

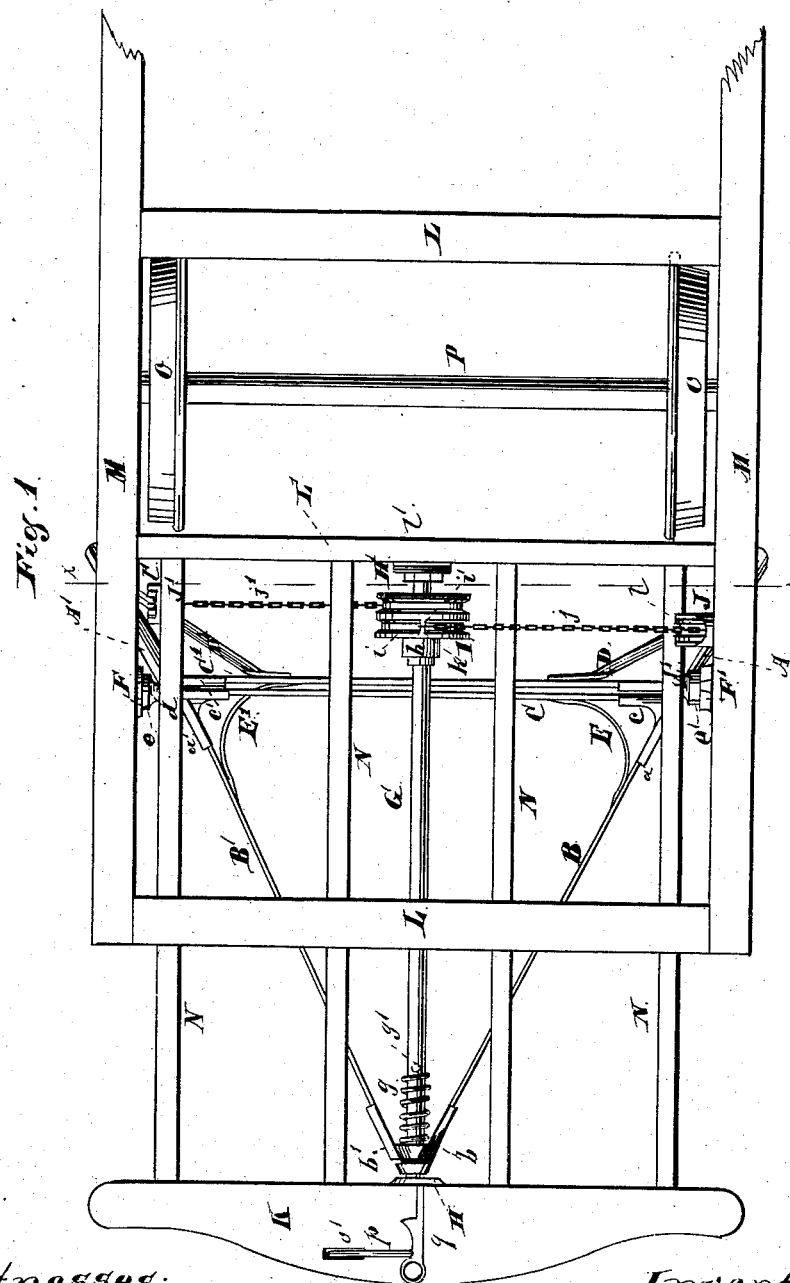
(No Model.)

4 Sheets—Sheet 1.

W. H. CLARK.
TRACK CLEARER.

No. 261,909

Patented Aug. 1, 1882.



Witnesses:
Albert H. Adams.
Edgar T. Bond

Inventor:
William H. Clark

(No Model.)

