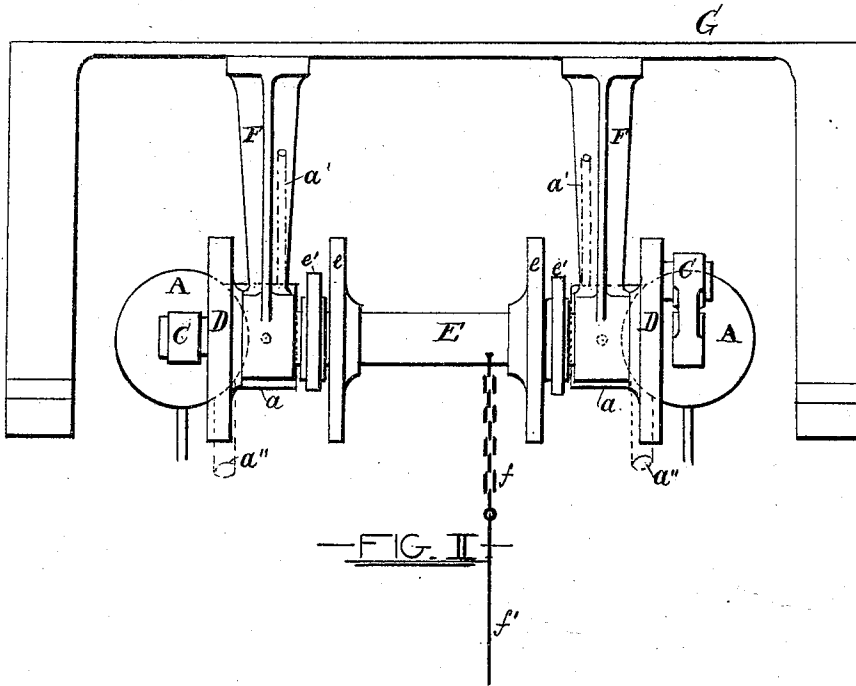


S. F. CLOUSER.

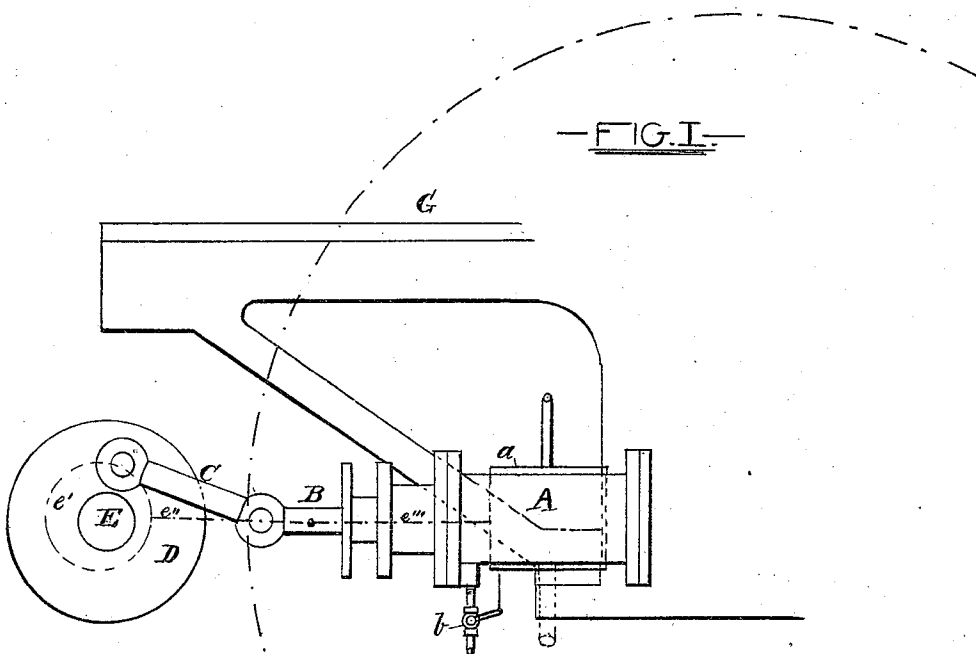
Operating Steam or Air Brakes.

