(No Model.) 2 Sheets—Sheet 1.

O. JULL.

SNOW PLOW.

No. 297,408. Patented Apr. 22, 1884.

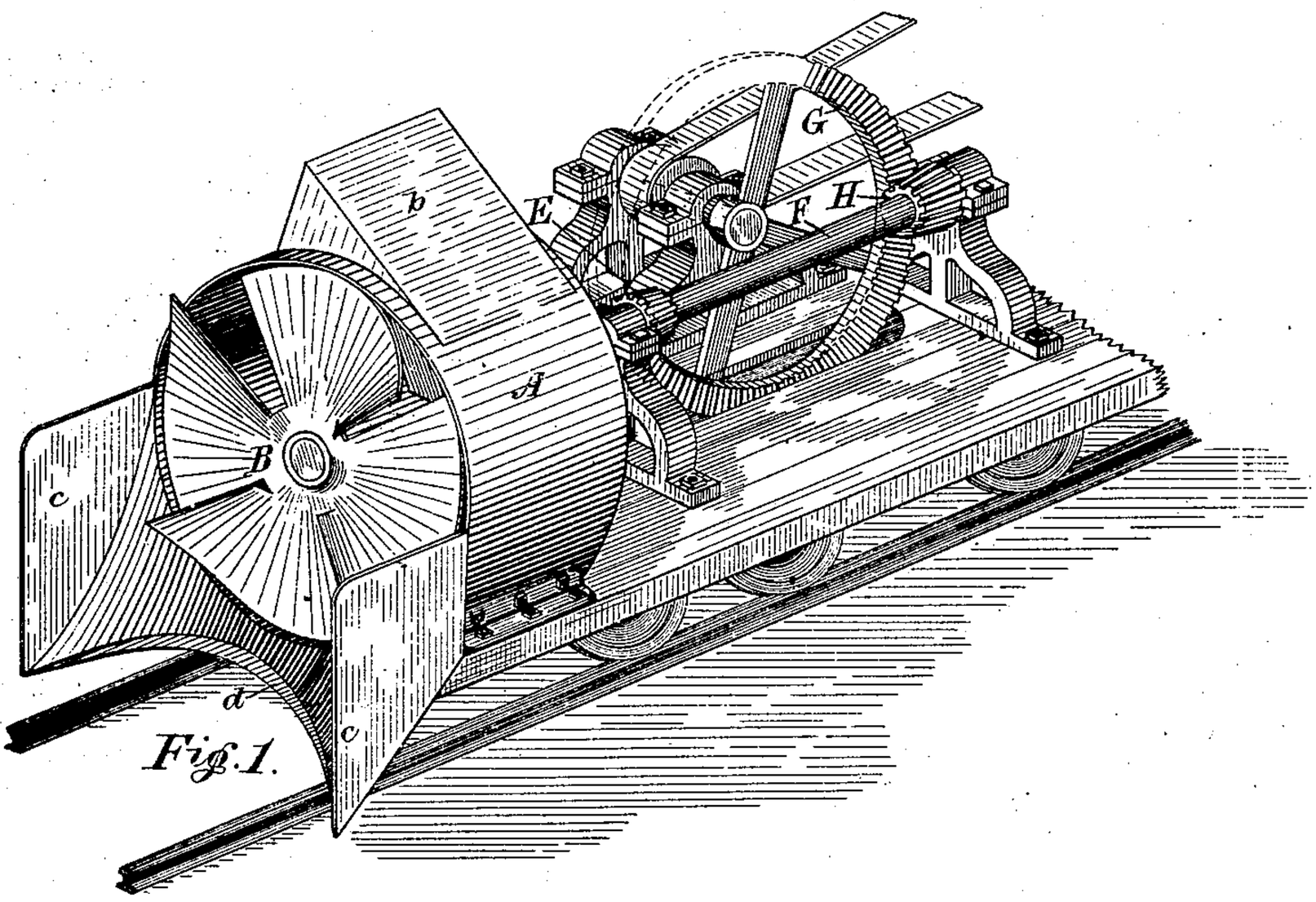

Fig. 1.

