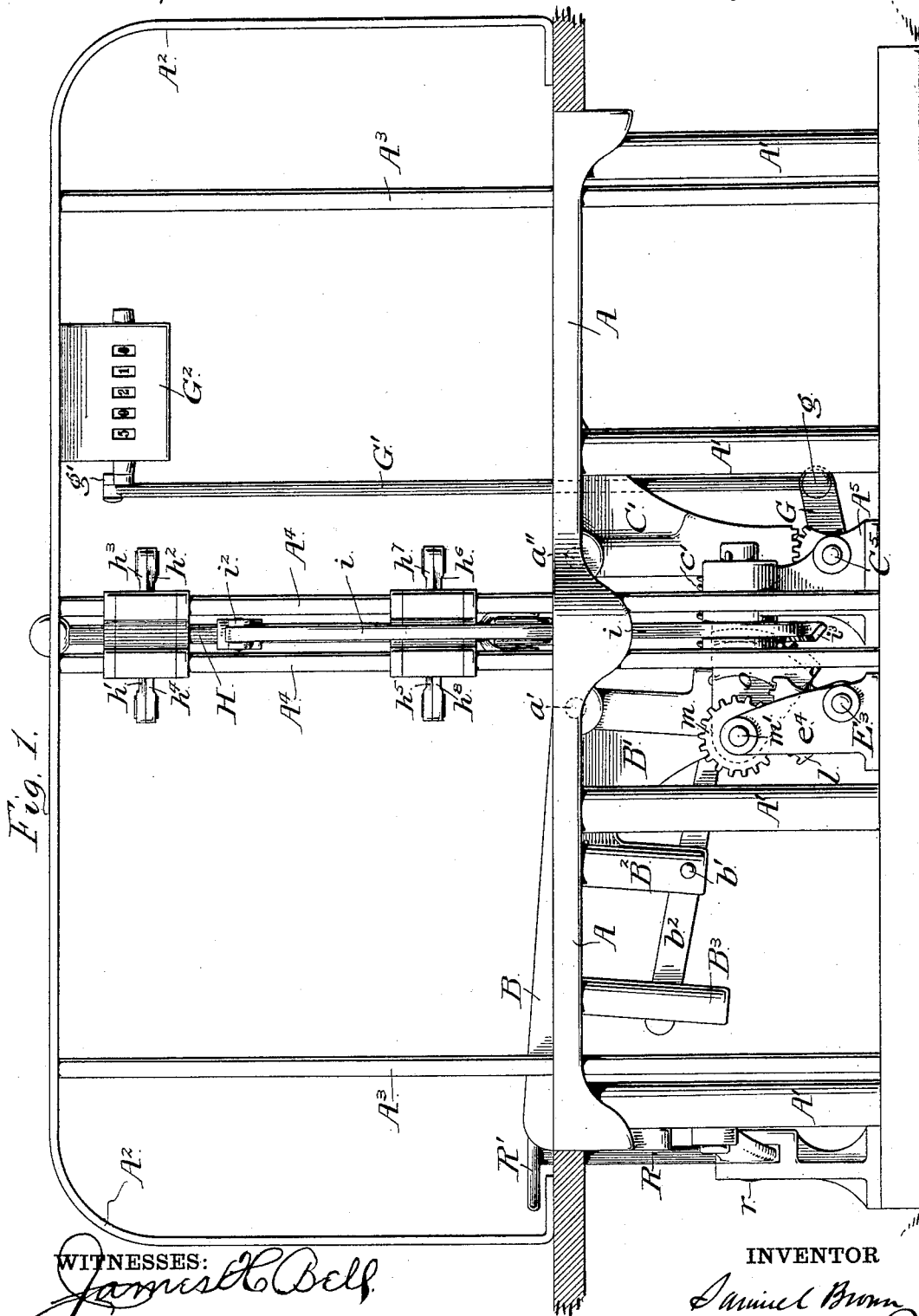


S. BROWN.

GATE AND REGISTERING MECHANISM.

No. 522,191.

Patented July 3, 1894.



WITNESSES:

WITNESSES:
James H. Bell.
Henry M. Paul Jr.

INVENTOR

Daniel Brown
By Hollingsworth & Pacey
his attorneys

(No Model.)

