

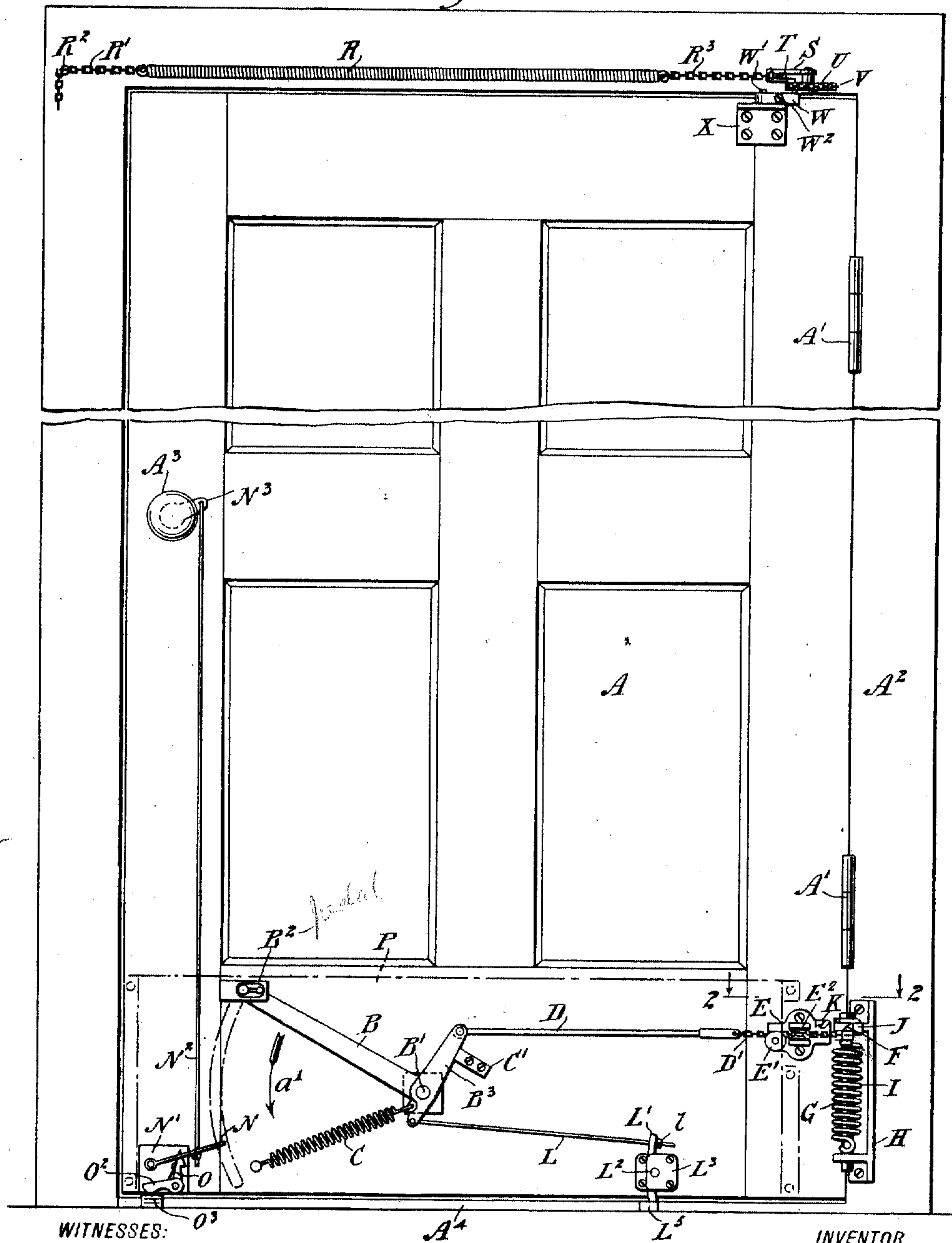
993,941.

C. ALTER.
DOOR OPERATING DEVICE.
APPLICATION FILED MAY 28, 1910.

Patented May 30, 1911.

5 SHEETS—SHEET 1.

Fig. 1.



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5 SHEETS--SHEET 2.

