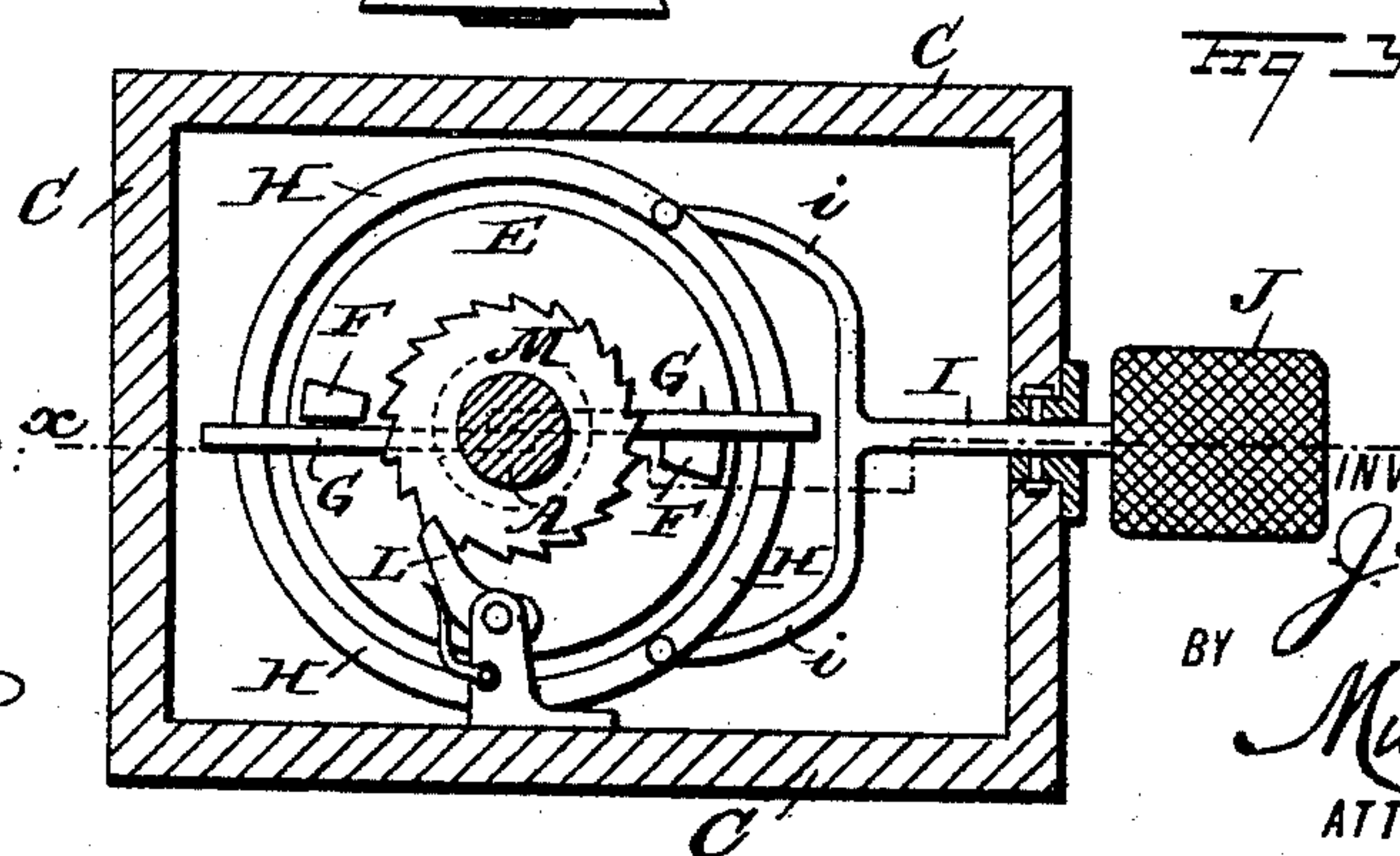
