

No. 843,302.

PATENTED FEB. 5, 1907.

H. C. SAGEHORN.

ELEVATOR.

APPLICATION FILED MAY 18, 1906.

4 SHEETS—SHEET 1.

Fig. 1

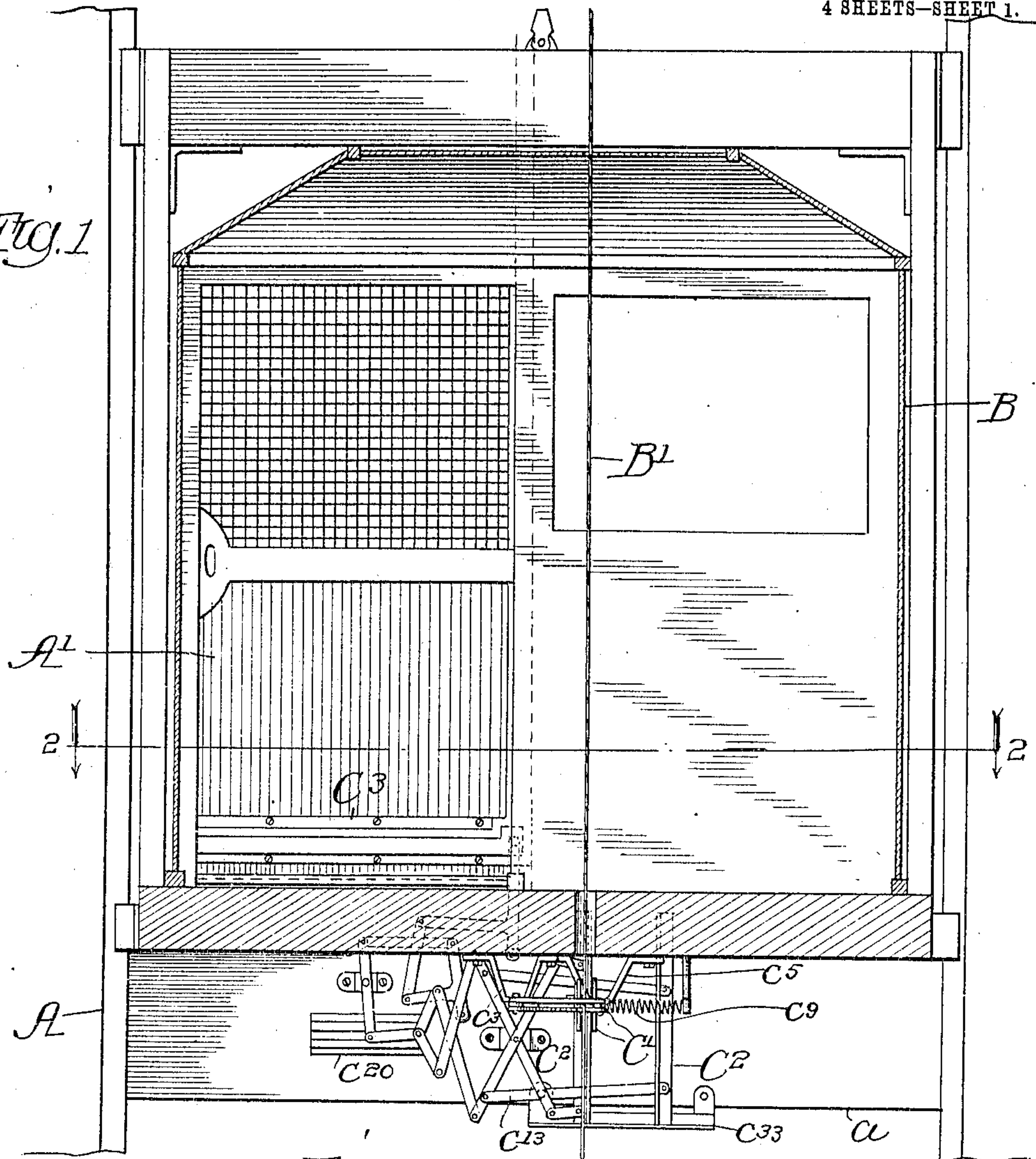
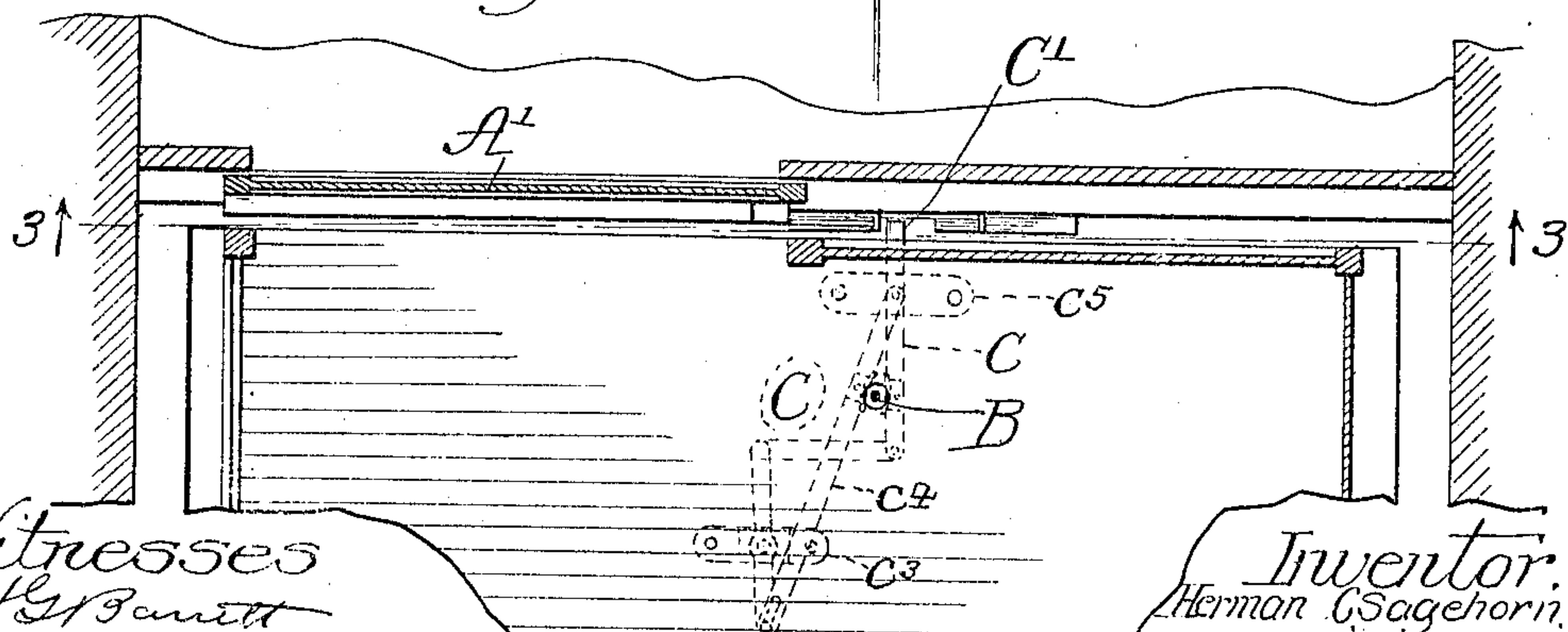


