

Dec. 28, 1937.

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2,103,510

MOTOR SNOW PLOW

Filed May 19, 1936

4 Sheets-Sheet 1

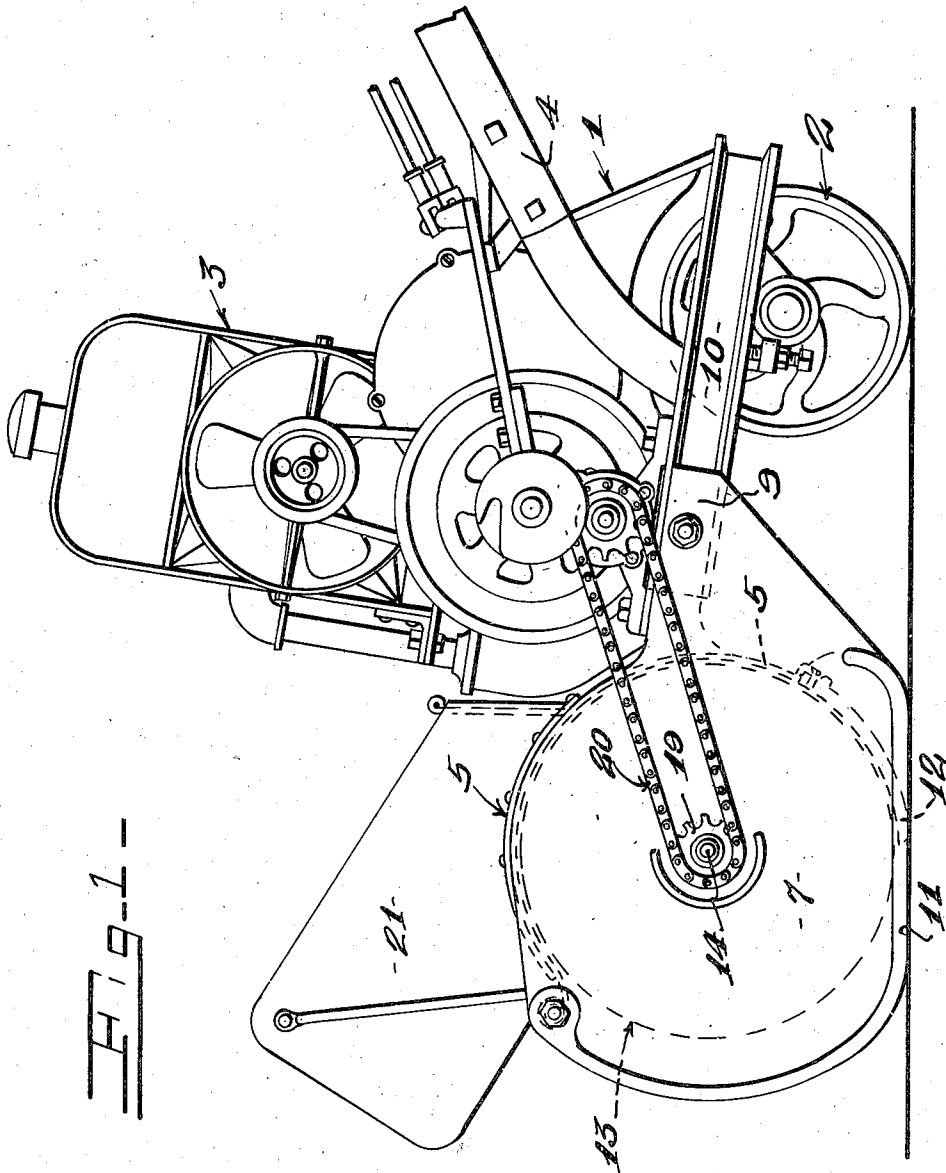