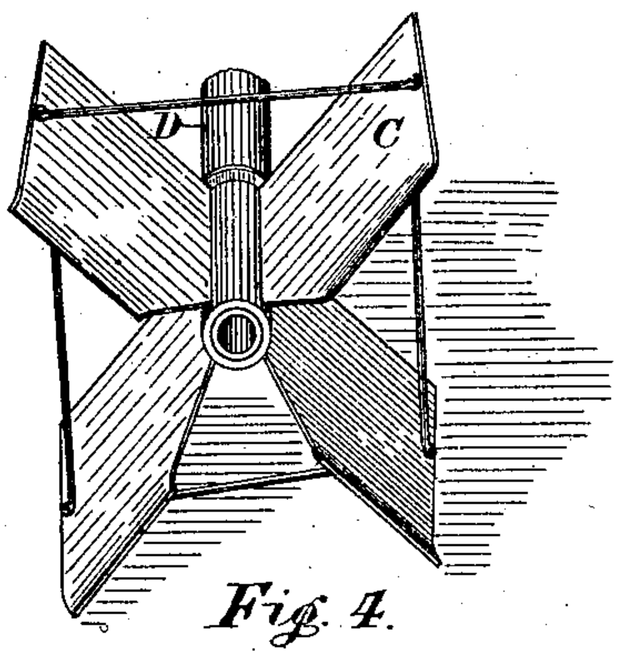

Fig. 4.

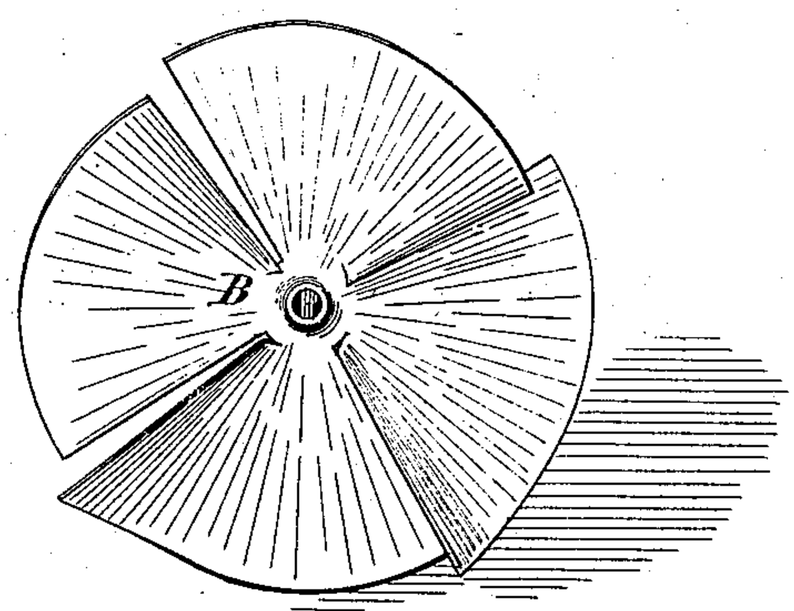

Fig. 3.

Witnesses:

W. D. Graham.

C. C. Baldwin.

Inventor.

Orange Jull.

by Donald G. Ridout & Co.

Attys.

(No Model.) 2 Sheets—Sheet 2.

O. JULL.

SNOW PLOW.

No. 297,408. Patented Apr. 22, 1884.

