(No Model.) 2 Sheets—Sheet 1.

E. P. CALDWELL.

FLANGER FOR SNOW PLOWS.

No. 454,109. Patented June 16, 1891.

Fig. 1

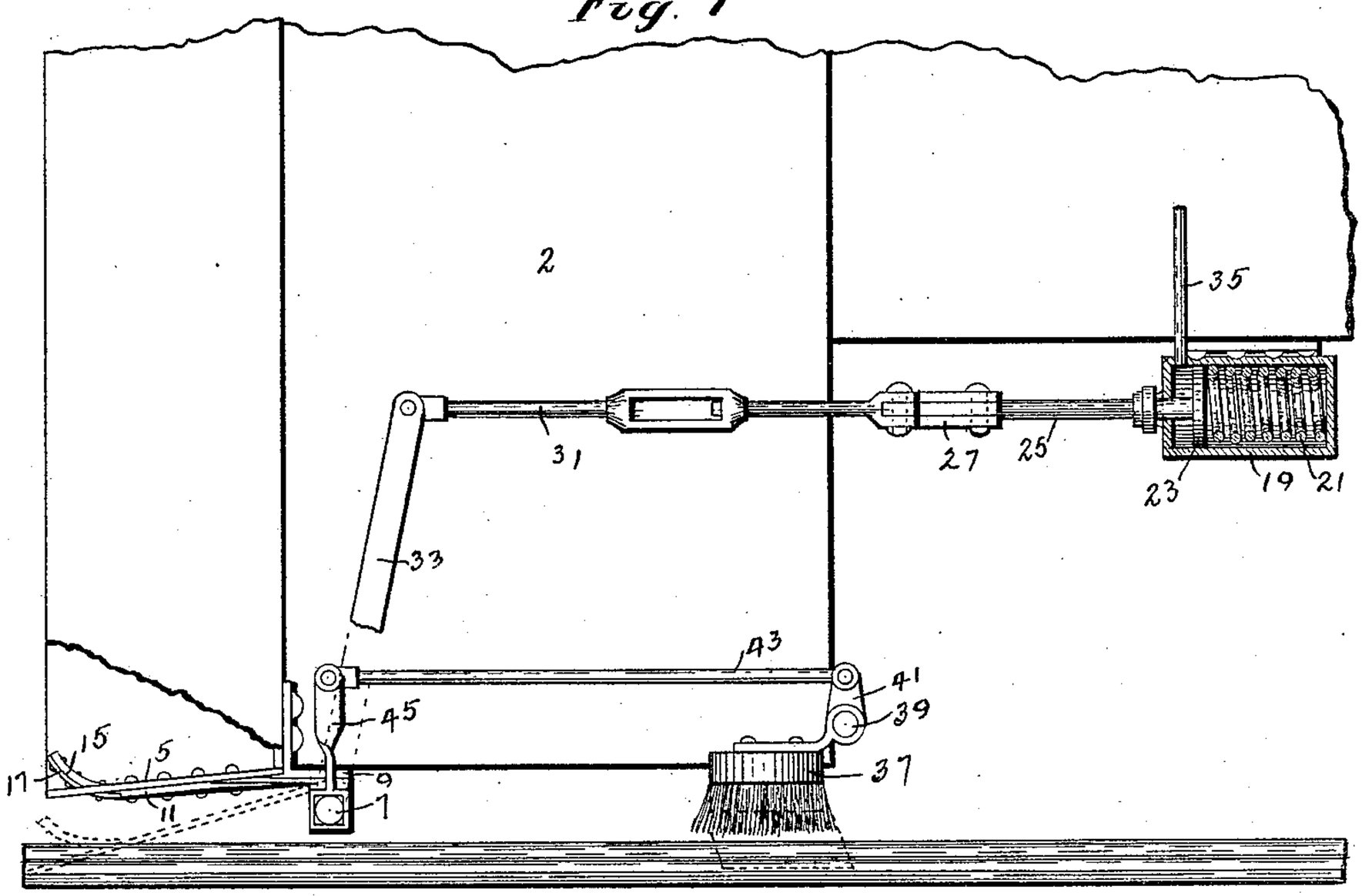
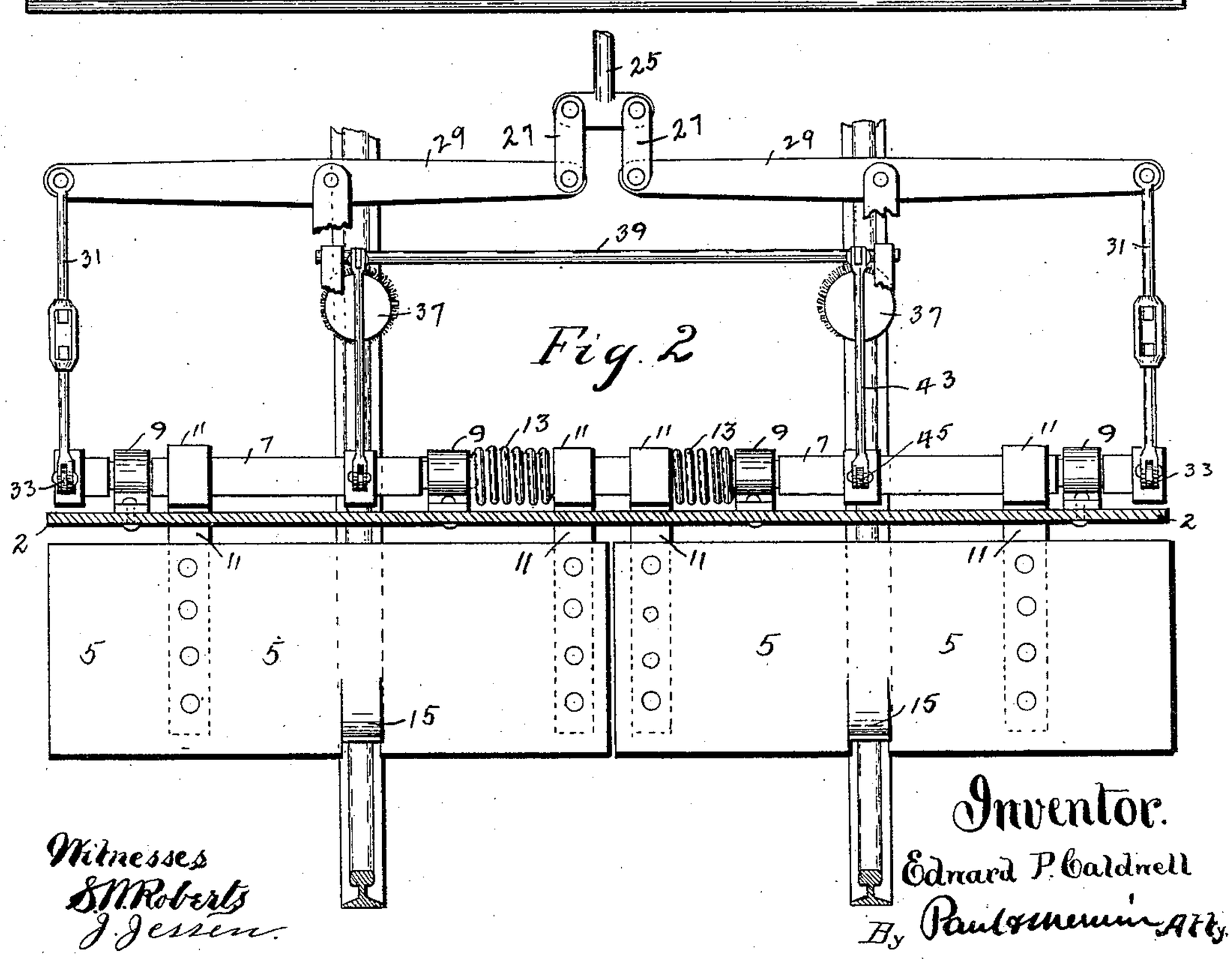


