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S. F. McCUSKER.

WINTER ROAD MACHINE FOR CLEARING SNOW.

(Application filed Apr. 30, 1898.)

(No Model.)

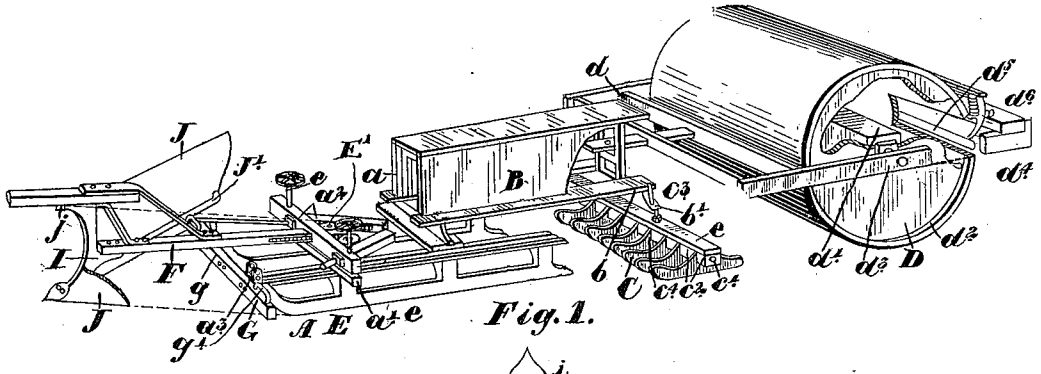


Fig. 1.

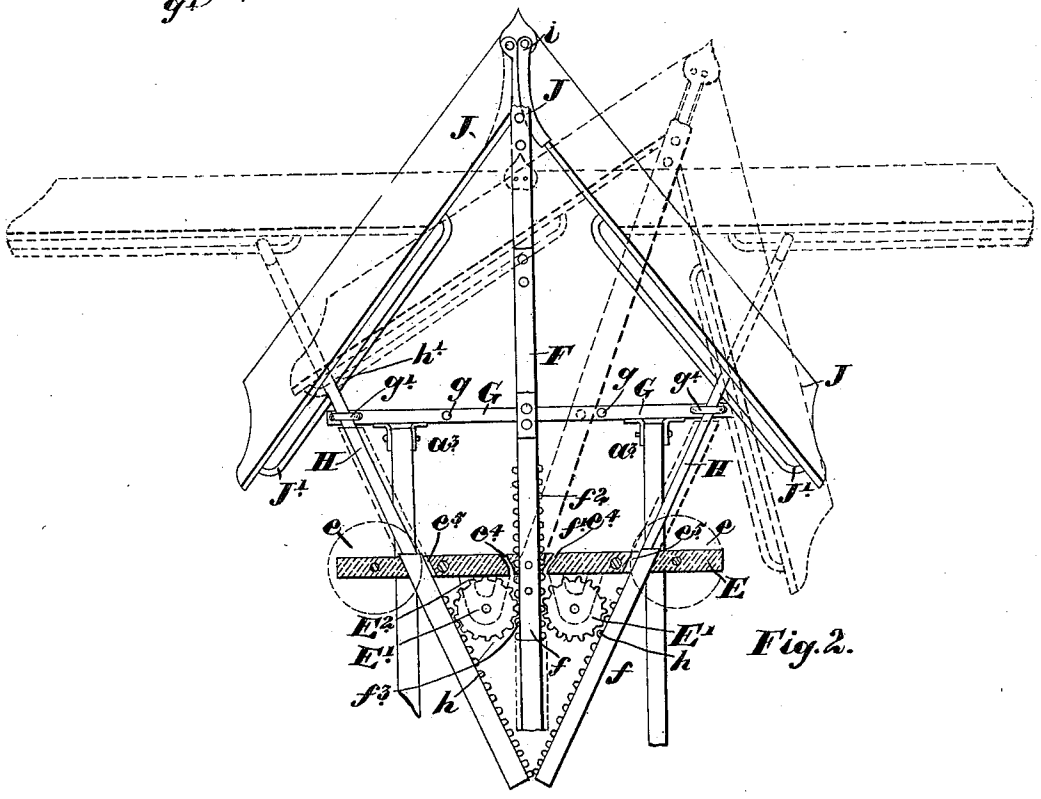


Fig. 2.

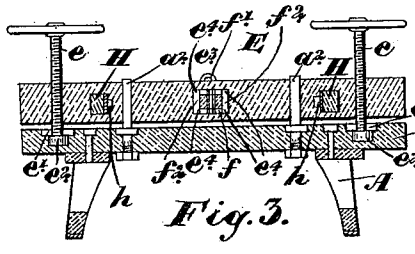


Fig. 3.

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SAMUEL F. McCUSKER, OF ST. LOUIS DE GONZAGUE, CANADA.

WINTER-ROAD MACHINE FOR CLEARING SNOW.

SPECIFICATION forming part of Letters Patent No. 621,935, dated March 28, 1899.

