

No. 699,407.

Patented May 6, 1902.

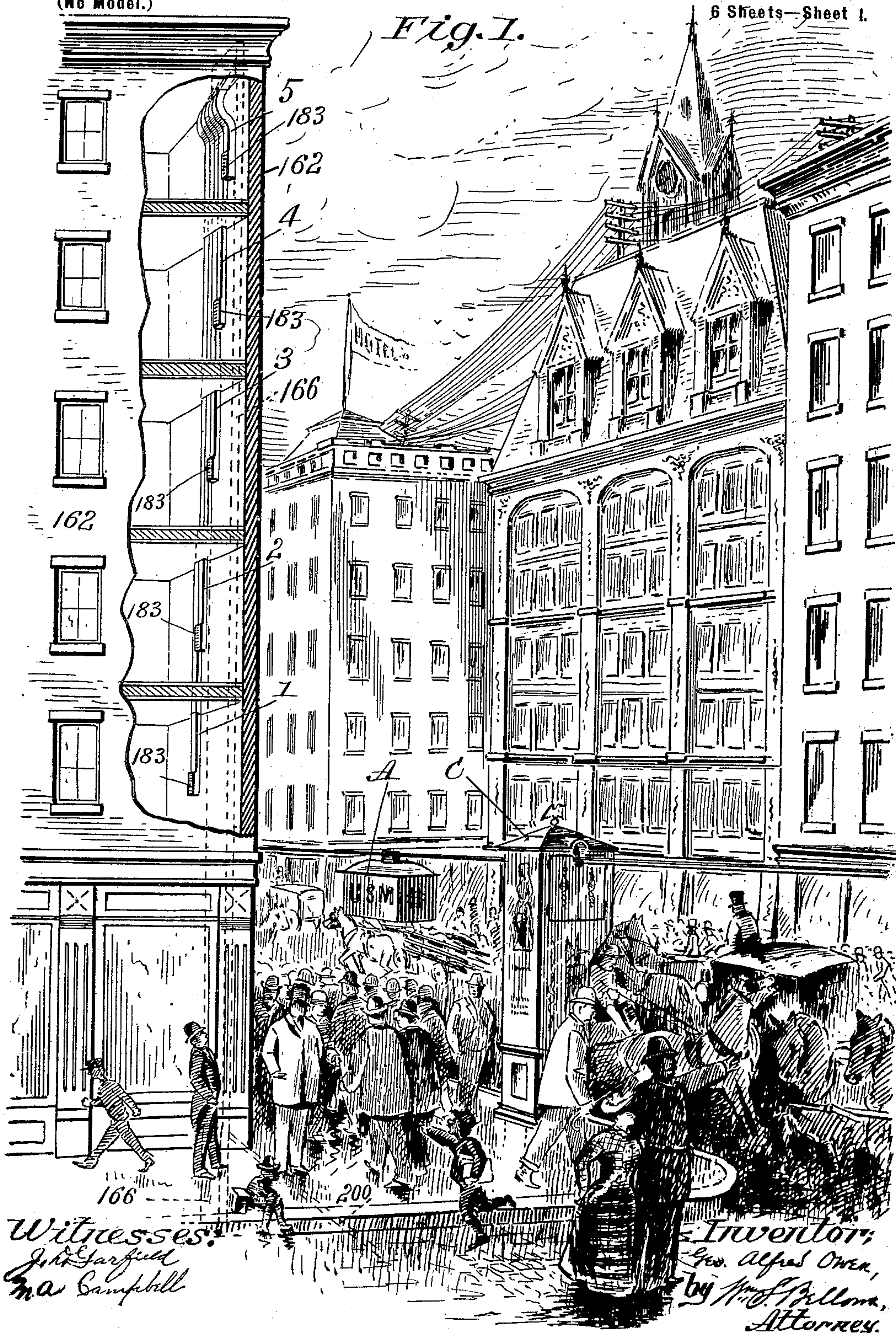
G. A. OWEN.
MAIL SERVICE APPARATUS.

(Application filed Mar. 13, 1899.)

(No Model.)

