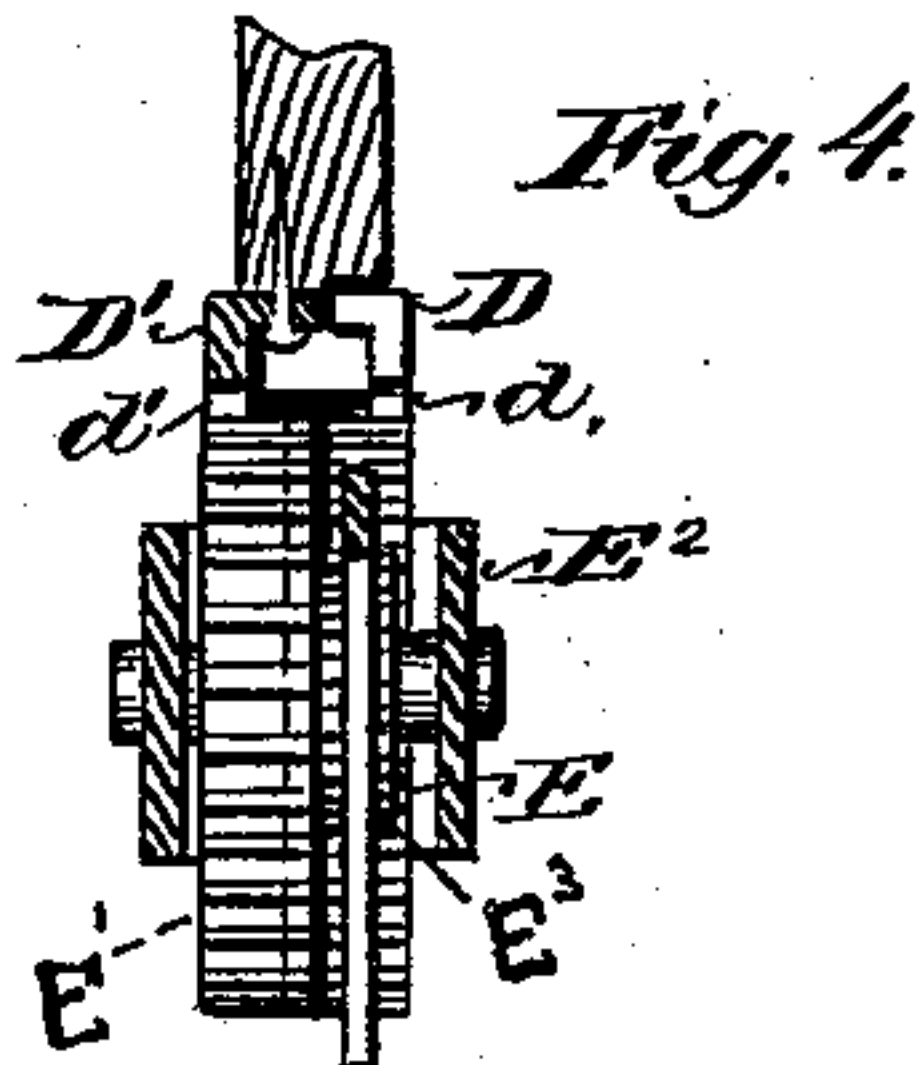
