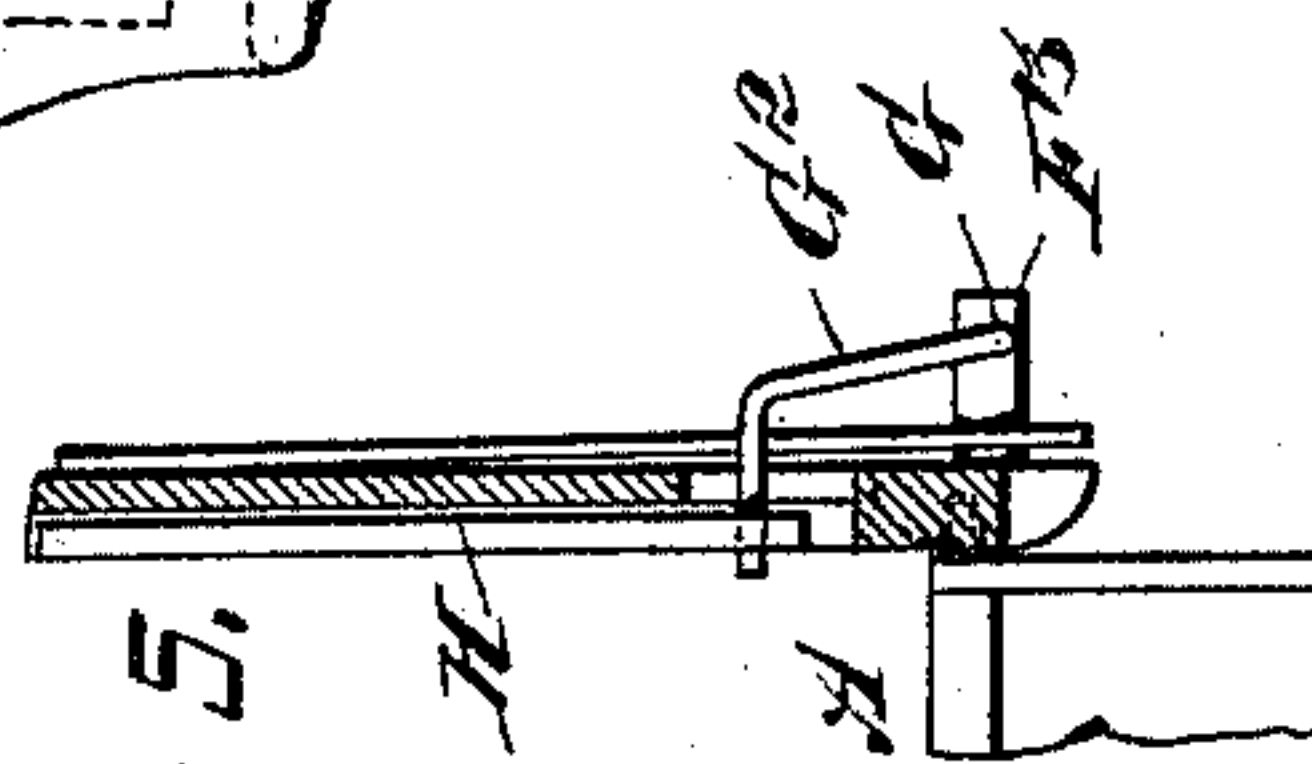