Fig. 1

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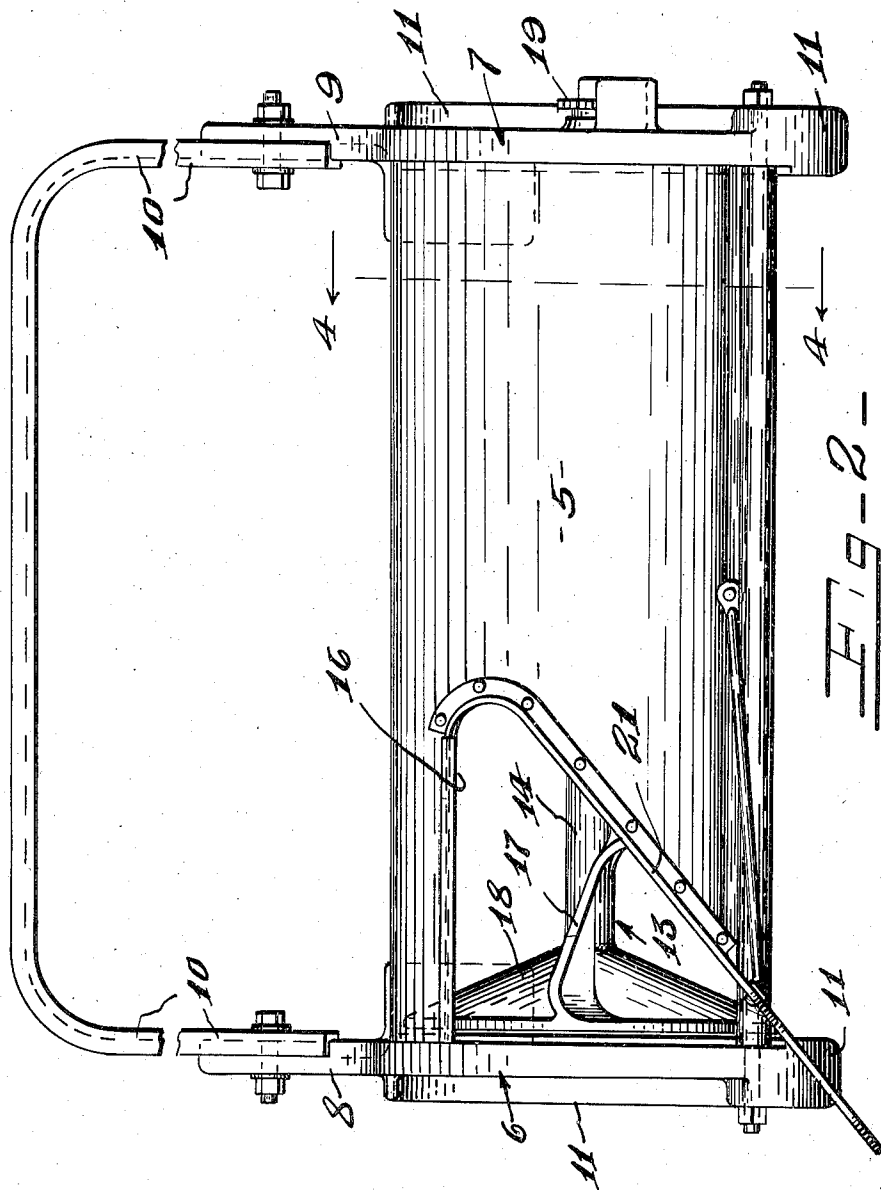
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4 Sheets-Sheet 2



