

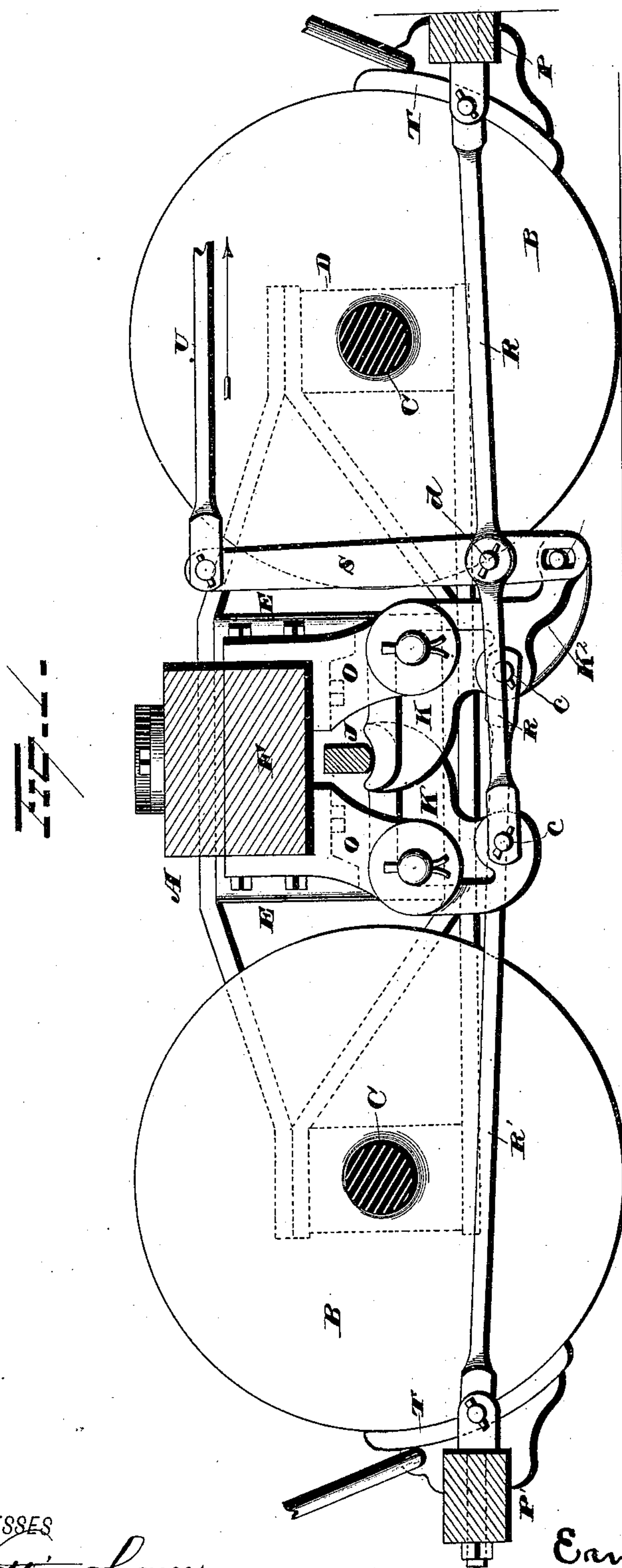
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3 Sheets—Sheet 1.

E. KATZENMAYER.
CAR BRAKE.

No. 287,294.

Patented Oct. 23, 1883.



WITNESSES
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(No Model.)

