

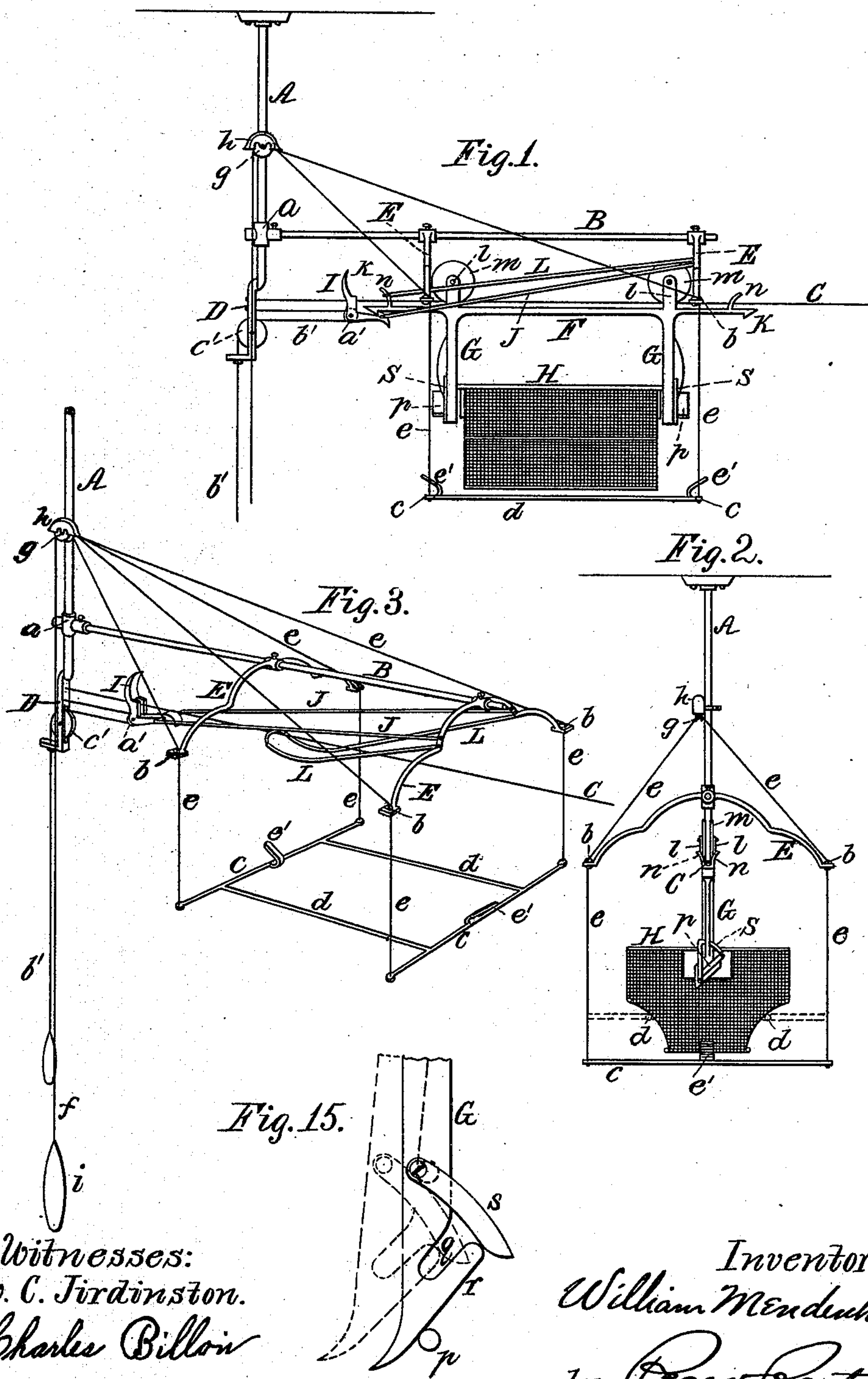
(No Model.)