6 Sheets—Sheet 1.

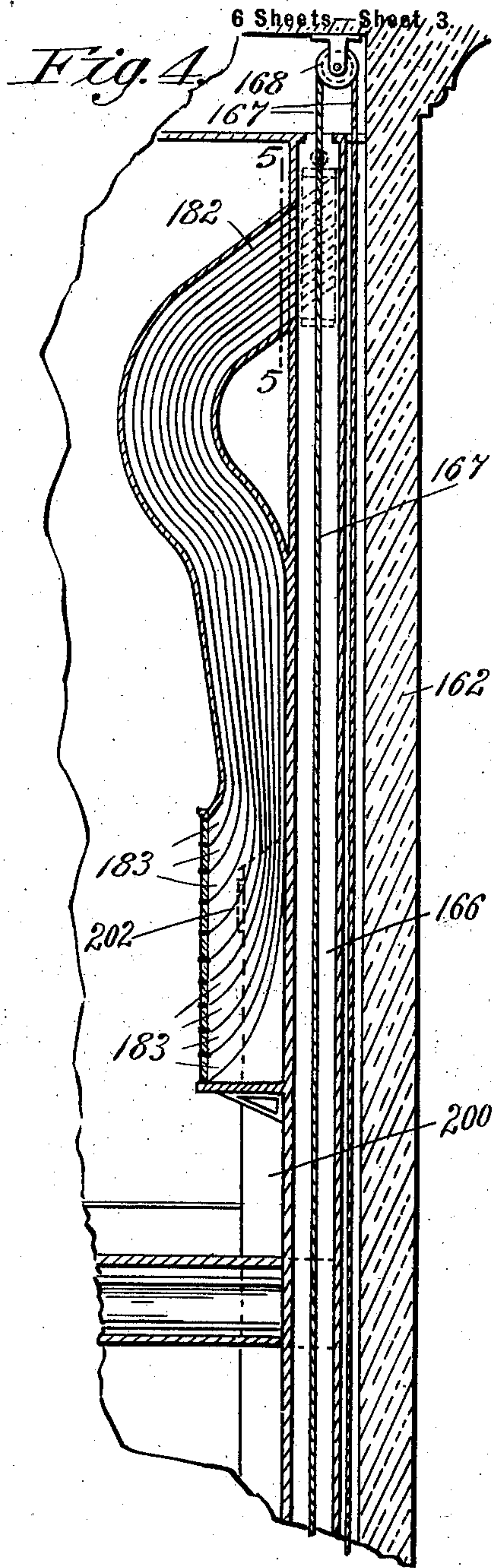
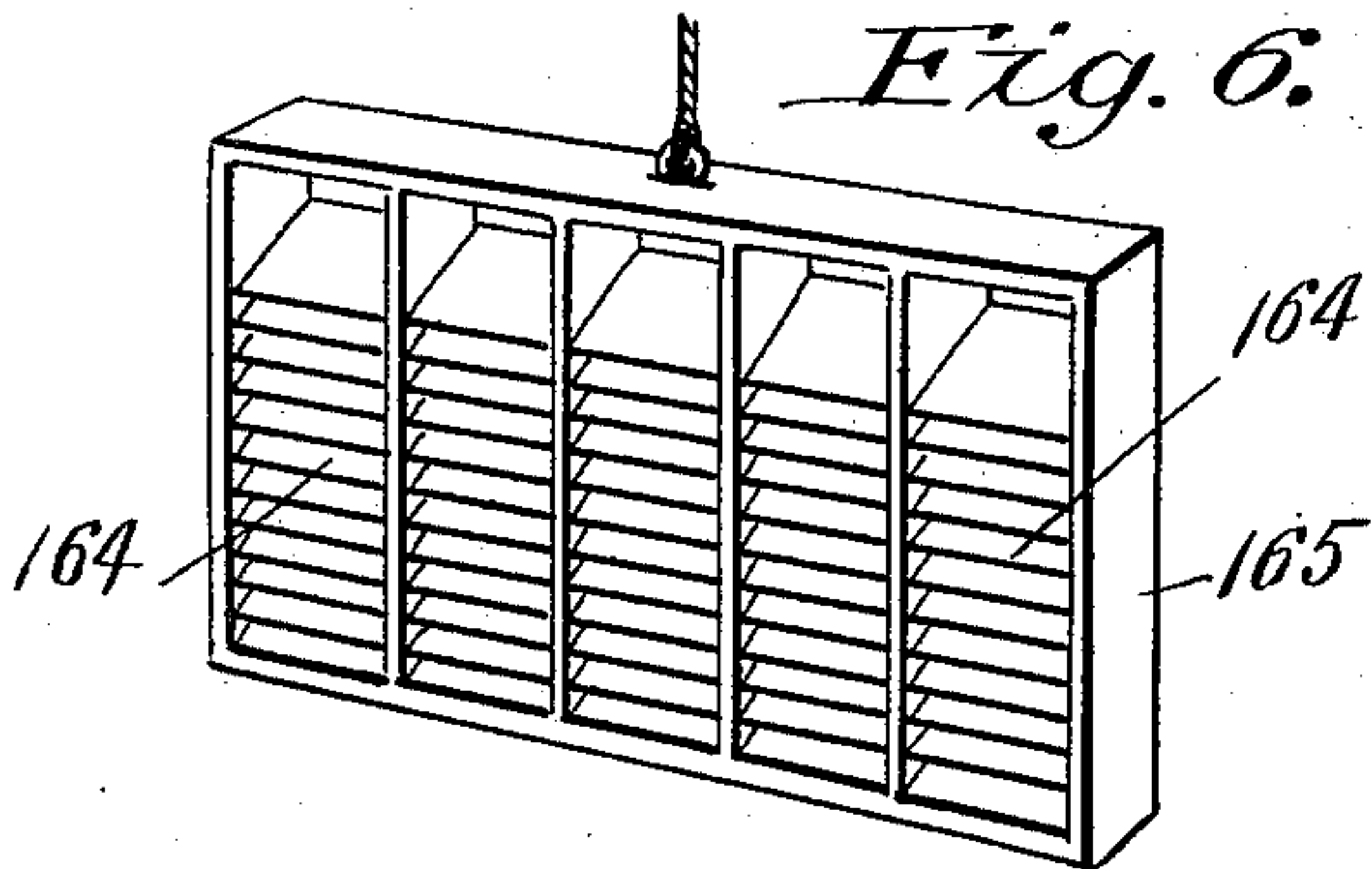
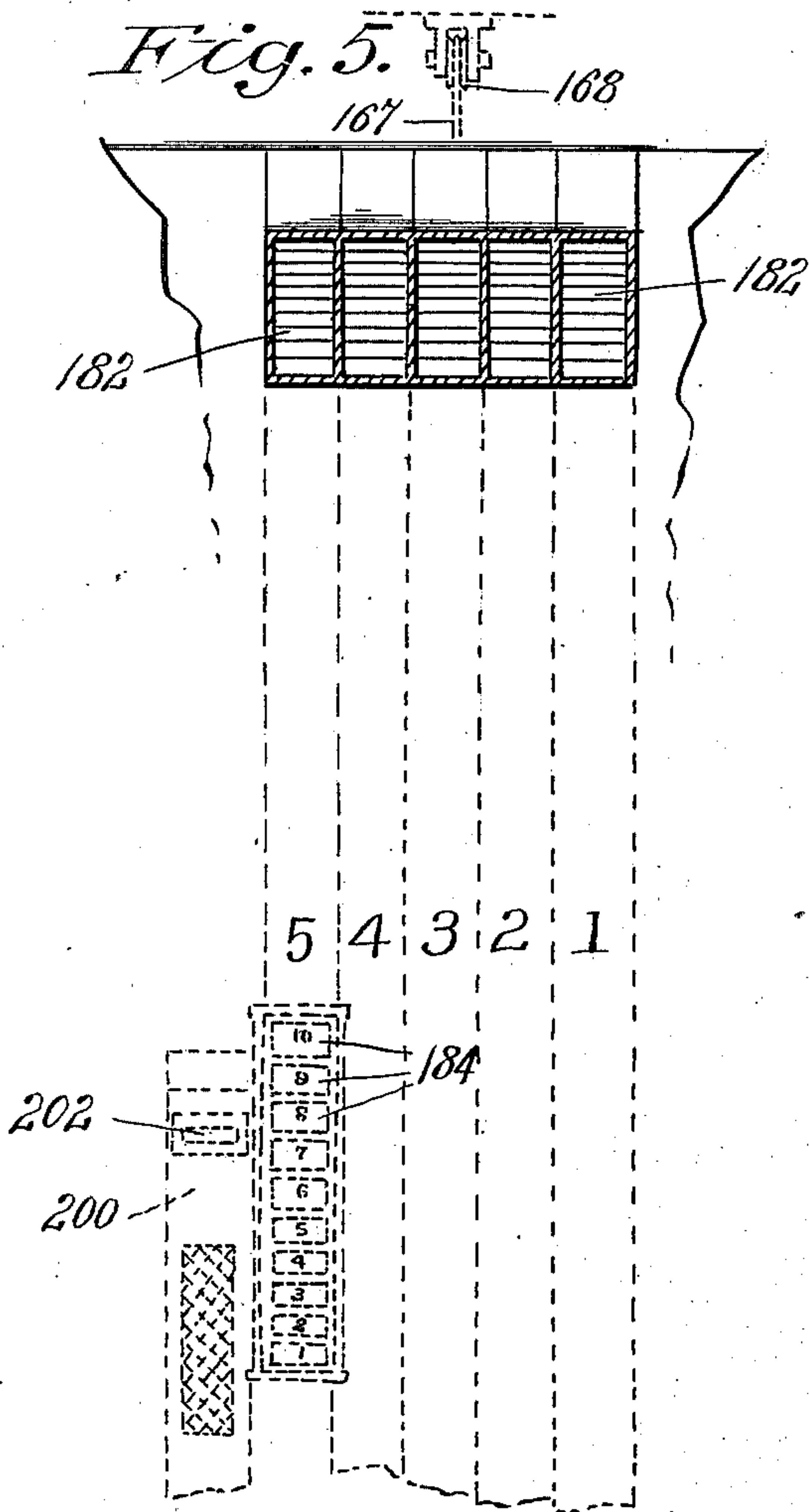
Fig. 1.



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(Application filed Mar. 13, 1899.)

(No Model.)