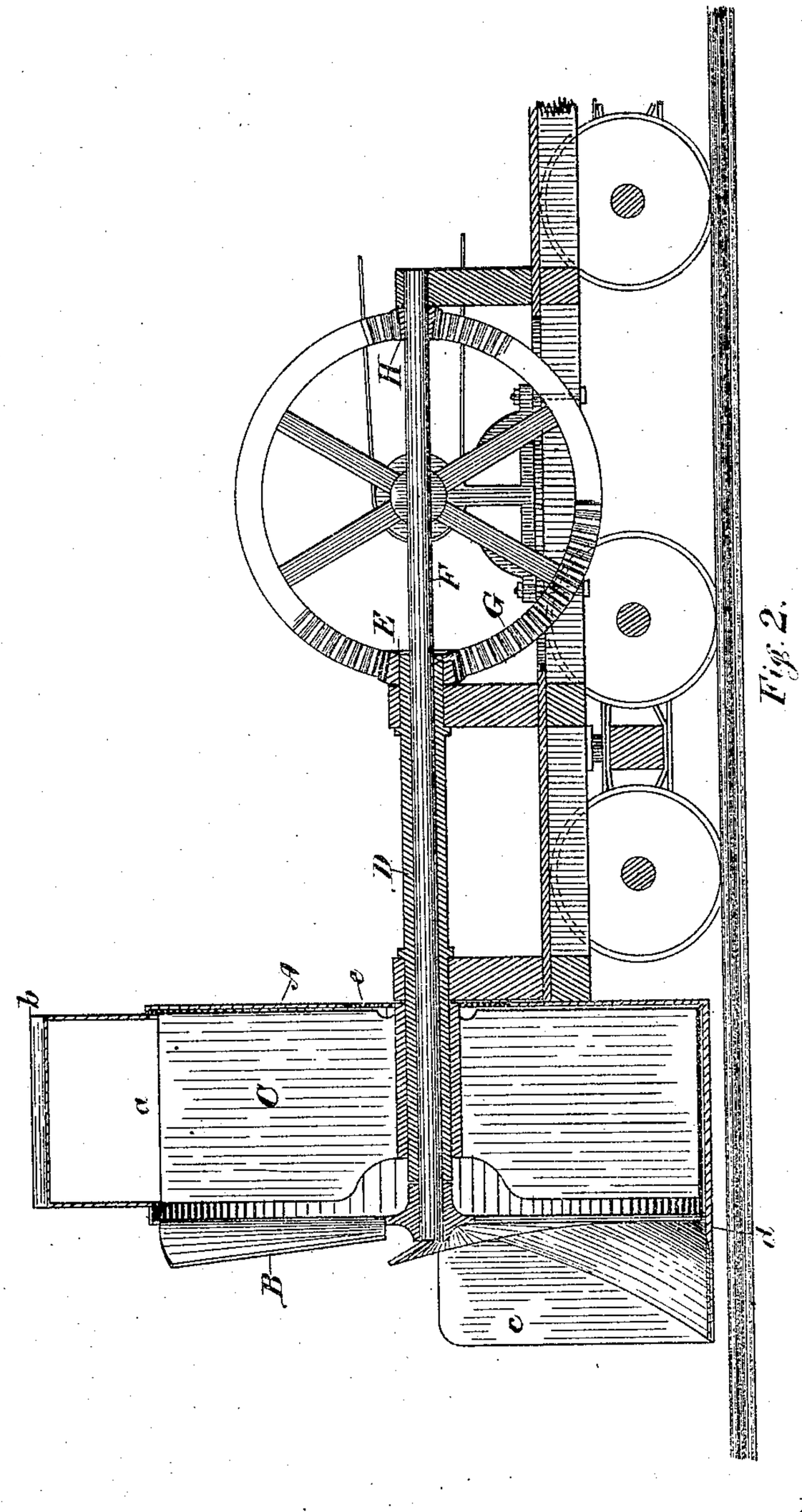

Fig. 2.

Witnesses.

W. J. Graham.

C. C. Baldwin.

Inventor.

Orange Jull.

by Donald C. Ridout & Co.

Attys.

UNITED STATES PATENT OFFICE.

ORANGE JULL, OF ORANGEVILLE, ONTARIO, CANADA, ASSIGNOR TO EDWARD LESLIE, OF SAME PLACE.

SNOW-PLOW.

SPECIFICATION forming part of Letters Patent No. 297,408, dated April 22, 1884.

Application filed January 15, 1884. (No model.) Patented in Canada January 22, 1884, No. 18,506.

To all whom it may concern:

Be it known that I, ORANGE JULL, of the town of Orangeville, in the county of Dufferin, in the Province of Ontario, Canada, miller, have invented a certain new and useful Snow-Plow; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of the invention is to devise a snow-plow capable of removing the snow with great rapidity and throwing it some distance from the track of the plow; and it consists in the peculiar construction, combination, and arrangement of parts, as hereinafter more particularly described and claimed.

Figure 1 is a perspective view of my snow-plow. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a perspective detail of the cutting-blade. Fig. 4 is a perspective view of the fan-blade.

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

A is a cylindrical case having an opening, *a*, made in its circumference, which opening is preferably provided with a hood, *b*, shaped so as to direct anything forced from the cylindrical case by centrifugal force away from the track of the plow. This case should be in diameter a little less than the width of the cutting it is desired to make.

c are side flanges flaring from the cylindrical case. These flaring flanges may extend entirely around the case A; but it is not necessary that they should, although for deep snow it may be preferable to have them so extended.

d is a bottom flange curved from the side flanges inwardly to a point at or near the edge of the parallel side of the cylindrical case.