Fig. 2



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Inventor:
Herman C. Sagehorn

by *Dynamometer, Dynamometer, & Co.,*
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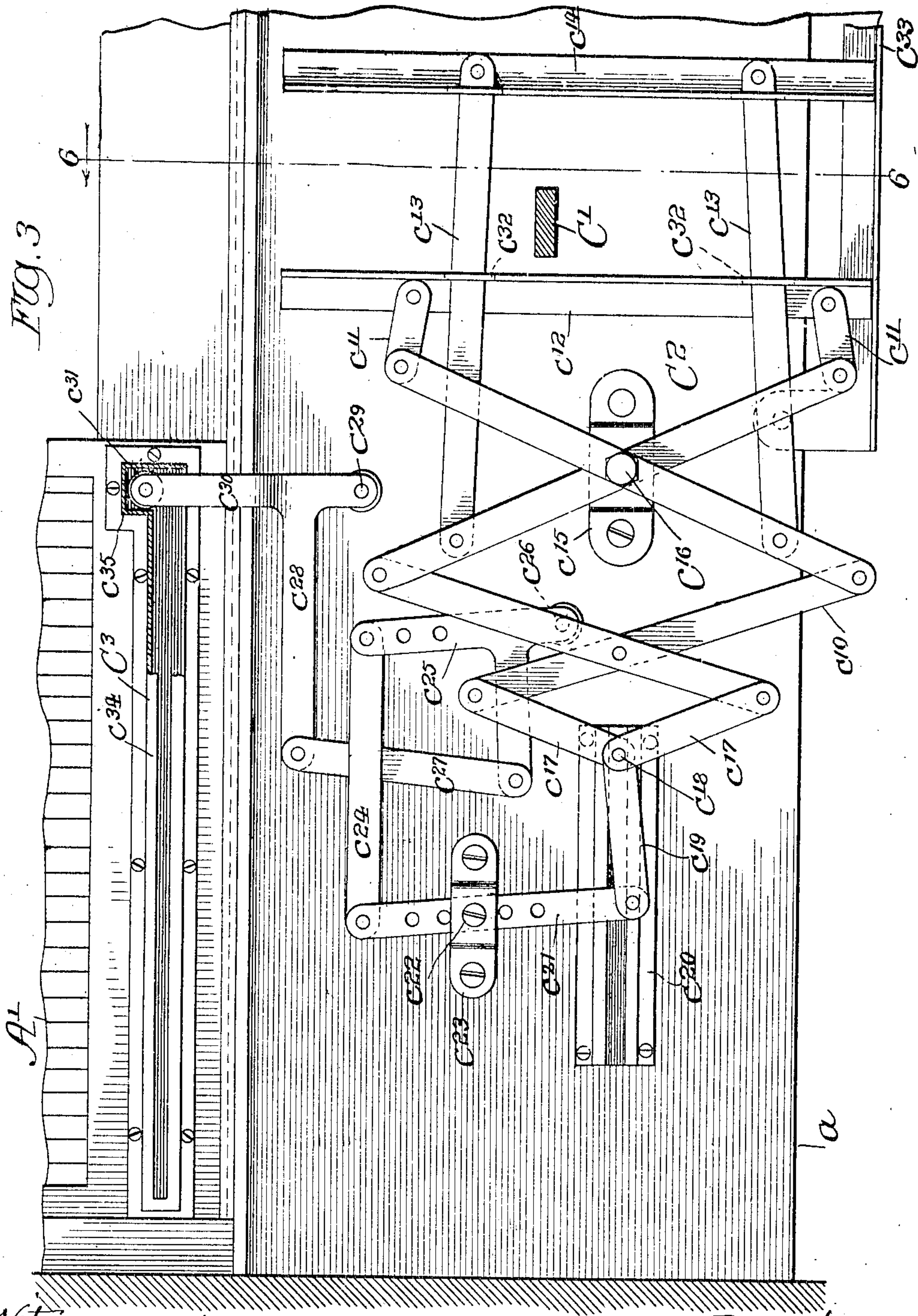
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H. B. Bennett
J. H. Landes

