L. S. HOYT.

Car-Brake.

No. 225,382. Patented Mar. 9, 1880.

fig. 1

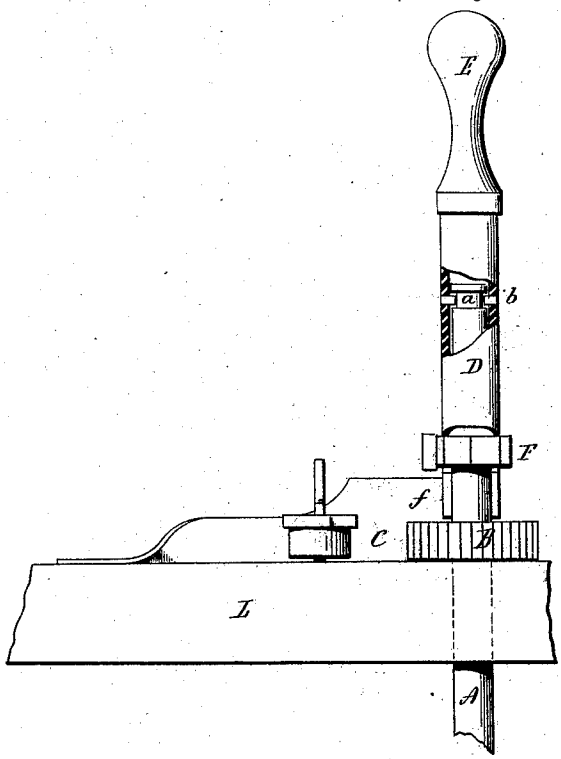


fig. 2

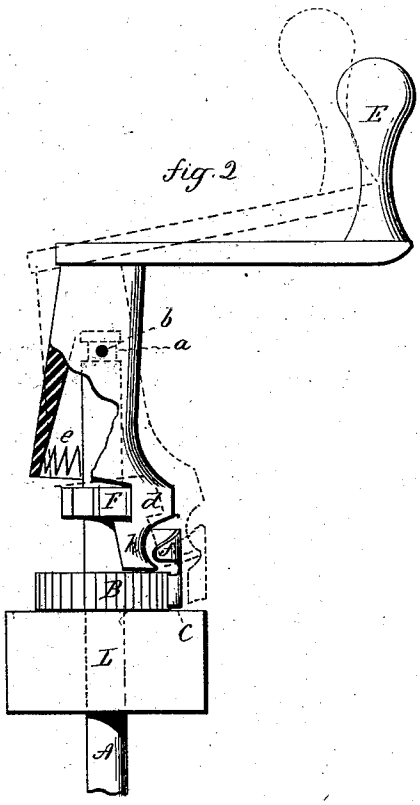
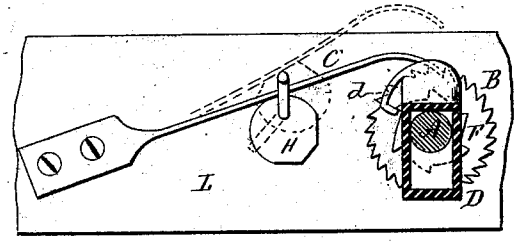


fig. 3



Witnesses.

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UNITED STATES PATENT OFFICE.

LEWIS S. HOYT, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-HALF OF HIS RIGHT TO LEWIS H. ENGLISH, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 225,382, dated March 9, 1880.

Application filed February 2, 1880.

To all whom it may concern:

Be it known that I, LEWIS S. HOYT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Car-Brakes; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, front view; Fig. 2, sectional side view; Fig. 3, sectional top view.

This invention relates to an improvement in a device for operating car-brakes, especially adapted to street-cars and such as employ a crank for applying the brake.

In the usual construction the crank is made fast to the brake-shaft and a ratchet applied to the shaft to hold the brake when applied. When the ratchet is detached the shaft and crank are free to revolve backward with great rapidity and force, accidents frequently occurring because of the flying crank striking passengers on the platform.

The object of this invention is to overcome this difficulty; and it consists in the construction as hereinafter described, and particularly recited in the claims.

A represents the brake-shaft, arranged to apply the brake to the wheel in the usual manner. B is the ratchet on the shaft, and C the pawl engaging the ratchet. The shaft extends upward above the ratchet, and over it is placed a sleeve, D, to which the crank E is attached. The sleeve has a recess, into which the shaft extends, and is connected to the shaft by means of an annular groove, *a*, in the shaft and pin or pivot *b* in the sleeve, so that the crank may turn freely around the shaft. From the point of connection with the shaft the opening in the sleeve expands in the direction of the crank, but transversely is about as wide as the diameter of the shaft, so as to leave considerable play below the pivot *b*, and as seen in Fig. 3.

Immediately below the sleeve is a second toothed ratchet, F, permanently attached to the shaft, and on one side of the sleeve is an extension, *d*, which forms a pawl to engage with the teeth of the ratchet F, and on the opposite side there is a spring, *e*, the tendency of which is to hold the pawl *d* in engagement with the ratchet F; hence when in such engagement, if the crank be turned against the teeth of the ratchet F, it will cause the shaft A to revolve in the usual manner for such brake-shaft, the same as if the crank were rigidly attached to the shaft, and the pawl C will engage the ratchet B and hold the shaft in the position at which the turning ceases.

On the pawl C is an upward extension, *f*, above the ratchet B, and from the sleeve is an extension, *h*, coming down in line with the extension *f* of the pawl, so that when the extension *h* is in the position against the extension *f*, as seen in Fig. 2, if the crank be raised so as to turn on the pivot *b*, as indicated in broken lines, the extension *h* will strike the pawl C, force it from its engagement with the ratchet B, and at the same time the pawl *d* on the sleeve will be raised away from the ratchet F, and this entirely frees the shaft and allows it to revolve by the reaction of the brake and brake-spring, and without turning the crank. As this movement of the crank cannot be imparted to the pawl C except in the one position named, if that position is not attained when the brake is fully applied, the crank must be turned backward until it arrives at that position, the teeth of ratchet F permitting such backward movement.

In some cases it is desirable to hold the pawl C away, so as to leave the shaft free—as, for instance, in double-end cars, where the driver changes ends at the termination of the route. For this purpose a cam, H, is arranged to operate against the pawl C to throw and hold the pawl out of connection, as seen in broken lines, Fig. 3.

As here represented the mechanism is applied above the top rail, L, of the platform; but it may be arranged at any convenient position.

I claim—

1. The combination of the brake-shaft A, provided with the ratchet B and pawl C, with the crank E, its sleeve D, pivoted upon the shaft, but so as to be revolved thereon, the ratchet F on the shaft, pawl *d* on the sleeve, to engage

said ratchet F in one direction and turn freely in the other, and a connection between the sleeve and pawl C at one point, whereby the said pawl C may be disengaged from the ratchet B at the same time that the crank-sleeve is disengaged from the ratchet F, substantially as described.

2. The combination of the brake-shaft A, provided with the ratchet B and pawl C, with the crank E, its sleeve D, pivoted upon the shaft, but so as to be revolved thereon, the ratchet F on the shaft, pawl *d* on the sleeve, to engage said ratchet F in one direction and turn freely in the other, and a connection between the sleeve and pawl C at one point, whereby the said pawl C may be disengaged from the ratchet B at the same time that the crank-sleeve is disengaged from the ratchet F, and with means, substantially such as described, for holding the pawl C in a disengaged position, substantially as described.

LEWIS S. HOYT.

Witnesses:
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JOS. C. EARLE.