

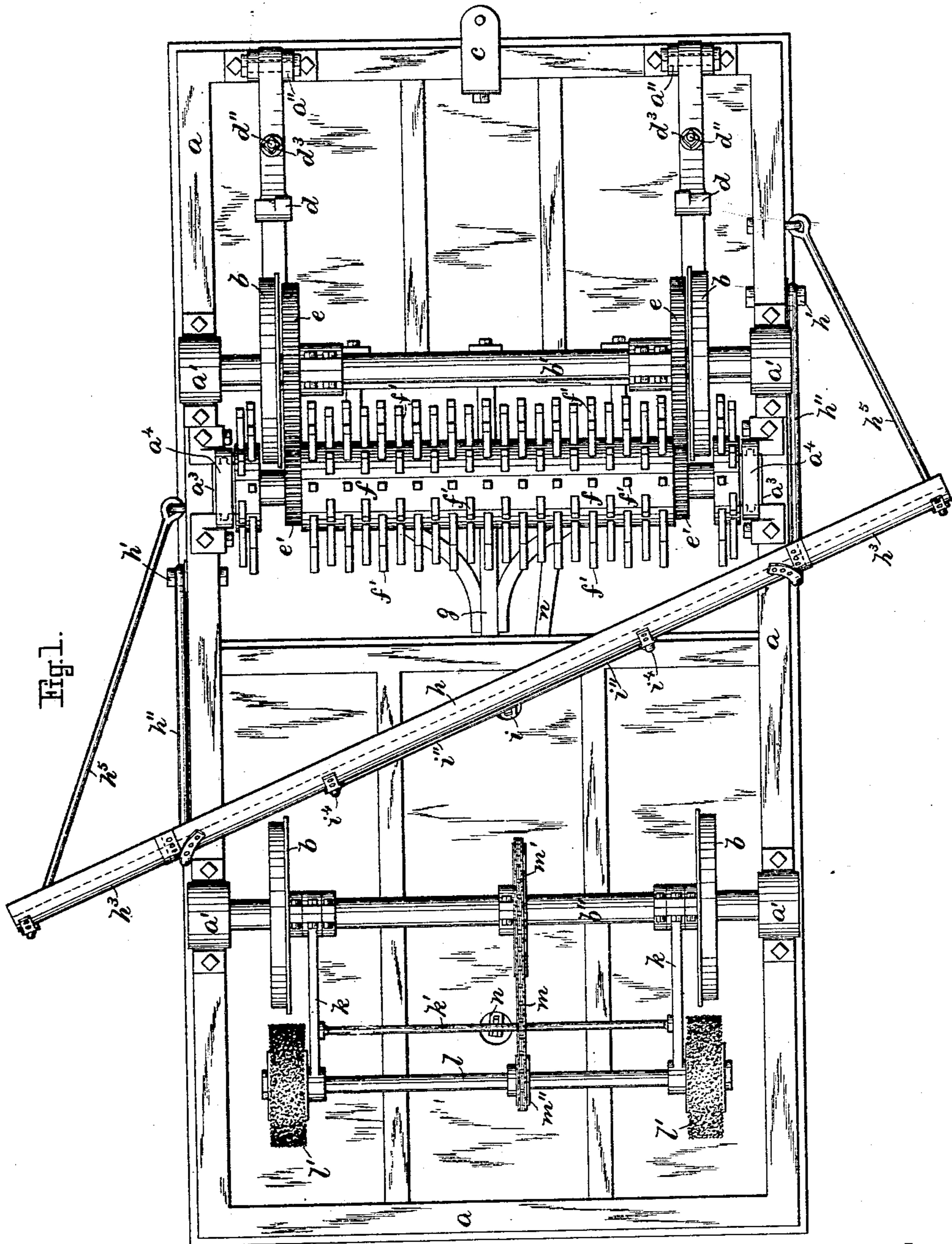
No Model.)

2 Sheets—Sheet 1.

J. E. FISHER.
APPARATUS FOR CLEANING TRACKS.

No. 414,511.

Patented Nov. 5, 1889.



Witnesses

Douglas Mearns.
D. E. Koenigster.

Inventor

John E. Fisher
by *Henry Chadbourne,*
his atty.

