

(No Model.)

2 Sheets—Sheet 1.

J. N. LAUDER.
SAFETY STOP FOR LOCOMOTIVES.

No. 500,810.

Patented July 4, 1893.

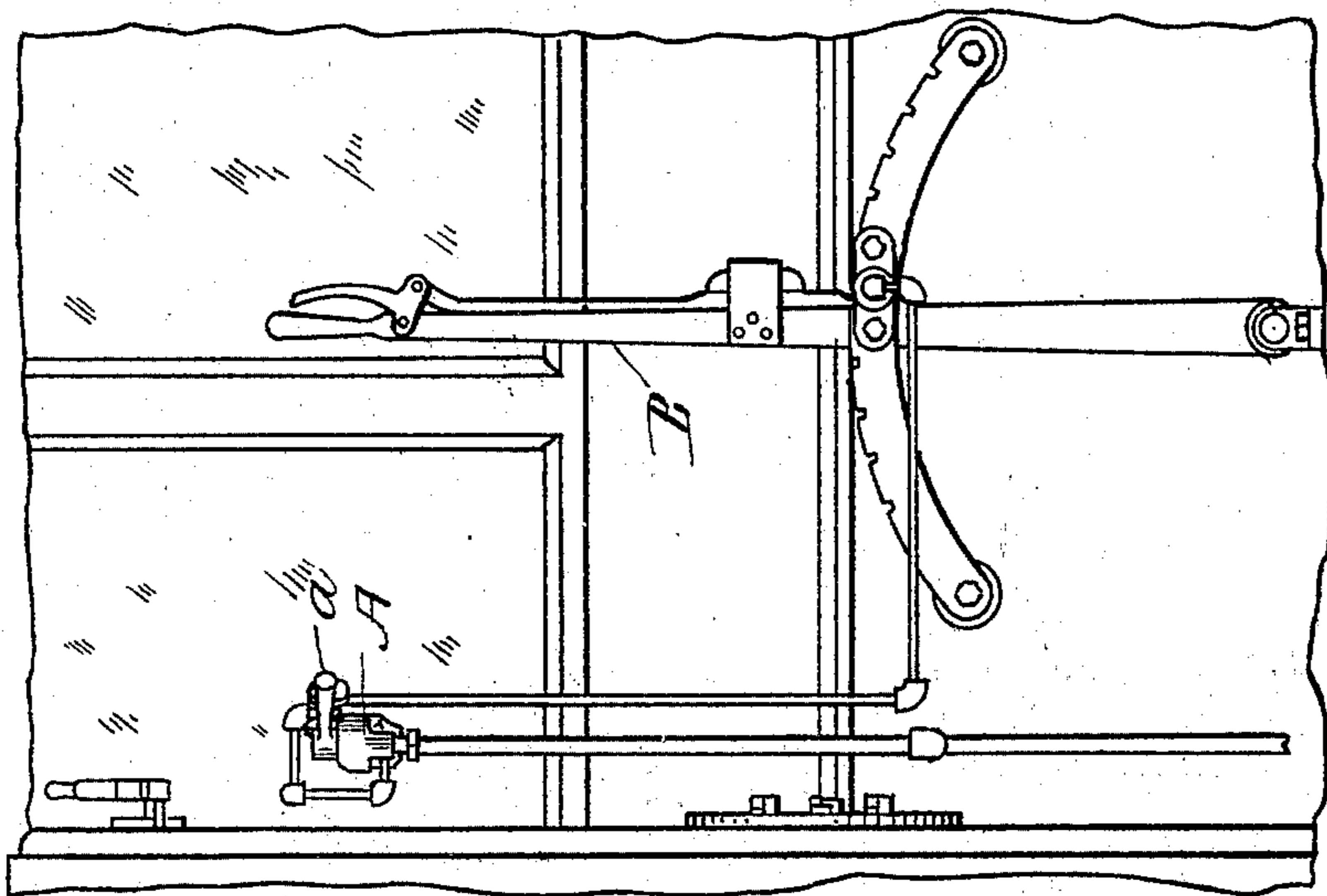


Fig. 2.

