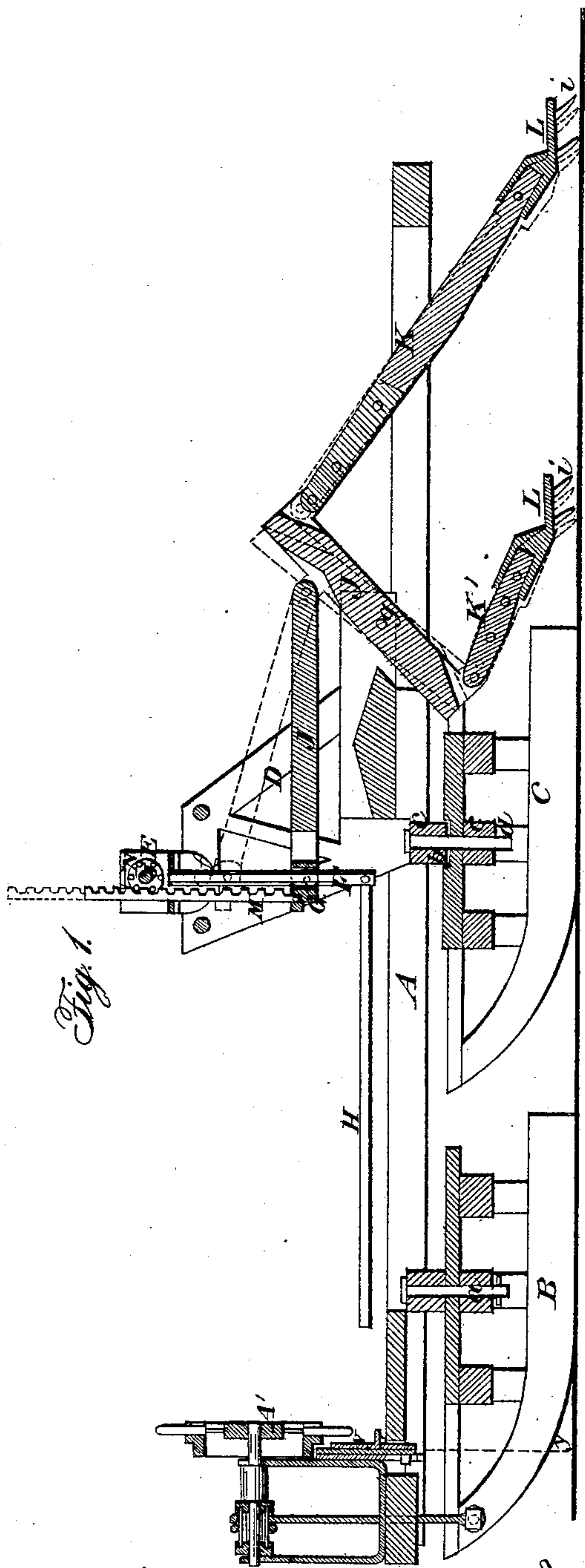


P. DICKSON.

Sleigh.

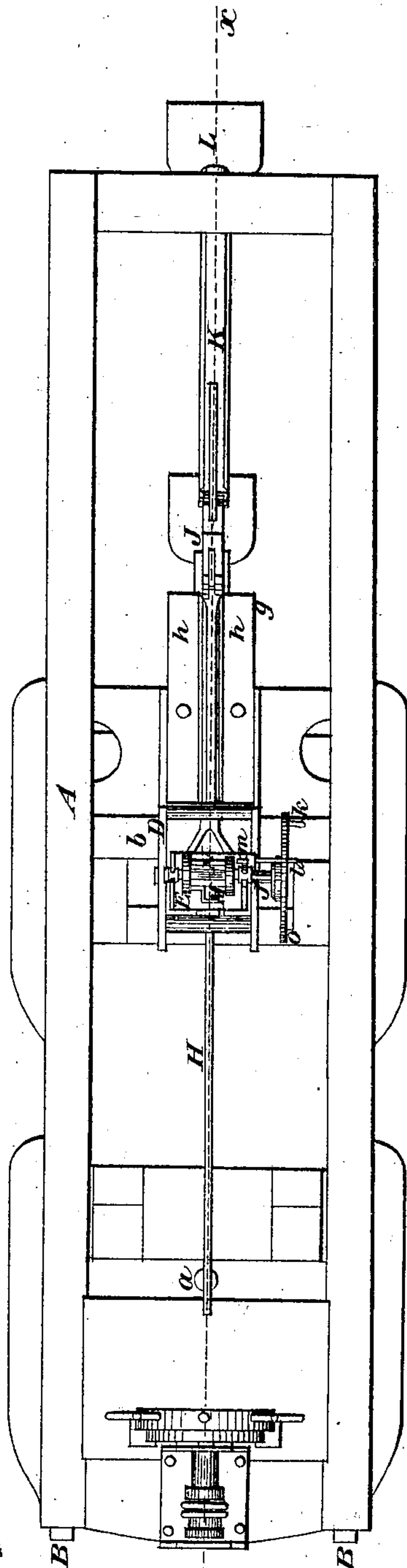
No. 36,995.

