

(Model.)

2 Sheets—Sheet 1.

T. J. LANGSTON.  
Car Starter.

No. 232,043.

Patented Sept. 7, 1880.

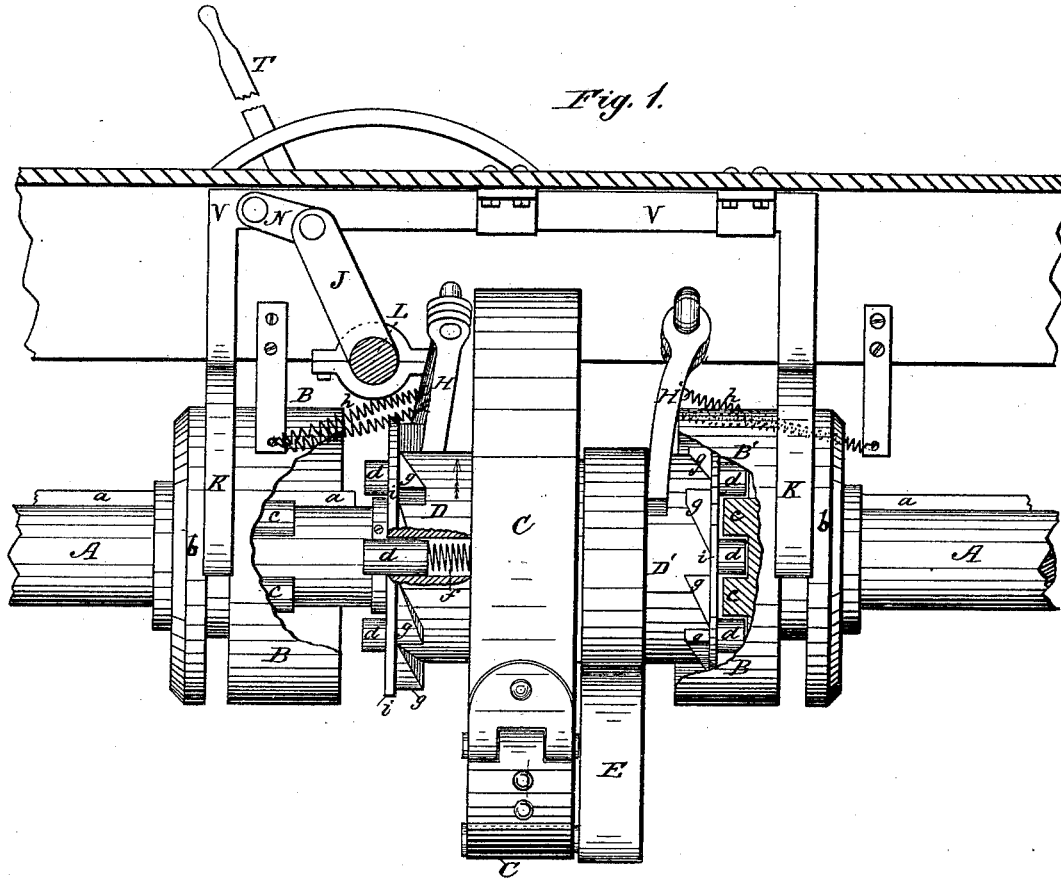


Fig. 1.

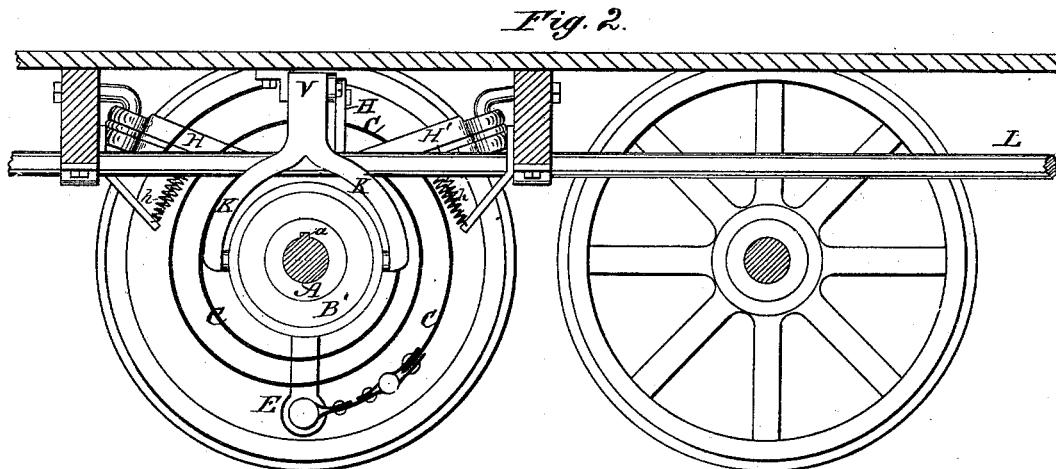


Fig. 2.

WITNESSES:

*W. W. Collingsworth*  
*Amos W. Hart*

INVENTOR:

*T. Judson Langston*  
BY *Wm. L.*

ATTORNEYS.

(Model.)

