A. PELTIER.

SNOW ELEVATING MACHINE.

APPLICATION FILED JULY 24, 1917.

1,252,164.

Patented Jan. 1, 1918.

4 SHEETS—SHEET 1.

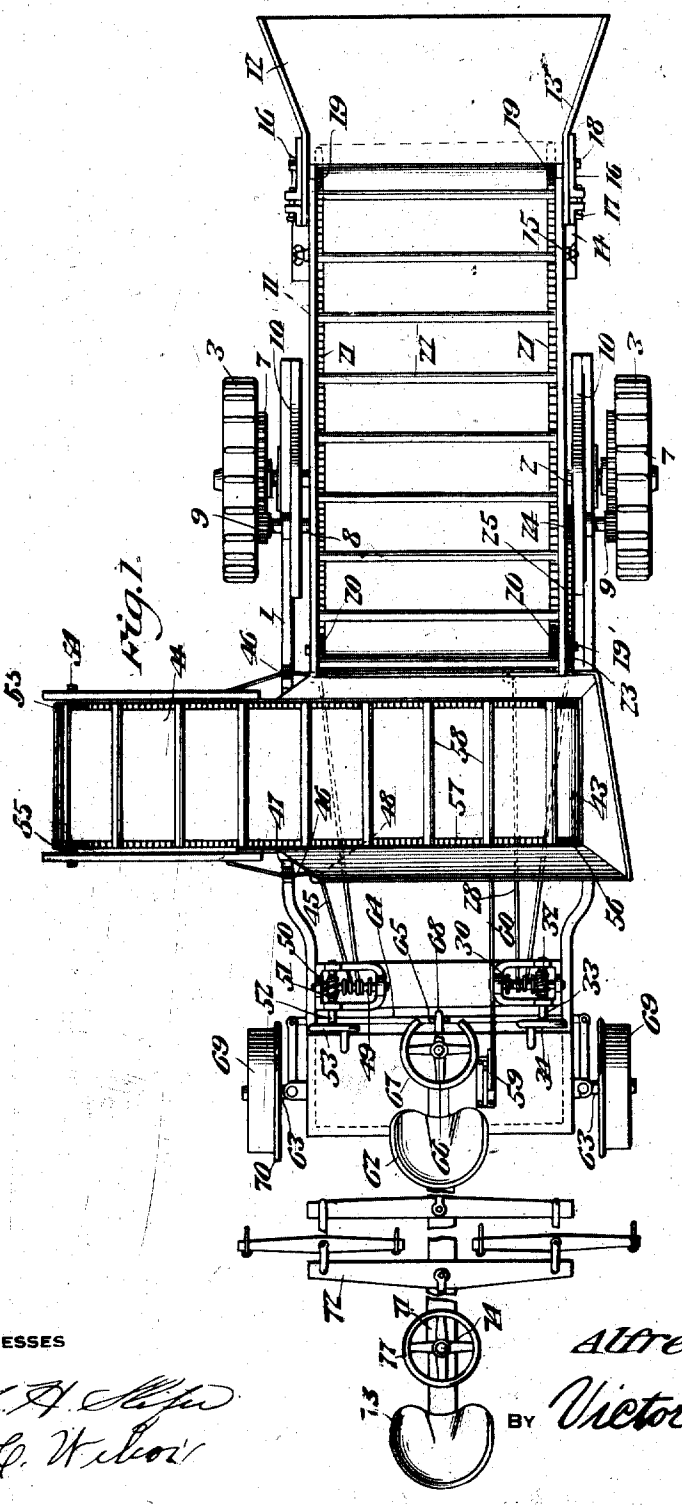


Fig. 1.

