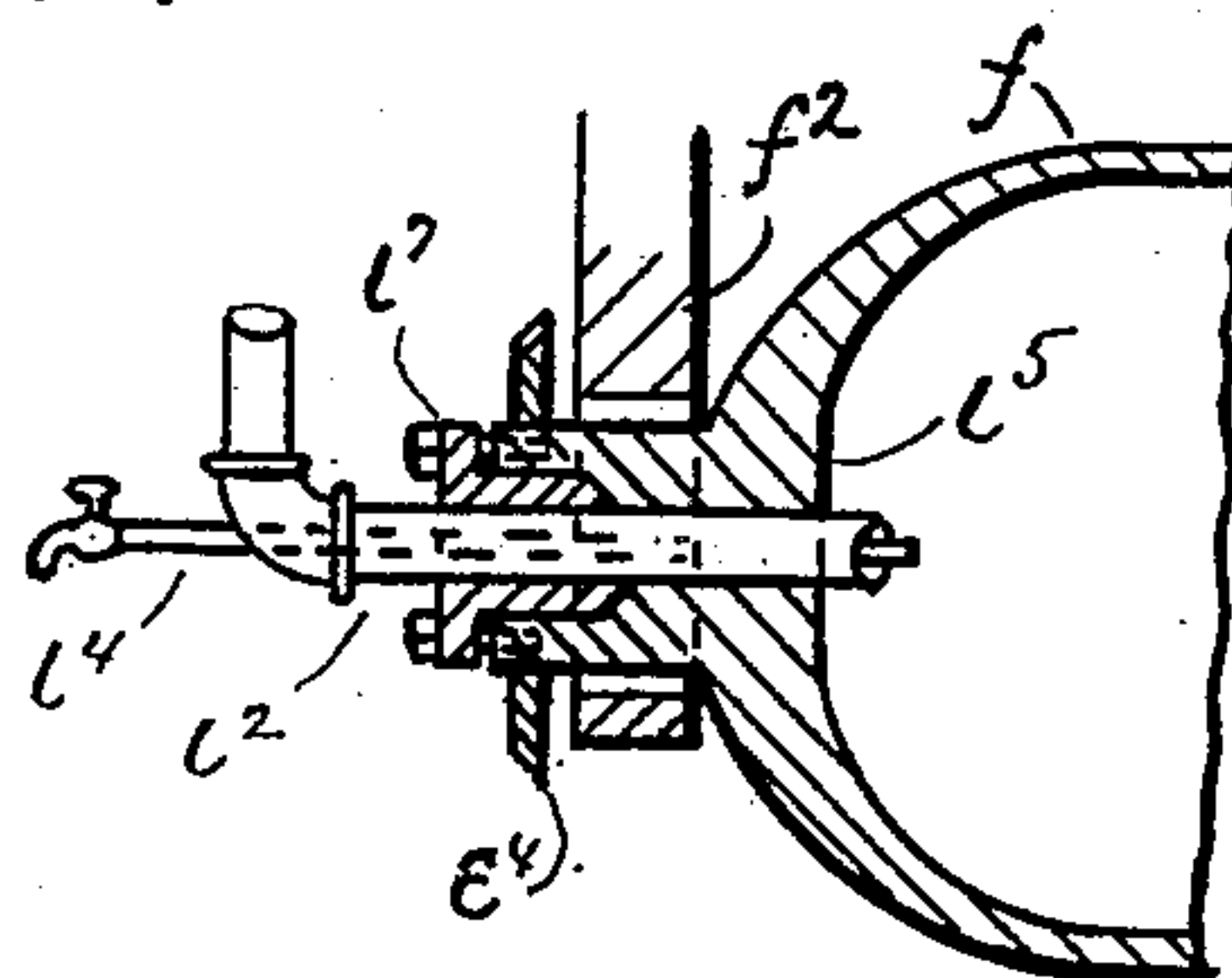


Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

IRA Q. A. PEAVEY, OF BANGOR, MAINE, ASSIGNOR OF ONE-HALF TO CHARLES L. HATHAWAY
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SNOW-LOCOMOTIVE.

