

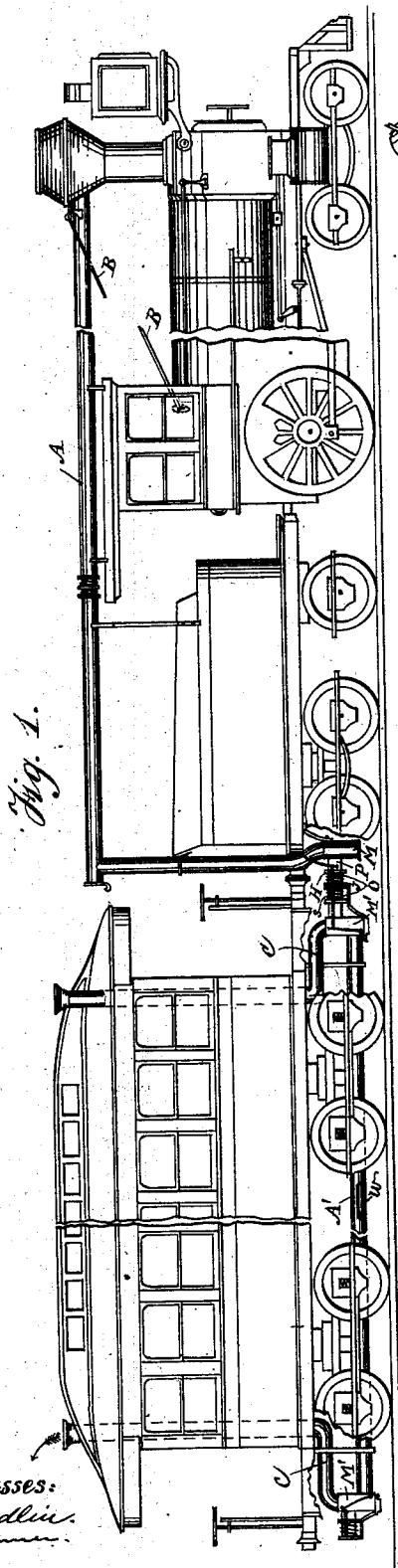
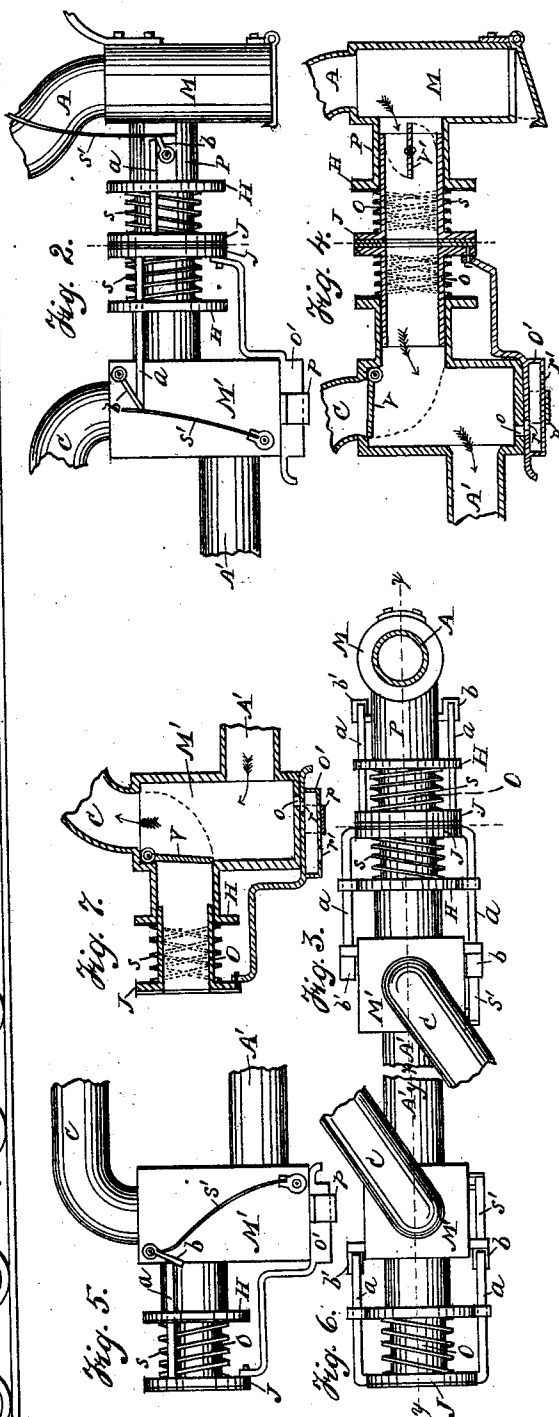
(No Model.)