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4 Sheets-Sheet 3

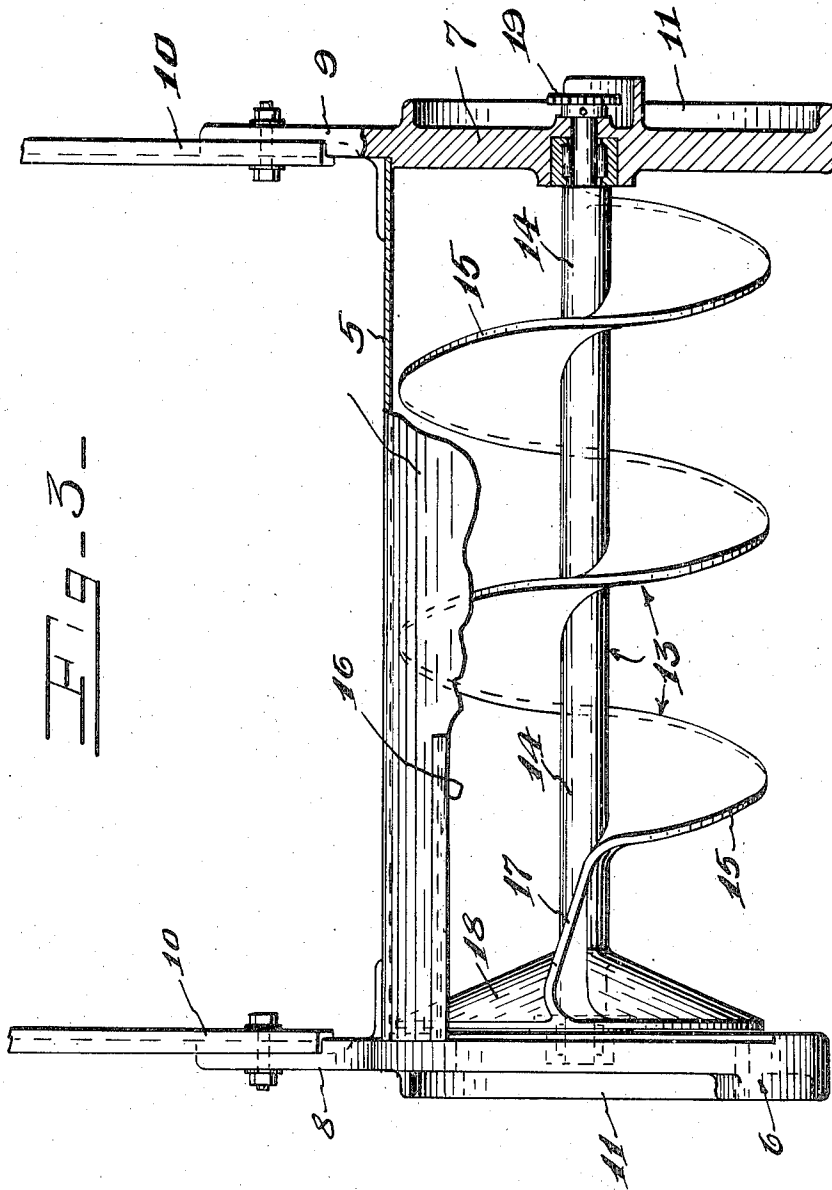


FIG. 3-

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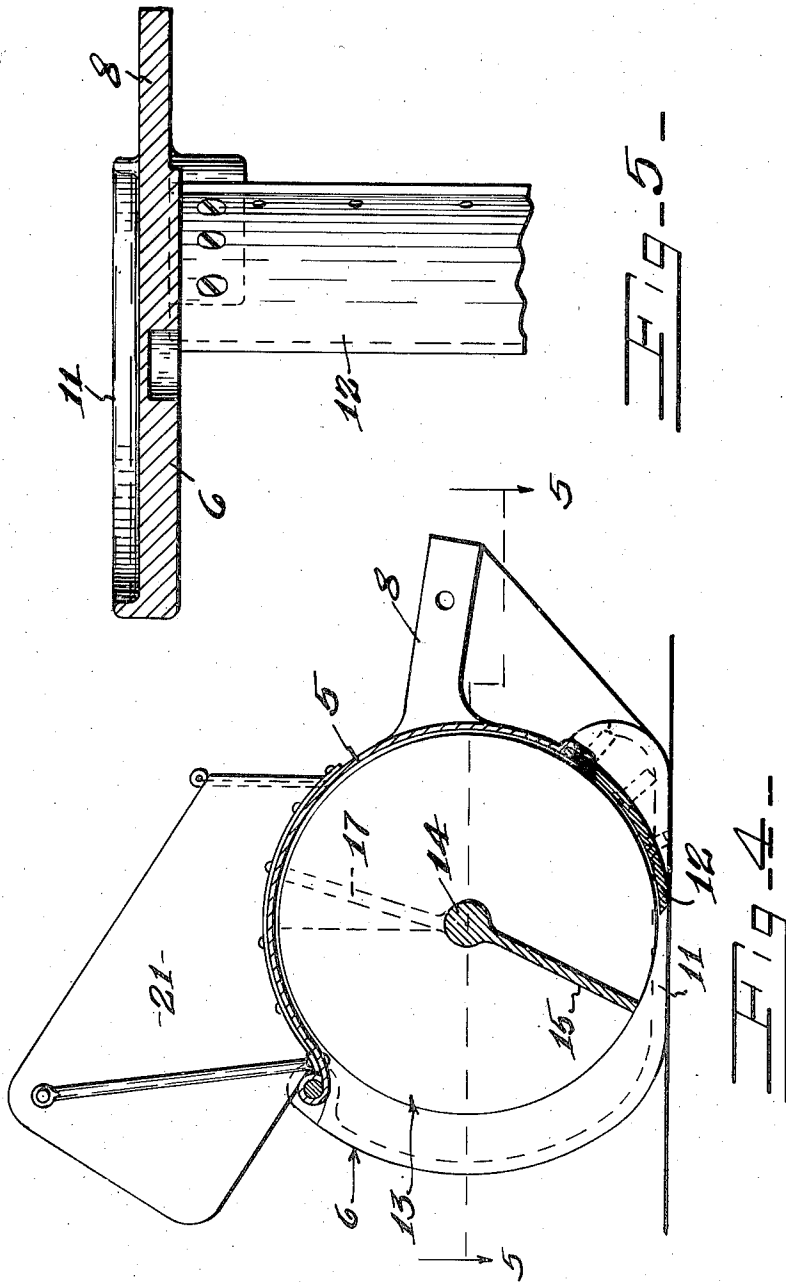
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MOTOR SNOW PLOW

Filed May 19, 1936

4 Sheets-Sheet 4



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# UNITED STATES PATENT OFFICE

2,103,510

## MOTOR SNOW PLOW

Charles S. Brown, Syracuse, N. Y.

Application May 19, 1936, Serial No. 80,599

2 Claims. (Cl. 37-43)

This invention has for its object a motor plow or sweeper, particularly designed for removing snow from sidewalks and the like and also thick layers of dust, as sawdust, from mill floors, grain and different granary floors, etc.

It further has for its object a plow or sweeper in which a snow or dust removing member is used in place of the knife of a motor lawn mower.

It further has for its object a snow or dust removing member having a spiral vane mounted in a cylindrical casing for picking up the snow or dust and moving it axially through the casing from one end to the other, and also having means at its other end for throwing the snow or dust in a lateral and upward direction out of the path of the plow.

It further has for its object a snow or dust removing member and cylindrical casing so arranged that the snow or dust is scooped or picked up from a flat surface, and moved through the casing from one end toward the other end, and then thrown in a direction which is the resultant of forces acting in directions radially and axially of the casing.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a side elevation of this snow or dust plow or sweeper.

Figure 2 is a plan view of the snow or dust removing mechanism.

Figure 3 is a fragmentary detail view of the parts seen in Figure 2.

Figure 4 is a sectional view on line 4-4, Figure 2.

Figure 5 is a sectional view on line 5-5, Figure 4.