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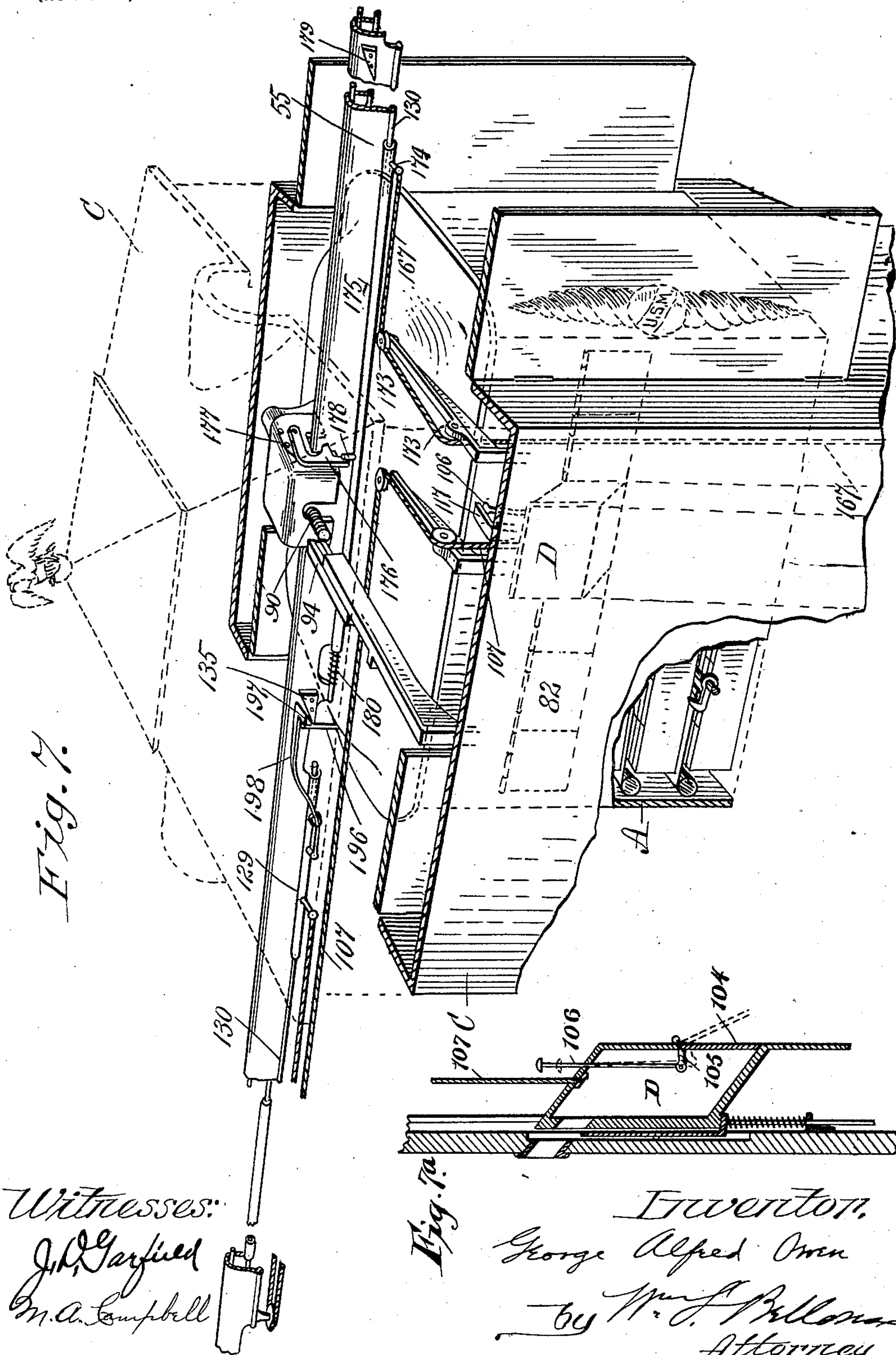
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(No Model.)

6 Sheets—Sheet 4.



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Fig. 1a

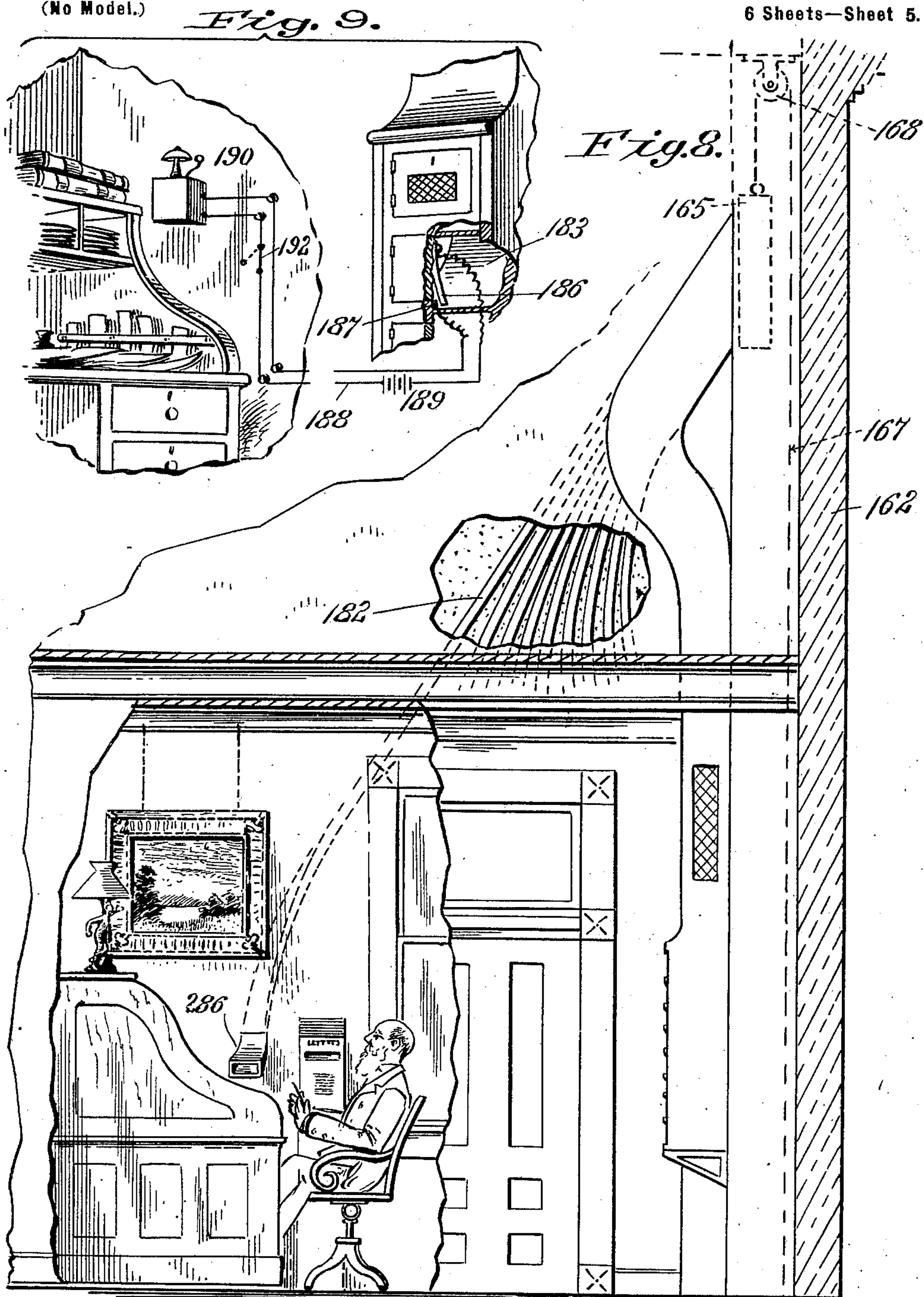
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6 Sheets—Sheet 5.



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(Application filed Mar. 13, 1899.)

(No Model.)

