

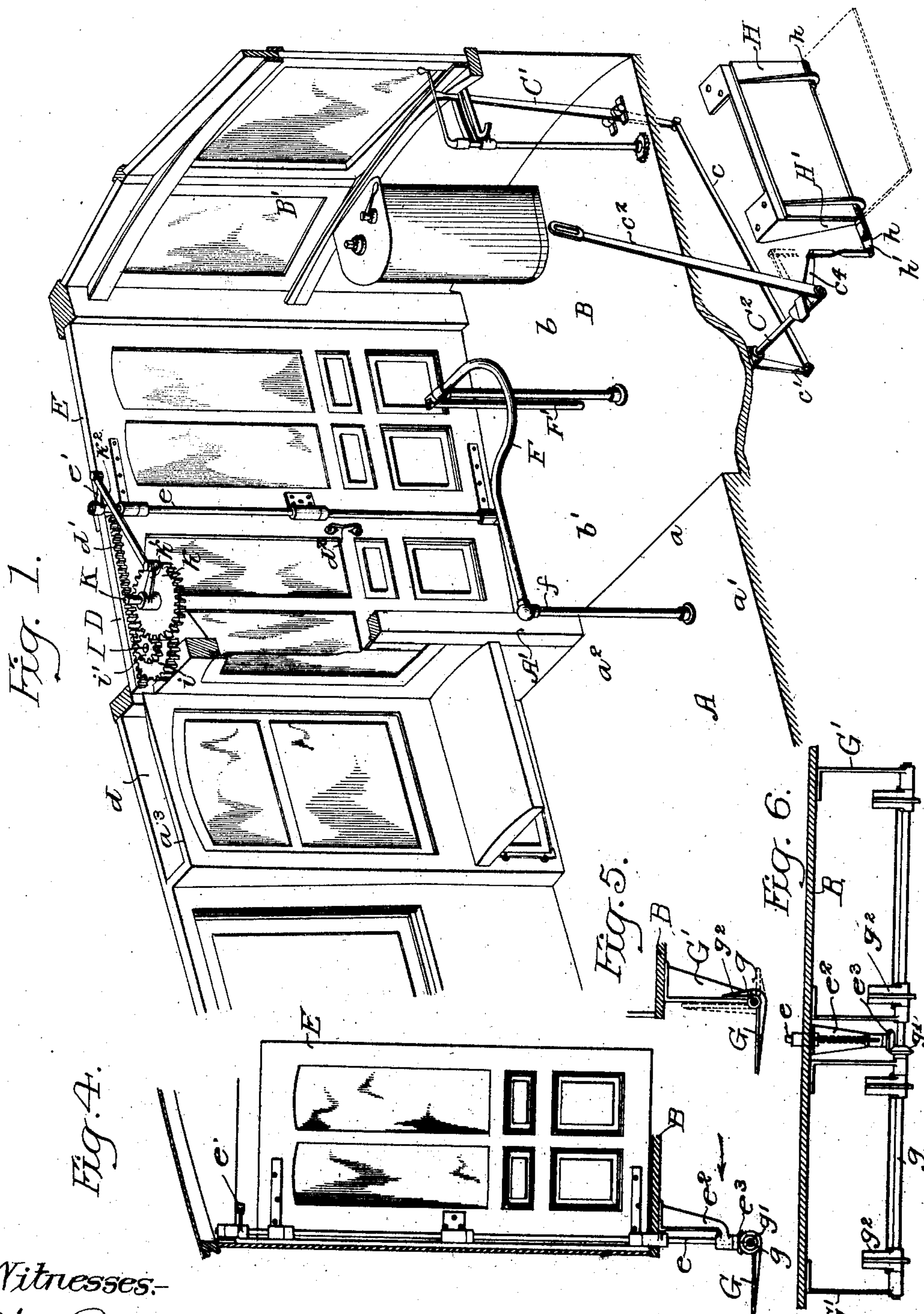
PASSENGER CAR.

APPLICATION FILED MAY 7, 1908.

905,665.

Patented Dec. 1, 1908.