E. T. WATKINS.

Smoke Conductor for Railroad Trains.

No. 235,474.

Patented Dec. 14, 1880.



UNITED STATES PATENT OFFICE.

EDMUND T. WATKINS, OF HYDE PARK, MASSACHUSETTS.

SMOKE-CONDUCTOR FOR RAILROAD-TRAINS.

SPECIFICATION forming part of Letters Patent No. 235,474, dated December 14, 1880.

Application filed May 4, 1880. (No model.)

To all whom it may concern:

Be it known that I, EDMUND T. WATKINS, of Hyde Park, in the county of Norfolk and State of Massachusetts, have invented certain
5 Improvements in Smoke-Conductors for Railroad-Trains, of which the following is a specification.

This invention relates to smoke and spark conductors for railroad-trains, composed of a
10 series of sections of tubing, one extending back from the smoke-stack of the locomotive, and one for each car or other carriage comprising the train, and coupling devices whereby the sections of tubing are connected to
15 form a continuous tube or conductor from the smoke-stack to the rear end of the train.

Heretofore, so far as I am aware, the sections comprising the conductor have been located on the roofs of the cars, and have therefore
20 been more or less inaccessible and inconvenient to clean and repair.

My invention has for its object, first, to enable the conductor to extend under the cars, from the engine or tender to the rear end of
25 the rear car, and then extend upwardly and discharge the smoke, &c., above the roof of the rear car.

My invention also has for its object to provide improved means for automatically coupling
30 the sections and for automatically closing the horizontal portion of the conductor at the rear end of the train, and opening a vertical outlet extending through the roof of the car.

To these ends my invention consists in the
35 improvements which I will now describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents
40 a railroad-train provided with my improvements. Figs. 2 and 5 represent enlarged side views of the coupling and valve-operating devices. Figs. 3 and 6 represent enlarged top
45 views of the same; and Figs. 4 and 7 represent enlarged sections on lines *x x* and *y y*, Figs. 3 and 6.

The same letters indicate the same parts in all the figures.

In carrying out my invention I provide a
50 pipe, A, extending backwardly from the smoke-stack of a locomotive, and of sufficient size to

conduct all the smoke, steam, &c., passing through the stack. A valve is located above the pipe A in the stack to close the top of the
stack and to compel the smoke, &c., to pass
55 out through the pipe A. This valve may be opened by a rod, B, extending to the cab, when it is desired that the smoke shall pass out of the stack in the usual way. The pipe A extends horizontally over the tender of the en-
60 gine and then extends downwardly to a box or chamber, M, which is located below the level of the coupling connecting the tender to the succeeding car. From the chamber M extends rearwardly a telescopic pipe composed
65 of a section, P, having a flange, H, on its outer end and rigidly attached to the chamber M, and a section, O, adapted to slide in the section P, and impelled outwardly by a spring, S, interposed between the flange H and a flange,
70 J, formed on the outer end of the section O. This spring-impelled section forms one member of a coupling to connect the pipe A with a horizontal pipe, A', extending under the succeeding
75 car, the other member of the coupling being a similar spring-impelled section connected to a fixed section, P, projecting from a box or chamber, M', on the end of the pipe A'. When the members of the coupling approach each
80 other, in coupling the tender to the car, the flanges J on the sections O collide and the sections O yield sufficiently to enable the springs S to constantly press the flanges J together.

Each flange J is provided with a facing of
85 rubber, which acts as a packing for the joint between the flanges.

The flanges H of the sections P are also faced with rubber, which forms a packing around the sliding sections and helps to support said
90 sections.

The sections O are partially guided in their movements by rods *a a*, attached to the flange J and extending through orifices in the flange H, and the sections O are adapted to swing
95 laterally to such an extent that they will remain parallel, so that the coupling will not be affected when the train is on a curve.

It will be seen that the spring-impelled flanged sections O O constitute a self-cou-
100 pling and uncoupling and self-adjusting connecting-tube which will insure the passage,

without leakage, of smoke, &c., from the permanently-attached pipe or section of one car to the similar pipe of a succeeding car, and requires no attention from the train-hands.