Application filed April 30, 1898. Serial No. 679,397. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL FREEMAN McCUSKER, clergyman, of the village of St. Louis de Gonzague, in the county of Beauharnois, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Winter-Road Machines for Clearing Snow, of which the following is a specification.

My invention relates to improvements in winter-road machines for clearing snow; and the object of the invention is to design a machine by which a beaten road over the snow may be produced and kept clear of a superfluous amount of snow, so that it may be utilized throughout the winter; and it consists, essentially, of a road-machine having a spreadable front plow, a sled for supporting the same, and a draft-tongue for pulling the plow and sleigh, a box-seat and runners connected thereto, and a rear land-roller, all arranged and designed to be utilized in the manner hereinafter more particularly explained.

Figure 1 is a perspective view of my machine complete, a portion of one of the wings of the plow being broken away to exhibit the construction of the front portion of the machine. Fig. 2 is a plan view showing in dotted lines two of the positions into which the wings of the plow may be adjusted. Fig. 3 is a cross-section through the sled on a line with the adjustable front spindles.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is an ordinary pair of solid sleigh-runners suitably joined and carrying pivoted near its center the front end of the box-seat B, the rear end of which is supported by a plurality of parallel runners C, arranged laterally approximately at equal distances apart. The runners C are firmly held in their respective positions by the cross-beam *c*, to which they are vertically pivotally attached by the rod *c'*, passing loosely through said runners and fixedly through the spacing-blocks c^2, attached to the under side of the cross-beam *c*. Rising vertically from the upper side of the cross-beam *c*, near its ends, are the fixed posts c^3, which pass through holes *b'* in the outer ends of the cross-beam *b*, attached to the rear end of the box-seat B. Encircling the posts c^3 and supporting the cross-beam *b* are the helical compression-springs c^4, thus allowing the runners C to adapt themselves to irregularities in the road-bed over which they may be drawn. This my preferred adjustment may be dispensed with and the same result accomplished by having the seat-box B rigidly attached to the cross-beam *c* and its front end loosely pivoted to the sleigh A by an ordinary ball-and-socket joint. Thus the seat-box would have a perfect angular play on the sleigh A.

Loosely pivoted to the rear end of the seat-box B by a tongue *d* is provided the ordinary land-roller D, which I preferably weight by having its axle *d'* made of a heavy piece of timber, which is attached to the cylinder of the roller by the closed ends d^2 and journals in the rectangular frame d^3, to the front of which is firmly fixed the tongue *d* and on the rear of which is placed the platform d^4, adapted to carry a number of men when extra weight is required to more compactly roll the snow.

The scraper d^5, pivoted beneath the platform d^4, is normally held away from the roller by helical compression-springs d^6, above the platform where they protrude, and the cross-bar d^7, joining their ends, but may be pressed down into contact with said roller by foot-pressure upon said bar d^7 for the purpose of clearing the roller from snow.

Rising vertically, well to each side of the center, from the cross-bar *a'*, attached to the sleigh or in front of the pivot *a*, are fixed posts a^2, adapted to guide the vertically-adjustable cross-bar E, through the ends of which screw the hand-screws *e*, the lower ends of which are journaled in the ends of the fixed cross-bar *a'* and are prevented from vertical play by the collars *e'* and e^2.

Passing through a rectangular hole e^3 at the center of the cross-bar E is the tongue F, which has a horizontally-pliable joint *f*, so arranged as to normally come within the hole e^3, where it is held by the bolt *f'*, passing through the tongue, and horizontal lugs formed on the rear side of the cross-bar E above and below the hole e^3. On each side of the tongue centrally of its length are arranged the toothed racks f^2 on the forward part and f^3 on the rearward part of said tongue in such a manner that when the bolt *f'* is withdrawn and the tongue is shoved inwardly

they engage with and revolve the gear-pinions E′, which are journaled horizontally on each side between the standards E^2, attached to the cross-bar E. Parallel guide-strips e^4, opening out in front, are attached to the sides of the hole e above and below and at each side of the tongue F, against which they act above and below the racks f^2.

Across the front of the sleigh A is supported by the vertically-adjustable clevises a^3 the cross-bar G, upon which rests the forward end of the tongue F and upon which it has end play and also side play as far as the stops g, fixed to the said cross-bar G.

On the ends of the cross-bar G are fixed the guide-rings g', through which pass freely the rods H, the rear ends of which incline inwardly and pass through the holes e^5 in the cross-bar E and have on their inner side the racks h, which mesh with the pinions E′.

Attached to the under side of the tongue F is the plowshare I, which sweeps forward at its lower end and broadens out, forming pivots i for the lower front corner of the wings or moldboards J, which are curved forwardly at the lower edge in conformity with the shape of the share I. The upper forward edges of the wings J have extensions j, the ends of which are pivoted to the tongue vertically above the lower posts i. Attached to the rear sides of the wings J at their ends are the horizontal rods J′, which pass loosely through the rings h', formed on the outer ends of the rods H. Suitable whiffletrees and neck-yoke are arranged on the tongue F for the attachment of draft-horses.