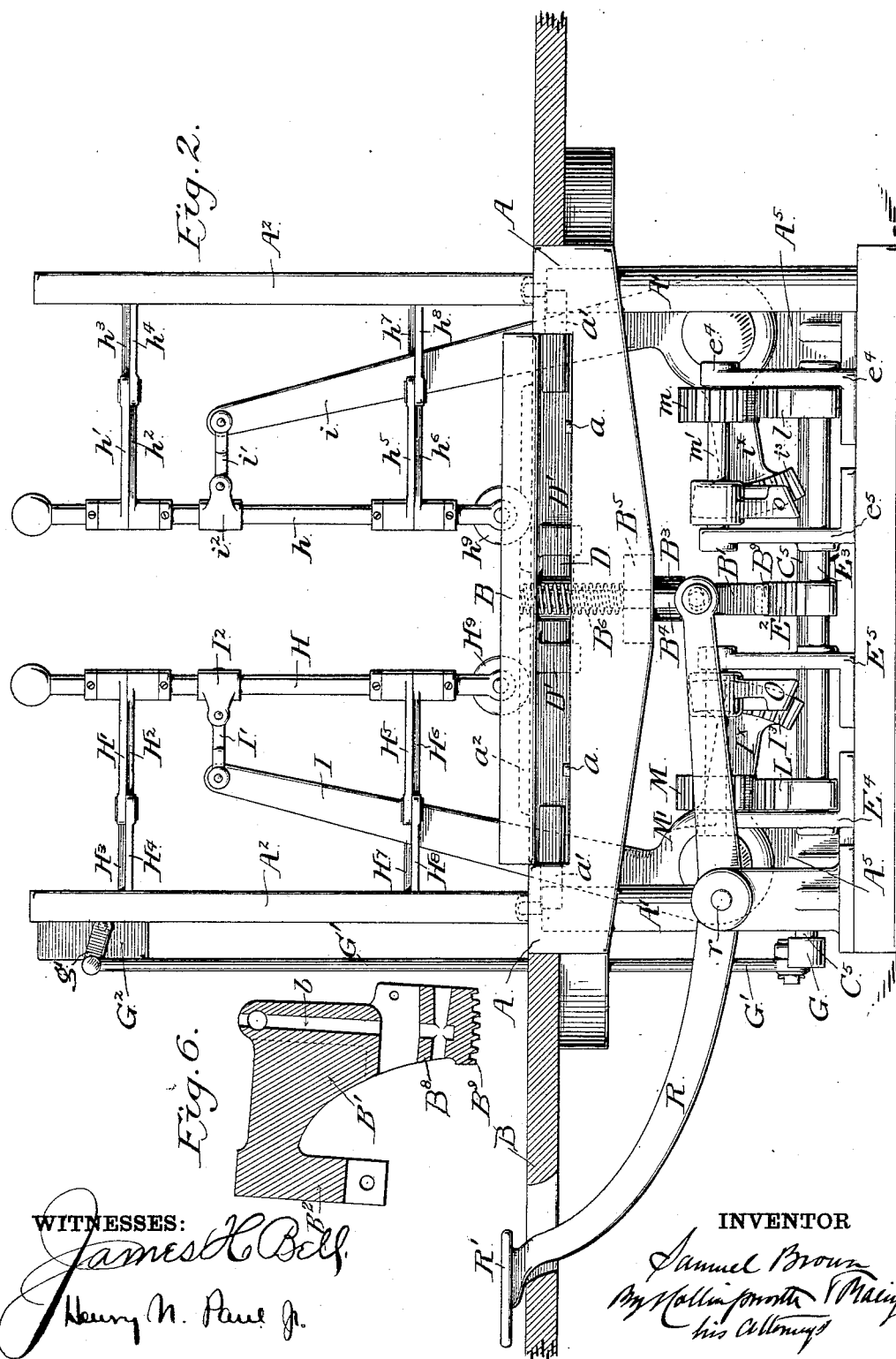
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