

(No Model.)

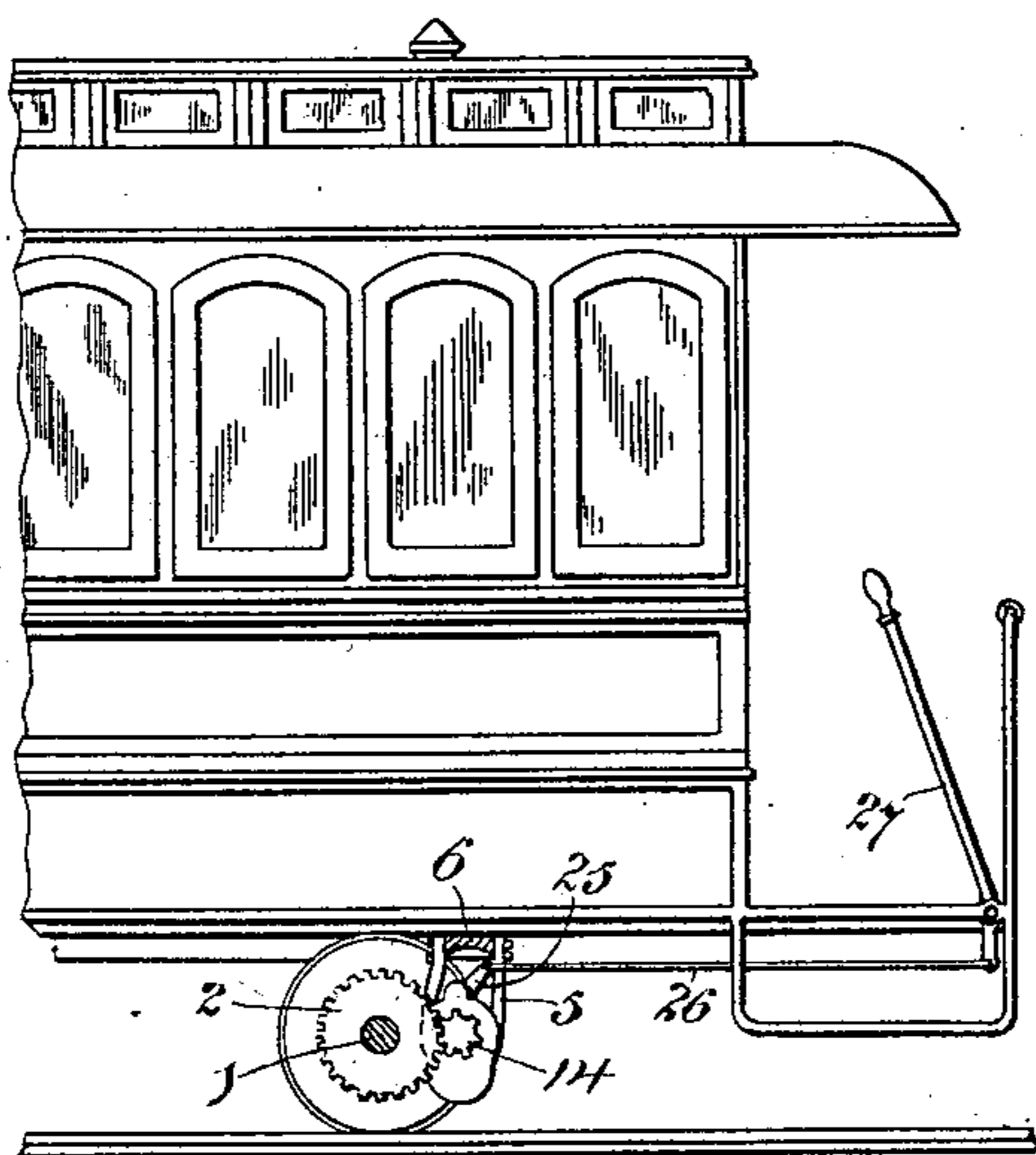
2 Sheets—Sheet 1.

