

A. B. UPHAM.
STORE SERVICE SYSTEM.

No. 284,989.

Patented Sept. 11, 1883.

Fig. 1.

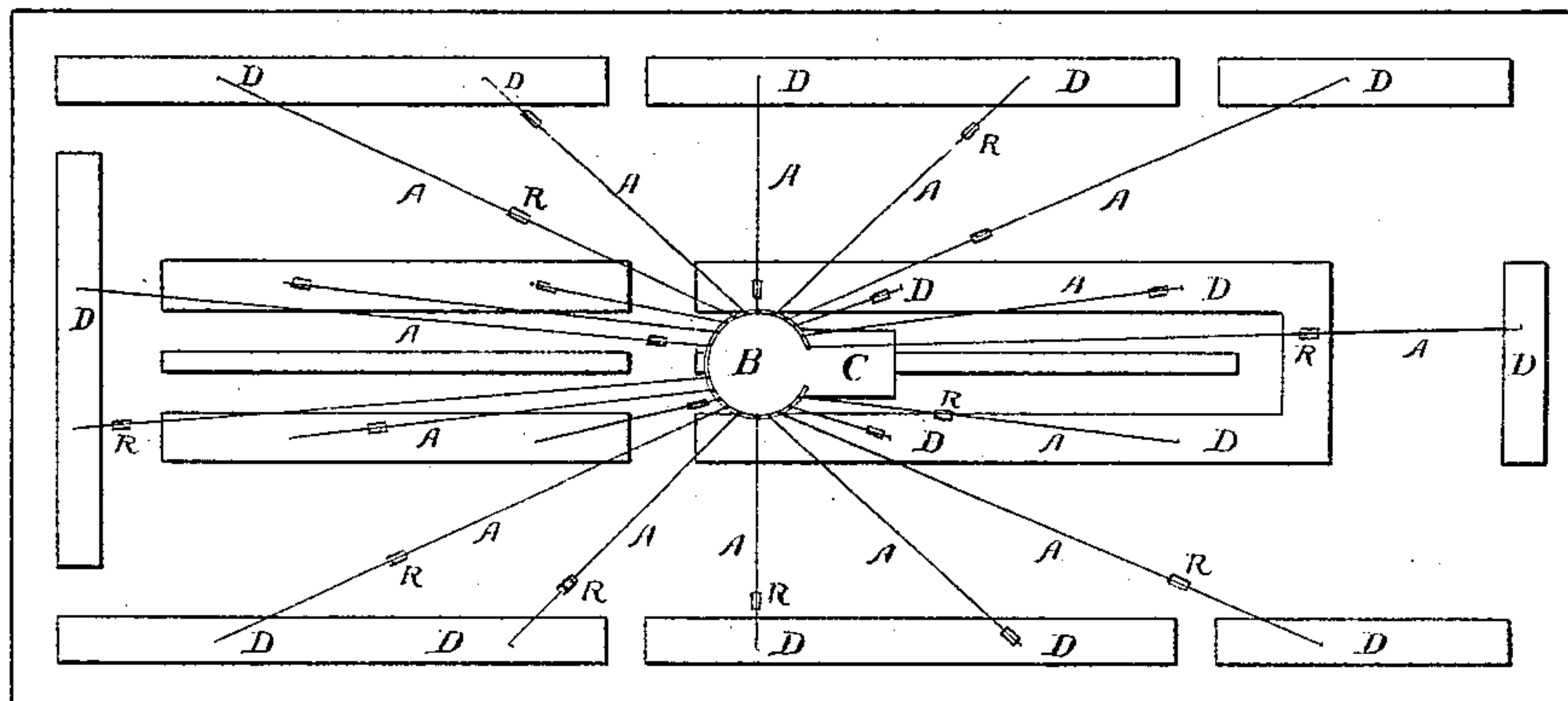


Fig. 2.