B are a series of cutting-blades shaped substantially like the blades of a screw-propeller, and designed to fit into and inclose the open end of the cylindrical case A. While I think it will be preferable to form the cutting-blades in the manner shown, I am of the opinion that a single blade caused to revolve at a very high speed might answer in a measure, if not quite as well as the four blades shown, the object of the blade or blades being to slice the snow from the bank being operated upon, and to cause the snow thus sliced off to fall behind the blade, where it comes in contact with the fan-blade C, which is revolving in the opposite direction to that in which the cutting-blade B is moving. In the drawings I have shown my fan composed of four fan-blades; but it will of course be understood that this number may be increased or decreased, as in the case of the cutting-blades. When the snow is thrown upon the revolving blades C by the action of the blades B, the centrifugal force produced by the revolving of the blades C will cause the snow acted upon by them to fly through the opening *a*, and as the said opening *a* is protected by the hood *b* the snow thrown through the opening is directed away from the track made by the plow. As it is important that the blades B and C should revolve on the same center, I attach the blade or blades C to the hollow shaft D, which is carried in suitable bearings, and has fixed to it the beveled pinion E.

F is a shaft journaled within the hollow shaft D, and having fixed on its front end the blade or blades B.

H is a beveled pinion keyed or otherwise fastened to the shaft F, and arranged to mesh with the spur-wheel G, which meshes with the pinion E, as indicated. Consequently the revolving of the wheel G causes the shaft D, with its connections, to revolve in one direction, while the shaft F, with its connections, revolves in the opposite direction. This form of driving the blades B and C will, I think, be found the simplest and most effective plan for operating this portion of my invention.

I may mention here that I propose driving the shaft of the spur-wheel G by an independent steam-engine; but of course I do not confine myself to any particular motor, nor is there anything special in the arrangement of mechanism by which motion is communicated from the driving-motor to the parts described as embodying my invention.

It will be noticed, as I have before stated, that the bottom flange, *d*, is curved from side flanges inwardly to a point near the parallel sides of the case A, or, as might be more properly stated, near the revolving blades B. This curved form of flange is designed so that

no great weight of snow can accumulate in front of the cutting-blade B, while at the same time the flange *d* strengthens the side flanges, *c*, and also acts as a sort of shovel to raise the snow to a point near the cutting-blades B.

While my snow-plow is specially designed for use on railroads, it of course might be used for removing drifts on a highway; and I may also say that the mechanism arranged as I have described would make a very effective excavator for the removal of loose earth. I therefore do not confine myself to the employment of my plow strictly to the removal of snow from a railroad-track.

Before pointing out specifically the points I desire to claim as my invention, I may mention that the main plane of the cutting-blades B lies at about right angles to the plane of the fan-blades C, and that when a series of cutting-blades B are used they are located so as to revolve in front of and inclosing the open front of the cylindrical case A, in which construction I think it important to have a hole or opening, *e*, made in the back of the cylindrical case, as shown.

I am aware of Patent No. 87,989, and make no claim to the construction shown therein.

What I claim as my invention is—

1. In an improved snow-plow in which a cutting-blade is caused to revolve in front of and in the opposite direction to a revolving fan-blade, a hollow shaft arranged to support and revolve with the fan-blade, in combination with a shaft journaled within the hollow shaft and arranged to propel the cutting-blade, each of said shafts being provided with a pinion meshing with the gear-wheel G, substantially as and for the purpose specified.

2. The fan-blades C, fixed to and propelled by the hollow shaft D, and the cutting-blades B, fixed to and propelled by the shaft F, which is journaled within the shaft D, in combination with a cylindrical case, A, having an opening, *a*, in its circumference, and flaring side flanges, *c*, with a bottom flange, *d*, curved from the side flanges, *c*, inwardly to a point near the revolving blades B, substantially as and for the purpose specified.

3. A series of fan-blades revolving within an open-front cylindrical case having an opening, *a*, in its circumference, and an opening, *e*, in its back, and a hood, *b*, over said opening *a*, in combination with a revolving disk formed by a series of cutting-blades, B, and located at the open front of the cylindrical case, substantially as and for the purpose specified.

ORANGE JULL.

In presence of—
JOHN MCKEOWN,
ROBERT MCKEOWN.