WITNESSES

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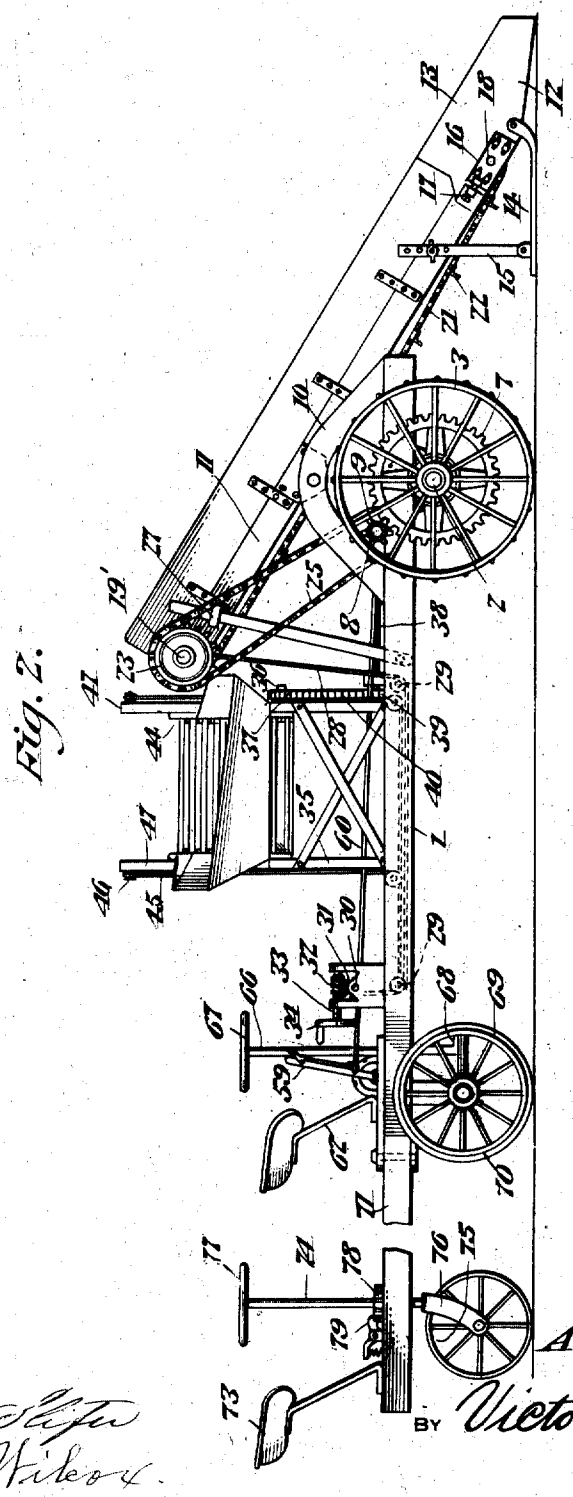
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