Inventor:
Herman C. Sagehorn.
By *[Signature]* *[Signature]* *[Signature]* *[Signature]*
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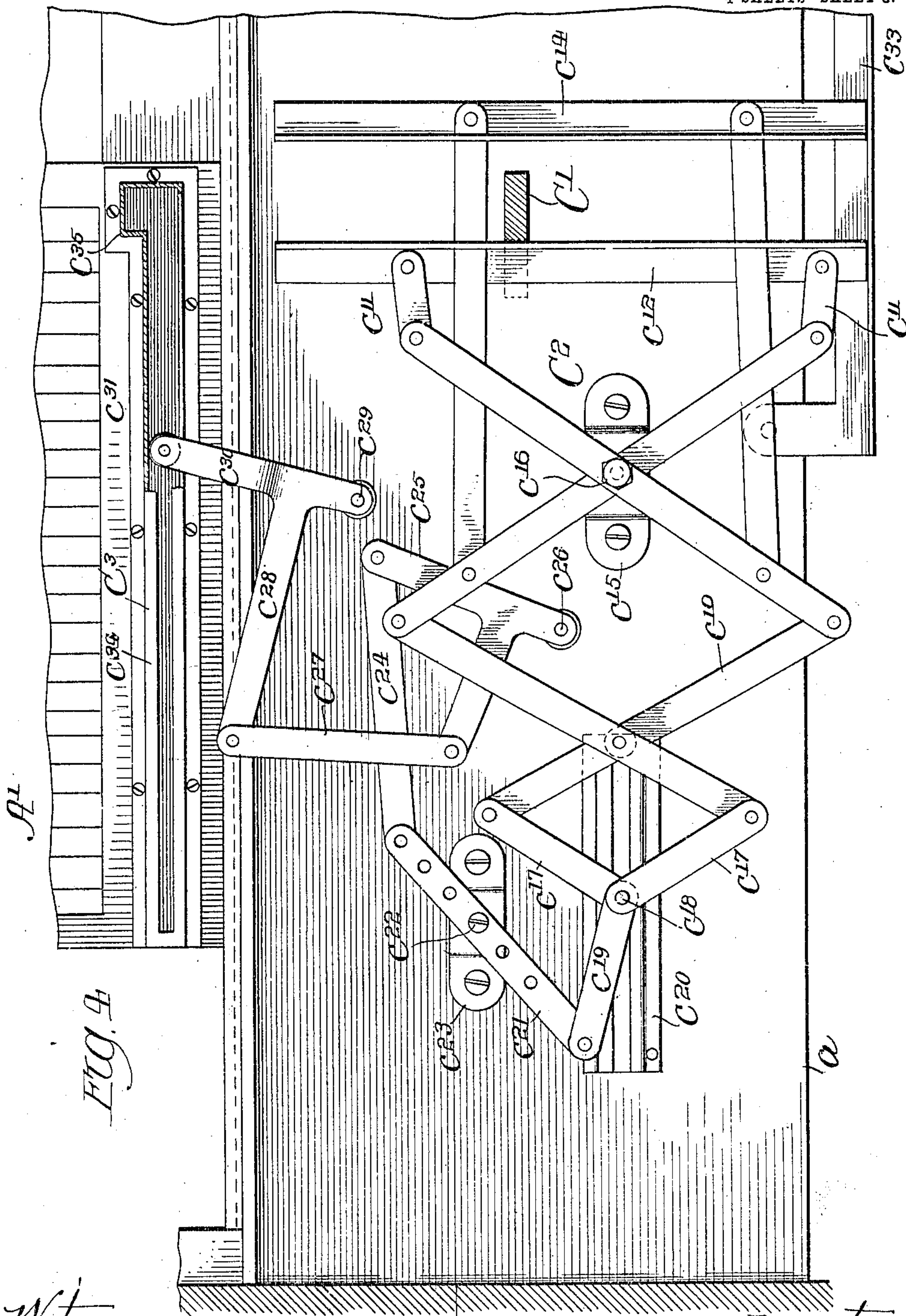
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4 SHEETS—SHEET 3.



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H. G. Burnett
J. H. Landes

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Herman C. Sagehorn
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Two Attys.

