(No Model.) 3 Sheets—Sheet 1.

I. BIRGÉ.

STORE SERVICE APPARATUS.

No. 300,198. Patented June 10, 1884.

Fig. 1.

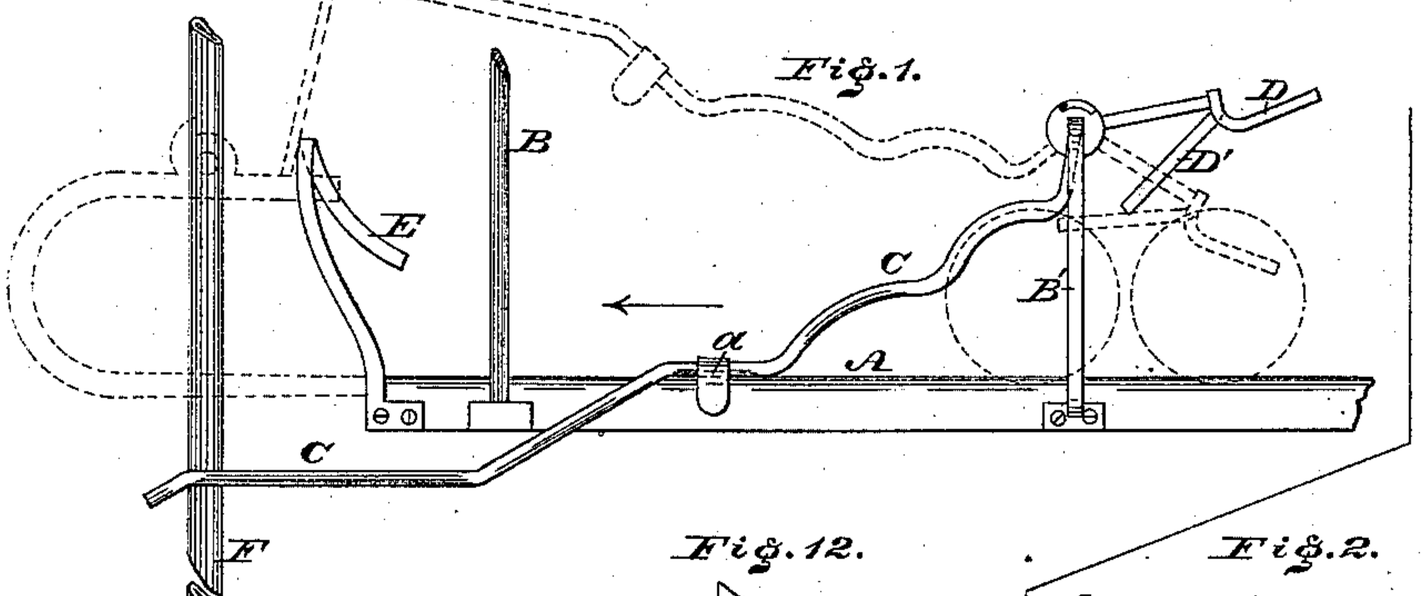


Fig. 12.

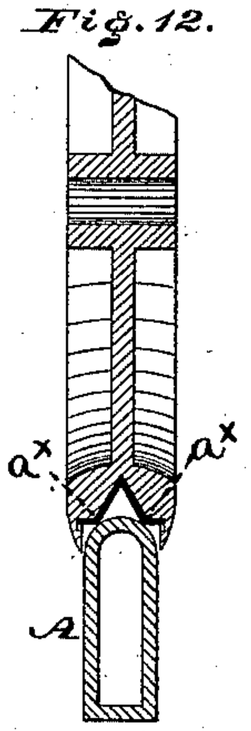


Fig. 2.

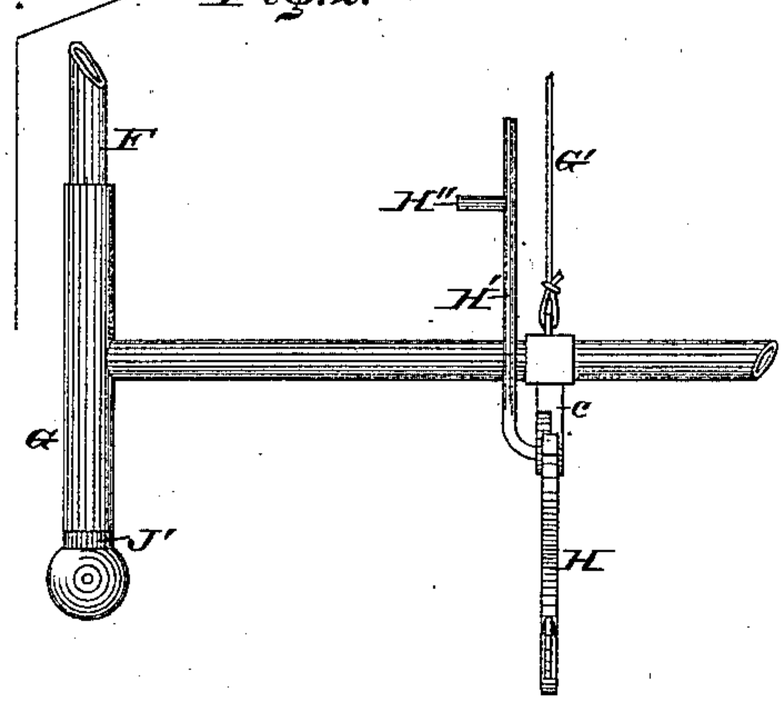


Fig. 3.