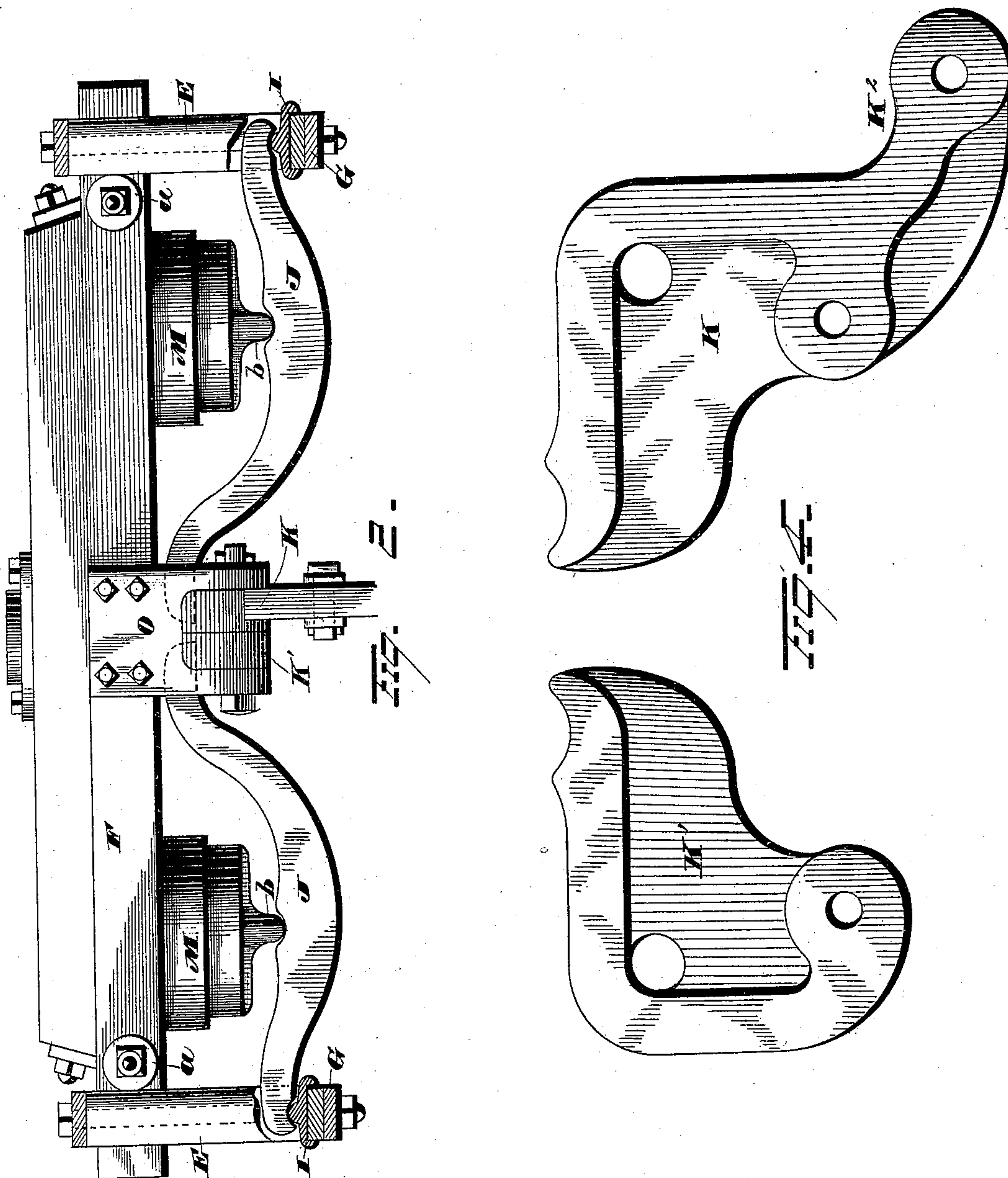
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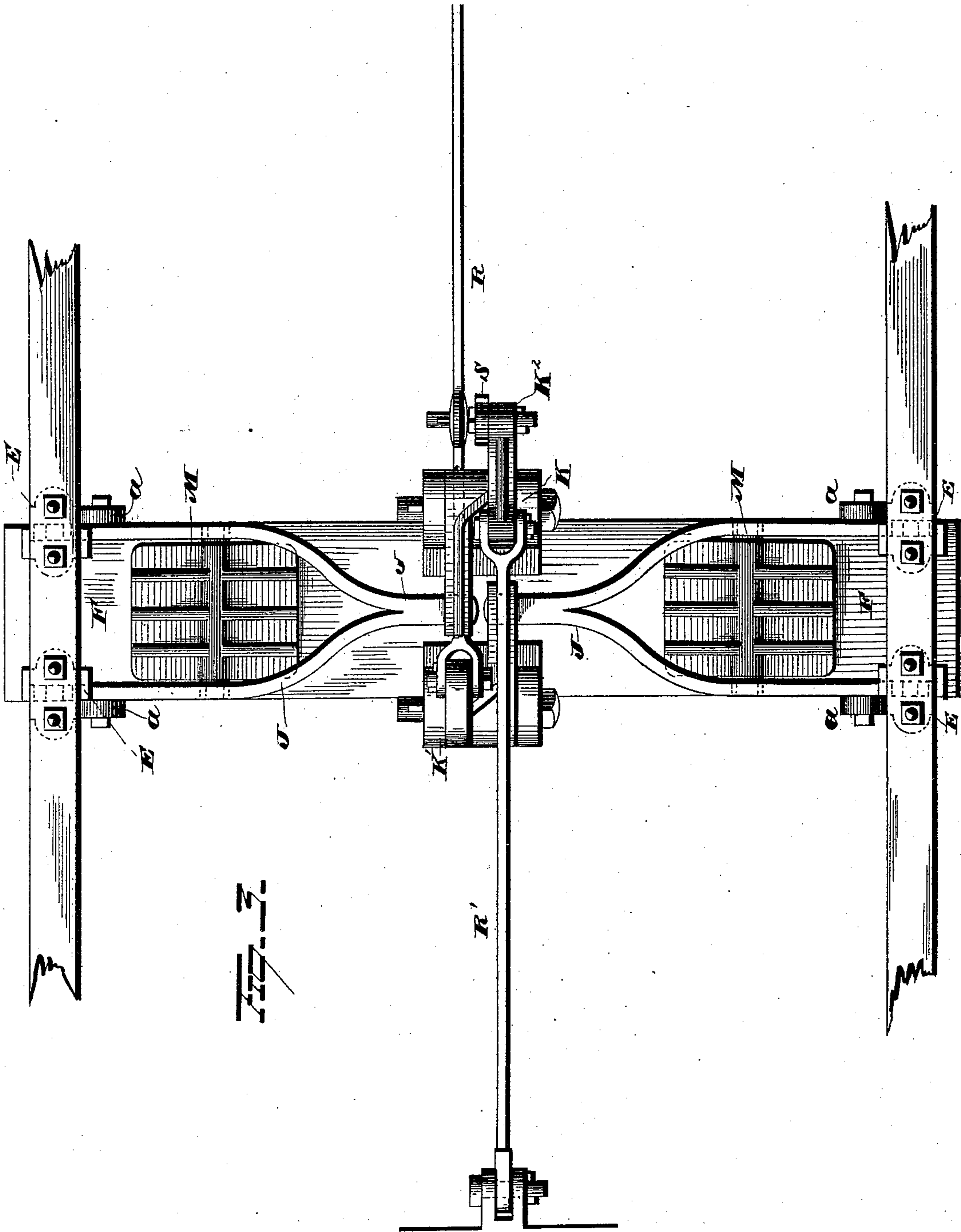
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UNITED STATES PATENT OFFICE.