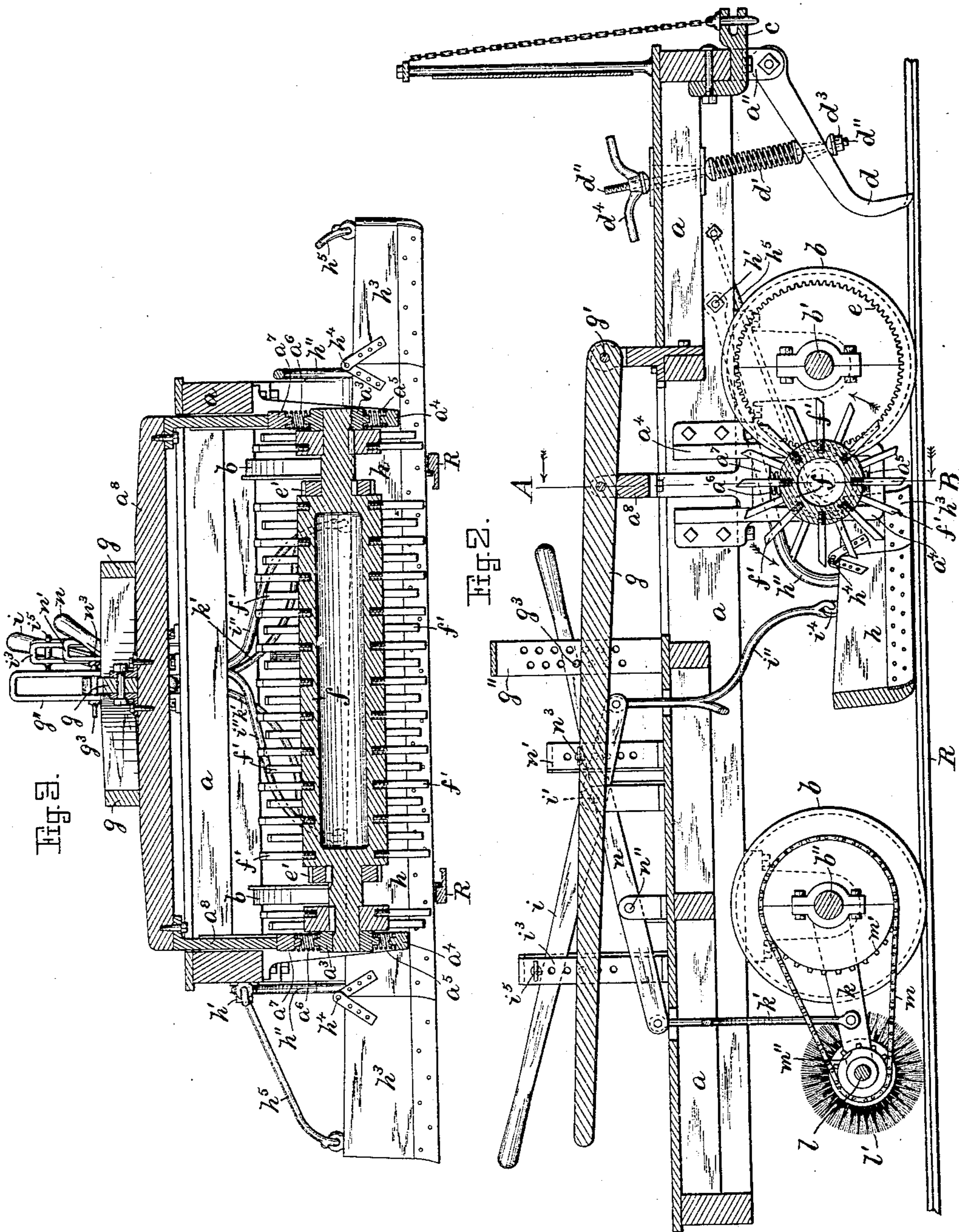
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UNITED STATES PATENT OFFICE.

JOHN E. FISHER, OF BOSTON, MASSACHUSETTS.

APPARATUS FOR CLEANING TRACKS.

SPECIFICATION forming part of Letters Patent No. 414,511, dated November 5, 1889.

Application filed January 21, 1889. Serial No. 297,013. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. FISHER, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Cleaning Tracks, of which the following, taken in connection with the accompanying drawings, is a specification.

