

MOORE & GARY.

Car Brake.

No. 85,326.

Patented Dec. 29, 1868.

FIG. 1

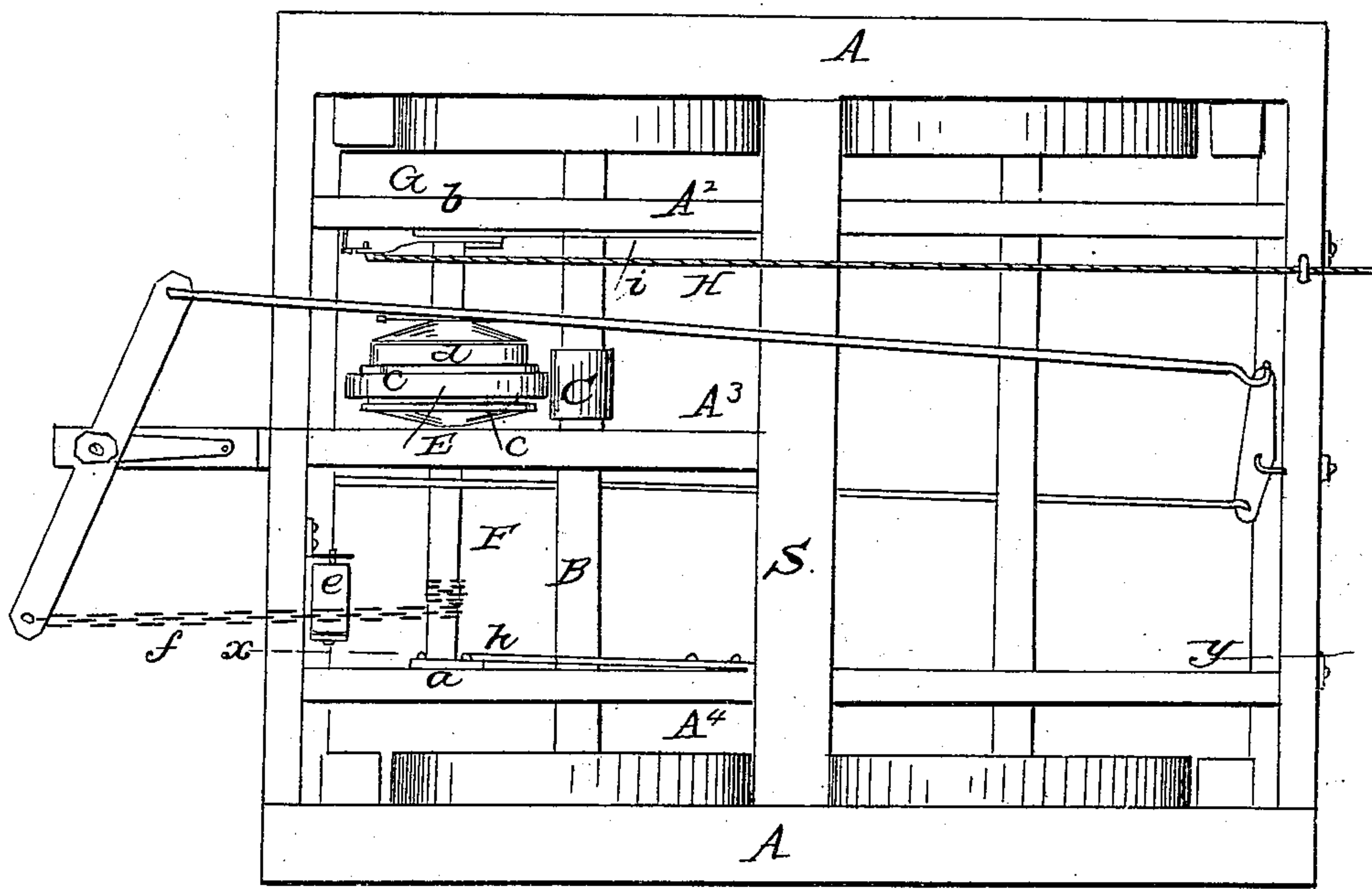


FIG. 2

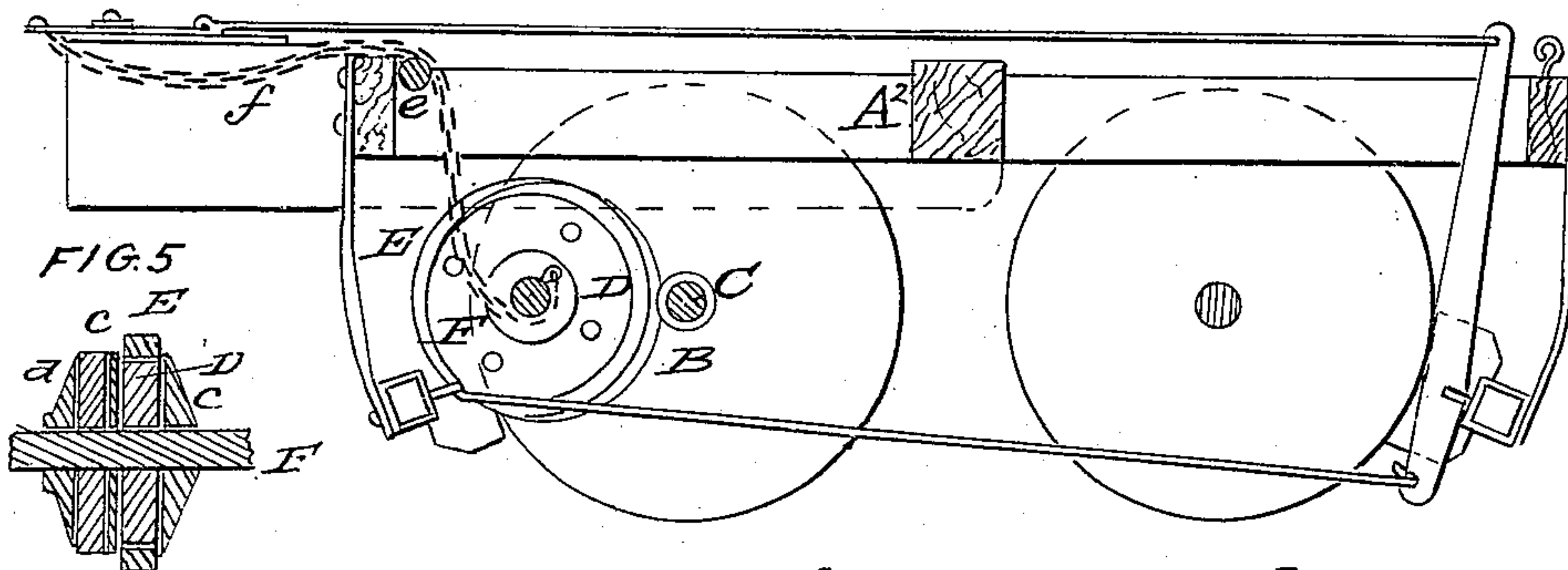


