

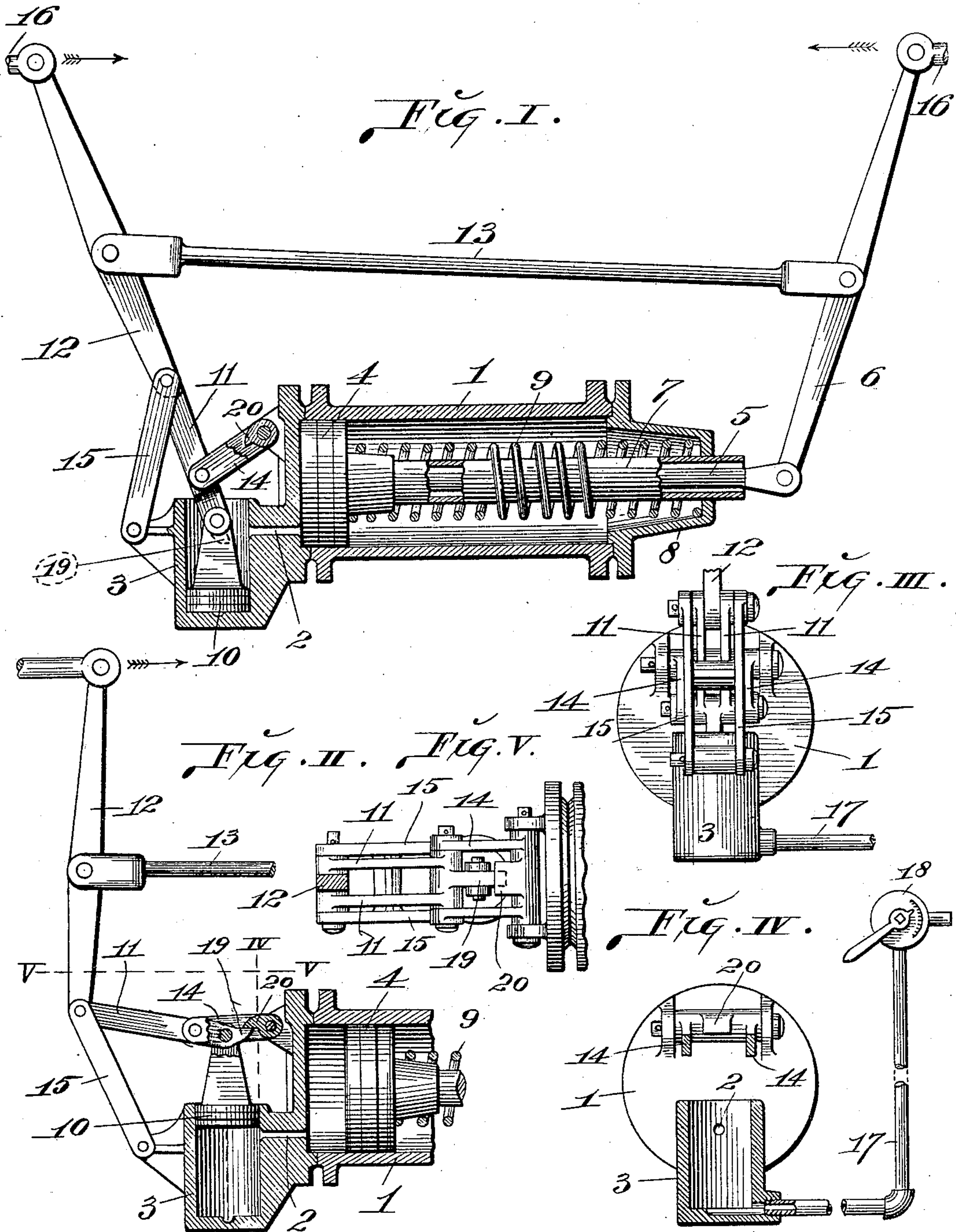
No. 763,312.

PATENTED JUNE 21, 1904.

W. O. MUNDY.
AIR BRAKE.

APPLICATION FILED FEB. 6, 1904.

NO MODEL.



Attest: *W. P. Smith*
E. J. Knight

Inventor:—
W. O. Mundy.
By *Thight, Pro* *Atty's*

UNITED STATES PATENT OFFICE.

WILLIAM O. MUNDY, OF ST. LOUIS, MISSOURI.

AIR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 763,312, dated June 21, 1904.

Application filed February 6, 1904. Serial No. 192,458½. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. MUNDY, a citizen of the United States, residing in the city of St. Louis, in the State of Missouri, have
5 invented certain new and useful Improvements in Air-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

10 My present invention relates to that class of air-brakes upon which I filed an application for patent May 18, 1903, Serial No. 157,711, and wherein a small cylinder and piston are employed to effect the first or initial
15 movement of the brake-shoes and a large cylinder and piston used to exert the final pressure upon the shoes.