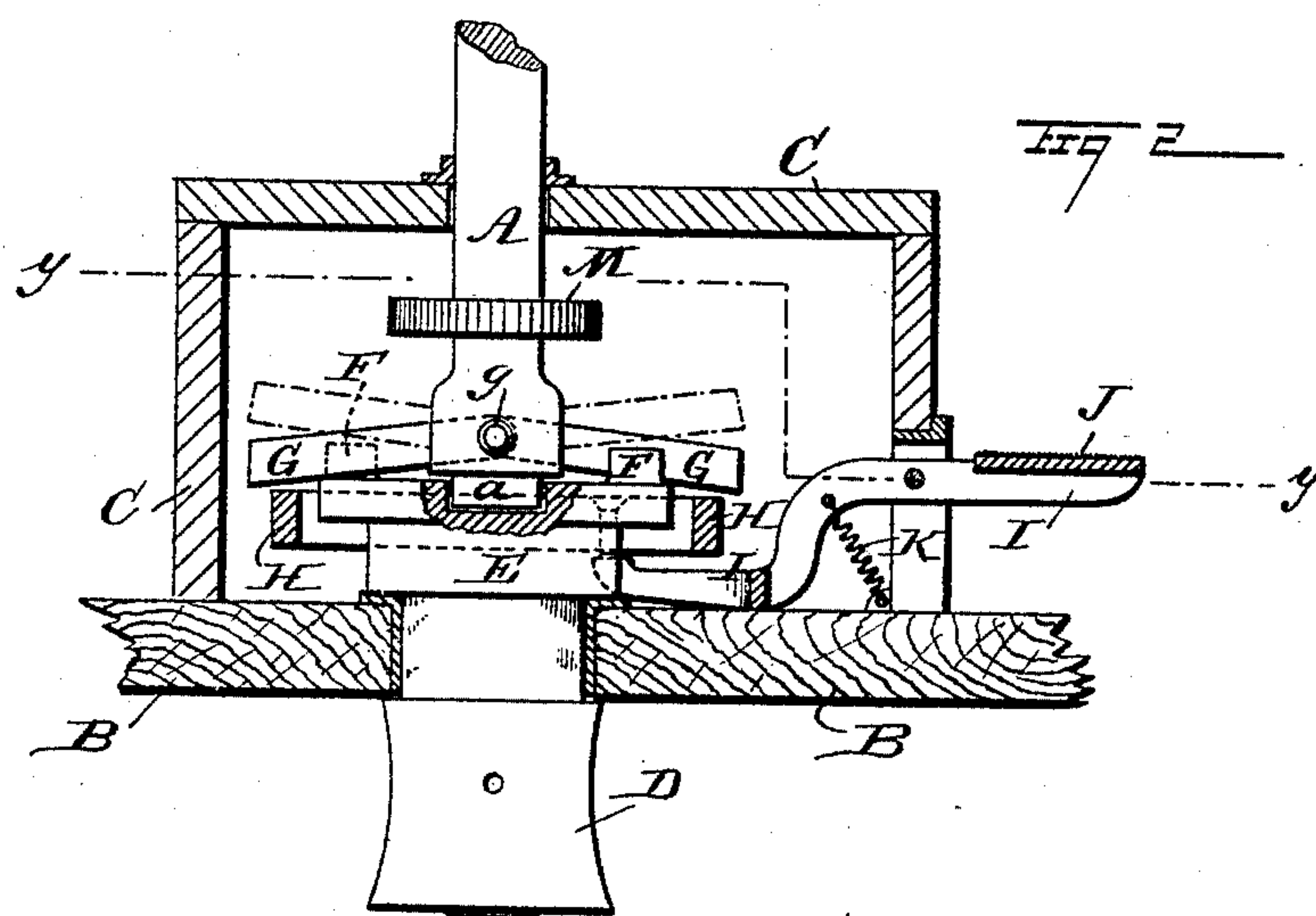