Fig. 3

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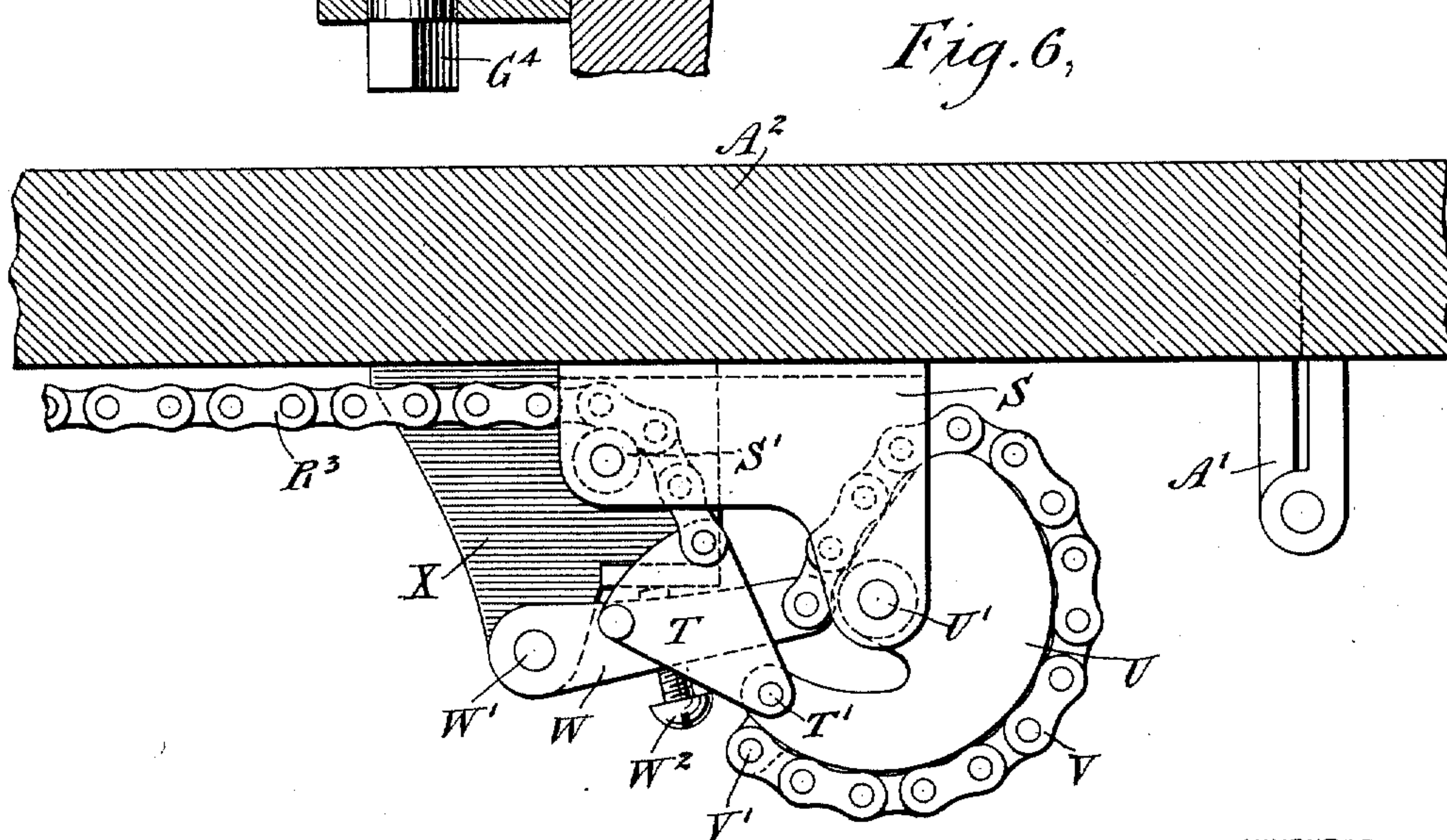
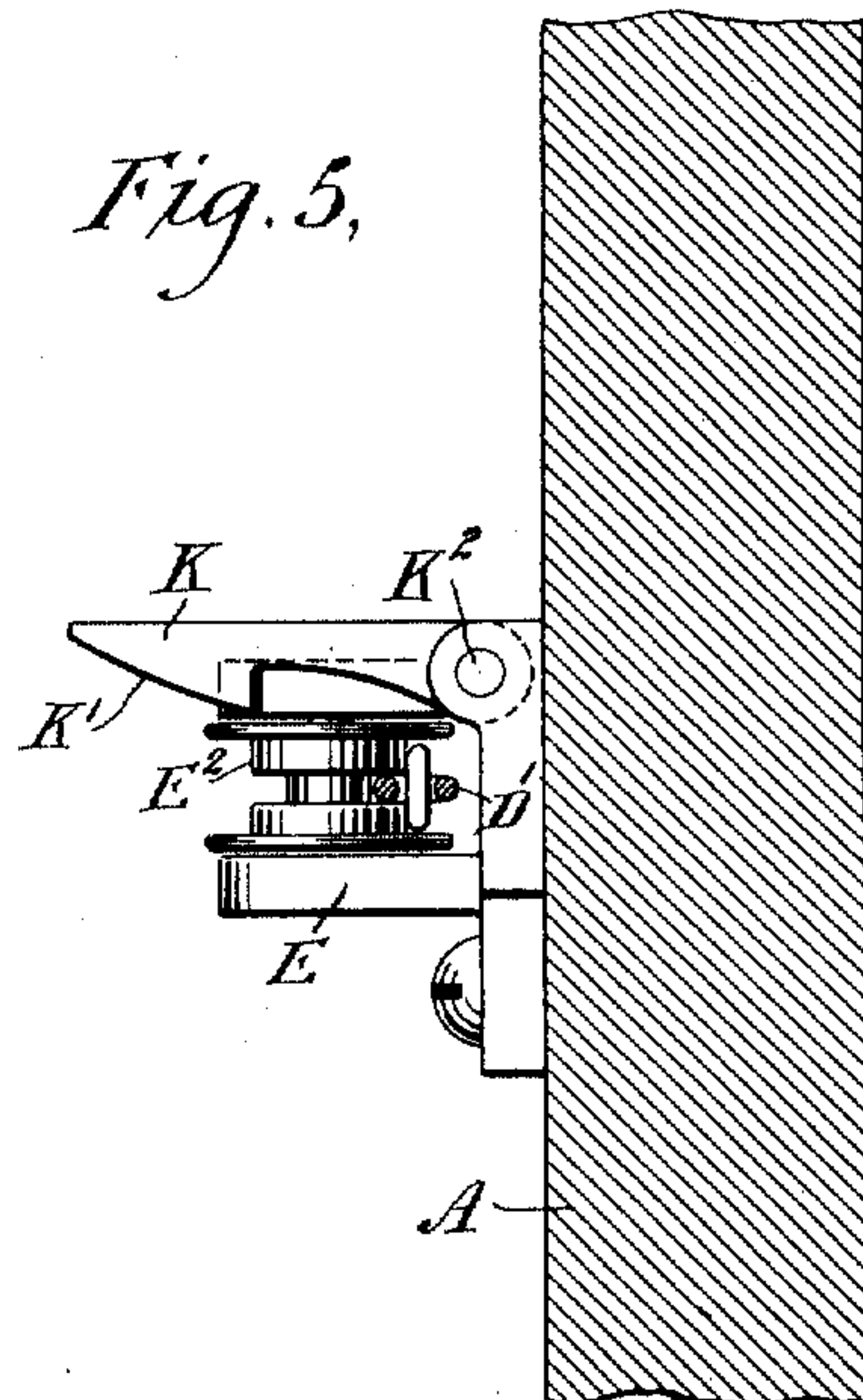
