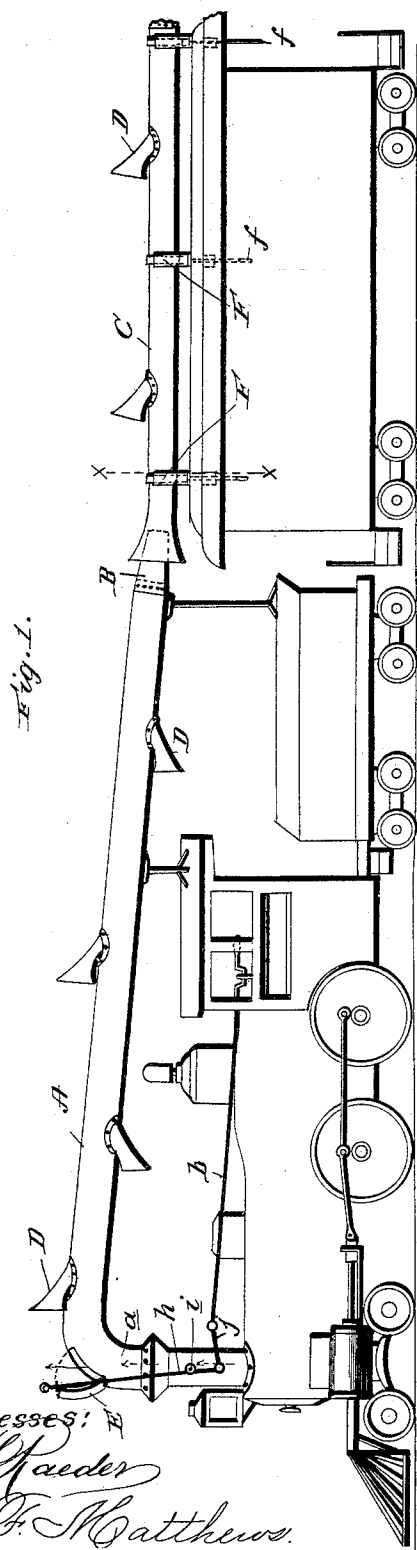


(No Model.)

R. M. TUCKER.
SPARK CONDUCTOR.

No. 462,749.

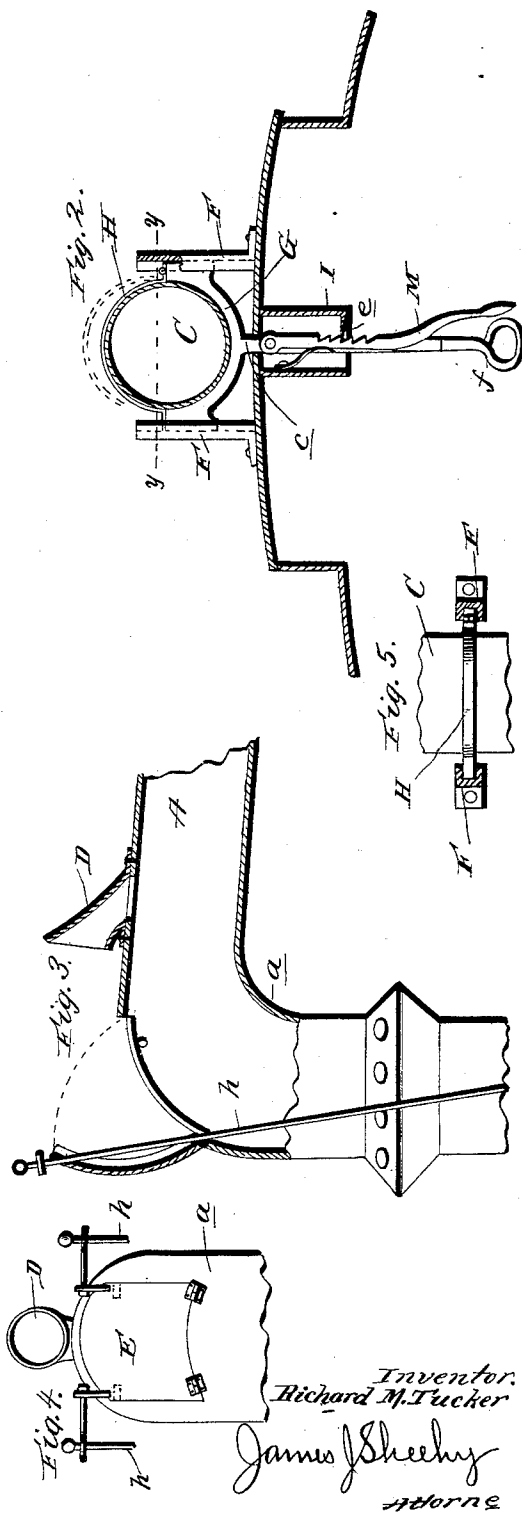
Patented Nov. 10, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

