2 Sheets—Sheet 1.

W. N. BALL.

Car-Track Clearer.

No. 46,322. Patented Feb. 14, 1865.

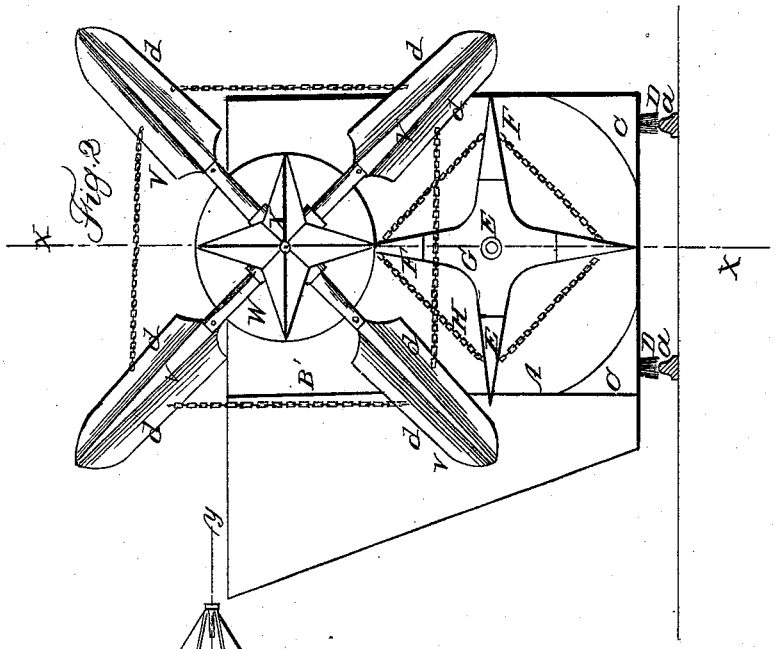

Fig. 2.

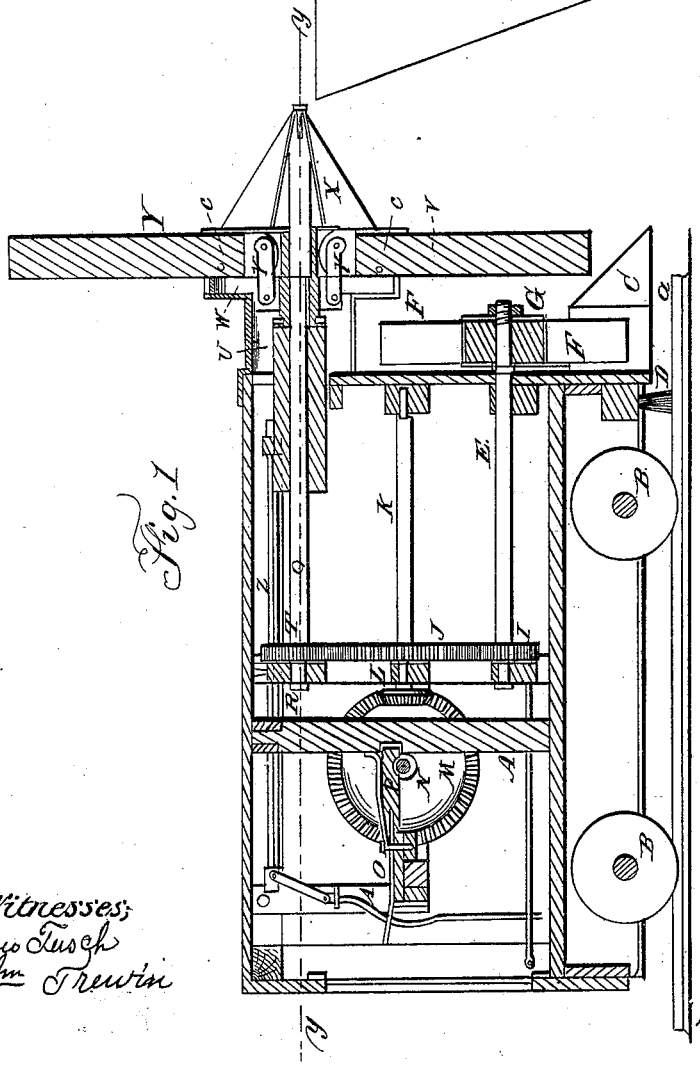

Fig. 1.