FIG. 5

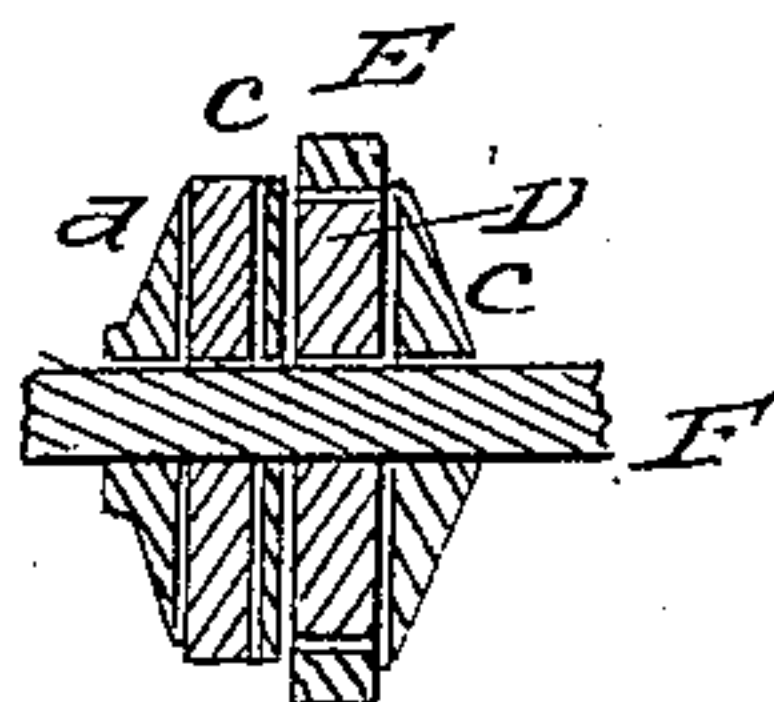


FIG. 4