Patented Nov. 25, 1862.

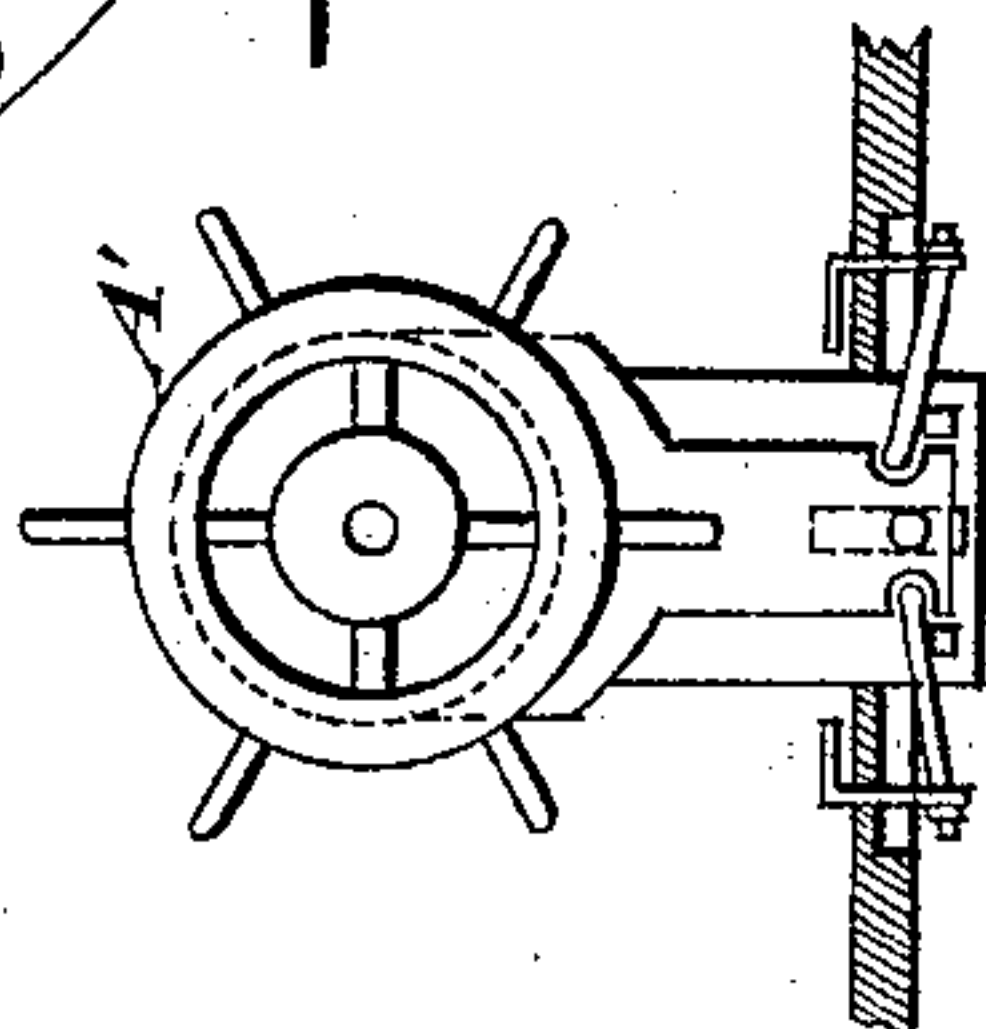


*Fig. 1.*

*Fig. 2.*



*Fig. 3.*



Witnesses:

*J. W. Brombs,*  
*G. W. Rude,*

Inventor:

*Perry Dickson*  
*per Munro & Co*  
*attorneys.*



# UNITED STATES PATENT OFFICE.

PERRY DICKSON, OF UTICA, MINNESOTA.

## IMPROVEMENT IN PROPELLERS FOR LAND CONVEYANCE.

Specification forming part of Letters Patent No. 36,995, dated November 25, 1862.