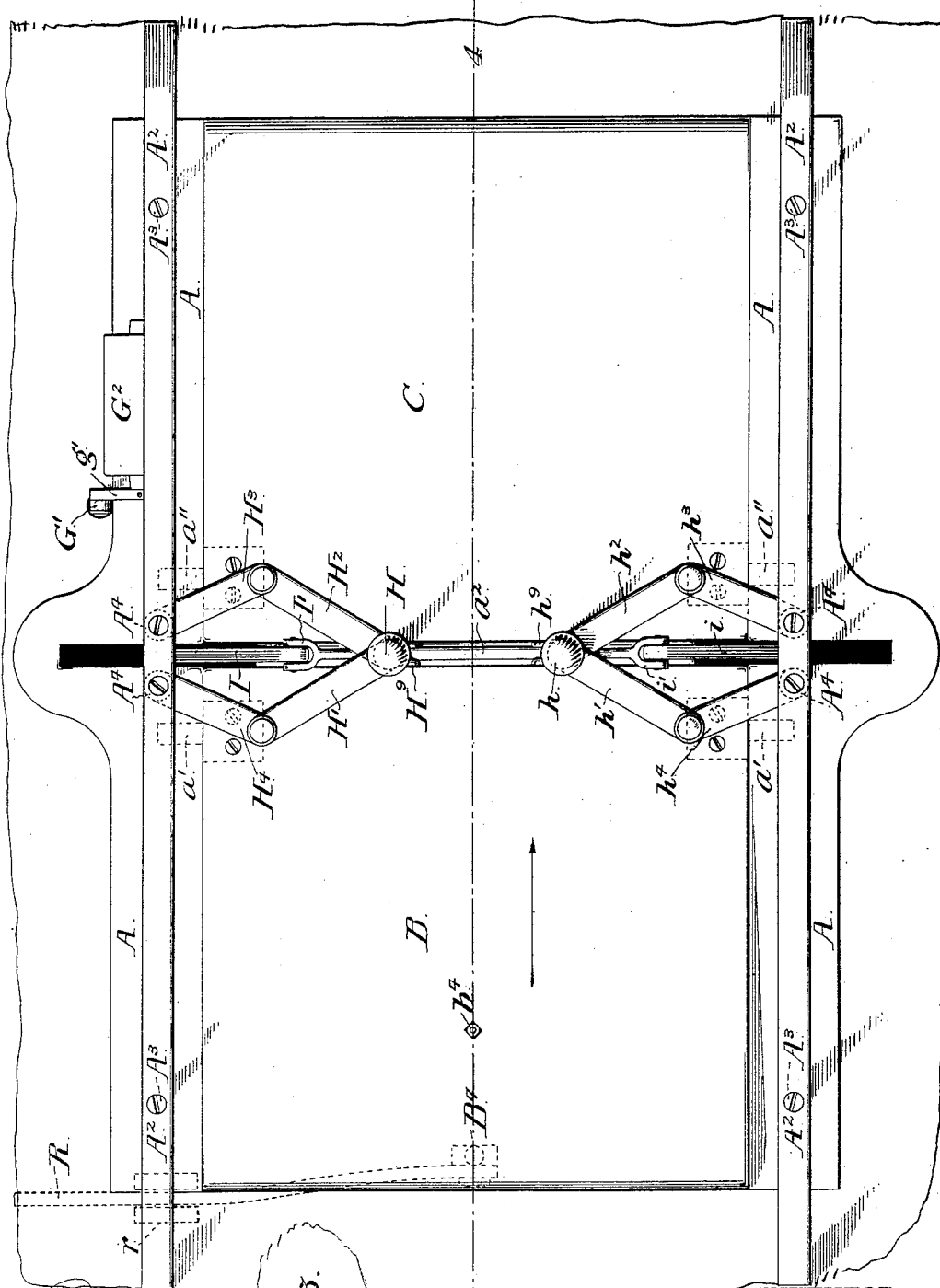
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Henry N. Paul Jr.