2 Sheets—Sheet 1.

W. MENDENHALL.
STORE SERVICE APPARATUS.

No. 413,859.

Patented Oct. 29, 1889.



Witnesses:
W. C. Firdinston.
Charles Billon

Inventor:
William Mendenhall
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his Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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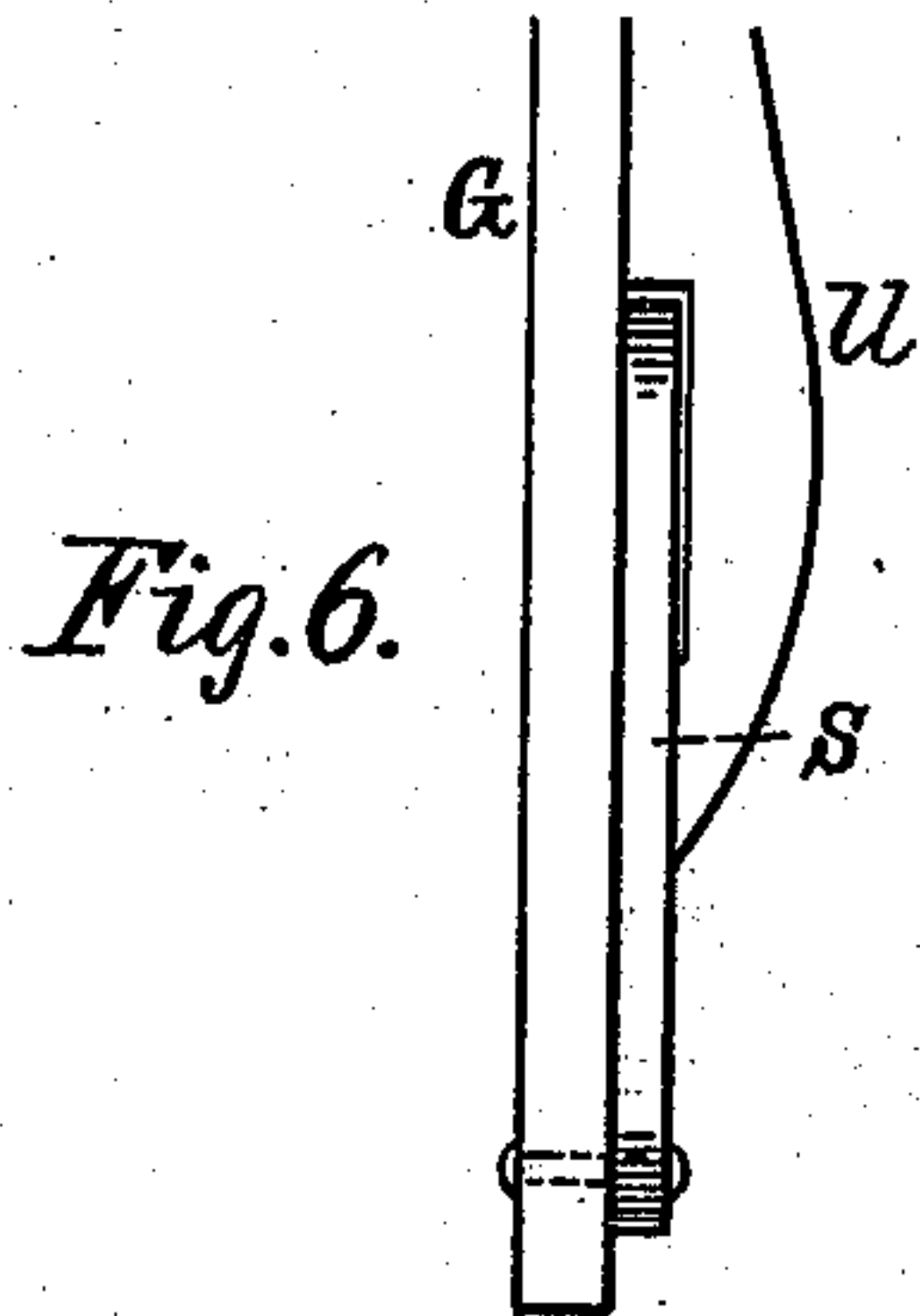
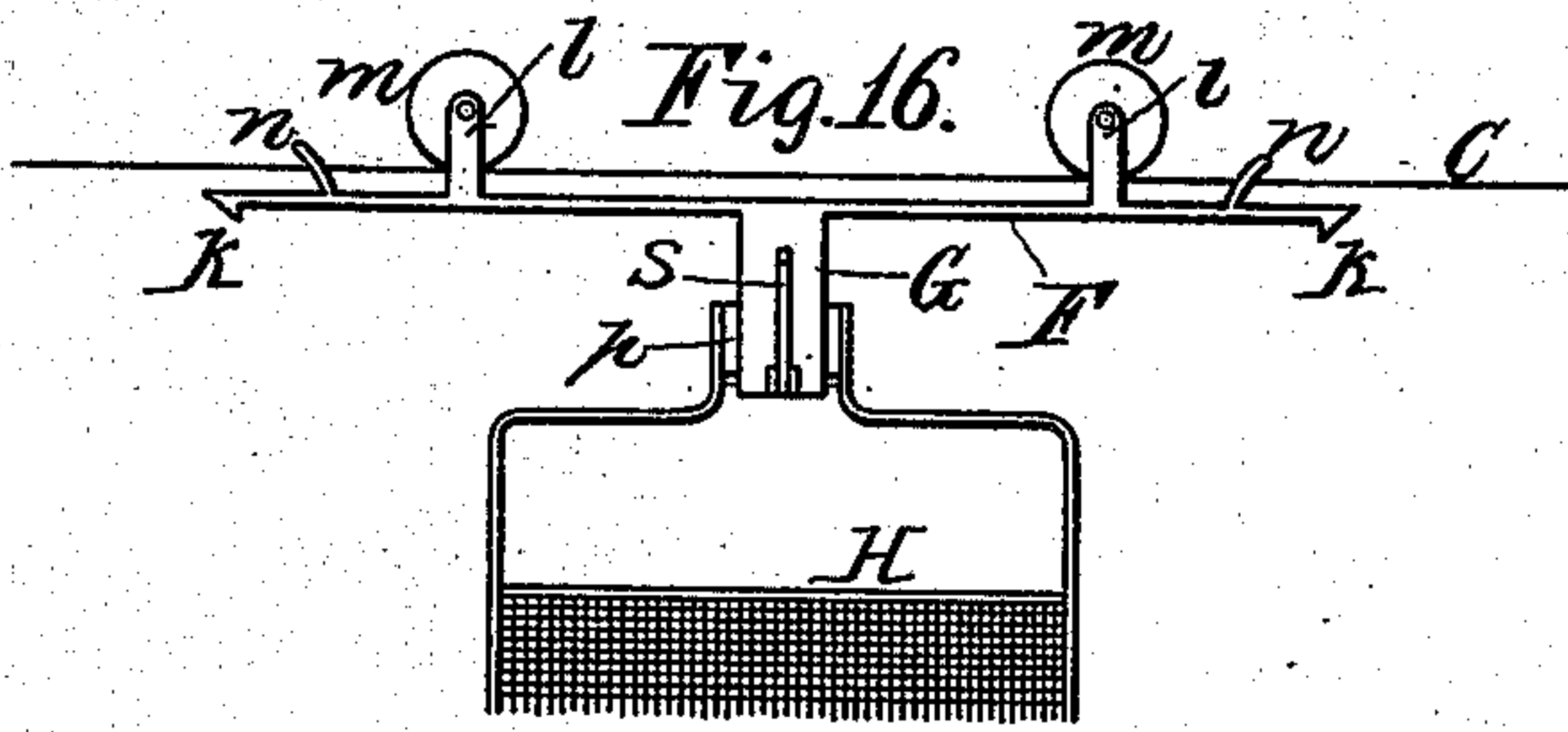


Fig. 4.