3 SHEETS—SHEET 1.



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S. M. CURWEN & W. M. SMITH.

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3 SHEETS—SHEET 2.

Fig. 2.

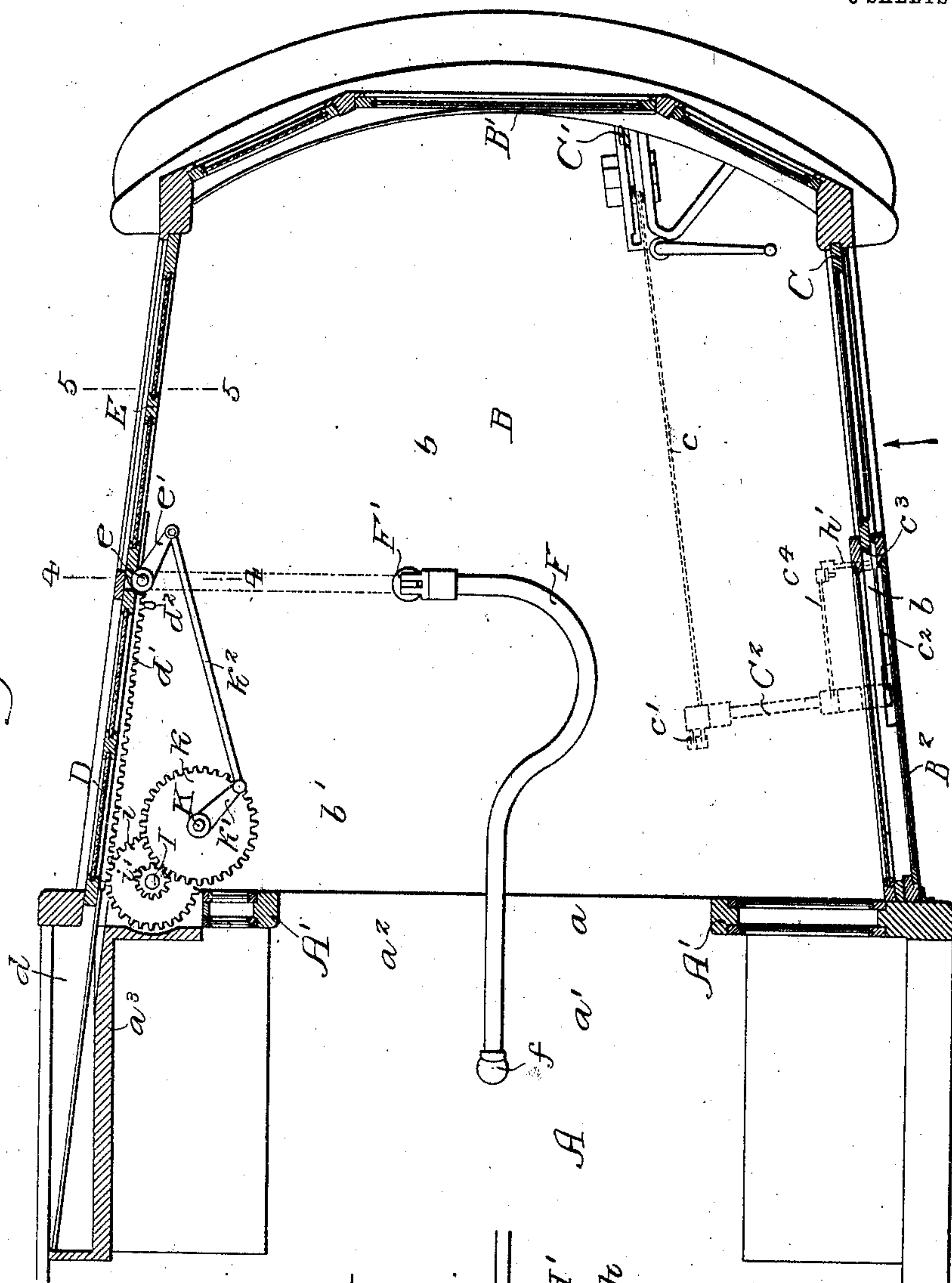
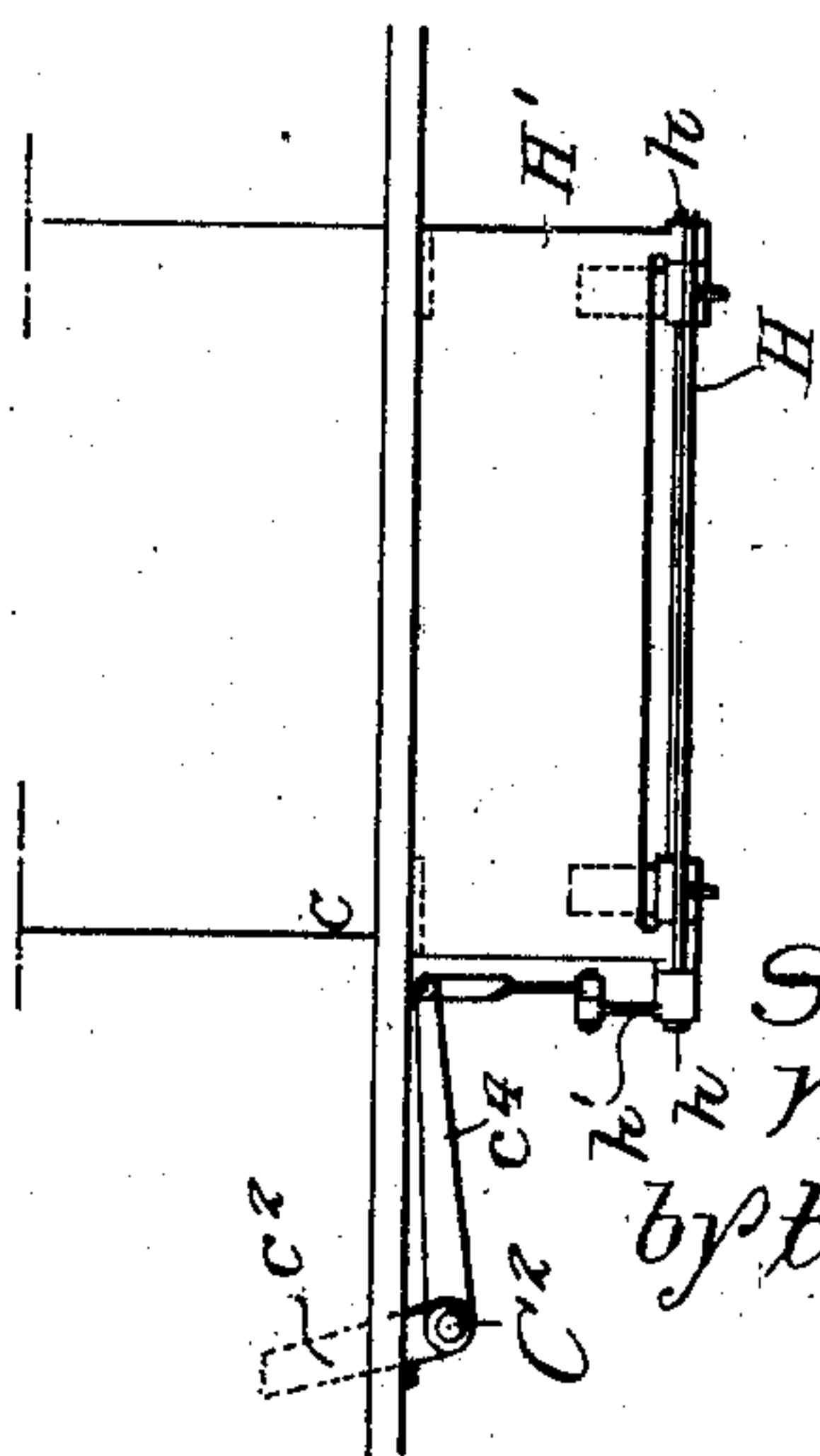


Fig. 7.