6 Sheets—Sheet 6.

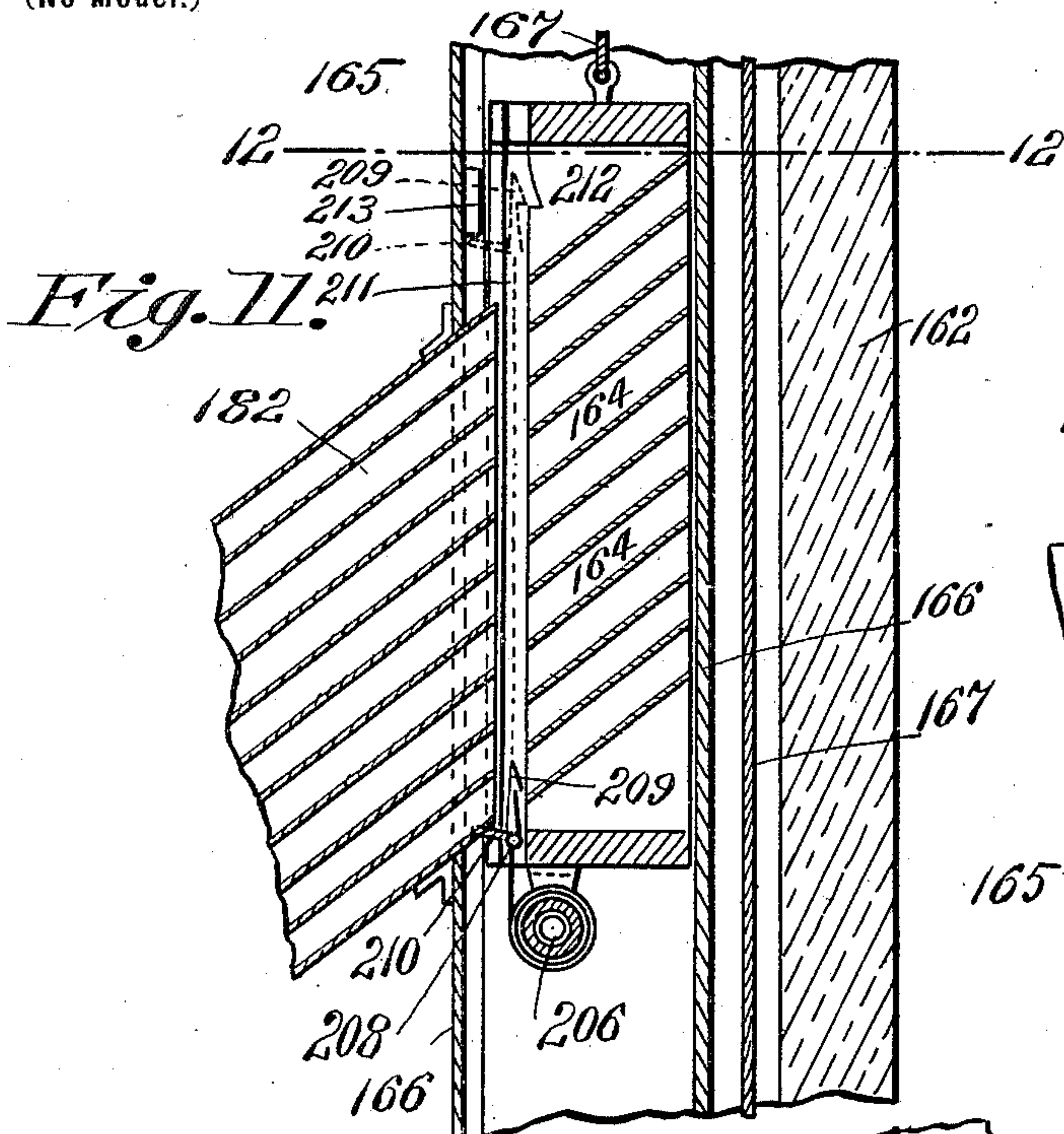


Fig. 11.

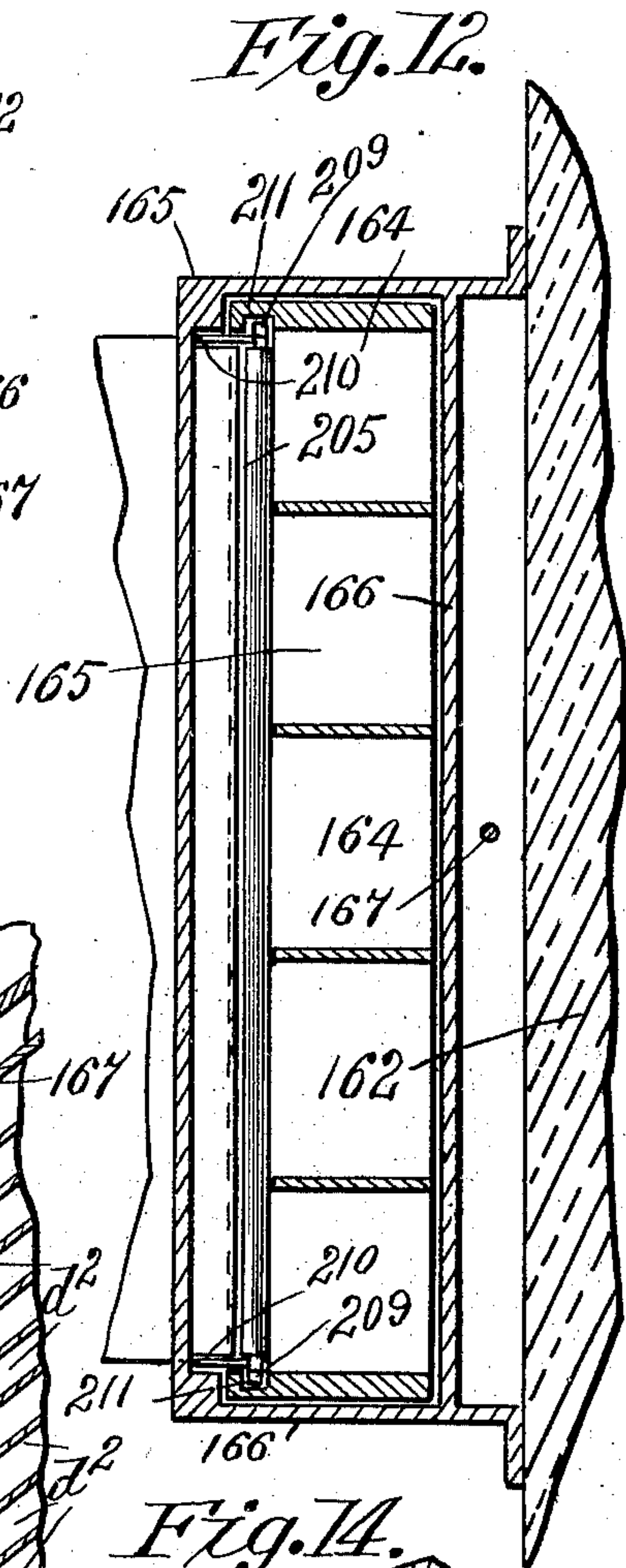


Fig. 12.

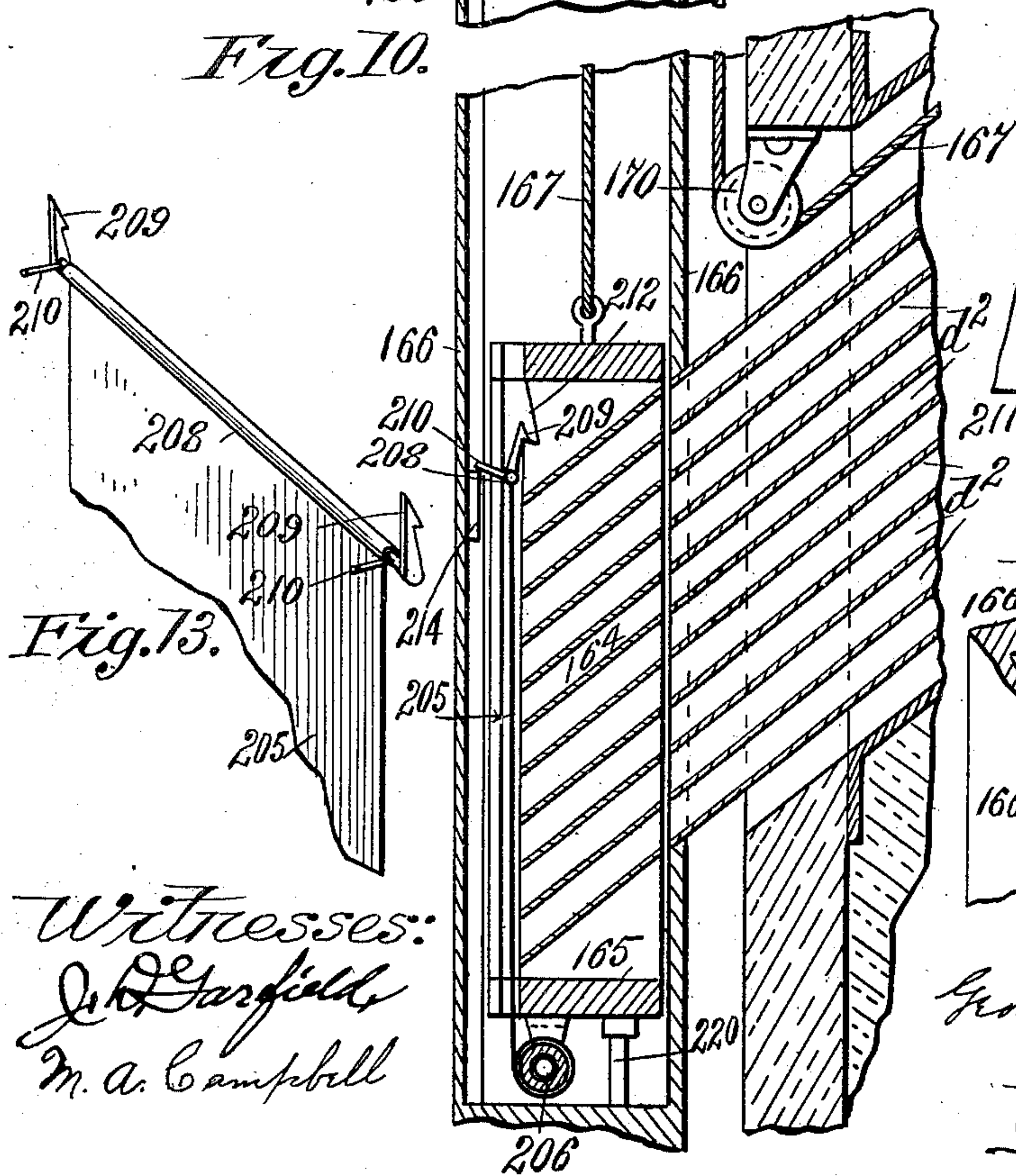


Fig. 10.