O. M. GOULD.
BRAKE.

No. 564,246.

Patented July 21, 1896.

—Fig. 1—



Witnesses

[Signature]

R. C. Kimber

Inventor

O. M. Gould

By *his* Attorney

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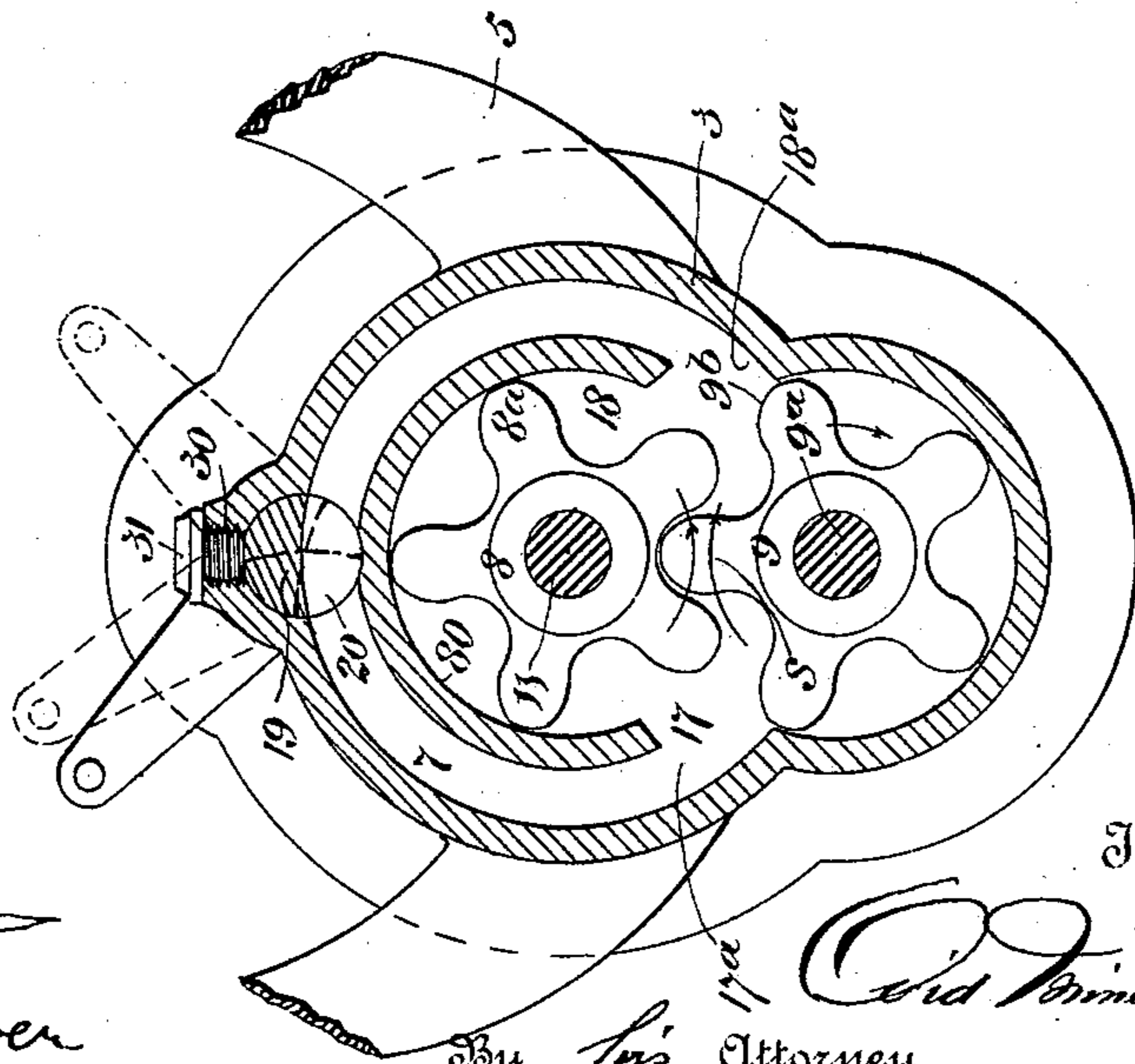