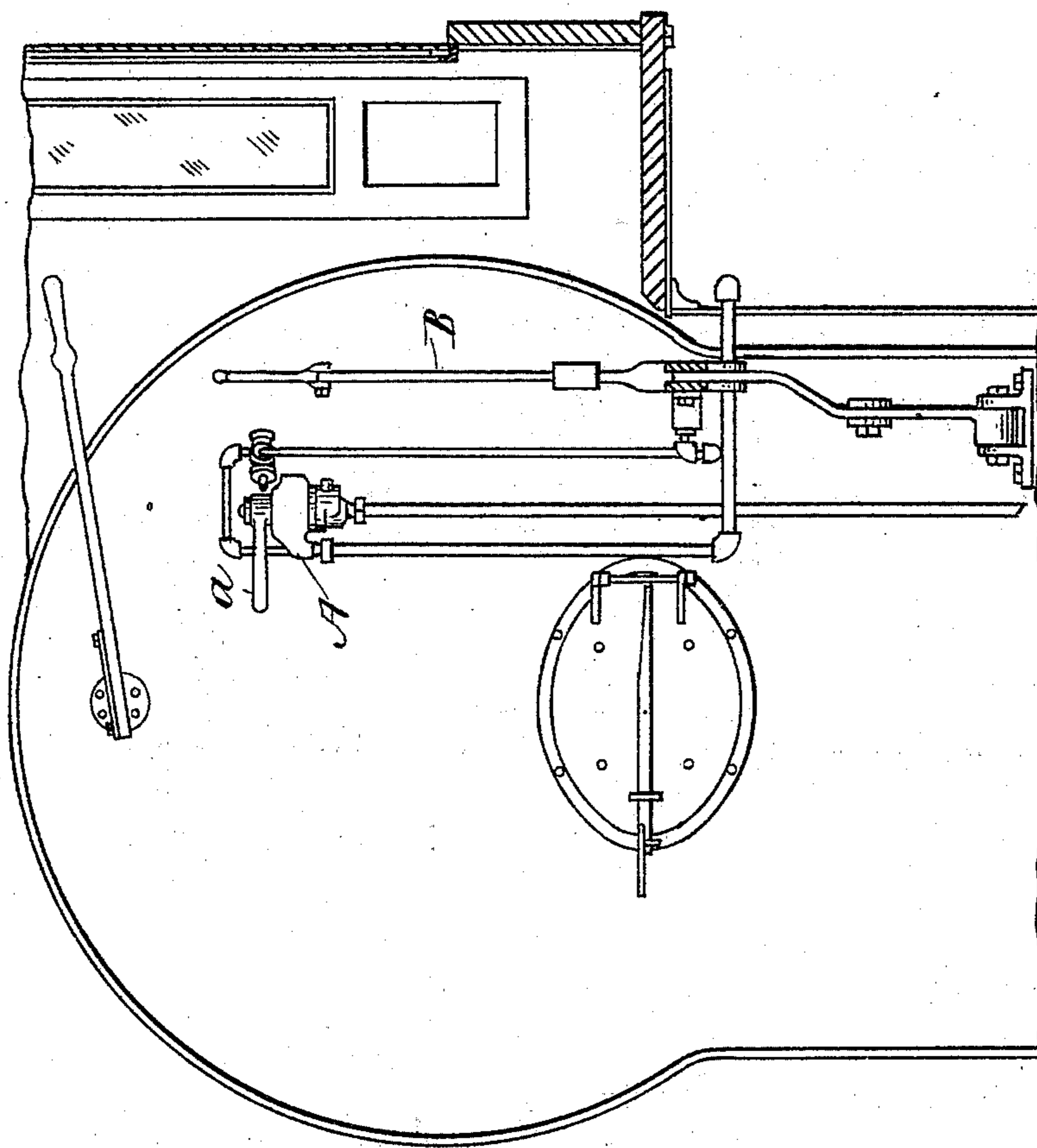


Fig. 1.