Fig. 2



Witnesses
S. N. Roberts
J. Jessen.

Inventor.
Edward P. Caldwell
By Paul Synnestvedt Atty.

(No Model.) 2 Sheets—Sheet 2.

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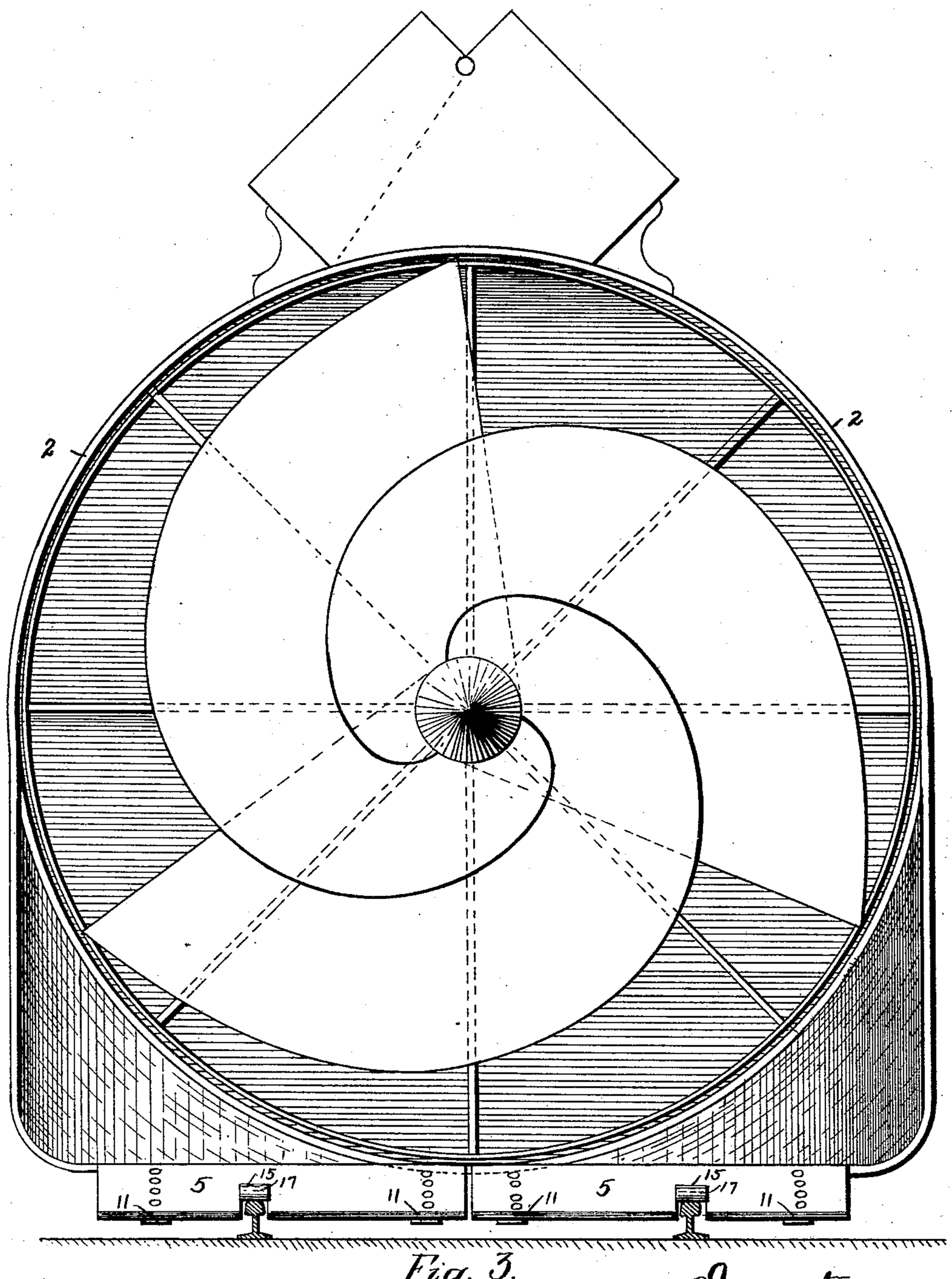

Fig. 3.

Witnesses
S. M. Roberts
J. Jessen

Inventor
Edward P. Caldwell.
By Paul & Brown Attys

UNITED STATES PATENT OFFICE.

EDWARD P. CALDWELL, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO THE CYCLONE STEAM SNOW PLOW COMPANY, OF SAME PLACE.

FLANGER FOR SNOW-PLOWS.

SPECIFICATION forming part of Letters Patent No. 454,109, dated June 16, 1891.

Application filed March 10, 1890. Serial No. 343,241. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. CALDWELL, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Flangers for Snow-Plows, of which the following is a specification.

This invention relates to improvements in mechanism designed particularly to clearing snow from railway-tracks; and the invention is particularly applicable to that class of snow-plows in which a rotary fan is used, arranged in a suitable casing, for throwing the snow to the side of the track. As such plows have heretofore been constructed, while they would cut out deep drifts of snow, they left considerable snow on the track and between the rails, and this snow seriously impeded the movement of trains, even after the plow had removed the main body of the snow, and it also made it difficult to move the plow, as it got under the wheels of the plow, and also interfered with the engine or engines by which the plow was driven. I obviate these objections by providing a movable plate that is arranged preferably at the front of the plow, and is preferably secured directly to or at the front of the fan-casing, so that it takes up the snow that lies close to and between the rails and directs it into this casing, so that it is thrown out by the plow.

Other objects of the invention will appear from the accompanying drawings, taken in connection with the following detailed description.