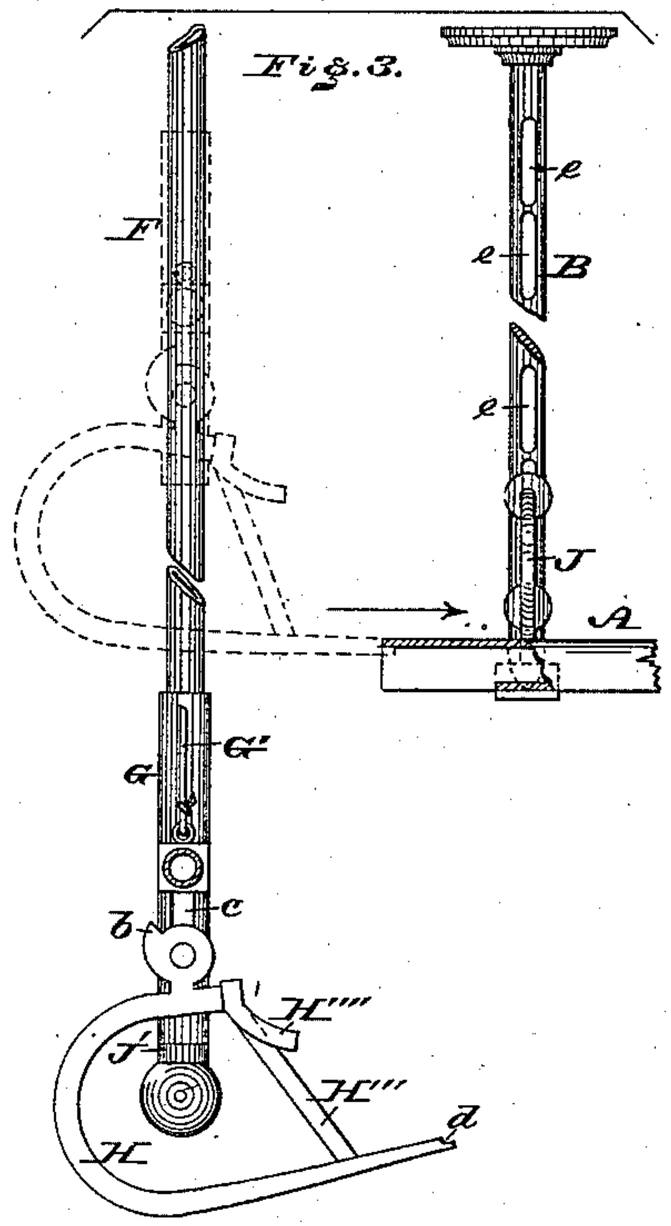
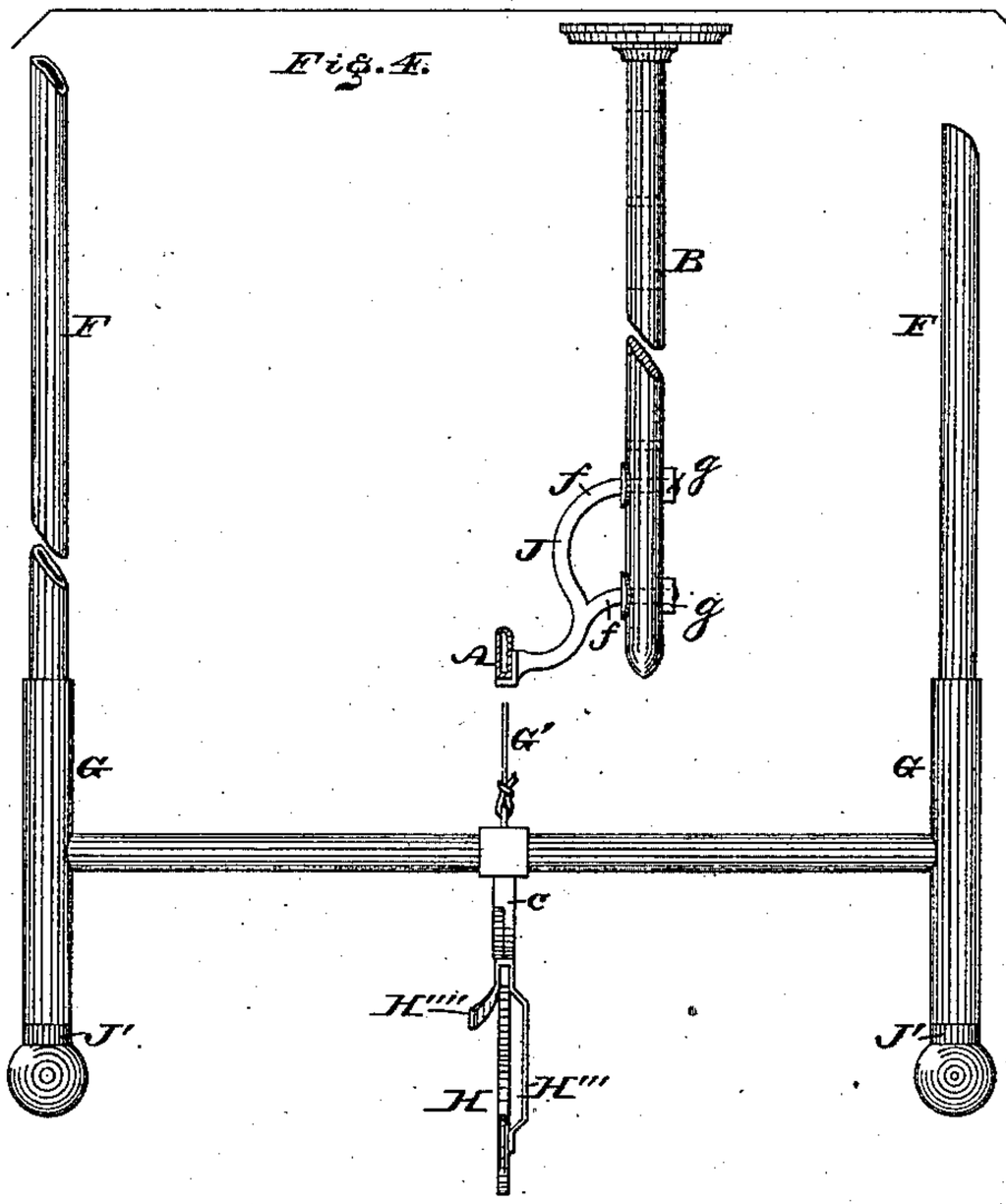