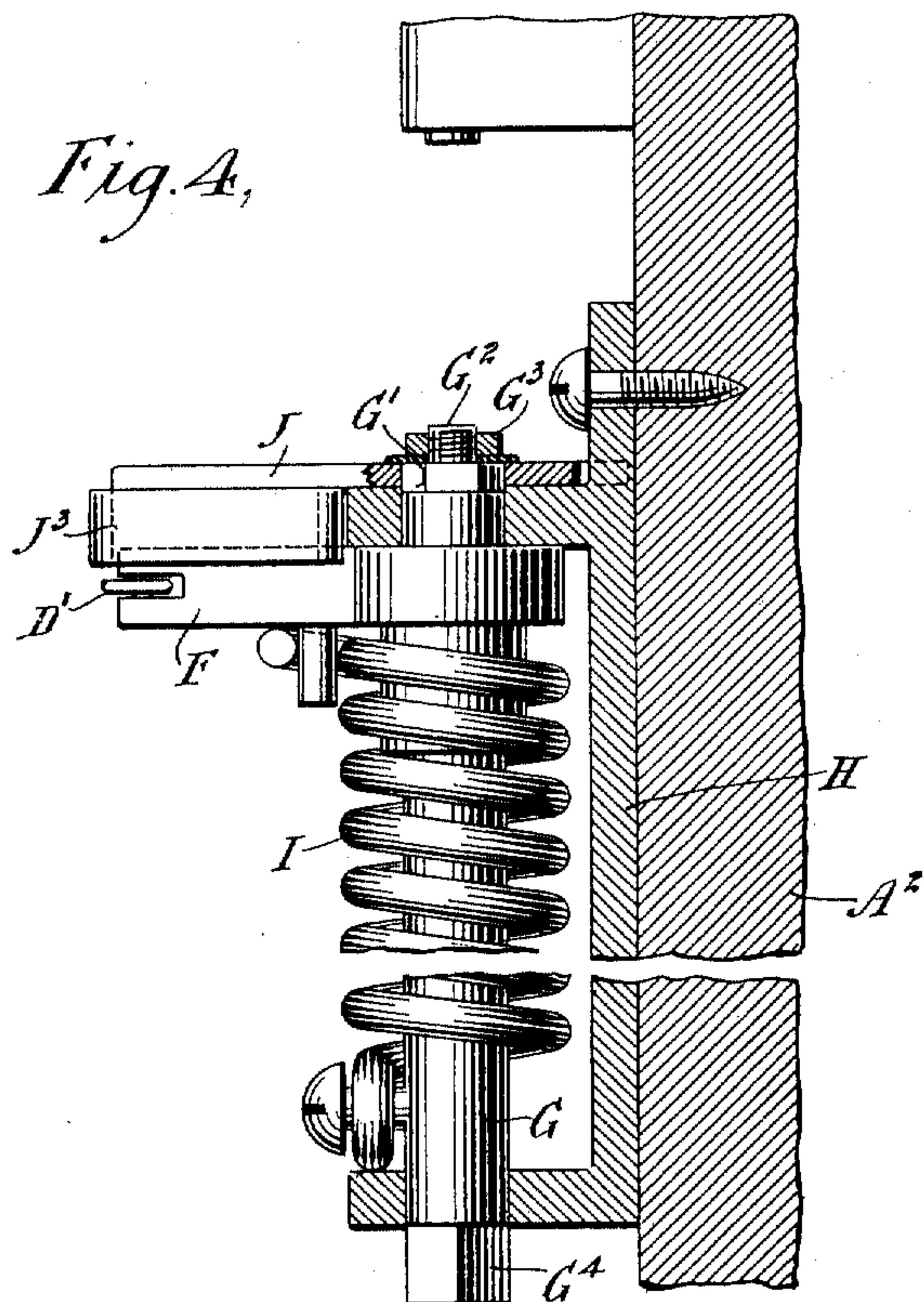
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6 SHEETS—SHEET 3.



