

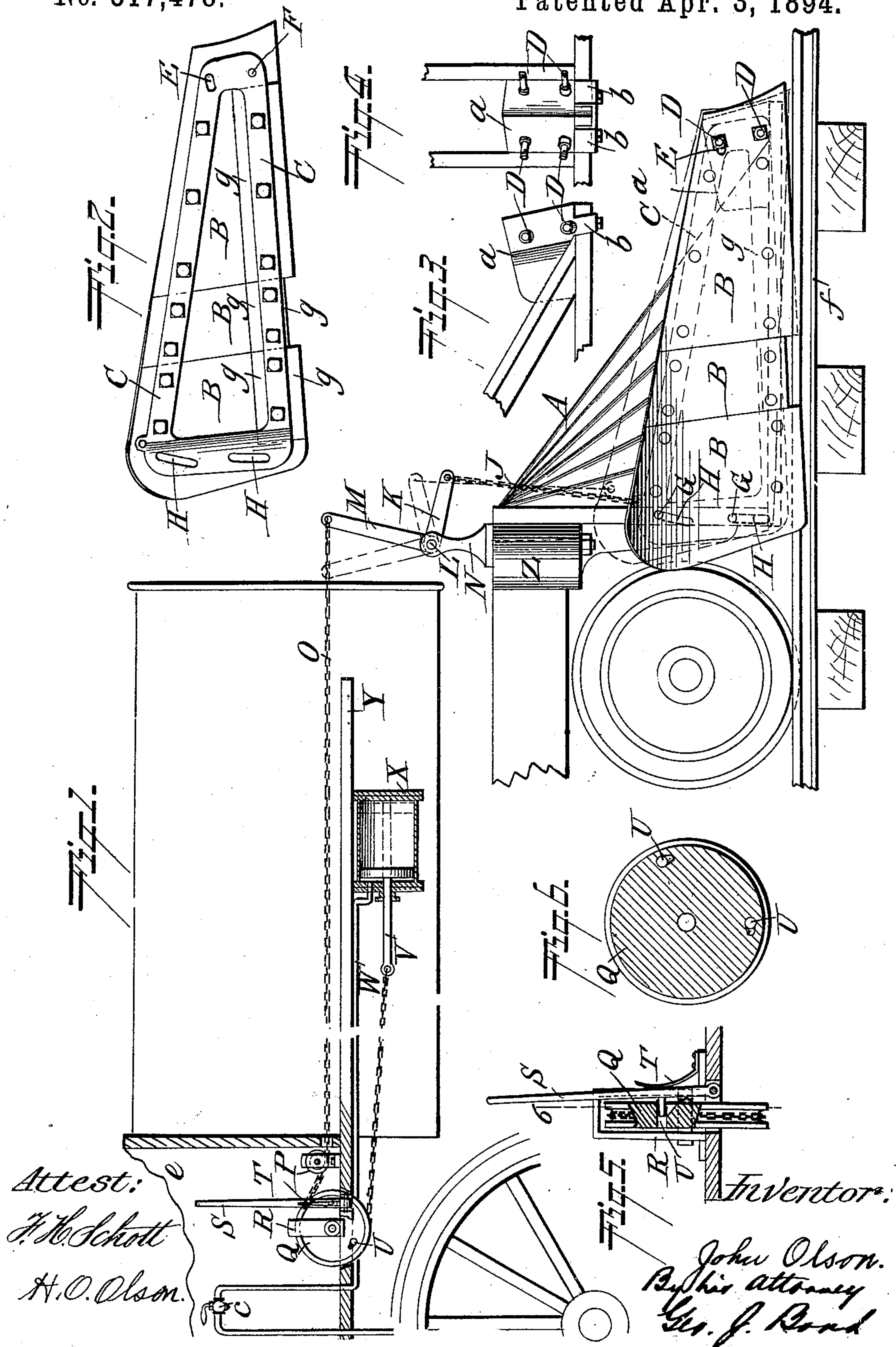
(No Model.)

3 Sheets—Sheet 1.

J. OLSON.  
TRACK CLEARER.

No. 517,478.

Patented Apr. 3, 1894.