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Thos Tusch
Wm Trewin

Inventor;
W. N. Ball
per Munn & Co
Attorneys

2 Sheets—Sheet 2.

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Fig. 4

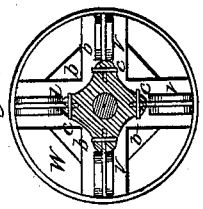


Fig. 7

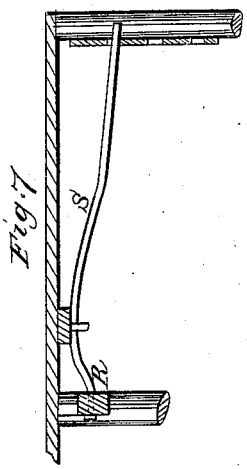


Fig. 3

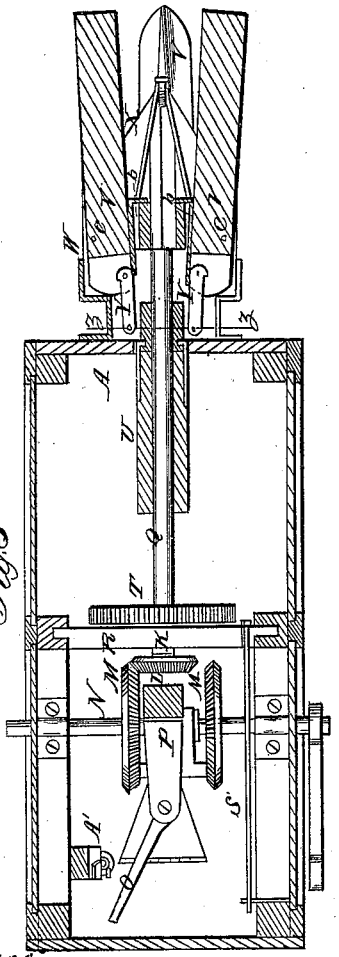
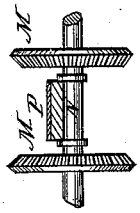


Fig. 6

Fig. 5



Witnesses;
Thos Tusch
Wm Trewin

Inventor:
W. N. Ball
per Munn & Co
Attorneys.

UNITED STATES PATENT OFFICE.

WILLARD N. BALL, OF LA PORTE, INDIANA.

IMPROVEMENT IN SNOW-PLOWS.

Specification forming part of Letters Patent No. **46,322**, dated February 14, 1865.

To all whom it may concern:

Be it known that I, WILLARD N. BALL, of La Porte, in the county of La Porte and State of Indiana, have invented a new and Improved Snow-Plow; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet No. 1, is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a front elevation of the same; Fig. 3, Sheet No. 2, a horizontal section of the same, taken in the line *y y*, Fig. 1; Figs. 4, 5, 6, and 7, detached sectional views of parts pertaining to the same, the section-line of Fig. 4 being indicated by *z z* in Fig. 3.

Similar letters of reference indicate like parts.

This invention relates to a new and improved plow for cleaning railroad-tracks of snow; and it consists in the employment or use of rotary shovels, in connection with scrapers, constructed and arranged substantially as hereinafter set forth.

A represents a car or truck to which my invention is applied. B are the wheels of the car or truck; and C C are two scrapers, which are attached to the lower part of the front end of the car or truck, one at each side. These scrapers are of pointed form, as shown in Fig. 1, and they are concave at their inner or face sides, as shown in Fig. 2, and they are just above the rails *a a*, a scraper being over each rail. These scrapers have a tendency to gather or scrape up the snow from the rails and throw it between the latter in the path of the lower rotary shovels, as hereinafter described. Directly behind the scrapers C C brooms D are placed, to sweep the snow from the upper surfaces of the rails.