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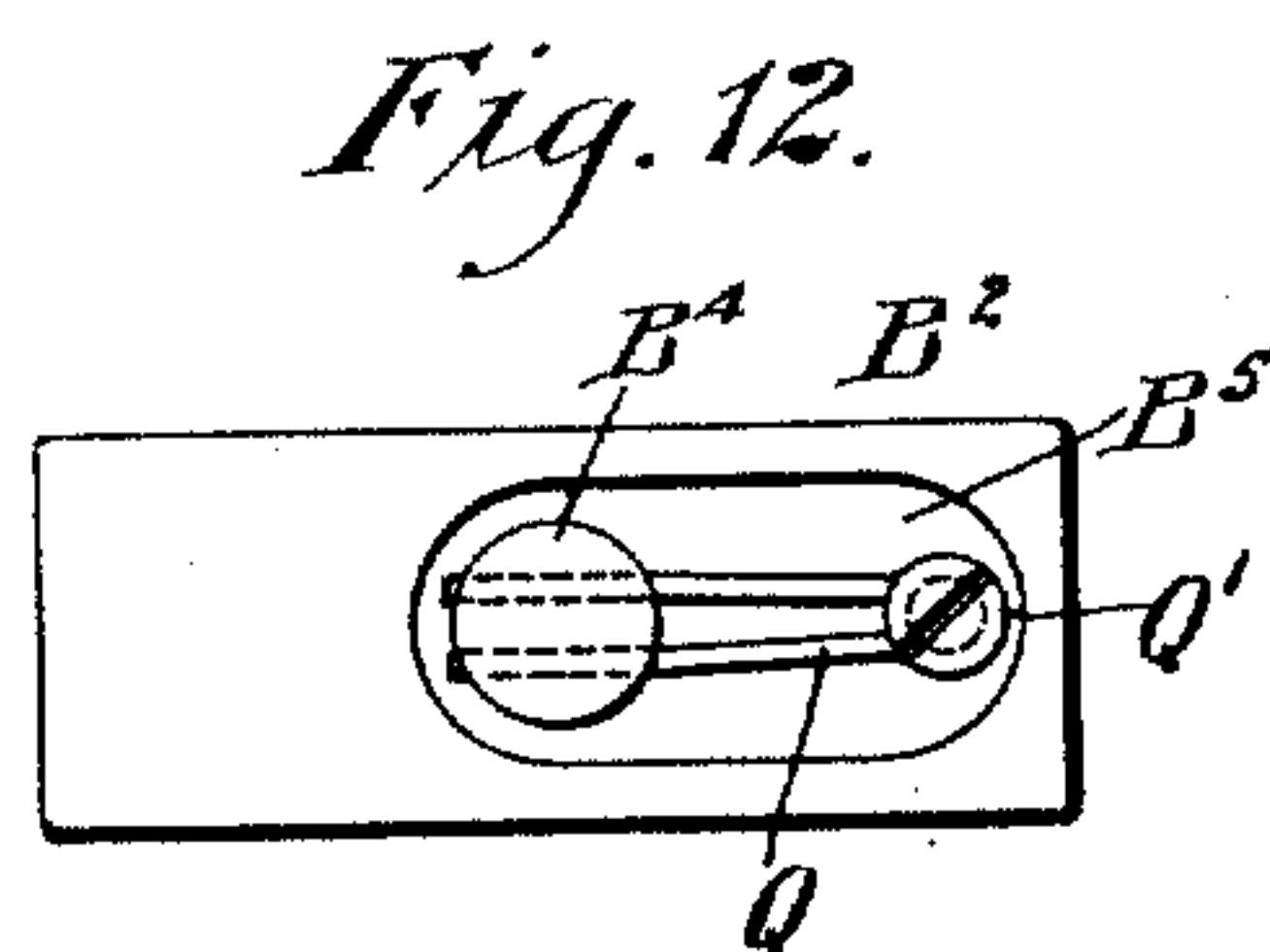
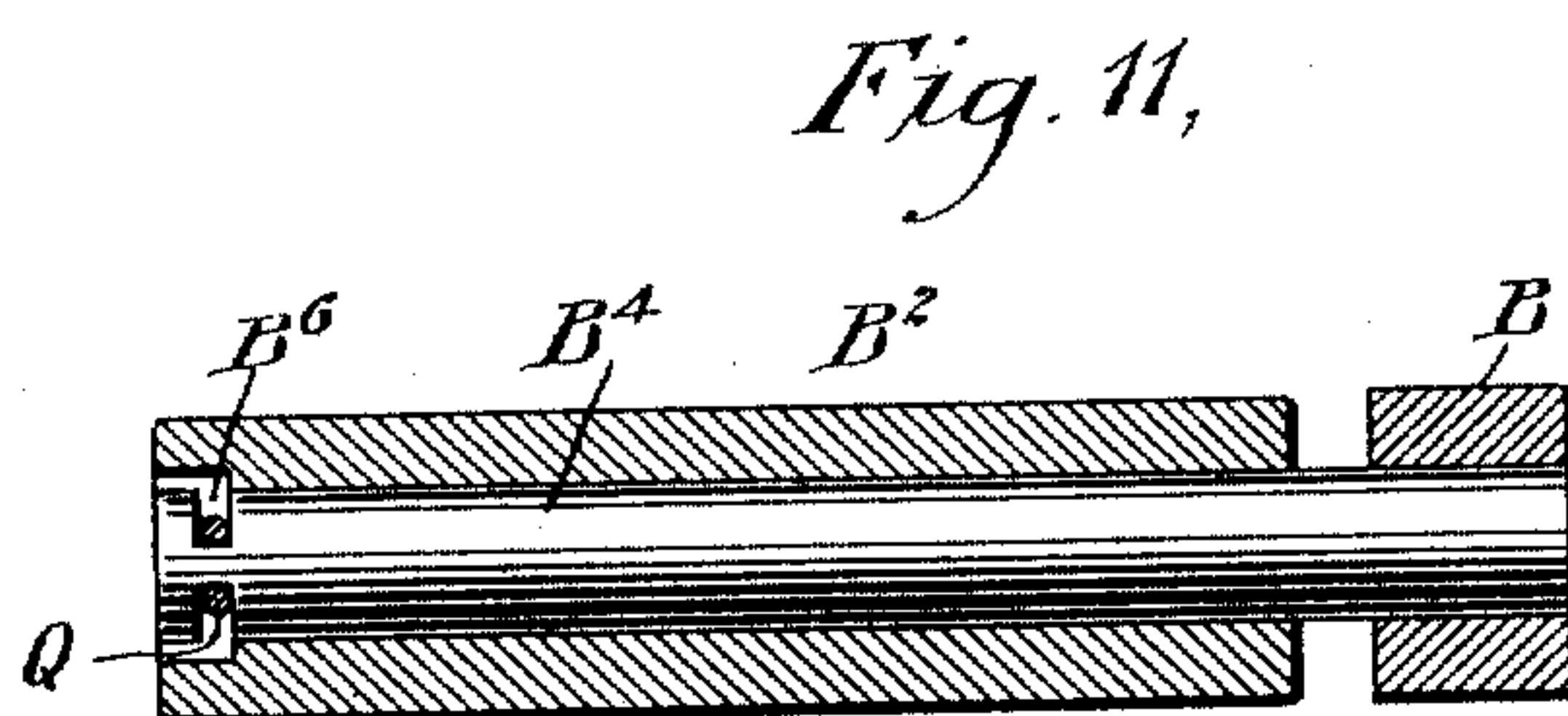
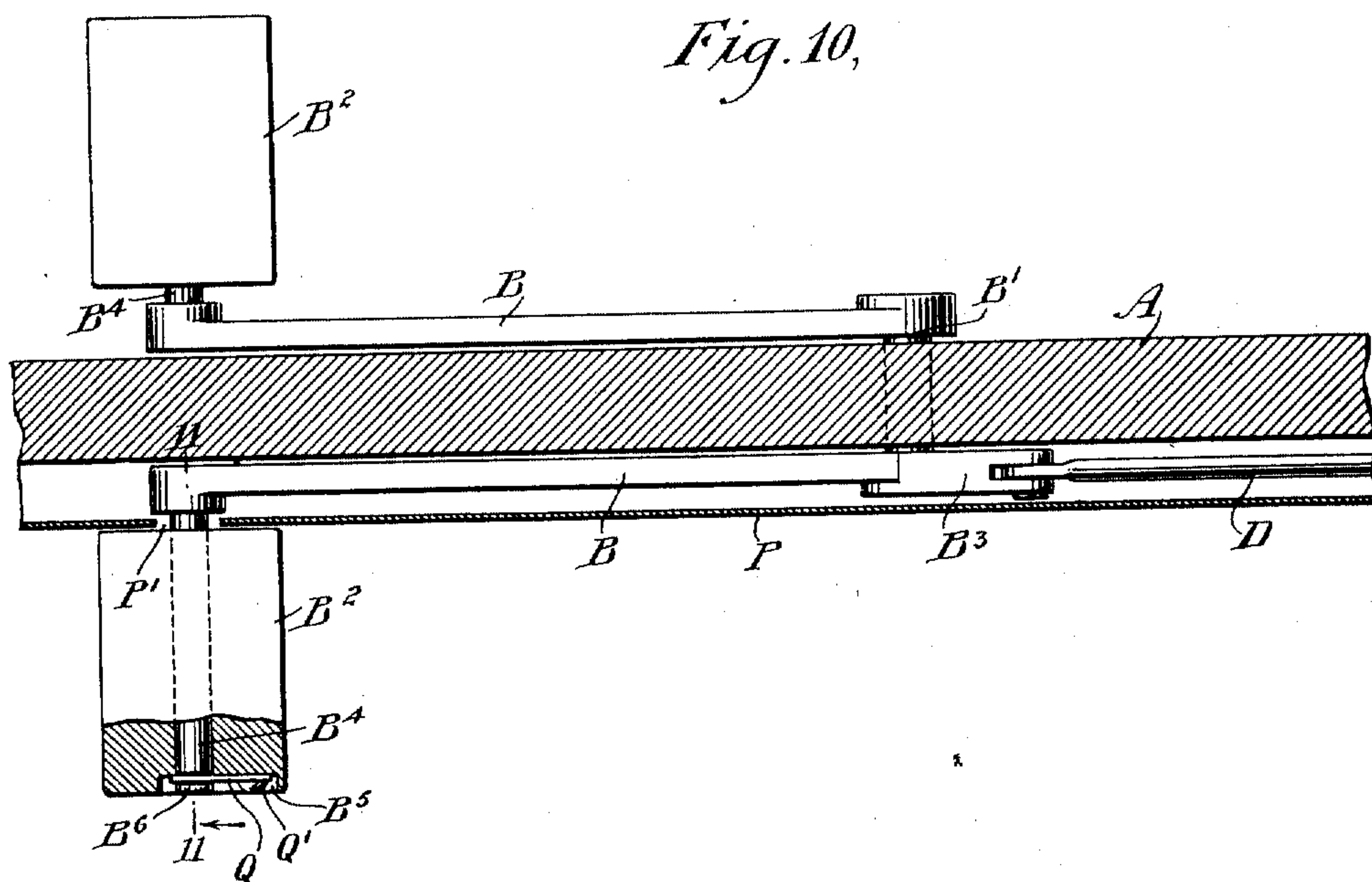
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