*To all whom it may concern:*

Be it known that I, PERRY DICKSON, of Utica, in the county of Winona and State of Minnesota, have invented a new and useful Improvement in Propellers Designed for Land Conveyances, such as locomotives, and other wheeled vehicles, ice-sleds, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of an ice-sled with my invention applied to it, taken in the line  $x x$ , Fig. 2; Fig. 2, a plan or top view of the same; Fig. 3, a vertical section of a portion of the same, taken on the line  $y y$ , Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a propeller by which the application of the driving-power may be varied as circumstances may require, so that, for instance, in ascending eminences the speed may be decreased and a proportional increase of power obtained, and in passing over level surfaces the utmost capacity as regards speed of the propeller and driving power obtained.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular frame, the front end of which is supported by a pair of short runners, B, connected to the frame A by a king-bolt or pivot,  $a$ , to admit of said sled being turned to guide the sled either to the right or left. These runners may be turned by a steering device, A'. The back part of the frame A is supported by a pair of stationary runners, C C, or those which do not turn but are allowed a vertical oscillating play on a cross-bar,  $b$ , attached to frame A, the central cross-tie,  $c$ , of said runners having a vertical bolt,  $d$ , passing loosely through it, which bolt also passes loosely through the cross-bar  $b$  of the frame A, and serves to attach the runners to said frame.

On the frame A, and at a point over the back runners, C C, there is placed a small frame, D, in the upper part of which a cross-head, E, is secured by pivots  $f$ , the cross-head being allowed to work or oscillate freely on its pivots, and to the cross-head a pendent rod, F, is at-

tached on which a slide, G, is fitted and allowed to move or work freely up and down. To the lower end of this rod F the piston-rod H of a horizontal engine is attached, and to the slide G one end of a rod, I, is attached, the opposite end of the latter being connected to a rock-bar, J, which is fitted on a fulcrum-pin,  $g$ , that passes horizontally through two short bars,  $h h$ , secured longitudinally on the frame A.

To each end of the rock-bar J there is attached an arm, K K'. The arm K, at the upper end of the rock-bar, is longer than the one K', which is attached to its lower end, as shown in Fig. 1, and both arms are provided at their outer ends with a shoe, L, having points or spurs  $i$  on their under surfaces.

The slide G is attached to the lower end of a rack, M, into which a pinion, N, gears, said pinion being on a shaft,  $j$ , which is in the upper part of the cross-head E and has a wheel, O, at one end of it to which a handle,  $k$ , is attached.

The shaft  $j$ , and consequently the pinion N, are turned by turning the wheel O, and in consequence of the pinion N gearing into the rack M the slide G may be raised or lowered to any desired point on the pendent rod F, and secured by means of a pin,  $l$ , passing through a bar,  $m$ , on the frame D, and into or between the cogs of wheel O. (See Fig. 2.)

The rock-bar J is oscillated by the piston-rod H of the engine through the medium of the cross-head E. Rod F, slide G, and rod I, and the arms K K' are thereby thrown alternately outward or backward and drawn inward by the rock-bar, the sled being propelled along by the outward or backward movement of the arms. By adjusting the slide G higher or lower on its rod F it will be seen that the stroke or length of the oscillations of the rock-bar J may be regulated as desired, the stroke being decreased as the slide approaches the pivots  $f$  or center of oscillation of the cross-head E and the stroke increased as the slide is lowered on rod F. As the stroke of the rock-bar  $j$  is decreased, the leverage power of F is proportionably increased, and hence when increased power is required, as in ascending eminences, the slide G is elevated on the rod F, speed is of course proportionably decreased as power is increased; but this can be afforded when power is indispensably necessary.

There is another feature attending this adjustment of the slide G which is important when the invention is applied to a locomotive, and that is the propeller can be rendered inoperative without stopping the engine or retarding its speed by simply raising the slide to a point in line with the pivots  $f'$  or center of oscillation of the draw-head E, and the engine may then be applied to the pumping of water for supplying the tank which feeds the boiler. The speed of the locomotive can also by this adjustment of the slide be retarded or increased at the will of the engineer with the greatest facility.

I am aware that propellers for land con-

veyances have been used with shoving-arms, and I do not claim, broadly, such device; but

I do claim as new and desire to secure by Letters Patent—

The applying of the power of the engine to the rod I of the rock-bar J through the medium of the slide G, pendent rod F, and cross-head E, the slide being adjusted on the rod F, and all arranged substantially as and for the purpose herein set forth.

PERRY DICKSON.

Witnesses:

ALBERT S. CUTLER,

GIDEON PETERMAN.