No. 864,106.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed November 16, 1904. Serial No. 232,914.

To all whom it may concern:

Be it known that I, IRA Q. A. PEAVEY, a citizen of the United States of America, and a resident of Bangor, county of Penobscot, State of Maine, have invented
5 certain new and useful Improvements in Locomotives for Snow, of which the following is a specification.

The object of this invention is to provide a steam-propelled vehicle which is especially adapted for use in northern countries for hauling logs or freight over roads
10 or lakes covered with snow and ice, it being contemplated to provide a train of sleighs which are coupled in the usual manner to the motor vehicle.

To accomplish the above objects the said locomotive for snow consists of a body or frame supporting a boiler
15 and engine, and a pair of hollow drums rotatable in opposite directions from said engine and into which steam may be admitted. Said drums are provided with flanges which are arranged spirally around their outer surfaces in form of a screw, or helix, the rotating
20 of said drums forcing the locomotive ahead by the thrust produced by the helix against the snow or ice. The locomotive is further provided with a similar set of drums in advance of the main drums mentioned, also rotatable and which are used to assist in driving
25 said locomotive, but are mainly used in steering.

In the accompanying drawings, which form a part of this specification and wherein like letters of reference indicate like parts, Figure 1 is a side elevation of said locomotive and Fig. 2 is a plan view of same. Fig. 3
30 is a sectional view of the flange or driving thread, and Fig. 4 is a sectional view of the drum showing the means of passing the steam into said drum and releasing the condensation.

a, represents the body or frame-work on which rests
35 boiler *b*, and engine *c*, working on crank shaft *c'*, by which power is transmitted through main driving chain *c''*, to sprocket wheel *c'''*, on the driving shaft *d''*, and thence through bevel gears *d'''*, *d''''*, and gears *e'*, *e''* to gears *e³*, *e⁴*, by which the driving drums *f*, *f'*
40 are rotated in opposite directions in bearings *f²*, *f³*, *f⁴*, *f⁵*; that is to say, standing at the rear of said machine and looking in the direction of motion, if said motion is ahead, the drum *f* will rotate to the left and the drum *f'* to the right. The forward pair of steering drums
45 *g*, *g'* are rotated from the drums *f*, *f'* through universal joints *x*, *x'*, whereby said drums *g*, *g'* are free to be directed to right or left, and also may swing vertically on said joints *x*, *x'*, as centers in passing over articles in the road.

50 A steering platform *g²* is fastened to frame *a*, by pins *g³*, *g⁴*, so that said platform is free to move up or down but not to right or left. On the platform *g²*, is mounted a suitable steering apparatus as shown at *g⁵*, wherein a hand wheel and a set of bevel gears turn a pinion *h'*,

which engages a rack *h²*, thus forcing the forward set of
drums *g*, *g'*, to either right or left while said drums are rotating, thus steering the machine. To the bars *h³*, *h⁴*, which carry the forward and rear bearings of the forward or steering drums *g*, *g'*, are pivoted cross bars *n*, *n'*,
60 by four pins *n²*, so that in turning, and under all conditions, the axes of said drums *g* and *g'* will always be parallel to each other. *i'*, *i²* are steam pipes connected with the boiler for conveying steam into the drums *f*, *f'*, and *i⁴* designates drip pipes by which the drums may be
65 relieved of water of condensation. The object of admitting live or exhaust steam into said drums is to prevent the snow or ice from sticking to or freezing on said drums, thus clogging the driving thread, a small amount of steam only being required for this purpose. The drums *f*, *f'*, have substantial hubs formed on their
70 ends at *i⁵*, on which said drums rotate in bearings *f²*, *f³*. The gear wheels *e⁴*, are keyed to said hubs *i⁵* and where pipes *i²* pass through the hubs *i⁵* ordinary stuffing boxes *i⁷* are provided to form steam tight joints. The forward ends of the drums *f* and *f'* are provided with universal
75 joints *x*, *x'* connecting respectively with the rear ends of the drums *g*, *g'* and through which rotation is imparted to said drums *g*, *g'*. Steam is admitted into the forward drums *g*, *g'* through the pipe *m'*, flexible steam tight joint *m²*, and pipe *m³*, preferably flexible and
80 steam tight joints *m⁴*, *m⁵*, similar to joint shown in Fig. 4 with similar drip pipes *i⁴*, for escape of condensation.