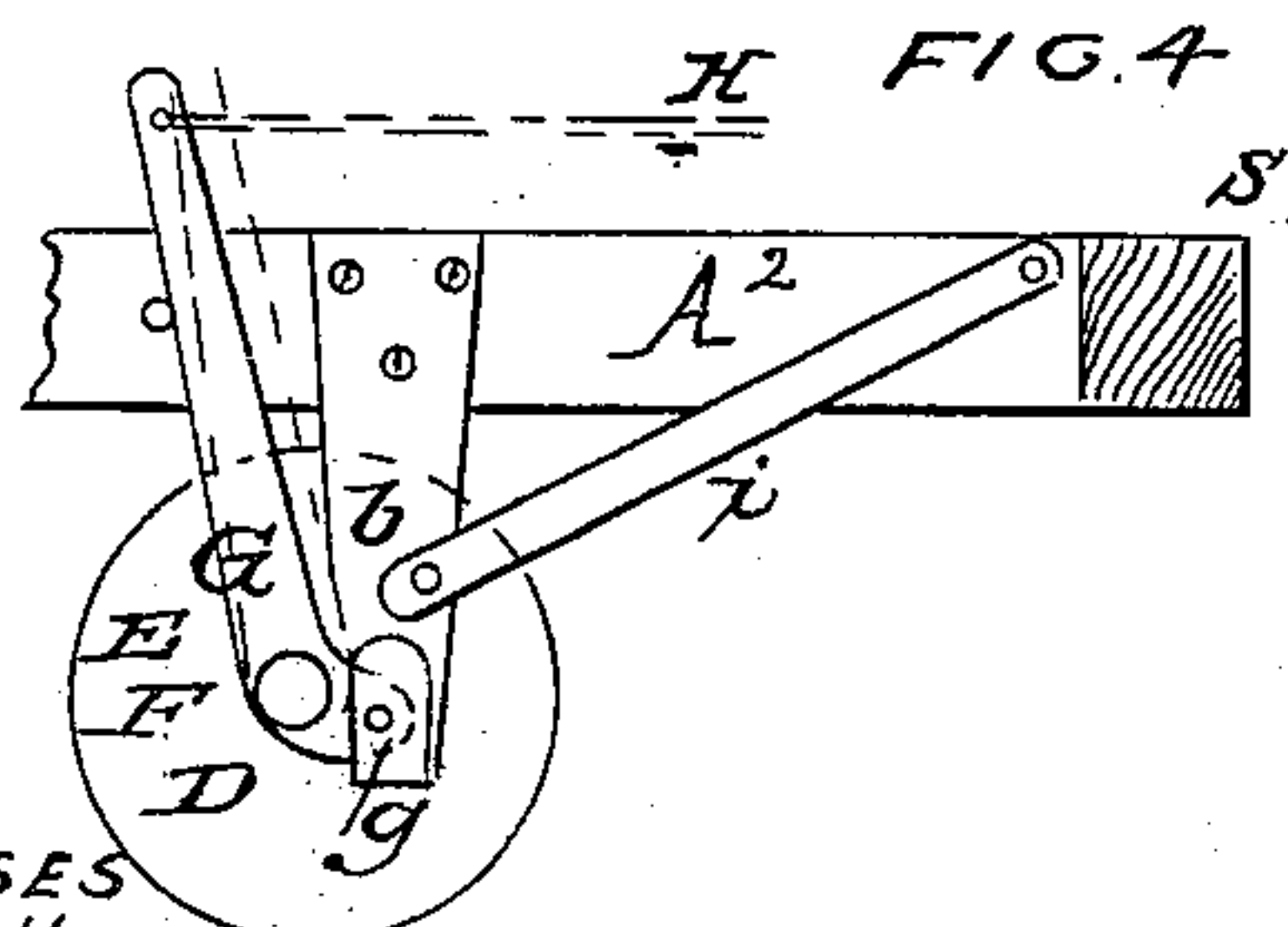
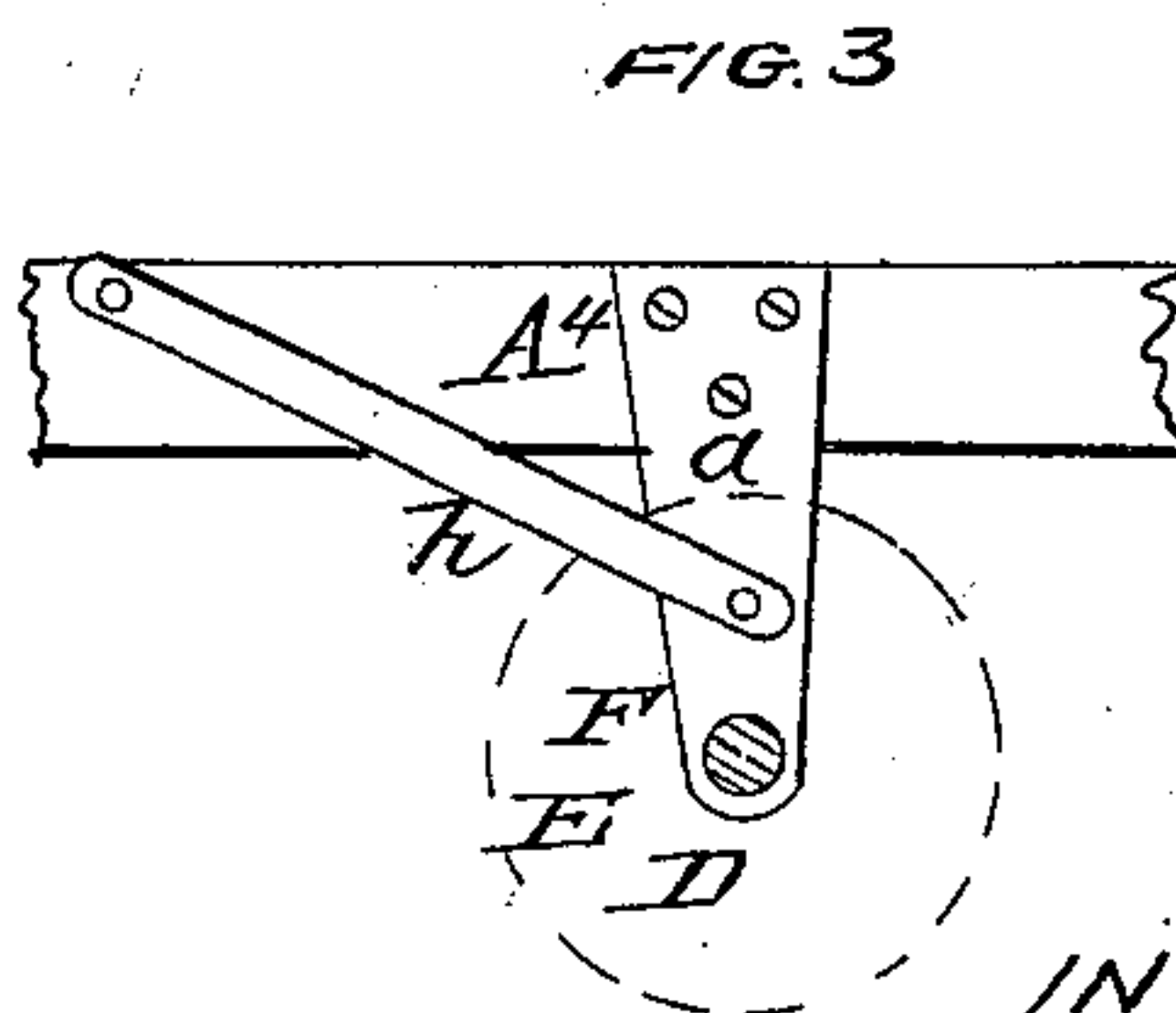