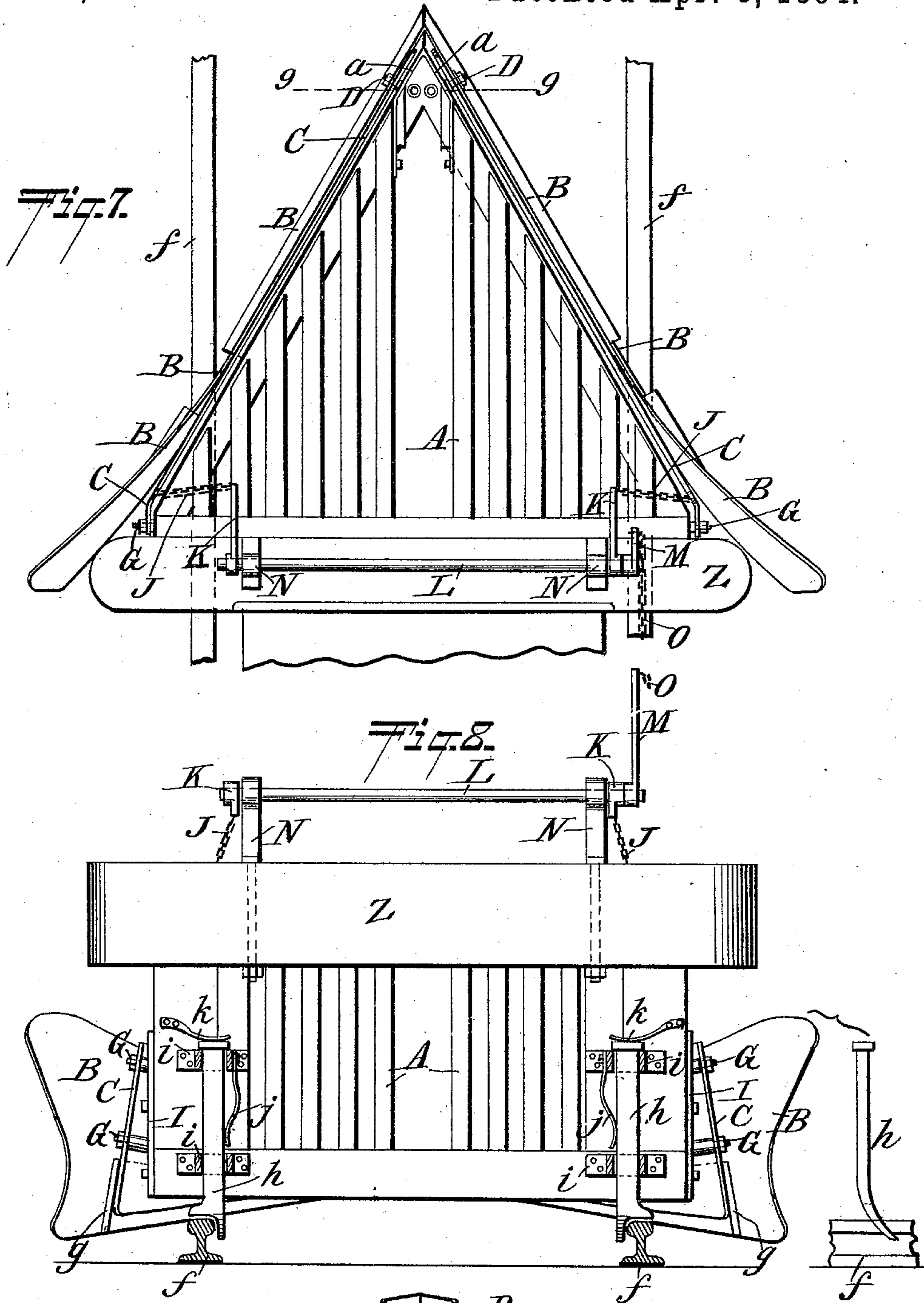
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