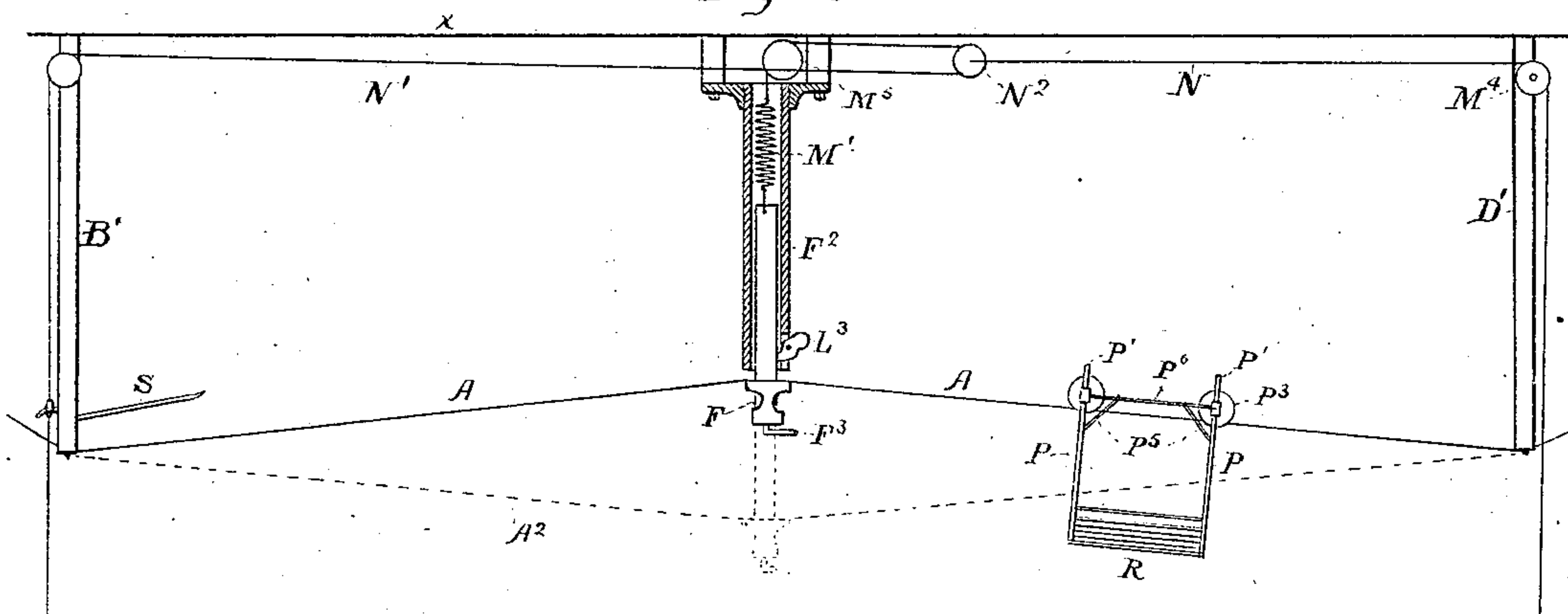
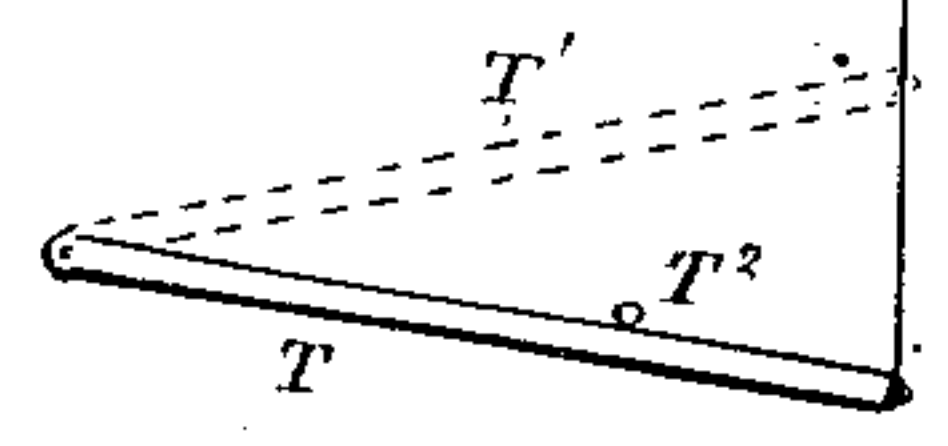
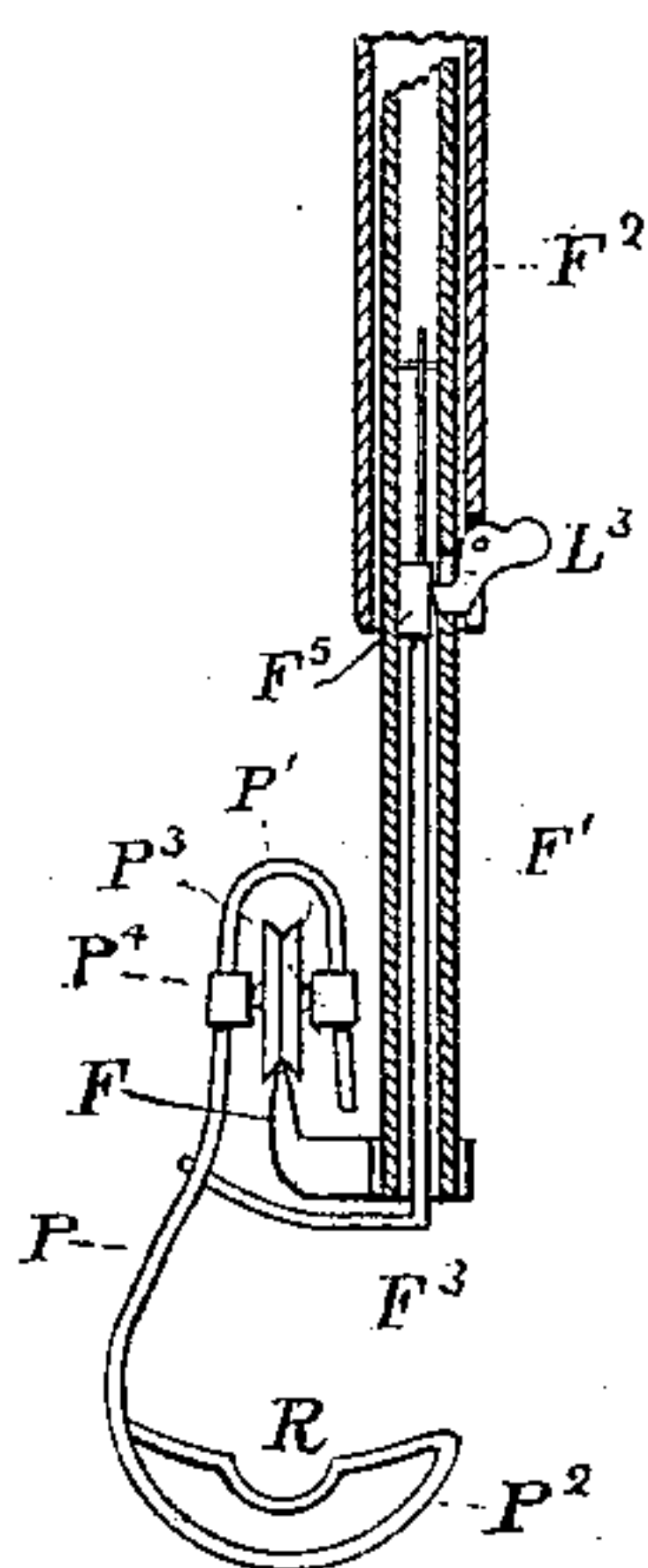