Fig. 3

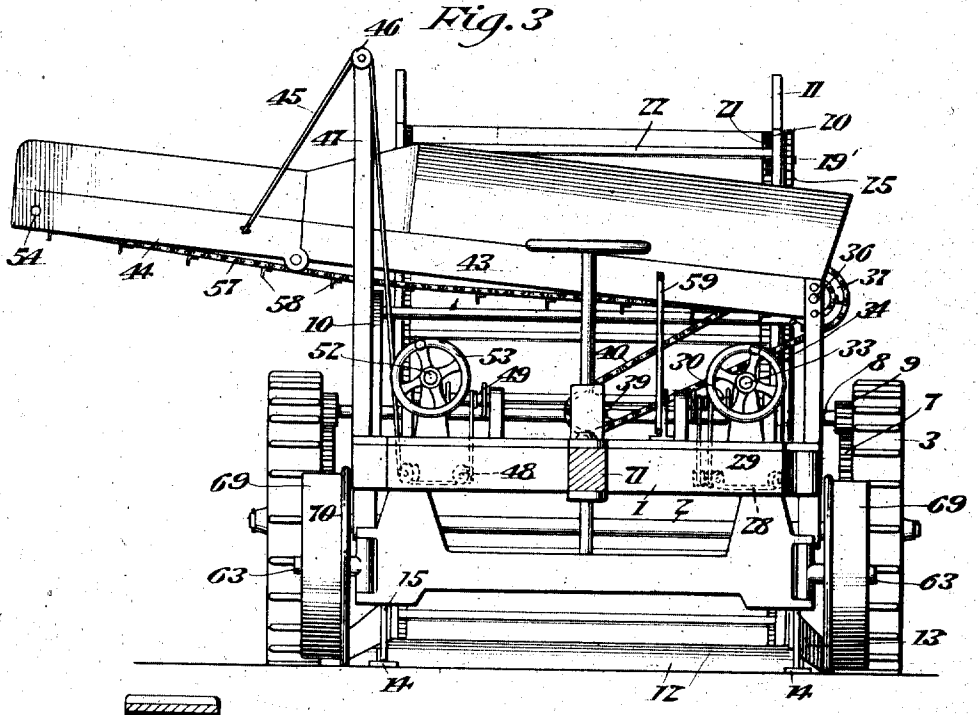


Fig. 4.

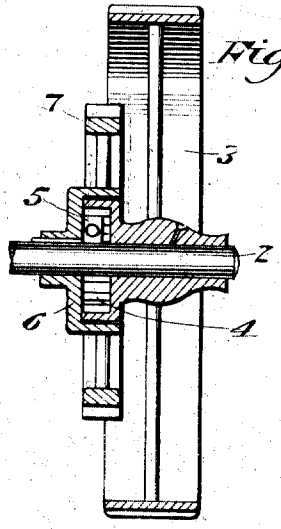
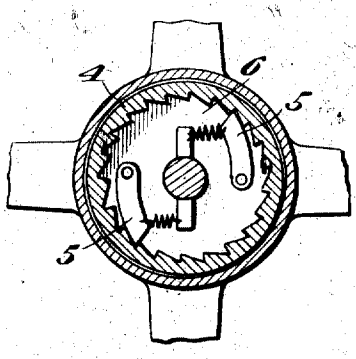


Fig. 5



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4 SHEETS—SHEET 4.

Fig. 6.

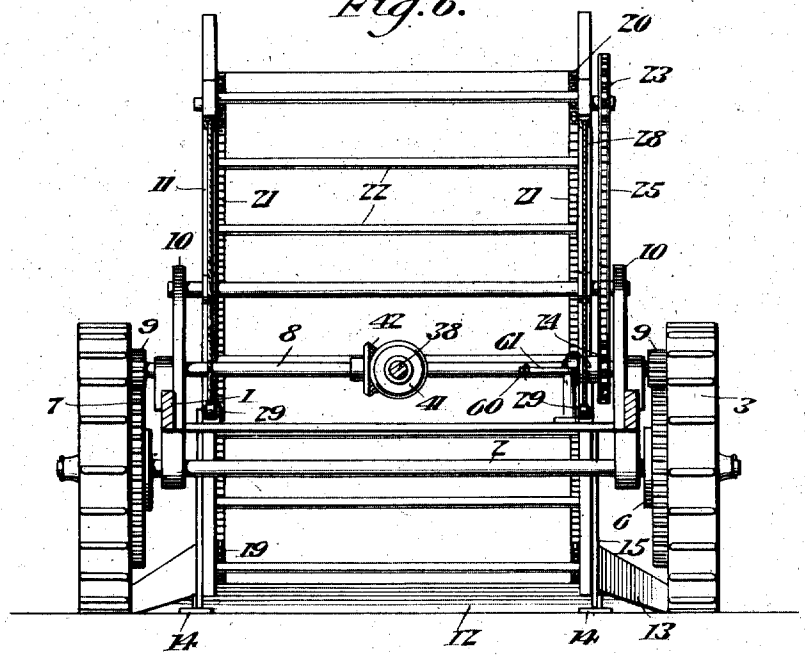
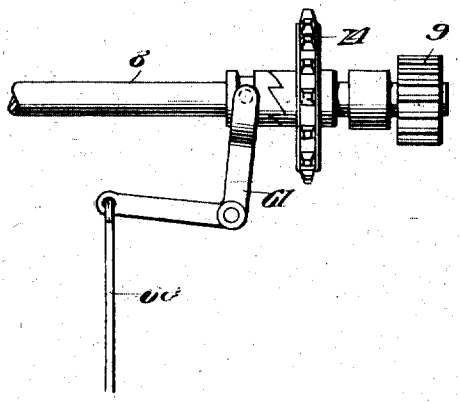