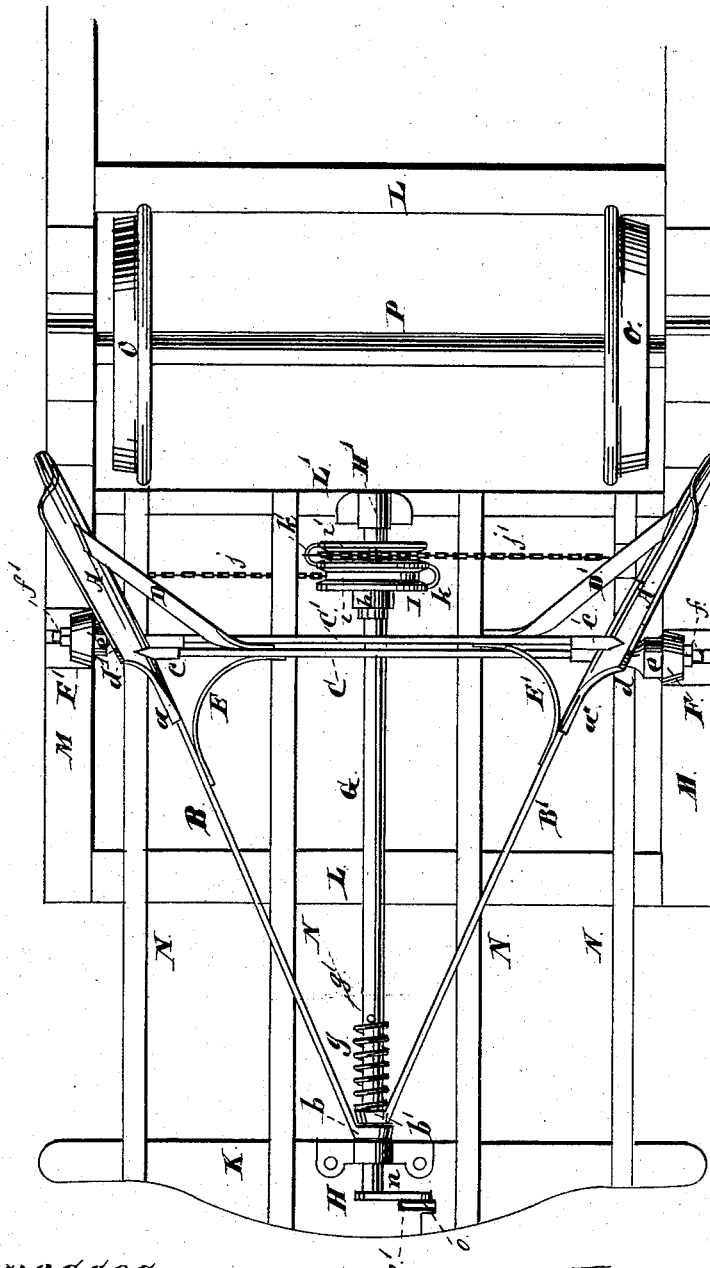
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Fig. 2