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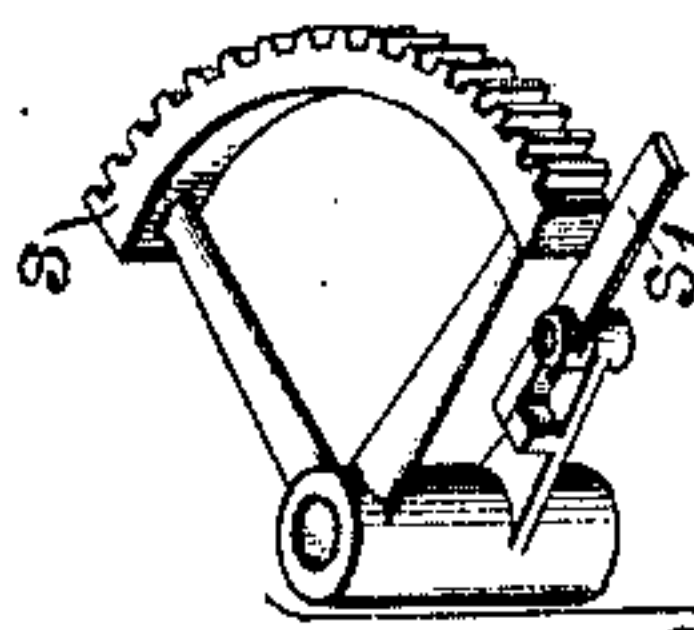
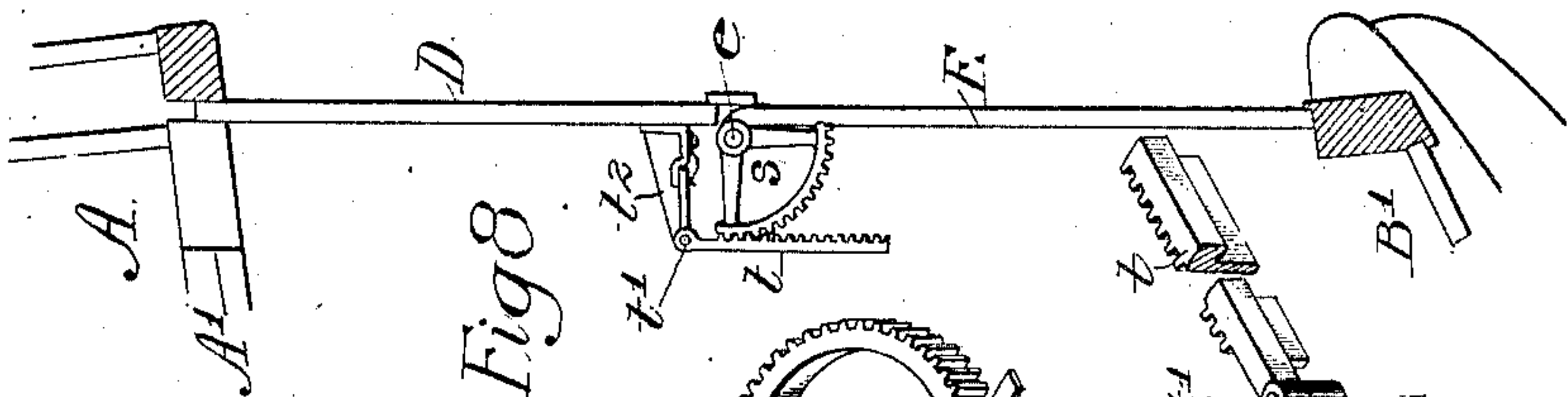