An apparatus made in accordance with my present invention is exceedingly simple and
20 inexpensive in construction and effectively performs its functions without danger of the large piston and cylinder commencing to act before the small piston has reached the limit of its movement.

25 Figure I is a horizontal section taken through the two cylinders of the apparatus, the brake-rod, levers, &c., being shown in plan view. Fig. II is a detail horizontal section showing the small piston after it has
30 reached the limit of its movement in applying the brakes. Fig. III is an end view. Fig. IV is a section taken on line IV IV, Fig. II, with the small piston removed from its cylinder. Fig. V is a detail section taken on
35 line V V, Fig. II.

1 represents a cylinder, adjacent to which and communicating therewith through a port 2 is a much smaller cylinder 3. In the cylinder 1 is a piston 4, connected by a stem 5
40 with one of the levers 6 of the brake system. Surrounding the stem 5 is a sleeve 7, that works through the head 8 of the cylinder, and surrounding this sleeve is a coil-spring 9, that acts to force the piston 4 back to its normal position when the air-pressure has been
45 relieved. In the cylinder 3 is a piston 10, connected by links 11 to the other lever 12 of the brake system, the two levers 6 and 12 being connected by a rod 13. The links 11 are

pivotally connected by arms or links 14 to the
50 end of the cylinder 1, and the joints between the links 11 and lever 12 are connected to the cylinder 3 by means of links or arms 15.

16 represents the brake-rods, connected to the outer ends of the levers 6 and 12. 55

17 represents the air-pipe, which leads to the lower end of the cylinder 3 and which is provided with the usual valve 18 for turning
on and off the air.

19 represents a lug or ear carried by the
60 hub of the links 11 and which is designed to come against an ear or lug 20 on the hub of the links 14 to arrest the outward movement of the piston 10 when it has reached the limit of its throw in this direction. 65

The links 11, 14, and 15 form a toggle connection between the piston 10 and the lever 12 which permits the small cylinder and piston to exert approximately the same pressure
70 as the large cylinder and piston, so that when the port 2 becomes exposed there is no sudden change in the application of the brake-shoes and no resulting jar to the car.

The operation is as follows: When the brakes
75 are to be applied, the valve 18 is opened and the air or other fluid admitted to the cylinder 3 beneath the piston 10, causing the latter to be moved outwardly from the position shown in Fig. I to the position shown in Fig. II. This movement of the piston causes the lever
80 12 and links 11, 14, and 15 to be moved to the positions shown in Fig. II, and this movement of the parts causes the initial application of the brakes by a quick movement of the parts and with the use of but a small amount of air. 85
As the piston 10 reaches the limit of its outward movement the port 2 becomes exposed and the air enters the cylinder 1, causing the outward movement of the piston 4 to exert the final pressure on the brake-shoes. When
90 the air-pressure is released, the piston 10 will at once commence to move inwardly, and as soon as it passes the port 2 a free open communication is established between the cylinder 1 and the atmosphere on the exhaust side
95 of the piston 4.

The apparatus is comparatively inexpensive and simple in its construction, and inasmuch

as the small piston controls the admission of air to the large cylinder through the port 2 there can be no possibility of the large piston commencing to move before the small piston 5 has reached the limit of its movement, and therefore the parts cannot fail to operate as it is intended they should operate.

I claim as my invention—

1. In a brake mechanism, a small cylinder 10 and piston for imparting initial movement to the brake-shoes, and a large cylinder and piston for exerting the final pressure on the shoes; said small cylinder communicating with said large cylinder through a port that is 15 opened by the movement of the small piston, substantially as set forth.

2. In a brake mechanism, the combination of a small cylinder and piston for imparting initial movement to the brake-shoes, and a 20 large cylinder and piston for exerting the final pressure on the shoes; said small cylinder being located in proximity to the large cylinder and communicating therewith through a port that is controlled by the movement of the small

piston to admit and exhaust air from the large 25 cylinder, substantially as set forth.

3. In a brake mechanism, the combination of a small cylinder and piston for imparting initial movement to the brake-shoes, a large 30 cylinder and piston for exerting the final pressure on the shoes, and links connecting the small piston to the levers of the brake system; said small cylinder communicating with said large cylinder through a port controlled by the movement of the small piston; substan- 35 tially as set forth.

4. In a brake mechanism, a small cylinder and piston for imparting initial movement to the brake-shoes, a large cylinder and piston for exerting the final pressure on the shoes, and a 40 toggle connection between said small piston and a lever of the brake mechanism, substantially as described.

WM. O. MUNDY.

In presence of—

E. S. KNIGHT,
BLANCHE HOGAN.