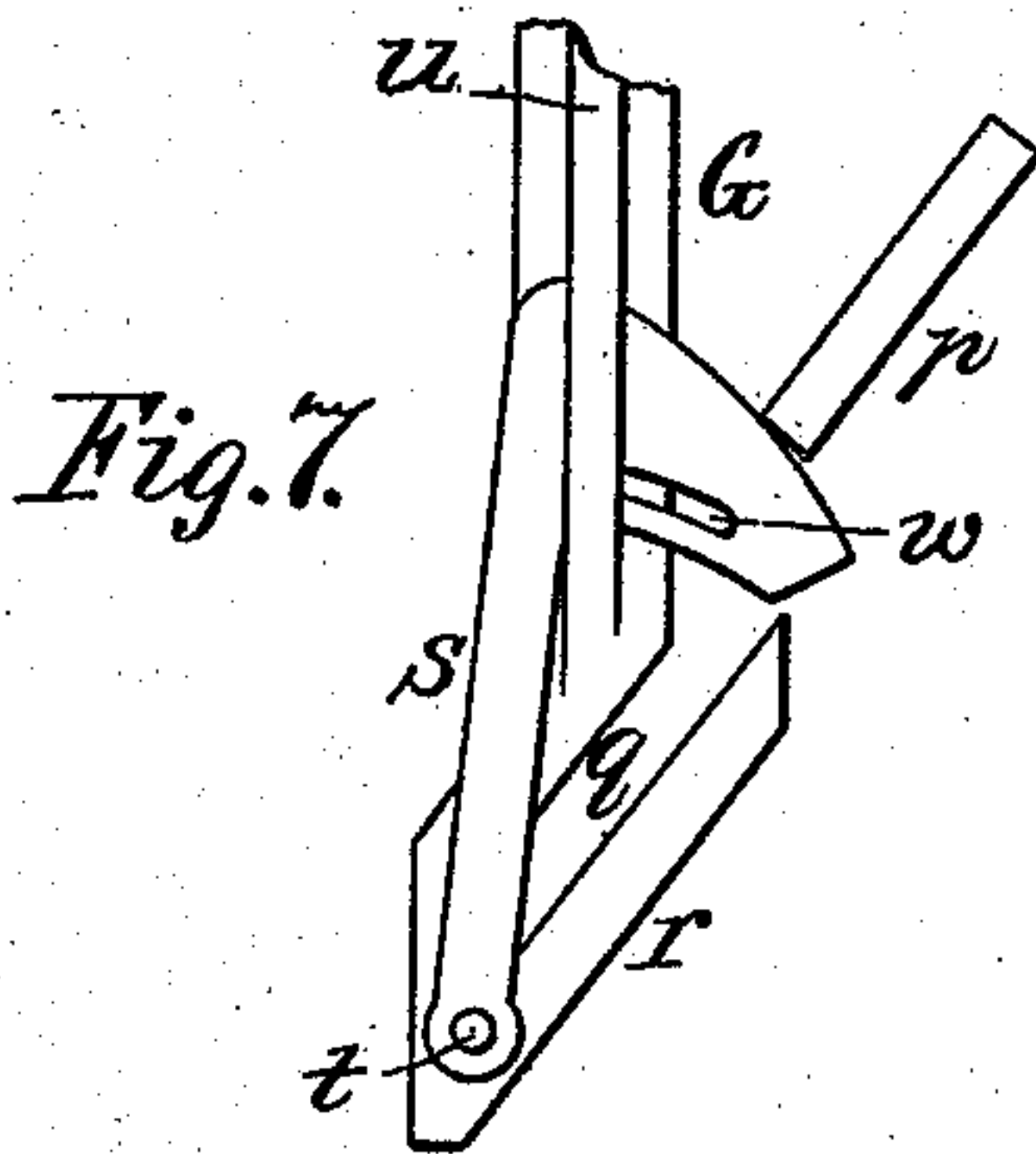