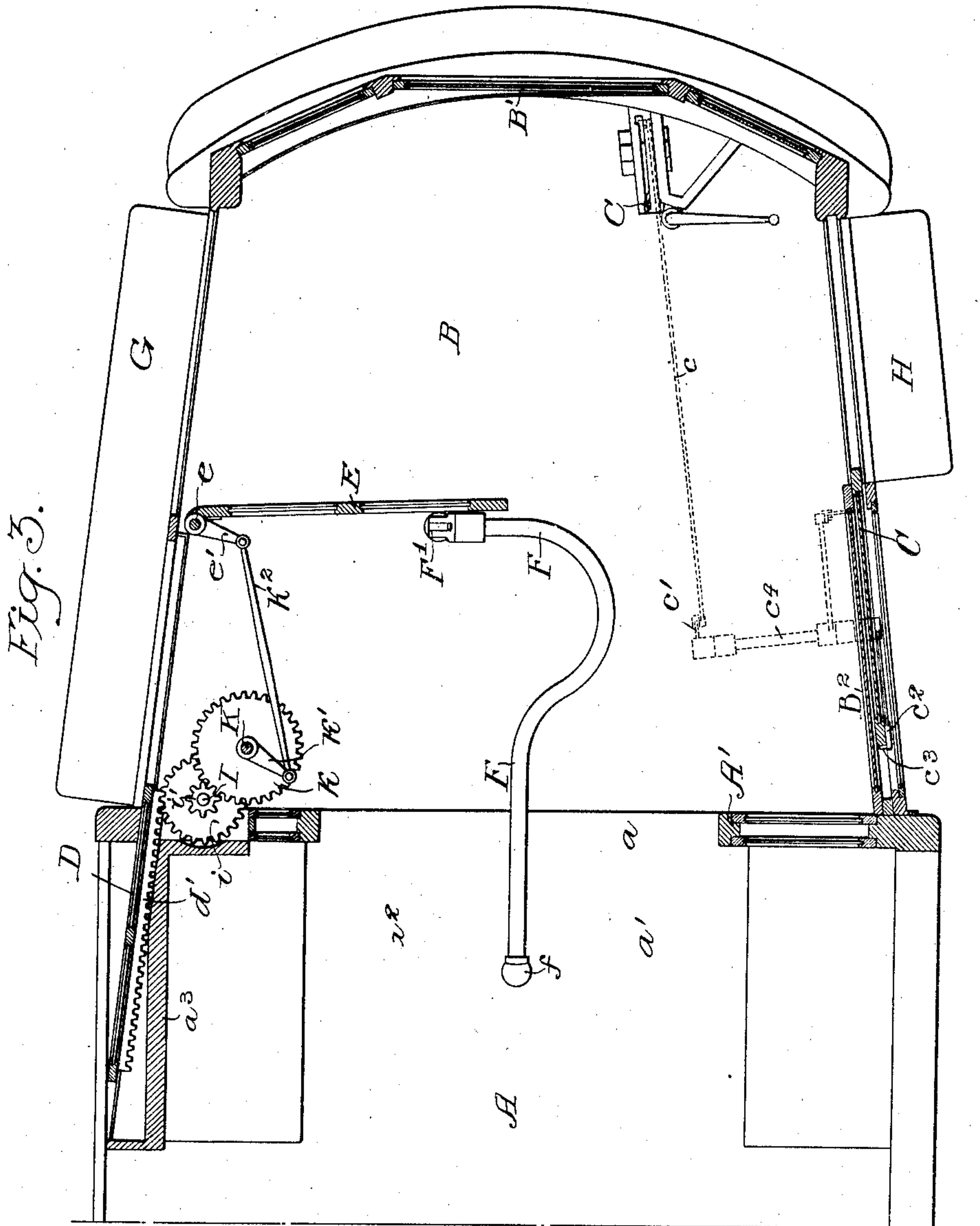
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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PASSENGER-CAR.