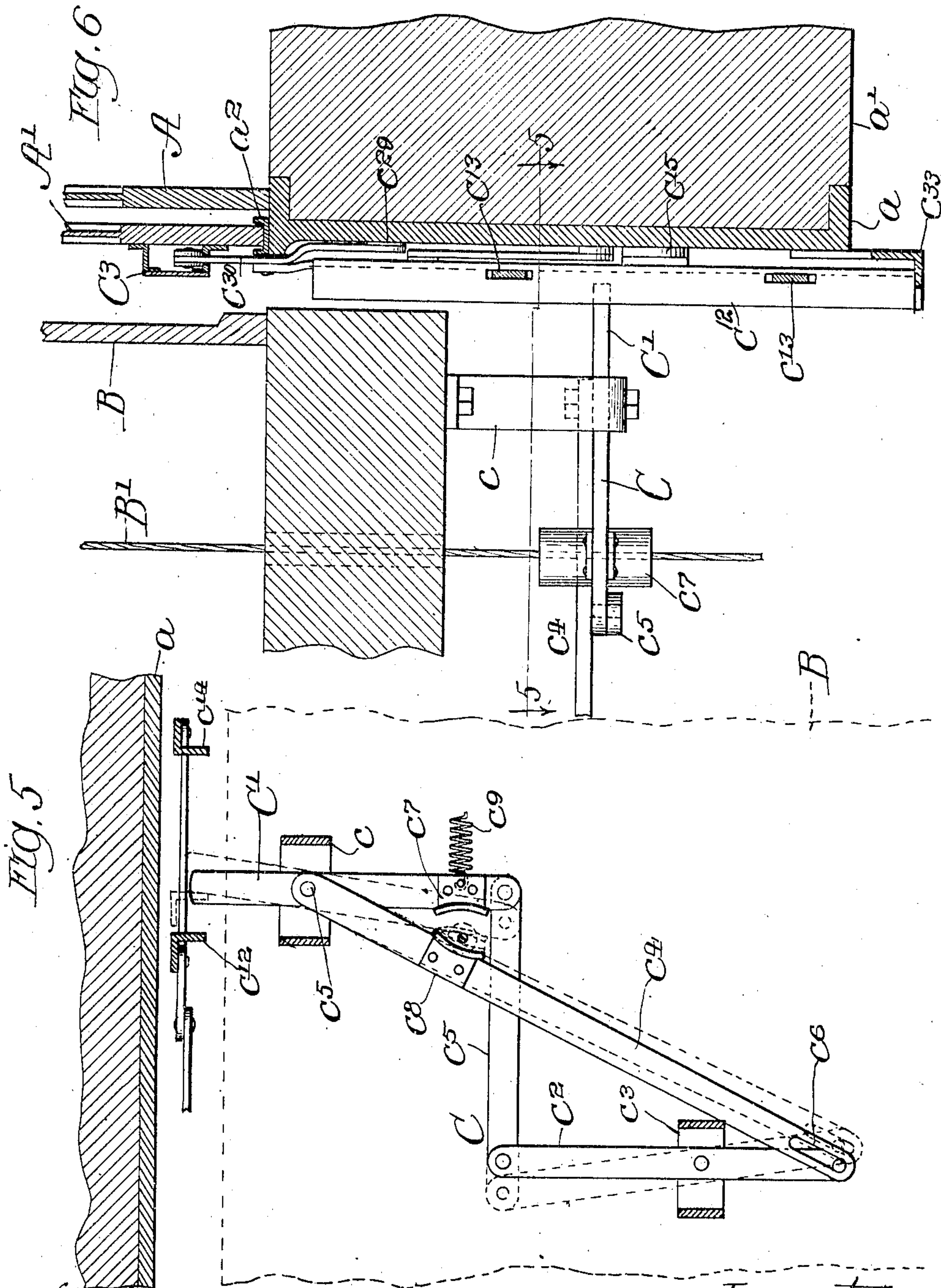
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4 SHEETS—SHEET 4.



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H. C. Barrett
J. H. Landes

Inventor:
Herman C. Sagehorn
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UNITED STATES PATENT OFFICE.

HERMAN C. SAGEHORN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
FRED G. ROEMPLER, OF CHICAGO, ILLINOIS.

ELEVATOR.

No. 843,302.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed May 18, 1906. Serial No. 317,505.

To all whom it may concern:

Be it known that I, HERMAN C. SAGEHORN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Elevators, of which the following is a specification.

My invention relates to means for preventing the operation of the cars or cages of elevators while a door of the elevator-shaft is open; and the present invention constitutes a modification of the invention set forth and generically claimed in my pending application, Serial No. 317,504, of even date herewith.

My present invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a vertical sectional view of an elevator shaft and cage equipped with my improved device; Fig. 2, a broken plan section taken as indicated at line 2 of Fig. 1; Fig. 3, a broken vertical section taken as indicated at line 3 of Fig. 2; Fig. 4, a similar view showing the elevator-door partly open; Fig. 5, a broken plan section with the floor of the elevator-cage indicated in dotted lines; and Fig. 6, a broken vertical section taken as indicated at line 6 of Fig. 3.

In the construction illustrated, A represents an elevator-shaft equipped with a series of doors A' (one shown); B, a vertically-movable car or cage; B', a cable passing through the elevator-cage and serving to control the operation thereof in a well-known manner; C, a locking device for the cable, having a member C' projecting in front of the elevator-cage; C², a locking device connected with the elevator-shaft at the plane of the floor and coacting with the member C'; and C³, a cam connected with the inner surface of the base of the elevator-door and serving to operate the device C².

The elevator shaft and cage may be of any approved construction. I have shown a beam *a* at the plane of the floor *a'*, said beam forming a part of the elevator-shaft. The beam is surmounted by a track or guide *a*² for the base of the door.

The device C comprises, in addition to the member C', which constitutes a lever pivoted on a bracket *c* beneath the floor of the elevator-cage, a link *c'*, joining the inner end of the lever C' to a lever *c*², pivotally supported

on a bracket *c*³, carried beneath the floor of the elevator-cage, and a link *c*⁴, connected with the pivot *c*⁵ of the lever C' and having pin-and-slot connection *c*⁶ with the rear end of the lever *c*². The rear end of the lever C' is provided with a cable-gripping member *c*⁷, and the member *c*⁴ is provided adjacent thereto with a cable-gripping member *c*⁸. A spring *c*⁹ serves normally to hold the gripping members separated and the lever C' in the position shown in full lines in Fig. 5. When the lever C' is moved to the dotted position shown in Fig. 5, the cable will be gripped between the members *c*⁷ *c*⁸, thereby preventing starting of the car.