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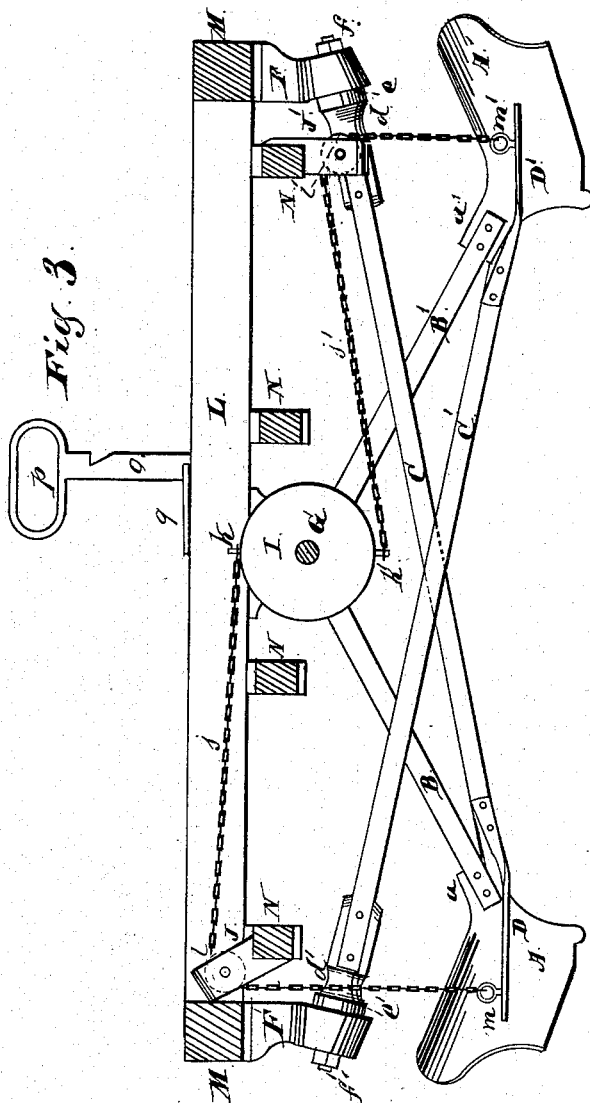
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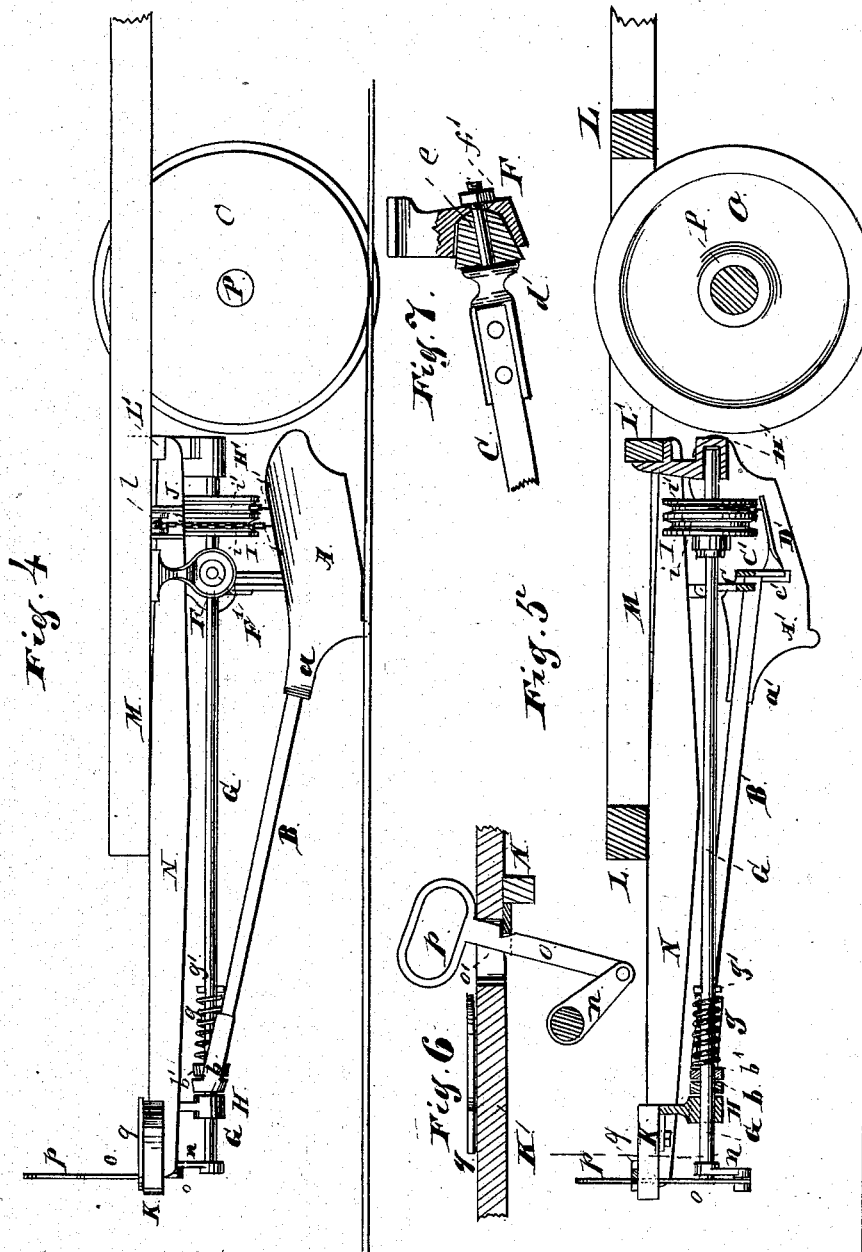
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UNITED STATES PATENT OFFICE.