5 It will be understood that each car in a train is provided with a pipe, A', having a telescopic pipe at each end, said telescopic pipes being all constructed as above described. The smoke, &c., from the locomotive will
10 therefore pass, by way of the pipe A, through the pipe A' of each car, to the rear end of the train, and the pipes and couplings are at all times accessible for cleaning and repairs, each pipe A' being provided with an opening at
15 W to enable the pipe to be cleaned. By this arrangement of the pipes I also prevent the drippings occasioned by water produced by condensation in the pipes from damaging the clothing of passengers or soiling any portion
20 of the cars. It is desirable, however, that the smoke should not be discharged at the rear of the train at the level of the pipes A'. To this end I provide each pipe A' with two branches, C C, extending upwardly from the boxes M'
25 M' at opposite ends of the car, and terminating above the roof. I also provide each box M' with a valve, V, adapted to either close the telescopic pipe or the branch C leading from such box. The valve V is normally held by a
30 spring, S', in position to close the telescopic pipe, as shown in Figs. 5 and 7, said spring being suitably attached to the exterior of the box M' and bearing against an arm, b, on the projecting end of the shaft of the valve V.
35 When the cars are coupled the valve V is automatically moved into position to shut off the branch C, as shown in Figs. 2 and 4, by the rods a a, attached to the flange J of the telescopic pipe, said rods passing through
40 guiding-orifices in the flange H, and bearing against the arm b, and a similar arm, b', on the opposite end of the shaft of the valve V, and forcing said valve over the mouth of the branch C against the pressure of the spring S'.
45 Sufficient movement is given the rods a a, when the cars are coupled, to produce the desired change in the position of the valve.

The telescopic pipe pertaining to the box M, which receives the pipe A, is provided with a
50 valve or damper, V', which is turned by a spring to shut the pipe when the tender is uncoupled from the cars, and is turned by the movement of the section O to open the pipe when the tender is coupled to the car.

55 It will be seen that the smoke, &c., will pass under the cars to the rear end of the last car, and will then pass upwardly through the last branch C and escape above the roof of the car, all the other branches C being shut off, so that
60 no smoke can escape through them.

When a car is detached from a train the rear branch, C, of the preceding car is automatically connected to the pipe A', so that
65 smoke will still escape from the roof, as before.

When the tender is disconnected from the

train the valve or damper V closes, so that no smoke can pass out.

To enable the water arising from condensation in the conductor to pass out, I provide
70 suitable depressions in the fixed sections of the conductor to receive the water, said depressions being preferably formed by extending the bottom of the boxes M' below the level
75 of the conductor, and I provide the bottom of each box M' with an orifice, o, and this orifice I cover by a slide, o', attached to the section O and moving therewith.

The slide o' is preferably a box having apertures r and r' in its top and bottom, and supported by a strap, p, under the box M'.
80 The ordinary motion of the car will cause the aperture r of the slide to register at intervals with the aperture o of the box M', and thereby permit the passage of water into the slide o', from
85 which the water escapes through the aperture r'. This arrangement will keep the boxes M' clear of water without permitting leakage of smoke.

The telescopic pipes may be employed as
90 automatic couplings without the valves V, and may be used on pipes extending above the roofs of the cars.

The pipes A', below the cars, are to be oval
95 in cross-section.

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

1. In combination with two flanged pipes or tubes permanently attached to railroad car-
100 riages or cars, the self coupling and uncoupling and self-adjusting connecting-tube, composed of the laterally swinging and sliding sections O O, provided with flat yielding surfaced flanges J J and springs S S, whereby
105 said sections are forced outwardly and their flanges J J are pressed together to make the sections continuous, the lateral swinging movements of the sections preventing their continuity from being broken when the train is on
110 a curve, as set forth.

2. In combination with the sliding and swinging sections O O, the fixed tubes or sections P P, having the flanges H H, provided with rubber facings, whereby the sections O
115 are packed and partially supported, as set forth.

3. In a smoke-conductor for railroad-trains, the combination of fixed pipes or flues attached to the carriages of the trains below the
120 platforms, the vertical branches terminating above the roofs of the carriages, the spring-valves V, adapted to normally close the ends of the pipes or flues, and the telescopic pipes having sliding sections O, adapted to operate the
125 valves V so as to open the pipes or flues and shut off the branches when the cars are coupled, as set forth.

4. In combination with the conductor composed of the fixed and the sliding sections, the
130 depressions in the fixed sections for the accumulation of condensed water, each depres-

sion having an orifice, *o*, in its bottom, and the slides *o'*, connected to the sliding sections, and caused, by the motion of the train, to intermittently open and close the orifices *o*,
5 as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two

subscribing witnesses, this 23d day of February, A. D. 1880.

EDMUND THOS. WATKINS.

Witnesses:

WARREN S. HILL,
C. F. BROWN.