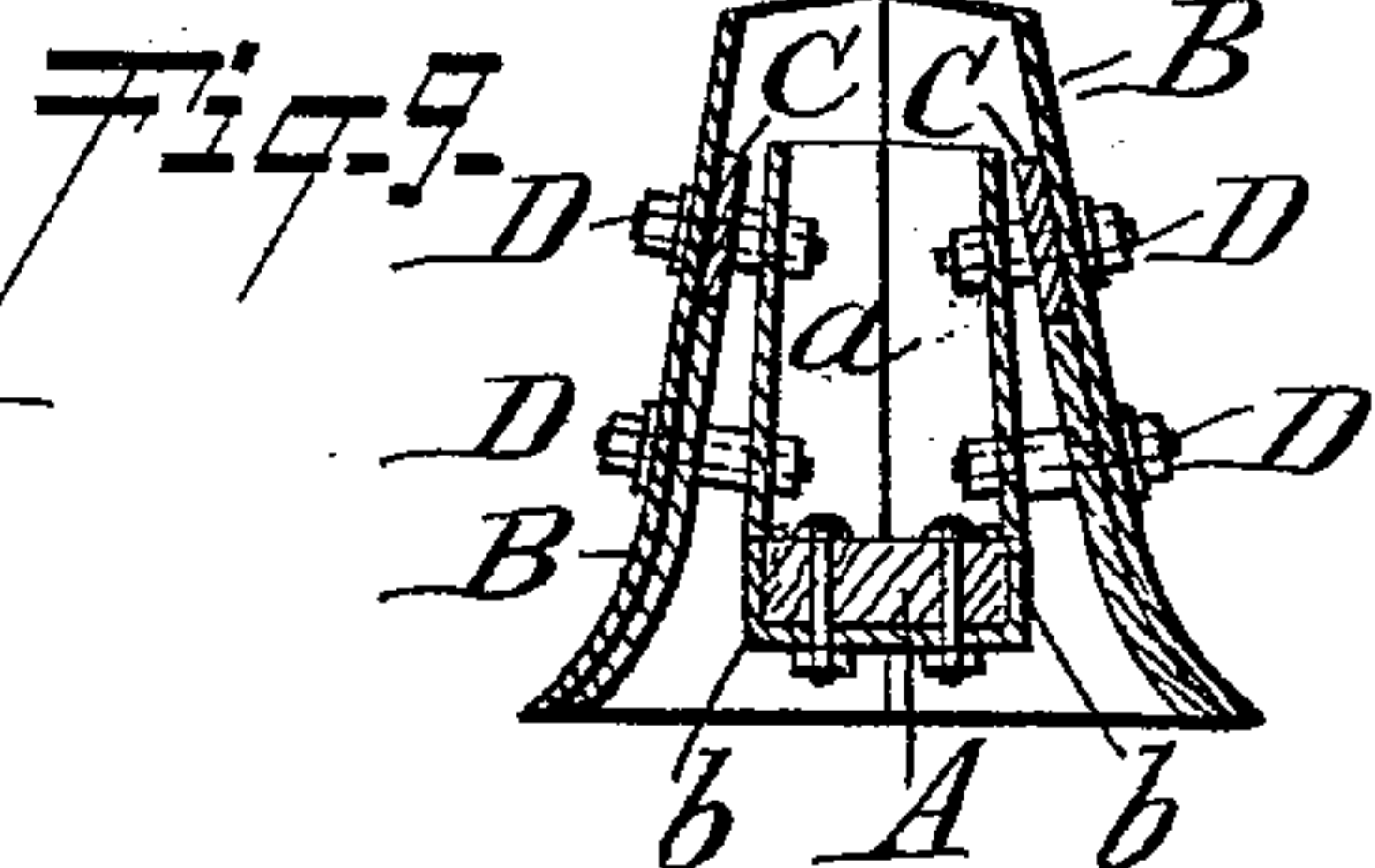
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Attest:

J. H. Schott.

A. O. Olson.



Inventor:

John Olson.  
By His Attorney  
Geo. J. Bauld

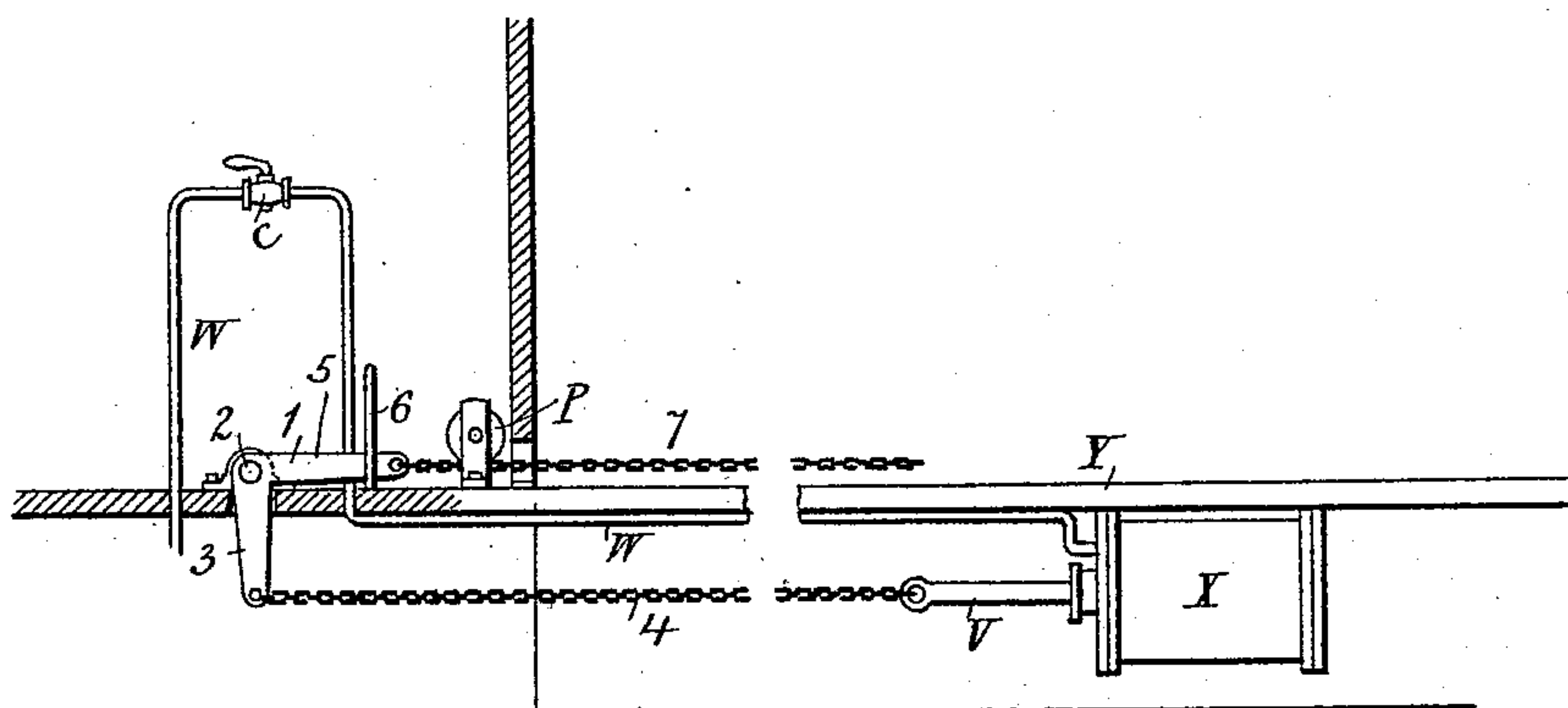
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3 Sheets—Sheet 3

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*Fig. 10.*

## Witnesses

Wm. S. Norton  
J. Benjamin

Inventor

John Olson  
By his Attorney  
Geo. J. Bond  
Attorney

Attorney



# UNITED STATES PATENT OFFICE.

JOHN OLSON, OF TWO HARBORS, MINNESOTA.

## TRACK-CLEARER.

SPECIFICATION forming part of Letters Patent No. 517,478, dated April 3, 1894.

Application filed April 29, 1893. Serial No. 472,329. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN OLSON, a citizen of the United States, residing at Two Harbors, in the county of Lake and State of Minnesota, have invented certain new and useful Improvements in Track-Clearers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has reference to new and useful improvements in track clearers, and has for its object to increase the efficiency of such devices.