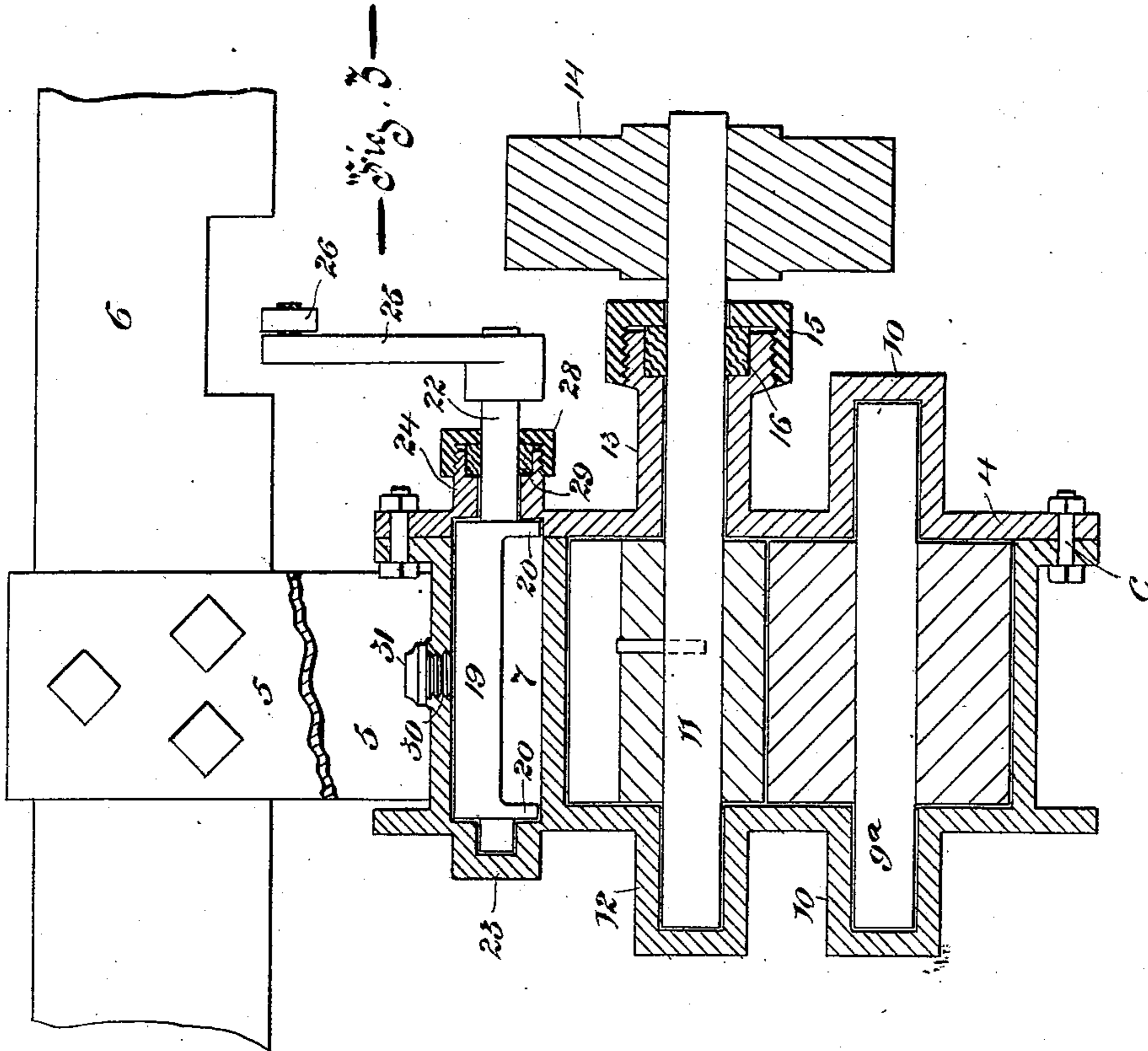
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Witnesses
Wm. H. Kimber
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UNITED STATES PATENT OFFICE.