Fig. 4.



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(No Model.) 3 Sheets—Sheet 2.

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STORE SERVICE APPARATUS.

No. 300,198. Patented June 10, 1884.

Fig. 5.

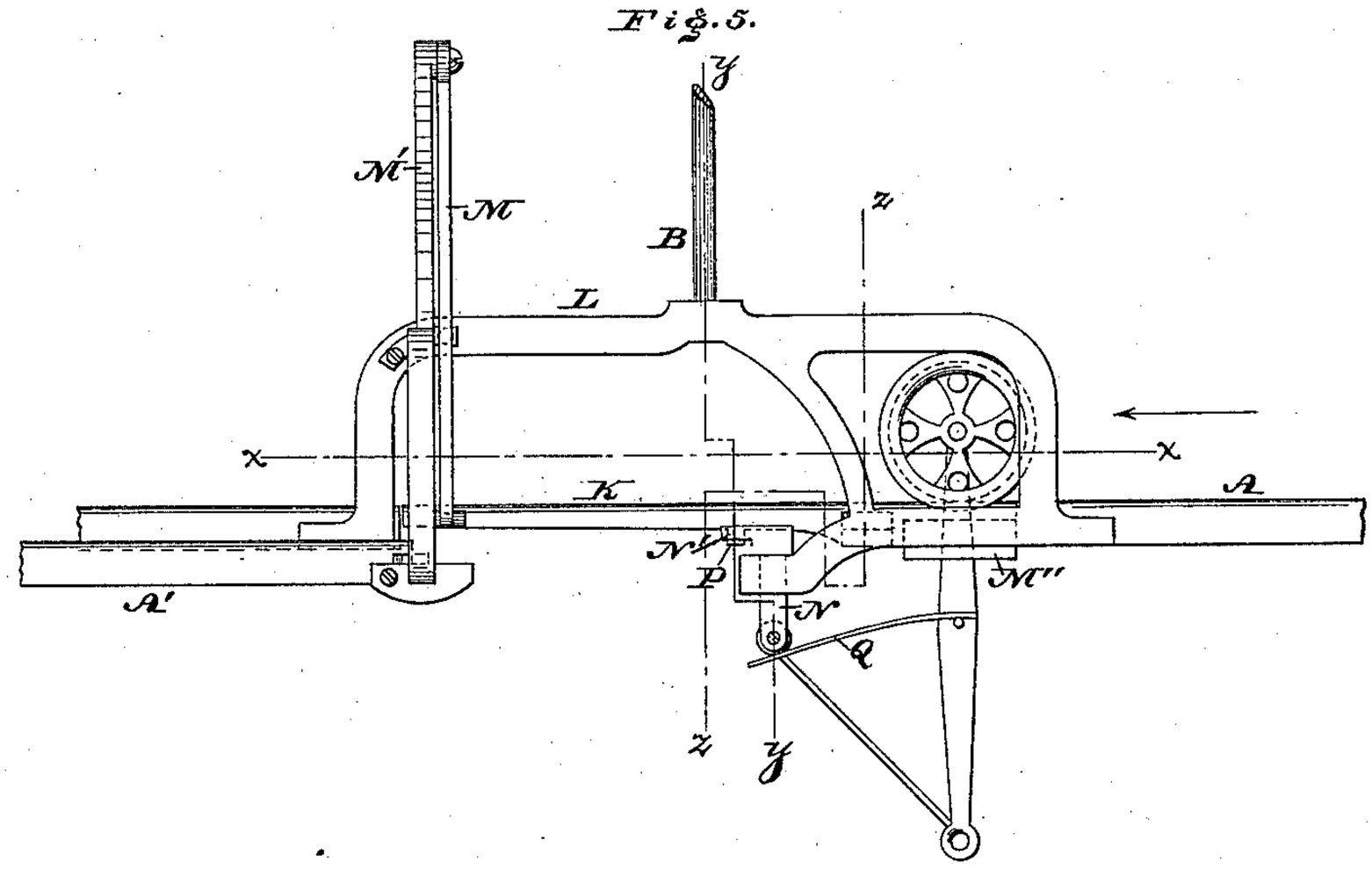


Fig. 6.