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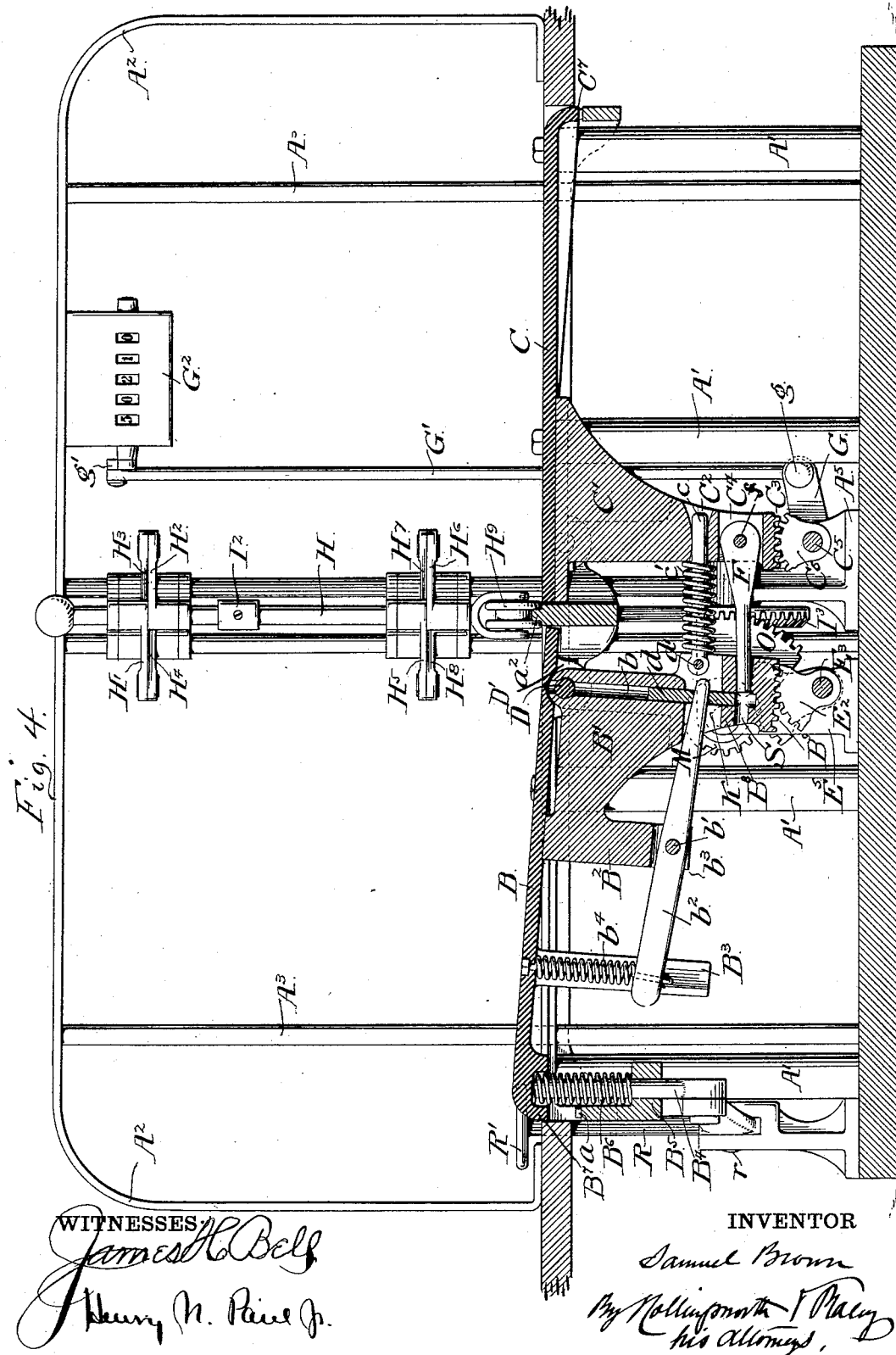
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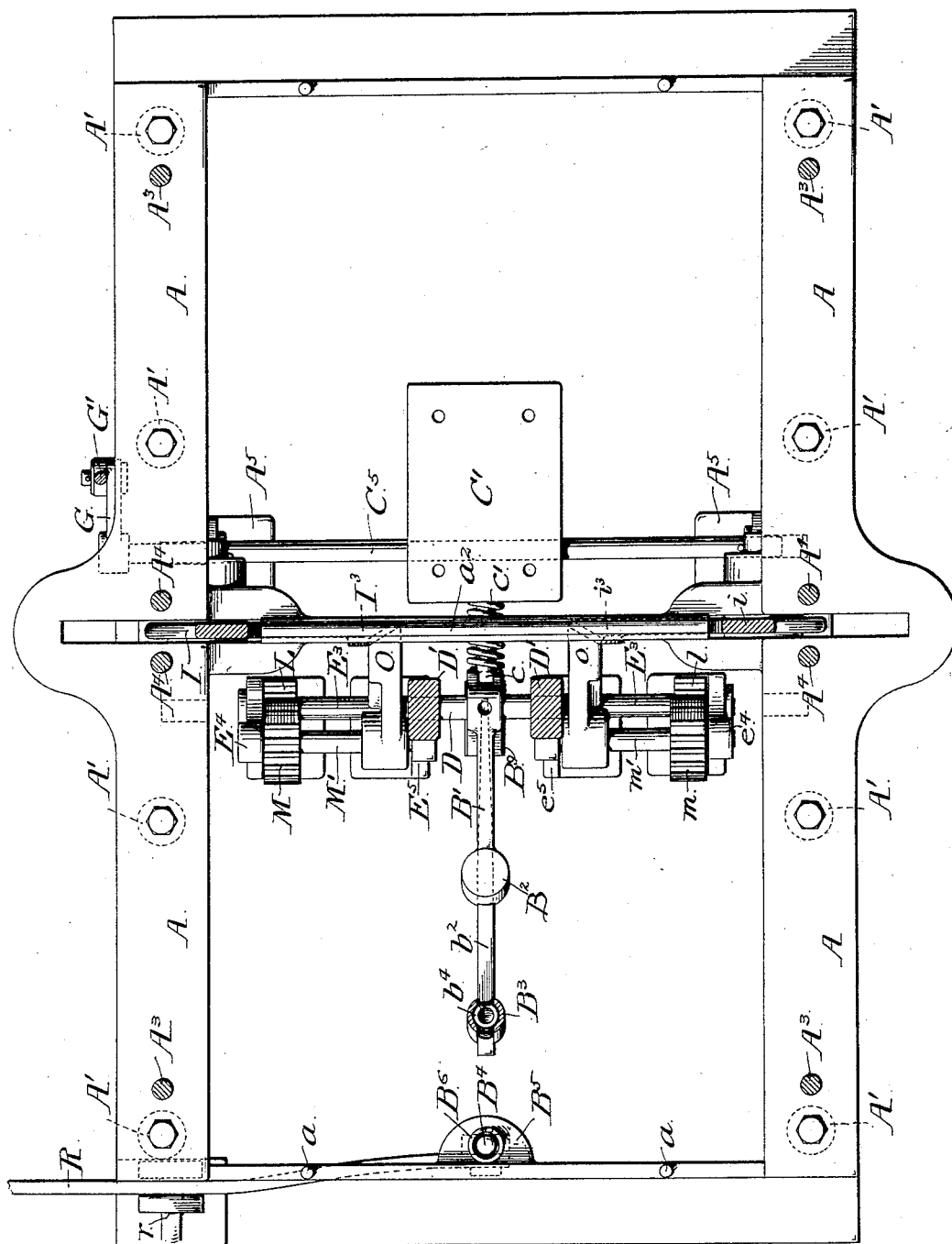