OVID M. GOULD, OF MONTREAL, CANADA.

BRAKE.

SPECIFICATION forming part of Letters Patent No. 564,246, dated July 21, 1896.

Application filed January 13, 1896. Serial No. 575,395. (No model.)

To all whom it may concern:

Be it known that I, OVID MINER GOULD, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have
5 invented certain new and useful Improvements in Brakes; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates more particularly to
10 street-car brakes, and has for its object to provide a brake requiring practically no manual strength to operate it, the car being stopped by its own momentum acting through the brake to that end, while the action of the brake is
15 such that the wheels of the car continue to revolve slowly, although the full power may be on, thus obviating the wearing of flat surfaces on the treads thereof.

The invention may be said to consist,
20 broadly, of an inclosing casing adapted to contain a liquid, a channel through which such liquid body may be normally driven, a pair of gear-toothed pinions operated from the car-axle to impel the liquid through the chan-
25 nel, and means for controlling the passage of the liquid therethrough; or, in other words, I arrange that a liquid or analogous body, normally unimpeded and moved by rotary actuating mechanism operated by the car-axle
30 or other moving part, shall, upon the obstruction of its movement, arrest such actuating mechanism and through it the primary moving part.

Having thus referred to the principle and
35 operation of my invention, I will now describe what I consider to be the most practicable embodiment thereof in an operative brake applied to a street-car, reference being had, for full comprehension thereof, to the annexed
40 drawings, forming a part of this specification, in which like symbols indicate corresponding parts, and wherein—

Figure 1 is a side elevation, partly in section, of the end portion of a street-car, showing my
45 brake partly in elevation; Fig. 2, a detail view of the brake proper, showing one side of the casing removed; and Fig. 3 a vertical section and part end elevation of the brake proper.

50 At any convenient point on the car-axle 1 a gear-wheel 2, if there be not one already in connection with the usual electrical driving-

gear, is rigidly fixed and immediately adjacent thereto, and so as to connect therewith, I
locate my improved brake mechanism proper. 55 This, as before mentioned, comprises a suitable inclosing casing or carrier, preferably composed of a flanged body portion 3 and removable side or cover piece 4, held together
60 by bolts *c* and hung from or supported by the car-truck in the manner shown by the arms 5 and bars 6 or any other desirable way.

The body portion 3 of the casing may be of various shapes; but in every case a channel or passageway 7 is provided by means of a
65 wall 80 or otherwise, to allow of moving a liquid body, preferably a mixture of glycerin and alcohol, from one side or part of the chamber, formed by the casing, to another.

The actuating mechanism in the casing is
70 of a rotary form and consists of a pair of gear-toothed pinions 8 and 9, the latter being mounted on a spindle 9^a, carried in closed bearings 10 in the sides of the casing near the lower end thereof, and the former rigidly on
75 a shaft 11, one end of which is carried in a closed bearing 12 while the other end is mounted in and passes through an open bearing 13, beyond which it extends sufficiently to carry
80 a gear-wheel 14 to intermesh with the gear-wheel 2 on the axle 1. The open bearing 13 is of course provided with a cap 15, having screw-thread connection therewith, and suitable packing 16 between to prevent the escape
85 of the liquid body contained in the casing.

Upon referring to Fig. 2 it will be observed that the peripheries of the teeth 8^a and 9^b, respectively, of the pinions 8 and 9 pass so close
90 to the inner surface of the wall of the casing and that of the wall 80, dividing off the channel 7 from the main interior space, that they are practically in rubbing contact therewith, and also that the teeth of such pinions at their intermeshing point act to practically divide
95 the chamber into left and right hand sections 17 and 18, with which the ends 17^a and 18^a of the channel 7 communicate.

