2 Sheets—Sheet 1.

E. P. JONES.

CAR BRAKE AND STARTER.

No. 100,960. Patented Mar. 15, 1870.

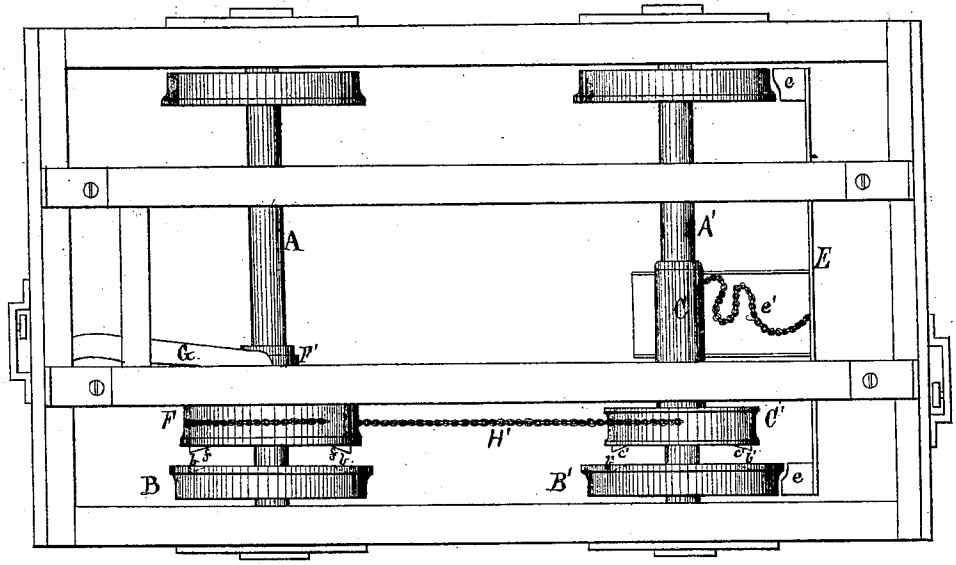

FIG. 1.

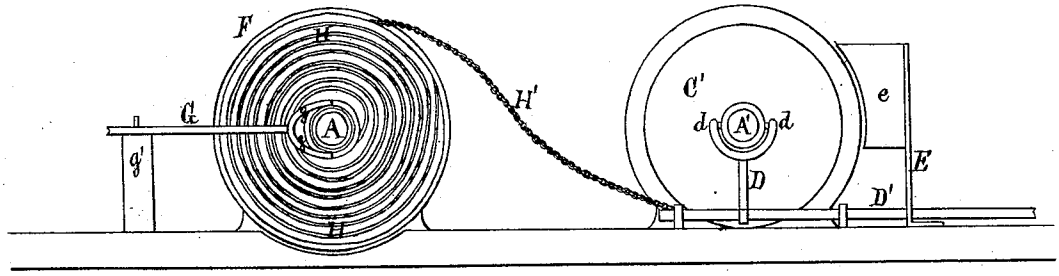

FIG. 2.

WITNESSES.

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per J. E. F. Holmead.

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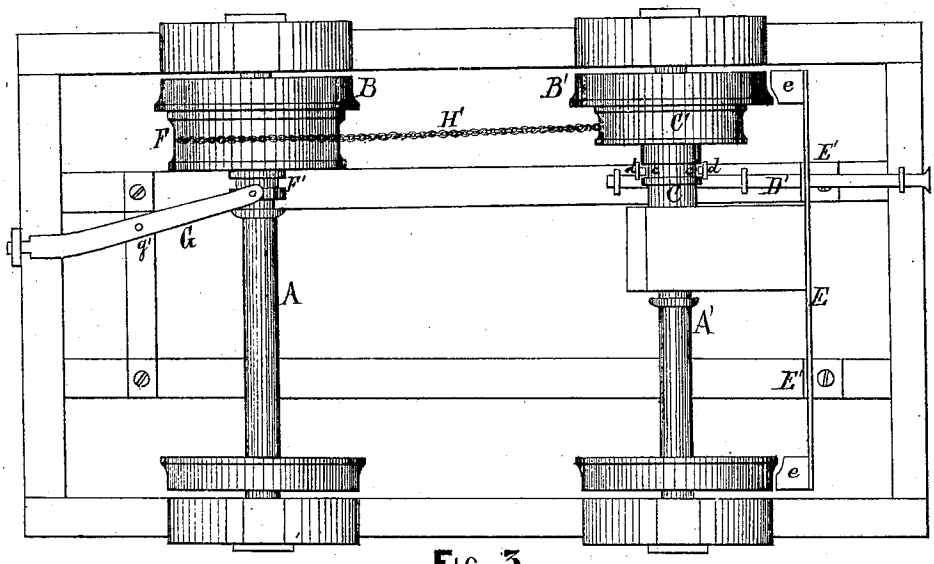

FIG: 3.

