

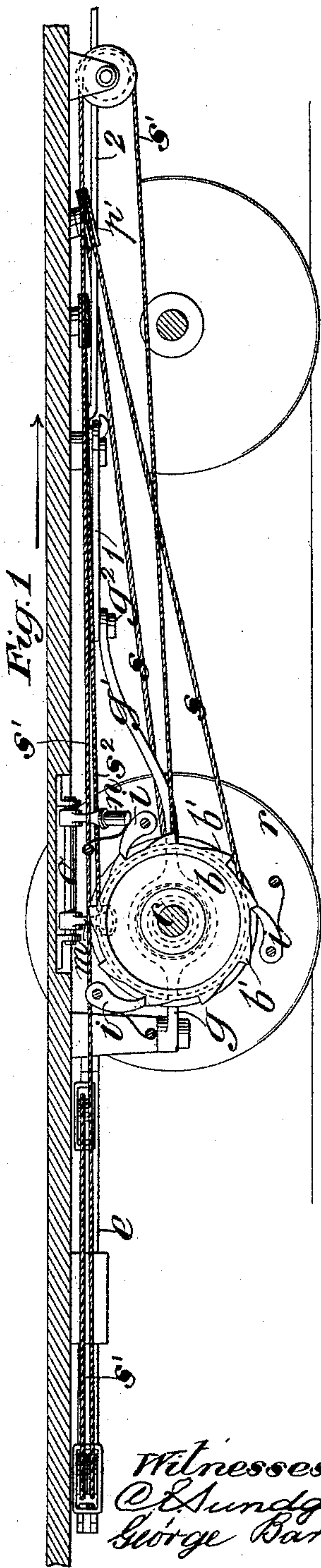
(No Model.)

2 Sheets—Sheet 1.

W. PRINZLAU.
CAR STARTER AND BRAKE.

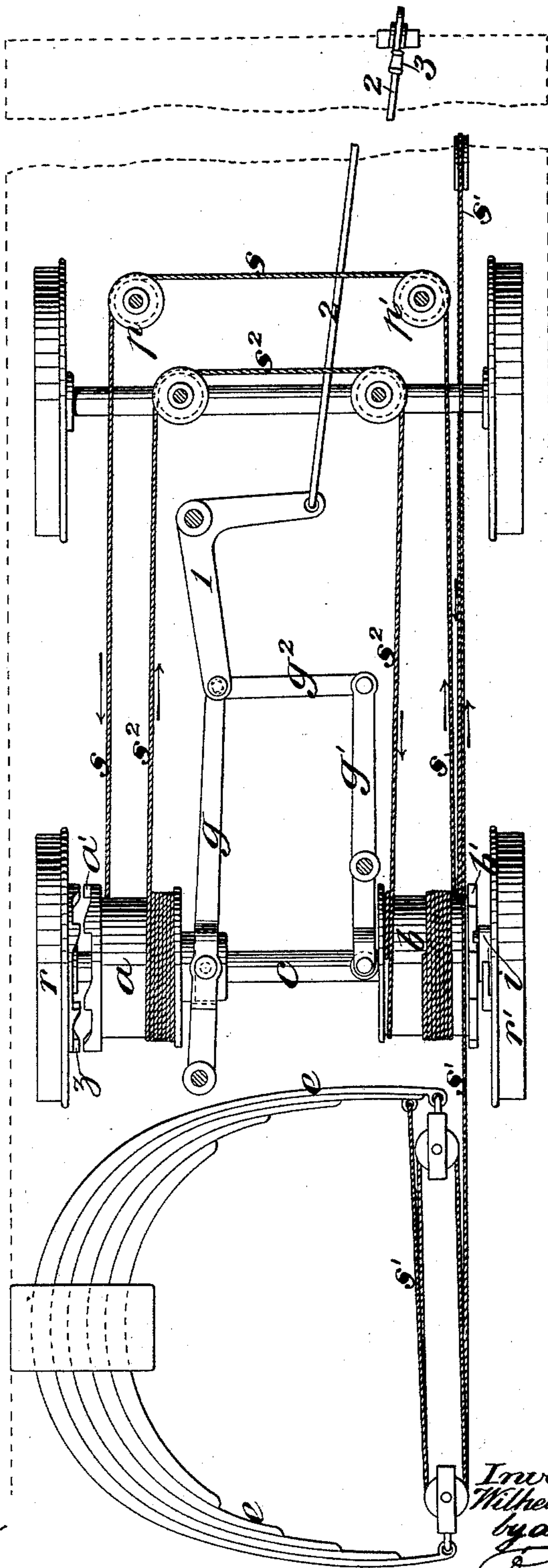
No. 485,353.

