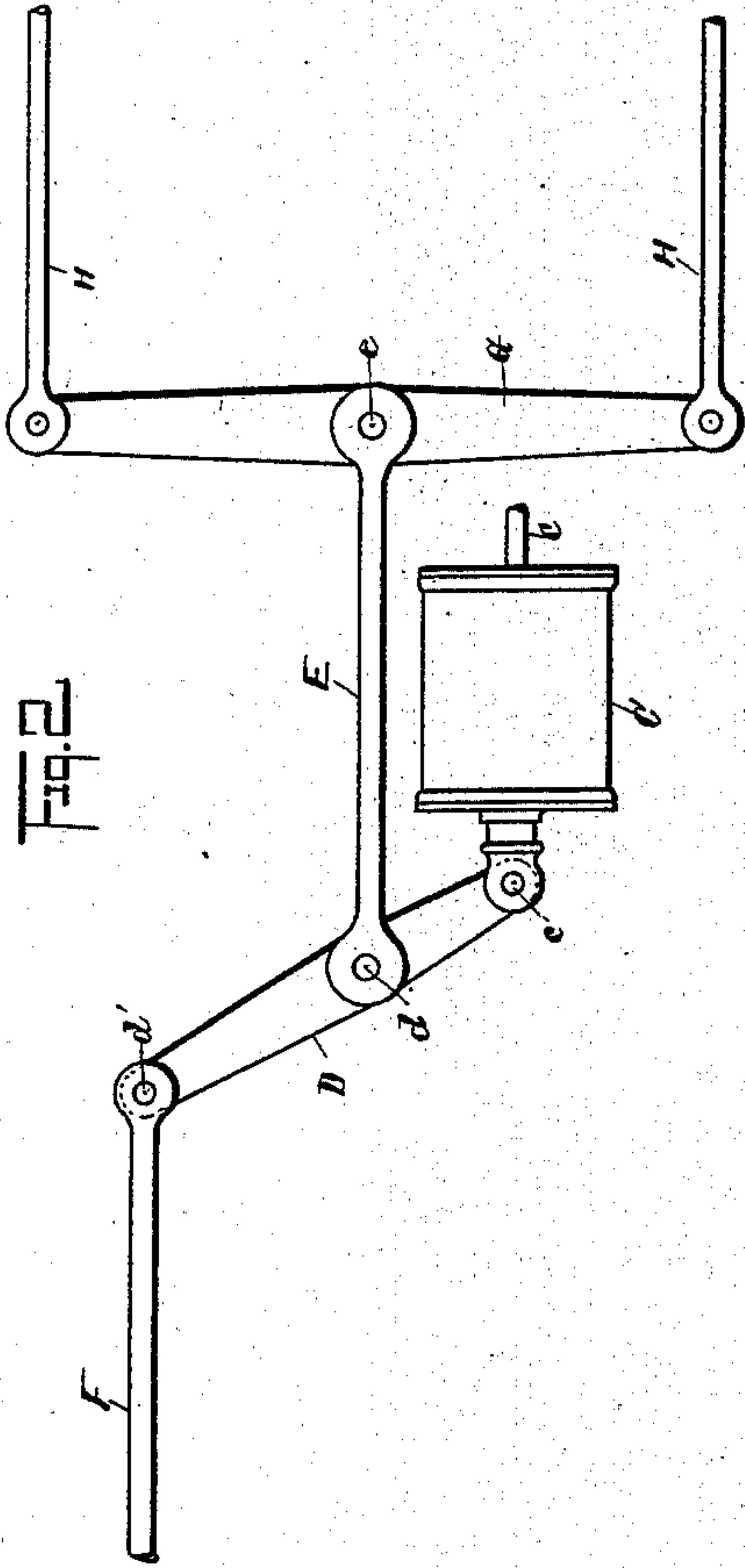
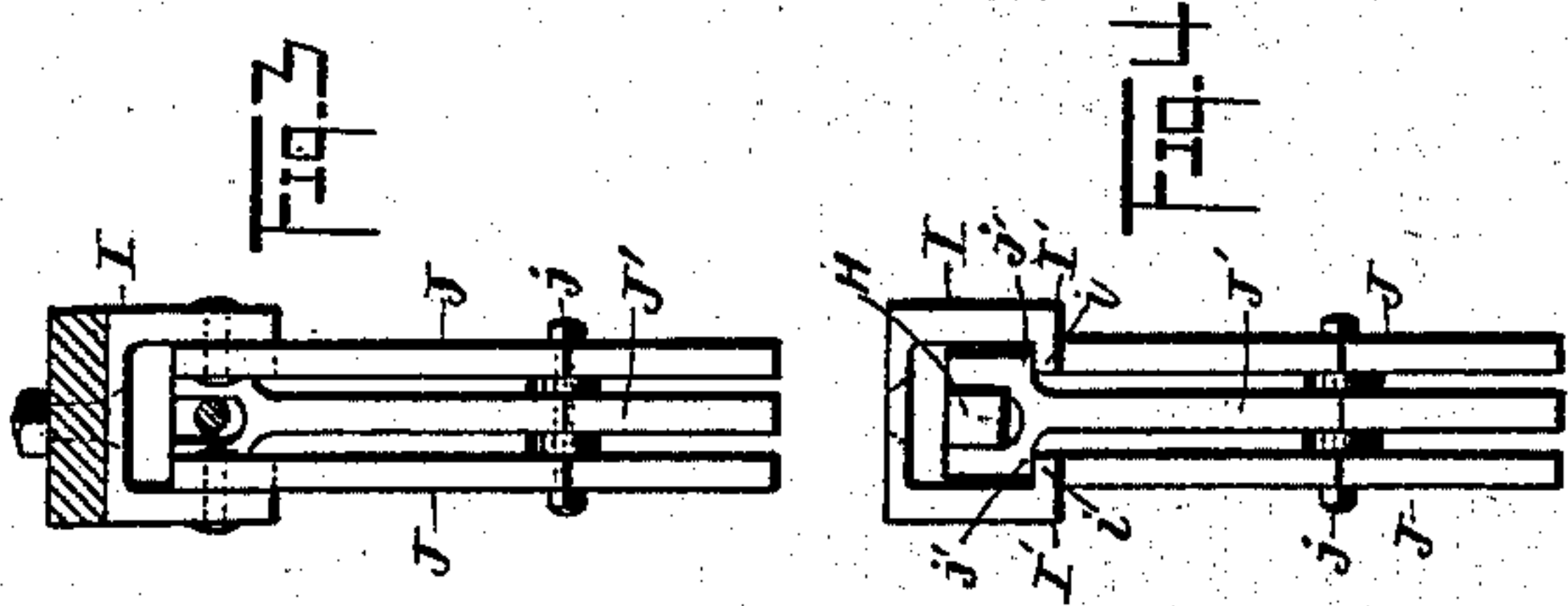