WILLIAM H. CLARK, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND
JAMES K. LAKE, OF SAME PLACE.

TRACK-CLEARER.

SPECIFICATION forming part of Letters Patent No. 261,909, dated August 1, 1882.

Application filed April 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. CLARK, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Track-Clearers, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view of the framework at one end of a car with the scrapers and their devices thereto attached; Fig. 2, an under side view of the parts shown in Fig. 1; Fig. 3, a rear end elevation with the framework of the car in section; Fig. 4, a side elevation; Fig. 5, a longitudinal section; Fig. 6, a detail of the foot-lever; Fig. 7, a detail of the side connection.

This invention relates to scrapers primarily designed for use with street-cars for removing snow, ice, mud, and other obstructions from the tracks or rails, and has for its object to locate the scraping-plate diagonal of the track, and give each plate a line of draft in the direction in which it stands, and a lateral or transverse brace or support to overcome side pressure in use, and at the same time have each plate capable of rising to pass over inequalities of the track or street without affecting the position of the other plate, while, when desired, both plates can be thrown up into position to be out of use, and have the devices by which these results are obtained simple in construction, easily applied to the car, and well adapted to resist the strain and thrust in use; and its nature consists in providing each scraping-plate with a diagonal draw-bar, the forward end of which is loosely connected with a longitudinal shaft; in providing transverse or lateral bars, one for each scraping-plate, having the outer ends connected with the opposite side of the car to that on which its plate is located; in providing a longitudinal shaft located beneath the body of the car, and supporting the forward ends of the diagonal draw-bars, and having yielding connections to prevent breakage in case the scraping-plate comes in too solid contact with an obstruction; in providing springs or yielding connections for the transverse or lateral supporting-bars to allow of a yielding movement in case of too heavy

side pressure; in providing a foot-treadle, rock-shaft, lifting-pulley, and chains or cords for raising and lowering the scraping-plates, and in the several parts and combinations of parts hereinafter specifically pointed out, and set forth as new in the claims.

In the drawings, A A' represent the scrapers, each of which may be made of a plate of malleable iron or other suitable material, which can be cast or otherwise formed into the desired shape. As shown, they are each formed slightly concave in cross-section, and at their forward end have a downward-projecting lip or lug, which, when the scraper is in position, is in proper location with the rail to clear the inner face of the rail; but these scrapers may be otherwise formed so long as they are adapted to do the required work. The forward upper portion of each scraper is prolonged somewhat, and forms an ear or socket, *a*, for the attachment of the draw-bar, and on the inner face of each scraper, near the forward end, is a projection or ear, *c*, for the attachment of the side-pressure-resisting bars. These parts *a c* can be of some other form and arrangement than shown, or they can be dispensed with and the draw-bar and pressure-resisting bars attached directly to the face of the scraper.

B B' are the draw-bars for the respective scrapers A A'. Each of these bars may be made of a piece of wrought-iron or other suitable material, of sufficient dimensions to resist the draw of the scraper in use. The rear end of the bar B is bolted or otherwise firmly secured to the neck or socket *a* of the scraper A, and the rear end of the bar B' is similarly attached to its scraper A', and in order to increase the strength of the attachment, if a plain neck is used, ribs or flanges may be formed thereon, forming a recess in which the end of the draw-bar will fit, by which means vertical play will be prevented and the union made more rigid and firm than with bolts simply. The forward end of the bar B is provided with a head, *b*, which may be formed with the bar or of an independent piece attached thereto by bolts or rivets, or in some other firm manner, a similar head, *b'*, being also provided for the bar B', and these heads, when made of independent pieces, may be provided with a recess to receive the

end of the bar. These heads *b b'* stand at right angles, or nearly so, to their respective bars, and are each provided with a circular hole or opening, and when made independent of the bar each head is provided with a tail or extension for attachment to the bar.

