

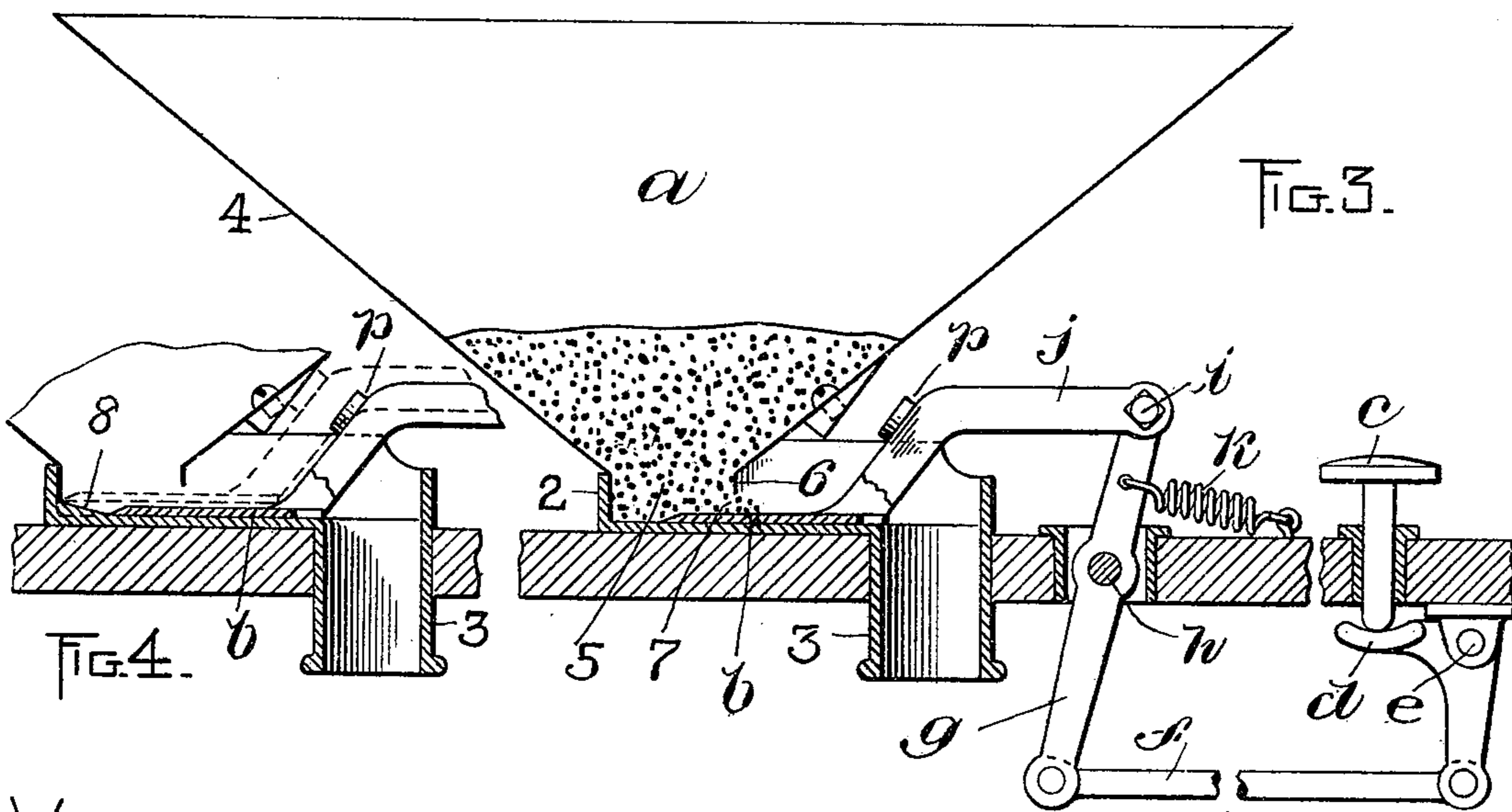
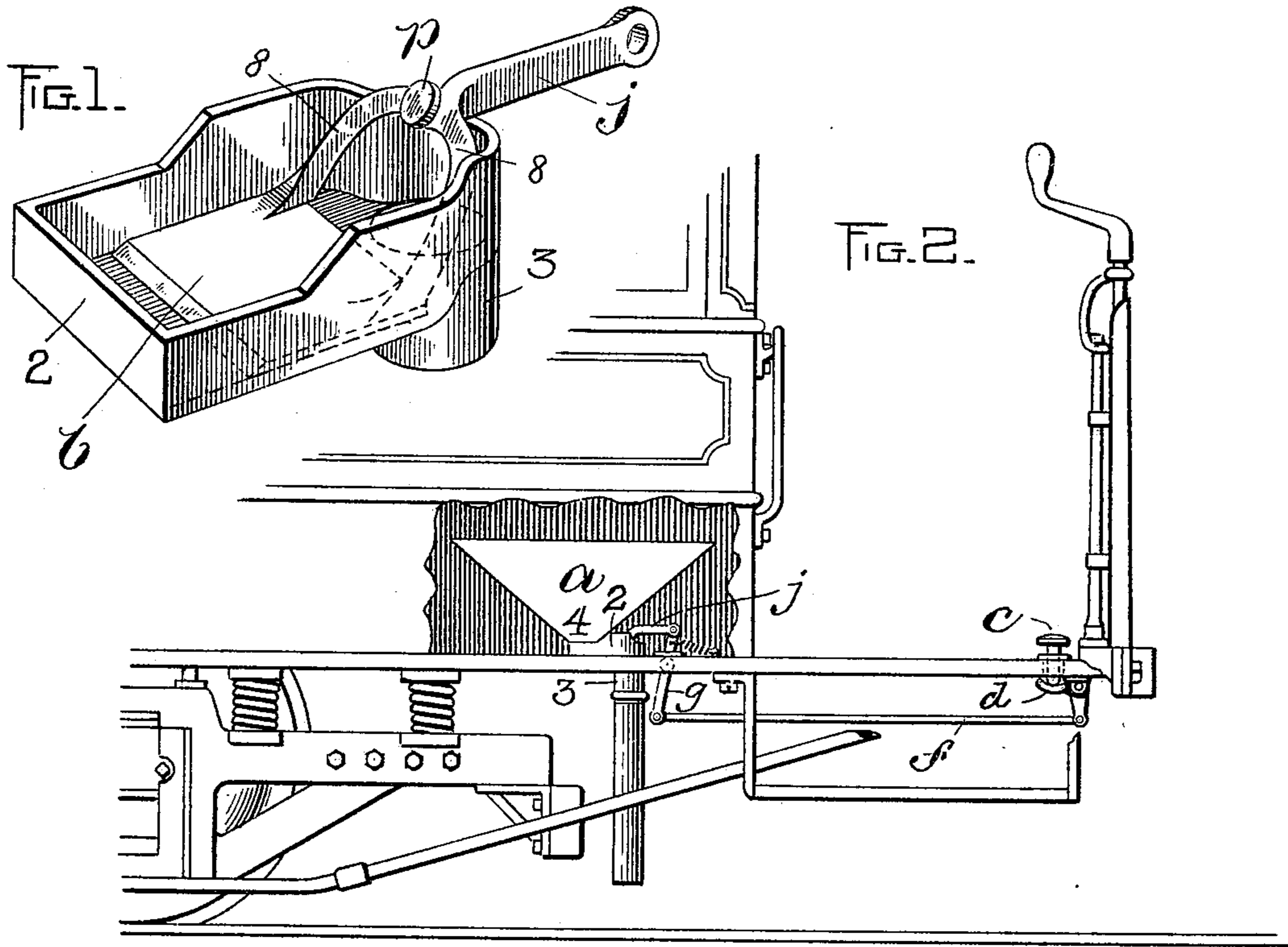
No. 620,040.