The construction of the driving helix *m⁸*, is shown in section in Fig. 3 and consists preferably of a flange
85 turned in the several drums *f*, *f'*, *g*, *g'*, in form of a helix or screw thread of any desired pitch and of sufficient width to allow of a recess *m⁹*, being cut in its peripheral or outer surface to lessen friction and to increase its driving thrust, this cutting away of the central portion
90 of the thread, bifurcates the thread forming practically two threads, lessens the turning friction and increases the tractive effort.

My invention is not limited to the embodiment here shown, but may be embodied in various forms without
95 departing from the spirit and scope of the invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is—

1. In a machine of the kind described, a pair of driving drums, a pair of steering drums, a flange in form of a helix surrounding said drums having its peripheral surface
100 cut away centrally or bifurcated, forming a double thread.
2. In a locomotive for snow, driving and steering drums surrounded by a flange in form of a helix having its outer surface cut away at *m⁹* forming a double threaded surface.
3. In a locomotive for snow a locomotive body, a rotatable
105 driving drum provided with a driving helix, a rotatable steering and driving drum provided with a driving helix, said steering drum having one end fixed with respect to said body and the other end free to swing to steer the locomotive and means for swinging said steering drum.

4. In a locomotive for snow the combination of a locomotive body, driving screws for said body, a pair of steering screws pivoted at their rear ends to said body and capable of lateral and vertical swinging movement relatively thereto, a steering platform also pivoted to said body and capable of vertical swinging movement, but fixed laterally, and connections between said platform and supporting screws whereby the latter may be guided from said platform.
5. In a locomotive for snow the combination of a locomotive body, driving screws for said body, steering screws mounted for lateral and vertical swinging movement upon said body and controlling mechanism connected to the steering screws and within control of the operator for adjustably and positively swinging said steering screws to deflect the locomotive from a straight path.
6. In a locomotive for snow the combination of a locomotive body, driving drums for same, steering drums for said body arranged to be positively swung laterally to guide said body, a steering platform arranged to have a vertical swinging movement and rack and pinion connection to move said steering drums from said platform.
7. A locomotive for snow comprising a locomotive body, a non-swinging rotatable driving drum provided with a driving helix, a rotatable steering and driving drum provided with a driving helix, said steering drum being connected to said body for lateral steering movement and means for laterally deflecting the leading end thereof.
8. A locomotive for snow comprising a locomotive body, a non-swinging rotatable driving drum provided with a helix, a rotatable steering and driving drum provided with a driving helix, said steering drum being connected at one end thereof to said body for lateral steering movement and means for laterally deflecting the leading end thereof.
9. A locomotive for snow comprising a locomotive body, a rotatable driving drum provided with a driving helix, a rotatable steering and driving drum provided with a driving helix, said steering drum being pivotally connected to said body for steering movement by free effective lateral movement of the leading end and for vertical swinging movement.
10. A locomotive for snow comprising a locomotive body, a rotatable driving drum provided with a driving helix, a rotatable steering and driving drum provided with a driving helix, said steering drum being pivotally connected to said body for steering movement by free effective lateral movement of the leading end, the opposite end thereof being restrained from lateral movement.
11. A locomotive for snow comprising a locomotive body, non-swinging rotatable hollow rear drums f, f' having driving helices thereon, a source of heat mounted upon the locomotive body, means for conveying heating medium from said source of heat to the interior of the body of said drums f, f' in the direction of travel of the said locomotive, the forward rotatable steering and driving hollow drums g, g' having driving helices thereon, means as pipes m, m^3 for conveying heating medium to the interior of the body of said drums g, g' in the direction of travel of the said locomotive, said steering drums being connected to the locomotive body for lateral steering movement, and means for laterally deflecting the leading ends of the said drums g, g' .

Signed by me at Bangor, Maine, this 29th day of October, 1904.

IRA Q. A. PEAVEY.

Witnesses:

WM. B. PIERCE,
GALEN S. POND.