10 This invention relates to improvements in apparatus for cleaning tracks, and is especially adapted to remove the hard-trodden snow or ice from horse-car tracks, and for similar purposes.

15 It consists in a peculiar construction of the diggers or scrapers for scraping the ice from the rails; also, in mechanism for breaking or picking up the ice between the rails, and for a short distance outside of the rails on either side; also, in means for hanging the share or guide board for guiding the snow and ice to one side of the track after it has been broken up, and also in mechanism for sweeping the rails.

25 The invention is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a bottom view of my improved track-cleaner. Fig. 2 represents a central longitudinal section of the same, and Fig. 3 represents a cross-section on the line A B. (Shown in Fig. 2.)

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

35 *a* represents the frame of the track-cleaner, mounted on the wheels *b b b b*, whose axles *b' b''* are journaled in the bearings *a' a' a' a'* on the frame, as shown in Fig. 1.

40 *c* represents the draw-bar, as usual.

a'' represents a bracket or bearing attached to the forward part of the frame directly over the rail of the car-track, and to this bracket is hinged the scraper or digger *d* in such a manner that it will be drawn along on the rail *R* when the track-cleaner is moved forward and will tend to scrape the ice from the rail.

50 *d'* represents a spring interposed between the upper part of the scraper and the frame, which tends to hold the scraper against the

rail with a yielding pressure sufficiently strong to remove the ice and snow from the rail, but to yield and allow the scraper to rise should it come in contact with the projecting end of a rail or a spike.

d'' represents a rod passing through perforations in the scraper and the frame and also through the spring *d'*. Said rod serves to guide the scraper on the rail, and also to limit the downward movement of the scraper caused by the spring *d'*, by means of the nut *d³*, screwed on said rod below the scraper, and the hand-nut *d⁴*, screwed on said rod above the frame of the cleaner. Thus it will be seen that the scraper can be adjusted up or down by means of the hand-nut *d⁴* and the spring *d'*. One of these diggers or scrapers is provided for each rail *R R*, as shown in Fig. 1.

To the forward axle *b'* are secured the spur-gears *e e*, which mesh into the smaller spur-gears *e' e'*, keyed or otherwise made fast on the reduced ends of the pick-drum *f*. The drum *f* is provided with a number of picks or projections *f' f'* on its surface, and is journaled in the blocks *a³ a³*, which are guided up and down in the hangers *a⁴ a⁴*, as shown in Fig. 3.

a⁵ a⁵ represent spring-cushions interposed between the under side of the blocks *a³ a³* and the lower part of the hangers *a⁴ a⁴*, and *a⁶ a⁶* represent similar spring-cushions placed between the upper side of the blocks *a³ a³* and the followers *a⁷ a⁷*, which are pressed downward, when in operation, by means of the lever *g* acting on the yoke *a⁸*, the ends of which rest on top of the followers *a⁷ a⁷*. The lever *g* is pivoted in its forward end at *g'* to a bearing on the frame, and is guided at its rear end in the standard *g''*.

90 *g³* represents a pin or bolt inserted through one of the perforations in the standard *g''* to hold the lever after it has been adjusted. It will be seen that when the blocks *a³ a³* and the drum *f* are forced downward to the position shown in the drawings the teeth of the gears *e* and *e'* mesh together and cause the drum to revolve in the direction of the arrows shown in Fig. 2, when the cleaner is drawn forward, and by this means any ice or snow there may be in the path of the cleaner will be broken up by the picks *f' f'*; but if

any substance too hard for the picks to break up should come in contact with the picks the spring-cushions $a^6 a^6$ will yield and allow the drum to rise and pass over such hard substance and thereby prevent the picks from breaking.

If it is not desired to use the picks for cleaning the track, all that is necessary to do is to withdraw the pin g^3 from the standard g'' and raise the lever g and yoke a^8 sufficiently to allow the spring-cushions $a^5 a^5$ to raise the drum high enough to disengage the gears e and e' from each other, when the drum will remain stationary.

I do not wish to confine myself to the precise means shown for hanging and operating the drum f , as other and well-known means may be employed without departing from the spirit of my invention.

h represents the plowshare or guide-board for guiding the snow and ice to one side of the track after it has been broken up by the picks $f' f'$, and said guide-board is hung to both sides of the frame a at the points $h' h'$ in front of said guide-board by means of the rods $h'' h''$. Thus it will be seen that the guide-board is drawn by the frame of the cleaner instead of being pushed, as is common in snow-plows now in use for cleaning horse-car tracks, and by this construction the rods can be made much lighter and still retain the desired strength.

