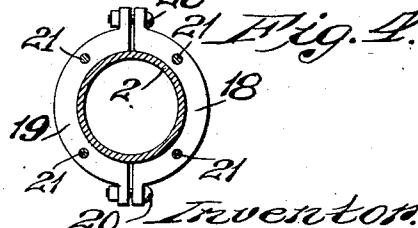
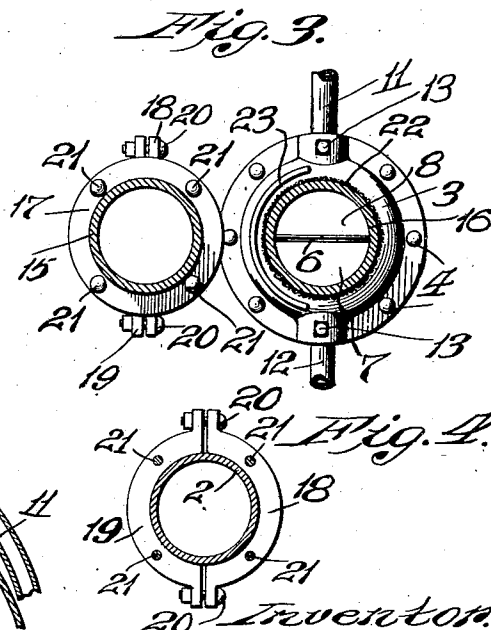
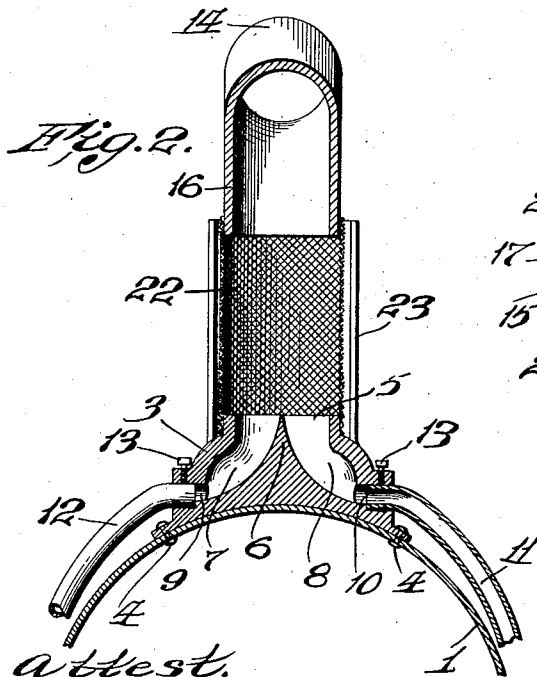
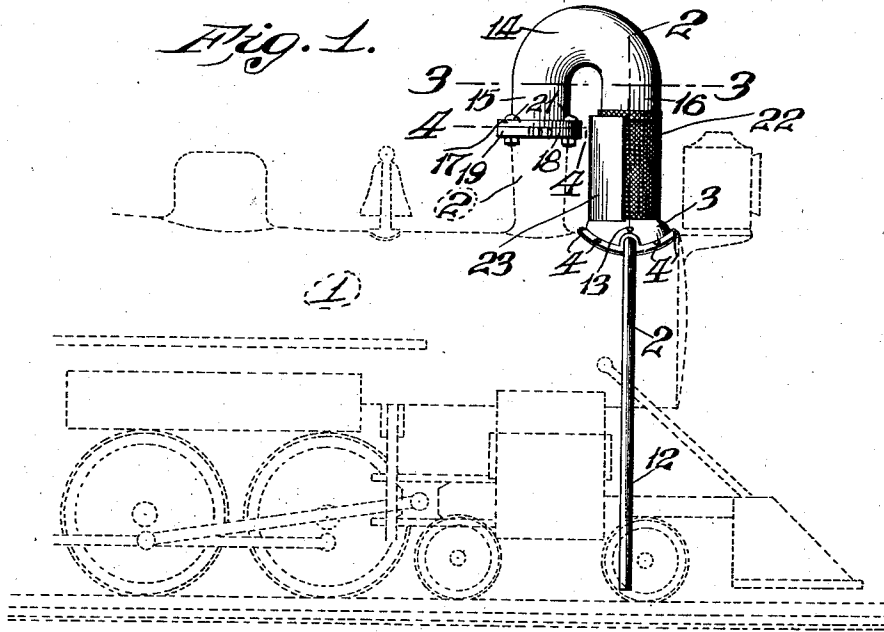


J. R. CHILDERS.
SMOKE STACK.

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Patented Jan. 18, 1910.



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UNITED STATES PATENT OFFICE.

JAMES R. CHILDERS, OF MOBERLY, MISSOURI.

SMOKE-STACK.

946,958.

Specification of Letters Patent.

Patented Jan. 18, 1910.

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To all whom it may concern:

Be it known that I, JAMES R. CHILDERS, a citizen of the United States, and resident of Moberly, Missouri, have invented certain
5 new and useful Improvements in Smoke-Stacks, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

10 My invention relates to improvements in smoke stacks, and particularly relates to a smoke stack for locomotive engines which is so constructed that it eliminates live coals or products of incomplete combustion issuing
15 from the stack and the resultant consequences therefrom.

According to my invention, the sparks emitted from the engine are really not impeded in their course until they are deposited on the ground just outside the track
20 on which the locomotive runs.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts which will
25 be hereinafter more fully described, pointed out in the claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of a locomotive engine having my invention applied
30 thereto; Fig. 2 is a section taken on the line 2—2 of Fig. 1; Fig. 3 is a section taken on the line 3—3 of Fig. 1; and Fig. 4 is a section taken on the line 4—4 of Fig. 1.