E represents a horizontal shaft, which is placed on the car or truck A, and projects through the front thereof, and has four shovels, F, attached radially to its front end. These shovels may be constructed entirely of metal, or of wood faced or covered with metal, and their face surfaces are planes, or of flat form, and they gradually increase in thickness from their outer to their inner ends, where they are secured to a hub or boss, G, on shaft E. (See Figs. 1 and 2.) The shovels F are stayed by a chain, H, as shown clearly in Fig. 2, and they are at the center of the front of the car or truck A, and consequently over the center of the railroad-track, as also shown in Fig. 2. At the rear end of the shaft E there is a pinion, I, into which a wheel, J, on a shaft, K, gears, the latter having a bevel-pinion, L, on its rear end, into which either of two bevel-wheels M M on a driving-shaft, N, gears. The shaft N is allowed to slide in its bearings, and by means of a lever, O, and a slide, P, which is fitted loosely on shaft N between the two wheels M M, (see Fig. 5,) either of the latter may be made to gear into the pinion L, and the shovels F made to rotate in either direction. The shovels F clear the track between the rails from the snow, the snow on the rails being cleared therefrom and thrown in the path of the shovels by the scrapers C C, previously described.

Q is a horizontal shaft, which is placed directly over the shaft K, and has its inner bearing in an adjustable bar, R, which is moved by means of a lever, S. (Shown in Figs. 3 and 7.) On the rear end of the shaft Q there is a pinion, T, which gears into the wheel J of shaft K, and by adjusting the bar R the pinion T may be thrown in and out of gear with the wheel J. On the front part of shaft Q there is a slide, U, which passes through the front of the car or truck, and is allowed to slide freely back and forth therein. At the front end of the shaft Q there are arms *b*, in which the inner ends of shovels V are secured by pivots *c*, so that the shovels V may be adjusted in a closed state, or parallel with each other, or nearly so, as shown in Fig. 3, or be expanded or thrown out to a position at right angles with the shaft Q, as shown in Fig. 1. The short arms *b* are covered by a cap, W, which is slotted to admit of the shovels V passing through it, and to the front side of the cap W a conical star-shaped projection, X, is attached. The shovels V when expanded rotate in a plane just in front of the shovels F, and the shovels V are constructed like F, with the exception that they have flanges *d*, which project at right angles from both sides of their inner surfaces. These flanges may form an angle with the shovels V, or they may be curved or rounded, as shown in Fig. 6. The

inner ends of the shovels V are connected by links Y to the front end of the slide U, and the latter is connected by a rod, Z, to a lever, A′. (Shown clearly in Fig. 1.) By moving the lever A′ the shovels V may be expanded and contracted. The shovels V are designed for removing heavy snow banks and relieving the shovels F or preventing them from being overtaxed with work. It is necessary that the shovels V be arranged so as to fold, in order that they may not interfere with bridges, tunnels, &c., as they extend, when expanded, a considerable distance beyond the sides of the car or truck. The conical projection X is for the purpose of casting the snow within the path of rotation of the shovels V.

It will be seen that when the movement of the shovels F is reversed that of the shovels V will be also reversed. This reversing of the movement of the shovels is necessary in order that the snow may be shoveled with the wind, and not against it, as in the latter case the work would be very imperfectly done.

The shaft N may be rotated by a chain, belt, or gearing from the locomotive. The shovels V are stayed by a chain, B′, shown clearly in Fig. 2.

I claim as new and desire to secure by Letters Patent—

1. The scrapers C C, in combination with the rotary shovels F, arranged and applied to a car or truck, to operate in the manner substantially as and for the purpose set forth.

2. The rotary shovels V, arranged in relation with the shovels F and to operate in connection therewith, substantially as and for the purpose specified.

3. The arrangement of the shovels V, substantially as herein shown and described, so that the same may be capable of being folded and expanded, as set forth.

4. The slide U and links Y, arranged as shown, for folding and expanding the shovels V.

5. The reversing-gear M M, when applied to and used in connection with the gear of the rotary shovels F V, for the purpose set forth.

6. The combination of the rotary shovels F V and scrapers C, when arranged to operate substantially as and for the purpose specified.

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Witnesses:

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