FIG. 3



WITNESSES

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# United States Patent Office.

JOSEPH H. MOORE AND JOSEPH E. GARY, OF CHICAGO, ILLINOIS.

Letters Patent No. 85,326, dated December 29, 1868.

## IMPROVED CAR-BRAKE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, JOSEPH H. MOORE and JOSEPH E. GARY, both of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Car-Brakes; and we do declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of our device, attached to the truck of a car.

Figure 2, a section on red line *x y*, the lever and hanger being omitted.

Figure 3 shows the fixed bearing of shaft *F*.

Figure 4 shows the other bearing of shaft *F*.

Figure 5, a section of friction-wheel and clutch.

The object of our present invention is to enable the operator to graduate the pressure of the friction-wheel upon the car-axle as may be desired, the brakes being operated by a friction-wheel, running in contact with the car-axle, in a manner similar to that shown in a patent issued to us, bearing date, February 11, 1868, but the special devices, and the arrangement of the parts herein described, are in many respects wholly different from those shown therein.

To enable others skilled in the art to make and use our invention, we proceed to describe its construction and operation.

Our device we attach to the frame-work *A* of one of the trucks of a car, or to parts thereto attached.

*B* represents the axle of a pair of car-wheels.

*C* is a sleeve or collar, placed upon the axle, to prevent wear of the axle, against which the friction-wheel operates.

We construct our friction-wheel in two parts, the inner part, *D*, being a disk, about fourteen inches in diameter, and the outer portion, *E*, being a band, loosely applied, so that the disk *D* and band *E* can revolve independently of each other.

This band should be about one inch thick, (or thicker, if necessary,) and a little less in width than the thickness of the inner part of the friction-wheel, so that the friction-clutch can never grasp the band *E*.

The friction-wheel is placed loosely upon the shaft *F*, one end of which runs in a fixed bearing in the hanger *a*, while the other end runs in a bearing provided in the lever *G*, as shown in fig. 4.

This lever is bent, as shown in fig. 4, so that the weight of the machinery shall, when not in operation, keep the friction-wheel off from the car-axle or sleeve thereon, and the end of the short arm thereof is pivoted at *g* to the hanger *b*.

The friction-wheel is provided with a friction-clutch, constructed as shown in fig. 5, *c c* being the face-plates, *d*, a rubber or other suitable spring; and the clutch may be adjusted as shown in our former patent, or in any other suitable manner.

The operating-cord *H* is attached to the end of the

long arm of the lever *G*, and thence is carried to the bell-cord in any suitable manner; or, if desired, the operating-cord may be arranged and used independently of the bell-cord.

If it is desired to multiply further the force applied to the cord, it may be carried around a pulley in the top of the lever, and the end not operated with made fast to a point on the car.

The chain *f* is attached to the shaft *F*, usually at some point between the friction-wheel and the fixed bearing of said axle, and is carried over the pulley *e* to the brake-lever, and thereto connected.

The chain, when arranged as shown, will be, when the friction-wheel is brought in contact with the sleeve *C* or axle *B*, in a direct line drawn between the fulcrum *g* and the periphery of the pulley *e*, and through the shaft *F*; hence the tension of the chain will neither aid nor resist the power applied to the lever *G*.