ERNEST KATZENMAYER, OF CHILlicothe, OHIO, ASSIGNOR TO THE MAL-
LINCKRODT BRAKE COMPANY, OF EAST ST. LOUIS, ILLINOIS.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 287,294, dated October 23, 1883.

Application filed March 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, ERNEST KATZENMAYER, of Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful
5 Improvements in Railroad-Car Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to an improvement in railroad-car brakes; the object of the same being to provide mechanism adapted to be employed in connection with the solid trucks now generally employed on cars, whereby the
15 weight of the car and its contained load is utilized for setting the brakes. A further object is to provide means for elevating the car and taking the weight thereof off the brakes; and with these ends in view my invention
20 consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a car-truck embodying my invention. Fig. 2 is a
25 view in front elevation of the bolster and a portion of the truck. Fig. 3 is a bottom plan view of the bolster with its attached parts, and Fig. 4 shows detached views of the bell-
30 crank levers.

A represents a car-truck of the ordinary construction, and B the wheels secured to the axles C, which latter are journaled in the boxes D in the ordinary manner. This truck
35 A is provided on opposite sides, between the wheels B, with the metallic guide-bars E, separated sufficiently for the entrance of the opposite ends of the bolster F, which latter is adapted to move vertically in the guideway
40 thus formed, and is prevented from moving longitudinally therein by the rollers a, which latter are journaled on suitable spindles secured to the said bolster, and bear against the inner faces of the bars E, and consequently
45 hold the bolster in proper position.