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UNITED STATES PATENT OFFICE.

SAMUEL BROWN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO STEPHEN C. ROGERS, OF SAME PLACE, AND CHARLES W. HAVEMEYER, OF NEW YORK, N. Y.

GATE AND REGISTERING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 522,191, dated July 3, 1894.

Application filed August 7, 1891. Serial No. 401,984. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL BROWN, of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Automatic Gate and Registering Apparatus, whereof the following is a specification, reference being had to the accompanying drawings.

In said drawings, Figure 1 represents a side view of an apparatus embodying a preferred form of my invention. Fig. 2 is an end view thereof, as seen from the left hand end of Fig. 1. Fig. 3 is a top or plan view thereof. Fig. 4 is a central longitudinal section on a vertical plane, on line 4—4 of Fig. 3. Fig. 5 is a top or plan view of the apparatus, with the platforms and gate removed parts being in section, so as to show the details of the actuating mechanism. Fig. 6 represents a detail view, in vertical section, of the bracket and adjacent parts indicated in the other figures by the letters B', B⁹, &c.

My invention belongs to that class of devices which embody a passage way provided with movable platforms, a gate controlling the passage and adapted to be opened by one of said platforms and closed by the other thereof, and a registering device combined therewith, the necessary movements of the platforms being obtained from the weight of a person traversing said passage way.

Among the objects of my invention are to so control the gate closing mechanism as to suspend its operation under certain conditions, without however effecting the action of the registering device; and, further, to so combine the gate opening mechanism with its actuating platform as to permit, under certain circumstances, the movement of the platform without action upon the gate.

Minor features of improvement relate to strength and facility of operation of the actuating devices and gate.