My invention, while capable of general application, is especially designed for use in connection with locomotive engines, and my invention consists in the construction, relative arrangement and operation of the several parts, all of which will fully and clearly appear from a reading of the following description taken in connection with the accompanying drawings which form a part of this specification, and in which—

Figure 1. is a side elevation of enough of a locomotive engine with my invention applied to illustrate the construction and operation. Fig. 2. is a detail rear elevation of one of the knives or blades. Figs. 3 and 4 illustrate side and front elevations of the forward end of the pilot. Figs. 5 and 6 are details of a pulley and locking mechanism therefor employed in connection with the adjusting mechanism. Fig. 7 is a top or plan view of the pilot with my invention in position; Fig. 8 a rear view of the same. Fig. 9 is a sectional view taken on line 9—9 Fig. 7, and Fig. 10 is a detail view of a modified form of adjusting mechanism.

Referring to the said drawings in which like letters and figures of reference denote corresponding parts, A denotes the pilot of a locomotive engine to which my invention is applied. The knives or blades are shown at B and are adapted to be adjustably secured to both ends of the pilot in a manner presently to be described. These knives consist each of three plates bolted to a frame C as shown, the middle plate being partly cut away or made shorter than the other plates in order to ac-

commodate the rails and permit the outside plates to extend sufficiently below the tread or head of the rails, to remove, as much as possible, the accumulation of snow in or on the track. These plates are made of comparatively thin metal to relieve the weight of the structure and are strengthened at their lower ends, or edges, by means of additional plates *g* (Fig. 2) which are arranged transversely to the height thereof and are interposed between said plates and the lower part of the frame C, the bolts employed holding them in place. The plates when secured to the frame present a smooth surface to the obstruction, and are so formed as to transfer the snow with a minimum of resistance. The frames C are each provided at their forward end with a circular opening F and an elongated opening or slot E to receive two bolts D arranged on a V-shaped bracket *a* which is secured to the lower forward end of the pilot by a yoke *b* which spans the base thereof and is bolted in place as shown in Figs. 3 and 4. The bracket *a* has its sides arranged at converging angles which conform to the angles of the knives and a sharp nose or prow is formed thereby which readily enters and deflects any obstruction. The bolts D are preferably provided with collars or shoulders against which the frames abut, and the outer ends are screw-threaded to receive the nuts as shown. On the rearward end of the frames are arranged two inclined slots H which receive two bolts G G, the latter being fixedly secured on the vertical uprights I of the pilot, and screw-threaded to receive the nuts. This end of the frame is as shown, bent outward in order to permit of the application of the nuts between the plates and the frame, thus obviating the necessity of passing the bolts through the plates and exposing the ends thereof and the nuts on the outer surface: the object being to form said surface as smooth as possible. For this reason also the holes for the bolts which connect the plates to the frame are countersunk to receive the cone heads of said bolts which in place lie flush with the outer surface of the blades. The knives or blades by reason of the peculiar connection with the pilot, are permitted a vertical movement at their inner ends, the forward end being pivoted



on the lower bolt D and the slots E and H allowing sufficient play, which is regulated by the length of the slots in the rearward end.

I provide means for raising and lowering the knives or blades as follows:—X is a steam or compressed air cylinder secured preferably adjacent to the side of the boiler *d*, and on the under side of the running board Y. At the rear of the boiler and within the cab *e* is a pulley Q which is mounted in a bracket R secured to the floor of the cab, and adjacent to this pulley is an idler P. To the piston V of the cylinder is secured one end of a chain O which is passed around said pulley and under the idler and connected at its other end to the upper arm M of a bell-crank lever pivoted on a shaft L mounted on standards N bolted to the frame Z of the engine. To the other arm K of this lever is secured one end of a chain *j*, the other end being connected with an eye on the upper part of the frame C. On the other end of the shaft L is a lever K which is connected to the other blade by a chain K, both blades being thereby simultaneously operated. Steam or compressed air is admitted to the cylinder through a pipe W which connects with the generator and is offset to bring the same within the cab where it is provided with a valve *c* readily accessible to the operator. The air or steam entering the cylinder forces the piston to the rear and carries with it the chain O which in turn actuates, through the bell crank lever and chain J, the knife or blade and raises it until the lower ends of the slots H contact with the pins G.