Patented Feb. 21, 1899.

W. H. KILBOURN.
TRACK SANDING DEVICE.

(Application filed Nov. 9, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WASHINGTON H. KILBOURN, OF GREENFIELD, MASSACHUSETTS.

TRACK-SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 620,040, dated February 21, 1899.

Application filed November 9, 1898. Serial No. 695,933. (No model.)

To all whom it may concern:

Be it known that I, WASHINGTON H. KILBOURN, of Greenfield, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Track-Sanding Devices, of which the following is a specification.

This invention relates to railway-track-sanding devices particularly for use on street-railway tracks, in which sand is fed from a box or hopper to a delivery-spout by means of a feeding device operated by an attendant on the car or other means.

The invention has for its object to provide a feeding device formed as a shovel and adapted to be operated with less expenditure of power than heretofore and to operate successfully upon wet or damp sand, as well as upon sand of varying degrees of fineness or containing lumps and pebbles, also to keep the sand in a comparatively loose condition in the hopper and prevent it from being packed so that it will not feed readily.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a perspective view of the hopper and automatic shovel constructed in accordance with my invention. Fig. 2 represents a side elevation of the same applied to a car. Fig. 3 represents a longitudinal section of the same, showing in elevation one form of mechanism for reciprocating the shovel. Fig. 4 represents a view similar to a portion of Fig. 3, showing means for raising the shovel during its inward movement to cause it to loosen the body of sand above it.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, *a* represents a hopper or receptacle for sand, which, as here shown, comprises a cast-metal base 2, formed to bear upon the bottom of a car and having at one end a sand-outlet 3 and a sheet-metal reservoir 4, surmounting the base 2 and having a contracted throat 5, which discharges sand into the base at the end opposite that from which the outlet 3 extends. One side, 6, of the throat 5 extends partly across the base and is separated from the bottom thereof by a narrow space or sand-outlet 7, through which

all the sand that finds its way from the reservoir to the outlet must pass.