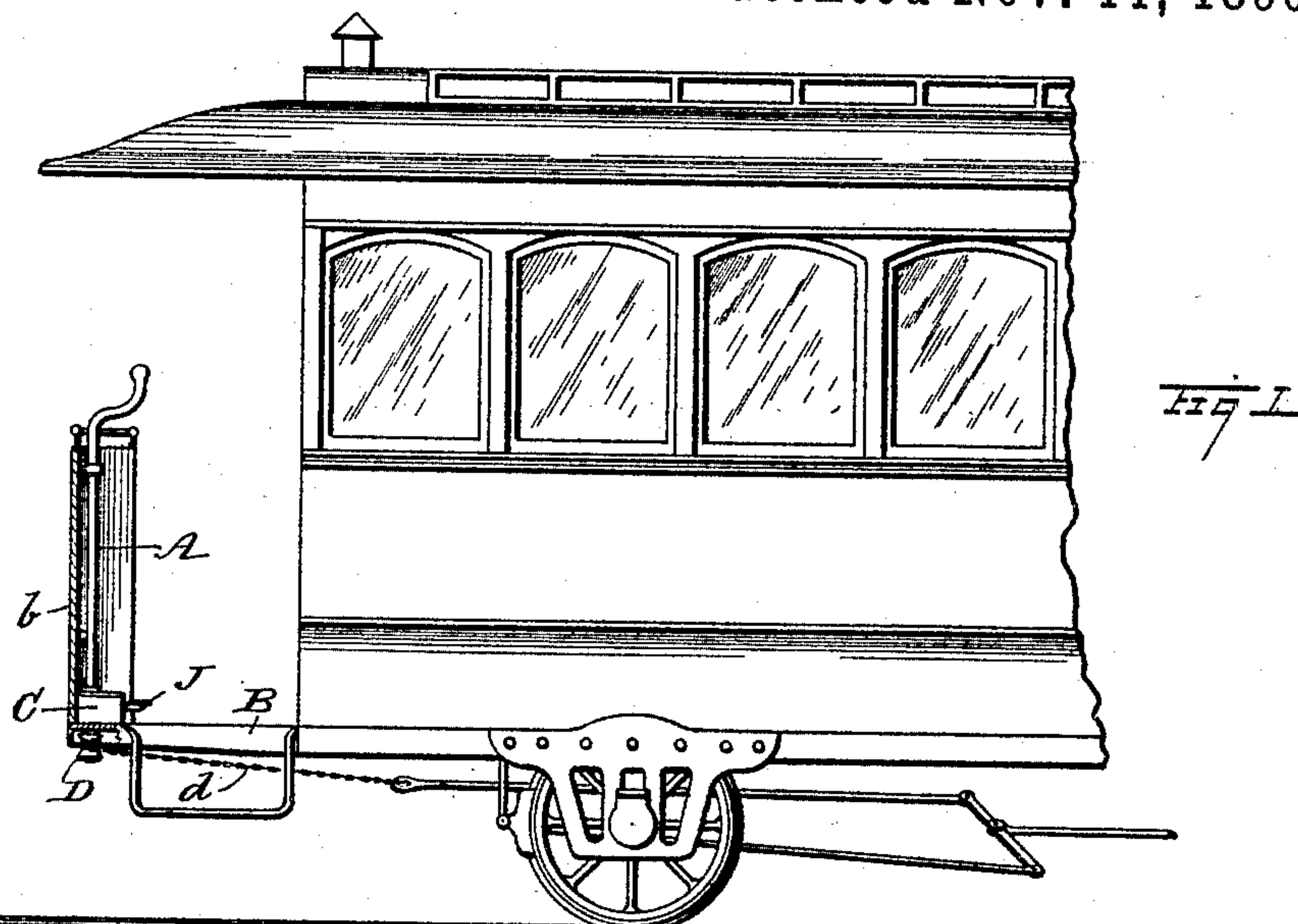


