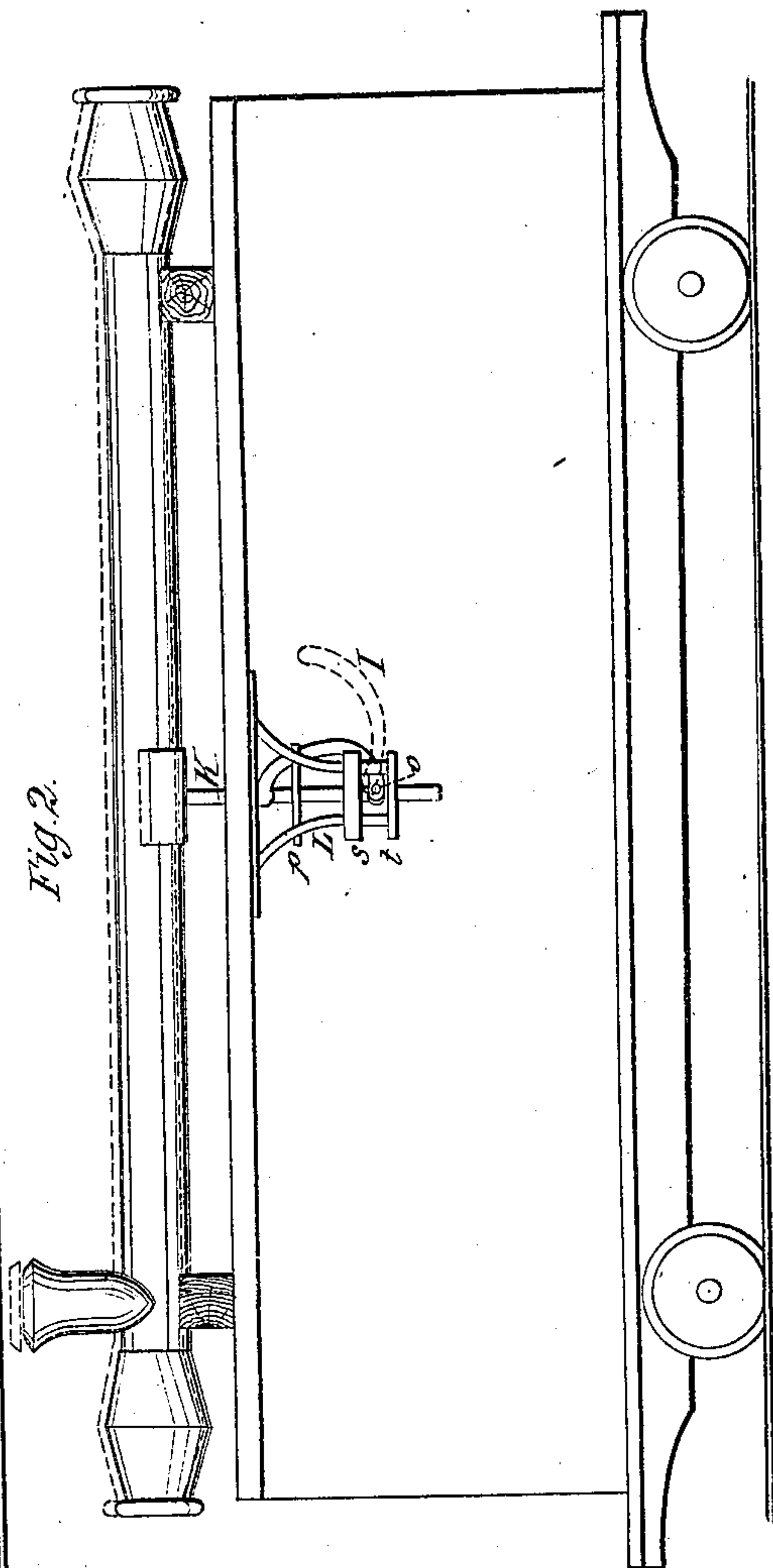
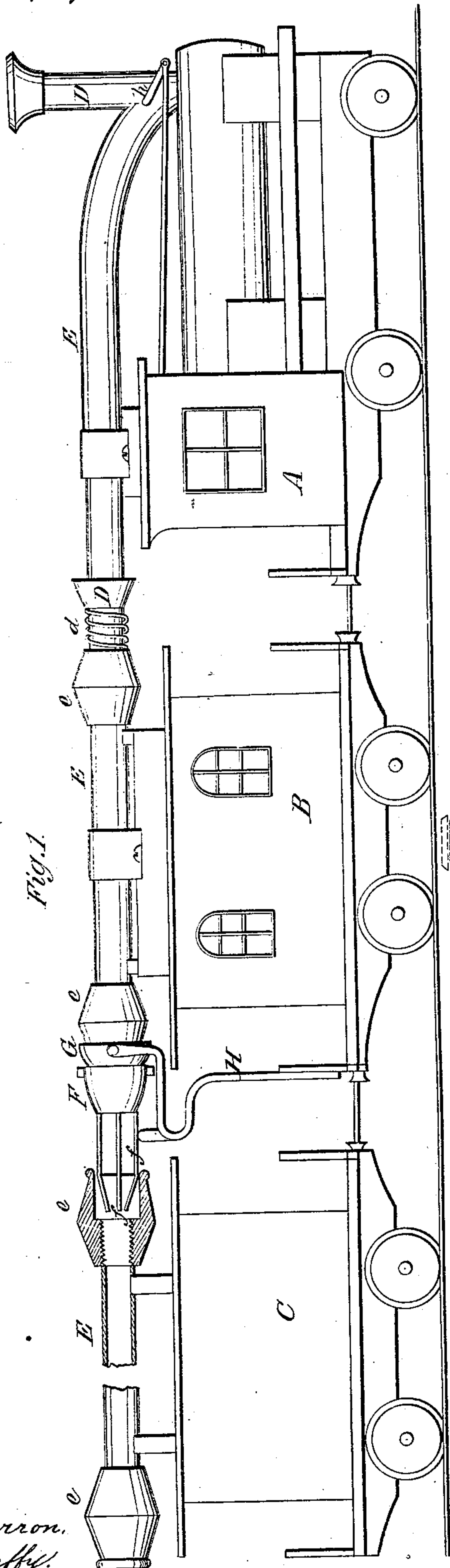