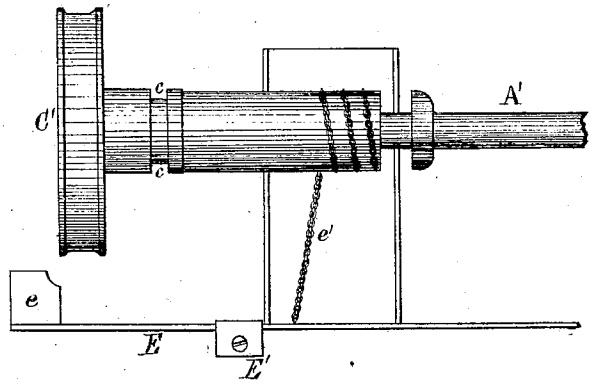

FIG: 4.

WITNESSES.

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EDWARD P. JONES, OF SHELL MOUND, MISSISSIPPI.

Letters Patent No. 100,960, *dated March* 15, 1870.

IMPROVEMENT IN CAR-BRAKE AND STARTER.

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

To all whom it may concern:

Be it known that I, EDWARD P. JONES, of Shell Mound Post Office, in the county of Sunflower, and State of Mississippi, have invented certain new and useful Improvements in Car-Brakes and Starters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a top view of a truck, showing the entire mechanism.

Figure 2 is a vertical sectional view through the drum and friction-wheel or disk.

Figure 3 is a bottom or reverse view of fig. 1.

Figure 4 is a detached view of friction-wheel, brake-bar, and connecting-chain.

The nature of my invention consists in so connecting a drum in which is confined a spring, and the brake-bar, by chains with a friction-clutch, that when the latter is thrown in contact with the car-wheel and revolved, it will not only so wind the chain as to draw in the brake-bar, as claimed in my application filed November 4, 1869, but also will so entirely take up all "slack," and tighten the spring that its entire tension or force shall be so accumulated that its full and undivided power, no matter what that degree of power may be, can, at the moment when it is desired to start the car, be applied, and that too at or near the periphery of the wheel.

It will be observed that the friction-clutch in its construction, method of operation, as well as its connection with the brake, is substantially the same as shown in my former application for a car-brake. An additional feature, however, is shown. The inner face of the car-wheel is provided with numerous small recesses, intended to receive spring pawls secured on the outer face of the wheel or disk of the clutch. The spring is retained in a drum that is secured on a sleeve that fits loosely, and works freely on the hind axle, so that the revolution of the axle imparts no motion to either the sleeve or drum, unless through frictional contact, which is caused by means similar to those employed in operating the friction brake-clutch. The outer face of the drum corresponds to the inner face of the wheel, and is provided with spring pawls, which enter the ratchet recesses of the wheel precisely as in the case of the clutch-disk.

I am aware that I am not the first to so apply a spring that its power or tension could be employed to assist the car in starting. But in all these starters the power of the spring is applied directly to the axle; the consequence is that a natural movement is not obtained, but the car is suddenly shot forward. The strain on the truck caused by this arrangement is necessarily immense. In my device it is different. The power is not applied to the axle except through the car-wheel, which is permanently attached thereto, and the tension of the spring being exerted at or near the periphery of the wheel, all the advantages incident to the greatest extent of leverage is attained, as it is well known that less power will move a car or any other vehicle, if applied near the periphery, than when applied near the axle or hub.

To enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

In a truck-frame, I secure the axles A A′ and wheels B B′, in the ordinary way. The axles and wheels are all constructed in the usual manner, with the exception of small recesses *b b′* cut or sunk near the periphery of the wheels, which are formed to receive spring pawls attached to the wheel of the clutch, and also to the outer face of the drum, whereby a more positive connection between the car-wheels and the clutch and drum is insured, than that afforded through frictional contact alone. The clutch is placed on the front axle A′ before the wheels are permanently attached, and consists of a sleeve, C, and a grooved wheel or disk, C′.