The mechanism C² comprises lazy-tong levers *c*¹⁰, joined by a pair of links *c*¹¹ to a horizontally-shiftable locking-bar *c*¹² and by a pair of links *c*¹³ to a horizontally-movable bar *c*¹⁴; a bracket *c*¹⁵, connected with the beam *a*, upon which the lazy-tong levers are supported by a pivot *c*¹⁶; a pair of links *c*¹⁷, connected with the lazy-tong levers and joined by a pivot *c*¹⁸ to link *c*¹⁹, the pivot *c*¹⁸ having connection with a guide *c*²⁰, attached to the beam *a*; a lever *c*²¹, joined by a pivot *c*²² to a bracket *c*²³, carried by the beam *a*; a link *c*²⁴, connecting the lever *c*²¹ with a bell-crank lever *c*²⁵, joined by pivot *c*²⁶ to the beam *a*, and a link *c*²⁷, joining one arm of the bell-crank *c*²⁵ to one arm of a bell-crank lever *c*²⁸, supported on a pivot *c*²⁹, carried by the beam *a*. The bell-crank *c*²⁸ has an arm *c*³⁰, equipped with a roller *c*³¹, connected with the cam C³. The link *c*¹³ extends loosely through slots *c*³², with which the projecting flange of the locking-bar *c*¹² is provided. The lower ends of the locking-bars *c*¹² *c*¹⁴ are supported on a horizontal guide *c*³³. The levers *c*²¹ *c*²⁵ are provided with a series of perforations whereby the throw of the locking-bars *c*¹² *c*¹⁴ may be regulated. The cam C³ comprises a horizontal slotted portion *c*³⁴, extending substantially across the base of the door, and an offset portion *c*³⁵ near the rear edge of the door. The arrangement is such that the lever *c*²⁸ will be actuated to shift the bars *c*¹² *c*¹⁴ in the initial movement of opening the door and will also be actuated to retract said bars in the final movement of closing the door.

It will be understood that the mechanism C² is duplicated at each floor, so that all of the doors of the elevator-shaft are equipped

with the protecting device. When the elevator-cage is stopped in the proper position and a door to the elevator-shaft thrown open, the cam connected with the door serves through the medium of the lever c^{28} and the link-and-lever mechanism connected therewith to move the locking-bar C' to the position indicated in dotted lines in Fig. 5, thereby causing the members c^7 c^8 to grip the cable. This movement occurs in the initial movement of opening the door, and the parts remain in the locking position while the door is being fully opened and until the door is returned to the fully-closed position, when the roller c^{31} again enters the offset c^{35} of the cam and retracts the bar c^{12} . When the door is fully closed and the locking-grip upon the controlling-cable is released, the cable may be moved to start the car. It may be added that, if desired, the bar c^{14} and the links c^{13} may be dispensed with in the present construction. They are duplicates of certain parts employed in the device, as shown in the above-mentioned application, and are not necessary to the operation of the device herein shown.

The construction has been described for clearness of understanding, and no undue limitation is to be understood therefrom.

What I regard as new, and desire to secure by Letters Patent, is—

1. The combination with an elevator-shaft,

a door therefor, an elevator-cage, and a cable controlling the movements of the cage, of cable-gripping levers supported beneath the floor of the cage and having a projecting actuating member, a horizontally-shiftable member connected with the elevator-shaft and serving to actuate said projecting member, mechanism serving to actuate said horizontally-shiftable member, and a cam connected with the base of the elevator-door and serving to actuate said horizontally-shiftable member through the medium of said mechanism.

2. The combination with an elevator-shaft, a door therefor, an elevator-cage, and a cable controlling the movements of said cage, of a cable-gripping device having a pair of cable-gripping levers carried beneath the floor of the cage and having also an actuating member projecting forwardly from the cage, a shiftable member connected with the elevator-shaft beneath said door and serving to actuate said actuating member, a horizontal cam connected with the base of the door and having an offset portion, and a lever connected with said shiftable member and actuated by said cam.

HERMAN C. SAGEHORN.

Witnesses:

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