Fig. 3.



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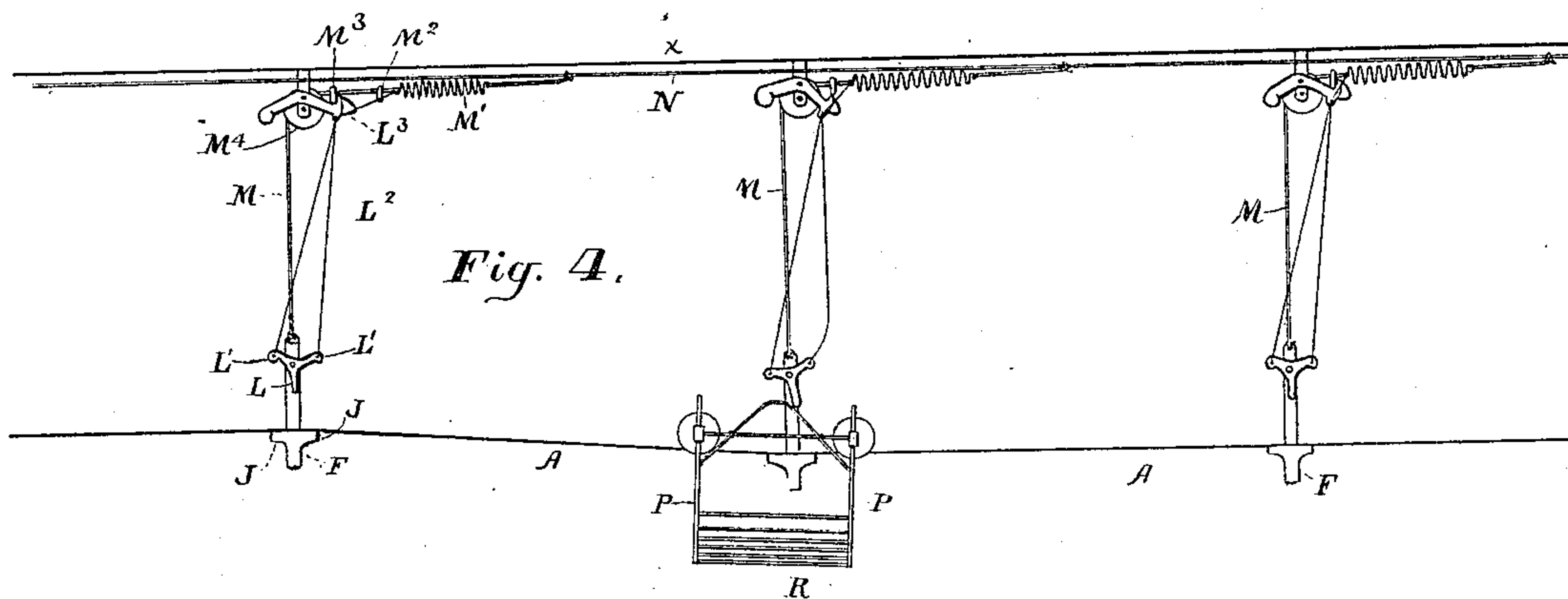


Fig. 4.