CHRISTIAN ALTER, OF NEW YORK, N. Y.

DOOR-OPERATING DEVICE.

993,941.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed May 28, 1910. Serial No. 563,862.

To all whom it may concern:

Be it known that I, CHRISTIAN ALTER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Door-Operating Device, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved door-operating device, more especially designed for use on doors of stores and other buildings, and arranged to permit a person carrying bundles, packages or the like, or being otherwise encumbered, to unlock or open the door by pressure of the foot and without the use of the hand, to hold the door in an open position for a sufficient length of time to allow the person to conveniently pass through the open doorway, and to insure self closing and locking of the door after the person has passed through the doorway.

For the purpose mentioned, use is made of a main spring adapted to be placed under tension by manually-controlled means arranged on the door, the latter being connected by connecting means with the said spring at the time the spring is under tension, to swing the door open by the force of the spring.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a door, provided with the door-operating device, the door being closed and in locked position, and the cover for the device being shown in dotted lines; Fig. 2 is an enlarged sectional plan view of the same on the line 2—2 of Fig. 1; Fig. 3 is a like view of the same, showing the door partly open and the retaining nut and washer for the releasing and stop arm removed; Fig. 4 is an enlarged cross section of the same on the line 4—4 of Fig. 2; Fig. 5 is a similar view of the same on the line 5—5 of Fig. 2; Fig. 6 is an enlarged plan view of the self-closing device for the door, the latter being in a closed position and the door casing being shown in section; Fig. 7 is a like view of the

same showing the parts in position when the door is partly open; Fig. 8 is an enlarged side elevation, partly in section, of the temporary locking device for the door, to hold the latter locked in closed position while placing the main spring under tension; Fig. 9 is an enlarged side elevation, partly in section, of the mechanism for operating the door lock; Fig. 10 is an enlarged plan view of the pedal mechanism as applied to the door, the latter, the cover and part of one pedal being shown in section; Fig. 11 is an enlarged cross section of one of the pedals, the section being on the line 11—11 of Fig. 10; and Fig. 12 is an end view of the same.

The door A, on which the door-operating device is shown applied, is connected by hinges A' with the door casing A², and the door lock, of the usual construction, serves to hold the door locked in a closed position.

A two-arm pedal mechanism B is mounted on the door in such a manner that it can be actuated by the pressure of the foot of a person, either from the inside or the outside of the door, as will be readily understood by reference to Fig. 10. The shaft B' of the double-arm pedal mechanism B extends transversely and is journaled in suitable bearings in the lower cross bar of the door A, and from the ends of the said shaft B' extend the two arms of the pedal mechanism B on opposite faces of the door, each arm carrying a pedal B², adapted to be engaged by the foot of the person desiring to open the door and to pass through the open doorway, either into or out of the building as the case may be. On the shaft B' of the double pedal mechanism B is secured an angular arm B³, pressed on at one end by a spring C, so as to normally hold the pedal mechanism B in an uppermost position, as plainly indicated in Fig. 1, the upward movement of the pedal mechanism B being limited by a stop C' attached to the door and engaged by the arm B³. When a pedal B² is pressed downward then the spring C is placed under tension, and when the pedal is released then the spring C returns the pedal mechanism to its normal uppermost position, as indicated in Fig. 1. The arm B³ is connected with one end of a rod D, connected at its other end with a chain D' pass-

ing over guide pulleys E' , E^2 , journaled on a bracket E attached to the door A near the hinge end thereof. The chain D' , after leaving the guide pulley E' extends to and is attached to an arm F mounted to turn loosely on a vertical spindle G , journaled in a bracket H secured to the door casing A^2 , adjacent the hinge end of the door A , as plainly indicated in Fig. 1. A torsion main spring I is coiled around the spindle G and is secured at one end to the said spindle and at the other end to the arm F , so that when the pedal mechanism B is pressed downward in the direction of the arrow a' then the rod D and chain D' exert a pull on the arm F , thus swinging the latter to the left in the direction of the arrow b' (see Fig. 2), whereby the arm F carries the upper end of the spring I along thus placing the spring I under tension.

The arm F normally rests on a releasing and stop arm J , rearwardly held on the bracket H and provided with a polygonal opening J' engaging a correspondingly-shaped offset G' on the main spring spindle G , to hold the latter against turning (see Figs. 2, 3 and 4). The arm J is provided at its inner end with a lug J^2 abutting against the side edge of the bracket H , and the outer end of the arm J is provided with a cushion J^3 for the free end of the spring arm F to rest on, and the top of the said outer end of the arm F is adapted to be engaged by the beveled head K' of a catch K , fulcrumed at K^2 on the bracket E . The catch K normally stands in a horizontal position at right angles to the face of the door and is in the path of the free end of the spring arm F , to hook onto the latter at the time the said spring arm F is swung from its position of rest on the cushion J^3 to the left by a pull of the chain D' caused by a person pressing the pedal mechanism B downward, as previously explained. Thus when the spring arm F is engaged with the catch K , the door A is connected with the main spring I , now under sufficient tension to pull the door into an open position. The upper end of the spindle G is provided with a reduced threaded portion G^2 , on which screws a nut G^3 for holding the arm J in position on the polygonal portion G' of the spindle G .

The arm B^3 of the pedal mechanism B is connected by a link L having a stop nut l with a lever L' fulcrumed at L^2 on a bracket L^3 attached to the door A near the lower end thereof, and the said lever L' is pressed on by a spring L^4 , and its lower end is adapted to engage a notched member L^5 attached to the door sill A^4 . The link L has a sliding connection with the lever L' , and when the pedal mechanism B is pressed in the direction of the arrow a' , then the link L slides in the lever L' now

held in engagement with the keeper L^5 by the action of the spring L^4 , so that the door A is held locked for the time being, but when the pedal mechanism B is released and returns to its uppermost position by the action of the spring C , then a pull is exerted on the lever L' by the link L , to swing the lever L' out of engagement with the notched member L^5 , thus unlocking the door and allowing the same to swing open by the action of the spring I , as previously explained.