*R. Wright*  
*Spark Arrester*  
*No 89,371.*  
*Patented Apr. 27, 1869.*



*Witnesses.*  
*Charles Herron.*  
*O. E. Duffy.*

*Inventor.*  
*Reuben Wright.*



# UNITED STATES PATENT OFFICE.

REUBEN WRIGHT, OF HOUSTON, TEXAS.

## IMPROVEMENT IN SPARK-CONDUCTORS FOR RAILROAD-TRAINS.

Specification forming part of Letters Patent No. **89,371**, dated April 27, 1869.

*To all whom it may concern:*

Be it known that I, REUBEN WRIGHT, of Houston, in the county of Harris, and in the State of Texas, have invented a new and improved mode of arresting and extinguishing sparks of a locomotive steam-engine and of conducting the smoke, ashes, and cinders from the locomotive to the rear of a train; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in providing a horizontal flue in sections, leading from the smoke-stack of a locomotive to the rear of a train, with other devices, hereinafter explained, for engaging and disengaging the sections thereof, whereby to arrest and extinguish sparks and conduct the smoke, ashes, and cinders to the rear.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 represents a side view of a train with my improvement attached; Fig. 2, a longitudinal section of a car.

A represents the locomotive; B, the tender; C, a car; E E E, pipes or sections of the horizontal flue, with enlarged ends *e e e* placed on the top of cars, tender, and locomotive. One end of the section on the latter covers a hole of corresponding size in the back of the smoke-stack, to which it is riveted by a flange.

*h* is a damper, by which the direction of the draft is regulated by the engineer. It is hinged in the smoke-stack, above the flue, in such a manner that when down it closes the flue and leaves the smoke-stack open for the draft in the usual manner. When thrown up it closes that part of the smoke-stack which is above the flue, opens the flue, and turns the draft through it.

F is the coupling between sections of the horizontal flue.

H is the standard for holding the coupling at a proper height. At its upper end the standard is forked, and between its prongs is hung a conical ring, G, whose larger ends fits loosely over the rear end of the forward pipe of the flue. The smaller end of the conical ring fits loosely in the funnel-shaped end of the coupling F, and is attached to it in such a manner

that the coupling, conical ring, and forked end of the standard form a universal joint. The straight end of the coupling has several guides, *f* which, in connecting guide it into the enlarged front end of the rear pipe of the flue. By means of the universal joint the coupling can accommodate itself to the motions of the cars. The flues are here firmly secured to top of the cars. The standard, with the coupling, is removable, so that it can be attached at either end of a car. The funnel-shaped ends of the couplings must always point to the front of the train, making them catch up and conducting into the flue a current of air, thereby increasing its power of draft.

D is another kind of coupling, where its straight end is surrounded by a spiral spring, *d*, one end of which is securely fastened to the funnel-shaped end of the coupling and the other end to the enlarged front end of the rear pipe of the flue, thus forming an elastic joint. As the funnel-shaped end of the coupling must always point to the front of the train to increase the power of draft, as above described, it sometimes becomes necessary to reverse the ends of the pipe. To this end the pipes are placed in seats, but are not fastened to the top of the cars. In the middle of the pipe a rod, K, is fastened immovably to it, and runs through the top of the car a short distance downward. Inside of the car and securely fastened to its top is a hanging support, L, with three circular disks, *r s t*, with eyes in their centers, that serve as guides to the rod K. A short distance from its lower end the rod has an eye, where a curved lever, I, is attached by a pin. This lever serves a double purpose: first, to raise the pipe from and out of its seats and then reverse it; and, secondly, to hold the pipe down in its seats when in proper position. The disk *r* serves as the fulcrum for the lever. The disk *s*, as well as the disk *t*, has two slots at opposite sides, forming latches in which the lever is held by the weight of the pipe, at the same time preventing any motion of the latter. When it is desired to reverse the ends of the pipe the lever is pressed down, which raises the pipe out of its seats. Moving the lever now a little to one side slides it under the disk *s*, which upholds the weight of the pipe until the movement is completed, when the lever is raised and put in the opposite latches, lowering the

pipe into its seats and holding it in its place.

The advantages of a horizontal flue leading from the smoke-stack of a locomotive-engine to the rear of a train, as above described, consist in preventing risk of fire from sparks, saving passengers from the annoyance of smoke and cinders, and increasing the power of draft.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the coupling F, guides *f*, conical ring G, and standard H, substantially as set forth.

2. The coupling D, with the spiral spring *d*, in combination with the end *e* of the pipe E, substantially as described.

3. The hanging support L, in combination with the lever I, rod K, and pipe E, substantially as set forth.

REUBEN WRIGHT.

Witnesses:

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