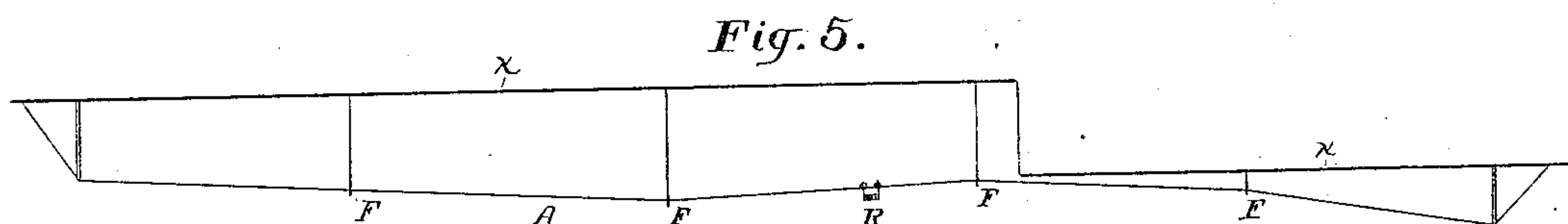


Fig. 5.

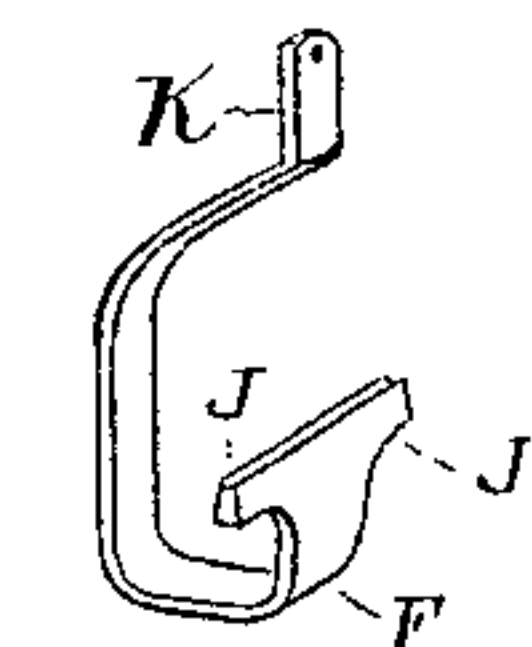


Fig. 6.