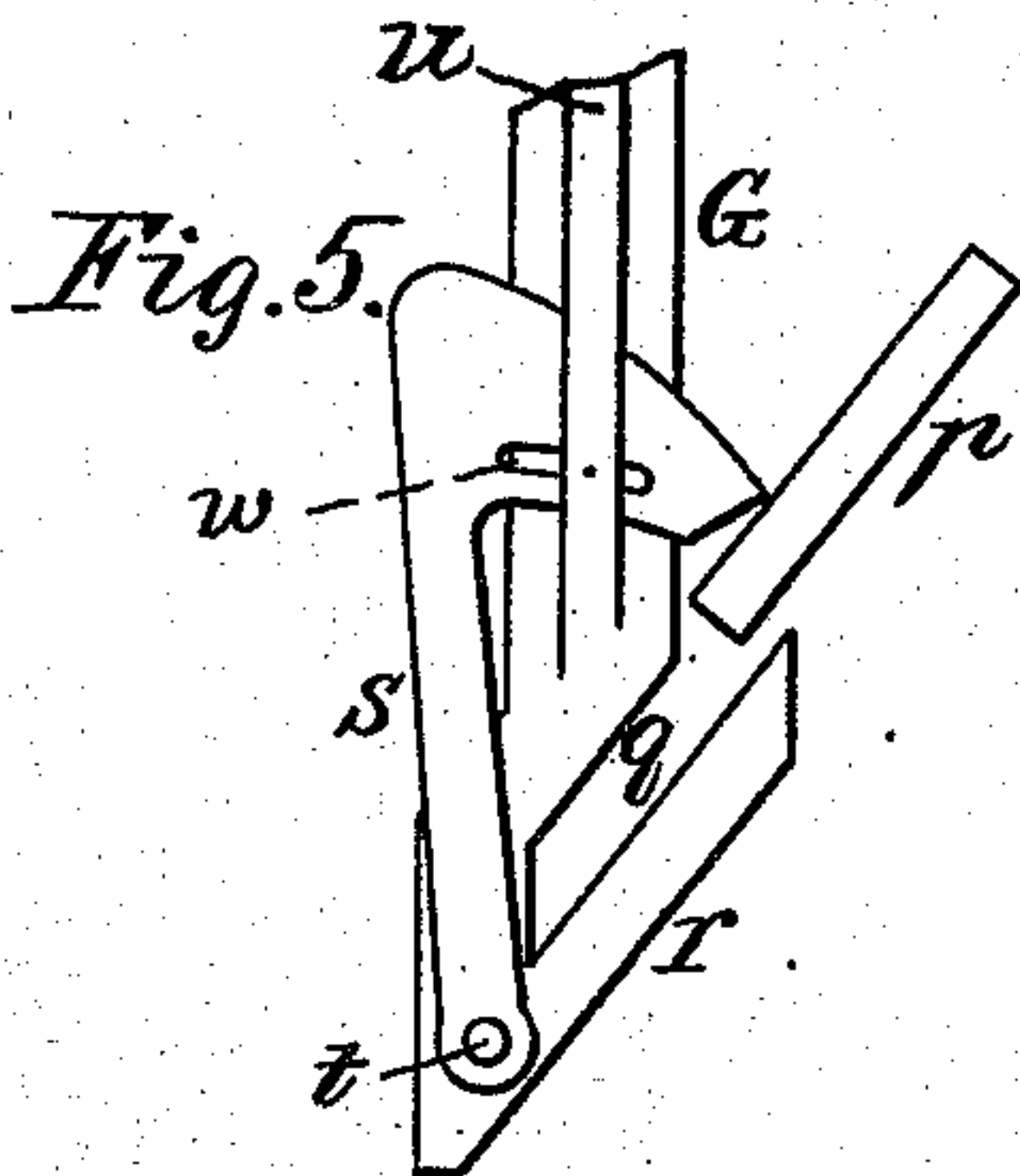