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALFRED PELTIER, OF ST. PAUL, MINNESOTA.

SNOW-ELEVATING MACHINE.

1,252,164. Specification of Letters Patent. Patented Jan. 1, 1918.

Application filed July 24, 1917. Serial No. 182,505.

To all whom it may concern:

Be it known that I, ALFRED PELTIER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Snow-Elevating Machines, of which the following is a specification.

This invention relates to machines especially adapted to be used for elevating and conveying snow and it consists in the novel features hereinafter described and claimed.

An object of the invention is to provide a machine of the character stated which is of simple and durable structure and which may be economically used for elevating snow from the surface of the street or pavement and conveying the same to one side of the machine and permitting it to fall upon the surface of the street or depositing it in the body of a wagon or other vehicle which may travel at the side of the machine. While the machine is intended primarily to be used for moving snow in a manner as stated it is to be understood that the machine might also be used to advantage for moving other material as for instance sand, gravel or soil.

With the above stated object in view the machine comprises a wheel mounted frame having a tongue attached to the rear portion thereof and to which draft animals may be hitched for the purpose of pushing the machine over a road or surface. An elevator frame is pivotally mounted at the forward portion of the first mentioned frame and belts having cross slats are mounted for movement along the elevator frame. Shoes are adjustably connected with the forward portion of the elevator frame and are adapted to slide over the surface of the street or roadway and support the forward portion of the elevator frame. An inclined blade is mounted at the forward portion of the elevator frame and upstanding flanges are provided at the ends of the said blades and diverge from each other in a forward direction. Means are provided for swinging the elevator frame upon its pivotal connection with the wheel mounted frame so that the forward end thereof may be raised above the surface of the street or roadway when desired. A conveyer frame is mounted upon the wheel mounted frame at a point between the ends thereof and is adapted to receive the material from the elevator. Conveyer frames and slats are mounted for movement along the conveyer frame and the said conveyer frame may be pitched at a desired angle and may consist of two or more sections hingedly connected with each other, there being means provided for swinging the said conveyer frame and for swinging the hinged section with relation to each other. Means are provided for operating the elevator and conveyer belts from the supporting wheels of the main frame and the last mentioned means are provided with clutch mechanism which may be manipulated to permit the elevator and conveyer to remain at a state of rest while the machine is being moved over a surface or road.

In the accompanying drawing:—

Figure 1 is a top plan view of the snow elevating machine.

Fig. 2 is a side elevation of the same.

Fig. 3 is a rear view of the same.

Fig. 4 is a transverse sectional view of one of the traction wheels of the machine.

Fig. 5 is a fragmentary sectional view of the wheel shown in Fig. 4.

Fig. 6 is a transverse sectional view of the machine.

Fig. 7 is a detailed plan view of a clutch mechanism used upon the machine.

The snow elevating machine comprises a frame 1 which may be constructed from any suitable material. The forward portion of the frame 1 is mounted upon an axle 2 which is journaled in the said frame and wheels 3 are loosely mounted upon the ends of the said axle and the said wheels are provided at their centers with ratchet teeth 4 which are adapted to engage spring retained pawls 5 mounted upon a disk 6 which in turn are mounted upon the axle 2. When the wheels 3 turn in a forward direction the pawls 5 are engaged whereby the axle 2 is rotated but should the wheels turn in a rearward direction the teeth 4 will escape or wipe over the pawls 5 and hence the wheels may turn rearwardly independently of each other without rotating the axle. In other words escapement devices of conventional form are provided between the wheels 3 and the axle 2.