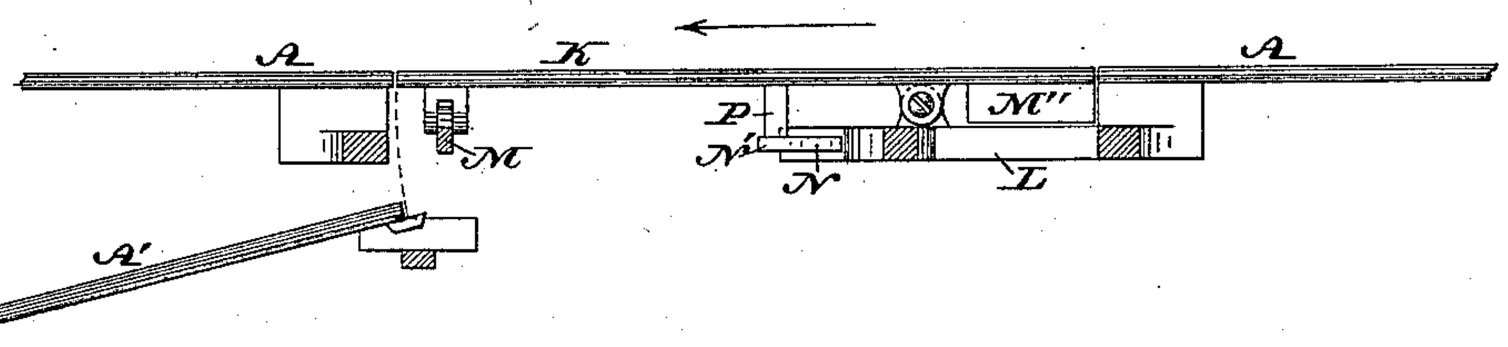


Fig. 7.

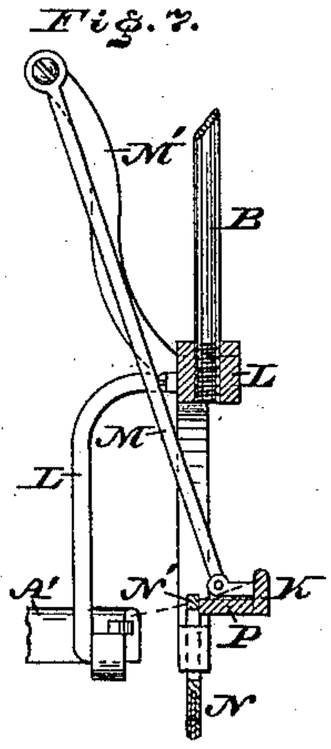


Fig. 13.

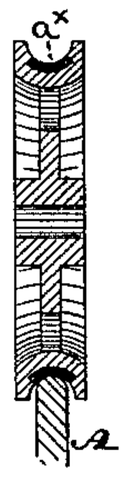
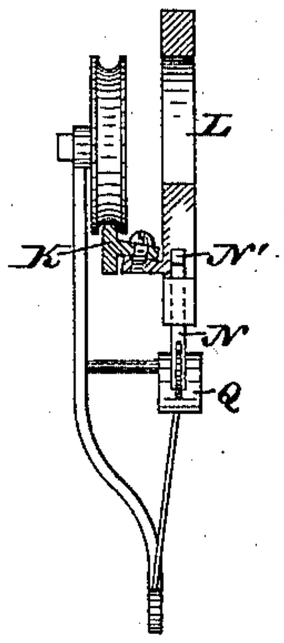


Fig. 8.



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(No Model.) 3 Sheets—Sheet 3.

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STORE SERVICE APPARATUS.

No. 300,198. Patented June 10, 1884.

Fig. 9.