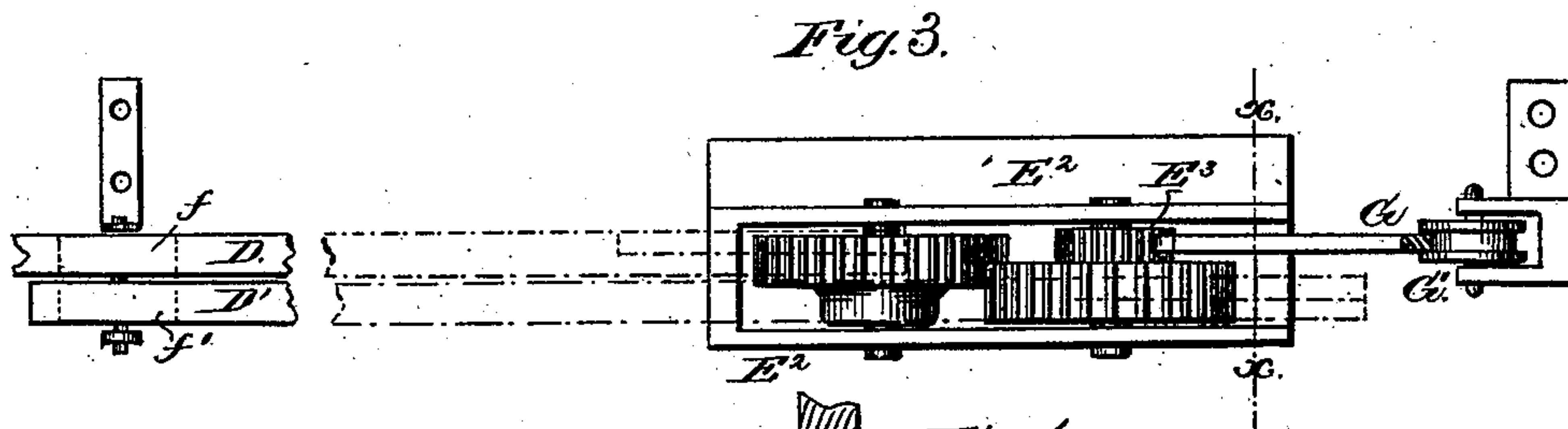
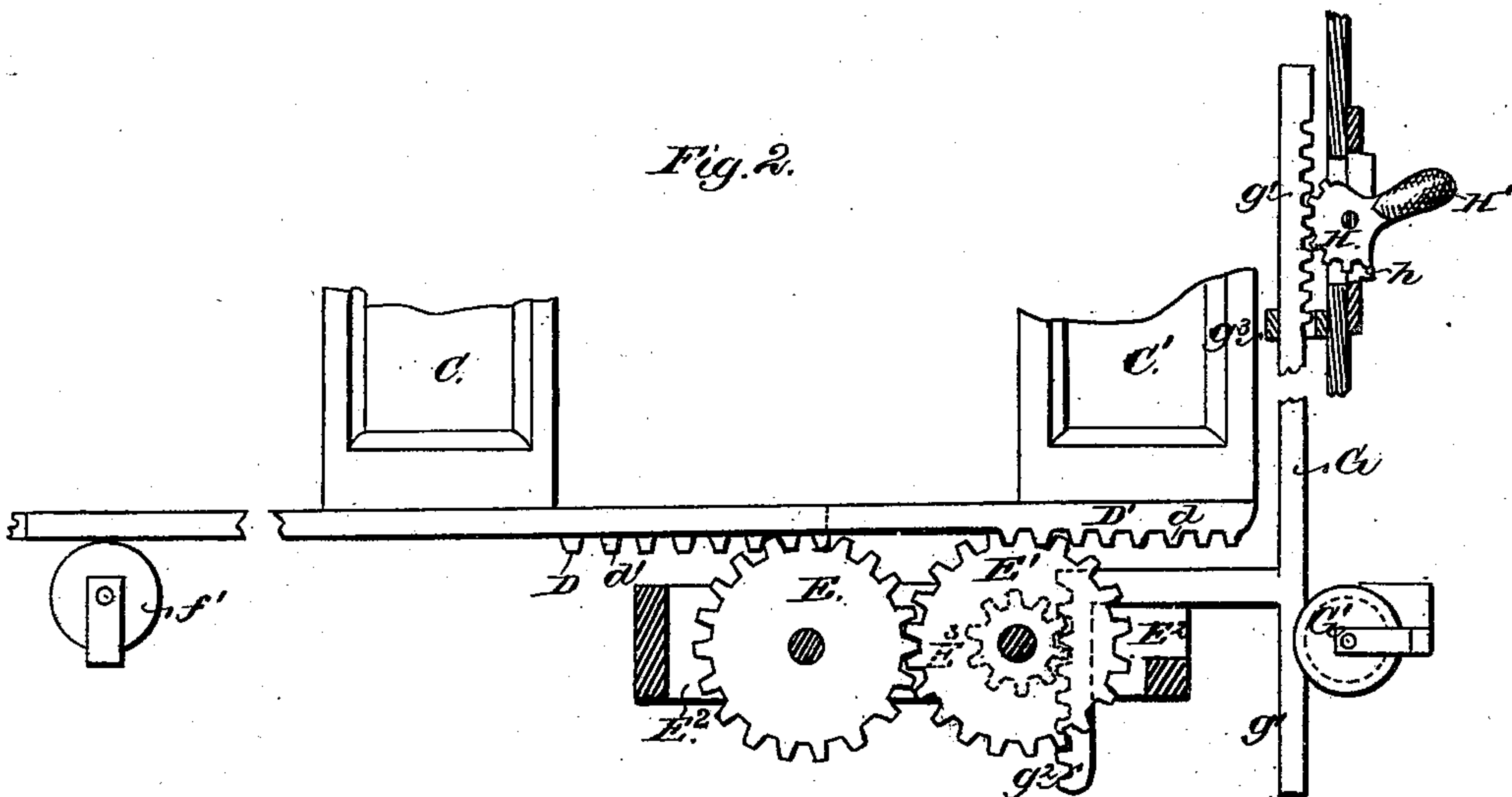