The pedal mechanism B when pressed downward into a lowermost position is adapted to engage an arm N , pivoted at its end on a plate N' attached to the door A near the free lower corner thereof, as plainly indicated in Fig. 1, and the arm N is loosely engaged by the lower end of a link N^2 pivotally connected at its upper end with an arm N^3 , secured to or forming part of the spindle of the lock A^3 , so that when the pedal mechanism B is swung downward in the direction of the arrow a' then a like downward swinging motion is given to the arm N by the pedal arm, and consequently a downward pull is exerted on the link N^2 , which causes the arm N^3 to turn the spindle of the lock A^3 , thus withdrawing the lock bolt from the keeper in the door casing A^2 and hence unlocking the door. The arm N when swung downward is temporarily locked in a lowermost position by the action of a catch O , fulcrumed at O' on the plate N' and extending with its beveled head into a notch N^4 formed in the arm N , as plainly indicated in Fig. 9. An arm O^2 is fulcrumed at O' and is adapted to engage a cam O^3 attached to the door sill A^4 , and the said arm O^2 is pressed on by a spring O^4 , attached to the plate N' , and a spring O^5 attached to the catch O bears on the arm O^2 . Thus when the arm N is swung downward by the pedal mechanism, as previously mentioned, the spring-pressed catch O engages the arm N and locks the same in its lowermost position, as indicated in dotted lines in Fig. 9, and when the door is subsequently swung open then the arm O^2 glides down on the cam O^3 , and in doing so releases the catch O from the arm N , to allow the latter and the door lock spindle and bolt to return to normal position, so that when the door is subsequently closed the door lock bolt again snaps into engagement with the keeper in the casing A^2 .

The pedal mechanism B on one side of the door, as well as the link D , part of the chain D' , the locking mechanism for the door and the mechanism for operating the door lock are preferably inclosed in a cover P , secured to the face of the door A , as indicated in dotted lines in Fig. 1 and in full lines in Fig. 10, the cover having a slot P' for the projection of the pedal spindle B^4 , so that the pedal B^2 is outside of the cover

for engagement by the foot of a person. In practice, it is preferred to hold each pedal B^2 in a horizontal position on the spindle B^4 , and for this purpose use is made of a spring Q secured at Q' in a recess B^5 , formed in the outer end of the pedal B^2 , the free ends of the spring Q engaging notches B^6 formed near the ends of the spindle B^4 , as plainly indicated in Figs. 10, 11 and 12.

10 In order to close the door A after the person has passed through the doorway, use is made of the self-closing device shown more clearly in Figs. 1, 6 and 7, and arranged as follows: A spring R extends lengthwise on the top cross bar of the door casing A^2 , and is connected by a chain R' with a pin R^2 attached to the door casing, and to the other end of the spring R is secured a chain R^3 , which passes around a guide roller S' journaled in a bracket S attached to the door casing A^2 near the hinge end of the door A , as plainly indicated in the drawings. The chain R^3 is pivotally connected with an arm T , fulcrumed at T' on a cam U , having a shaft U' journaled in the bracket S . A chain V is secured at one end at V' to the peripheral face of the cam U adjacent to the fulcrum T' , and this chain V extends around the peripheral face of the cam U and connects with the free end of an arm W , fulcrumed at W' on a bracket X , attached to the door A . A screw W^2 screws the arm W against the bracket X , so as to permit the adjusting of the said arm W on the bracket X . Now when the door is closed, the several parts of the self-closing device are in the position indicated in Figs. 1 and 6, and when the door is opened by the action of the spring I , then the spring R is gradually placed under tension, as the chain V imparts a turning motion to the cam U during the opening of the door A (see Fig. 7), and in doing so the arm T is carried along by the cam U and exerts a pull on the chain R^3 . The spring R is considerably weaker than the spring I , and consequently the spring R is placed under tension during the opening movement of the door A , and when the door swings into full, open position the catch K is lifted by the arm J out of engagement with the arm F , and consequently the spring I returns to its normal position while the door A is disconnected from the spring. The tension of the spring R now exerts a pull on the arm T held against the fulcrum end of the cam U , so that the door is pulled into a closed position. The pull of the chain R on the arm T is easy at first, and when the cam U has turned sufficiently far around to disengage the arm T from the fulcrum end of the cam U , then a quick pull is exerted on the arm T , to draw the latter into the position shown in Fig. 6, whereby the leverage of the arm T is increased and consequently the door is quickly and firmly

shut. The arm T is preferably made triangular to connect the end of the chain R^3 with either free corner thereof, to increase the leverage more or less as desired, it being understood that the tension of the spring R may also be increased by correspondingly adjusting the chain R' on the pin R^2 .

The operation is as follows: When the several parts are in the position shown in Fig. 1, and a person on either side of the door A presses the corresponding pedal B^2 , then a downward swinging motion is given to the pedal, whereby the chain D' exerts a pull on the arm F , thus placing the spring I under tension and drawing the arm F in engagement with the catch K , to connect the door A with the spring I . At the same time that this takes place the lock A^3 of the door is unlocked, and the lock A^3 is held in an unlocked position by the catch O engaging the arm N , as previously mentioned, but the door is still held locked by the lever L' engaging the notched keeper L^5 . Now when a person removes the foot from the pedal B^2 , the pedal mechanism B swings back into its uppermost position by the action of the spring C , and in doing so the lever L' is moved out of engagement with the keeper L^5 , so that the door is completely unlocked, and the spring I now pulls the door A into an open position. It is understood that during the return movement of the pedal mechanism B , the person has sufficient time to move out of the way of the door, so that the latter can swing completely into open position, and the person can walk through the open doorway without being required to move a hand. When the door A swings into the open position, the keeper K comes in contact with the top of the arm J , and is thus lifted out of engagement with the arm F , to release the arm F and thus allow the spring I to return to normal position and with it the arm F to limit the turning movement of the spring by abutting against the cushion J^3 . During the time the door A is swung open, the spring R is placed under tension, as previously explained, and as soon as the door is disconnected from the spring I , the tension of the spring R exerts a pull on the actuating mechanism connected with the door, as previously explained, so that the door is moved into a closed position. When the door swings open, the arm O^2 travels down the cam O^3 , to disengage the catch O from the arm N , to allow the lock A^3 to assume its normal position. When the door moves into a closed position, the arm O^2 travels up the cam O^3 , and in doing so the catch O is moved back into the position shown in Fig. 9.

