

E. ABBIATI.
Track-Clearers.

No. 144,724.

Patented Nov. 18, 1873.

Fig. 1.

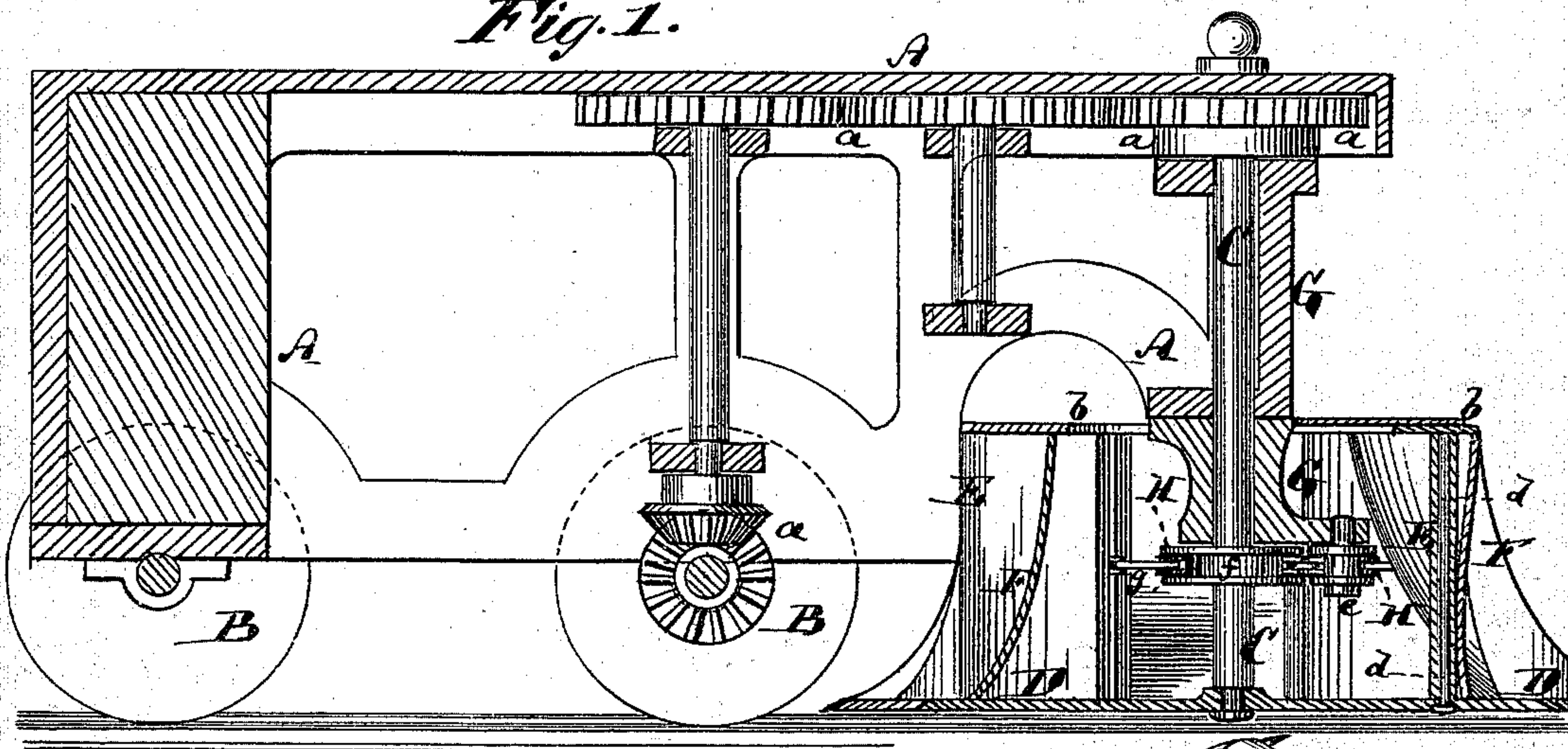


Fig. 2.