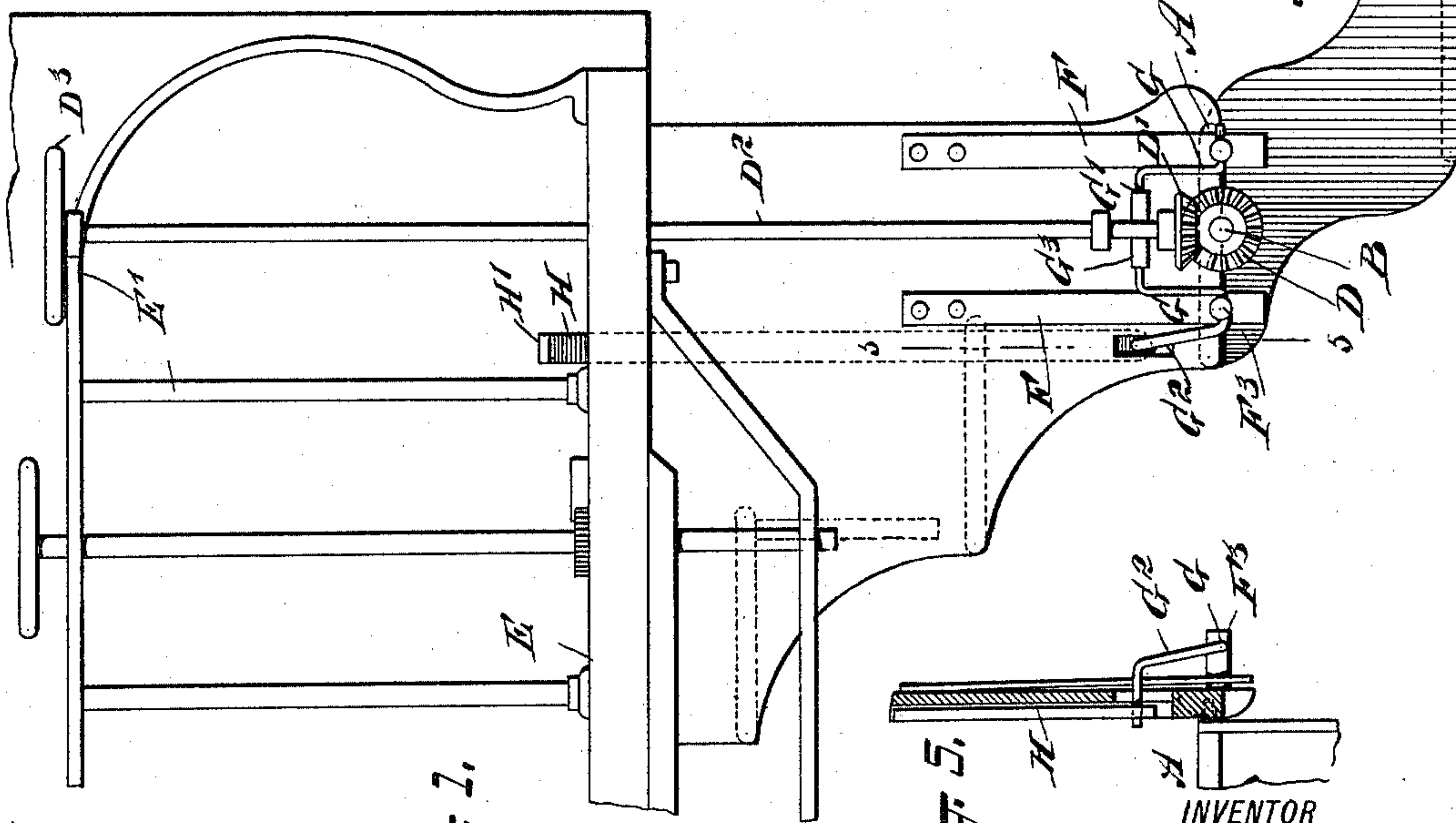
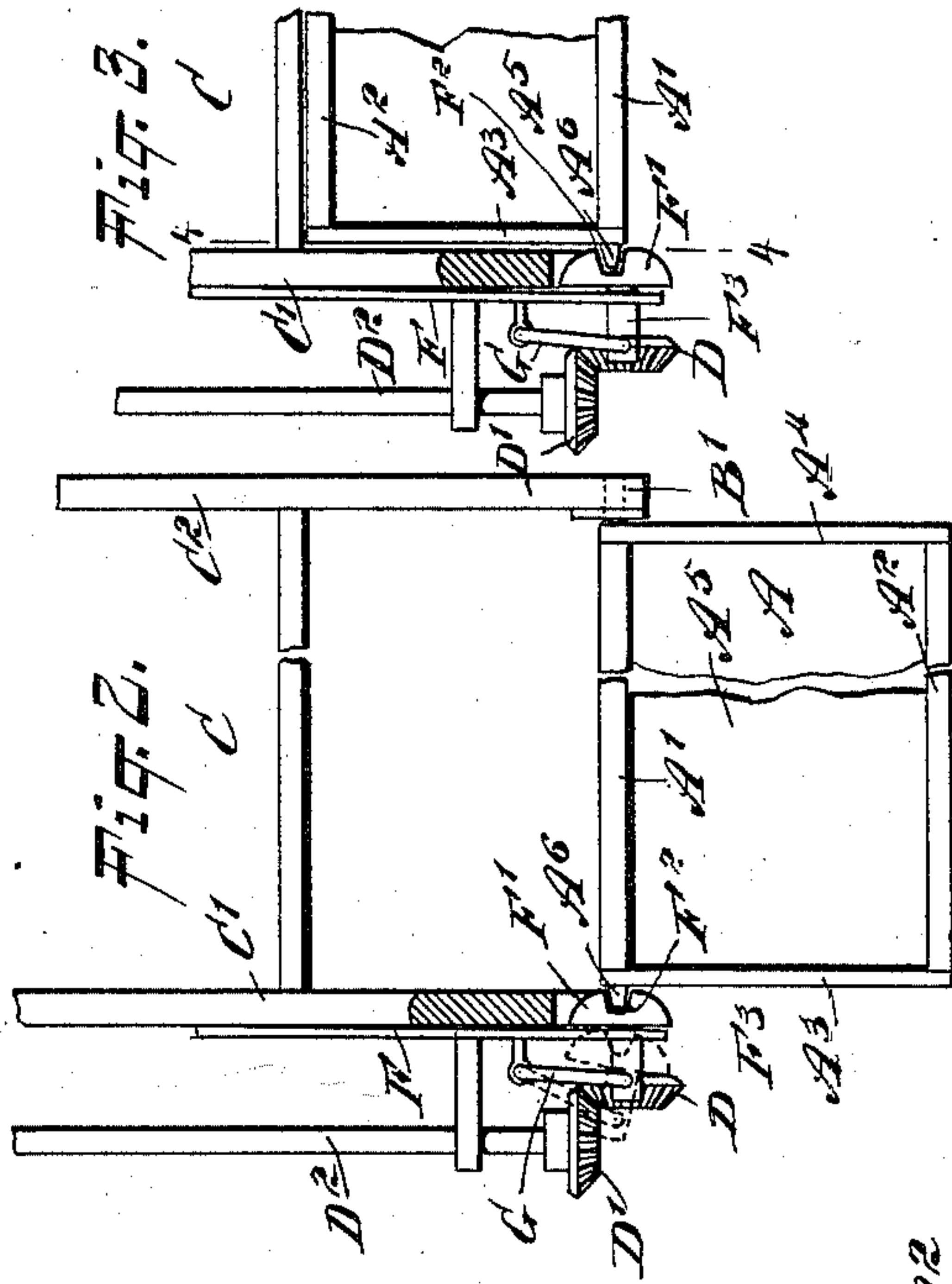