Immediately below the ends of the bolster, and supported on the irons G, are the fulcrum-plates I, the latter being rigidly secured to the said irons G in any desired manner,
50 and adapted to support the forked ends of the bifurcated levers J, while the inner ends of

the said levers are respectively supported on the bell-crank levers K K', suspended from the center of the bolster.

In the trucks now employed springs are in- 55
troduced and secured between the ends of the bolster and the truck-irons G; but in my improved construction the box or any other suitable springs, M, rest on the forked levers J, at a point near the sides of the truck, and con- 60
sequently support the bolster near its opposite ends and prevent it from tilting endwise. By forking or bifurcating the levers J, they are enabled to rest firmly on the truck, and are prevented from turning, and also afford 65
firm and solid bearings for the box-springs M, the lower casing or shields of which are ribbed and provided with a central bearing, b, terminating in trunnions adapted to rest in grooves formed on the arms of the forked le- 70
ver. By pivoting or loosely resting the springs on the forked levers, as above described, the bolster is free to descend and force the inner ends of the levers J downward without fear of straining, binding, or other- 75
wise interfering with the free working of the springs or the levers J.

From the foregoing it will be seen that the entire weight of the car and its contained load is transmitted, through the vertically-movable 80
bolster and springs, to the levers J, and from thence to the bell-crank levers K K', on which the inner movable ends of the levers J bear. The bell-crank levers K K' are pivoted at their knees to the lower ends of the depending 85
hangers O, which latter are bolted or otherwise secured to the opposite sides of the bolster, at or near its center, and the horizontal arms thereof, which project inwardly under the bolster, receive and support the inner ends 90
of the levers J. The left-hand bell-crank, K, supports the lever J on the left side of the truck, while the bell-crank lever K' supports the lever J on the opposite side, thereby dividing the power and enabling the vertical 95
arms of the bell-cranks, which are moved outwardly in opposite directions, to transmit the necessary power to the brake-beams P, which latter are situated outside of or beyond the trucks. As the bolster F moves downwardly 100
in its guides the hangers O and bell-cranks K K' necessarily descend an equal distance there-

with; but by the arrangement of the levers J and the manner of applying the power thereto, the movement of the inner ends thereof is greater than the movement of the bolster, and consequently turn the bell-cranks on their pivots while they are descending and set the brakes, as will be hereinafter described.

The bell-crank K' is of ordinary construction, and is provided at its lower end with a wrist-pin, *c*, to which the inner end of the brake-rod R is pivotally secured. This brake-rod passes outward beyond the bell-crank K, and is pivotally connected to the pin *d* of the vertical lever S, and passes from thence and is pivotally secured at its outer end to the center of the brake-beam P. The bell-crank K is shaped like the bell-crank K', but, in addition thereto, is provided with the extension K², formed integral therewith, to which latter the lower end of the vertical lever S is pivotally secured. This bell-crank K' is also provided with a wrist-pin, *c*, to which the inner end of the brake-rod R' is pivotally secured. This rod extends outward toward the opposite end of the truck, and is pivotally secured to the center of the brake-beam P', which latter, together with the beam P, are suspended from the under side of the car-body, or from the car-truck, as desired, and are provided at their opposite ends with the brake-shoes T, adapted to bear against the tread of the wheels. The lever S, as before stated, is connected to the brake-bar R, and also to the lower end or extension of the bell-crank K, and hence it will be seen that by moving the upper end of the said lever S in the direction indicated by the arrow the vertical arms of the bell-cranks are moved toward each other and release the brakes. The upper end of the lever S is connected to the rod U, which latter can be connected to the piston of an air or steam brake cylinder or a hand-wheel, from which the necessary power to take off the pressure of the brakes is obtained.