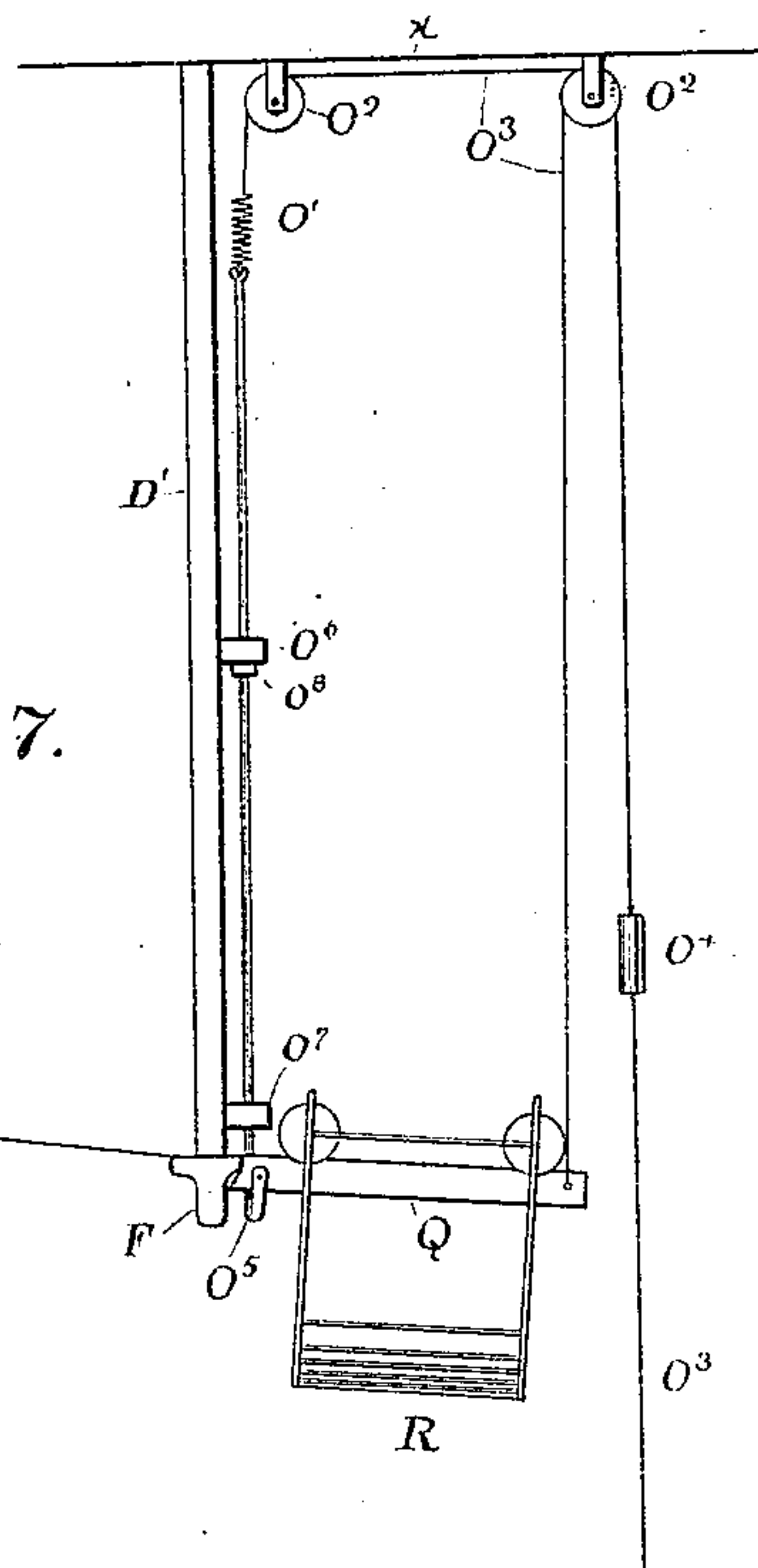


Fig. 7.

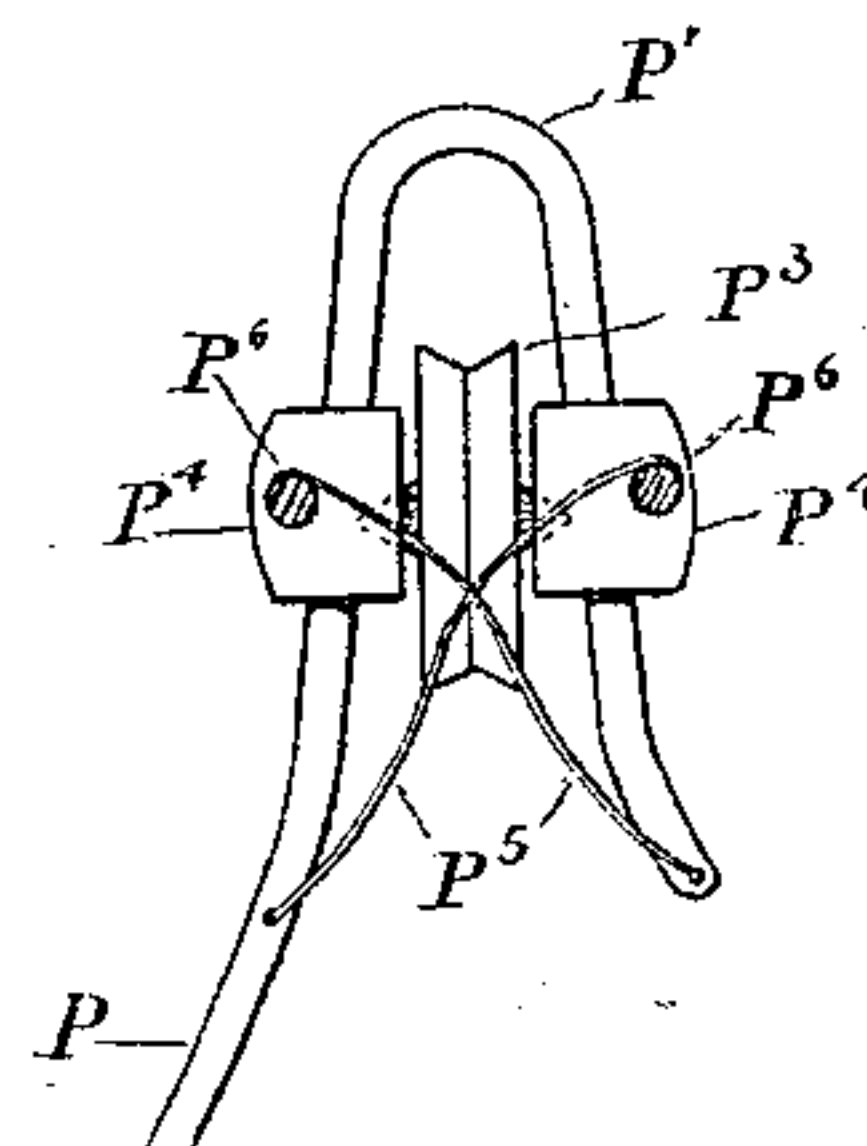


Fig. 8.

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UNITED STATES PATENT OFFICE.

ARTEMAS B. UPHAM, OF PEORIA, ILL., ASSIGNOR OF ONE-HALF TO HENRY W. WELLS AND RICHARD A. GOLDSBROUGH, OF SAME PLACE.

STORE-SERVICE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 284,989, dated September 11, 1883.

Application filed June 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, ARTEMAS B. UPHAM, of Peoria, in the county of Peoria and State of Illinois, have invented an Improved Store-Service System; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a plan of the same; Fig. 2, an elevation of one of the tracks; Figs. 4 and 5, elevations of modified forms of the tracks or wires; Fig. 7, an elevation of carrier-elevator; Figs. 3, 6, and 8, details.