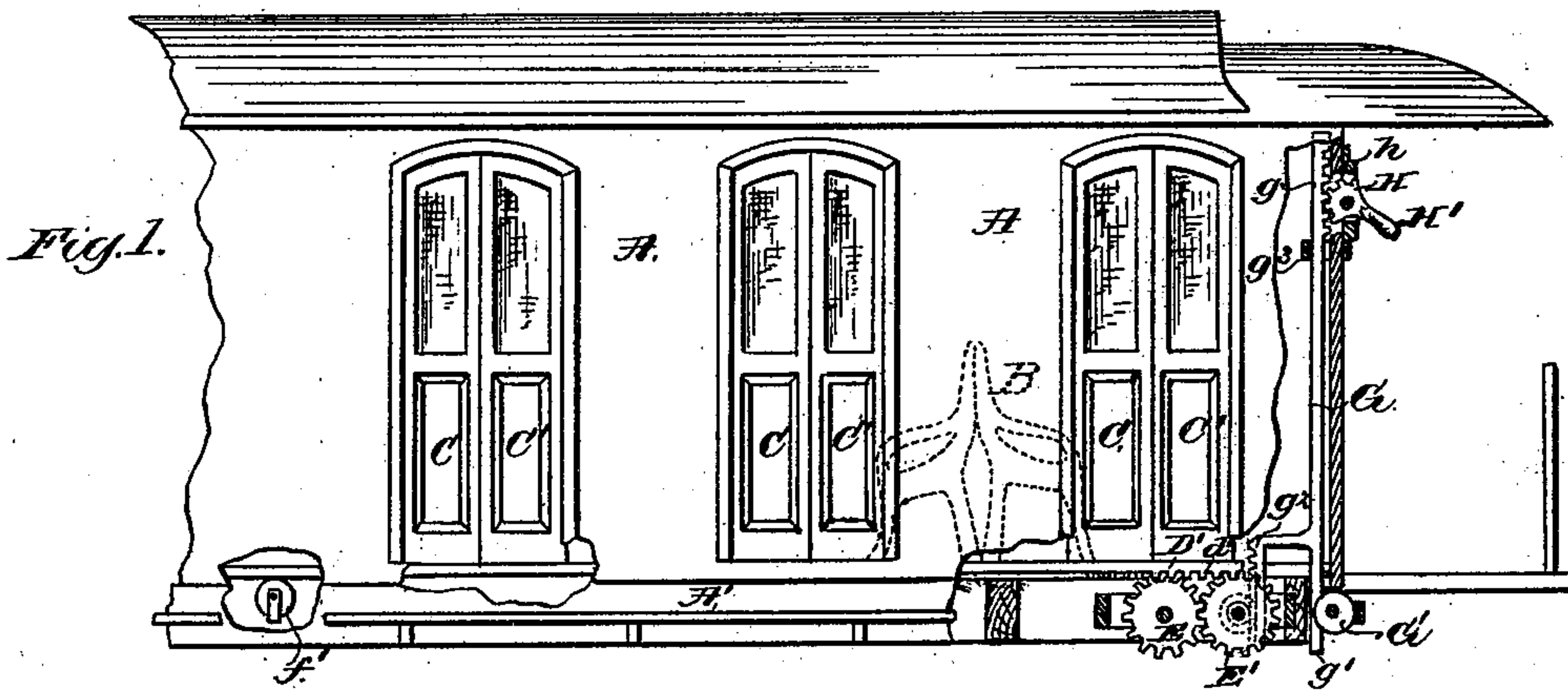