C C' are the side pressure-bars for the respective scrapers *A A'*, to the ears or lugs *c c'* of which the inner ends of the respective bars are attached by bolts, rivets, or in some other firm manner. As shown, the lugs or ears *c c'* are each curved to receive the end of the bar, so as to make a strong union or attachment. If desired, the inner end of each bar might be turned at right angles and be bolted or riveted directly to the scraper; or the attachment could be made in some other suitable manner that would be strong and firm. The outer ends of these bars *C C'* terminate, when the parts are together, at or near the opposite side of the car to that of the scraper attached to the inner ends. The outer end of the bar *C* is provided with a head or enlarged portion, *d*, which may be formed with the bar or may be an independent piece attached thereto by means of bolts, rivets, or in any other firm manner, and the outer end of the bar *C'* is also provided with a head or enlarged portion, *d'*, similar to the head or enlarged portion *d* of the bar *C*, and when made of an independent piece a socket or recess may be provided in each head to receive the end of the bar and secure a stronger and firmer attachment. These bars *C C'*, with their heads *d d'*, are to be made of wrought-iron or other suitable material, and of sufficient dimensions to not bend or curve easily in use from the pressure of the scrapers. The head *d* is provided with a stem or circular portion, *f*, and the head *d'* with the corresponding portion, *f'*, the ends of which are screw-threaded to receive a nut.

D D' are brace-bars running respectively from the scrapers *A A'* to the transverse pressure-bars *C C'* for the purpose of furnishing additional strength to resist the pressure on the scraper in use.

E E' are curved bars extending respectively from the bars *B B'* to the bars *C C'* for the purpose of furnishing an additional bracing for the scrapers. These braces *D D' E E'* could be arranged in some other manner than that shown, and are simply for the purpose of insuring a proper bracing of the scraping-plates to resist the pressure in use.

F F' are brackets or hangers, one located on each side of the car and attached, as shown, to the longitudinal sill of the car-frame, but which could be attached to some other portion of the car-body, if desired. Each bracket or hanger is provided with a circular hole or opening for the passage of the ends or shanks *f f'* of the respective heads *d d'* of the bars *C C'*, and around each shank or stem and between the end of the respective heads *d d'* and the brackets or hangers *F F'* is placed or located a piece of rubber or other material, *e* or *e'*, that

will yield or give under pressure. The bars *C C'* are attached to their respective hangers *F F'* by passing the stem or shank of the heads of the bars through the opening in the bracket or hanger and securing it in position by means of a suitable nut on the screw-threaded end of the stem or shank, and when attached the rubber or other material, *e* or *e'*, interposed between the head of the bar and its bracket on each side will give or yield, allowing the scraping-plates to yield in case of the plate meeting a too strong resistance that might break or injure it or destroy the connections.

G is a rock-shaft extending longitudinally of the car at the end thereof, and located in line, or nearly so, with the center of the car, which shaft may be made of round iron or other suitable material, or for a portion of its length may be square. A coil-spring, *g*, is located on this shaft, one end to engage the face of the inner one of the heads *b b'*, and the other is held by a pin, *g'*, passing through the rock-shaft *G*. This spring *g* is to be of sufficient length to allow of the required amount of yield in case the scraper meets a too strong resistance, and is to be sufficiently strong to prevent any yielding under ordinary circumstances, and resist the natural draw of the scraper in use. A coil-spring is shown, but a bumper of rubber or other suitable material could be used, and some other means than the pin *g'* could be used for the end of the spring or bumper to rest against. The heads *b b'* are mounted loosely on the rock-shaft *G*, the shaft passing through the opening in each head, giving the draw-bars a pivotal or loose connection with the rock-shaft, by which the scrapers are free to rise and fall, each draw-bar being independently connected. The connection of the bars *C C'* with the brackets *F F'*, therefore, should be such as to permit the scrapers to rise and fall freely. As shown, this connection is made by providing the inner face of each bracket at the point where the bar enters with a socket or recess, into which the end of the cushion enters, which end may be rounded, and the opening for the stem or shank of the head is enlarged slightly, thus forming a ball-and-socket joint by which the required movement at the end of the bar is provided.