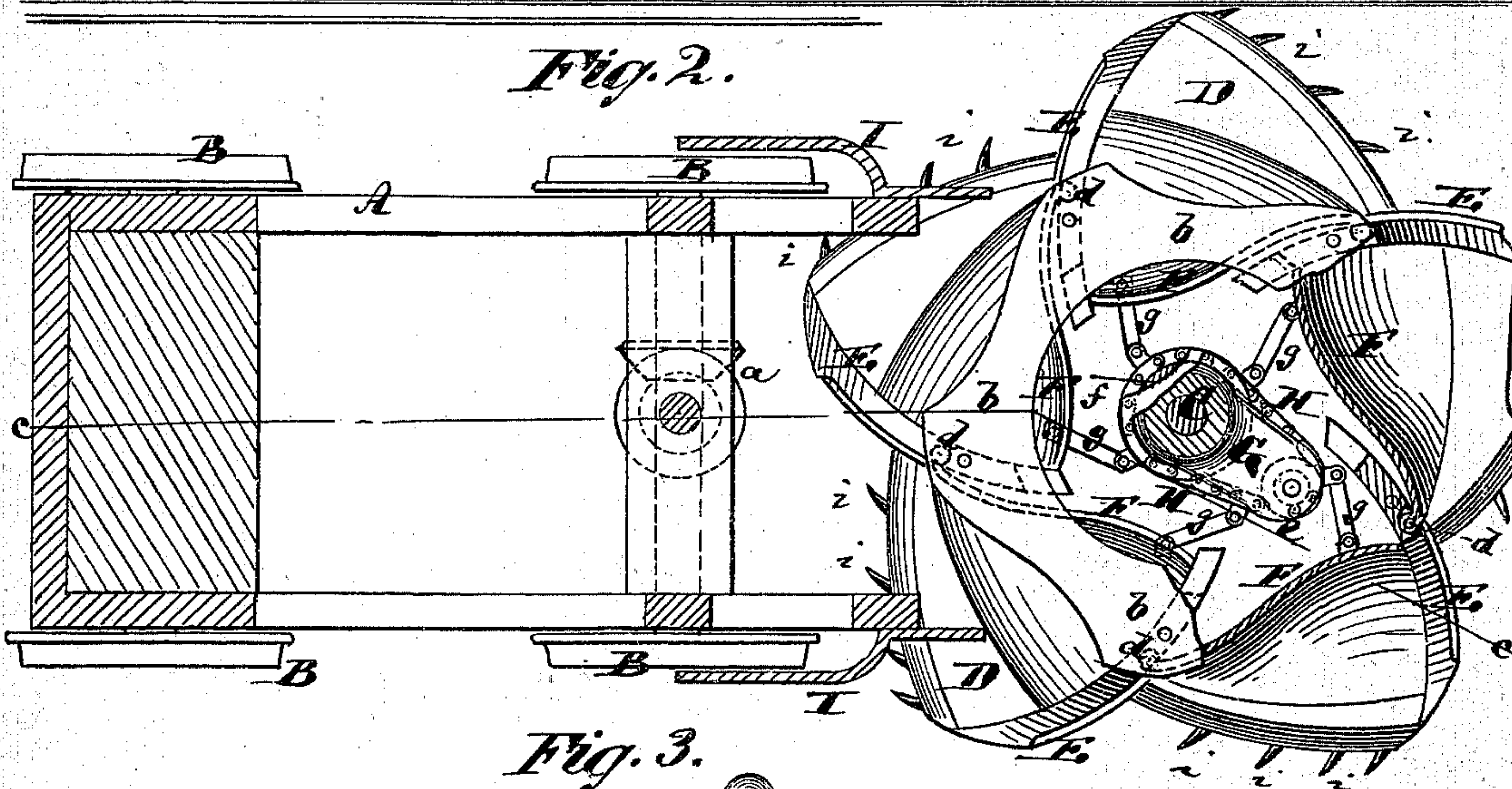
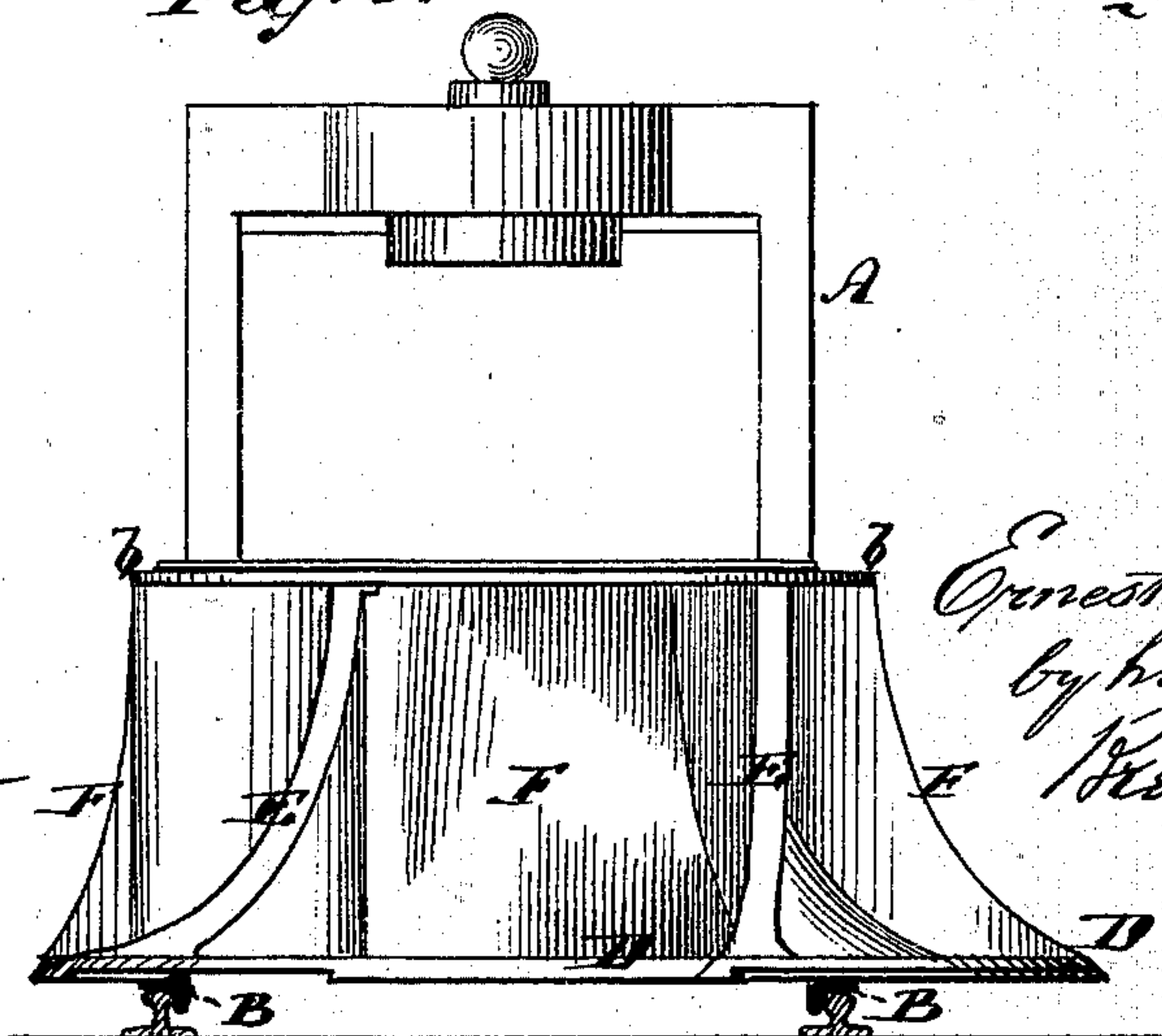