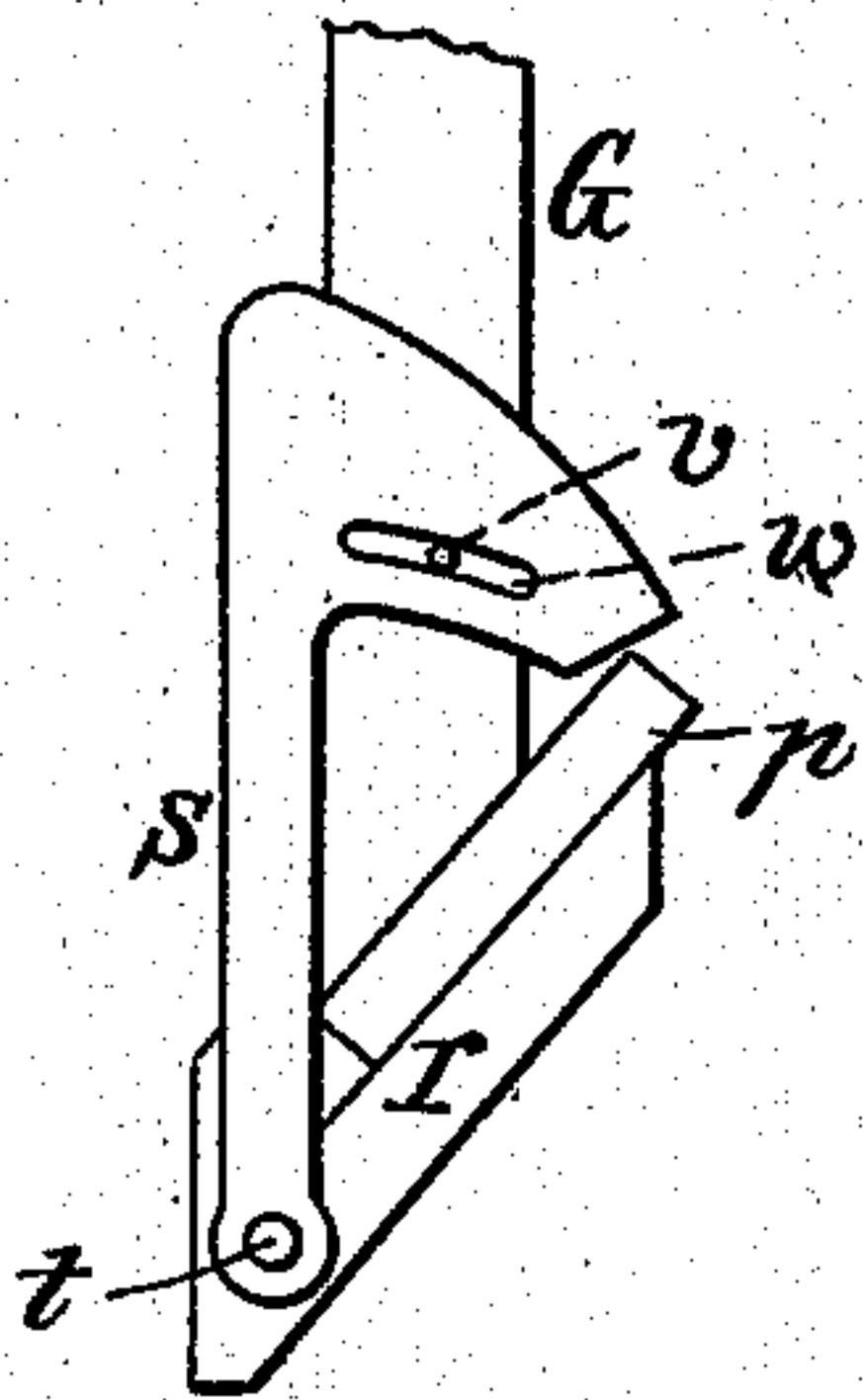