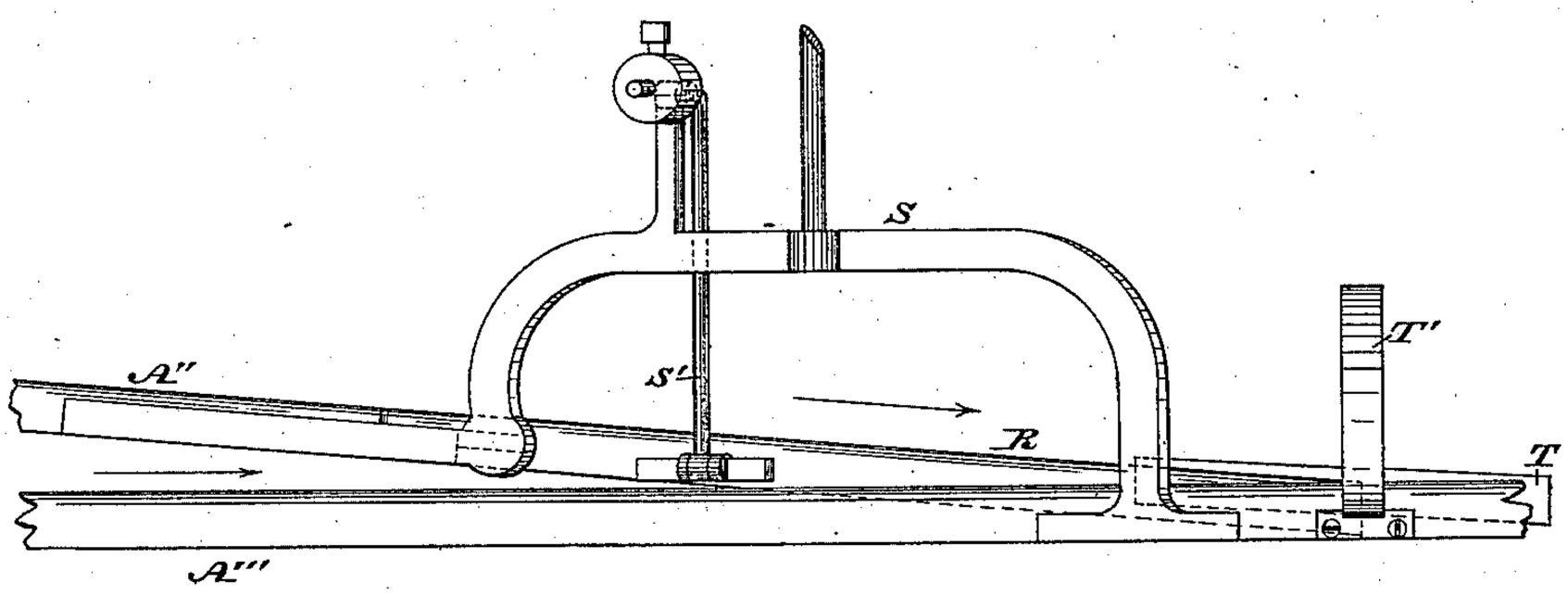


Fig. 10.

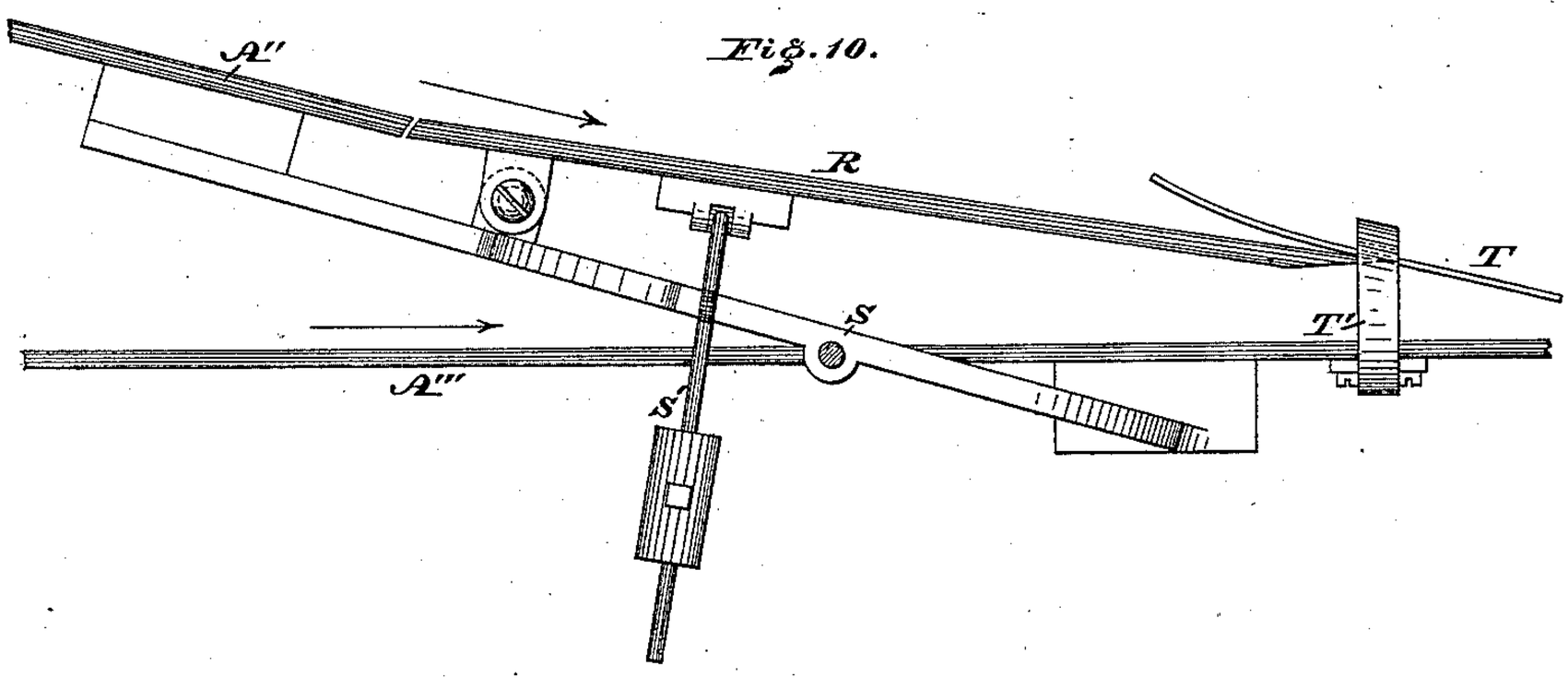
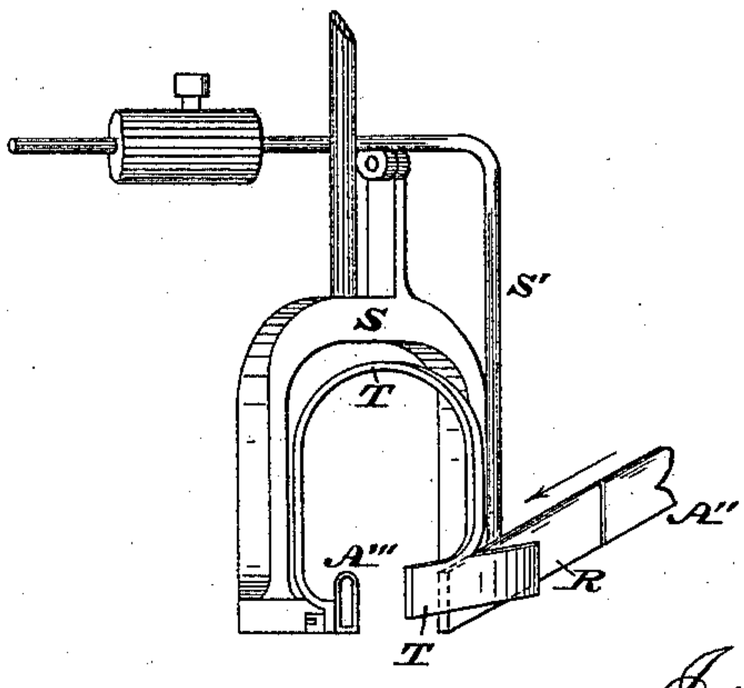