In the drawings, Figure 1 is a side elevation of a portion of a snow-plow having my invention applied thereto. Fig. 2 is a detail plan showing the preferred means of supporting the plates. Fig. 3 is a front elevation of a plow of the type generally known as the "Cyclone," showing the manner of applying this invention thereto.

In the drawings, 2 represents a casing, within which is arranged a suitable fan or other device by which the snow is taken up and thrown to the side of the track. This casing is at a sufficient distance above the rails so as not to interfere therewith. A movable plate 5 is arranged at the front of the casing capable of being lowered, so as to be close to or rest upon the rails, and having preferably a portion that projects into the space between the rails. I prefer to form the plate in two sections, as shown in Fig. 2, though obviously it may be formed in more than two sections or as one piece. This plate is preferably arranged so as to be raised and lowered to bring it nearer to or farther from the track. It may be supported in any suitable manner and moved by any suitable means. I have shown means for supporting and moving the plate which I consider preferable for that purpose. This consists of a shaft 7, mounted in bearings 9, suitably secured to a support, as to the casing. Each section of the plate is secured to this shaft by bars or plates 11. The bars 11 are arranged on the shaft 7 so as to slide thereon, thus permitting a lateral movement of the plates. Springs 13 are arranged on the shaft, one for each section, and tend to hold them in position, while permitting a lateral movement of the plate when going around curves. Each section of the plate is preferably provided with an upturned shoe 15, that rests upon the top of the rail and slides thereon and forms a guide for the plate. These shoes may be formed by slotting the plate and turning up the portion of the metal between the slots, as shown. Each of these shoes may also be provided with a facing 17 of steel to rest on the rail. For moving the plate I prefer to employ a cylinder 19, having therein a spring 21 and a piston 23. The piston-rod 25 is connected to the shaft by means of links 27, levers 29, rods 31, and arms 33. The spring 21 tends to hold the plate in an elevated position. A pipe 35 is connected to the cylinder, so that steam or air under pressure may be forced into the cylinder for the purpose of moving the piston against the tension of the spring and thereby moving the plate downward and holding it. The snow lying upon and between the rails will thereby be directed into the casing, from which it may be thrown out by the fan or other device. I also prefer to provide brushes 37, that are adapted to brush the tops of the rails and remove any snow that may remain thereon. These brushes are preferably secured upon a shaft 39, having arms 41, and connected by rods 43 with arms

45 on the shaft 7. As the shaft 7 is turned to depress the plate, the brushes are also depressed and brought upon the rail, and as the plates are raised the brushes are raised.

I do not confine myself to the use of this invention in connection with a fan-casing, as shown, as it may be used advantageously in connection with many other devices.

I claim as my invention—

1. In a snow-plow, the combination, with a fan-casing having an open forward end, of a plate pivotally supported at a point near the lower portion of the casing, a spring for holding said plate normally in an elevated position, and means for depressing said plate, substantially as described.

2. In a snow-plow, the combination of the pivotally-supported plates, the spring for raising said plates, the cylinder, and the piston arranged in said cylinder and connected with said plates and adapted to depress them, for the purpose set forth.

3. In a snow-plow, the combination, with the fan-casing 2, of the sectional movable plate 5, pivotally supported in front of the lower portion of said casing, each section being capable of yielding laterally, and means for raising and lowering said plates, substantially as described.

4. In a snow-plow, the combination of the plate 5, formed of independent laterally-yielding sections, each provided with a shoe adapted to rest upon the top of the rail, for the purpose specified.

5. The combination, with the shaft 7, of the plate 5, secured thereto, the cylinder having the spring 21 for holding said plates normally in a raised position, and the piston arranged in said cylinder and connected with said shaft for depressing said plates, for the purpose specified.

6. The combination, with the shaft 7 and the plate 5, secured thereto, of the pivotally-supported brush connected with said shaft, and means for turning said shaft, for the purpose set forth.

7. The combination, with the fan-casing 2, of the fan arranged therein and adapted to throw the snow through the opening in said casing, a movable plate arranged on a pivotal support provided at the forward lower edge of said casing, said pivotal support consisting in the shaft 7, the upturned portions 15 in said plate, whereby the plate is adapted to rest on the tops of the rails, said plate being adapted to yield laterally with respect to the forward edge of the casing, and means for raising said plate, substantially as described.

8. The combination of the casing 2 with the fan adapted to revolve therein, the plate 5, having the shoes 15, the shaft 7, the springs 13, whereby said plate is made laterally self-adjustable on said shaft, and means for raising said plate, substantially as described.

In testimony whereof I have hereunto set my hand this 10th day of January, 1890.

EDWARD P. CALDWELL.

In presence of—

A. M. GASKILL,

S. W. ROBERTS.