(No Model.)

2 Sheets—Sheet 1.

T. H. FENNELL.

FLANGER.

No. 544,575.

Patented Aug. 13, 1895.

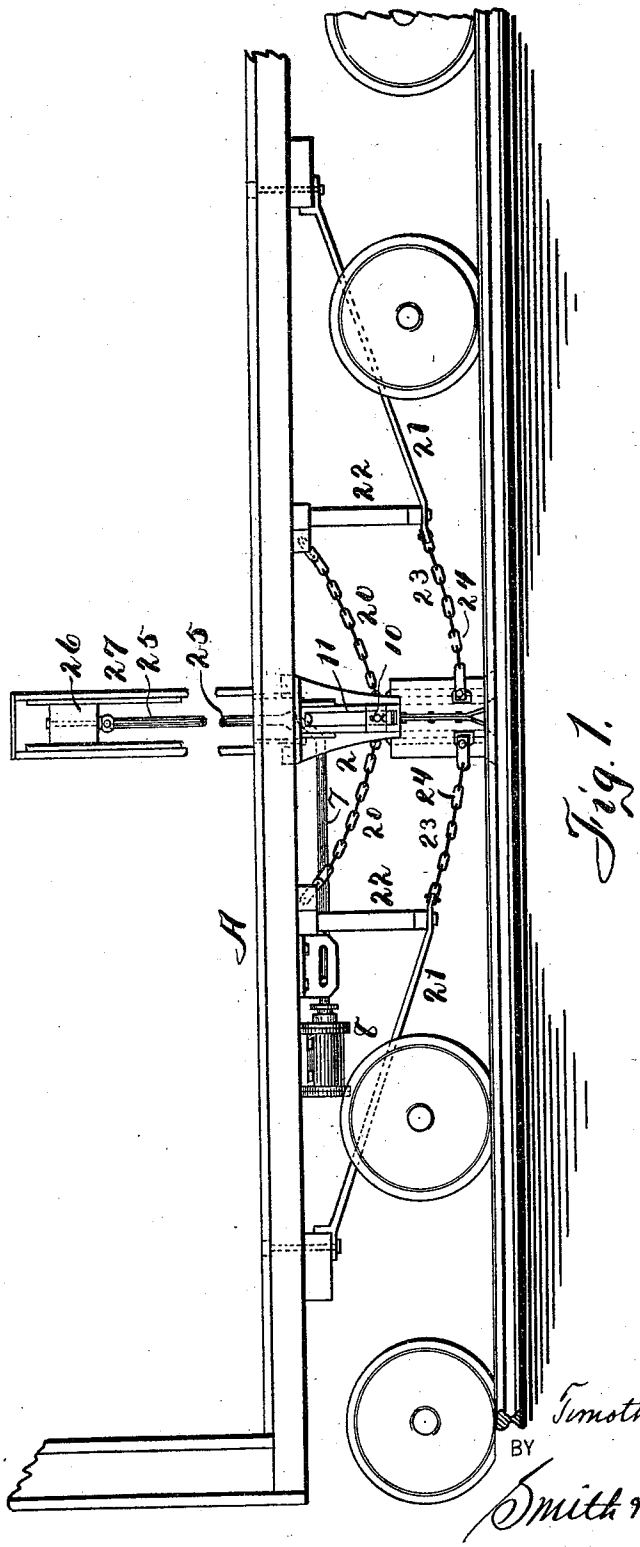

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

T. H. FENNELL.

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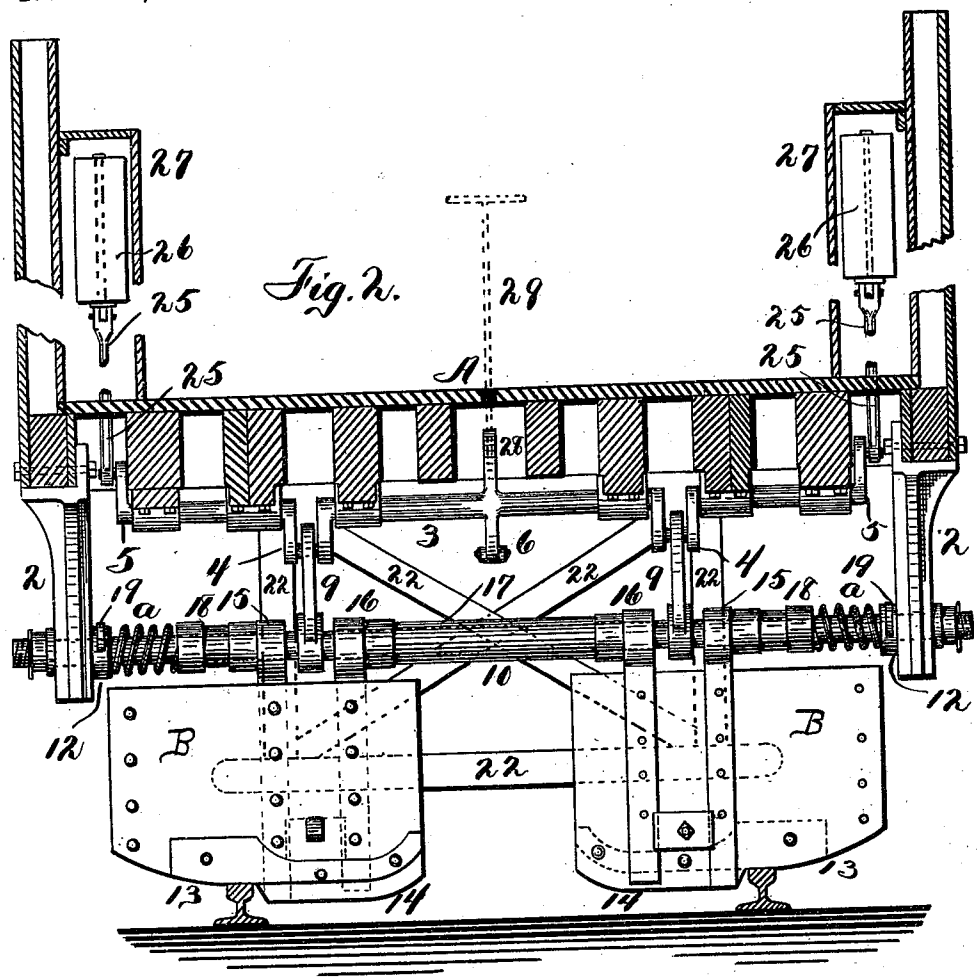


Fig. 3.

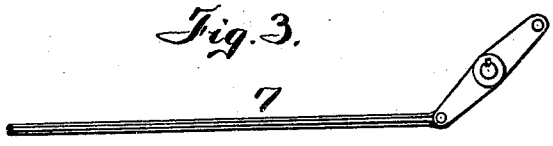
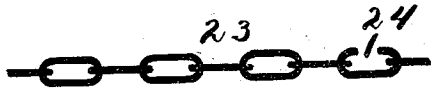


Fig. 4.



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UNITED STATES PATENT OFFICE.

TIMOTHY H. FENNELL, OF EAST HARTFORD, CONNECTICUT.

FLANGER.

SPECIFICATION forming part of Letters Patent No. 544,575, dated August 13, 1895.

Application filed March 20, 1895. Serial No. 542,520. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY H. FENNELL, of East Hartford, in the county of Hartford, in the State of Connecticut, have invented new and useful Improvements in Flangers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to rail-flangers adapted to clear out the snow and ice which may accumulate adjacent to the inner edge of the tread of railway-rails and make room for the flanges of the wheels.

My object is to produce a flanger adapted to be vertically movable by means of a connection to the air-pressure pipes of a locomotive or train adapted to swing more or less forward and back, provided with means to permit it to strike an obstacle and yield so as to pass it, provided with a counterbalance to permit it to be more easily moved vertically, and having an outer cutting-edge adapted to clear away the ice outside of the rail, and a depressed cutting-edge adapted to clear away that which is inside thereof, so as to permit the tread of the wheel to bear properly upon the rail.

My invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claims hereunto annexed. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of part of a car to which the flanger is connected. Fig. 2 is an enlarged transverse sectional elevation of the same. Fig. 3 is a detail of the crank and pitman by which the flanging-cutters are raised or lowered. Fig. 4 is a detail of part of one of the retaining-chains having a weakened link which will bend or give and straighten out when a cutter strikes an obstacle and prevent breakage of more expensive parts or the derailment of a car.

A is the bed of a car, and 2 2 are vertically-slotted brackets secured to the sides thereof. 3 is a shaft journaled across said bed and provided with cranks 4 4 intermediate its length and crank-arms 5 5 upon its ends, and having also a central crank-arm 6, to which is connected a pitman 7, which in turn is connected to a piston within the air-cylinder 8 under the car and connected to the air-compressing apparatus upon the locomotive in any ordinary manner.

Links 9 connect the cranks 4 to the shaft 10, the extremities of which are mounted and vertically movable in slots 11 in the brackets 2, and collars 12, loose upon said shaft, bearing against said brackets to prevent any endwise movement, as hereinafter described.

B B are the flangers comprising a body of suitable material provided with a hardened cutting-edge 13, operative to clear away the ice outside of a rail, and a depressed cutting-edge 14, operative to cut out the ice inside of the rail and closely adjacent thereto. In Fig. 1 it will be seen by the dotted lines that these cutting-edges are angularly projected toward the ends of the car to cause them to cut better. Hangers 15 16 hinge the flangers to the shaft 3.

17 is a sleeve between the hangers 16 to retain them in their relative positions, and sleeves 18, exterior to the hangers 15, and springs *a*, bearing against said sleeves and the collars 12, permit said flangers to slide laterally upon said shaft, as when the car is going around a curve or whenever lateral inward pressure is brought against either one of them. The collars 12 are provided with eyes 19, to which the ends of the chains 20 are secured, their other ends being secured in any ordinary manner to the bottom of the car, so that said shaft is substantially prevented from movement toward either end of the car.

Draw-bars 21 are secured to the car and to a frame 22, mounted under the car, and 23 23 are chains secured to said draw-bars and to the opposite sides of the flangers, with a little slack, so that each flanger can swing back when in operation to give better presentation of the cutting-edge to the work. Each chain 23 is provided with one weak link, as 24, shown as weakened by cutting away one side thereof or reduced in strength in any other manner, as by making it of smaller wire or of weaker material than the rest of the chain.

As shown, when a flanger strikes an obstruction which does not yield, the additional strain will straighten out the weak link or break it, and this will be the only damage. When the air in the cylinder is under high pressure, the pitman 7 will operate said cranks 4 to raise and hold the flangers clear of the track, and

when it is reduced they will be lowered close to or onto the rails in operative position. To aid in the operation of raising and lowering, rods 25 are connected to the crank-arms 5 and support the counterbalance-weights 26, which substantially balance the flangers. These weights are cased in, as at 27. An arm 28 is also secured upon the shaft 3 and provided with a socket, (indicated by the dotted lines,) and the dotted lines 29 indicate a hand-lever inserted through a hole, slot, or trap-door in the floor of the car, by which the shaft 3 can be operated by hand to raise or lower the flangers, as when there is no air-pressure in the cylinder.

In order to avoid operating the brakes by operating the piston to raise or lower the flangers this cylinder should be independent of the air-brake cylinder, though it may be connected to the ordinary train-pipe.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a car, of a vertically movable shaft, brackets under the car having slots receiving said shaft, flangers mounted upon said shaft so as to swing thereon and provided with cutting edges, springs engaging with said brackets and said flangers and means to raise and lower said shaft.

2. The combination with a car, of a crank shaft journaled under it, an air pressure cylinder under the car, a pitman rod connecting it to a crank-arm on said crank shaft, hangers secured beneath the car and provided with vertical slots, a shaft mounted therein, links connecting it to cranks upon the crank shaft, flangers mounted and adapted to swing upon said shaft, and weakened stay-chains connected to said flangers and to the car.

In witness whereof I have hereunto set my hand on this 15th day of March, 1895.

TIMOTHY H. FENNELL.

In presence of—

B. R. POLLOCK,

HOWARD P. DENISON.