Gear wheels 7 are fixed to the axle 2 in the vicinity of the wheels 3 and a shaft 8 is journaled for rotation upon the frame 1. Gear wheels 9 are fixed to the shaft 8 and mesh with the gear wheels 7. Hence means are provided for rotating the shaft 8 from the axle 2.

Arch members 10 are mounted upon the forward portion of frame 1 at the opposite sides thereof and an elevator frame 11 is pivotally mounted upon the members 10 for vertical swinging movement. A forwardly and downwardly inclined blade 12 is journaled at the forward end of the frame 11 and upstanding flanges 13 are provided at the ends of the blade 12 and the said flanges diverge from each other in a forward direction. Shoes 14 are pivotally connected at their forward ends with the forward portion of the frame 11 and standards 15 are pivotally connected with the rear portions of the shoes 14 which are adapted to be adjustably connected with the frame 11. As the frame moves over the surface of a street or roadway the shoes 14 travel on the said surface and support the forward portion of the frame 11. Boxes 16 are slidably mounted at the forward portion of the frame 11 and may be adjusted by means of screws 17. A shaft 18 is journaled in the boxes 16 and carries sprocket wheels 19. The said shaft 18 and the wheels 19 are located under the rear extension of the blade 12. A shaft 19′ is journaled for rotation at the upper end of the frame 11 and carries sprocket wheels 20. Chains 21 are trained around the sprocket wheels 19 and 20 and they carry cross slats 22 which are adapted to move along the bottom of the frame 11. A sprocket wheel 23 is fixed to the shaft 19′ and a sprocket wheel 24 is fixed to the shaft 8. A sprocket chain 25 is trained around the sprocket wheels 23 and 24 and is adapted to transmit rotary movement from the shaft 8 to the shaft 19′ which in turn moves the elevator belt along the frame 11 as above described.

Guide bars 26 are pivotally connected at their lower ends with the frame 1 and the upper portions of the said guide bars are received in eyes 27 attached to the sides of the frame 11 and at the upper portion thereof and the said bars 26 serve to brace the frame 11 and guide the same during its vertical swinging movement. Cables 28 are connected at one end with the upper rear portion of the frame 11 and the intermediate portions of the said cables are trained under pulleys 29 which are journaled upon the frame 1. The said cables 28 are arranged to wind upon a shaft 30 journaled upon the frame 1. A worm wheel 31 is fixed to the shaft 30 and meshes with a worm 32 mounted on a shaft 33 which is provided with a crank handle 34. It is apparent that by turning the crank handle 34 the shaft 30 will be rotated and hence the cables 28 may be wound upon the said shaft and thus the upper rear portion of the frame 11 will be drawn in a downward direction and its forward end lifted above the surface of the road. When the cables are unwound from the shaft 30 the forward end of the frame 11 will descend by gravity and the parts will assume the positions as shown in Fig. 2 of the drawing.

Standards 35 are mounted upon the intermediate portion of the frame 1 and a shaft 36 is journaled for rotation at the upper ends of the said standards. A sprocket wheel 37 is fixed to the forward end of the shaft 36 and a shaft 38 is journaled for rotation at the intermediate portion of the frame 1. The said shaft 38 is provided at its rear end with a sprocket wheel 39 and a chain 40 is trained around the sprocket wheels 37 and 39. The shaft 38 carries at its forward end a beveled pinion 41 which meshes with a similar pinion 42 mounted upon the shaft 8. Hence it will be seen that means are provided for rotating the shaft 36 from the shaft 8. A frame 43 is pivotally mounted upon the shaft 36 and carries at one end a hinged section 44.