The remaining space throughout the chamber is filled with the liquid body, and as long
100 as the channel 7 remains open and unobstructed the pinions will in rotating, say in the direction indicated by arrows *s*, cause the liquid to pass or will move it from the right-hand side 18 to the left-hand side 17, drawing

it from the channel at the one end 18^a and forcing it into same at the opposite end 17^a, with the result that the liquid moves through such channel as long as the pinions rotate.

5 To prevent the pinions rotating and so through gears 14 and 2 arrest the axle 1, it is only necessary to obstruct the passage of the liquid through the channel 7, and to accomplish this when desired I prefer to use a
10 valve 19 in the form of a half-round bar with annular ends 20 and spindle projections 21 22, journaled in the casing similarly to the shaft 11, *i. e.*, in a closed bearing 23 at one end and an open bearing 24 at the other, and
15 beyond which latter the spindle projection 22 extends sufficiently to carry a crank-arm 25, by which the valve can be operated through any usual rod-and-lever connection 26 27 from the car-platform. The open bearing 24 is also
20 provided with a cap 28, having screw-thread connection therewith and suitable packing 29 to prevent any escape of the liquid.

A suitable inlet for the liquid is preferably provided, as at 30, and closed by a cap 31.

25 It will be apparent from the foregoing that any wear of the parts within the casing is reduced to a minimum, owing to the thorough and automatic lubrication of same.

It may also be pointed out that the brake
30 can be so set that it is impossible for a car equipped with same to run away or travel faster than a determined speed, this being effected by setting the valve at the desired angle, and, furthermore, that by suddenly
35 completely obstructing the passage of the liquid the brake is instantaneous in its action.

While I have illustrated and described my invention as applied to a street-car axle, I would yet have it understood that the same
40 is not in any way limited thereto, since it is capable of application as a brake to almost any moving or driven part by slight variation in the details and form of construction shown, to which I do not wish to be confined, and,
45 furthermore, the principle of my invention is not dependent upon such particular form and construction for operation in any connection.

What I claim is as follows:

50 1. A car-brake comprising a stationary carrier for a liquid body, a shaft, one end of which extends within such carrier, a second

shaft within such carrier and intermeshing gear-wheels upon said shafts within the carrier, said first-named shaft being operated by the moving or driven part, upon which the
55 brake is caused to act, for normally moving the liquid body freely and unimpeded from one part of the carrier to another, and means for controlling such movement of the liquid body, for the purpose set forth. 60

2. In a car-brake, the combination with the car-axle, of a gear-wheel rigidly mounted thereon, a stationary carrier for a liquid body; such liquid body; a shaft one end of which extends within such carrier, a second shaft
65 within such carrier a pair of intermeshing gear-wheels within said carrier, and serving to divide same into two compartments, and to normally move the liquid body freely and unimpeded from one compartment to another, 70
a communicating channel between the compartments allowing movement of the liquid body therethrough, and means for controlling the passage of the liquid body through such channel, for the purpose set forth. 75

3. In a car-brake, the combination with the car-axle, of a shaft, an operative connection between said axle and shaft, a stationary inclosing casing or carrier adapted to contain a liquid body, such liquid body, a pair of
80 gear-toothed pinions within said casing, one mounted rigidly upon said shaft and the other mounted in close proximity thereto and intermeshing with said first-mentioned pinion, and both adapted to move such liquid body, and 85
means for controlling and arresting the movement of said liquid body, for the purpose set forth.

4. A car-brake comprising a stationary inclosing casing or carrier adapted to contain
90 a liquid body; such liquid body; a channel through which the liquid body may be normally driven; a pair of gear-toothed pinions operated from the car-axle to impel the liquid body through said channel and a valve with
95 actuating parts for controlling its passage therethrough for the purpose set forth.

OVID M. GOULD.

In presence of—

FRED. J. SEARS,
R. S. C. KIMBER.