The operation of my improved brake is as follows: When it is desired to start the cars, the rod U is drawn forward in the direction of the arrow, which movement draws the vertical arms of the bell-cranks together and takes the pressure from off the wheels. The parts are then held in this position until it is desired to "set" the brakes, which is performed by simply withdrawing the power from the rod U, which allows the bolster F, with its contained load, to descend. The weight of the car, with its load, is by the downward movement of the bolster transmitted to the levers J, and from thence to the bell-cranks, which in turn, through the intervention of the brake-bars, set the brake. The exertion of sufficient power on the lever S keeps off the brakes, and the ceasing of that power, whether intentionally or by accident, sets the brakes.

This improvement is adapted to be applied to the trucks now in general use, and can be operated by steam, air, or hand power, as desired.

It is evident that numerous changes in the construction and relative arrangement of the several parts might be resorted to without departing from the spirit of my invention; and hence I would have it understood that I do not limit myself to the exact construction shown and described, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a car-brake, the combination, with a truck having a movable bolster, and bell-cranks pivotally secured to the said bolster, of mechanism whereby the weight of the car and load is transferred to the bell-cranks, and brake-beams indirectly connected to the bell-cranks.

2. In a car-brake, the combination, with a truck having a movable bolster, and bell-cranks pivotally secured to the bolster, of levers interposed between the car-truck and bolster, whereby the weight of the car and load is transferred to the bell-cranks, brake-beams indirectly connected to the bell-cranks, and mechanism for relieving the pressure of the brakes on the wheels.

3. The combination, with a car-truck having a vertically-movable bolster, and bell-cranks pivotally secured to the bolster, of levers, the outer ends of which rest on opposite sides of the car-truck, while the inner ends thereof rest, respectively, on the horizontal arms of the bell-cranks, springs resting on the levers and supporting the bolster, and brake-beams indirectly connected to the vertical arms of the bell-cranks.

4. The combination, with a car-truck having a vertically-movable bolster, and bell-cranks pivotally secured to the bolster, of levers, the outer ends of which rest on opposite sides of the truck, while their inner ends rest, respectively, on the horizontal arms of the bell-cranks, springs resting on the levers and supporting the bolster, brake-beams indirectly connected to the vertical arms of the bell-cranks, and mechanism for relieving the pressure of the shoes on the wheels.

5. The combination, with a truck provided on opposite sides with guideways, a bolster, the opposite ends of which rest and move in the said guideways, and rollers pivoted to the said bolster and adapted to bear against the arms forming the guideways, for the purpose of preventing the bolster from moving longitudinally, of mechanism whereby the weight of the car is utilized in setting the brakes.

6. The combination, with a movable bolster, and bell-cranks pivoted thereto, of bifurcated levers, the forked ends of which rest on the truck, while the inner ends thereof rest on the horizontal arms of the bell-cranks, and springs interposed between the levers and bolster, and devices for transmitting the movements of the bell-cranks to the brake-beams.

7. The combination, with a vertically-mov-
able bolster, hangers rigidly secured to the
bolster, and bell-cranks pivoted to the hang-
ers, of the fulcrum-plate, bifurcated levers,
5 springs interposed between the levers and bol-
ster, and brake-bars connecting the lower ends
of the bell-cranks with suitable brake-beams.

8. The combination, with the vertically-mov-
able bolster and bell-cranks, of the bifurcated
10 lever, interposed springs, brake-bars, brake-
beams, and brake-shoes, all of the above parts
being so constructed and combined that the
weight of the car and load operates to set the
brakes.

15 9. The combination, with the movable bol-
ster and bell-cranks, one of which latter is pro-
vided with an extension, of mechanism where-
by the weight of the car is transmitted to the
bell-cranks, brake-bars connected to the ver-

tical arms of the bell-cranks, brake-beams con- 20
nected to the brake-bars, the upright lever S,
pivoted to the bell-crank lever having the ex-
tension, and also connected to the brake-bar
of the other bell-crank lever.

10. The combination, with a car-truck, the 25
bolster F, and bell-cranks K K', of the bars J,
interposed springs, M, brake-levers R, brake-
beams P, levers S, and rod U, all of the above
parts being combined and adapted to operate
as described. 30

In testimony whereof I have signed this
specification in the presence of two subscrib-
ing witnesses.

ERNEST KATZENMAYER.

Witnesses:

S. G. NOTTINGHAM,
G. F. DOWNING.