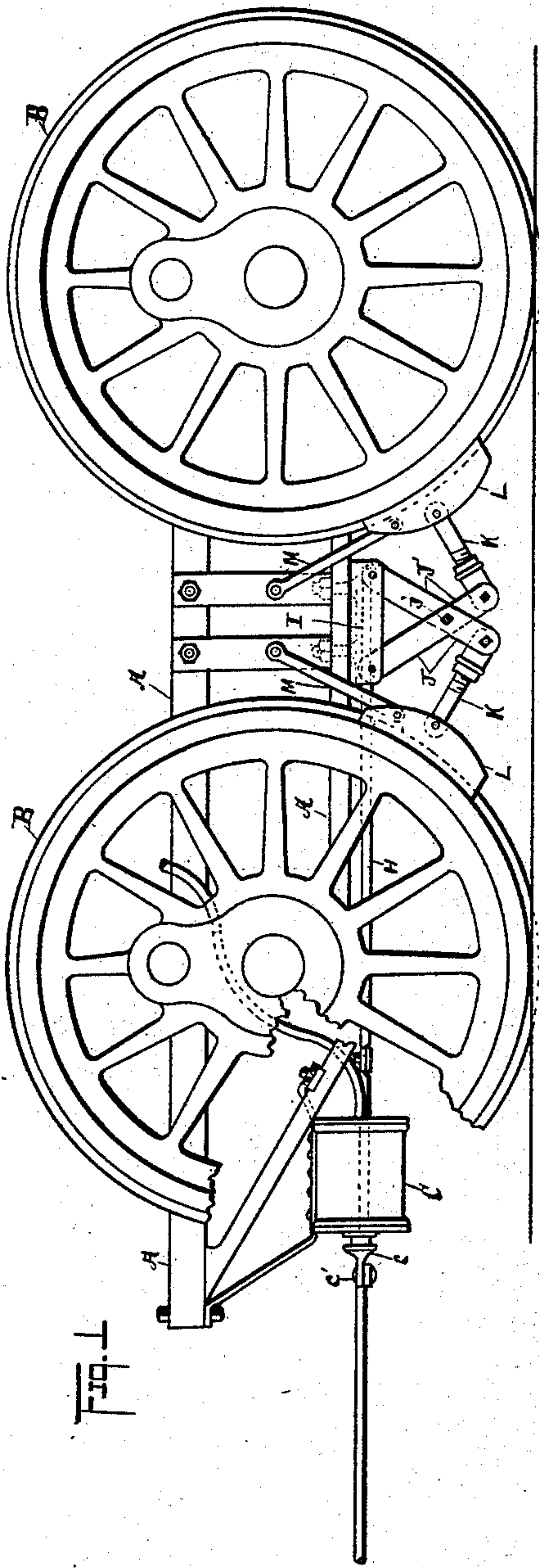