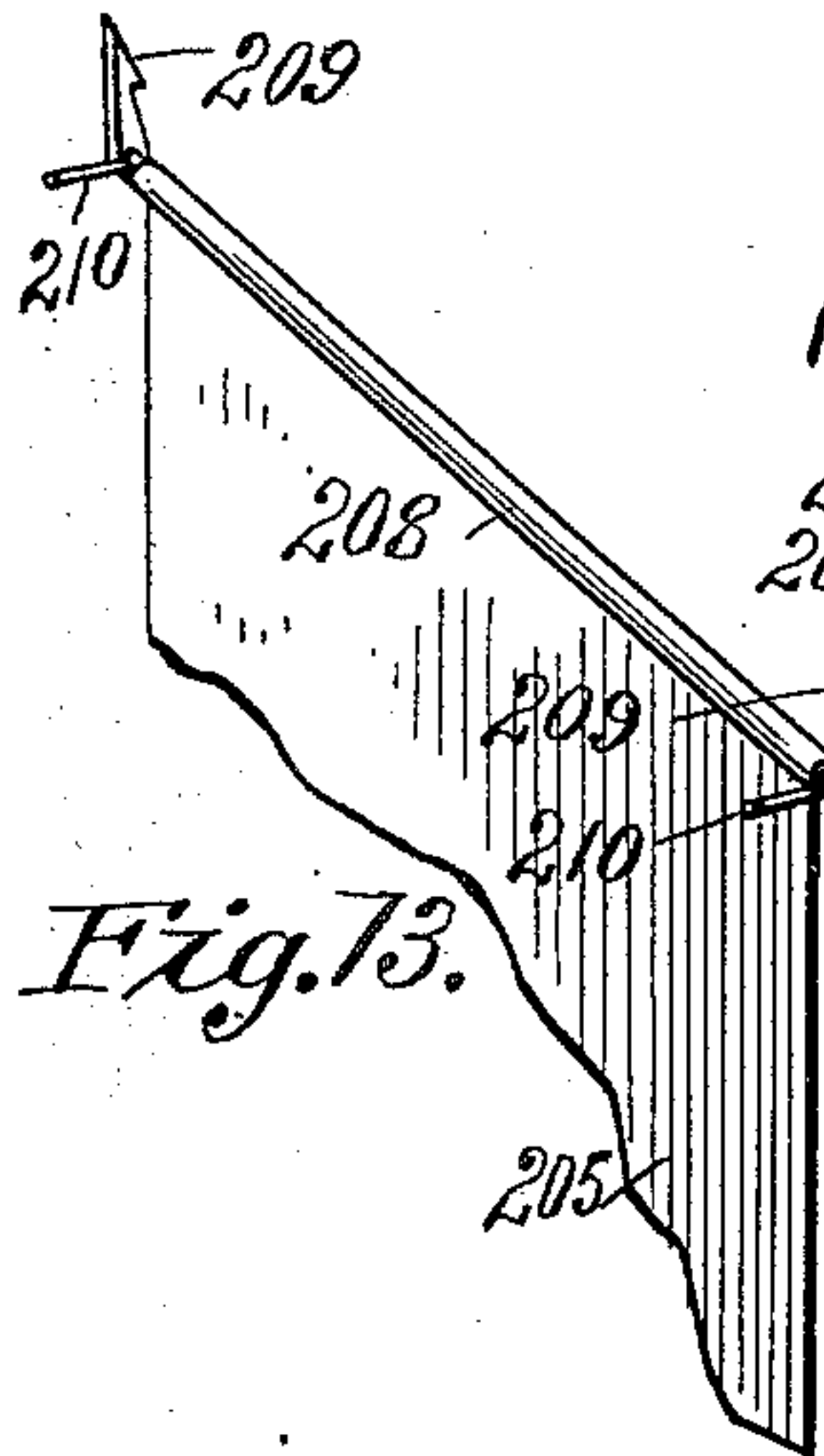


Fig. 13.

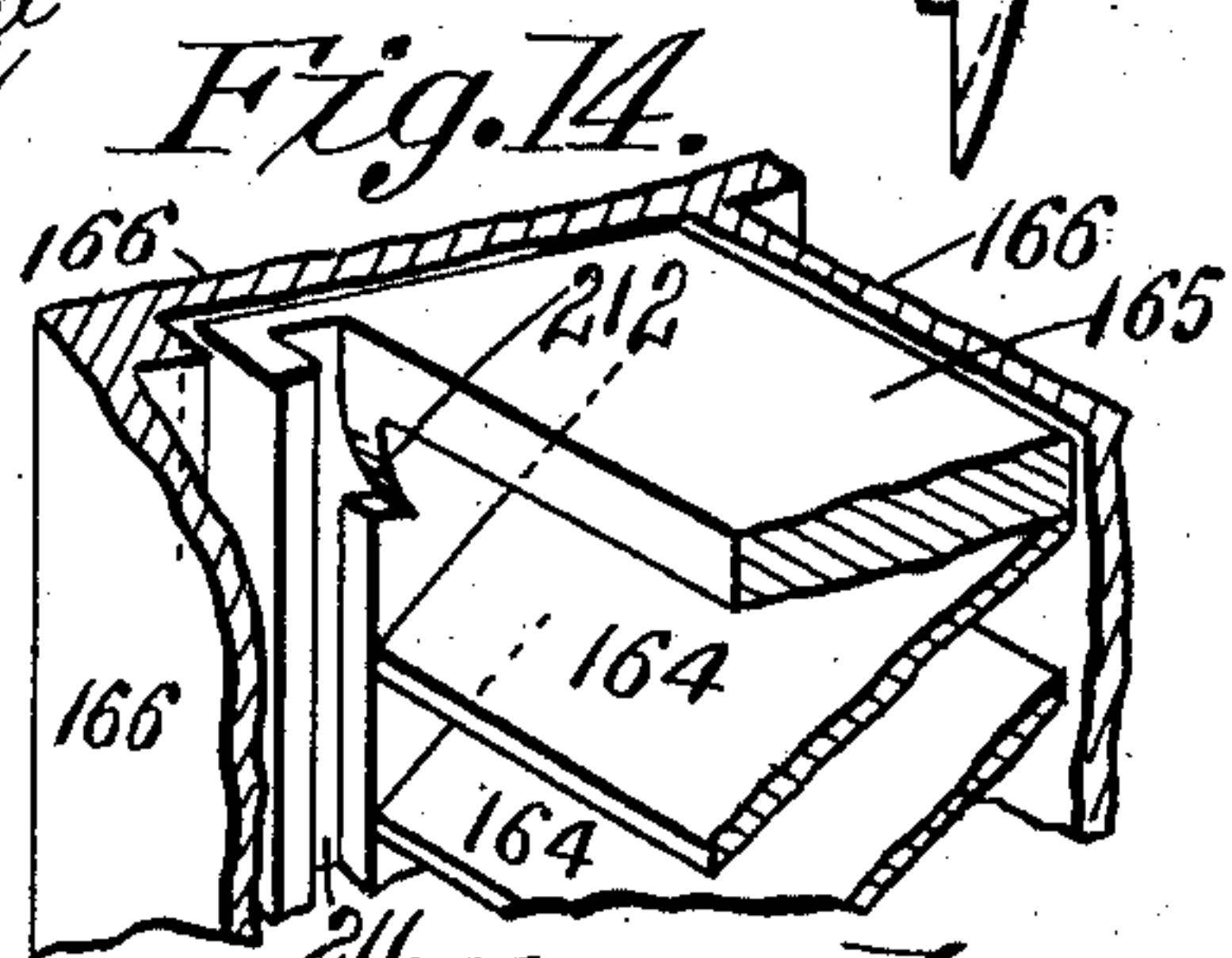


Fig. 14.