Cables 45 are attached at one end to the section 44 of the frame 43 and the intermediate portions of the said cables 45 are trained over pulleys 46 journaled upon standards 47 which are mounted upon the frame 1. From the said pulleys 46 the said cables are trained under pulleys 48 and are then attached to a shaft 49 which is journaled upon the frame 1. A worm wheel 50 is carried by the shaft 49 and meshes with a worm 51 which is mounted upon a shaft 52 journaled upon the frame 1. The shaft 52 is provided with a crank handle 53.

It is apparent that by using the handle 53 and turning the shaft 52 the cables 45 may be wound upon the shaft 49 and hence the section 44 of the frame 43 may be moved to an elevated position and the frame 43 may be swung upon its pivotal connection with the shaft 36.

A shaft 54 is journaled at the free end of the section 44 and carries sprocket wheels 55. Sprocket wheels 56 are mounted on the shaft 36 and chains 57 are trained around the sprocket wheels 55 and 56. The said chains 57 carry cross slats 58 which are adapted to move along the frame 43 and the section 44 thereof.

As the machine is moved along a surface or roadway the blade 12 will encounter the snow and pass under the same. The snow which passes over the blade 12 is encountered by the slats and is carried up along the frame 11 and deposited in the frame 43. The snow is then carried by the slats 58 along the frame 43 and the extension 44 thereof and is permitted to gravitate from the outer end of the said section 44.

A lever 59 is fulcrumed upon the frame 1 and a rod 60 operatively connects the said lever with a bell crank member 61 which engages the hub of the sprocket wheel 24. The said sprocket wheel has a clutch engagement with the adjacent wheel 9 and by mov-

ing the lever 59 the parts which are operated through the sprocket wheel 24 may be rendered active or inactive.

An operator's seat 62 is mounted upon the rear portion of the frame 1. Spindles 63 are pivoted at the rear portion of the frame 1 and the said spindles are provided with angularly disposed end portions. The forwardly disposed portions of the spindles 63 are connected together by the means of a cross bar 64 which is provided with teeth 65. A shaft 66 is journaled upon the frame 1 and carries at its other end a hand wheel 67. A gear wheel 68 is carried at the lower end of the shaft 66 and meshes with the teeth 65. It is apparent that by turning the shaft 66 the gear wheels 68 will move the bar 64 longitudinally whereby the spindles 63 are turned horizontally. Wheels 69 are journaled upon the spindles 63 and are provided at their peripheries with flanges 70. As the spindles 63 are swung the wheels 69 are directed over the surface of the roadway and consequently the steering of the machine may be accomplished.

A tongue 71 extends rearwardly from the frame 1 and is provided at an intermediate portion with draft appliances 72, to which draft animals may be hitched in a usual manner. A driver's seat 73 is mounted at the rear portion of the tongue 71. A shaft 74 is journaled at the rear part of the tongue 71 and carries at its lower end a bracket 76 in which a wheel 75 is journaled. The said shaft 74 carries at its upper end a hand wheel 77. The occupant of the seat 73 may turn the shaft 74 by using the wheel 77 to assist in guiding or steering the machine. A gear wheel 78 is carried at the intermediate portion of the shaft 74 and a foot operated pawl 79 is pivoted upon the tongue 71 and may engage the wheel 78 to hold the shaft 74 against turning movement.

Having described the invention what is claimed is:—

A machine of the character stated comprising a frame, traction wheels supporting the forward portion thereof, arch members mounted on the frame and having their ends located beyond the opposite sides of the centers of the traction wheels, an elevator frame pivoted on the arch members at points between the ends thereof and approximately in vertical alinement with the centers of the traction wheels, a blade carried by the elevator frame, a conveyer belt mounted for movement along the elevator frame, means for swinging the elevator frame upon the arch members, shoes carried at the forward portion of the elevator frame, and adapted to have contact with the ground and means for operating the conveyer belt from the traction wheels.

In testimony whereof I affix my signature.

ALFRED PELTIER.