

(No Model.)

2 Sheets—Sheet 1.

C. P. JOHNSON.
SPARK ARRESTER AND CONDUCTOR.

No. 537,826.

Patented Apr. 23, 1895.

FIG. 1.

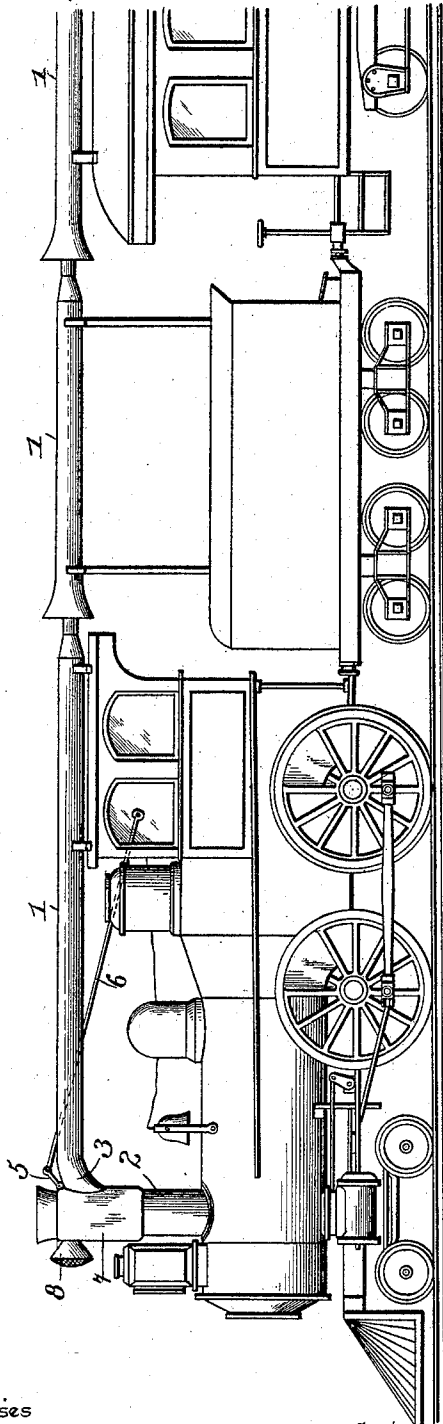
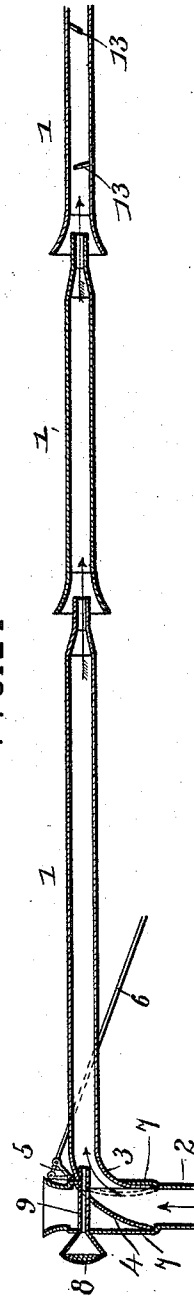


FIG. 2.



Inventor

Charles P. Johnson

Witnesses

Jas. K. McLaughlin
[Signature]

By his Attorneys.

Chas. Snow & Co.

(No Model.)

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FIG. 3.

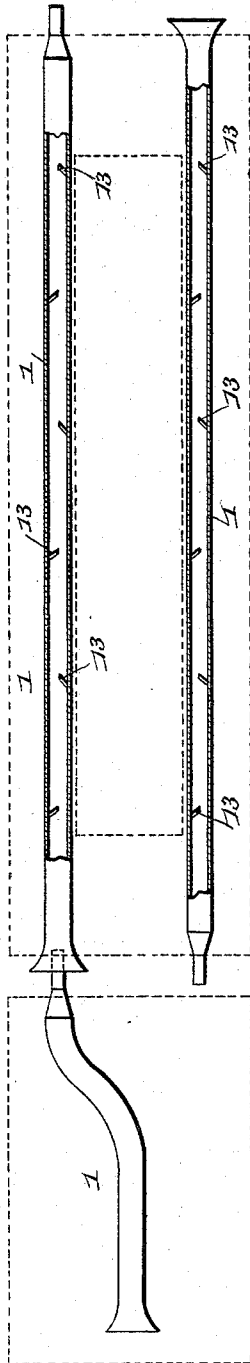
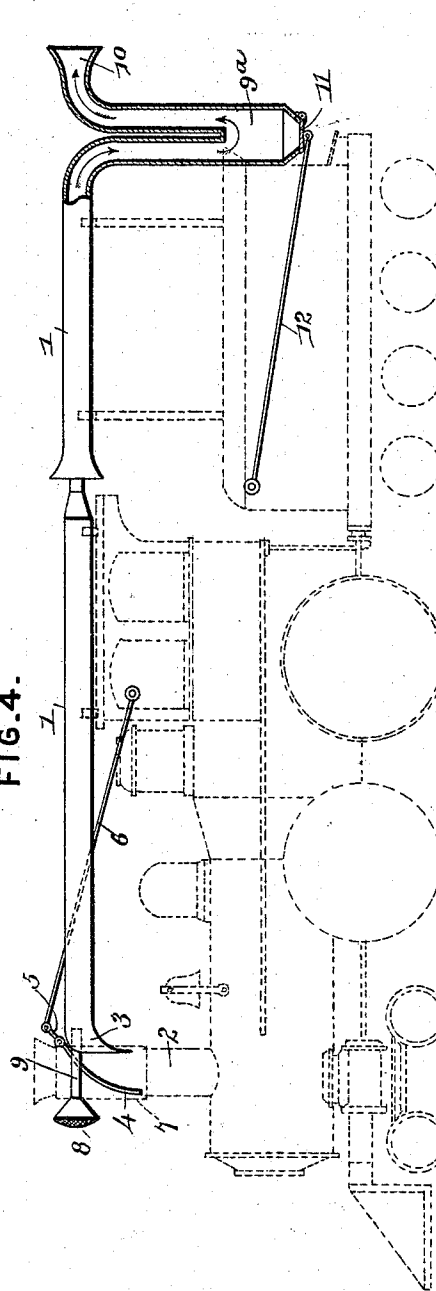


FIG. 4.