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UNITED STATES PATENT OFFICE.

GEORGE ALFRED OWEN, OF SPRINGFIELD, MASSACHUSETTS.

MAIL-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 699,407, dated May 6, 1902.

Application filed March 13, 1899. Serial No. 708,983. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ALFRED OWEN, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Mail-Service Apparatus, of which the following is a full, clear, and exact description.

10 This invention relates to new and improved means for transmitting the individual mail distributed in a post-office into respective receptacles or compartments therefor in a conveyer or mechanical carrier for which are
15 provided means for the support, guidance, and propulsion thereof to post-stations located at suitable intervals or places in the city or town, into which conveyer portions of the assorted mail for individuals are respectively and automatically delivered, and to
20 means whereby the same from the post-station are conveyed through chutes or guide-passages located therein into respectively provided compartments in a receptacle provided
25 at the basement or lower portion of a building adjacent the post-station, said receptacle having combined therewith means operated by the conveyer for securing the elevation of said compartment-provided receptacle, whereby the latter is elevated to the top
30 or upper portion of the building, thereat registering with orifices of chutes into which the mail-matter is delivered, said chutes leading downwardly to deliver the mail into series of
35 individual letter-boxes in the hallway or corridor of each floor of the building or, if desired, to deliver the mail through these downwardly-directed chutes, which extend to and have their delivery ends in the various offices or rooms of the building.

40 The invention furthermore relates to means whereby when mail comes into one of the corridor-boxes held by the tenant of a given office an alarm may be sounded in such office
45 apprising the occupant of the arrival of his mail therein.

50 The invention furthermore relates to the improvements in means and appliances provided for the purpose of enabling persons at any floor of the building to mail their letters in mailing-chutes thereat, which chutes lead downwardly to the lower part of the building

and deliver into a letter-box vertically below the post-station, and to further means for insuring (by reason of the arrival at and passage through the post-station of the conveyer for the letters to be delivered at such post-station) also an elevation of the mailing letter-box upwardly into the post-station and the discharge of its contents automatically into a compartment in the conveyer in which such mail will be conveyed to the post-office as the conveyer returns thereto for outward transmission.

65 In Letters Patent of the United States issued to me July 2, 1901, No. 677,423, there are fully and clearly described the construction of the conveyer and the arrangement of the several series of compartments therein for the individually-assorted mail and of a compartment for the reception of mail to be brought back to the post-office, the means for the support, guidance, and propulsion of the conveyer, and the post-station into and through which the conveyer passes and momentarily tarries, and the arrangement of upwardly-open and downwardly-leading chutes with which the compartments in the conveyer register, and means for securing the automatic discharge of that portion of the mail in the conveyer which it is designed to deliver into the corresponding or matching chutes in the post-station, and in said application I have furthermore described a mailing-box vertically under the post-station and means for insuring the automatic elevation thereof to the level of the conveyer and for the automatic discharging of the promiscuous mail therein into the conveyer; and in extension of the invention set forth in the said application for patent filed as aforesaid the present invention and improvements are conjunctively employed, and repetitions of the description and manner of operation of the subject-matter of the aforesaid application will be considered unnecessary herein, for reference may be had to the specification and drawings in that application for a full and complete knowledge thereof.

100 While the post-station may have the several chutes upwardly opening and downwardly extending and leading to or terminating in individual lock-boxes in the post-station, as heretofore described by me in my

former application, there are in accordance with the present invention essentially in the post-station, either solely or in addition to the post-station letter-box chutes, series of upwardly-opening and downwardly-extending chutes, with the upper orifices of which the self-discharging compartments in the conveyer match or register, these leading to the compartment-provided elevator aforementioned at the lower part of the building, the latter carrying the mail upwardly automatically and delivering it into the chutes which have their orifices at the top of the building and which lead therefrom downwardly to and for delivery at the various floors.

The invention consists in various combinations of parts and appliances and the constructions thereof, all substantially as hereinafter fully described in conjunction with the accompanying drawings and as set forth and covered in and by the claims.

In the drawings, Figure 1 illustrates in perspective and partial vertical sectional view a post-station located at the edge of a sidewalk of a thoroughfare adjacent a building, the trackway on which the conveyer is sustained and electrically or otherwise propelled, the conveyer being shown as approaching the post-station, and this view furthermore and more particularly illustrates the series of chutes in the building, all having their upper ends or orifices terminated above the upper floor and extending downwardly therefrom in succession to the lower stories or floors, and this view by dotted lines further indicates the vertical walled or tubular way up and down in which the delivering-elevator for the various mail for the several floors is movable. Fig. 2 is a sectional elevation through the lower portion of the building adjacent, which is shown the post-station, and showing the arrangement of the several chutes through which the mail received from the conveyer is guided to the elevator, which latter also is positively shown, as are also the hoistway and suspension-cable therefor, there being also shown in this view, partially in section, the chute understood as leading from the top of the building to the lower story and terminating in door-provided lock-boxes or individual mail-receptacles, and this view still further illustrates the relation of the letter-box for receiving the promiscuous matter mailed in the building through the mailing-chutes downwardly leading thereto. Fig. 3 is a cross-section and plan view horizontally through the post-station as seen on the line 3 3, Fig. 2, indicating the relative position of the box for promiscuous mail to be raised and lowered at the time of arrival of the conveyer in the post-station. Fig. 4 is a vertical sectional view at the upper part of the building, more particularly showing the well or hoistway and mail-elevator and the chutes for the set of letter-boxes for the upper floor. Fig. 5 is a sectional view on line 5 5, Fig. 4, showing the orifices of the several series of the chutes for

the five stories, downwardly-extended portions of such chutes and the letter-boxes for those of the upper story being indicated in dotted lines, as is also the upper part of the mailing-chute provided in common to all of the floors of the building. Fig. 6 is a perspective view of the elevator. Fig. 7 is a perspective view showing upper portions of the post-station and its doors, the conveyer understood as having arrived and stopped therein, and most particularly illustrating the means whereby the conveyer automatically operates the elevator in the hoistway in the building. Fig. 7^a is a sectional view vertically through the letter-box provided below the post-station and which is adapted to be elevated within said station, said view illustrating the operating means for the letter-box door. Fig. 8 is a sectional elevation, illustrative of an arrangement whereby the mail elevated up the hoistway in the building is delivered into the individual offices. Fig. 9 is a view in perspective and diagram, illustrating the means and manner of notifying a tenant in a room of the arrival of his mail in a corridor letter-box held by him. Figs. 10 and 11 are vertical sectional views through the elevator and the hoistway therefor and through a curtain device and appliances which constitute a movable wall for one side of the elevator, Fig. 10 showing the relations of the parts when the elevator is in its lowered position and Fig. 11 the changed relation when the elevator is in its uppermost position. Fig. 12 is a horizontal sectional and plan view as seen below the section-line 12 12, Fig. 11. Figs. 13 and 14 are perspective views illustrating details of construction to be herein- after referred to.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the conveyer; 55, the elevated trackway on which the conveyer runs and is propelled electrically or otherwise.

C represents one of the post-stations, of which in the course of the elevated trackway there may be many, and D represents the letter-box at the lower part or under the post-station for receiving the promiscuous mail which may be mailed through a chute from the post-station in the street and, as here shown, also receiving mail from a mailing-chute 200 in the building 162, adjacent such station.