(No Model.)

T. H. HABERKORN.
BRAKE FOR LOCOMOTIVES.

No. 413,254.

Patented Oct. 22, 1889.



WITNESSES
Belle Lounie
G. W. King

J. H. Haberkorn INVENTOR
By Leggett & Leggett Attorneys

UNITED STATES PATENT OFFICE.

THEODORE H. HABERKORN, OF FORT WAYNE, INDIANA.

BRAKE FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 413,254, dated October 22, 1889.

Application filed June 21, 1888. Renewed July 22, 1889. Serial No. 318,193. (No model.)

To all whom it may concern:

Be it known that I, THEODORE H. HABERKORN, of Fort Wayne, in the county of Allen and State of Indiana, have invented certain
5 new and useful Improvements in Brake Mechanism for Locomotive-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to
10 which it pertains to make and use the same.

My invention relates to improvements in brake mechanism for locomotive-engines, in which a single cylinder for air or steam, by means of a system of levers and connecting
15 mechanism, is made to operate the brakes of the driving-wheels and the brake of the tender; also, by means of such system of levers, the latter being slightly elastic, the brakes are applied with a yielding pressure that does
20 not injure the machinery of a locomotive like the rigid application of the brakes—by means, for instance, of a wedge.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a plan. Figs. 3
25 and 4 are end elevations, the last three figures being in detail.

A represents a portion of the frame of a locomotive-engine, and B B the driving-wheels.

30 C is a cylinder for air or steam, this cylinder being rigidly connected to the engine-frame on one side of the latter. The piston-rod *c* of the cylinder is pivoted at *c'* to lateral lever D. This lever, at *d*, is pivoted to rod E, and the lever at *d'* is pivoted to rod F, the
35 latter rod leading rearward and connecting with the brake mechanism of the tender for operating the same. The brake of the tender is not shown, as it is of ordinary construction.

40 Rod E leads forward and at *e* connects with equalizing-bar G, at the center of the latter, and at equal distances on either side of point *e* bar G is pivoted to rods H H, these rods leading forward for operating the brake of
45 the driving-wheels. Yokes I are connected with the under side of the engine-frame on either side of the latter and midway between the driving-wheels. Each yoke has depending legs I', and the forward portions of these
50 legs have inwardly-projecting ledges *i*. (See Fig. 4.) Levers J J and J' are each of the

bell-crank variety shown in Fig. 1. These levers are intended to be alike in their general form, but are set in reverse order, as shown, the levers J J embracing lever J', the
55 three levers being pivoted at the elbow at *j*. Levers J J are pivoted to legs I' of the yoke, these levers being located inside the legs of the yoke, but are separated far enough to receive rod H loosely between them. The up-
60 per end of lever J' is usually forked for receiving rod H, to which it is pivoted, and this lever having laterally-projecting shoulders *j'*, that rest on ledges *i*, for supporting the same. To the lower end of levers J J and J' are
65 respectively pivoted adjustable connecting-rods K, these rods leading, respectively, forward and rearward and connecting with brake-shoes L. Links M are pivoted to the brake-shoes, and are pivoted at *m* to the en-
70 gine-frame. With such arrangement of parts it is evident that when the upper ends of these levers or "expanding tongs," as they may be termed, are moved toward each other
75 the lower ends of the tongs will move apart, causing the brake to press against the driving-wheels.

In operating the device, when steam or compressed air is admitted to cylinder C the piston-rod thereof is moved rearward—that is,
80 to the left hand, as shown in Figs. 1 and 2—and this causes lever D to draw rearward on rod E and to draw forward on rod F. The forward movement on rod F sets the brake of the tender and the rearward movement of
85 rod E, by means of equalizing-bar G and rods H, operate the brakes on the driving-wheels. Levers D, bar G, and the members of the tongs aforesaid are all slightly elastic and spring a trifle as the power is applied, by
90 means of which the brakes of the driving-wheels are not applied with the rigidity had when a wedge is employed for forcing these brakes apart, and consequently there are less strain and wear and tear on the machinery
95 of the engine on account of such yielding pressure applied to the brakes.

What I claim is—

1. In brake mechanism for locomotives, the combination, with a single cylinder for oper-
100 ating the brakes, of a lever attached to the piston, a single rod leading therefrom to the

brakes on the tender, a rod leading forwardly from the lever, an equalizing-bar attached to the front end of said rod, and two rods attached to the equalizing-bar and connected to the brake mechanism of the driving-wheels, substantially as set forth.

2. The combination, with a cylinder located at or near one side of the engine, the piston-rod thereof being pivoted to the one end of a lateral lever, of connecting-rods F and E, pivoted, respectively, to the opposite end and midway of such lateral lever, the former rod leading rearward for operating the tender-brakes, the latter rod leading forward and connecting with an equalizing-bar at the center thereof, said equalizing-bar being operatively connected at either end with the respective brakes of the driving-wheels, substantially as set forth.

3. The combination, with depending levers J and J' of the bell-crank variety set in reverse order and pivoted together at the elbows thereof, the lower ends of these levers

being connected with the brake-heads of the driving-wheels, the upper ends of levers J being pivoted to a fixed support, of mechanism, substantially as indicated, for operatively connecting the free end of levers J' with the piston-rod of a single cylinder for operating the brakes, substantially as set forth.

4. The combination, with yoke I, having depending legs and internal shelves *i*, of levers J and J' of the bell-crank variety and pivoted at the elbows, substantially as indicated, the levers J being pivoted to the yoke and the levers J', having lateral projections for engaging supporting-ledges, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 26th day of March, 1888.

THEODORE H. HABERKORN.

Witnesses:

R. S. ROBERTSON,
N. A. ROBERTSON.