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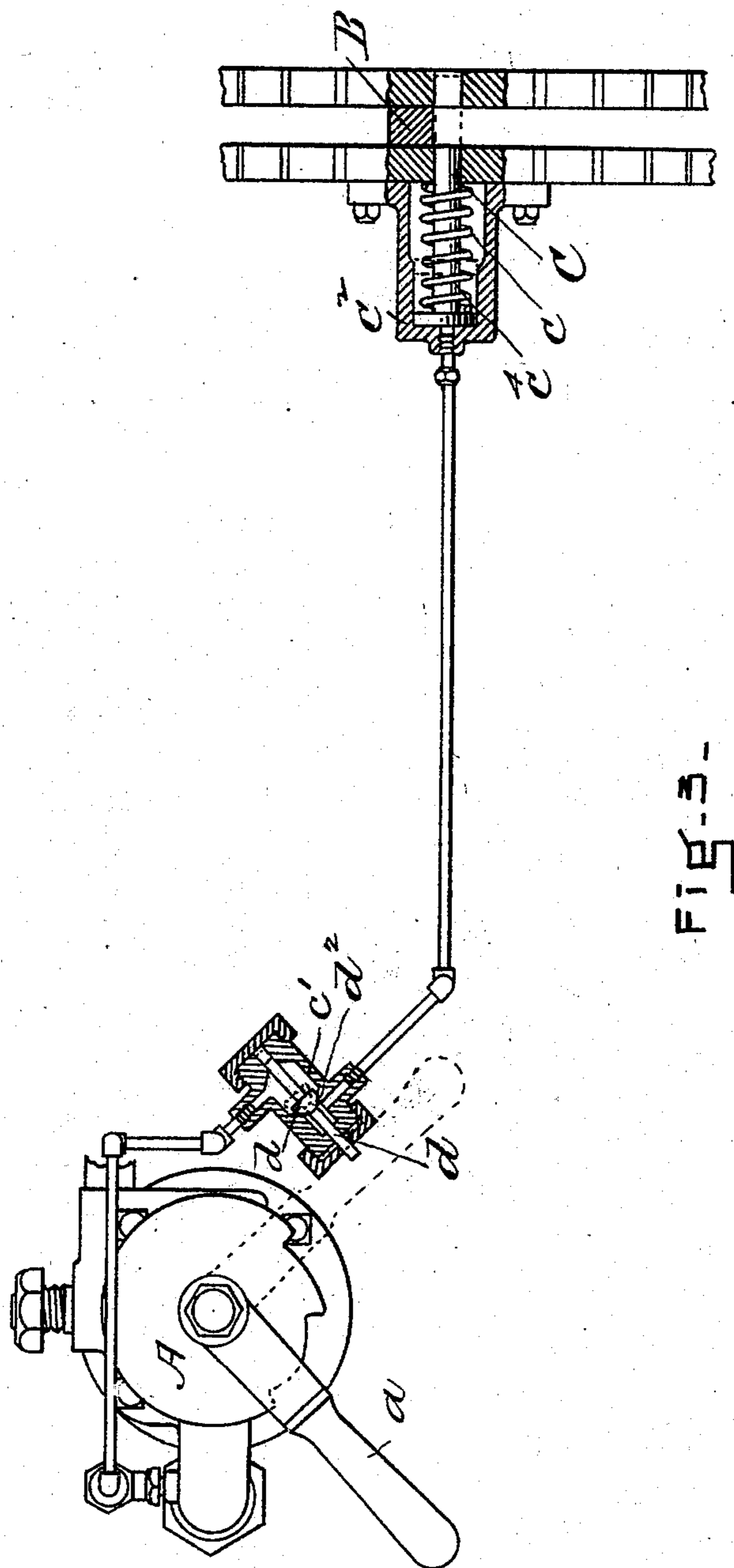
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UNITED STATES PATENT OFFICE.

JAMES N. LAUDER, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO CHARLES W. SHERBURNE, OF SAME PLACE.

SAFETY-STOP FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 500,810, dated July 4, 1893.

Application filed January 3, 1893. Serial No. 457,058. (No model.)

To all whom it may concern:

Be it known that I, JAMES N. LAUDER, a citizen of the United States, residing at Boston, in the county of Suffolk, in the State of Massachusetts, have invented a new and useful Improvement in Safety-Stops for Locomotives, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

To suddenly stop a train equipped with an automatic or air-brake it has been common for the engineer to immediately apply the brakes to their fullest power by the full movement of the brake lever which controls the braking mechanism, and to instantly follow this act by the throwing of the lever of the reversing mechanism of the locomotive to a reversing position. It has been found, however, that when automatic brakes are applied to the driving wheels of a locomotive it is not then desirable that the engine be reversed to assist in the quick stopping of the train, as the act of reversing the engine following the full application of the brakes does not tend to hasten the checking of the train, but on the contrary interferes to an appreciable extent with the proper action of the brake upon the driving wheels of the locomotive, in that it is apt to check the turning of the wheels, and to cause them to slip upon the rails, a very undesirable thing to have occur when it is essential that a train be stopped in the shortest time possible. Instructions to the engineer that the engine be not reversed, when an emergency requires the most rapid application of the brakes and stopping of the train, have very little if any effect, because it has always been the custom or habit of the engineer to so reverse, and in a time of emergency he is more than likely to do things from force of habit than from reason, or to follow new instructions. To automatically prevent this reversing action at such times is the object of my invention, and this is accomplished by arranging a stop or detent near the line or path of movement of the reversing lever, which is caused to be actuated automatically by the movement of the lever or device used in setting the brakes. There are many ways, of course, by which this result can be ob-

tained, and I have shown in the drawings one of them; but I would not be understood as confining myself to any particular means.