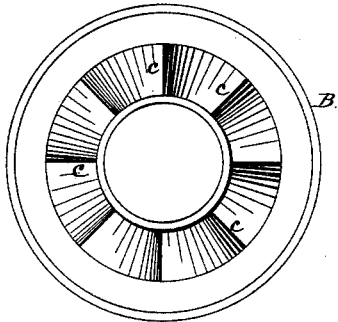
T. J. LANGSTON.  
Car Starter.

2 Sheets—Sheet 2.

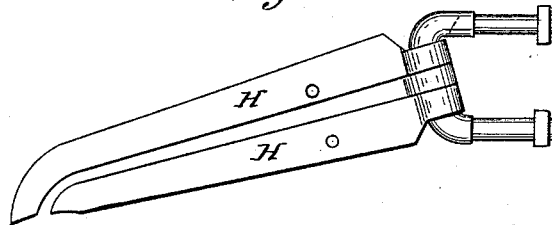
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*Fig. 4.*



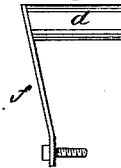
*Fig. 3.*



*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

T. JUDSON LANGSTON, OF JOHNSTONS, SOUTH CAROLINA.

## CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 232,043, dated September 7, 1880.

Application filed March 19, 1880. (Model.)

To all whom it may concern:

Be it known that I, T. JUDSON LANGSTON, of Johnstons, in the county of Edgefield and State of South Carolina, have invented a new and useful Improvement in Car-Starters, of which the following is a specification.

My invention is an improvement in the class of clutch and spring mechanism which is so constructed and attached to a car-axle that the spring may be wound up when it is desired to retard the speed of the car and allowed to unwind or expand when it is desired to start the car.

My invention relates to the combination of parts, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a sectional view of my improved mechanism attached to a car-axle. Fig. 2 is a longitudinal section. Figs. 3, 4, 5, and 6 are detail views.

A indicates a car-axle having feathers *a*, and B B' are two clutch-boxes, which slide on the axle and feathers lengthwise thereof, but necessarily rotate with them. The said clutch-boxes B B' are shifted together right or left, so as to bring either into engagement or take both out of engagement with the sleeves D D', and the devices for shifting the said boxes B B' are the sliding bar V, having forks or curved arms K, the lever T, rock-shaft L, having arm J, and link N. The arms K of bar V connect with the circumferentially-grooved hubs *b* of the clutch-boxes B, and the levers T project up through the car-platforms, being attached to the ends of the shaft L, which extends from end to end of the car. By throwing either lever T over to the right or left one of the clutch-boxes B or B' will be slid toward the sleeves D or D' and engaged therewith, while the other box will be moved in the opposite direction. The clutch-boxes B B' are provided internally with teeth *c*, which are adapted to engage the teeth *d* of the sleeves D D'. Said teeth *d* slide in sockets in said sleeve, and are held therein by screws, but are pressed outward by means of spiral springs *f* placed behind them.

I may, however, employ plate-springs, as shown in Fig. 6.

The sleeves D D' rotate free on axle A. The volute band-spring C is attached at its

inner and outer ends, respectively, to the body of the sleeve and the extremity of the arm E of the other sleeve, D', which has independent movement. Both sleeves D and D' have ratchet-teeth *g* located on their peripheries and contiguous to the circular flanges *i*. Two pivoted pawls, H H', are arranged to lock with the teeth *g* of sleeves D D', so that either sleeve may be locked or prevented from rotating while the other is left free.

In Fig. 1 the lever T is shown thrown to the left and the right-hand clutch-box B' engaged with the teeth of sleeve D', so that the latter will rotate with the axle A, while the pawls H, being locked with the teeth *g* of sleeve D, hold it immovable. The result is that the arm E of the rotating sleeve D' will wind the spring C firmly around the fixed sleeve D, and then by shifting the lever T to the right the spring will be allowed to uncoil and expend its force in starting the car. The pawls H H' are held engaged with the respective series of ratchet-teeth *g* by means of springs *h*, which, however, allow them to be pushed aside or out of engagement by the rims of boxes B B'.

The function of the springs *e* behind the teeth *d* is this: When the clutches B B' are moved toward the sleeve D or D' it will often happen that the points of teeth *d* will strike on the points of the teeth *c*. In such case the teeth *d* yield or recede into their sockets and allow the rims of boxes B B' to pass over the flange *i* far enough to disengage pawls H or H' from the teeth *g*, thus allowing free movement either way without interference of pawls and ratchets. When the lever T is placed vertical the sleeves D D' will be equidistant from boxes B B', and hence engaged with neither.

The function and operation of these parts will be understood without further description.

It is apparent that when the car is in motion—more especially when it is desired to brake it or retard its speed on a descending grade—the clutch mechanism is brought into action to wind up the spring, and that the power thus stored in the spring may be utilized in starting the car.

Having thus described my invention, what I claim is—

1. The combination of the sliding clutch-boxes B B' with the axle and sleeves D D', having teeth, as specified, and the spring-pawls, which are pivoted and swing laterally, as shown and described.

5 2. The combination of sliding clutch-boxes having teeth *c* with the feathered axle, the sleeves D D', having teeth *d*, the pivoted

pawls H H', and spring C, attached as specified, and devices for shifting the clutch-boxes to right or left, as shown and described.

T. JUDSON LANGSTON.

Witnesses:

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