The diameter of the opening in the sleeve C is of such dimensions as to allow of its fitting loosely on the axle A′, so that when the brake is "off," the revolution of the axle shall impart no motion to the sleeve or clutch.

The grooved wheel or disk C′ is of nearly the same diameter as the tread of the wheel B′, and on its outer surface are spring pawls *c′ c′*, as clearly shown in fig. 1. These pawls mesh with or enter ratchet recesses *b′ b′*, cut or sunk in the inner face of the wheel B′ when the wheel and clutch are thrown or brought together, or when it is desired that the movement of the wheel shall revolve the clutch. The sleeve and disk are cast or otherwise permanently secured together.

In the sleeve C there is cut or sunk a recess or groove, *c*, as clearly shown in fig. 4. In this recess *c* enter the studs *d d*, with which the forked end of a short vertical arm, D, is furnished. This vertical arm D is secured to a horizontal shaft, D′, that works in suitable bearings secured on the under side of the truck, and is attached to a lever handle, by which means it is partially revolved, causing the clutch to be brought in contact with the wheel, and to be removed therefrom at pleasure.

E is the brake-bar, and is secured in spring bearings E′ E′, attached to the horizontal timbers of the truck at such points as to hold the shoes *e e* entirely free of the wheels B′ B′.

e′ is a short chain, which connects the sleeve C of the clutch and the brake-bar E, and by means of which when the clutch is revolved, the brake-bar is so drawn,

as to bring the shoes *e e* in contact with the wheels B′ B′.

It will be observed that the brake is similar in all its details to that embraced in and covered by my application for a car-brake filed November 4, 1869.

The starter consists of a hollow drum, F, that revolves freely in a suitable recess cut in a sleeve, F′, that fits loosely on the hind axle A. This sleeve F′ is similar to the sleeve C of the clutch, and is moved laterally by means of a bifurcated lever, G, which is connected with a vertical lever-handle, by which its movements are controlled. This lever G is pivoted on a suitable bearing, *g′*, or other equivalent device, about midway between the axle A and the rear end of the truck. As the sleeve F′ is not intended to revolve, but only to work laterally, and simply as the conveyer of the drum, the bifurcated lever G may be permanently bolted to the sleeve, as shown in fig. 1.

f f are spring pawls on the outer surface of the drum F, and enter recesses *b b* in the wheel B, precisely as do the pawls *c′ c′* of the clutch.

H is a volute spring, and is retained in the drum F, one end of the spring being secured to the outer case of the drum, and the other to the sleeve F′, which really serves as an arbor or axle for the drum. The periphery of this drum F is grooved, and has secured, at any desired point, one end of a chain, H′. The other end of this chain is fastened in the grooved periphery of the wheel or disk C′ of the clutch.

The operation is as follows:

Suppose the car to be in motion, the entire mechanism would be in the position as shown in fig. 1, that is, the clutch and drum both free of any contact with the wheels, the chain *e′*, that connects the clutch with the brake-bar E, hanging loosely, and the chain H′, that connects the clutch and drum F wound in the grooved periphery of the latter. Now to apply the brake, you have simply, through the lever-handle, to bring the disk or wheel C′ in contact with the wheel B′, which winds the chain *e′* precisely as in my former application, drawing the shoes of the brake-bar against the wheels B′ B′. But this revolution of the clutch also winds the chain H′, which revolves the drum until the entire power or tension of the spring H is accumulated to assist the starting of the car. When you desire to start, free the clutch and bring the drum in contact with the hind wheel B, when instantly the entire force of the spring is applied at or near the periphery of the wheel.

Of course, some of the features herein described may be modified or varied without affecting my invention, and the devices herein shown are only sufficient for a car used on a road where the turn-table is used. When the draft is to be alternately applied at the opposite ends of the car, the mechanism will have to be duplicated.

Having thus fully described my invention,

What I claim therein as new, and desire to secure by Letters Patent of the United States, is—

The drum F, spring H, clutch C C′, and chain H′, when the same are so combined and arranged that when the clutch is thrown in such position as to aid in arresting the momentum of the car, it shall, through the chain H′, so act on the drum as to wind up the spring, and thus accumulate power to start the car when desired, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWD. P. JONES.

Witnesses:

B. B. LEWIS,

JNO. J. DUFF.