Fig. 3.



Witnesses

John Becker
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UNITED STATES PATENT OFFICE.

ERNESTO ABBIATI, OF NEW YORK, N. Y.

IMPROVEMENT IN TRACK-CLEARERS.

Specification forming part of Letters Patent No. 144,724, dated November 18, 1873; application filed September 12, 1873.

To all whom it may concern:

Be it known that I, ERNESTO ABBIATI, of the city, county, and State of New York, have invented an Improved Track or Street Cleaner, of which the following is a specification:

Figure 1 is a vertical central section of my improved snow-plow, known as the track or street cleaner, the line *c c*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of the same. Fig. 3 is a front elevation thereof.

Similar letters of reference indicate corresponding parts.

This invention relates to improvements on the snow-plow or track or street cleaner for which Letters Patent of the United States, No. 72,439, were granted to me on the 24th day of December, 1867. The objects of the present invention are to facilitate the movement of the blades or wings, whereby the snow is thrown from the track, and also to give more positive and absolute motion at the requisite height to such wings than could be given by the means described in my former patent. These objects I attain by operating the snow-discharging wings by means of an endless chain or belt that passes around a pulley on the main driving-shaft, and around an additional pulley hung near the main shaft, so that said two pulleys constitute a cam or eccentric pulley, around which the chain passes. The chain connects by links or rods with the various blades, and throws each blade out for discharging the snow whenever the connection with such blade arrives in line with the greatest distance of the chain from the center of the main shaft. My invention also consists in making the curved plates, between which the wings move, in the shape of cutters, to facilitate the gathering and the removal of the snow; and also in making the wings in the shape of plowshares—that is to say, with partly-concave outer surfaces—so that they can readily get under the snow and lift and throw it aside.