Fig. 8.

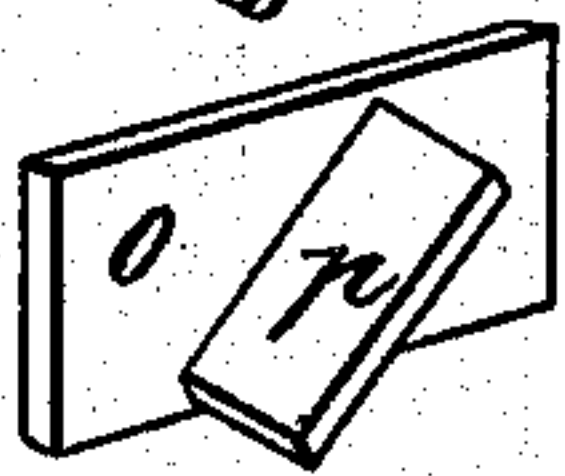


Fig. 10.

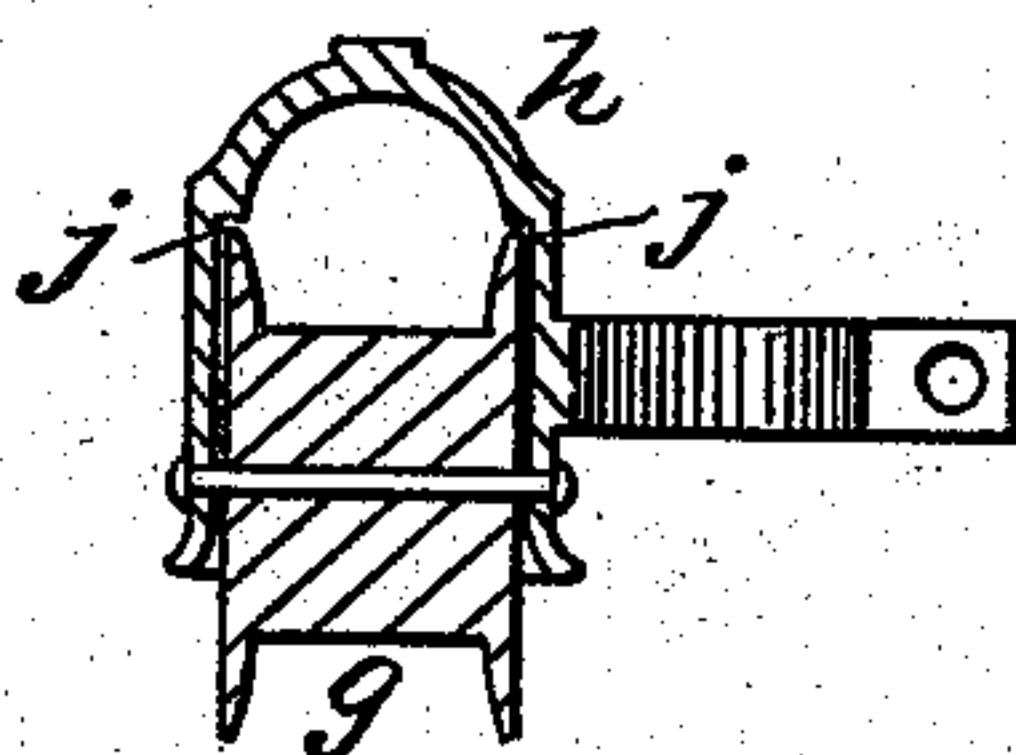


Fig. 11.