H H' are bearings for the rock-shaft *G*, one of which, *H*, is secured to the under side of the platform-sill and the other secured to the cross-bar of the frame or other portion of the bottom of the car. As shown, the bearing *H* forms a stop to prevent forward movement of the heads *b b'*; but some other device could be used for this purpose, if desired.

I is a lifting pulley or wheel firmly attached to the rock-shaft by passing a screw or pin through its hub *h* and the shaft, or in any other suitable manner. This wheel is provided with two grooves, *i i'*, for the reception of chains *j j'*.

J J' are brackets, one of which, *J*, is at-

tached by bolts or otherwise to the side and top of one of the outer platform-supporting bars and carries a pulley, *l*, and, as shown, stands at a slight inclination in order to bring the pulley in proper position to do its work. The other bracket or hanger, *J'*, is attached by bolts or otherwise to the bottom and side of the platform-supporting bar on the opposite side of the car, and carries a pulley, *l'*. This hanger or bracket depends from its support, and is located properly for the pulley to do its work. Instead of being attached to the outer platform-supporting bars these brackets could be attached to the floor or other portion of the car, and they are arranged so as to bring their respective pulleys in line with the respective grooves *i i'*.

The pulley *I* has on one side a cross bar or piece, *k*, extending over the groove *i*, and to this cross-piece is attached one end of a chain, *j*, which chain passes over the pulley *l* and has its other end attached to a closed eye, *m*, on the side or face of the scraper *A*, and on the opposite side of the pulley is a cross bar or piece, *k'*, extending over the groove *i'*, to which one end of a chain, *j'*, is attached, which chain passes over the pulley *l'* and is attached to a closed eye, *m'*, on the side or face of the scraper *A'*. Instead of cross bars or pieces *k k'*, suitable pins or hooks could be used for attaching the ends of the chains *j j'* to the pulley, and instead of closed eyes *m m'* for attaching the chains to the respective scrapers studs or hooks could be used. As shown, the eyes or staples *m m'* are located on the braces *D D'*, respectively, but they could be attached directly to the scrapers.

K is the cross-sill of the platform; *L*, cross-sills of the car-frame; *L'*, cross-sills for attaching the inner ends of the platform sills or bars; *M*, side sills of the car-frame; *N*, the sills or bars for supporting the platform. These parts represented by the letters *K L L' M N* may be of any of the usual and well-known forms of construction and arrangement.

The forward end of the rock-shaft *G* has attached thereto an arm, *n*, to the outer end of which is pivotally connected a bar, *o*, which bar extends up through a slot, *o'*, in the sill *K*, and its upper end is enlarged to form a loop, *p*, for the foot of the operator. By means of this bar *p o* and the crank or arm *n* the shaft *G* can be given a rocking movement, and, as shown, the section *o* of the raising and lowering bar or rod is provided on one edge with two notches or recesses to engage a catch located in the opening *o'* and hold the bar in either its raised or depressed position, and the bar is locked in either position by means of a latch, *q*, which can be made to engage the opposite edge of the bar from that containing the notches and hold the notches in engagement with the catch, which lock *q* is so formed as to be thrown in and out of position by the foot of the operator.

In applying the scrapers to a car the heads

b b' are slipped onto the rock-shaft *G*. The hangers *H H'* are placed on the shaft and attached by bolts or otherwise in position. The ends of the bars *C C'* are inserted in their respective hangers or brackets *F F'*, and secured therein by the nuts on the ends *f f'*. The chains *j j'* are attached to the pulley *I*, passed over the pulleys *l l'*, respectively, and attached to the scrapers *A A'*. The arm or crank is secured to the end of the rock-shaft and the foot-treadle or bar *o p* attached thereto when the device is ready for use.

When the cars are not turned at the end of the line the scrapers with their devices are to be applied at both ends; but for cars that are run onto a turn-table, so that the same end is forward at all times, the scrapers and their devices need only be applied at one end.