(No Model.)

J. C. CHASE.  
STREET CAR BRAKE.

No. 440,467.

Patented Nov. 11, 1890.



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

JOSEPH CHURCHILL CHASE, OF NEW ORLEANS, LOUISIANA.

## STREET-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 440,467, dated November 11, 1890.

Application filed August 4, 1890. Serial No. 360,847. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH CHURCHILL CHASE, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Street-Car Brake, of which the following is a full, clear, and exact description.

My invention relates to brakes for railway-cars, street-cars more particularly, and has for its object to provide a simple, inexpensive, and reliable brake mechanism, which may be operated as easily and effectively as the ordinary brake and obviates forcible flying back of the brake-shaft as the brakes are taken off the car-wheels, and thereby prevents injury to persons riding on the car.

The invention consists in certain novel features of construction and combinations of parts of the car-brake mechanism, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a partly sectional side elevation of a portion of a street-car provided with my improved brake mechanism. Fig. 2 is an enlarged vertical section of the car-brake mechanism, taken on the line  $x x$  in Fig. 3; and Fig. 3 is a sectional plan view taken on the line  $y y$  in Fig. 2.

Street-railway cars are commonly provided with a vertical brake-shaft, which, beneath the car-platform, carries a drum on which is wound a chain connected with the brake beams or shoes to apply the brake as the shaft is turned by its cranked handle operated by the driver of the car. A pawl on the platform usually is provided to engage a ratchet-wheel on the brake-shaft to hold the brakes on when applied, in order to relieve the driver; but when this pawl is thrown from the ratchet by the driver's foot the brake-shaft usually flies around backward and has caused many serious injuries to drivers and passengers by their being struck by the brake-shaft crank arm or lever. In my invention this dangerous flying back of the brake-shaft arm or lever is entirely obviated and the safety of persons riding on the car is thereby promoted.

In carrying out my invention in the preferred manner I use a vertical brake-shaft A, which is suitably journaled to the dashboard  $b$  of the car-platform B and to the top of a box or casing C, which is fastened to the platform next the dashboard and at the feet of the car-driver who handles the brake.

Instead of connecting the chain-drum D fixedly to the brake-shaft I journal the drum suitably to the car-platform and to the top of the drum-shaft, and within the box is fixed a head-plate E, which carries a couple of lugs F F, which are adapted to be engaged by two clutch-bars G G, which are pivoted at their inner ends to the foot of the brake-shaft, which preferably has a loose bearing  $a$  on or in the chain-drum head-plate E. The clutch-bars are hung on a horizontal pivot  $g$ , allowing their outer ends to be raised so as to be clear of the lugs F F, and to lower by gravity and automatically drop behind the lugs. The drum may or may not have the head-plate E, as any other arrangement of it whereby it may support lugs F to be engaged by the brake-shaft clutch-bars will serve my purpose. It will be understood that but one lug F may be used on the chain-drum or its head-plate, and that but one corresponding clutch-bar G may be used on the brake-shaft to engage the lug, or more than two lugs and clutch-bars therefor may be employed; but I prefer two diametrically-arranged lugs and clutch-bars, as shown in the drawings.

I provide a simple and reliable trip device to uncouple the brake-shaft and chain-drum, which consists, preferably, of a ring H, which will always underlie the one or more clutch-bars of the shaft, and is connected to one end of a treadle-lever I, and preferably to the extremities of its forks  $i$ , said lever being pivoted, preferably, to the side wall of the box C, which conceals and protects the brake-shaft clutch mechanism. This lever I extends rearward through or from the box C, and at its outer end is provided with a treadle or foot plate J, which may conveniently be depressed by the car-driver. The inner forked end of the lever is bent or shaped so as to stop at the car-platform when the ring H is below the clutch bar or bars of the chain-drum. A spring K is preferably employed within the box C to positively lower



the ring H and hold it down except when the treadle I J is depressed. Within the box or casing C is arranged a spring-pressed pawl L, which normally engages a ratchet-wheel M, fixed to the brake-shaft A, to prevent backward turning of the clutched shaft and chain-drum when the brake is applied.