Referring to the drawings, A represents a rectangular frame supported upon posts A', and inclosed on either side by a railing A², suitably mounted by means of rods A³, to form a laterally inclosed passage way of sufficient width to readily admit one person at a time. Within said frame are two platforms B and C the latter shown in Figs. 3 and 4, respectively, each of which is independently

pivoted at a point near the longitudinal center of the frame.

The platform B, constitutes the floor of the entrance portion of the passage, and hence will be hereinafter referred to as the entrance platform. The platform C constitutes the floor of the exit portion of the passage, and hence will be hereinafter referred to as the exit platform. The entrance platform is intended to have a somewhat greater range of motion than the exit platform, but each of them is provided with an outwardly curved flange B⁷, C⁷ respectively at its outer end, which flange by contact with the projecting portions a, a, respectively, of the frame, limits the downward range of motion positively.

Intermediate between the proximate ends of the platforms B and C is the gate, adapted to be actuated thereby in a manner which will be hereinafter described, said gate, in the present instance, being a two-part structure whose respective portions are alternately protruded into and withdrawn from the passage. As the two parts which constitute the gate are precisely similar in construction, only one of them will be described, it being understood that in the case of the other a small letter of reference corresponding to the large one mentioned represents the corresponding part.

Referring to Fig. 2, the part at the left-hand side will now be described in detail. A vertical rod H, is provided at its bifurcated lower end with a grooved roller H⁹, adapted to run upon the transverse guide pieces a², of the framing intermediate between the proximate ends of the platform. Near the top and the bottom of this rod two pairs of double toggle arms are pivotally secured thereto, the other ends of said arms being journaled upon supporting rods A⁴, of the railing A². The members of the upper pair of double toggle arms are indicated by H¹, H², H³ and H⁴, and the corresponding members of the lower pair of double toggle arms are indicated by H⁵, H⁶, H⁷, and H⁸. Said arms secure a parallel movement of the rod H, as it is shifted inward or outward in the passage, and also form therewith a barrier which closes that part of the passage which is intermediate between the said railing and the rod in any position of

the latter. Preferably, the rod H, when in its most extended position, does not come in contact with the corresponding rod h, upon the other side, a narrow opening being left
 5 between, too small to permit the passage of a person, but sufficient to prevent the accidental squeezing of a person or entanglement of clothing, &c., should the gate be closed upon him before he has quite passed by. The
 10 shifting movement of the rods H and h, is produced by means of bell-crank levers, whose upwardly projecting long arms I, i, respectively, are connected by means of links I', i', to the pieces I², i², secured upon the rods
 15 H and h, respectively, these several parts being best illustrated in Fig. 2. Obviously the throwing of the long arms of the bell-cranks I, i, inward or outward, will close or open the two-part gate, and the manner in which these
 20 movements of the levers are obtained will now be described.

The entrance platform B, is pivoted to the frame A by means of lateral pins a', a', (see dotted lines of Fig. 3,) which have their bearings
 25 in the downwardly depending sides of the frame A. Beneath the platform B, and pivoted thereto upon a rod D, which is supported in the lugs D', D', cast on the under side of the platform is a bracket-shaped piece
 30 B', which I term the shifting-piece. Said shifting-piece is thus capable of movement independently of the platform B, but can be moved bodily therewith when the platform descends. As shown in Fig. 6, the lower end
 35 B⁸ of the shifting-piece B', is provided with a slightly curved rack B⁹, which engages with a gear-segment E², rigidly mounted upon a horizontal rock-shaft E³, mounted in the vertical standards E⁴, E⁵, e⁴, e⁵. Referring more
 40 particularly to Figs. 2 and 5 said shaft is provided near each end with segment-gears L, l, which engage respectively with the pinions M, m, mounted upon shafts M', m', whose bearings are respectively in the upper portions
 45 of the standards E⁴, E⁵, and e⁴, e⁵. Near the inner ends of the shafts M', m', are mounted segmental bevel-gears O, o, respectively, which engage with correspondingly beveled segmental racks I³, i³, respectively,
 50 formed upon the faces of the lower arms I^x, i^x, of the bell-cranks, whose upper arms I, i, respectively actuate the two-part gate.

Oscillation of the shaft E³, in one direction or the other will, through the train of gearing which has just been described, throw the
 55 lever arms I, i, inward or outward, thus positively closing or opening the gate. This oscillation of the shaft E³, is effected by the movement of the shifting-piece B', upon the
 60 pivot D, which in turn is effected by devices which will now be described.