Fig. 11.



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UNITED STATES PATENT OFFICE.

ISIDORE BIRGÉ, OF PHILADELPHIA, PENNSYLVANIA.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 300,198, dated June 10, 1884.

Application filed March 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, ISIDORE BIRGÉ, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Store-Service Apparatus, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of a receiving portion of a store-service apparatus embodying my invention. Fig. 2 is an end view of Fig. 1. Fig. 3 is a side elevation of the sending or forwarding portion of store-service apparatus embodying my invention. Fig. 4 is an end view of Fig. 3. Fig. 5 is a side elevation of a switch used on the rail running to the receiving end of a store-service apparatus embodying my invention. Fig. 6 is a horizontal section in line *x x*, Fig. 5. Fig. 7 is a vertical section in line *y y*, Fig. 5. Fig. 8 is an irregular vertical section in line *z z*, Fig. 5. Fig. 9 is a side elevation of a switch used on the rail for the returning carrier of a store-service apparatus embodying my invention. Fig. 10 is a top or plan view of Fig. 9. Fig. 11 is an end view of Fig. 9. Fig. 12 is a vertical section of part of a carrier-wheel and the rail of the apparatus, said wheel having the points of contact for the rail clad with rubber or other elastic material to prevent noise of the wheel when running, the construction occasioning but little friction between the wheel and rail. Fig. 13 is a modification of Fig. 12, in which the base of the groove is clad with rubber, the tread of the rail being in contact therewith.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of improvements in store-service apparatus embodying means for elevating the goods or cash, or both, to the rail or track, preventing abrupt motions of the carrier, temporarily arresting the carrier, preventing the following carrier forcing itself upon the prior carrier, a provision for vertically adjusting the tracks or rails, a novel automatically-operating switch for the advancing carrier, an automatically-operated lock for the switch, a novel switch and guard for the returning carrier, and details, as will be hereinafter fully set forth.

Referring to the drawings, Sheet 1, A represents a rail which is supported on hangers B, properly connected with the ceiling or wall of the apartment in which the apparatus is employed.

Pivoted to a standard, B′, which is secured to the rail A, is a stop bar or arm, C, which extends diagonally downward and is formed with or has secured to it a fork, *a*, which guides the arm as it descends and prevents lateral displacement of the same when in position.

Attached to or formed with the pivotal end of the arm is a forked guide, D, and a stop-piece, D′, which are brought into operative position when the bar C is raised, as shown by the dotted lines, Fig. 1.

Connected with the end of the rail opposite to the forked guide D is another forked guide, E, the object of these forked guides being to steady the motions of the carriages or carriers, the wheels whereof are shown dotted in Fig. 1, said carriers, as well known, generally swinging laterally as they roll or run, so as to be in danger of overturning, and this is checked when they reach the forked guides, whereby they lose the lateral motions and are sufficiently steadied to continue their motions without liability to overturn.

