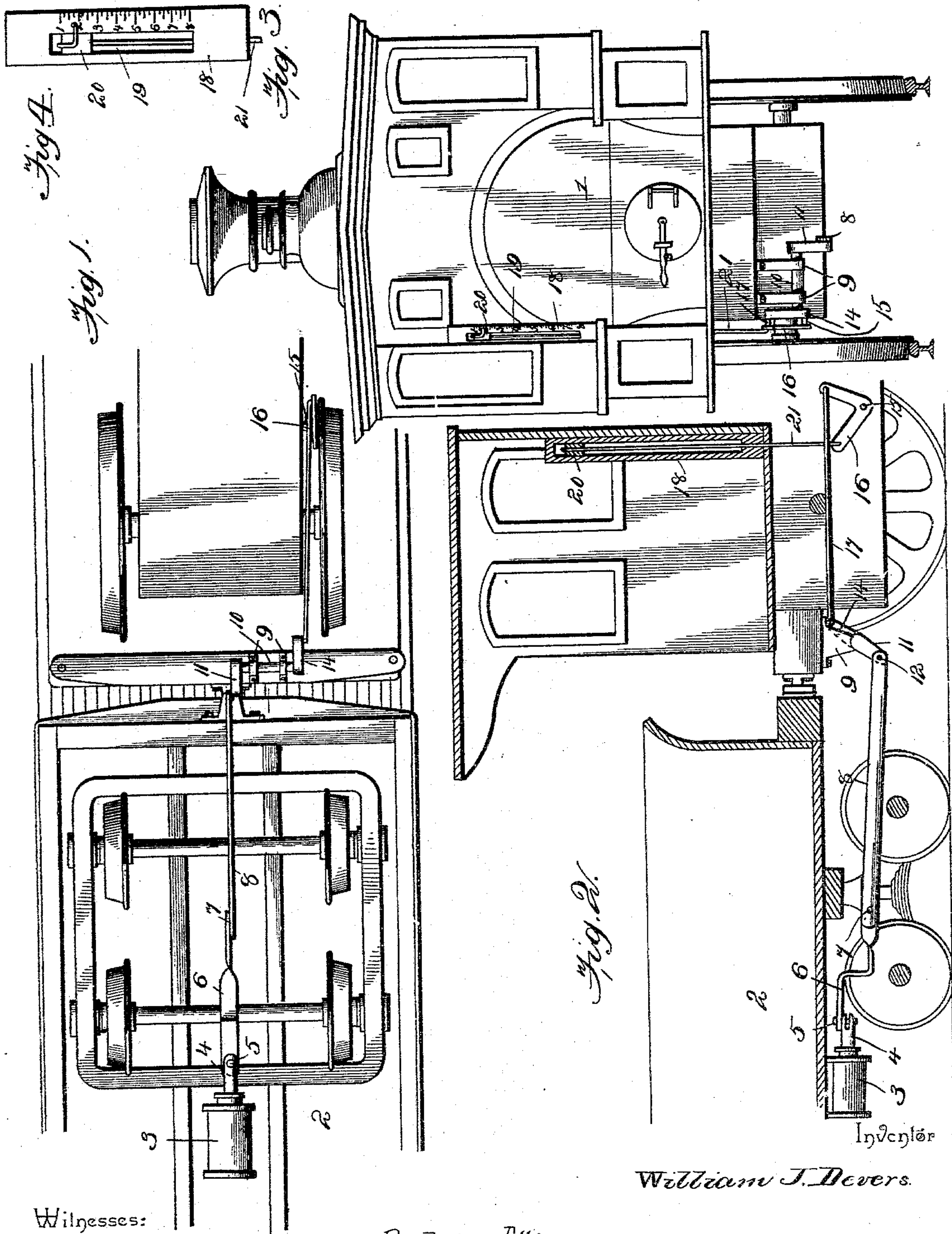


(No Model.)

W. J. DEVERS.  
INDICATOR FOR BRAKE PISTONS.

No. 511,046.

Patented Dec. 19, 1893.



Witnesses:

*John C. Shaw.*  
*W. S. Duwall.*

By *Devers* Attorneys.

*W. J. Devers.*  
*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

WILLIAM JOSEPH DEVERS, OF SCRANTON, PENNSYLVANIA, ASSIGNOR OF  
ONE-THIRD TO JAMES FLYNN, OF SAME PLACE.

## INDICATOR FOR BRAKE-PISTONS.

SPECIFICATION forming part of Letters Patent No. 511,046, dated December 19, 1893.

Application filed May 27, 1893. Serial No. 475,706. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM JOSEPH DEVERS, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and useful Indicator for Brake-Pistons, of which the following is a specification.

My invention relates to improvements in indicators for brake cylinder pistons; and the objects in view are to provide a cheap and simple attachment that may be readily applied to any of the well known air-brakes employed upon railway cars, whereby the movements of the pistons in the brake-cylinders of the several cars composing the train will be readily and accurately indicated in full view of and for observation by the engineer.

