J. LATHROP & A. K. JOHNSON.

TRACK-CLEARER.

No. 175,716. Patented April 4, 1876.

Fig. 2.

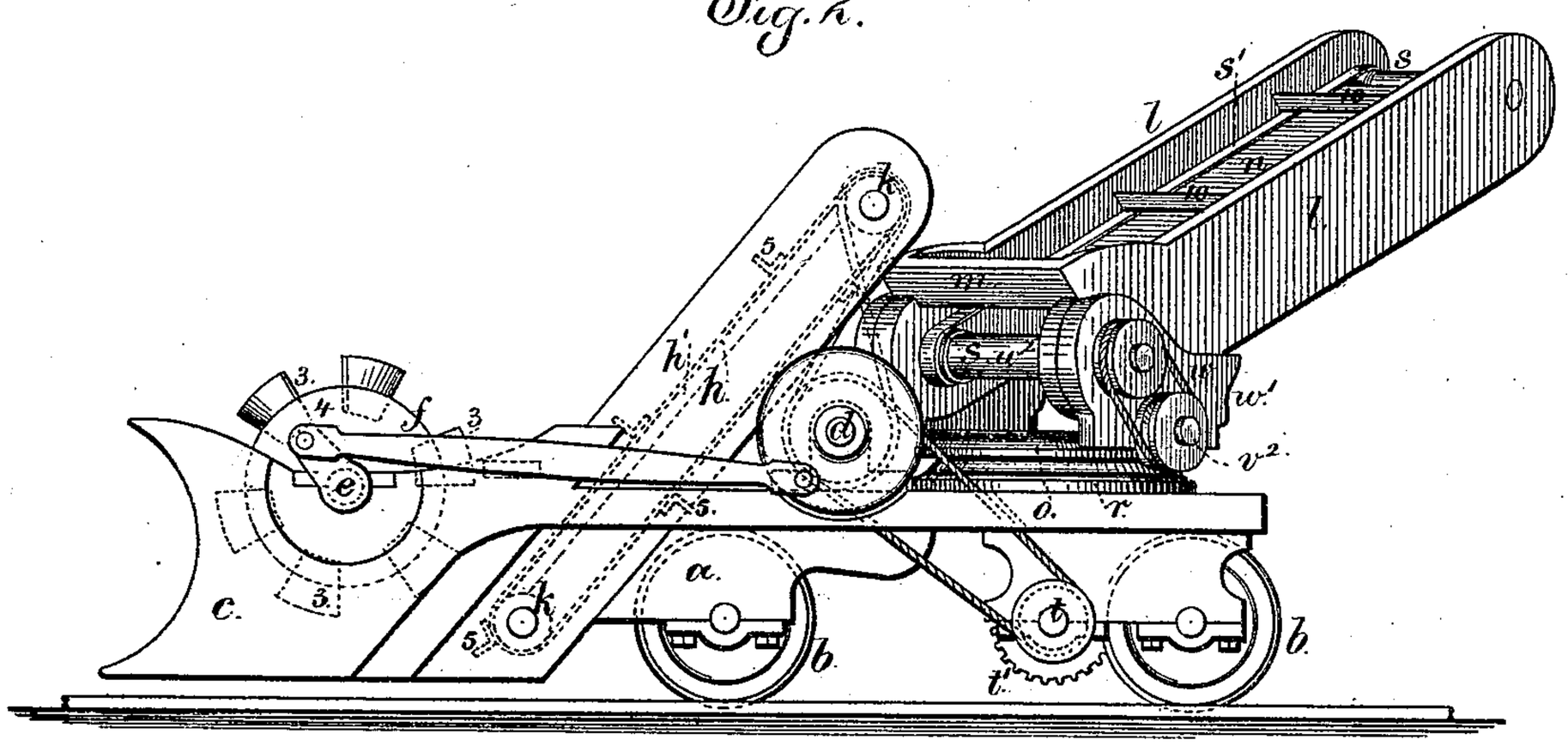


Fig. 1.