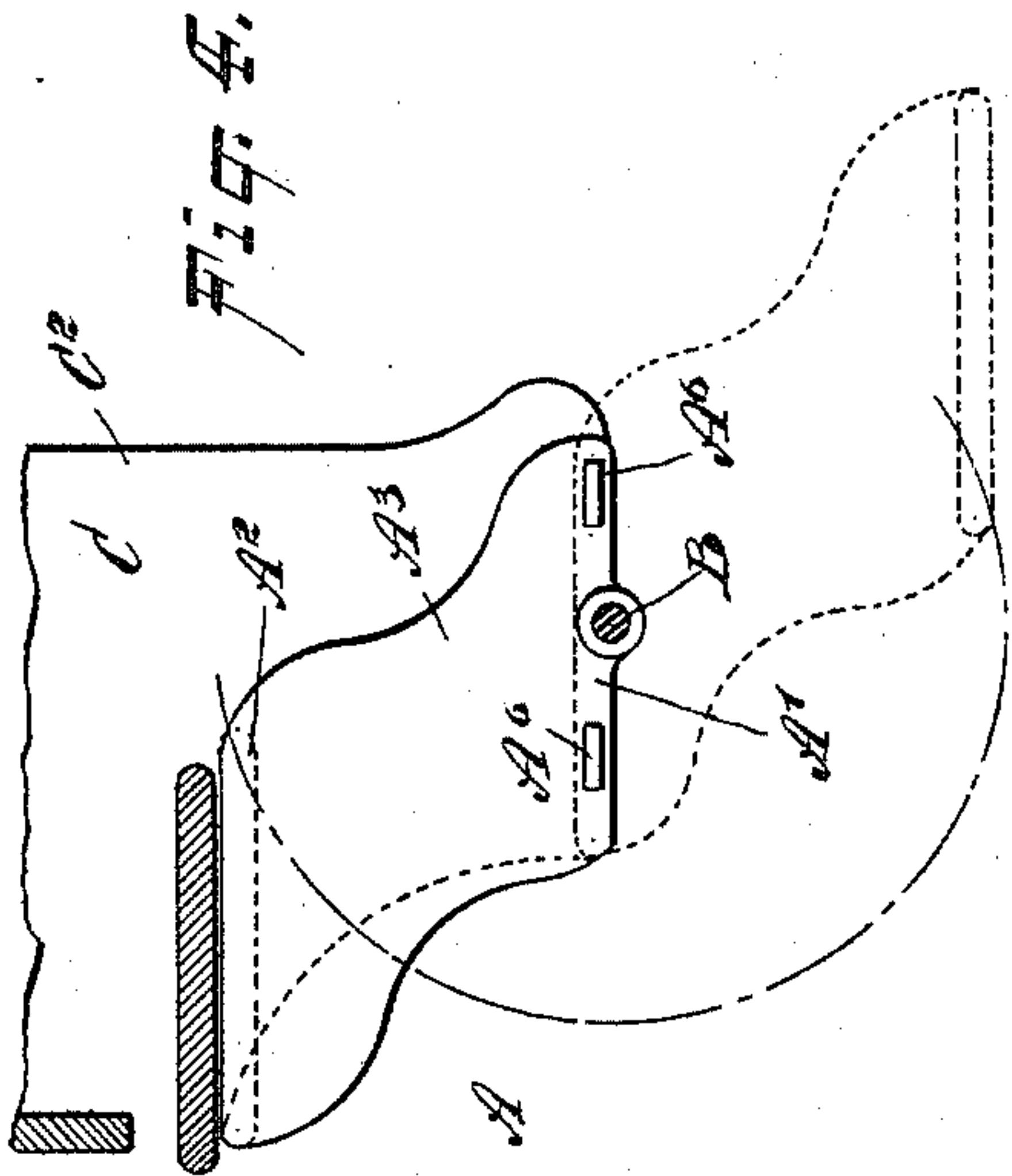