This arrangement may be slightly varied, without materially affecting the working of the device.

We arrange the several parts so that the friction-wheel, when in its usual position, ready for use, will have its periphery very near the sleeve *C*, and so that the axles *B* and *F* will be in the same horizontal plane, or nearly so, though *F* may be a little above or below this plane.

We make both parts, *D* and *E*, of the friction-wheel of iron. It is not necessary to make the friction-wheel in two parts, as described, but we regard this mode of construction as economical, because, by using the band *E*, uneven wear of the friction-wheel is prevented, the band *E* not sliding on the sleeve *C*, but the part *D* sliding within the band *E*.

The operation of this device, when arranged as shown, is as follows:

One end of the shaft *F*, running in a fixed bearing, and the other end running in the lever *G*, having its fulcrum at *g*, when power is applied to the lever *G*, through the cord *H*, the friction-wheel will be brought in contact with the sleeve *C* or axle *B*, and the chain *f* will be wound upon the shaft *F*, and the brakes will be applied to the car-wheels.

If but little power be applied to the lever, the tension of the chain *f* will soon become greater than the friction between the two parts of the friction-wheel, and the outer part *E* will revolve around the inner part *D*, so long as the friction between these two parts, *D* and *E*, is less than that between the clutch and friction-wheel; but, as the power applied to the lever is increased, the friction between the two parts of the friction-wheel will increase, the brakes will be applied with increased pressure, the chain being further wound upon the shaft *F*, and its tension being increased; but when the friction between the two parts of the friction-wheel becomes greater than that between the clutch and friction-wheel, both parts of the friction-wheel will revolve together upon the shaft *F*, and the applica-



tion of additional power to the lever will not produce increased pressure of the brakes; so that when the clutch is properly adjusted, the sliding of the car-wheels will be prevented, and there will be no danger of breakage.

Where our machinery is constructed as described and shown, the whole pressure of the friction-wheel upon the sleeve C is produced by the power applied to the lever G. But the machinery may be so modified that the power applied to the lever through the cord, and consequently the quantity of motion of the cord, may be much reduced.

The other parts being arranged as shown, the pulley *e* may be so located that the tension of the chain will have a tendency to draw the friction-wheel against the sleeve C or axle B; or, by reversing the position of the lever G and the fixed bearing, and placing the friction-wheel near the middle of the shaft, so as to give room to wind the chain on the shaft between the lever and the friction-wheel, and locating the pulley *e* so that the chain, when wound up, shall have a tendency to pull the friction-wheel against the sleeve C or axle B, a portion of the required pressure of the friction-wheel upon the sleeve C or axle B will be produced by the tension of the chain.

The point where the pulley may be located, without interfering with the proper operation of the device, depends upon the construction and arrangement of the several parts, as well as on other circumstances

which will be suggested to those skilled in the art. Suffice it to say that the pulley *e* may be located at a point where the pressure of the friction-wheel upon the sleeve C or axle B, produced by the tension of the chain, will be as nearly equal to the pressure necessary to produce the friction required to wind up the chain to the same tension, as may be, and yet permit such tension to revolve the shaft F and inner portion of the friction-wheel within the band E, when the additional pressure produced by the power applied to the cord is released by relaxing the cord.

Having thus described our invention,

What we claim as new, and desire to secure by Letters Patent, is as follows:

1. The friction-wheel, composed of a disk, D, and band E, and regulated by the friction-clutch, substantially as and for the purposes specified.
2. The friction-wheel D E and shaft F, in combination with the lever G and cord H, for bringing the friction-wheel in contact with the sleeve C or axle, substantially as specified.
3. The cord H, lever G, wheel D E, and shaft F, with the chain *f*, and levers for operating the brake-bars, substantially as specified.

JOS. H. MOORE.  
JOSEPH E. GARY.

Witnesses:

E. A. WEST,  
L. L. BOND.