With these and other objects in view, the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 is a bottom plan of a portion of a tender and an engine, the former being provided with the usual brake-cylinder, similar to those with which the remainder of the train is provided, and having an attachment constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the adjacent ends of the tender and locomotive or engine. Fig. 3 is a rear elevation of the locomotive. Fig. 4 is an enlarged front elevation of the indicating mechanism that is arranged in the engineer's cab.

Like numerals of reference indicate like parts in all the figures of the drawings.

The numerals 1 and 2 designate, respectively, the locomotive and tender, and 3 the brake-cylinder located under the tender and which it will be understood is duplicated under each car of the train. The brake cylinder is provided with the usual brake lever operating piston 4, for which purpose it is bifurcated in the ordinary manner and provided with the pivot-pin 5. To the upper end of this pivot-pin I loosely connect the rear end of a bent link 6, the same extending forward and having pivoted to its front end as at 7 a companion though straight link 8.

A pair of bearings 9 is formed under the cab of the engine or locomotive, and in the

same a transverse rock-shaft 10 is journaled, the inner end of the rock-shaft being in line with the path traveled by the piston-rod of the brake-cylinder, and the shaft being provided at said end with crank-arm 11, to which, through the medium of a wrist or crank-pin 12, the front end of the link 8 is loosely connected. The link it will be seen constitutes one rod, breakable at its center, and pivoted loosely at its rear end to the piston-rod, and at its front end to the crank 11. The outer end of the crank 11 has located thereon a crank-arm 14, the same being disposed opposite to the crank 11, and in advance of this crank-arm 14, upon a stub-shaft or pin 15, there is loosely pivoted a bell-crank lever 16, whose upper branch is through the medium of a rod 17 connected to the free or upper end of the crank-arm 14.

A casing 18 is located in the cab of the engine directly over an opening in the floor and vertically above the rear free end of the lower branch of the bell-crank lever 16. This casing is provided with a slot 19, and at one side thereof with a series of numerals indicating degrees of a scale. A block 20 is mounted for sliding in the casing 18, and the same is provided with a bent indicating finger that extends through the slot 19 and is adapted to move over the scale at the side of the slot. The block is connected to the lower branch of the bell-crank lever through the medium of a connecting rod 21. It will be understood that all of the piston-rods together with their connections with the brake-mechanisms have been adjusted similarly, so that one moves under the same pressure to the same extent as the others, whereby an observation of one will indicate the condition, position and movement of the rest.

As the piston of the brake cylinder of the tender moves in and out of the cylinder as caused by the letting on or off of the compressed air its movement is communicated to the sectional connecting-rod between said piston-rod and the inner crank-arm 11 which imparts a rotary motion to the rock-shaft and through the medium of the bell-crank lever and in a manner readily obvious a reciprocatory motion is imparted to the block and indicating finger within the casing located in



front of the engineer, whereby every movement of the piston is indicated as well as the extent of such movement, and the engineer can see at a glance the condition of the brakes, the strength of their application, &c., throughout the train.

I do not limit my invention to the details of construction herein shown and described, but hold that I may make such variations therein as may suggest themselves from time to time and as a result of experiments made by me in practice.

Having described my invention, what I claim is—

1. The combination with the tender and cab of a locomotive, the air-brake cylinder, and the rod therein, of bearings located under the cab, a transverse rock-shaft journaled in the bearings, rock arms upon the rock-shaft, a connecting rod between the piston-rod of the brake cylinder and one of said rock-arms, an indicator casing arranged in the cab, an indicating finger mounted in the casing, and connecting devices between the indicating finger and the remaining rock-arm whereby movements of the latter are imparted to the indicating finger which is caused to move over a scale upon the casing, substantially as specified.

2. The combination with the tender and cab of a locomotive, a brake-cylinder and its piston-rod, of a transverse rock-shaft journaled in bearings under the cab, oppositely disposed

rock-arms arranged upon the shaft, the bent link 6, the pivot pin between the rear end of the same and the front end of the piston-rod, the straight link 8 pivoted as at 7 to the front end of the bent link and loosely connected to a rock arm of the shaft, the indicator casing arranged in the cab, slotted, and provided with a scale, a block carrying an indicating finger mounted in the casing, a bell-crank lever pivoted at its angle in advance of the rock-shaft under the cab and casing, a connecting-rod between the adjacent rock-arm of the rock-shaft and the bell-crank lever, and a connecting-rod between the remaining branch of the bell-crank lever and block in the casing, substantially as specified.

3. The casing 18 located in the engineer's cab, and provided with a slot 19 and indicating marks adjacent thereto, the block 20 mounted for sliding movement within the casing, the indicating finger carried by the block, the rod 31 connected to the block, and connections between the rod 21 and the piston rod of the brake cylinder, as set forth.

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

WILLIAM JOSEPH DEVERS.

Witnesses:

SILAS E. WHITE,  
G. W. MILLER.