The post-station has the series of chutes *d* with the orifices at their upper ends in arrangement corresponding to those of the compartments in the conveyer having the automatic discharging means, as described in the aforesaid application, the said chutes leading downwardly from the upper part of the post-station through which the conveyer passes and have their courses deflected downwardly and transversely toward the building, extending thereto at a point in the basement, or some suitable part thereof, and having their

lower ends terminating in orifices or discharging-openings d^2 , corresponding to or matching with the open-front compartments 164 in the elevator 165, which is movable in the vertical tubular chute or well 166, extending to the top of the building, said elevator being controlled by the suspension-cable 167, passing upwardly from its connection with the elevator over and around the sheave 168, thence downwardly to the bottom of the building around the sheave 170, and thence upwardly guided by the sheaves 172 to and around the guide-sheaves 173 in the post-station and extended longitudinally along the inverted-U-shaped track to connection at 174 with a sleeve 175, which has a longitudinally-sliding movement on the rod or bead 130, which is comprised in or provided at one of the depending edges of the side wall of the track.

94 indicates the movable arresting device in the post-station for the conveyer cooperating with the screw device 90, actuated by the motor of the conveyer for displacing said movable arresting device, leaving the motor free to have its propulsive movement after having been stopped momentarily at the station, as heretofore described in said application. There is also provided on the top of the motor-propelled conveyer a tripping-catch 176, having the spring 177 and movable across the line of the abutment-pin 178 on the aforesaid sleeve.

There is at a considerable distance forwardly beyond the post-station on the side of the track the incline or cam 179.

180 represents a buffer-spring located at the rear end of the sleeve 175.

Now it will be understood that when the conveyer A has come into the post-station and been automatically stopped to deliver its mail which is to be discharged therefrom at this given post-station and has thereafter proceeded on its journey the tripping device 176, bodily carried by the conveyer by reason of its engagement with the abutment-stud 178, will carry said stud and the sleeve forwardly endwise a sufficient distance before the device 176 is tripped by the incline 179 and disengaged from the stud 178 and will thereby exert such a draft on the cable 167 for the elevator as to move the same from its position at the bottom to the top floor of the building, whereupon the inwardly-open orifices of its compartment 164, which, as shown, are in five series, will register with and discharge into the mouths of the five series of chutes 182, outwardly opening above the upper floor of the building, said series of chutes being numbered 1 to 5, respectively, in Figs. 1 and 5 of the drawings, the fifth series of chutes terminating or delivering at the fifth floor, the next at the fourth floor, and so on down to the first floor.

As shown in Figs. 1 and 4, the outwardly-opening orifices of the chutes 182 extend inwardly and downwardly at an angle, continu-

ing in an easy curve downwardly and forwardly and terminating in series of letter-boxes 183, understood as being in the corridor or other suitable place in the building, and these letter-boxes have key-locked doors 184, so as to be accessible only by the tenants of the respective offices or rooms corresponding to which the boxes are provided.

As shown in the drawings, for the service of a building of five floors there are five series of the chutes d in the post-station. The elevator has correspondingly a like number of series of the compartments, and the compartments of each series therein correspond in number and arrangement to the orifices of the chutes both in the post-station and the building.

The bottoms of the compartments in the elevator are downwardly inclined, as shown in Figs. 2 and 6, and their ends toward the building are open, as well as their ends toward the post-station, the said elevator being fitted to slide closely yet freely in the vertical passage 166 therefor.

The chutes 182 in lieu of extending to and terminating in individual corridor letter-boxes 183, as described and illustrated in Figs. 1, 2, 4, and 5, may, as shown in Fig. 8, all or some thereof extend in downwardly-divergent courses to enter the offices on the various floors, said Fig. 8 indicating the delivery end 286 of one of the chutes to discharge the mail directly onto a desk in the office.

Of course the arrangement may be that some of the chutes will deliver into offices and others to corridor letter-boxes on a given floor, this manner of double service being indicated in Fig. 8.

In Fig. 9, 183 shows in section and perspective view one of the corridor letter-boxes having the slanting bottom and the light spring-plate 186, onto which a letter in coming into such box contacts and forces such spring against the adjacent contact-piece 187.

188 represents circuit-wires connected to the spring 186 and the contact 187 and comprising a local battery 189 and having wired therein at the part of the circuit within an office an alarm-bell 190, all to the end of notifying the tenants of the office of the arrival of mail into the corridor letter-box held by them.

A switch or cut-out 192 may be provided in the circuit last described to be kept closed while some one is present in the office, but to be opened when the office is vacated temporarily or permanently, so that the battery will not be run down by the continued ringing of the bell after a letter has been received therein, but where there is no one present to take it from the box.

The letter-box D, located below the post-station, is vertically movable in a well or way 194 therefor, being provided with the suspension-cable 107, operated through the sliding sleeve 129 automatically by the conveyer in substantially the same manner as described

in my said former application, so that when the conveyer arrives at the station this letter-box D will have been elevated opposite the conveyer and will discharge the promiscuous mail therein through the side openings in the conveyer having the inwardly spring-closed opening doors 82. The devices operating to this end are specifically slightly different from those formerly illustrated and will be pointed out as follows: On the conveyer is the abutment or stud 196, which engages the shoulder 197 of the spring-plate 198, carried by the sleeve 129, to which the cable 107 for said letter-box D is connected. The wedge or cam 135 is provided on the side of the track at its part within the post-station C. The letter-box being in its lowered position, the sleeve 129 will have been slid along the bead 130 rearwardly relative to the post-station. The conveyer approaching the post-station has its stud 196 to engage the shoulder 197 of the spring-plate, bodily moving the latter and the sleeve 129 endwise forward, exerting such a draft on the cable 107 as to raise the letter-box to the level of and alongside the conveyer, and the elevating movement of the letter-box insures that its rod 106, which operates its door to permit the discharge of the letters contained therein therefrom, in its abutment against the fixture or bracket 117 in the post-station insures, relatively to the rising letter-box D, a depression of the operating-rod opening the letter-box door, and this opening of the door insures the inward swinging of one or more of the spring-closed door-sections 82 of the conveyer, so that the promiscuous mail-matter mailed into said box may be discharged into the compartment or receptacle therefor, lettered *a* in my preceding case and all as fully described therein.

The letter-box D, as shown in Fig. 7^a, has its door 104, which is hinged to swing outwardly, provided with a lever 105, radially extended from the hinge, and with this lever is engaged the vertical rod 106, upwardly extended through a perforation in the top of the letter-box, and terminates above said top. The elevation of the box to the position shown in Fig. 7 brings the rod 106 against the abutment 117, thereby causing the letter-box door to be swung and forced against one of the spring-closed door-sections 82 of the conveyer, leaving the contents of the letter-box freed to be discharged into the conveyer. As the conveyer then proceeds the impingement of the spring-plate on the incline 135 causes the disengagement of the shoulder 197 from the stud, whereupon the box D will fall by gravity and the sleeve 129 will be rearwardly returned to its normal position. I have illustrated in combination with the said letter-box D, having an opening 199 at its side toward the building, a chute 200, which leads downwardly on an incline to said opening 199, said chute in continuation of said inclined part (illustrated in Fig. 2) continuing upwardly through the several floors of the building and having mail-

ing-openings 202 at each floor, the mailing-opening 202 in the chute at one of the floors being indicated in Fig. 5.

In order to provide means whereby the letters or other mail-matter in the compartments 165 of the elevator 164 may not slide therefrom while the elevator is at its lowermost position or in any position intermediate between the post-station chutes *d* and the mouths of the building-chutes 182, appliances are combined with the elevator and its hoistway, such as shown in Figs. 10 to 14, inclusive.

The side of the elevator toward the building has provided therefor the curtain 205, for which the roller 206 is mounted in suitable brackets under the bottom of the elevator, said curtain extending upwardly therefrom and provided at its upper end with the rod or rock-shaft 208, having the hook arms or catches 209 and the abutment-studs 210. The ends of the shaft 208 move in the guideways 211.