Referring by numerals to the accompanying drawings: 1 indicates the locomotive of
35 any ordinary construction, and 2 the smoke stack thereof. Secured to the locomotive in front of the smoke stack is a housing 3, and said housing 3 is secured to the boiler shell
40 or smoke box by bolts or rivets, such as 4. Said housing has an open top end, as at 5, and is provided with a central tapered partition 6, which extends upward midway in said open end. By means of this parti-
45 tion 6 the housing is divided into two compartments, 7 and 8. Leading from the compartment 7 is an opening 9, and leading from the compartment 8 is an opening 10. Secured in the opening 10 is a branch pipe
50 11, and secured in the opening 9 is a branch pipe 12. These branch pipes are properly secured in said openings by means of set screws 13. These curved pipes extend downwardly on each side of the locomotive

to within a few inches of the ground, and
55 lie in a plane just outside of the ties on the road bed.

Secured to the top of the smoke stack 2 is a curved cast iron pipe 14, having
branches 15 and 16. This pipe is so curved
60 that the branches 15 and 16 are approximately parallel to each other. The branch 15 has formed around its end a perforated flange 17. In order to secure this curved
65 pipe to the smoke stack, I employ a split clamping collar, such as illustrated in Fig. 4. This split clamping collar is composed of two parts, 18 and 19, which are secured
together by means of bolts 20 around the top of the smoke stack, and lying below the
70 usual flange thereof. When this split collar has been secured to the smoke stack, I then bolt the flange 17 to said collar by means of bolts 21. In cases where the smoke stack is
75 provided with a flange, the flange 17 may be bolted directly to the flange of the smoke stack without the use of said collar. When I have secured the curved pipe 14 to the
smoke stack, its branch 16 projects downwardly in front, as illustrated.

22 indicates wire screening which is applied to the branch 16 of the curved pipe 14,
and to the upper end of the housing 3, and located between said wire screening and the
80 smoke stack I may use a semi-circular metal shield 23.

In the practical operation of my invention the sparks issuing from the smoke stack 2 will pass up out of the smoke stack in the
usual manner and strike the curved pipe 14,
90 and will be deflected downward in the housing 3, and the sparks which fall into the compartment 8 of said housing will pass from said compartment to the pipe 11. The sparks that fall into the compartment 7 of
95 said housing will pass out of said compartment through the pipe 12 and will fall on the road-bed just outside of the ties. The sparks in their passage will be impeded but not arrested, and by the time they have
100 passed out of the pipes 11 and 12 they will have cooled off. The movement of the train, it is believed, will cause a suction in the pipes 11 and 12, thus facilitating the drawing
105 of the sparks and incomplete products of combustion from the housing 3. The tapered partition 6 will divide the sparks or incomplete products of combustion issuing

from the smoke stack and distributing the same into the respective compartments of the housing and to the branch pipes leading therefrom.

- 5 In some instances, I may eliminate the wire netting 22 and extend the branch pipe 16 of the curved pipe 14 down into the housing 3.

My invention is of simple and inexpensive construction and may be applied to any boiler, and when so applied it is believed it will eliminate to a great extent the danger from fires, as the sparks issuing from the locomotive having my invention applied
15 thereto will become cooled off before they are ultimately discharged.

I claim:

1. A device of the class described, comprising a curved pipe, the branches of which
20 pipe are parallel, the end of one branch being provided with a flange by means of which said branch may be secured to a smoke stack, a housing adapted to be secured to the top of the boiler in front of the
25 smoke stack immediately under the end of the branch of the curved pipe opposed to the end secured to the smoke stack, a semi-cylindrical shield between the housing and said last mentioned branch of the curved
30 pipe, a section of wire screen disposed between said branch of the curved pipe and said housing and conducting pipes secured to said housing diametrically opposed to each other.

- 35 2. The combination with a boiler having a smoke stack, of a curved pipe having parallel branches, the end of one of said branches being secured to said smoke stack and the end of the other of said branches
40 projecting in front of said smoke stack, a housing secured to the top of the boiler in front of the smoke stack, wire screening positioned vertically between the end of said last mentioned branch pipe and said housing,
45 ing, and branch pipes secured to said housing and projecting downwardly therefrom,

said branch pipes discharging into the atmosphere.

3. The combination with a boiler, of a smoke stack secured thereto, a housing secured to the top of the boiler in front of the smoke stack, a curved pipe, one end of which is secured to said smoke stack and the other end of said pipe projecting in front of said smoke stack and projecting downwardly
55 toward said housing, a semi-cylindrical shield between the last mentioned end of said curved pipe and housing, a section of wire screen disposed vertically between said end of the curved pipe and housing in front
60 of said shield, removable conducting pipes carried by said housing and projecting downwardly therefrom and discharging into the atmosphere, and means for securing said pipes to said housing. 65

4. The combination with a locomotive boiler having a smoke stack of a curved pipe having parallel branches, the said pipe being of uniform diameter throughout, one end of said pipe being provided with a
70 flange for attaching the same to the smoke stack and the other branch pipe projecting in front of said smoke stack, a housing secured to the top of the boiler in front of the smoke stack immediately under the branch
75 of the curved pipe opposed to the branch secured to the smoke stack, a semi-cylindrical shield supported by the housing and extending upwardly and partially embracing the curved pipe, a section of wire screen supported by the housing and embracing the
80 curved pipe and conducting pipes carried by said housing and projecting downwardly and discharging into the atmosphere.

In testimony whereof, I have signed my
85 name to this specification, in presence of two subscribing witnesses.

JAMES R. CHILDERS.

Witnesses:

C. H. NELSON,
H. T. OMENS.