The outer or free end of the shifting-piece B', is provided with a downwardly depending piece B², the lower end of which is slotted,
 65 as indicated at b³, to receive a lever b², mounted upon a pivot b'. The outer end of said lever moves between guide pieces B³, which depend

from the lower side of the platform B, and is connected with the platform by means of a stout spring b⁴, whose upper end is attached
 70 to the platform. The other end of said lever b², enters a slot K, which extends entirely through the lower portion B⁸, of the shifting-piece B', and said end of the lever b² there
 75 engages with a bolt d, which slides vertically in a vertical socket b, formed within the inner edge of the shifting-piece B'. Said bolt is long enough to project downward entirely
 80 across the slot K, and also to extend, when in its lowermost position, entirely across a second slot S, which runs in a substantially horizontal direction through the lower part B⁸, of the shifting-piece and a short distance above the rack B⁹. When in the position shown in
 85 Fig. 2, said bolt is clear of the slot S, but when protruded into its lowest position said bolt intercepts the slot S, and is firmly supported in its protruded position by means of the downwardly prolonged end portion of the
 90 socket b, which, as will be seen from Fig. 4, extends below the point where the slot S is formed.

The exit platform C, is pivoted to the frame A, by means of the lateral pins a'', a'', and is provided with a bracket-shaped piece C',
 95 rigidly attached to said platform. Near the lower end of said bracket C', is a vertical slot C⁴, within which a rod F, is mounted upon a pivot f. The end of said rod F extends across
 100 into the slot S, which, as before stated, is formed in the lower end B⁸ of the shifting-piece B'. Immediately above said slot C⁴ in piece C', a second slot C², is formed horizontally through the bracket C', which slot C² receives the free end of a rod c, pivoted to the
 105 shifting piece B', at d'. A stout spring c', coiled around the rod c, bears against the proximate faces of the shifting-piece B' and the bracket C', and tends to thrust them away from each other.

The extreme lower end of the bracket C', is provided with a rack C³, which engages with a segmental gear C⁶, rigidly mounted
 110 upon a rock-shaft C⁵. Said rock-shaft has its bearings in standards A⁵, mounted upon the base of the frame, and it carries at one end a rigidly attached lever-arm G, which is connected by the vertical connecting rod G', with the actuating lever g', of an ordinary registering
 115 device G², which may be of any of the well known types of apparatus used for registration of passengers, &c.

The outer end of the entrance platform B, rests upon a stout spring B⁶, whose lower end is supported upon a bracket B⁵, suspended
 125 from the frame A, said spring normally tending to throw the platform into its raised position. Within said spring B⁶, is a rod B⁴, pivoted to one end of the long lever R, which has a fulcrum at r, in one side of the frame,
 130 the other end of said lever extending out some distance at one side of the platform and terminating in a foot-piece or treadle R'.

The operation of the device is as follows:

In the normal position of the mechanism (see Fig. 4) the platform B is upheld by the spring B⁶, and the platform C is down, the spring c' being so proportioned as to lift the platform C, when the shifting-piece B' is depressed, provided platform C is unoccupied. This position of the platform corresponds with such a position of the train of gearing as that the upper arms I, i, of the bell-cranks are in their innermost position, as indicated in said Fig. 4, and the two-part gate is therefore closed, except as to the small space which, as before stated, is left between the rods H and h. If now a person enters the passage way and steps upon the platform B, it will descend and in so doing will rotate the shifting-piece B' downward. This motion of the shifting-piece will, by means of the rack B⁹, actuate the segment E², and rock the shaft E³, so as to actuate the pinions M and m. This movement of the pinions will rotate the bevel segments O and o, upwardly and will thus raise the lower lever arms I^x, i^x, of the two bell-cranks, throwing their upper ends outward and retracting the two parts of the gate so as to open the passage way. As the shifting-piece B' descends with the platform B, the lever b², will not change its position relatively to either thereof, and the bolt d will consequently remain stationary. If, however, the person now steps from the platform B, said platform will immediately rise by reason of the pressure of the spring B⁶, but the shifting-piece B' will remain down, since it is entirely independent of the platform. Consequently the raising of the platform will not actuate the gate shifting mechanism so as to close the gate, but, as the shifting-piece B' remains down while the platform rises, the outer end of the lever b² will be raised by reason of the forcing down of its inner end while the fulcrum b' remains stationary, and the inner end of said lever (which is connected with the bolt d) will be thrown down, carrying with it the bolt and throwing it entirely across the slot S, so as to obstruct the opening thereof. If the person in stepping off from the platform B, passes through the gate and steps on to the platform C, his weight will cause it to descend, and to thrust the rod F toward the bolt d. The end of the rod F has then almost immediately come into contact with the bolt, and as its motion continues it will come against the bolt d and will thrust the end B⁸ of the shifting piece B' away from the bracket C'. This movement will of course throw the rack B⁹ in the opposite direction to that in which it has been previously moved and will actuate the train of gearing so as to throw the inner ends of the bell-crank levers I and i inwards, thus closing the gate behind the person. Upon the completion of the movement the shifting-piece B' will have been turned upon its pivot D, so as to again bring its outer end into contact with the under side of the platform B, and thus resume its original position; at the same time the lever b² will