Adjacent to the guide E is a rod or tube, F, which is properly connected with the ceiling or wall, and has fitted to it a slide or sleeve, G, to which is secured a cord or rope, G′, for raising said slide, the cord passing around a pulley properly mounted on the ceiling or wall, and being within convenient reach. Pivoted to the sleeve is a cage, H, which is of the form of a U-shaped frame set partly sidewise, the upper limb carrying a rod, H′, from which projects a pin, H″, so arranged that when the cage is elevated the pin H″ strikes the lower end of the arm C and raises the same. The lower limb of the cage is longer than the upper limb, whereby as said upper limb freely passes the end of the rail A the lower limb strikes said rail, and thus sets the limbs of the cage, when the latter is in its highest position, more horizontal than when the case is in its normal position, as will be seen at the left side of Fig. 1. In order to limit the upward motion of the cage on its

pivot, the cage has formed with or secured to it around its pivot a shoulder or stop, *b*, which is adapted to strike a lug, *c*, on the sleeve G. In order that the long limb of the cage may engage with the rail A near the top thereof, the latter is made hollow, (see Fig. 12,) and said limb formed with a shoulder, *d*, so that the end of the limb enters the rail and the shoulder abuts against the upper wall thereof, whereby when the cage is fully raised the lower limb thereof is in communication with the rail and permits the carrier to roll or run from said rail into the cage and rest on the lower limb thereof.

The cage, as described, is employed for the receiving-department or cashier of the store. A similar cage, Fig. 3, is employed for the clerk or attendant who sends cash or goods, or both, to said department, excepting that the rod H′ is dispensed with and a guard, H‴, and guide H⁗ are attached to the cage, said guard extending from the upper to the lower limbs at the side of the cage, so that the carrier can only be fitted to the cage in the proper position, and thus is never started on the rail in a wrong position. The guide H⁗, which is flaring, serves to steady the carrier as it is placed on the cage, which is generally accomplished hastily, and thus overturning of the carrier is prevented.

The hangers B are vertically slotted, as at *e*, and to the same are fitted brackets J, which support the rail A, said brackets having forks or arms *f*, which enter said slots and have their ends threaded for the engagement of nuts *g*, which, tightening against the hangers, firmly sustain the brackets in position thereon, the slots *e* permitting vertical adjustment of the brackets, and consequently of the rail A.

At the bottom of the rod or tube F is secured a rubber or elastic buffer, J′, the object whereof is to receive the impact of the slide G when it descends, thus preventing injury and occasioning no noise when it reaches its lowest position. In Figs. 2 and 4 it will be seen that the cages are attached to a cross-bar which connects two sleeves G, two tubes or rods F being employed, each tube or rod being provided with a buffer J′ at its lower end.

When the carrier with cash or goods, or both, is placed on the cage, Fig. 3, the latter is raised to the track A and assumes a slight inclination, the reverse of that shown at the bottom of Fig. 3. The carrier leaves the cage and runs on the track, which is inclined toward the receiving-department, and reaches the arm C, against which it abuts. The clerk or cashier now raises the cage, Fig. 1, thus lifting the arm C, and the carrier continues its motion, passing on the cage, which latter is then lowered, assuming an inclined position, which prevents the displacement of the carrier. The clerk now returns the change, bill, or goods, as the case may be, by means of another cage, the carrier running on the proper track to the starting-point. When the arm C is elevated, the stop-piece D′ is lowered, so that should another carrier arrive it is stopped by said piece until the former carrier has entered its cage and descended therewith, when the arm C returns to its first position, so that the piece D′ is raised and the carrier is no longer thereby controlled, and so reaches the arm, where it is temporarily arrested until the case is again raised and the arm thereby moved with it. The arm C at the part where it is struck by the wheel of the carrier is curved to conform to the periphery thereof and embrace the same, whereby the wheel is securely stopped and held. In order to cause the wheel to run comparatively noiselessly on the track, the periphery thereof is grooved and clad with rubber, (see more particularly Fig. 12,) so that the metal of the wheel is not in contact with the tread of the rail, and there is but small point of contact of the wheel with the rail, as at $a^{\times}$, on opposite sides of the groove, as in Fig. 13, or the single point of contact, as in Fig. 13, occasioning but little friction between the parts and reliably deadening the noise of the running wheel.

Referring to Sheet 2, I show a switch for the carrier on its advance motion. K represents a switch-rail for directing the carrier from the rail A to the branch rail or track A′, said rail A, switch-rail K, and siding or branch rail A′ being supported on a bridge, L, which depends from the hanger B and permits the carrier to pass thereunder as it is switched from the rail A to the rail A′. The vertical pivot of the switch-rail is somewhat inclined, and the under face of the rail at the pivot end and contiguous face of the bearing-piece are also somewhat inclined. (See Fig. 8.) The other end of the switch-rail is pivoted to an arm, M, whose upper end is pivoted to a stationary arm, M′, which rises from and is secured to the bridge L, (see Fig. 7,) whereby the switch-rail describes a circular motion as it advances to and returns from the rail A′, so that the weight of the carrier automatically moves the switch to the siding or branch rail A′. The return motion of the switch-rail is occasioned by a weight, M″, on the heel end of said rail, said weight being operative when the carrier has fully cleared the switch-rail. In order to lock the switch-rail and prevent its operation, so that the carrier continues on the rail A, I employ a rising and falling bolt or latch, N, the upper end of which has a horizontally-extending lug or nose, N′, which abuts against a lug or bar, P, projecting laterally from the switch-rail, whereby the switch-rail is securely held. When it is desired to switch off a carrier from the rail A′, I provide such carrier with means for releasing the bar P, so that the switch-rail is no longer controlled by the bolt or latch N. For this purpose the side of the arm or frame of the carrier has secured to it an inclined or curved way, Q, so disposed that when it reaches the lower end of the bolt N it bears against the same and readily raises it, whereby the nose N′ is cleared of the bar P, and when the carrier reaches the