The object of this invention is the construction of a system whereby bundles and cash can be transported between the different counters of a store and a central office. The means by which cash and bundles are thus transported consist of tracks radiating from the central office to the different counters—one track or set of tracks for each counter or clerk—and a cash and bundle receptacle for each track, together with means for moving said receptacles from end to end of their respective tracks. In case the store is a large one, I would locate the office at the center of the room; but if small, it might do to locate it at the end. Where the clerks are numerous, two neighboring ones could use the same track and carrier.

In the plan of my arrangement shown in Fig. 1 of the drawings, D D, &c., are the clerks' counters. A A A, &c., are the tracks leading from points above said counters to the central office B. R R are the carriers, movable upon the tracks A.

The methods by which the carriers or receptacles R can be moved upon their respective tracks, from end to end of the same, can be classified as follows: by power against said carriers from the counters or the office, by force stored within the carriers, or by the action upon them of gravity. This application deals more especially with the last-mentioned of these ways. This form is, however, divisible into a number of modifications. The first is to furnish each carrier with two oppositely inclined tracks, by which it goes upon one

from the counter to the office and returns by the other. The second is to furnish each carrier with one track having one or both ends vertically movable; and the last is by moving vertically one or more intermediate parts of the track, with its ends stationary. These tracks may be each formed of two small parallel bars of wood, of a single inflexible rod, of cord or cable stretched taut, or of wires. Of these materials the latter is the best adapted for forming a durable, simple, and cheap track. As wires are so small as to be scarcely noticeable when suspended overhead in a store, there can be no objection, on the score of looks, to having separate wires running from the central office to all the different clerks or counters.

Since this invention is a parcel as well as cash carrier system, I design the central office, B, to be occupied by the bundle-wrapping clerk, and locate the cashier in an adjoining office, C, situated somewhat below the level of the former, to allow wires and their carriers to traverse directly over the cashier, if necessitated by the arrangement of the counters. In this system the clerks are not expected to wrap up the articles purchased of them, but are to place the same, together with the money paid therefor, into the carrier-receptacles, by which they are transported to the desk or office B. The wrapping-clerk at this desk empties the carriers, hands the money therein to the cashier, and proceeds to check, envelope, and tie up the contained articles. The cashier having made the correct change, in cases where change was wanted, hands the same back to the bundle-wrapper, who places parcels and all in their proper carrier and sends each back to its clerk. To prevent mistakes—such as putting the change with the wrong bundle or sending the bundles to the wrong clerks—I make the rule that the carriers, when at the central office, B, are not to be removed from their wires. If more than one carrier comes to the bundle-wrapper at the same time, he is to empty only one of them at a time, and is to refill and send off each carrier before he removes the contents of the next.

In this application the way I have devised by which to cause the carriers to move from

the clerks to the office and back again consists of elevated wires having intermediate parts of their lengths vertically movable. For the sake of clearness in describing the construction and operation of my wire-moving mechanisms and the carriers moving thereon, I shall speak of my store-service system as though consisting of but one wire and carrier, running between the central office and a clerk.

In Fig. 2 the track-wire A is fastened at its ends to the depending rods B' D', having suitable stay-wires, and the center of said wire A is attached to a vertically-movable offset support, F. The small pipe, F', to the lower end of which said support is secured, is adapted to slide within the larger section of pipe, F². This latter pipe is fast to the ceiling X; but the former is supported by means of the cord N, running over pulleys M⁴ to the clerk's counter or the central office. A spring, M', is inserted between said cord and pipe F'. The pipe F', when unsupported by the cord N, depresses the wire A till both are as shown by the dotted lines A², and the catch L³ enters an opening in the side of said pipe F'. Upon pulling strongly on the cord N and securing it, the spring M' has to yield, since its other end is held stationary by the immovable pipe F'. The carrier, being placed upon the wire A, at once gravitates toward the depressed center of the same; but the arm F³ of a small rod located in the pipe F', being in the way of said carrier as it reaches the offset support F, is struck and deflected thereby. At the upper end of said rod is a small cam fastened thereto, which, being turned by the said deflection, presses the catch L³ out from the opening in the pipe F'. Said pipe, being therefore released from its stop-catch, is drawn upward by the stretched spring M', the wire A of course rises with it, and the carrier, having by its momentum passed the support F while the same was rising, rolls on down to the end of the wire A opposite to that at which it was put on. To return the carrier the cord N is again relaxed and pulled, as before, and the journey is remade in the same way. To enable the wire to be manipulated at both ends, I have the cord N terminate in a pulley, N², and run the cord N' about this pulley, securing one end to the spring M' and carrying the other end to the end of the wire A opposite to the cord N. To allow the carrier to pass the offset support F, it must be suspended from its wheels P³ at one side of the wire only.