RICHARD M. TUCKER, OF CONWAY, MASSACHUSETTS.

SPARK-CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 462,749, dated November 10, 1891.

Application filed July 1, 1891. Serial No. 398,160. (No model.)

To all whom it may concern:

Be it known that I, RICHARD M. TUCKER, a citizen of the United States, residing at Conway, in the county of Franklin and State of Massachusetts, have invented certain new and useful Improvements in Spark Arresters and Conductors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in spark arresters and conductors, and the novelty will be fully understood from the following description and claims, when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a longitudinal elevation of a train of cars provided with my improvements. Fig. 2 is a detail transverse section taken in the plane indicated by the line *x x* of Fig. 1, with parts in elevation. Fig. 3 is a detail longitudinal diametrical section of the portion of the conductor adjacent the smoke-stack, a portion of the stack being shown in elevation. Fig. 4 is a detail front elevation of the elbow portion of the conductor, illustrating the valve or door thereof; and Fig. 5 is a horizontal section taken in the plane indicated by the line *y y* of Fig. 2.

In the said drawings similar letters of reference designate corresponding parts throughout the several views, referring to which—

A indicates the locomotive-section of my improved arrester and conductor, which is provided at its rear end with a sleeve B, of a suitable flexible material adapted to take into the flaring forward end of the first car-section C, which is provided in turn at its rear end with a flexible sleeve adapted to take into the forward end of the conductor-section upon the next succeeding car.

As better illustrated in Figs. 1 and 2 of the drawings, the locomotive-section and the respective car-sections are provided at intervals in their length with forwardly-extending trumpet-shaped induction branches D, which are preferably arranged at various points upon the periphery of these sections and serve to create a strong draft through the conductor and accelerate the passage of the smoke and particles of combustion. The lo-

comotive-section of the conductor, which is fixedly mounted upon the locomotive cab and tender, as shown, is provided at its forward end with a downwardly-curved portion *a*, the end of which is connected to the upper end of the smoke-stack or uptake in any suitable manner. In the upper side of the downwardly-curved portion or elbow *a* of the locomotive-section I provide an opening, as illustrated, which is normally closed by a hinged door E, which is provided adjacent to its outer edge with lateral branches having vertically-disposed eyes at their outer ends. Taking through the eyes of the lateral branches of the door E are upright rods *h*, which have their upper ends headed, so as to prevent them from becoming disconnected from the said lateral branches. These rods *h*, which rest on opposite sides of the smoke-stack, are pivotally connected thereto, as at *i*, and are connected at their lower ends by a preferably integral curvilinear portion *j*, as illustrated. Pivotaly connected to this curvilinear portion *j* is a rod *b*, which extends back into the locomotive-cab, whereby it will be seen that the door E may be readily opened by the engineer without his leaving the cab.

Inasmuch as railway-cars in ordinary use are not of a common height, an important desideratum in the class of smoke-conductors has been to provide a means whereby the conductor-sections of cars of different heights may be brought to a common elevation, whereby the connection may be readily effected. To accomplish this I have provided devices which are better illustrated in Figs. 2 and 5 of the drawings, and which I will now proceed to describe.