The operation of my invention is very simple and effective. When the brake is off, the mechanism takes the normal relative positions shown in full lines in Figs. 2 and 3 of the drawings—that is to say, the brake-shaft clutch-bars G lie behind the chain-drum lugs F and the uncoupling-ring H is down clear of the clutch-bars. If the car is to be stopped or controlled in speed, it is only necessary to turn the brake-shaft, which then, by or through the clutch-bars G acting on the drum-lugs F, will rotate the drum and thereby wind thereon the chain d, which is connected in any approved manner to the brake-beams to apply the brakes to the car-wheels. To again release the brake or free the wheels it is only necessary for the driver to press his foot on the plate J of the lever I and thereby raise the ring H and with it the clutch-bars G until the latter are above the drum-lugs F, as indicated in dotted lines in Fig. 2 of the drawings. Immediately the bars G are thus uncoupled from the drum-lugs F the drum will be free, and the brake-shoes will leave the car-wheels, thereby taking off the brakes. It is obvious that as the brake-shaft is thus uncoupled from the brake-chain drum the drum will turn backward, but the shaft will not, as it is retained by the pawl and ratchet L M, and there is no danger of injuring the driver or passengers by a rapidly and forcibly rotating brake-shaft handle; hence the brake mechanism is safe to use and is as easily operated and as quick in action as the ordinary style of brake and is not liable to get out of order. The pawl-and-ratchet detent L M is not essential, as the driver may quite easily hold the brake-shaft A from turning back as he uncouples it from the chain-drum; but the use of this detent is preferable, as it entirely relieves the driver from care of the brake mechanism in releasing the brakes, excepting the very natural movement of his foot in depressing the treadle-lever to uncouple the chain-drum and brake-shaft.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A brake-operating mechanism comprising the chain-drum, the brake staff or rod above the drum and separate and independent thereof, a clutch for connecting the lower end of the brake staff or rod and the drum, and a trip to release the said clutch and per-

mit the drum to rotate and unwind the chain thereon without rotating the brake rod or staff, which remains stationary, substantially as shown and described.

2. A brake-operating mechanism comprising the drum having a lug or lugs, a separate and independent brake rod or staff, the outward-projecting vertically-swinging clutch bar or bars pivoted to the brake-rod above the drum, lugs to engage said lugs and rotate the drum, and a trip to raise said pivoted arm or arms and release the drum, the brake-rod remaining stationary, substantially as shown and described.

3. A brake mechanism comprising the drum having a lug or lugs, a separate and independent brake-rod having a detent to prevent it from rotating in a reverse direction, the vertically-swinging clutch bar or bars pivoted to the lower end of the brake-rod and adapted to engage the drum lug or lugs, and a foot-trip to raise said clutch arm or arms and release the drum without rotating the brake-rod, substantially as shown and described.

4. The herein-described brake mechanism comprising the drum having a lug or lugs on its upper end, a separate and independent brake-rod provided at its lower end with a pivoted clutch arm or arms to engage the lug or lugs and rotate the drum, a ratchet-wheel on the brake-rod above the clutch-rod, and a pawl to engage said ratchet, and means for raising the pivoted arm to release the drum, substantially as shown and described.

5. The combination, in a railway-car brake and with the chain-drum connected to the brake-shoes, of lugs on the drum, a brake-shaft, clutch-bars hung to the shaft and adapted to engage the drum-lugs, a treadle-lever carrying a trip ring or lifter at the clutch-bars and adapted when operated to uncouple the drum and brake-shaft, and a ratchet-and-pawl detent preventing flying back of the shaft when it is uncoupled from the drum, substantially as described.

6. The combination, in a street-car brake, of a box or casing C on the car-platform, a chain-drum D, journaled to the platform and provided with lugs F, a brake-shaft A, journaled on the platform and entering the box C and provided therein with pivoted clutch-bars G, adapted to the drum-lugs F, a ring H below the clutch-bars, and a lever I, sustaining the ring and extending for operation outside the box, substantially as described.

JOSEPH CHURCHILL CHASE.

Witnesses:

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