By having several vertically-movable supports F introduced between the ends of the wire A, this wire can be stretched for a long distance, and the carrier be made to go from end to end of the same with but a short movement of each of the supports F. Such an arrangement as this is shown in Figs. 4 and 5. Here, however, the construction of the support-adjusters is changed from that just described. Fig. 5 is a diagram showing how by this method the carrier can be made to as-

cend from a lower to a higher point. The descent can be by rolling down on the straightened wire. Such a change of elevation of the starting and arrival points is necessitated when I am obliged to send my carrier from a low-studded to a high-studded room, or vice versa. This also enables me to run my wire track from near the ceiling of the store down through a low doorway, and thence gradually up near the next ceiling. The wire A, being small, offers no obstruction to impede the closing of the door through which it runs. A narrow crack would, however, have to be left at the top of the door, and the same closed only when the carrier is not in use. The device shown in Fig. 4 for elevating the offset supports F, as the carrier passes over each, is simpler and cheaper than the pipe arrangement previously shown, and is therefore the more preferable for ordinary use. Here the offset support F is hung from a cord or flexible wire, M, and is made C-shaped, as shown in Fig. 6. To prevent it from swinging around against its wire A, it is provided with short arms J J, to which the said track-wire A is fastened. The cord M, from which the support F is suspended, goes up over a pulley, M⁴, hung from the ceiling X, and is tied to one end of a spring, M'. The other end of said spring M' is attached to a cord or wire, N, running along under the ceiling, and coming down at one end over a pulley, M⁴, to within reach of the clerk.

The catch L³, pivoted to the bearings of the pulley M⁵, is arranged to clutch the button M², fastened to the cord M. The cords L², joining said catch L³, and the angle-iron L L', pivoted to the end K of the offset support F, uncouple the said catch L³ from the button M² whenever a carrier passes over said support F, since in the passage of a carrier it impinges against the depending arm L, moving it to one side and depressing one of its arms L'. In operating this undulatory track A the cord N, as in the construction of Fig. 2, is first relaxed to allow all the supports F of the wire A to sink low enough for the stops or catches L³ to engage with their respective buttons M² on the cords M. The cord N being then pulled strongly and fastened to stretch all the springs M', the carrier is ready to be put upon the track-wire A. As the carrier rolls down to the first support F, the arm L is swung up, the stop or catch L³ thereby disengaged from the button M², and the cord M being therefore unimpeded, the spring M' raises it, the support F, wire A, and carrier thereon. The carrier then rolls on down to the next support F, by which it is in the same way sent on to the next. In the same way the carrier is made to return to its starting-point. In Fig. 4 are shown three supports F in as many different positions.

My carrier consists, essentially, of a light basket suspended at one side alone from two wheels arranged to roll easily upon the track, rod, or wire A.

R represents the basket-receptacle, made of light wire or other material, secured to the bent metal rods P P. (See Fig. 3.) In the bend P' at the upper part of each rod P is a
 5 grooved wheel, P³, whose axle has bearings in blocks attached thereto. The ends of the axles of the wheels P³ are conical, and the bends P' are made acute, that, as the ends of said axles and their bearings wear loose, the
 10 blocks by being moved upward approach each other, and thus take up the end wear. Fig. 8 shows this construction on a larger scale, and also indicates the wire-guides P³, by which, in placing the carrier upon the wire A, the lat-
 15 ter is directed to the grooves of the wheels, and prevented from getting between said wheels and their bearings.

In this store-service system the track-wires all have to be high above the heads of the cus-
 20 tomers. The bundle-wrapping clerk and the cashier can be situated upon a level with the ends of said wires A; but the clerks require some method whereby they can easily reach the carriers. The means by which I accom-
 25 plish this is by removing the carriers from their wires A and lowering them to within easy reach of the clerks. The carriers, after being filled, are then elevated up to and placed upon their wires, and allowed to gravitate to
 30 the central office B. My elevator for this purpose consists, as shown in Fig. 7, simply of a short section of inflexible track, Q, vertically movable at the end of its track-wire A. To allow a carrier to roll from the wire A to the
 35 said elevator Q and back, this end of the wire A must be fastened to its bar D' by means of an offset support, F. This elevator Q is supported by the small metal rod O at one end and cord O³, and at its other end by the cord
 40 O³ and pulleys O² O². The lower end of the rod O is bent into an offset, O⁵, pivotally secured to its end of the elevator Q. This rod, by passing through the eyes O⁷ O⁶ on the bar D', retains the elevator Q in line with its end of
 45 the wire A. A counterpoised weight, O⁴, retains the elevator Q, when empty, up in contact with its wire A. The end at O⁵ of said elevator is prevented from rising higher than the offset support F by the collar O⁸ on the
 50 rod O. The cords O³ O³ are so adjusted as to cause the outer end of the elevator Q to hang low enough to keep the carrier, when thereon, from rolling off the end at O⁵. The cord O³, being fastened directly to the other end of the
 55 said elevator, holds the carrier from going off at that point. A spring, O', is introduced between the end of the rod O and its supporting-cord O³.

In use the carrier rolls from the track-wire
 60 A onto the elevator Q, overbalances the weight O⁴, and both elevator and carrier sink to the clerk's counter, or to any desired point above. In restoring the carrier to the wire A the clerk pulls down upon the cord O³ until the
 65 elevator reaches its wire. He continues to pull; but the collar O⁸ being stopped by the

eye O⁶, the spring O' yields, and the outer end of said elevator is raised still higher, and the carrier rolled thereby off onto the wire A.