$h^3 h^3$ represent wings or extensions hinged at $h^4 h^4$ to the guide-board h , as usual, for the purpose of raising them when in the way or not required for use.

$h^5 h^5$ represent rods pivotally attached at one end to the outer end of the wings $h^3 h^3$ and at the other end to the frame in front of the wings.

i represents a lever fulcrumed at i' to a bearing on the frame a and having the forked connecting rod or link i'' hinged to one end of said lever, the other end of the lever being guided in the standard i^3 on the frame.

The connecting-rod i'' , hinged to the end of the lever i , is hinged in its forked lower end to the guide-board h at $i^4 i^4$, and it will be seen that if the free end of the lever i is forced downward the guide-board h will be raised by the rods $h'' h''$, swinging on their fulcrum $h' h'$ on the frame a .

i^5 represents a pin or bolt adapted to be inserted through one of the holes in the standard i^3 above the lever i , to hold the guide-board in its raised position.

On the rear axle b'' of the cleaner is loosely journaled the arms $k k$, their outer ends forming bearings for the brush-shaft l , which is set in a rotary motion, when the cleaner is drawn forward, by means of the chain or belt m and the pulleys m' and m'' , placed, respectively, on the axle b'' and shaft l . The shaft l is provided with brushes $l' l'$, in such positions that when said shaft is revolved the brushes will sweep the rails R of the track

when they are in the position shown in the drawings.

k' represents a forked connecting-rod attached in its forked end to the arms $k k$ and in the other end to one end of the lever n , the other end of said lever n being guided in the standard n' on the frame of the cleaner.

n'' represents the fulcrum on which the lever n is swung, and n^3 represents a pin or bolt passed through one of the holes in the standard n' to hold the lever in position after it has been adjusted.

When the brushes are not required for use, the free end of the lever n is swung downward, which will swing the arms $k k$ upward, by means of the connecting-rod k' , and consequently the shaft l , with its brushes $l' l'$, will be raised from the ground.

If so desired, my improved scrapers and sweeping mechanism may be applied to a horse-car for the purpose of cleaning the rails of the track from gravel or dirt without departing from the spirit of my invention.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a track-cleaning apparatus, the digger or scraper d , pivoted to the frame a , or a bracket thereon, at a point in front of the contact of said digger with the rail of the track, and having the spring d' interposed between the digger and the frame, and the rod d'' , with its nut d^3 and hand-nut d^4 , to limit the movement of said spring, as and for the purpose set forth.

2. In a track-cleaning apparatus, a drum or cylinder provided with picks or projections on its surface, said drum being journaled in bearings on the frame of the machine, said bearings being provided with yielding spring-cushions above and below, for the purpose set forth.

3. In a track-cleaning apparatus, the drum f , provided with picks $f' f'$, and revolved by mechanism from one of the axles of the machine, said drum being journaled in the blocks $a^3 a^3$, which are guided in the hangers $a^4 a^4$, and provided with spring-cushions $a^5 a^5$ and $a^6 a^6$, above and below, the lever g , and connecting mechanism to the drum f , said lever being pivoted to the frame of the machine and adjustably held in position on said frame, all combined for the purpose set forth.

4. A track-cleaning apparatus consisting of the following elements: a frame mounted on wheels, diggers pivoted to the forward part of said frame and pressed against the rails of the track with a yielding pressure, as described, a drum provided with picks or projections and adapted to be rotated by mechanism from the axle of the machine in bearings on said frame, a guide-board pivotally connected to said frame at points in front of said guide-board, brushes mounted on a shaft rotated by mechanism from the axle of the machine, said shaft having bearings in arms

adapted to swing on said axle, and connecting mechanism from said drum, guide-board, and arms each to a separate lever adjustably held in position on the frame of the machine,
5 all combined to operate as and for the purpose set forth and described.

In testimony whereof I have signed my name

to this specification, in the presence of two subscribing witnesses, on this 15th day of January, A. D. 1889.

JOHN E. FISHER.

Witnesses:

HENRY CHADBURN,
M. B. McMANUS.