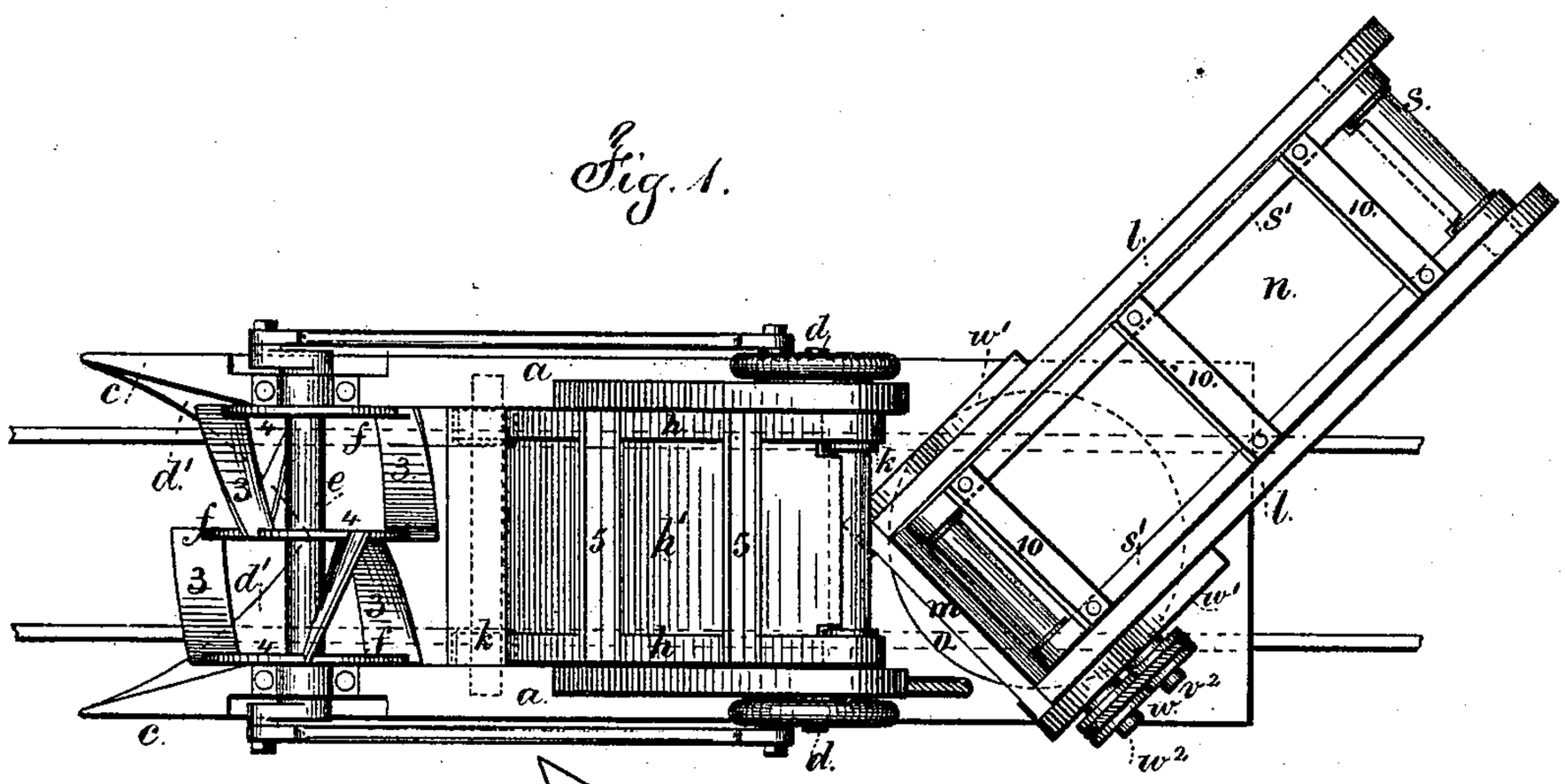
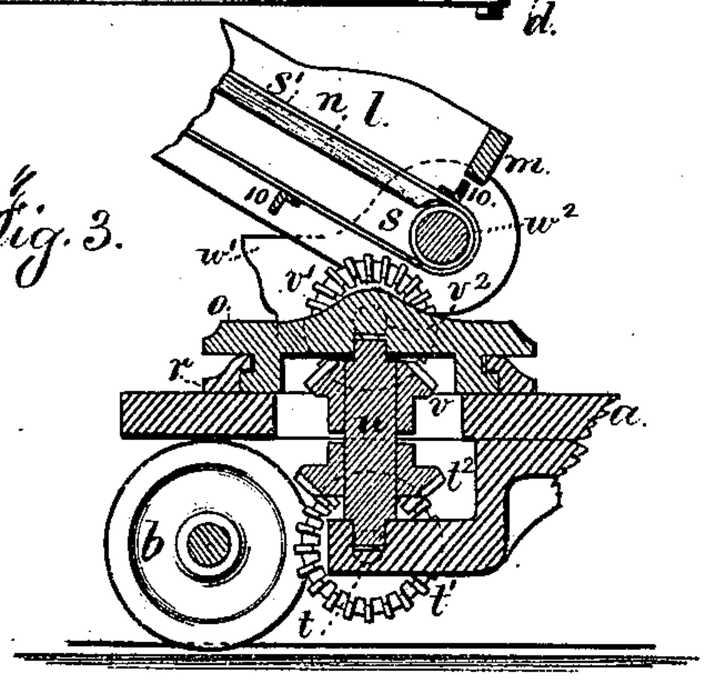


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN LATHROP AND ANDREW K. JOHNSON, OF ROCHESTER, MINNESOTA.

IMPROVEMENT IN TRACK-CLEARERS.

Specification forming part of Letters Patent No. **175,716**, dated April 4, 1876; application filed March 6, 1876.