No. 905,665.

Specification of Letters Patent.

Patented Dec. 1, 1908.

Application filed May 7, 1908. Serial No. 431,504.

To all whom it may concern:

Be it known that we, SAMUEL M. CURWEN and WARREN M. SMITH, citizens of the United States, residing in Haverford, Pennsylvania, and Moores, Pennsylvania, respectively, have invented certain Improvements in Passenger-Cars, of which the following is a specification.

Our invention relates to certain improvements in door and step operating mechanism for passenger cars, particularly of the type known as pay-as-you-enter cars.

One object of our invention is to provide mechanism by which the platform can be closed by a sliding and a pivoted door; and a further object of the invention is to provide means whereby the steps of the car can be operated on the movement of the doors. These objects we attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a sectional perspective view of sufficient of a car to illustrate our invention; Fig. 2, is a plan view of a car showing the doors shifted to inclose the platform; Fig. 3, is a view similar to Fig. 2, showing the doors open; Fig. 4, is a vertical sectional view on the line 4—4, Fig. 2, illustrating the mechanism for operating the step; Fig. 5, is a sectional view on the line 5—5, Fig. 2; Fig. 6, is a view looking in the direction of the arrow, Fig. 4, showing the step; Fig. 7, is a view showing the mechanism for operating the step on the opposite side of the car looking in the direction of the arrow, Fig. 2; and Figs. 8 and 9, are views illustrating a modification of the door operating device.

A is the body of the car and B is the platform.

A' is a transverse partition forming the end of the body portion and separating it from the platform. In this partition A' is a wide doorway *a*, in the present instance not provided with doors as the platform is inclosed.

B' is the front vestibule of the ordinary type; one side of the platform is inclosed by two doors D and E and the other side is inclosed by permanent panels B² and a sliding door C adapted to a channel *b* between the panels B².

In order to divide the ingress section *b* from the egress section *b'* of the platform, we provide a rail F having a pivoted section

F' and this rail extends through the doorway to a post *f* so as to continue the ingress and egress passageways into the body of the car, forming the passageways *a'*, *a''*.

It is essential, where the platform is inclosed by permanent doors as in this case, that the doors on one side of the car for the ingress and egress of passengers should open simultaneously and to accomplish this we connect the doors D and E with mechanism so that when the conductor slides the door D back to open the passageway he also turns the door E on its pivot, in the present instance back against the rail F, allowing clear space for the egress and ingress of passengers. As soon as the passengers have alighted from the car and others have entered the car the conductor closes the sliding door D, which causes the pivoted door E to close also.

The operation is accomplished in the following manner:—The door D, as before remarked, is a sliding door adapted to channels or ways *d* in the side walls of the car and inclosed by the ordinary woodwork *a''*. On the upper portion of the door in the present instance is secured a rack *d'*, which meshes with a gear wheel *i* on a vertical spindle I on which is a pinion *i'* meshing with a gear wheel *k* on a vertical shaft K carrying an arm *k'* connected by a rod *k''* to an arm *e'* on the upper end of the vertical shaft *e* to which is secured the door E.

The door D is provided with a handle *d''* and the conductor can grasp this handle and push the door back into the channel *d* and the rack *d'* will turn the wheel *i* and the pinion *i'* will turn the wheel *k* secured to the shaft K, and as this shaft is connected to the vertical shaft *e*, which is secured to the door E, the said door will turn on the shaft and the two doors will assume the position shown in Fig. 3, allowing a clear space on one side of the rail F for the ingress of passengers and on the opposite side of the rail for the egress of passengers.

G is the step at one side of the platform extending across both the ingress and egress passageways, and this step is so connected to the vertical shaft *e* that on the closing of the door the step will be raised, so that it will be impossible for any one to board the car while the doors D and E are closed.

The shaft *e*, as shown in Fig. 4, extends be-

low the platform B and is adapted to a bearing e^2 on the under side of the car and the step G is pivoted at g to the brackets G' , Fig. 5, and on the end of the shaft e is a beveled gear e^3 and on the pivot g is a beveled gear g' meshing with the said gear e^3 , so that when the shaft e is turned it will turn the pivot and cause the step to be raised.

When the door E is in the open position, Figs. 3 and 4, the step G is down, but when the door is closed as in Fig. 2, the step is raised against the brackets G' , so that it is impossible for any one to mount the step. In the present instance a right angled extension g^2 on the step G rests back of the bracket G' and limits the downward movement of the step and also resists any pressure placed upon the step. Other mechanism may be resorted to for supporting the step in its lowered position.