b represents a shovel which is movable edgewise in the base of the hopper toward and from the outlet 3. The said shovel is preferably parallel with the bottom of the base 2 and rests loosely thereon, so that when the shovel is reciprocated it forms a sliding part of said bottom, the shovel being thrust under the accumulation of sand in the throat of the reservoir *a* when moved away from the outlet 3 and withdrawing a portion of the accumulation of sand and carrying it toward the outlet 3 when moved in the opposite direction. The shovel may be reciprocated edgewise by any suitable means. I have here shown as the means for reciprocating the shovel a pedal *c*, arranged to be moved by the motorman or other attendant on the car, and bearing against one arm of a bell-crank lever *d*, which is pivoted at *e* to the car-platform and is connected by a rod *f* with a lever *g*, said lever being pivoted at *h* and connected at *i* with an operating-arm *j*, attached to the shovel *b*. When the pedal *c* is depressed, the shovel *b* is forced forward or away from the outlet 3, and when the pedal is released a spring *k*, attached to the lever *g* and to a portion of the car, moves the shovel *b* backwardly toward the outlet 3, thus causing it to move a portion of the sand from the hopper to the outlet.

It will be seen that the shovel *b* moves edgewise through or under the accumulation of sand, and therefore experiences comparatively little resistance when it is being moved outwardly and still less resistance when it is being moved backwardly or toward the sand-outlet. Hence the shovel can be operated by much less exertion or the expenditure of less power than would be possible with a feeding device which is arranged to displace a considerable body of sand by pushing against it horizontally. I have found by practical tests that a shovel operated as described can feed damp sand nearly or quite as well as dry sand and is not obstructed or impeded in its operation by lumps or pebbles in the sand. Moreover, it does not pack or compress the sand, but has a tendency to keep it loose and free.

If desired, provision may be made for giv-

ing the shovel a slight sidewise upward movement to cause it to lift and loosen the mass of sand above it in case the latter has become packed by the motion of the car during a period of disuse of the feeding device. To this end I show in Fig. 4 an incline 8 on the bottom of the base of the hopper, said incline being arranged to raise the shovel sidewise as the latter is moved outwardly, as shown in dotted lines.

A hammer arranged to strike one side of the reservoir 4, and thus agitate and prevent the packing of the sand therein, may be connected with the shovel in such manner as to move therewith. Said hammer may be a part of the operating-arm *j* and is here shown as a projection or protuberance *p*, formed on said arm, arranged to come into contact with the adjacent side of the reservoir 4 when the arm and shovel are moved forward.

The operating-arm *j* is preferably connected with the shovel *b* by means of an arched yoke composed of arms 8 8, which extend from the rear end of the shovel, near the opposite edges thereof, to the arm *j*. The arm *j*, the shovel, and the connecting-yoke may be cast in a single piece, if desired. The connection of the yoke-arms 8 8 to the edges of the shovel provides a sand-outlet between said arms, as shown in Fig. 3. I prefer to sharpen the forward edges of the arms 8 8 to enable them to enter the sand with the minimum resistance.

The claims in the present specification are restricted to a device in which the shovel is movable toward and from the outlet. In another application filed by me December 16, 1898, Serial No. 699,418, I show a track-sanding device of somewhat this type, but in which the shovel is not movable toward and from the outlet. In said other application the claims are not restricted to a to-and-fro movement of the shovel.

I claim—

1. A track-sanding device comprising a hopper having a sand-outlet, and an automatic shovel movable edgewise in said hopper toward and from the outlet.

2. A track-sanding device comprising a hopper having a sand-outlet, and an automatic shovel substantially parallel with the bottom of the hopper and movable edgewise over the same, toward and from the outlet.

3. A track-sanding device comprising a hopper having a sand-outlet, an automatic shovel movable in said hopper toward and from the outlet, and a hammer connected with said shovel and arranged to strike the hopper.

4. A track-sanding device comprising a hopper having a sand-outlet, an automatic shovel movable edgewise in said hopper toward and from the outlet, and means in the hopper for giving the shovel a sidewise upward movement, to loosen or break up a superincumbent mass of packed sand.

5. A track-sanding device comprising a hopper having a sand-outlet, a shovel movable edgewise in said hopper toward and from the outlet, and means for reciprocating said shovel.

6. A track-sanding device comprising a hopper having a sand-outlet in its bottom, a shovel bearing sidewise on said bottom and movable edgewise toward and from the outlet, and means for reciprocating said shovel.

7. A track-sanding device comprising a hopper having a bottom extended beyond the throat of the hopper, and provided at its outer portion with a sand-outlet, a shovel movable edgewise on said bottom toward and from the outlet, and means for reciprocating said shovel.

8. A sand-feeding shovel comprising a flat blade, an arched yoke attached at its ends to the blade, near the edges thereof, said ends being separated from each other to form a sand-outlet between them, and an operating-arm formed on or attached to the yoke.

In testimony whereof I have affixed my signature in presence of two witnesses.

WASHINGTON H. KILBOURN.

Witnesses:

C. F. BROWN,

A. D. HARRISON.