No. 138,859.

Patented May 13, 1873.



—FIG. II—



—FIG. I—

—WITNESSES:—

H. A. Daniels
 Chas. S. Whitman

—INVENTOR:—

Samuel F. Clouser
 by G. H. & W. J. Howard
 attys.

UNITED STATES PATENT OFFICE.

SAMUEL F. CLOUSER, OF SALT LAKE CITY, UTAH TERRITORY.

IMPROVEMENT IN OPERATING STEAM OR AIR BRAKES.

Specification forming part of Letters Patent No. **138,859**, dated May 13, 1873; application filed November 20, 1872.

To all whom it may concern:

Be it known that I, SAMUEL F. CLOUSER, of Salt Lake City, Territory of Utah, have invented a new Mode of Operating or Setting Car-Brakes, of which the following is a specification; and I do hereby declare that the same is a full, clear, and exact description of my said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to a method by which steam-power is applied through the agency of machinery, hereinafter described, to the setting of the brakes of the entire train, if necessary, simultaneously, at and by the exercise of the will of the engineer, and is designed specially as a substitute for the various modes of setting brakes by hand-power in ordinary use. My invention consists in the use of two small steam-cylinders, provided with the common slide-valve or other valve movement and mechanism, preferably placed directly beneath the foot-board of the engine in such a position as to be immediately under the control of the engineer on duty; the piston-rods of the cylinders connecting by means of rods to cranks or crank plates secured to and adapted to revolve a shaft winding the chain which operates the brake-levers.

In the accompanying drawing forming a part of this specification, Figure 1 is a side view of my invention; and Fig. 2 an end view of the same.

Similar letters of reference indicate similar parts of the invention in both the views.

A A represent the cylinders having the steam-chests *a a* containing suitable slide-valves. B B are the pistons and C C the connecting-rods. D D are the cranks or crank plates. The connecting-rods join to pins in the crank-plates at points situated at opposite sides of the center of the shaft, in order to prevent stoppage on or difficulty in passing centers. E is the chain-winding shaft having two flanges, *e*, between which the chain is confined. Eccentrics for operating the slide-valves are operated by *e'*, and valve-connecting rods and stems by *e'' e'''*. F F are suitable hanging-bearings supporting the shaft E and secured to the frame of the locomotive. G is the foot board or floor of the engine-

house. The chain shown by *f* is of sufficient length in itself to serve the purposes of winding, and connects with a continuous rod, *f'*, attaching immediately to the levers of the brakes. Steam-pipes are represented by *a' a'* leading from the boiler of the locomotive to the steam-chests, the pipes being provided with cocks or valves within convenient reach of the engineer. In addition to the ordinary exhaust-pipe *a''* leading from the exhaust-ports of the cylinders, each cylinder is provided with an exhaust-cock, *b*, placed at opposite ends of the two cylinders and supplied with a handle, the two handles being arranged in such a way as to bring them within reach of the engineer, and enable him to open or close the exhaust-cock of both cylinders at the same time and by the same movement.

When the steam pressure has been removed from the cylinders by opening the exhaust-cocks the weight of the continuous rod *f'* and chain *f* and the spring on the brakes will cause the shaft E to reverse its movement, thus unwinding the chain and relieving the brakes.

By means of my invention the brakes of an entire train, if necessary, can be placed under the immediate control of the engineer, and subjected to a power and friction only limited by the size of the cylinders and pressure of steam employed.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

The steam-cylinders with their accompanying steam-chests, valves, and valve-working mechanism, in combination with a chain-winding shaft, chain, and continuous rod operating the brake-levers, said cylinders and shaft being directly connected by means of the pistons, piston, and connecting-rods, and the cranks or crank plates, substantially as and for the purpose specified.

In testimony whereof I have hereto subscribed my name in the city of Washington, District of Columbia, this 20th day of November, in the year of our Lord 1872.

SAMUEL F. CLOUSER.

Witnesses:

GEO. H. HOWARD,
EDM. F. BROWN.