The operation is as follows: For removing the snow, ice, mud, or other obstacles from the track the body of each scraper rests upon the rails with the lip or projection in proximity to the inner face of the rail, and as the car moves along they will act in the usual manner to throw the material off the track or rail, and when in this position the chains *j j'* are unwound from the lifting-pulley *I*, so that each scraper has perfect freedom of movement, the foot-treadle being raised and locked in that position, so as to hold the rock-shaft *G* and pulley *I* thereon stationary or in a fixed position, preventing any accidental raising of the scrapers by the rock-shaft, pulleys, and chains.

To throw the scrapers up out of use the lock *q* is disengaged from the bar *o* and the bar forced down by the foot of the operator, which downward movement of the bar carries with it the crank *n*, turning the rock-shaft *G* a portion of a revolution, and with it the pulley *I*, winding the chains *j j'* thereon in their respective grooves *i i'*, raising the scrapers from the track, and when it is desired to hold the scrapers in an elevated position for any length of time the bar *o* can be locked in its depressed position by the latch or lock *q*, holding the rock-shaft and pulley firmly in position, preventing accidental dropping of the scrapers.

Other means than the foot-treadle could be used for operating the rock-shaft, and other forms of foot-treadle than that shown could be provided in use. A foot-treadle is deemed the most desirable, as by using one the driver or operator has his hands perfectly free to manage the horses and attend to the brake.

The journal-bearings *H H'* could be attached otherwise than as shown, so long as they hold the shaft *G* in position beneath the bottom of the car.

Removable strips of steel could be attached to the lower edge of the scraper and form the acting portion, such strip being attached by means of bolts, and, if desired, slots could be provided either in the strip or in the scraper, to permit of the attachment of the strip to compensate for wear.

While I have herein shown and described

two oblique draw-bars and two transverse pressure-resisting bars, I do not restrict myself to the employment of that number, for the reason that a single draw-bar and a single transverse pressure-resisting bar can be used to advantage.

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

1. The combination of the diagonally-arranged draw-bar, the scraper attached to the rear end of said diagonal bar, and the transverse pressure-resisting bar for attaching the scraper in position and permitting free vertical play of the same, substantially as described.

2. A scraper or plate, in combination with a diagonal draw-bar, a transverse pressure-resisting bar, a rock-shaft for supporting the draw-bar, and a bracket or hanger located on the opposite side to that of the scraper for attachment of the transverse bar, substantially as and for the purposes specified.

3. The scrapers or plates A A', diagonal draw-bars B B', and transverse bars C C', in combination with the shaft G and brackets or hangers F F', substantially as and for the purpose specified.

4. The scrapers or plates A A', diagonal draw-bars B B', transverse bars C C', rock-shaft G, and brackets F F', in combination with the pulley I and chains j j', substantially as and for the purposes specified.

5. The scrapers or plates A A', diagonal

draw-bars B B', transverse bars C C', rock-shaft G, and brackets or hangers F F', in combination with the pulley I and the grooves i i', chains j j', and pulleys l l', substantially as and for the purpose specified.

6. The scrapers or plates A A' and diagonal draw-bars B B', having heads b b', in combination with the shaft G and spring or bumper g for allowing the scrapers to yield in case of too great resistance, substantially as specified.

7. The scrapers or plates A A' and transverse independent bars C C', in combination with the brackets or hangers F F' and springs or bumpers e e' for allowing a yielding movement of the scrapers in case of too great side pressure, substantially as specified.

8. The scrapers or plates A A', diagonal draw-bars B B', and transverse reciprocating bars C C', in combination with the shaft G, brackets or hangers F F', and springs or bumpers e e' for allowing a yielding movement of the scrapers in use, substantially as and for the purpose specified.

9. The scrapers or plates A A', diagonal draw-bars B B', transverse resisting-bars C C', and brackets F F', in combination with the rock-shaft G, pulley I, having grooves i i', chains j j', pulleys l l', crank n, and foot-treadle o p, substantially as and for the purposes specified.

WILLIAM H. CLARK.

Witnesses:

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