The tension of the spring I can be increased or diminished to suit the door A , and for this purpose it is necessary to turn the spindle G , the lower end of which is pro-

vided with a polygonal portion G^4 for the reception of a wrench or other suitable tool to permit turning the spindle G . In order to do this it is necessary first to remove the nut G^3 and the arm J , and after the spindle G has been turned, to give the desired tension to the spring I , then the arm J and the nut G^3 are returned so as to hold the spindle G against turning.

10 It is understood that by the construction shown and described, a person on either side of the door, by simply pressing a pedal B^2 downward and then releasing it, causes automatic unlocking of the door and swinging
15 the door open, so that the person can pass through the open doorway in or out of the building, as the case may be, and without requiring the use of a hand or the hands. Now it is evident that a person having bundles or being otherwise encumbered can readily open the door without the use of the hands used for carrying the bundles and the like at the time, it being understood that the door is held in open position for a sufficient
20 length of time to allow the person to conveniently pass through the open doorway, after which the door is closed by the self-closing mechanism and locked against accidental opening.

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

1. A door-operating device, comprising a main spring, manually-controlled means for
35 placing the spring under tension, and connecting means connecting the door with the spring at the time the main spring is under tension to swing the door open by the force of the spring.

40 2. A door-operating device, comprising a main spring, manually-controlled means for placing the spring under tension, connecting means connecting the door with the spring at the time the main spring is under tension to swing the door open by the force of
45 the spring, and releasing means for releasing the said connecting means to disconnect the latter from the main spring and allow the door to swing shut.

50 3. A door-operating device, comprising a main spring, manually-controlled means for placing the spring under tension, connecting means connecting the door with the spring at the time the main spring is under
55 tension to swing the door open by the force of the spring, releasing means for releasing the said connecting means to disconnect the latter from the main spring and allow the door to swing shut, and a spring-controlled closing device for the door, the spring of
60 the said closing device being placed under tension while the door is opened by the said main spring.

65 4. A door-operating device, comprising a main spring, manually-controlled means for

placing the spring under tension, connecting means connecting the door with the spring at the time the main spring is under tension to swing the door open by the force of the spring, and an unlocking device controlled by the said manually-controlled means for unlocking the door at the time the said manually-controlled means are actuated. 70

5. A door-operating device, comprising a main spring, manually-controlled means for
75 placing the spring under tension, connecting means connecting the door with the spring at the time the main spring is under tension to swing the door open by the force of the spring, and a door-locking device controlled by the said manually-controlled means to lock the door temporarily against opening until the said manually-controlled means have returned to starting position. 80 85

6. A door-operating device, comprising a main spring mounted on the door casing adjacent to the hinge side of the door, a pedal mechanism on the door and connected with the said main spring to place the latter under tension on pressing the pedal mechanism, and a catch on the door adapted to engage the said spring at the time the main spring is under tension to swing the door open by the force of the said main spring. 90 95

7. A door-operating device, comprising a main spring mounted on the door casing adjacent to the hinge side of the door, a pedal mechanism on the door and connected with the said main spring to place the latter under tension on pressing the pedal mechanism, a catch on the door adapted to engage the said spring at the time the main spring is under tension to swing the door open by the force of the said main spring, and a fixed releasing device for engagement by the said catch to disengage the latter from the spring at the time the door reaches an open position. 100 105

8. A door-operating device, comprising a main spring mounted on the door casing adjacent to the hinge side of the door, a pedal mechanism on the door and connected with the said main spring to place the latter under tension on pressing the pedal mechanism, a catch on the door adapted to engage the said spring at the time the main spring is under tension to swing the door open by the force of the said main spring, and a spring-pressed door-closing device having
110 a spring weaker than the said main spring and placed under tension while the door is swung open by the said main spring. 115 120

9. A door-operating device, comprising a main spring mounted on the door casing adjacent to the hinge side of the door, a pedal mechanism on the door and connected with the said main spring to place the latter under tension on pressing the pedal mechanism, a catch on the door adapted to engage
125 130

the said spring at the time the main spring is under tension to swing the door open by the force of the said main spring, and a spring-pressed door-closing device having a
 5 spring weaker than the said main spring and placed under tension while the door is swung open by the said main spring, the said door-closing device having graduating means for varying the tension of the said
 10 weaker spring.

10. A door-operating device, comprising a main spring mounted on the door casing adjacent to the hinge side of the door, a pedal mechanism on the door and connected
 15 with the said main spring to place the latter under tension on pressing the pedal mechanism, a catch on the door adapted to engage the said spring at the time the main spring is under tension to swing the door
 20 open by the force of the said main spring, a keeper fixed adjacent to the door, and a lever on the door adapted to engage the said keeper, the said lever being connected with the said pedal mechanism.

25 11. A door-operating device, comprising a main spring mounted on the door casing adjacent to the hinge side of the door, a pedal mechanism on the door and connected with the said main spring to place the lat-
 30 ter under tension on pressing the pedal mechanism, a catch on the door adapted to engage the said spring at the time the main spring is under tension to swing the door open by the force of the said main spring,
 35 and an unlocking device on the door and controlled by the said pedal mechanism, the said unlocking device being connected with the door lock.

40 12. A door-operating device, comprising a pedal lever fulcrumed on the door and provided with pedals on opposite sides of the door, a torsion main spring mounted on the door casing adjacent to the hinge side of
 45 the door, one end of the said main spring being fixed, an arm on the free end of the said main spring, a flexible connection between the said pedal lever and the said spring arm to place the main spring under
 50 tension on pressing the pedal lever, and a catch on the door and adapted to engage the said spring arm to connect the door with the main spring at the time the latter is under tension.

55 13. A door-operating device, comprising a pedal lever fulcrumed on the door and provided with pedals on opposite sides of the door, a torsion main spring mounted on the door casing adjacent to the hinge side
 60 of the door, one end of the said main spring being fixed, an arm on the free end of the said main spring, a flexible connection between the said pedal lever and the said spring arm to place the main spring under
 65 tension on pressing the pedal lever, a catch on the door and adapted to engage the said

spring arm to connect the door with the main spring at the time the latter is under tension, and a releasing arm fixed on the door casing and adapted to be engaged by
 70 the said catch to throw the latter out of engagement with the spring arm at the time the door is open.

14. A door-operating device, comprising a pedal lever fulcrumed on the door and provided with pedals on opposite sides of
 75 the door, a torsion main spring mounted on the door casing adjacent to the hinge side of the door, one end of the said main spring being fixed, an arm on the free end of the said main spring, a flexible connec-
 80 tion between the said pedal lever and the said spring arm to place the main spring under tension on pressing the pedal lever, a catch on the door and adapted to engage the said spring arm to connect the door
 85 with the said main spring at the time the latter is under tension, and a releasing arm fixed on the door casing and adapted to be engaged by the said catch to throw the latter out of engagement with the spring arm
 90 at the time the door is open, the said releasing arm having a cushion for the said spring arm to rest against to limit the return movement of the spring arm.