(No Model.)

J. A. CAMPBELL.
EXTENSION CAR STEP.

No. 586,012.

Patented July 6, 1897.



WITNESSES:

William P. Goebel
New York

Fig. 1.

Fig. 5.

INVENTOR
J. A. Campbell.

BY *[Signature]*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES A. CAMPBELL, OF LENOX, MASSACHUSETTS.

EXTENSION CAR-STEP.

SPECIFICATION forming part of Letters Patent No. 586,012, dated July 6, 1897.

Application filed January 11, 1897. Serial No. 618,775. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. CAMPBELL, of Lenox, in the county of Berkshire and State of Massachusetts, have invented a new and Improved Extension Car-Step, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved extension car-step which is simple and durable in construction, and arranged to permit of conveniently and quickly moving the extension-step into or out of an active position from the platform of the car whenever desired.

The invention consists principally of a pivoted step, a gearing for turning the step, and means for locking the step in either an extended or folded position.

The invention further consists of a step having two treads and pivots for the same, one of the treads being arranged for use on both sides.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an end elevation of the improvement. Fig. 2 is a side elevation of the same with parts in section and the step in an extended position. Fig. 3 is a similar view of the same with the step folded. Fig. 4 is a cross-section of the same on the line 4 4 of Fig. 3, and Fig. 5 is a sectional side elevation of part of the improvement on the line 5 5 of Fig. 1.

The extension-step A is provided with treads A' A², connected with each other by risers A³ and A⁴ and the back A⁵. The ends of the tread A' are provided at their middle with trunnions B and B', journaled in suitable bearings on the ends of the side beams C' and C² of the regular car-step C. The side beams C' and C² are extended to such an extent that the tread A' forms the last tread for the step C, and also forms a tread for the extension-step, as will be readily understood by reference to Figs. 2 and 3.

The trunnion B previously mentioned is provided on its outer end with a beveled

gear-wheel D in mesh with a beveled gear-wheel D', secured on the lower end of a shaft D², journaled in suitable bearings attached to the car-step C and to the railing E' for the car-platform E. The extreme upper end of the shaft D² is provided with a hand-wheel D³ under the control of the operator for turning the shaft D² to cause the gear-wheels D' and D to turn the trunnion B, and consequently the extension car-step A, so as to move the latter either into the extended position shown in Figs. 1 and 2 or in the folded-up position illustrated in full lines in Figs. 3 and 4.