Having now described the various parts of my invention, I shall now point out their uses and method of operation.

When a road is desired to be formed through newly-fallen snow, horses are attached to the tongue of my winter-road machine in the usual manner, the snow-plow having been adjusted to the required level to throw aside the desired amount of snow by the clevises in front and the hand-screws e at the rear, and the machine started, forming a good track in and rolling down the snow not cast aside. During early winter I preferably keep the plow well raised, so as to track and roll down most of the snow and not form high snow walls at the side. During the later winter, when a good depth of snow has been packed on the road, I lower the plow and throw the surplus snow aside, as then snow walls can be formed without danger to traffic, nor will they be so high as if added to each snowfall from the beginning of the winter. It will be noticed that as my snow-plow is pivoted to the tongue it moves sidewise with it, facilitating turning. (See dotted lines, Fig. 2.) When a drift is required to be cut away, the bolt f' is drawn and the horses backed, shoving the tongue inwardly and causing the outer ends of the wings to move outwardly by the action of the racks f^3 on the pinions B′ and their action on the racks H. Thus the wings are placed in the form of a scraper, as shown in dotted lines in Fig. 2. Now the snow will be carried forward past the drift, when the bolt f' may be withdrawn, when the wings will assume their normal position on the horses moving forward, when the bolt f' may be replaced in the hole, and the accumulated snow cast aside quite clear of the drift.

If an extra weight is required to hold down the sleigh A and tracking-runners C, a number of men may be ranged along the seat-box. Additional weight may also be given to the roller D by placing on the platform a number of men who are generally available for the purpose in rural districts for which my invention is particularly adaptable.

What I claim as my invention is—

1. A winter-road machine comprising a suitable sled or sleigh provided with a draft-tongue, a plow centrally connected to the tongue and provided with shares slidably held to the sled at their rear ends as and for the purpose specified.

2. A winter-road machine comprising a suitable sled or sleigh provided with a draft-tongue, a plow centrally connected to the tongue and provided with shares adjustably held to the sled, a box-seat supported at one end on the rear of the sled, and a cross-bar provided with a series of runners supporting the rear end of the box-seat as and for the purpose specified.

3. A winter-road machine comprising a suitable sled or sleigh provided with a draft-tongue, a plow centrally connected to the tongue and provided with shares adjustably held to the sled, a box-seat supported at one end on the rear of the sled, a cross-bar provided with a series of runners supporting the rear end of the box-seat, and a land-roller provided with a suitable frame and having a tongue connected centrally to the rear of the box-seat as and for the purpose specified.

4. In combination the sled or sleigh provided with a suitable draft-tongue and plow at the front thereof, a cross-bar suitably connected to the rear of the sled and provided with a series of runners extending laterally across the machine and pivotally connected to the bottom of the cross-bar as and for the purpose specified.

5. In combination the sled or sleigh provided with a suitable draft-tongue and plow at the front thereof, a cross-bar suitably connected to the rear of the sled and provided with a series of runners extending laterally across the machine and pivotally connected to the bottom of the cross-bar, and a land-roller provided with a suitable frame, and rear platform, and a scraper suitably supported on such platform and normally spring-held away from the roller as and for the purpose specified.

6. In a winter-road machine, the combination with the sleigh or sled and draft-tongue, of the plow secured underneath the draft-

tongue, the wings pivotally connected to the point of the plow on each side thereof, the horizontal rods connected to the back of the wings, the adjusting-rods provided with ring-shaped ends, the cross-bar on the front of the sled and means for throwing the rods forwardly or rearwardly to adjust the angle of the wings of the plow as and for the purpose specified.

7. In a winter-road machine, the combination with the sleigh or sled and draft-tongue, of the plow secured underneath the draft-tongue, the wings pivotally connected to the point of the plow on each side thereof, the horizontal rods connected to the back of the wings, the adjusting-rods provided with ring-shaped ends, the cross-bar on the front of the sled, the cross-bar supported on the sled and having a central aperture, the tongue or draft-bar F extending through such aperture, the racks formed on each side thereof at the rear end of the tongue, the pinions meshing therewith suitably journaled on the cross-bar and the coacting racks formed on the adjacent rods meshing with the pinions as and for the purpose specified.

8. In a machine of the class described, the combination with the tongue or draft-rod and plow having the stem thereof pivotally connected to the tongue and suitable wings or moldboards connected with the center of the plow and means for adjustably connecting the plow to the sled, of the front cross-bar connected to the front of the sled by suitable clevises and provided with stop-pins one on each side of the tongue to limit its lateral movement as and for the purpose specified.

9. The combination with the tongue and plow having the stem centrally connected to the tongue and the laterally-extending wings or moldboards, of the fixed posts secured in one of the cross-bars of the sled and extending upwardly therefrom, the adjustable cross-bar, the screw-spindles extending therethrough and rotatably held in the cross-bar of the frame, the said adjustable cross-bar having a central aperture through which the tongue extends as and for the purpose specified.

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