Patented Nov. 1, 1892.



Witnesses:
O. Lundgren
George Barry

Fig. 3.



Inventor:
Wilhelm Prinzlau
by attorneys
Frost & Howard

(No Model.)

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Fig. 2.

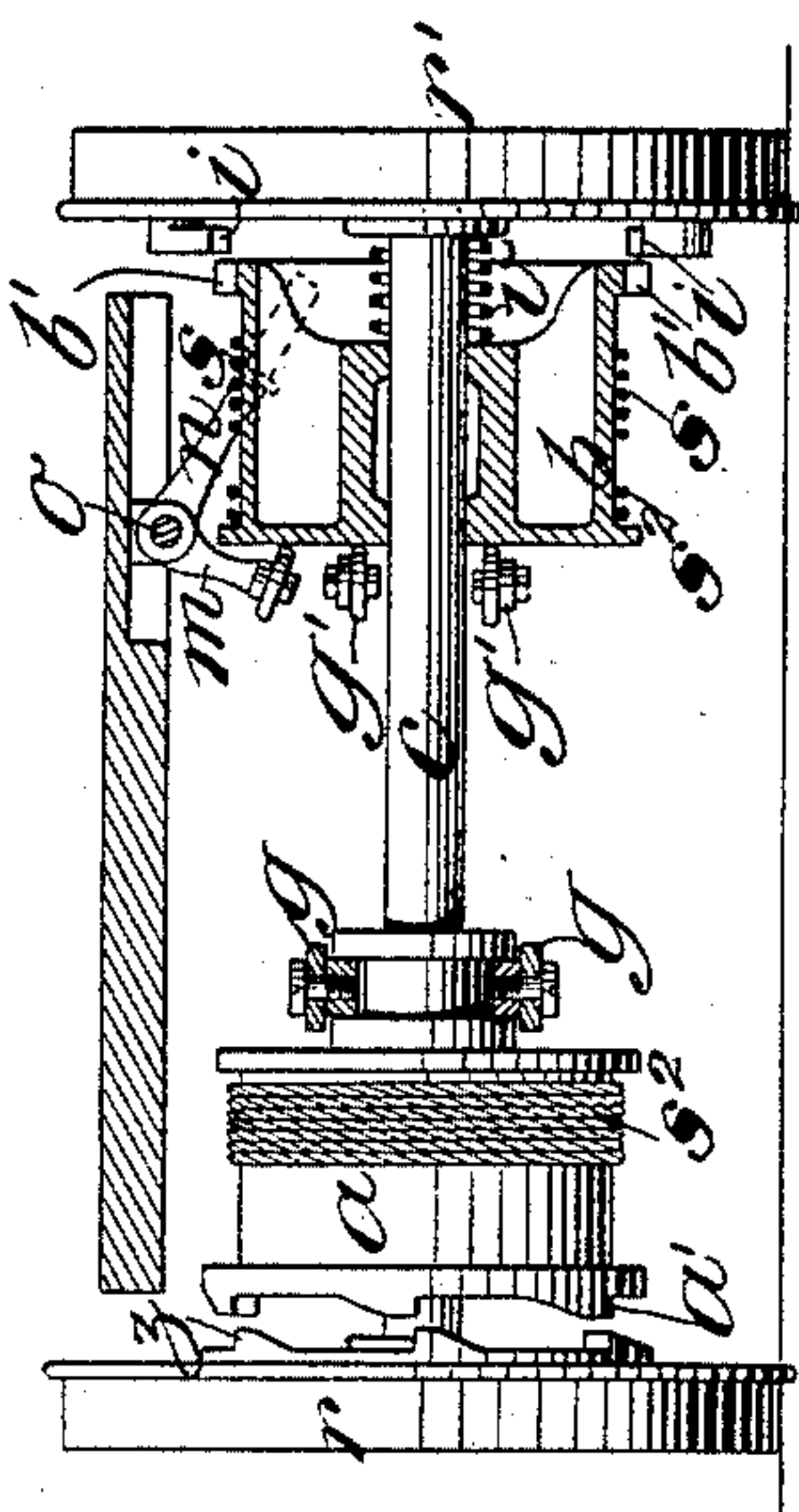
