

H. LAINÉ.  
Ice-Locomotive.

No. 205,194.

Patented June 25, 1878.

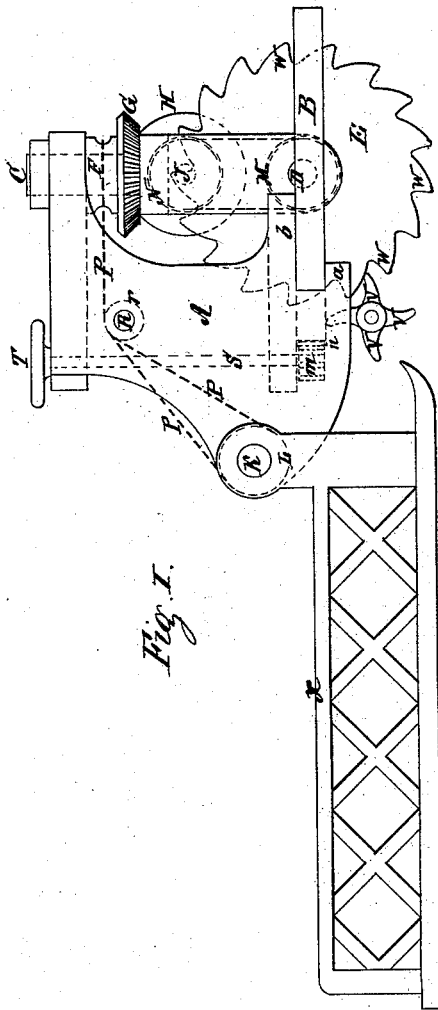


Fig. I.

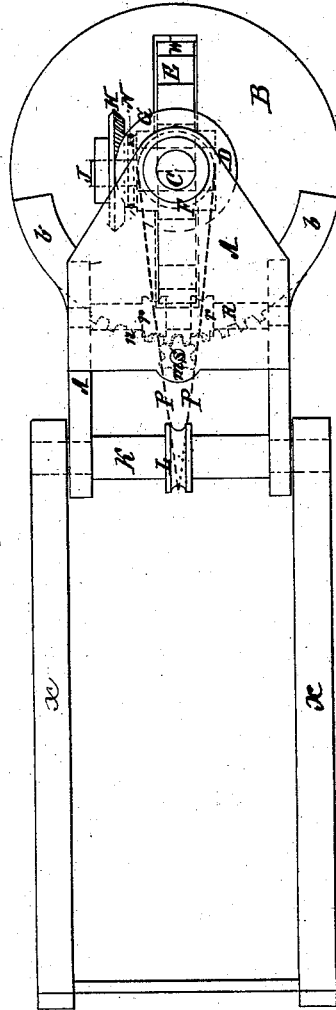


Fig. II.

Witnesses:  
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# UNITED STATES PATENT OFFICE.

HENRI LAINÉ, OF PARIS, FRANCE.

## IMPROVEMENT IN ICE-LOCOMOTIVES.

Specification forming part of Letters Patent No. **205,194**, dated June 25, 1878; application filed June 5, 1878.

*To all whom it may concern:*

Be it known that I, HENRI LAINÉ, of Paris, in the Republic of France, have invented a new and useful Ice-Locomotive, of which the following is a specification:

In the accompanying drawing, Figure I represents a longitudinal side view of my improved ice-locomotive. Fig. II is a top view of the same.

A represents the main frame, to which a horizontal disk, B, is attached, capable of turning on the vertical axis C. This disk B is guided between suitable projecting flanges *a* *b* fast to the frame A. If desirable, friction-rollers may be attached to the frame A for further guidance of this disk. In this disk B a horizontal axis, D, is arranged, on which the driving-wheel E is firmly attached. On the vertical axis C a loose pulley, F, and bevel-wheel G are attached. This bevel-wheel G engages with a corresponding wheel, H, turning loosely on a stud, J, upon which and connected to the wheel H a pulley, N, is placed. Upon the horizontal shaft D a pulley, M, is attached, connected by a belt or chain with the pulley N. K is the driving-shaft, running in suitable bearings in the frame A, and provided with a chain-wheel, L. This chain-wheel L is connected, through a suitable endless chain, P, with the pulley F. The chain P passes over suitable pulleys *rr* fast to the shaft R, to guide and direct the motion of the chain from the driving-shaft K to the pulley F. By this arrangement any motion communicated to the driving-shaft K is communicated to the pulley F, and, through the gear-wheels G and H and pulley N, to the pulley M, fast on the horizontal shaft D, and through the same to the driving-wheel E.

The horizontal disk B, to which the shaft D and consequently the driving-wheel E are attached, and which is capable of turning on its vertical axis C, is provided on its circumference with teeth *n*, into which a pinion, *m*, is made to work. This pinion *m* is fast to a shaft, S, having on its other end a suitable hand-wheel, T, by which arrangement the disk B is

capable of being turned around its axis C, and consequently the direction of the driving-wheel E is changed and regulated, as may be desired.

The driving-wheel E is provided with teeth W around its circumference, to insure a firm hold in the snow or ice, and prevent the slipping of the same. Behind this driving-wheel E a wheel is arranged having four or more arms or teeth, V, working into the recesses between the teeth W on the driving-wheel, and so arranged that, while receiving its motion from said teeth W, the action of these teeth V will scrape any snow or ice off the teeth W, and thus prevent the same from becoming clogged.

If desired a stream of steam may be conducted against the teeth W to dissolve the snow and ice adhering to the same, and facilitate the cleaning of the same by means of these teeth or projections V.

Behind the frame A a suitable carriage or sleigh, X, is arranged, attached to the shaft K, upon which the necessary machinery to communicate motion to the driving-shaft K may be arranged.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The horizontal disk B, supported and guided in the frame A and turning on its vertical axis C, in combination with the horizontal shaft D and driving-wheel E, provided with teeth W, and with the driving-gear, consisting of the pulleys M and N, gear-wheels H and G, and pulleys F and L, arranged to operate substantially in the manner and for the purpose described.

2. In combination with a driving-wheel, E, provided with teeth W, the wheel provided with arms or teeth V, arranged to operate in the manner and for the purpose substantially as set forth and specified.

H. LAINÉ.

Witnesses:

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