I provide means for maintaining the raised and lowered positions of the knives as follows:—The pulley Q is provided with two apertures or recesses U one wall of which is chamfered or inclined as shown, and these apertures receive a pin arranged on a lever S pivoted at its lower end on the running board, which pin operates when inserted in one of said apertures to lock the pulley in its movement in one direction; but by reason of the inclined wall the movement in the other directions is permitted, the action, in this event being to automatically disengage the pin and force the lever outward against the action of the spring T. The mechanism just described is shown in detail in Figs. 5 and 6, the latter figure being taken on line 6—6, Fig. 5. The pulley in the operation of raising the knives is rotated from right to left so that the locking pin can be disengaged without the necessity of the operator moving the lever S. The reverse movement of the pulley however, is prevented by the contact of the pin with the straight wall of the aperture, the result being the locking of the pulley and the maintaining of the raised position of the knives. The lever S and valve *c* being easily accessible to the operator all the mechanisms are under full control. The blades are also self-adjustable in case they should come in contact with a rail joint or a guard rail or other obstruction.

In Fig. 10 of the drawings is shown a device to be employed in connection with the mechanism for raising and lowering the knives and which may be substituted for the pulley just described. The same consists of a bell-crank lever 1 pivoted at 2 on the running board and having a depending arm 3 which is connected to the piston of the steam or compressed air cylinder by a section of chain 4. The other arm 5 of the lever moves within a guide 6 and is connected to the bell-crank lever arm M by a section of chain 7 which is passed around the interposed idler P, as in the former construction. This device operates in a manner similar to the pulley, and may be as advantageously employed.

At the rear of the pilot I provide rail scrapers *h* which are loosely mounted in brackets *i i* bolted on the frame of the pilot, and provided with beads to limit the downward movement thereof. The lower end of the scrapers are curved forwardly and extend across the head of the rail and for a short distance on the inside thereof as shown. These scrapers are adjustable vertically and laterally and their normal position is maintained by means of springs *j k*, the former contacting with the side of the scraper and the latter with the head thereof. The lower ends of the scrapers do not contact with the rails but are separated therefrom a slight distance in order to clear the rail joints, but should any obstruction be met with the adjustability of the scrapers both in a vertical and lateral direction permits the same to clear readily, and the liability of the lower end being bent or broken is obviated.

The operation will be readily understood by those versed in the art and the construction and operation are apparent from a reading of the foregoing taken in connection with the accompanying drawings.

The parts are comparatively simple and the invention as a whole is very efficient, and by reason of the adjustability of the parts the liability of wear and disorder is reduced to the minimum.

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

1. In a track clearer, a blade formed of a frame, a plurality of plates bolted thereto and a strengthening plate interposed between the lower ends of the plates and the frame, substantially as and for the purposes set forth.

2. A track clearer comprising two blades each formed of a frame and plates secured thereto, and pivoted at its forward end, slots in the rearward part of the frame and connecting bolts passed through said slots and means for raising and lowering the rearward end of the blades.

3. A track clearer adapted to be secured to the pilot of a locomotive engine, comprising two blades or knives each, formed of a frame pivoted at its forward end to a bracket in the pilot, a plurality of plates bolted to said frame, slots in the rear of the frame, bolts passed through said slots and connected to



the frame of the pilot, an air or steam cylinder and, intermediate means between said cylinder and the rearward end of the blades for raising and lowering the latter.

5 4. In a track clearer adapted to be secured to the pilot of a locomotive engine, and in combination with two blades pivoted at their forward ends, means for raising and lowering said blades consisting of an air or steam cylinder, a piston, a pulley, a bell-crank lever, 10 a chain connected to the piston rod and passed around the pulley and connected to the one arm of the lever, and a chain connecting the other arm of the lever and the rearward end 15 of the blade.

5. In a track clearer adapted to be secured to the pilot of a locomotive and in combination therewith means for raising and lowering the knives consisting of an air or steam 20 cylinder, a piston, a pulley having two or

more apertures having chamfered sides, a spring actuated lever having a pin for engaging the aperture, an idler, a bell-crank lever, and intermediate chain connections, substantially as described. 25

6. A rail-scraper, comprising a vertically and laterally self adjusting knife, loosely mounted in brackets and having a head for limiting its downward movement and with its lower end adapted to extend across the 30 head, and on the inside of the rail, and springs engaging the knife at the top and side to maintain it in a normal position as set forth.

In testimony whereof I affix my signature in 35 presence of two witnesses.

JOHN OLSON.

Witnesses:

CHARLES M. FLOATHE,  
H. O. OLSON.