I have here shown my invention as applied to a conventional motor lawn mower with the snow or dust removing mechanism or conveyor mounted on the lawn mower in place of and driven by the same means as the grass cutting mechanism or knife mechanism. The dust or snow plow includes generally a suitable carriage with motor means thereon, snow or dust removing mechanism including a cylindrical casing extending across the front of the carriage and open at its front side, the casing also having an outlet opening in its peripheral wall at one end thereof, a spiral conveyor mounted in the casing for picking up and propelling the snow from one end of

the casing toward the other, and integral means for throwing the snow so propelled or moved axially from one end of the casing to the other, in a direction which is the resultant of two component forces, one being the axial force of the conveyor and the other the outward impeller radial force through the discharge opening.

1 designates generally the carriage having suitable supporting wheels 2 and having mounted thereon an internal combustion engine of which only the cooling radiator 3 is shown in the drawings, the engine of this particular machine being mounted behind the radiator 3. The carriage may be guided or controlled in its movement by means of handles 4.

5 designates a cylindrical casing extending across the front of the carriage and suitably supported thereby, the casing being here shown as having heads 6, 7 at its opposite ends formed with brackets 8, 9 secured to the frame members 10 of the carriage 1. The heads are formed with suitable shoes 11 for running on the surface or sidewalk or other surface and the cylindrical casing 5 is open at its front side, in order to permit the snow or dust to enter it while the carriage is traveling forwardly. The casing is provided with a knife, shovel or scoop 12 at its lowermost side, the advance edge of which extends close to the surface, ground or sidewalk substantially tangent thereto.

13 designates generally a spiral conveyor mounted in the cylindrical casing, this consisting of a shaft 14 journalled at its ends in suitable bearings in the heads 6, 7 and having a spiral vane 15 which runs close to the knife 12 and the ground and also close to the walls of the casing 5. The casing 5 is also formed with a discharge opening 16 at its upper side at one end and the vane 15 terminates at that end or at a point opposite the opening 16 in a blade 17 extending in a general direction lengthwise of the axis of the member 13. The shaft 14 is also formed with a cone or conical surface 18 at the end thereof adjacent the discharge opening 16, and the blade 17 meets or joins said surface 18. The shaft 14 extends through one of the heads, as 7, and is provided with means, as a sprocket wheel 19, at its outer end, which is connected, as through a sprocket chain 20, to the motor driving means on the carriage 1. A suitable deflector 21 for facilitating the discharge of snow or dust to one side or above and beyond one end of the cylindrical casing, is provided along the inner side of the opening.

The snow removing member 13 is rotated at

relatively high speed and runs close to the surface of the ground or sidewalk, and when the machine is moved forwardly over the walk into the snow, the snow is picked up by the conveyor 5 and the knife or scoop 12, and quickly moved axially by its high capacity spiral conveyor mostly due to its high speed through the casing 5 and to the discharge opening 16, where it is thrown radially upward and outward by the blade 10 17, this also being due to high speed, beyond the end of the casing and to one side of the casing or the machine. The throwing out operation is facilitated by the conical surface 18.

What I claim is:—

15 1. In a snow or dust plow or sweeper, the combination with a suitable carriage and motor means thereon, of a cylindrical casing extending across the front of the carriage and being open at its front side, the cylindrical wall having a knife on the lower side thereof terminating at an edge substantially tangent to the ground, the casing having an outlet in the upper side thereof 20 at one end, a shaft mounted in the casing and having a cone at the discharge end of the casing,

and a spiral vane, the edge of which runs substantially close to the knife and the inner wall of the casing, the spiral vane terminating in a blade extending in a general direction lengthwise of the shaft and meeting said conical surface, 5 and motion transmitting means between the motor means and the shaft for rotating the latter.

2. In a snow plow or sweeper, the combination with a suitable carriage and motor means thereon, of a cylindrical casing extending across the front of the carriage and being open at its front side, the casing having an outlet in the upper side at one end, a shaft mounted in the casing and having a head rotatable therewith in the discharge end of the casing close to the end wall 15 of the casing, and a spiral vane, the edge of which runs substantially close to the surface over the carriage is being moved, the spiral vane terminating in a blade extending in a general direction lengthwise of the shaft and meeting said head, and motion transmitting means between 20 the motor means and the shaft for rotating the latter.

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