switch-rail the latter is shifted or moved to the rail A′ in a manner similar to that previously stated, the bar P passing under the nose N′. When the switch-rail returns, the bar rides under the nose until it clears the side thereof, when the bolt drops and again locks the switch-rail by abutting against said bar P.

Referring to Sheet 3, I show a switch for the returning carrier to reach the main returning-rail A‴ from the branch A″. R represents the switch-rail, which is pivoted to a bridge, S, and weighted by means of a weighted arm, S′, which is pivoted to the bridge, or a weight connected with the heel end of said rail, said weight or weighted arm, however, not being an essential feature of this switch. At the point of the switch is located a flaring guard, T, which is secured to a bridge, T′, the support of the latter being on the rail A‴, to which it is screwed or bolted, the bridge readily permitting the passage thereunder of the carriers running on the rail A‴, or switched from the rail R to said rail A‴. The bridge S sustains the switch-rail and the rails A″ and A‴ adjacent to said switch-rail. When the carrier runs over the rail R from the rail A″, it reaches the guard T, and the width of the upper portion of the carrier is such that it bears against the guard and fully faces the point of the switch-rail R against the rail A‴, and thus the roller of the carrier passes on said rail A‴ and causes the carrier to continue its motion thereon, said guard also preventing the roller from dropping from the switch-rail. When the carrier fully leaves the rail R, the latter may return to its normal position, as shown in Fig. 10, either by the action of the weight S′ or lateral pressure of a carrier on the rail A‴, whereby said rail A‴ is clear for the passage thereover of its own carrier.

It is evident that while I show two cages—one for transmitting and the other for receiving purposes—two such cages may be at both ends of a track, or simply at one end, the other end of the track being within reach of the cashier or accounting-clerk, who simply removes the cage that reaches him, attends to the cash therein, and then reapplies the cage to the track, so that it returns to the starting-point, as usual in such cases.

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

1. In store-service apparatus, a cage consisting of a U-shaped frame pivoted to a rising and falling support and set sidewise, substantially as and for the purpose set forth.

2. In store-service apparatus, a cage of U shape formed with a stop, *b*, and a rising and falling support therefor, formed with a lug, *c*, substantially as and for the purpose set forth.

3. A U-shape cage pivoted to a rising and falling support formed with a shoulder, *d*, in combination with a hollow rail, substantially as and for the purpose set forth.

4. In store-service apparatus, a cage formed with a guard, H‴, at the side thereof, substantially as and for the purpose set forth.

5. In store-service apparatus, a cage formed with a flaring guide, H⁗, substantially as and for the purpose set forth.

6. In store-service apparatus, the rail for the carrier, provided with a pivoted stop-arm which extends diagonally and is of curved form, substantially as and for the purpose set forth.

7. In store-service apparatus, the stop-arm of the carrier, formed with a fork, *a*, substantially as and for the purpose set forth.

8. In store-service apparatus, the stop-arm of the carrier, provided with a stop-piece in advance of said arm, substantially as and for the purpose set forth.

9. In store-service apparatus, the rail and the carrier, in combination with guards of forked form, substantially as and for the purpose set forth.

10. In store-service apparatus, a rail-supporting standard formed with a vertical slot, in combination with a bracket with which the rail is connected, formed with arms which enter the slot of the standard and are tightened by nuts, substantially as and for the purpose set forth.

11. In store-service apparatus, a cage attached to a rising and falling support and the guide or frame for said support, having buffers J′ at the bottom thereof, substantially as and for the purpose set forth.

12. In store-service apparatus, an automatically-operating switch consisting of a rail having a vertical pivot and a weighted heel, the contiguous faces of the switch and its bearing being inclined, the pivot also being inclined, substantially as and for the purpose set forth.

13. In store-service apparatus, a switch provided with a vertically-operating sliding latch or bolt which is raised from the switch-rail by a projection in the carrier, substantially as and for the purpose set forth.

14. The sliding latch or bolt N of the switch-rail, having a nose, N′, in combination with the rail having a bar or abutment, P, for said nose, substantially as and for the purpose set forth.

15. In store-service apparatus, a switch and a sliding bolt locking the same, in combination with the carrier formed with an inclined way adapted to raise said bolt, substantially as and for the purpose set forth.

16. In store-service apparatus, a switch-rail provided with a guard, T, and a bridge supporting the same, substantially as and for the purpose set forth.

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