95 15. A door-operating device, comprising a pedal lever fulcrumed on the door and provided with pedals on opposite sides of the door, a torsion main spring mounted on the door casing adjacent to the hinge side
 100 of the door, one end of the said main spring being fixed, an arm on the free end of the said main spring, a flexible connection between the said pedal lever and the said spring arm to place the main spring under
 105 tension on pressing the pedal lever, a catch on the door and adapted to engage the said spring arm to connect the door with the main spring at the time the latter is under tension, and a spring for the said pedal lever
 110 to return the latter to normal raised position.

16. A door-operating device, comprising a pedal lever fulcrumed on the door and provided with pedals on opposite sides of
 115 the door, a torsion main spring mounted on the door casing adjacent to the hinge side of the door, one end of the said main spring being fixed, an arm on the free end of the said main spring, a flexible connection between the said pedal lever and the said
 120 spring arm to place the main spring under tension on pressing the pedal lever, a catch on the door and adapted to engage the said spring arm to connect the door with the main spring at the time the latter is under
 125 tension, a spring for the said pedal lever to return the latter to normal raised position, a notched keeper fixed on the door sill, and a temporary locking lever mounted on the door and connected with the said pedal lever
 130

to throw the said locking lever temporarily into engagement with the said notched keeper when pressing the pedal lever.

17. A door-operating device, comprising
5 a pedal lever fulcrumed on the door and provided with pedals on opposite sides of the door, a torsion main spring mounted on the door casing adjacent to the hinge side of the door, one end of the said main spring
10 being fixed, an arm on the free end of the said main spring, a flexible connection between the said pedal lever and the said spring arm to place the main spring under tension on pressing the pedal lever, a catch
15 on the door and adapted to engage the said spring arm to connect the door with the main spring at the time the latter is under tension, a spring for the said pedal lever to return the latter to normal raised position,
20 an arm fulcrumed on the door and adapted to be pressed by the said pedal lever at the time the latter nears its lowermost position, an arm on the door lock spindle, and a link connecting the said arms with each other.

18. A door-operating device, comprising
25 a pedal lever fulcrumed on the door and provided with pedals on opposite sides of the door, a torsion main spring mounted on the door casing adjacent to the hinged side of the door, one end of the said main spring be-
30 ing fixed, an arm on the free end of the said main spring, a flexible connection between the said pedal lever and the said spring arm to place the main spring under tension on passing the pedal lever, a catch on the door
35 and adapted to engage the said spring arm to connect the door with the main spring at the time the latter is under tension, a spring for the said pedal lever to return the latter
40 to normal raised position, an arm fulcrumed on the door and adapted to be pressed by the said pedal lever at the time the latter nears the lowermost position, an arm on the door lock spindle, a link connecting the said arms
45 with each other, a spring-pressed catch on the door for engaging the said door arm, and a cam face fixed on the door sill for holding the said spring-pressed catch in active position until the door is opened.

19. A door-operating device provided
50 with a spring-pressed pedal lever mounted on the door, an arm on the door lock spindle, an arm fulcrumed on the door and adapted to be engaged by the said pedal lever to rock the same, a link connecting the said arms
55 with each other, and means for locking the fulcrumed arm when swung downwardly by the pedal lever.

20. A door-operating device, provided
60 with a spring-pressed pedal lever mounted on the door, an arm on the door lock spindle, an arm fulcrumed on the door and adapted to be engaged by the said pedal lever, a link connecting the said arms with each other,
65 a spring-pressed catch on the door for en-

gagement with the said door arm, and a cam face fixed on the door sill and adapted to be engaged by the said spring-pressed catch to hold the latter in position for engagement
70 with the said door arm.

21. A door-operating device, provided
75 with a pedal mechanism on the door, a main spring on the door casing and adapted to be placed under tension by the said pedal mechanism, a connecting device connecting the door with the said main spring at the
80 time the latter is under tension, a releasing device for the said connecting device, and a self-closing device for the door having a spring weaker than the said main spring and connected at one end to the door casing, and
85 adjustable arm mounted on the door adjacent to the hinge end thereof, a cam mounted to turn on the door casing, a chain passing around the said cam and attached at one end to the cam and at the other to the said
90 adjustable arm, a compensating lever mounted to swing on the said cam, and a flexible connection between the said compensating lever and the said weak spring.

22. A door-operating device, provided
95 with a spring attached at one end to the door casing, a chain connected with the other end of the said spring, a bracket on the door casing adjacent to the hinge end of the door, a pulley on the bracket for the said chain,
100 a cam mounted to turn on the said bracket, a compensating lever fulcrumed on the said cam and connected with the other end of the said spring, an adjustable arm on the door, and a flexible connection attached at one end to the said adjustable arm passing around the said cam and secured thereto at the other end.

23. A door-operating device, provided
105 with a bracket on the door casing adjacent to the hinge end of the door, a spindle mounted to turn in the said bracket, a torsion spring coiled around the said spindle and secured at one end to the said spindle,
110 an arm mounted to turn loosely on the said spindle and connected with the end of the said spring, a releasing and stop arm engaging the said bracket and having a polygonal opening engaging a polygonal
115 portion of the said spindle to hold the latter against turning, the said releasing and stop arm forming a stop for the said spring arm, a pedal lever on the door, and a flexible connection between the said pedal lever and
120 the said spring arm.

24. A door-operating device provided with
125 a bracket on the door casing adjacent to the hinge end of the door, a spindle mounted to turn in the said bracket, a torsion spring coiled around the said spindle and secured at one end to the said spindle, an arm mounted to turn loosely on the said spindle and connected with the other end of the said
130 spring, a releasing and stop arm engaging

the said bracket and having a polygonal opening engaging a polygonal portion of the said spindle to hold the latter against turning, the said releasing and stop arm forming a stop
 5 for the said spring arm, a pedal lever on the door, a bracket on the door having guide pulleys, a flexible connection passing over the said guide pulleys and connecting the said pedal lever with the said spring arm, and a catch
 10 fulcrumed on the said door bracket and adapted to engage the said spring arm to

connect the door with the spring, the said catch being adapted to engage the said releasing and stop arm to disengage the catch from the spring arm.

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In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN ALTER.

Witnesses:

JACOB SCHNELLBACH,
 FREDERICK CRAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