As a carrier usually reaches the end of its track-wire with some little energy to spare, I fasten a spring, S, to the bar B', to one side of and at an acute angle with the track-wire A. The outer end of this spring-arm S is to be a
 75 little higher than the part P' of the carrier, and its inner end is to be lower. The carrier, running in under this spring, soon gives up, in friction therewith, all its remaining mo-
 80 mentum. The said spring also serves to hold the carrier from running away backward should there be sufficient slack to the wire A to give it such a tendency. When the wire A falls to its position A², the carrier is freed from the pressure of the spring S and can gravi-
 85 tate away.

What I claim as my invention, and for which I desire Letters Patent, is as follows, to wit:

1. In a store-service system, tracks, rods, cords, or wires radiating from a central office
 90 to the different counters, in combination with means whereby carriers are made to traverse thereon between the said central office and the counters, each carrier having its own inde-
 95 pendent way.

2. In a store-service system, tracks, rods, cords, or wires radiating from a central office to the different counters, in combination with means whereby there are made to gravitate
 100 between said central office and the counters carriers put thereon, each having its own independent way.

3. In a store-service system, tracks, rods, cords, or wires radiating from a central office to the different counters, in combination with
 105 carriers adapted to roll thereon, and means whereby parts of said tracks, rods, cords, or wires can be so elevated and depressed as to cause said carriers to gravitate from end to end of their respective ways.

4. In a store-service system, tracks, rods, cords, or wires radiating from a central office to the different counters, in combination with carriers adapted to roll thereon, and means
 110 whereby intermediate parts of said tracks, rods, cords, or wires can be so elevated and depressed as to cause said carriers to gravitate from end to end of their respective ways.

5. A track, rod, cord, or wire having its ends fixed and one or more intermediate parts
 120 of its length vertically movable, whereby a carrier thereon is made to gravitate from end to end of the same, substantially as specified.

6. A track, rod, cord, or wire, A, in combination with one or more offset supports, F,
 125 having means for elevating them, substantially as and for the purpose specified.

7. A track, rod, cord, or wire, A, fastened to movable supports F at intermediate parts
 130 of its length, in combination with means whereby said supports shall be made to tend strongly upward, but be retained therefrom by stops

capable of being detached upon the passage by each of a carrier rolling upon said way, substantially as and for the purpose set forth.

8. A rod, cord, or wire, A, in combination with one or more offset supports, F, cords M, springs M', cord N, and means for detaining said cords M by stops which shall be removable by the passage by each of a carrier rolling upon said way, substantially as and for the purpose described.

9. A rod, cord, or wire, A, in combination with offset supports F, cords M, pulleys M', buttons M', clutches L' and means for automatically detaching the same, springs M', and cord N, substantially as and for the purpose specified.

10. A rod, cord, or wire, A, in combination with one or more offset supports, F, angle-irons L L', cords L', cords M, pulleys M', buttons M', clutches L', springs M', and cord N, substantially as and for the purpose set forth.

11. In a support for a cord or wire, A, the offset support F, suspended from a cord, and having means whereby the pull of its supported wire A shall prevent its swinging around against the same.

12. In a support for a cord or wire, A, the offset support F, having arms J J, whereby it is prevented from swinging around against said supported wire or cord A.

13. In a store-service system, the bent metal rods P P, in combination with receptacle R, secured to their lower ends, and wheels P', having bearings in the bends P' of said rods P P, substantially as and for the purpose specified.

14. A receptacle, R, bent metal rods P P, having acute bends P' P', and adjustable blocks P', in combination with the grooved wheels

P' P', having conical axles, substantially as and for the purpose described.

15. As a means whereby a wire or cord, A, is guided to the grooves of a carrier's wheels when the latter is being placed thereon, converging surfaces secured to said carrier immediately in front or behind its wheels, substantially as described.

16. In combination with the rods P P and wheels P' P', the converging wires P', substantially as and for the purpose set forth.

17. In combination with a track, rod, cord, or wire, A, a short section of similar track, Q, vertically movable at the end of the same.

18. In combination with a track, rod, cord, or wire, A, a short section of similar track vertically movable at the end of the same, and having means for tilting said short section, whereby a carrier can be kept thereon or rolled off, as desired.

19. As a means whereby to raise and lower a carrier to and from the end of the cord or wire A, the rod Q, in combination with offset supporting-rod O, cords O' O', and suitable pulleys, substantially as set forth.

20. In combination with the cord or wire A and bar D', having offset support F, the elevator Q, bent rod O, eye O', spring O', cords O' O', pulleys O' O', and the weight O', substantially as and for the purpose described.

In testimony that I claim the foregoing invention I have hereunto set my hand this 4th day of June, 1883.

ARTEMAS B. UPHAM.

Witnesses:

NICHOLAS GOLDSBROUGH,
C. N. MIHIGAN.