In the accompanying drawing, the letter A represents a truck from which my snow-plow is suspended. It is supported by wheels B B on the track, and can be moved along in front of a locomotive, or in any other suitable manner. A vertical shaft, C, is hung at the front end of the truck, and carries at its lower end

a horizontal disk, D. By means of gear-wheels *a a* the shaft C connects with one of the axles of the truck A, so as to revolve whenever the truck is moved along the rails; or it may be connected with and moved by a steam-engine upon the truck, and the disk D will in all cases revolve with the shaft C. From the surface of the disk project upward a series of cutting-blades, E E, which are curved and made with cutting-edges at their outer ends, as indicated in Fig. 2. There are five such blades represented in Fig. 2, but any suitable number may be employed. They are all equidistant from each other, and equal in size and shape throughout. The upper ends of these cutting-plates E E serve to support a ring, *b*, which will, together with said plates and with the disk D, revolve with the shaft C. Between the disk D and the ring *b* is pivoted, between every pair of the blades E, a wing or metal plate, F, whose pivot is, by preference, formed in the convex face of that blade E with which it is in contact, the concave face of the other blade being curved on such an arc that the outer edge of the wing F, in vibrating on its pivot *d*, may always be in contact with such concave face. In a bracket, G, which is suspended from the front part of the truck A, and partly surrounding the shaft C, is hung a small wheel or pulley, *e*. A chain or belt, H, is laid around this pulley *e*, and another pulley, *f*, that is mounted upon the shaft C. This chain connects by a series of rods, *g g*, which are affixed to it, with the several wings F F. As the truck moves forward on the rail and causes the rotation of the shaft C; or as the said shaft is moved by a steam-engine on the truck, the chain H will necessarily be revolved around the pulleys *e* and *f*, and will, by so revolving, actuate the wings F—that is to say, vibrate said wings on their pivots *d*. That wing which, for the time being, is nearest to the pulley *e* will be farthest thrown outward from the axis of C, because at that point the chain is farthest from such axis, while on the opposite side—that is to say, where the chain embraces the pulley *f*—it will bear the wing or wings nearest inward, as shown in Fig. 2. In this manner the motion of the wings is made rather more positive than by any other means, the combination of the pulleys *e f* and chain H constituting a cam

movement, whereby the wings are thrown out when at the requisite point for throwing the snow, and not in any other place whatsoever. Thus, as the snow-plow moves ahead with a wing drawn in in front, leaving part of the surface of the disk D first uncovered, and, with the aid of the blade E, following this uncovered part of the disk, sufficient room is provided for taking up a certain quantity of snow; and when, during the rotation of the disk D, such quantity of snow has arrived at the side, it will be suddenly pushed outward by the wing, which throws the snow off the blade or disk D, and discharges it from and beyond the track, thus clearing the same.

Instead of hanging the shaft C directly in the frame of the truck A, it may be hung in a swivel-plate that can be turned at the top of the truck A, and two shafts may be hung on such swivel-plate, one at each end thereof, the wings and plates being reversed on the two shafts, so that when one or the other mechanism is brought to the front, the snow may be thrown to one side or the other, as may be found convenient.

The wings F, it will be seen, are made in the shape of plowshares, partly concave on their surfaces, so that they can conveniently come under the snow that lies on the plate D, and therefore have less difficulty in pushing it off.

I I are guards affixed to the truck so as to embrace partly the front wheels B of the truck, for the purpose of preventing the snow from coming in contact with such truck-wheels and obstructing their movement.

The shaft C, instead of being geared with one of the truck-axles, may receive its rotary motion from suitable machinery carried on the truck.

In order to utilize the rotary motion of the disk D for the cutting of ice or compressed snow that may have accumulated on the track, I provide the said disk D with a cutting-edge and form projecting teeth *i i* thereon, as shown in Fig. 2.

I claim as my invention, and desire to secure by Letters Patent—

1. The combination of the movable wings F of a snow-plow with the chain H, pulley *f*, and eccentric pulley *e*, substantially as and for the purpose set forth.

2. The combination of the disk D, having projecting teeth *i i*, with the plow-shaped blades E E and movable wings F, substantially as and for the purpose described.

ERNESTO ABBIATI.

Witnesses:

F. V. BRIESEN,
FRED. HAYNES.