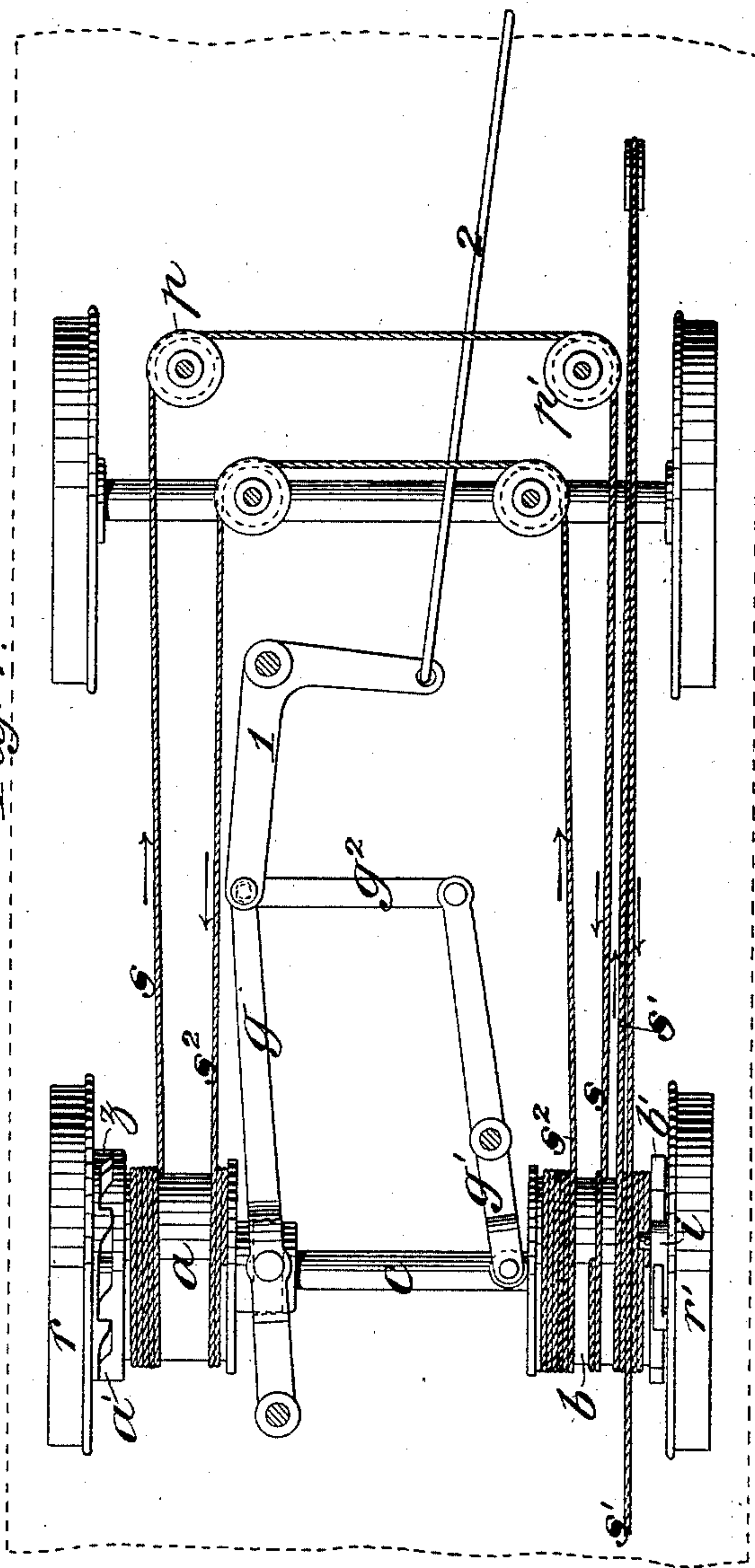


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILHELM PRINZLAU, OF HAMBURG, GERMANY.

CAR STARTER AND BRAKE.

SPECIFICATION forming part of Letters Patent No. 485,353, dated November 1, 1892.