To all whom it may concern:

Be it known that we, JOHN LATHROP and ANDREW K. JOHNSON, of Rochester, in the State of Minnesota, have invented an Improvement in Snow-Plows for Railways, of which the following is a specification:

Our improved plow is intended for excavating the snow, elevating the same, and then conveying the snow off laterally and discharging it clear of the track. Snow-plows having these objects in view have before been proposed.

Our invention relates to a peculiar excavating rotary shovel, that concentrates the snow into balls or lumps and delivers it upon the elevating-apron; also, in a second elevating-apron, mounted upon a turn-table, so as to be moved to either side, and placed at a greater or less angle to the track to deliver the snow in the manner most adapted to the particular circumstances, and we arrange the gearing so that the second elevator can be moved upon its turn-table without stopping the machine.

In the drawing, Figure 1 is a plan of this snow-plow. Fig. 2 is a side view, and Fig. 3 is a section, of the turn-table.

The frame of the machine is composed of the side pieces *a*, upon which the operative parts are mounted, and these are supported by the wheels *b b*, which are adapted to the railway-track. Upon the frame it is preferable to mount an engine and boiler to drive the main shaft *d;* but the power may be derived from a locomotive, or in any desired manner. The plow at the front end of the frame is made with the side pieces *c c*, with knives or cutting-edges at the vertical front portions, and the horizontal plow *d'* is preferably of a V shape, in order that the snow may be directed toward the center of the revolving wheel *f*, that is upon a shaft, *e*, driven by connecting-rods to cranks upon the shaft *d*. The wheel *f* is made with blades 3 3, that are placed diagonally between the heads 4 4 4, so that, as the said wheel revolves rapidly by the action of the machinery, the blades will press the snow toward the center of the machine, and throw it off in the form of balls, shavings, or lumps upon the elevator *h*. This elevator *h* is formed of scrapers or cross-bars 5 between the endless chains or bands *h*, that travel upon the top and bottom rollers *k* of the elevator, and these rollers are driven by belts or gearing from the shaft *d*. The snow that is carried up the incline *h'* by the scrapers 5 is delivered into a hopper formed by the side pieces *l*, bottom end pieces *m*, and incline, and this hopper and incline are mounted upon a circular base or turn-table, *o*, that rests upon the circular bed *r* upon the platform of the plow, and upon the top and bottom of the incline *n* are the elevator-rollers *s*, with the chains or belts *s'*, and elevators or scrapers 10, that serve to convey the snow that is delivered into the hopper up to the top of the incline and discharge it. The turn-table and elevator can be moved around into any desired position relatively to the plow, and for this purpose a crank shaft, with bevel or worm pinion, and operated by hand, may be employed, so that the snow may be delivered upon the right or left side of the track, and at the desired distance, and in order to drive the elevator *s'* continually, we make use of a shaft, *t*, and bevel-pinion t^1, driven by a belt or gearing from the shaft *d*, and this pinion t^1 revolves the bevel-wheel t^2 upon the vertical shaft *u*, that is below the center of the turn-table, and provided with a bevel-pinion, *v*, near its upper end, that gears into a wheel, v^1, upon a horizontal shaft, v^2, set in the frame of the elevator, and to which the elevator-roller *s* is connected by pulleys and bands *w*. The incline and trough-shaped sides of this second elevator are hinged to the frame w^1 by the shaft w^2 of the lower elevator-roller, so that the upper end may be raised more or less, according to the height of the bank upon which the snow has to be delivered, and this elevator is to be supported and raised or lowered by a screw below, or by a mast upon the car-frame and a block and tackle.

By this arrangement the parts of the snow-plow are rendered very compact, strong, and efficient, and the snow is easily delivered in the direction that may be desired from time to time.

We claim as our invention—

1. The blades 3 of the revolving wheel *f*, set at an inclination to deliver the snow in balls

or pieces near the center of the elevator, in combination with the plows *c d'* and the elevator *h*, substantially as set forth.

2. The combination, with the revolving excavating-wheel *f*, of the side cutting-blades *c* and horizontal V-shaped plow *d'*, substantially as set forth.

3. The second elevator *s'*, mounted upon a turn table, and receiving the snow from the first elevator into a hopper formed at the lower part of such second elevator, substantially as set forth.

4. The combination of an inclined elevator, a turn-table, a platform sustaining such turn-table, and gearing to drive such elevator, with a revolving excavating-wheel, and an inclined elevator conveying the snow from the excavating-wheel to the second elevator, substantially as set forth.

5. The elevator *s'*, mounted upon a turn-table, *o*, and made with an incline and trough-shaped sides *l*, hinged to the frame w^1 upon the turn-table *o* by the shaft w^2 of the lower elevator-roller, so that the upper end of the elevator may be raised or lowered, as set forth.

Signed by us this 28th day of January, A. D. 1876.

JOHN LATHROP.
ANDREW K. JOHNSON.

Witnesses:
L. O. BENJAMIN,
G. B. STOCKING.