F indicates parallel vertical guide-posts, which are arranged a suitable distance apart at intervals upon the top of a car and receive between them a yoke G, which is curved on its upper side, as illustrated, to conform to the periphery of the conductor-section which it is designed to receive and support. Hinged to one end of the respective yokes and adapted to be detachably connected to the other end thereof is a semicircular fastener H, which serves to retain the conductor in position upon the yoke, and depending from the respective yokes and taking through the roof of the car is a branch *c*, which is surrounded

by a suitable casing I, open on its under side and provided with a fixed tooth *e*, for a purpose presently disclosed. As better illustrated in Fig. 2 of the drawings, the branch *c*, which extends through the casing I, is provided at its lower end with a loop or eye *f*, which may be employed as a bell-rope guide, and pivotally connected at its upper end to the depending branch *e* is a lever M, which is backed by a spring and is provided in one of its edges with rack-teeth, as shown, which are adapted to engage the fixed tooth *e* of the casing, whereby it will be seen that the yoke G and the conductor-section mounted thereon may be fixed at various elevations with respect to the roof of the car.

The operation of my improvement is as follows: When the train is ready to start, the door E is closed, when the smoke and particles of combustion will take passage through the conductor-sections, as has been described. By the employment of the induction branches D in conjunction with the conductor-sections it will be perceived that while the train is in motion a strong draft will be maintained through the conductor or conductor-sections, whereby the passage of the smoke will be accelerated, and it will further be seen that the draft created by the induction branches will fully compensate for the closure of the upper end of the smoke-stack.

Although I have specifically described the construction and relative arrangement of the several elements of my improved device, yet I do not wish to confine myself to such specific construction, as in practice it is obvious that such modifications may be made as fairly fall within the scope of my invention.

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

1. In a spark-arrester and smoke-conductor, the combination, with a conductor-section, of a car, the upright guides F, secured on the roof thereof, the vertically-movable yoke G, adapted to receive the conductor-section and supported in said guides, the yoke having a clamp H, and an arm which passes through the roof of the car and is adapted to be secured adjustably in a vertical position, so as to sustain the conductor-section at the desired elevation above a car, substantially as specified.

2. In a spark-arrester and smoke-conductor, the combination, with a vertically-movable yoke mounted in guides upon the roof of a car and supporting a conductor-section, of a branch depending from said yoke and taking through the roof of the car, a casing surrounding the depending branch of the yoke and having a fixed tooth at its lower end, and a spring-backed lever pivotally connected to the depending branch of the yoke and having

rack-teeth adapted to engage the fixed tooth of the casing, substantially as and for the purpose specified.

3. In a spark-arrester and smoke-conductor, the combination, with the locomotive smoke-stack, the conductor-section connected to the smoke-stack and provided in its forward side with an opening, and a door hinged to the conductor-section and adapted to normally close the opening therein, of vertical rods loosely connected to the hinged door and pivotally connected to opposite sides of the smoke-stack adjacent their lower ends, a curvilinear portion connecting the lower ends of the rods, and a rod connected to said curvilinear portion and extending back into the locomotive-cab, substantially as specified.

4. The combination, with a railway-car having a suitable opening in its roof, of a yoke having a branch passing through said yoke and adapted to be secured adjustably therein, said branch having its lower end terminating in an eye adapted to receive a bell-cord, and a yoke adapted to receive and sustain a spark-conductor tube above the car, substantially as specified.

5. The combination, with a locomotive, of the spark and smoke conductor tube arranged above the same and connected to the smoke-stack of the locomotive by an elbow, as shown, said elbow having an opening in its forward upper side, the hinged door E, adapted to close said opening, the rods H, pivoted at an intermediate point to the opposite sides of the smoke-stack and the lower ends connected by a curved connection, as shown, and the rod leading from the curved connection to the cab of the locomotive, substantially as specified.

6. The combination, with a locomotive, of the spark and smoke conductor tube leading from the smoke-stack thereof and having the bell-mouthed induction-tubes along its length, a car having openings in its roof, guide-posts arranged on the roof at opposite sides of the openings, a yoke arranged in said guide-posts and having an arm terminating at its lower end in an eye and passing through the openings in the roof, a depending casing surrounding said arm and having a fixed tooth and a notched spring-pressed lever adapted to adjustably secure the yoke in its guides, and a spark and smoke conductor tube supported in the yokes and having bell-mouthed induction-tubes and one end flaring and the opposite end tapering to serve on the car or train of cars, substantially as specified.

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

RICHARD M. TUCKER.

Witnesses:

A. M. COOK,
HENRY W. BILLINGS.