The elevator has at its rear side, near its lateral edges at its top, the notches or catch-shoulders 212, and in the hoistway are the blocks or abutment-pieces 213 above the chutes 182, and there is likewise another similar pair of abutments 214, provided in the hoistway, near the lower end thereof, opposite the discharging ends of the post-station chutes *d*. The curtain becoming drawn upwardly relatively to the rear side of the elevator on the descent of the latter, by reason of member 210 striking abutment 214 and finally having the catch 209 engaged into the notch 212, so remains as a rear wall for preventing the escape of the letters from the elevator while the latter remains lowered and while in transit upwardly, and until the curtain has been withdrawn, which occurs when the elevator is brought opposite the mouths of the chutes 182 in the upper part of the building, the release of the catches for the withdrawal of the curtain being accomplished by the aforesaid members 210 coming into contact against the abutments 213, insuring the swinging of the catches 209 from the notches 212, the curtain then being drawn downwardly by its spring-roller. The curtain is again raised and temporarily confined on the next descent of the elevator, as described.

To insure that in the descent of the elevator it will come to just the proper position for its compartments 164 to match with the mouths *d*² of the post-station chutes *d*, the adjustable abutment 220 is provided, as shown in Figs. 2 and 10.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a mail-service apparatus, in combination with the post-station having mail-receiving chutes with upwardly-opening ends, the conveyer for delivering assorted mail into said chutes, of an elevator having series of compartments to which the chutes respectively lead, adapted to be elevated in a build-

ing, and receiving chutes or passages into which the assorted mail from the said elevator is respectively delivered.

2. In a mail-service apparatus in a building, the series of chutes all having adjacent series of receiving-mouths at an upper floor in the building, the several series of each successively being downwardly extended to different floors as described, in combination with an elevator having series of mail-compartments corresponding to the said series of chutes and means for elevating said elevator for delivery opposite the mouths of the several chutes.

3. In a mail service apparatus, a building having a series of chutes all having adjacent receiving-mouths at an upper part of the building, the several series of each leading downwardly to the lower stories and having lock-boxes at their lower terminals, in combination with the elevator normally located at a lower part of the building and adapted to be elevated to a position opposite the mouths of the several series of chutes, and having compartments corresponding in number and arrangement so as to register with said mouths, substantially as described.

4. In a mail-service apparatus, a building having a series of chutes all having adjacent receiving-mouths at an upper part of the building, the chutes of the several series leading downwardly to the successively lower stories and extended to within different apartments in the building as described, in combination with the elevator having the several series of mail-receiving compartments, normally located at a lower part of the building and adapted to be elevated to a position opposite the mouths of the several series of chutes, substantially as described.

5. In a mail-service apparatus, in combination with the post-station having mail-receiving chutes with upwardly-opening ends, the conveyer for delivering assorted mail into said chute, of an elevator having series of compartments to which the chutes respectively lead, adapted to be elevated in a building, receiving chutes or passages into which the assorted mail from the said elevator is respectively delivered, and means actuated by the movable conveyer for elevating said elevator.

6. The combination with the elevator and means by which it is elevated in a building, of the series of chutes 182 having open mouths at the upper ends thereof corresponding to compartments which are provided in said elevator, said chutes extending from their mouths in a downwardly-inclined direction, and terminating in letter-boxes at their lower ends.

7. In a mail-service apparatus, of the character described, the combination with the elevator having the series of compartments 164 the partitions of which are obliquely arranged, of a series of chutes in a building having their upper ends open and in arrangement to reg-

ister with that of said compartment, said chutes being extended from their mouths inclining downward and continued to within separate apartments in the building, substantially as described.

8. In a mail-service apparatus, in combination with the post-station having the series of chutes *d*, the elevator 165 having compartments to which said chutes lead, the trackway and the conveyer movable thereon, an elevating-cable connected to said elevator 165, a movable part longitudinally sliding on the trackway to which said cable is connected and provided with an abutment, a movable device provided on the elevator adapted to engage said abutment, and means for tripping said engaging device, after a given movement of the elevator in its forward direction sufficient for elevating the said elevator, substantially as described.

9. In a mail-service apparatus of the character described, the combination with the post-station having series of upwardly-open chutes, the trackway 55 having the cam or incline 179 and having, longitudinally movable along said trackway, the sleeve 175 provided with the stud 178, the elevating flexible connection or cable 167 connected to said sleeve, the conveyer provided with the movable tripping device 177 adapted to engage said stud 178 and having the member 176 to be impinged against by the said incline 179, substantially as described and shown.

10. The combination with a building having several series of chutes 182, all having openings adjacent each other at another part of the building, said chutes leading downwardly from said opening for conducting respective mail-matter to be introduced therein to different locations in the building, a well or vertical passage-way in the building extending from the lower portion thereof below the ground upwardly to the upper ends of said chutes, the elevator normally located in the lower end of said well having the several series of compartments therein, opening both outwardly and inwardly, a post-station having chutes in arrangement as described located outside of the building adjacent thereto, said chutes extending downwardly inclined and terminating opposite and next to the outwardly-opening compartment of said receptacle, and means for elevating the latter, for the purpose set forth.

11. In combination with a building having a mailing-chute, extending from upper floors downwardly to the lower part of the building and thence continued downwardly inclined outside of and below the building, a mail-receiving box into which said chute delivers, a post-station thereabove, a trackway and a conveyer movable along it, and means actuated by the conveyer for elevating the said mail-receiving box into the upper part of the post-station whereby it may deliver its contents into the said conveyer, substantially as described.

12. A building having several series of mail-chutes provided at their upper ends which are located in proximity in an upper part of the building with receiving-openings, said chutes
5 extended downwardly to different floors in the building, substantially as described.

13. A building having several series of mail-chutes provided at their upper ends which are located in proximity to each other at an
10 upper part of the building, with mail-receiving openings, said chutes extended downwardly to different stories in the building, and one or more thereof entering for the delivery of the mail into respective apartments
15 in said building, substantially as described.

14. In a mail-service system of the character described, in combination, a post-station, the letter-box D thereunder, a mailing-chute in the building leading downwardly and dis-
20 charging into said letter-box, the suspension-cable for the box, the trackway, the movable part or sleeve 129 to which the cable is connected, the conveyer having an abutment, the device on said sleeve adapted to be en-
25 gaged by the abutment of the conveyer, and means for automatically disengaging the said parts, substantially as and for the purposes set forth.

15. The combination with a post-station,
30 the letter-box D and the trackway, of a building having a chute for conveying mail from the building into said box, of the conveyer movable along said trackway past the post-station, and means operated by the conveyer
35 for bringing said box in proximity thereto, whereby the box may be discharged of its contents into the conveyer.

16. In a mail-service system, in a building, the series of chutes 182 having receiving-
40 mouths located at an upper part of the building, in combination with the elevator having the series of mail-compartments corresponding to said chutes, a movable wall for temporarily closing the compartments at their
45 ends toward said chutes in the building, means for raising and lowering the elevator, and means for operating the movable wall

for the elevator, as and for the purpose set forth.

17. In a mail-service system, the combina- 50
tion with the building having the hoistway and chutes 182, of the elevator having the compartments substantially as described, and a curtain, movable across the side of the elevator which is toward said chutes, for open- 55
ing and closing the compartments, means operating on the descent of the elevator for drawing the curtain across and closing the compartments, and means operative on the raising of the elevator for withdrawing said 60
curtain leaving the compartments open for mail-delivery discharge into the chutes.

18. In a mail-service system of the character described, the combination with the building, having the chutes 182 and the hoistway, of 65
the elevator 165 having the compartment 164 and provided with the curtain 205, the spring-roller 206 therefor, and the shaft or rod 208 provided to the curtain and having the catch members 209 and the studs 210, the abut- 70
ments 213 and 214 located in the hoistway and the notches or shoulders 212 being provided in the conveyer, substantially as and for the purposes set forth.

19. The combination with the building hav- 75
ing series of chutes 182 with a receiving-mouth located at an upper part of the building, the hoistway and the post-station chutes having their discharging ends terminating in the hoistway at a lower part of the latter, of 80
the elevator 165 having the compartment 164, means for raising and lowering the elevator, and an adjustable stop for limiting the descent of the elevator whereby its lower po- 85
sition may be such as to insure its compartments matching with the discharging-mouths of the post-station chutes, substantially as shown.

Signed by me at Springfield, Massachusetts, this 16th day of January, 1899.

GEORGE ALFRED OWEN.

Witnesses:

WM. S. BELLOWS,
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