Inventor

Witnesses

Jas. H. McLaughlin

By His Attorneys,

Charles P. Johnson

[Signature]

Chas. P. Johnson

UNITED STATES PATENT OFFICE.

CHARLES PARRY JOHNSON, OF THURMAN, KANSAS, ASSIGNOR OF ONE-
THIRD TO J. N. SPRINGSLEAD, OF SAME PLACE.

SPARK ARRESTER AND CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 537,826, dated April 23, 1895.

Application filed June 8, 1894. Serial No. 513,976. (No model.)

To all whom it may concern:

Be it known that I, CHARLES PARRY JOHNSON, a citizen of the United States, residing at Thurman, in the county of Chase and State of Kansas, have invented a new and useful Spark Arrester and Conductor, of which the following is a specification.

My invention relates to a smoke and spark arrester and conductor for railway cars, the objects in view being to provide means for conveying the smoke, sparks, and other products of combustion from the engine to the rear end of the train to prevent the same from being carried into the windows of the cars.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a side view of a train of cars provided with a conductor embodying my invention. Fig. 2 is a longitudinal section of the conductor. Fig. 3 is a plan view, partly broken away, of the sections of the conductor carried by two adjoining cars. Fig. 4 is a side view, partly in section, of a conductor adapted especially for use in connection with a yard engine and indicating such an engine in outline.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The improved conductor for products of combustion is constructed in sections 1, carried respectively by the cars, each section being provided with a flared end and an opposite reduced end, and each car being provided with two oppositely disposed sections, as shown in the plan view, Fig. 3, whereby the reversal of a car will not prevent the accurate connection of the sections carried by adjoining sections. The flared end of each section is made of sufficient size to receive the reduced end of a section carried by a preceding car and allow play of the same therein to accommodate the movements of the cars, and in addition to this function the flared ends of the sections are adapted to catch the air as the train proceeds forward, and thus cause a regular backward draft through the conductor. This backward draft through the conductor

is necessary in order to prevent the escape of sparks or other products of combustion at the points of connection of the sections, inasmuch as the connections are loose and consist merely in the insertion of a reduced end of one section in an enlarged or flared end of an adjoining section, and the said loose connection of the section is desirable for the reason that no adjustment or fastening is necessary. The act of coupling two cars properly connects the conductor-sections carried thereby, thus avoiding special couplings of the conductor-sections.

The section of the conductor which is carried by the engine and which communicates with the stack 2 is arranged in such a position as to fit at its rear reduced end in the flared end of a section carried by the succeeding car, and the front portion of this section of the conductor is curved or elbowed, as shown at 3, to connect with the stack at an acute angle. In the angle formed by the curved portion or elbow of the conductor-section and the stack is arranged a pivotal controlling valve or cut-off 4, having an exterior arm 5, to which is connected an operating rod 6 adapted to be arranged at its rear end in the cab of the engine. This controlling valve is curved to agree with the curved inner side of the adjacent portion of the conductor section, whereby when the valve is arranged to cut off escape through the stack it is arranged parallel with the curved side of the conductor-section. The stack is provided adjacent to the point of connection of the conductor-section with an angular enlargement 7, within which the free end of the valve fits when extended to direct the current of products of combustion through the conductor.

Arranged in front of the stack is a draft funnel 8, provided with a neck portion 9, which is arranged in alignment with the axis of the conductor-section carried by the engine and is in connection with the interior of said section, whereby as the engine moves forward, air is caught and concentrated by the draft funnel into the conducting-section, thus providing the necessary draft for insuring the proper combustion in the furnace of the engine. When the engine is running backward the controlling valve is turned to the position

shown in dotted lines in Fig. 2, thus closing the conductor and allowing the products of combustion to escape through the stack in the ordinary way.

5 In the modification of my invention, which is shown in Fig. 4, the conductor-section which is carried by the tender is provided with a depressed portion 9, forming a spark receptacle, whereby the products of combustion are carried down through the receptacle, thus depositing the cinders in the latter, and then carried upward and discharged from the flared mouth 10. The bottom of the receptacle is provided with a removable or hinged stopper 11, to which is connected an operating rod 12, extending to the front end of the tender.

In order to provide for extinguishing the sparks before they leave the conductor, the sections thereof, as shown in Fig. 3, are fitted with interior alternately disposed inclined wings or beaters 13, whereby the products of combustion are thrown from one side of the conductor to the other and back again in their passage therethrough.

It will be understood that in practice various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle of the invention or sacrificing any of the advantages thereof.

Having described my invention, what I claim is—

A sectional conductor, for the purpose named, the sections being arranged in duplicate upon each car, having opposite flared and reduced extremities, and being reversely disposed in a common horizontal plane, and spaced deflectors or beaters arranged upon opposite sides of each section to agitate the products of combustion, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES PARRY JOHNSON.

Witnesses:

B. F. LARGENT,
W. K. MYERS.