(No Model.)

L. PRINCE.
Car Door Operating Mechanism.

No. 230,570.

Patented July 27, 1880.



WITNESSES:
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UNITED STATES PATENT OFFICE.

LOUIS PRINCE, OF NASHVILLE, OHIO.

CAR-DOOR OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 230,570, dated July 27, 1880.

Application filed June 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, LOUIS PRINCE, of Nashville, in the county of Holmes and State of Ohio, have invented a new and Improved Means for Operating Doors in Elevated-Railway and Street Cars; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to cars for street or elevated railroads, arranged with transverse seats extending the entire width of the car and provided with a series of doors upon the sides of the car which communicate separately with each seat.

The object of my invention is to provide means for operating a series of such doors simultaneously from the end of the car, so that they may be under the control of the driver or conductor; and the improvement consists in a car provided with a series of sliding doors arranged upon its sides that are coupled together by a horizontal bar provided at one end with a rack that is moved backward and forward by gear-wheels operated upon by a bar arranged vertically at one end of the car, that is reciprocated by a hand-lever within convenient reach of the conductor or other person upon the platform, as will be hereinafter described. Either single or double doors may be employed, if desired; and the improvement further consists in the employment of double horizontal rack-bars for moving the doors in opposite directions, and additional gearing for actuating the horizontal rack-bars by means of a single hand-lever and vertical bar, as will hereinafter appear.

In the accompanying drawings, Figure 1 is a side elevation of one end of a car with its casing broken away to show the mechanism for operating the doors, with the doors closed; Fig. 2, an enlarged sectional elevation of the actuating mechanism detached when the doors are open; Fig. 3, a plan view of the same with parts of the mechanism broken away and shown in dotted lines, and Fig. 4 a sectional detail in the line *x x* of Fig. 3.

The frame and body A of the car are provided with end doors and windows of well-known construction. The seats B of the car are arranged transversely, and extend entirely across the car. Each seat is arranged to communicate

with doors C C', upon opposite sides of the car, and a foot-board, A', extending the entire length of the car, is arranged below the sills of the doors, to enable the passengers to enter and leave the car from the sides in a direct manner, without having to pass through the entire length of the interior of the car.

In this instance each door-frame is provided with double doors C C', arranged independently upon separate bars D D', secured, respectively, to the lower ends of the doors C C', and arranged horizontally alongside of each other, to connect a series of doors. The bars D D' extend beyond the doorway, toward the end of the car, and are provided at their ends with toothed racks *d d'*, which are arranged tangentially upon spur-gears E E', that intermesh with each other, by which means the bars D D' and their doors C C' are moved in opposite directions.

The bars D D' are supported at their rack ends upon the gear-wheels E E', and upon their opposite ends rest upon friction-rollers *f f'*, journaled to bracket F, secured to the framing of the car-floor. The gear-wheels E E' are journaled to bracket-plates E², secured to the under side of the floor of the car, and are secured upon the bracket-plate in such manner that they will intermesh with each other at their adjacent edges only, their outer edges being extended sufficiently to come opposite or in the same plane with the rack-bar to which it is connected. A gear-pinion, E³, is arranged upon the inner side and secured to the axle of the wheel E, so that the wheel E and pinion E³ will turn together.

A rod, G, is arranged vertically at the end and outer side of the car-body, and is provided with a rack, *g*, upon the outer side of its upper end, and is forked at its lower end, the outer prong or fork, *g'*, being held in place and moved freely against the grooved face of a friction-roller, G', and the inner prong, *g''*, being provided with a rack that gears with the pinion E³, and transmits motion to the gear-wheels E E', and through them to the horizontal rack-bars and sliding doors.

The upper end of the rod G is held in place by a guide-plate, *g''*, secured to the casing, and is connected with a toothed segment-plate, H, that intermeshes with its toothed rack, and is

provided with a hand-lever, H', pivoted to bracket *h* upon the outer side of the casing, by which means the rod G may be conveniently and easily reciprocated from the platform of the car, and the doors thereby opened and closed by means of the intermediate mechanism above described.

The doors C C' are arranged to slide between the inner and outer casing of the side panels or walls of the car, so as to be concealed and out of the way when open.

- It will be readily understood that the doors upon each side of the car are operated by means of separate mechanism.

Instead of connecting the entire series of doors upon the side of the car to horizontal bars extending from one end of the car to the other, separate bars may be employed to extend from each end to near the middle of the car, and each be connected with one-half the doors or half-doors of the car, by which means the doors may be opened and closed with but little effort. This arrangement, however, would require that the doors in the forward end of the car be operated by the driver, and the doors at the rear end of the car would be opened and closed by the conductor.

It will be readily seen that the doors may be opened and closed by pushing them apart

or pulling them together in the usual way, as there is no locking mechanism to interfere with their movement.

What I claim as new is—

1. In a door-operating mechanism for street and railroad cars, the combination of the car-body A, doors C, horizontal rack-bar D, gear-wheels E E', vertical bar G, and hand-lever H, these parts being combined and arranged for joint operation substantially as specified.

2. In a door-operating mechanism for street and railroad cars, the combination of the car-body A, a series of half-doors, C, connected to horizontal rack-bar D, and a corresponding series of half-doors connected to the rack-bar D', the gear-wheels E E', intermeshing with each other and also with racks upon the ends of the bars D D', the pinion E', and vertical rack-rod G, geared to the pinion at its lower end and reciprocated vertically by a hand-lever secured to its upper end, by which means the half-doors may be moved in opposite directions, to open and close them, from the platform of the car, substantially as described.

LOUIS PRINCE.

Witnesses:

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CHAS. A. PETTIT.