Referring to the drawings: Figure 1 is a view in elevation of the operating parts or devices of a locomotive immediately in front of an engineer and in his control. Fig. 2 is a view in side elevation of a portion of these devices. Fig. 3 relates to a specific means for carrying my invention into effect, to which reference will be hereinafter made.

Referring to the drawings, A represents the brake valve of the ordinary Westinghouse system. *a* is its operating lever.

B represents the valve reversing lever of the engine.

C is a stop or detent, which is movable across the line of movement of the reversing lever, and which forms a stop when moved into said line of movement, beyond which the lever cannot be thrown. I have represented this stop as automatically actuated by the expansion of air in the piston chamber *c*, the air being admitted to the said piston chamber by the opening of a valve at *c'*, operated by the movement of the brake valve lever against it. The cylinder *c*² forming the piston chamber is located at one side of the segment locking rack of the reversing lever, and the stop C, which is an extension of the piston rod, is adapted to be closed into the hole *c*³ in the rack bar opposite to the one holding the cylinder. The air expanding in the cylinder acts against the piston and forces the stop away from the cylinder and across the path of the reversing lever; and it is held in such path so long as there is air pressure in the cylinder. Upon the release of the air pressure a spring *c*⁴, surrounding the piston rod contained in the piston chamber and bearing against the piston, serves to return the piston to its normal position, and removes the stop from the path of the reversing lever.

In the usual application of a train brake the brake valve lever is slowly and gradually moved from running position to a braking position; but the lever is not then ordinarily moved to what may be called the emergency position—that is, away back to fully open the valve—and while the valve *c*, which is actuated by said lever, may be placed in any de-

sired relation to it, so as to be operated at any suitable position or place, I prefer that it be located so that it shall be operated only when the lever is moved to the emergency position.

- 5 Any suitable form of valve may be used, and the valve is located in a pipe leading from the pressure air reservoir to the piston chamber of the cylinder C.

The valve which I have shown is of simple
10 construction and comprises a valve stem d , having a valve d' which shuts upon a seat d^2 . The valve stem extends from the valve casing into the path of the brake valve lever, and upon the pushing inward of the valve stem
15 the valve is lifted from its seat into the valve chamber, and a passage about it is thus provided through which the air passes to the piston chamber c .

Aspring may be used to automatically close
20 the valve upon the movement of the brake valve lever from contact with the end of the valve spindle, although this is not essential.

Instead of employing an air pressure for actuating the stop, the stop may be actuated
25 by a spring acting against the piston to force the stop into position, the spring being held normally compressed by compressed air in the piston chamber acting against the piston, and upon the release of the compressed air by the
30 operation of the valve, the spring throws the stop into place. Or a vacuum may be formed in the piston chamber to throw the piston toward the rack and the stop into operative position.

I do not confine myself to this air system, 35 whether carried into effect as above stated, or whether employed as a vacuum system; nor do I confine myself to any especial form of connecting mechanism, as there are many mechanical ways by which the stop can be 40 actuated by the movement of the brake valve lever, and I do not herein claim so much the especial mechanism by which I carry my invention into effect as the broad feature of the automatic operation of the stop from the brake 45 lever by intermediate actuating devices.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of a reversing lever, a 50 reversing lever stop, the brake valve lever or actuating devices, and an intermediate stop-setting mechanism adapted to be actuated by the brake valve lever or device when the lever is moved to a given position, substantially 55 as described.

2. The combination of the reversing lever, a piston chamber and piston therein, a stop actuated by the piston to be moved across the 60 line of movement of the lever, a pipe connecting the piston chamber with an air reservoir, and a valve in said pipe adapted to be actuated by the lever of the brake valve, as and for the purposes described.

JAMES N. LAUDER.

Witnesses:

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J. M. DOLAN.