In order to lock the extension-step in either of the two positions mentioned, I provide a locking device consisting of springs F, arranged on opposite sides of the shaft D² and secured to the outer side beams C' of the car-step C. The free ends of the springs F are provided with lugs F', each formed with a recess F², adapted to be engaged by a projection or lug A⁶, formed on the side beam A³ for the extension car-step A. The two lugs A⁶ for the two springs F are arranged at opposite sides of the trunnion B, as is plainly indicated in Fig. 4, and are adapted to engage the said springs whenever the step is in an extended or folded position, so as to lock the step in place.

It is understood that when one of the lugs A⁶ engages one of the springs when the step is in an extended position then the same lug engages the other spring when the step is in a folded position.

In order to move the springs F out of engagement with the lugs A⁶ for turning the step A from one position to another, I provide the following device: Each of the springs F is provided near its free end with an outwardly-extending post F³, engaged by a crank-arm G, held on a crank-shaft G', journaled in a suitable bearing G³, attached to the side beam C' of the car-step C. One of the crank-arms G is provided with an arm G², connected with the lower end of a rod H, fitted to slide vertically in suitable bearings attached to the side beam C'. The upper end of the rod H is provided with a foot-piece H', adapted to be pressed by the foot of the operator standing on the platform E. Normally the rod H is held in an uppermost position by the action

of the springs F, but when the operator applies his foot on the foot-piece H' and forces the rod H downward then the arm G² imparts an outward-swinging motion to the crank-arms G, so that the springs F are pushed outward and out of engagement with the lugs A⁶. The operator now upon turning the hand-wheel D³ in the proper direction can swing the extension car-step from a folded into an extended position or from the latter back into a folded position, as shown in Figs. 3 and 4.

It is evident that by the arrangement described the tread A' of the extension car-step is used on both sides, one side being used when the tread A' forms the last tread for the step C and also when it is used for forming next to the last tread for the step when the extension-step is extended.

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

1. The combination with two rigid side beams, of an extension-step pivotally mounted between and on the two, the extension-step having two treads and a riser connecting the treads, and the step being pivoted to the side beams at one of its treads, a gear-wheel in connection with the step, a rotary shaft carried by one of the side beams, and a gear fixed to the rotary shaft and meshing with the first-named gear, substantially as described.

2. The combination with two rigid side beams having stationary steps held between them, of an extension-step pivotally mounted between and on the side beams, the extension-step having two treads connected with each other by a diagonally-extending riser, and the extension-step being pivoted at a point adjacent to one of its treads, and means for turning the extension-step so that the tread of the extension-step which tread is removed from the pivot of the extension-step may be moved to lie directly beneath the lowermost stationary step or outward and downward from that tread of the extension-step which tread is adjacent to the pivot of the extension-step, substantially as described.

3. The combination with a rigid support, of an extension-step pivotally mounted thereon, the extension-step having a lug, two spring-pressed keepers carried by the support and capable of engaging the lug to hold

the extension-step in either of two positions, a rod sliding longitudinally on the support, and a crank-shaft having connection with the spring-pressed keepers and with the sliding rod so that upon the movement of the rod the keepers will be disengaged from the lug of the extension-step, substantially as described.

4. The combination with a rigid support, of a member pivoted thereon, two keepers capable of engaging the member and of holding the same in either of two positions, a rod slidably carried by the support, and a crank-shaft in connection with the rod and with the keepers whereby the keepers may be operated to release the said pivoted member, substantially as described.

5. The combination with a rigid support, of an extension-step pivoted thereon, gearing carried by the support whereby the step may be turned in its pivot, two keepers carried by the rigid support and respectively capable of holding the extension-step in either of two positions, a crank-arm mounted on the rigid support, and a sliding rod carried by the support and in connection with the crank-arm whereby the keepers may be released, substantially as described.

6. The combination of two rigid side boards with stationary steps held between them, one end of each side board being extended beyond the stationary steps, and an extension-step consisting in two treads connected by a riser, the extension-step being pivotally mounted between the side boards near the said ends of the side boards and being capable of swinging to lie directly against the adjacent stationary step or of extending outward therefrom.

7. The combination of two side boards, a stationary step rigidly secured between the side boards, one end of each side board being extended beyond said step, and an extension-step mounted between the said extended portions of the side boards and capable of swinging in its mountings so that the extension-step may lie directly against the stationary step or may extend outward from said step.

JAMES A. CAMPBELL.

Witnesses:

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CHESTER R. BOND.