To operate the door on the opposite side of the platform we utilize a lever C' placed within easy reach of the motorman and pivoted to the platform, this lever has an arm extending under the floor of the platform and is connected by a rod c to an arm c' on a rock shaft C^2 under the platform, which is provided with an arm c^2 slotted at its upper end, and on the rear edge of the door C is a pin c^3 which enters the slot in the lever so that on moving the lever C' to one position or the other the door C can be moved to open and close the doorway. This particular mechanism for operating the door is claimed in a separate application for patent filed by Thomas J. Naulty on the fourth day of May 1908, under Serial Number 430,847.

H is the step on the opposite side of the car from the step G and is in front of the doorway closed by the door C, and this step is pivoted at h , Fig. 7, to a bracket H' and is connected by a lever h' to the arm c^4 of the rock shaft C^2 in such a manner that when the door C is closed, as in Fig. 2, the step will be raised and when the door C is pushed back to open the passageway, as shown in Fig. 3, the step is lowered so that a person alighting from the car can pass through the doorway and onto the step, and when the door is closed no one can enter the car through this doorway.

Thus by the above described mechanism not only the doors are under control but the steps as well, and this is particularly advantageous when the platform is at the forward end of the car, as it is desirable that, when the doors are closed, no one should ride upon the steps.

In Figs. 8 and 9, we have illustrated a modification of the means for actuating the pivoted door when the sliding door is operated. On the pivot of the door E is a toothed segment s with which engages a rack t pivoted at t' to a bracket t^2 on the sliding door D. When both doors are open the rack

is entirely clear of the segment and when moved forward it will engage the segment and swing the pivoted door closed. Should the pivoted door be accidentally moved to its closed position when the sliding door is open the rack will then slide past the segment, as there is a projection s' on the segment which will throw the rack out and will prevent it engaging the teeth until the sliding door is closed, then on the opening of the sliding door the pivoted door will open with it.

We claim:—

1. The combination in a passenger car, of a platform, doors inclosing one side of the platform, one door being a sliding door and the other a pivoted door, and means connecting the sliding door to the pivoted door so that the doors will open simultaneously.

2. The combination in a passenger car, of a platform, two doors inclosing one side of the platform, one a sliding door and the other a pivoted door, means for connecting the sliding door and the pivoted door so that when the sliding door is moved to the open or closed position the pivoted door will also be moved to the open or closed position.

3. The combination in a passenger car, of a platform divided into ingress and egress passageways, a sliding door closing the egress passageway, a pivoted door closing the ingress passageway, and mechanism connecting the two doors so that when the sliding door is opened or closed the pivoted door will be opened or closed.

4. The combination in a passenger car, of a platform, two doors closing one side of the platform, one door being a sliding door and the other a pivoted door, a pivoted step extending in front of both doors, means connected with the pivoted door for operating the step, and means connecting the pivoted door with the sliding door so that when one door is opened or closed the other door will be opened or closed and the step will be lowered or raised simultaneously with the opening and closing of the doors.

5. The combination in a passenger car, of a platform, two doors closing one side of the platform, one a sliding door and the other a pivoted door, a rack on the sliding door, a gear wheel meshing with the rack, a pinion turning with the gear wheel, a gear wheel meshing with said pinion, a vertical shaft upon which the pivoted door is hung, an arm on said shaft, a rod connecting the arm with the last mentioned gear wheel, so that when the sliding door is opened or closed the pivoted door will also be opened or closed.

6. The combination in a passenger car, of a platform, two doors closing one side of the platform, one door being a sliding door and the other a pivoted door, a vertical shaft on which the pivoted door is mounted, means connecting the said shaft with the sliding door so that the said pivoted door will be

opened or closed when the sliding door is
opened or closed, and a pivoted step below
the two doors, said shaft extending below
the platform and geared to the step so that
5 on the opening or closing of the doors the
step will be lowered or raised.

In testimony whereof, we have signed our

names to this specification, in the presence
of two subscribing witnesses.

SAMUEL M. CURWEN.

WARREN M. SMITH.

Witnesses:

JOS. H. KLEIN,

WM. A. BARR.