Application filed June 22, 1892. Serial No. 437,570. (No model.)

To all whom it may concern:

Be it known that I, WILHELM PRINZLAU, of Hamburg, in the German Empire, have invented a new and useful Improvement in
5 Power-Accumulating Brakes, of which the following is a specification.

This invention consists in a stopping-gear for vehicles, principally for tramway-cars, by means of which the power due to and obtained by the arresting of the momentum of the car may be stored up to be used or expended again for the restarting of the car. In this improved gear the rotary movement of one of the wheels of the car is transferred
15 to a capstan disk or drum, on which is wound a rope or chain passing over guide-pulleys to be wound on a second capstan-drum, but in a contrary direction. This second drum is used to bring a spring into tension, so that
20 when the first drum is disengaged from the wheel the second will be driven by the spring, so as to propel one of the wheels in the direction in which the car is to travel. A second cable is arranged to insure the equal and
25 corresponding movement of the two drums.

In the accompanying drawings, Figure 1 is an elevational longitudinal section of the under frame of a car with the improved gear thereon. Fig. 2 is a cross-section thereof.
30 Figs. 3 and 4 are plan views, Fig. 3 showing the gear at rest and Fig. 4 the same in tension.

a and b are the two drums, loose upon the axle c , on which the wheels r r' are fixed.
35 The drum a may be moved sidewise by the lever g , angle-lever 1, and rod 2 in connection with a hand-lever 3, so that the teeth a' on the drum may be engaged with and disengaged from the teeth z on the wheel r . If
40 the wheel r revolves loosely on the axle, the teeth z are arranged on a disk fixed to the axle. The drum b is provided with ratchet-teeth b' on its periphery, and on the wheel r' are pawls i to engage with said teeth when
45 the drum is moved toward the wheel by the lever g' , which is connected to the lever g by a connecting-rod g^2 . The cable s is connected and wound upon the drums a and b , passing from one to the other over pulleys p p' , and
50 is so wound that the drums revolve in opposite directions. On the drum b is also wound

a rope s' , which, passing over pulleys of the nature of a purchase, draws together the ends of the spring e and brings the latter into operation. The cable s^2 is also wound upon the
55 drums a b , but in directions contrary to that of the cable s .

To stop the car the drum a is brought into connection with the wheel r and the rope s is wound up in the direction of the arrow, Fig. 60 3, off the drum b onto the drum a . The drum b is revolved in a contrary direction to the drum a and brings the spring e into tension until the car comes to a standstill. When
65 the car is to be again set in motion, the drum a is drawn back from the wheel r , while the drum b remains engaged with the wheel r' . The spring e enters into action and rotates the drum b in the opposite direction and with
70 it the wheel r' .

To hold the drum b in contact with the wheel r' after the drum has been drawn back, as above mentioned, from the wheel r , and the lever g' consequently drawn back, the following device is employed:
75

On a shaft o are two arms n n , the latter of which is lifted by the rope s' when the drum b is moved and held suspended so long as the said rope is in tension. This revolves the shaft and with it the arm n in the direction of the arrow, Fig. 2, and presses this arm
80 against the drum b . When the pressure of the spring e ceases or the rope s' in place of coiling over the drum arrives at its full extension—that is, radial from its point of at-
85 tachment to the drum—the arm n loses the support previously afforded by this rope, and consequently falls. The drum b can then be thrown out of engagement with the wheel r' by the action of the spring v .
90

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with one of the axles of a car and wheels thereon, a spring attached to the car, two drums loose upon the said axle,
95 a rope wound on said two drums, and guiding-pulleys therefor to cause the turning of said drums in opposite directions, a second rope connecting one of said drums with the spring, and engaging devices for engaging
100 one of said drums with one of said wheels and the other of said drums with the other of

said wheels, all substantially as described, whereby one of the wheels is caused to turn the axle and drums to wind up the second rope to produce tension of the spring and the
5 other of said wheels is caused to be operated by the spring to propel the car, substantially as herein set forth.

2. The combination, for the purpose set forth, of the wheels $r r'$ with the drums $a b$ and spring e , the cables $s s' s^2$, shaft with 10 arms $n m$, spring v , and lever-gear for operating the drums, as described.

WILHELM PRINZLAU.

Witnesses:

T. ENGEL,

A. SCHAPER.