be again shifted back into its original position as shown in Fig. 4 and will withdraw the bolt d, so as to clear the slot S. It will thus be observed that the slot S will be clear whenever the outer end of the shifting-piece B' is in contact with the platform B, whether both of them be in the raised or depressed position, but that whenever they separate, the lever b² will shift the bolt d so as to obstruct the slot. If therefore a second person steps upon the platform B, before the first person has left the platform C, the descent of the platform B and shifting-piece B' will not cause the bolt d to strike the rod F, but the rod F can play freely back and forth in the slot S. In such case the gate will of course remain open. The depression of the platform C, will also actuate (by means of the rack C³ and gear C⁴) the rod G' of the registering apparatus, and will register the passage of one person through the gate. As this registering movement is not dependent upon the gate-shifting mechanism, the registration will occur even though a continuous stream of persons pass through in such quick succession that the gate is not permitted to close.

The purpose of the lever R is to prevent the descent of the entrance platform B, in case for any reason the attendant desires to keep the gate closed. This operation is effected by depressing the outer end of the lever R, as for instance, by means of pressure upon the foot-piece R' as shown in Fig. 2. The rod B⁴ will then be thrust up against the under side of the platform B, and will hold it positively in a raised position, so that the gate actuating mechanism cannot be operated.

Having thus described my invention, I claim—

1. The combination of an inclosed frame forming a passage way, a depressible entrance platform mounted therein and forming a portion of the floor of said passage way, an extensible gate adapted in one position to close said passage way and in the other to free the same, a lever connected with said gate, a shifting-piece moving in one direction with said entrance platform, but independently pivoted to permit motion relatively thereto, gearing substantially as set forth whereby said shifting-piece is operatively connected with said lever, a bolt mounted in said shifting-piece, a lever also mounted in said shifting-piece and connected with said bolt and with said entrance platform, substantially in the manner set forth, a depressible exit platform arranged upon the opposite side of said gate, and a rod connected with said exit platform and adapted to engage with said bolt in one position of the latter but to clear it in the other position, substantially as set forth.

2. The combination of the frame, the railings inclosing the same to form a passage way, the independently pivoted entrance and exit platforms B and C, constituting the floor of said passage way, the two-part extensible gate mounted between the proximate ends of the

platforms, the bell-cranks connected with the respective portions of said gate and provided at their lower ends with segmental bevel-gears, the shifting-piece B', pivoted to the entrance platform and provided at its lower end with a slot S, and a rack B³, the lever b² mounted in said shifting-piece and connected at one end to the entrance platform, the bolt connected with the other end of said lever and adapted to open or close said slot S, the rock-shaft E³, the segmental-gear mounted thereon and engaging with said rack B³, the train of gearing operatively connecting said rock-shaft with the segmental bevel-gears upon the bell-cranks, the bracket connected with the exit platform C, the rod F pivoted to said bracket and extending into said slot S in the shifting-piece, the spring C' interposed between said shifting-piece and said bracket, and registering mechanism, substantially as set forth, operatively connected with said bracket.

3. The combination of a pair of independently depressible platforms, a gate intermediately mounted between said platforms, actuating mechanism substantially as described for opening said gate operatively connected with the first of said platforms, actuating mechanism substantially as described for closing said gate operatively connected with the second of said platforms, and controlling mechanism substantially as set forth intermediate between said closing mechanism and said gate, said mechanism being operatively connected with the first of said platforms to disengage the closing mechanism from the gate during the period of depression of the first platform, but permitting engagement when said first platform is in its raised or normal position.

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Witnesses:

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