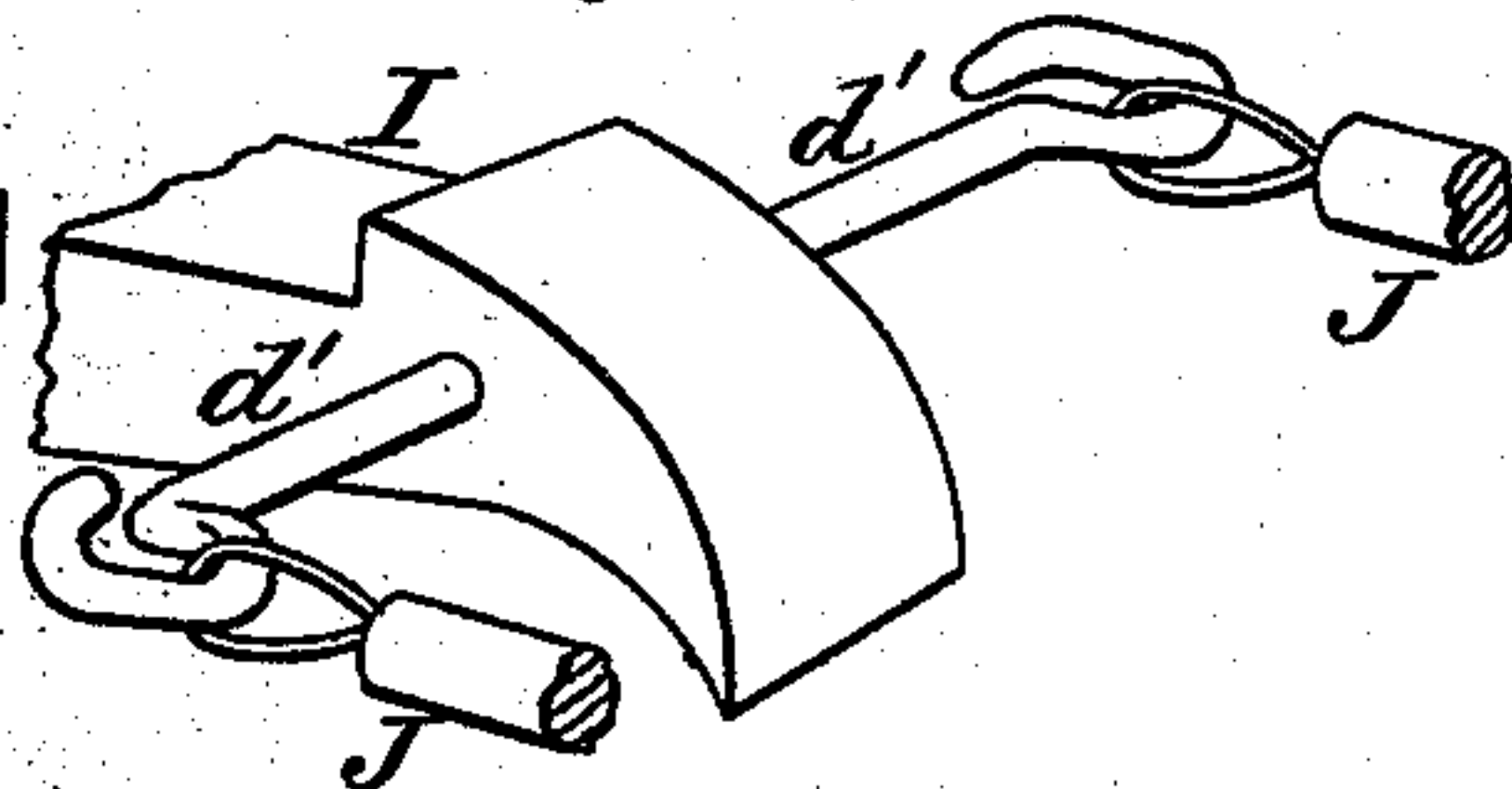


Fig. 9.

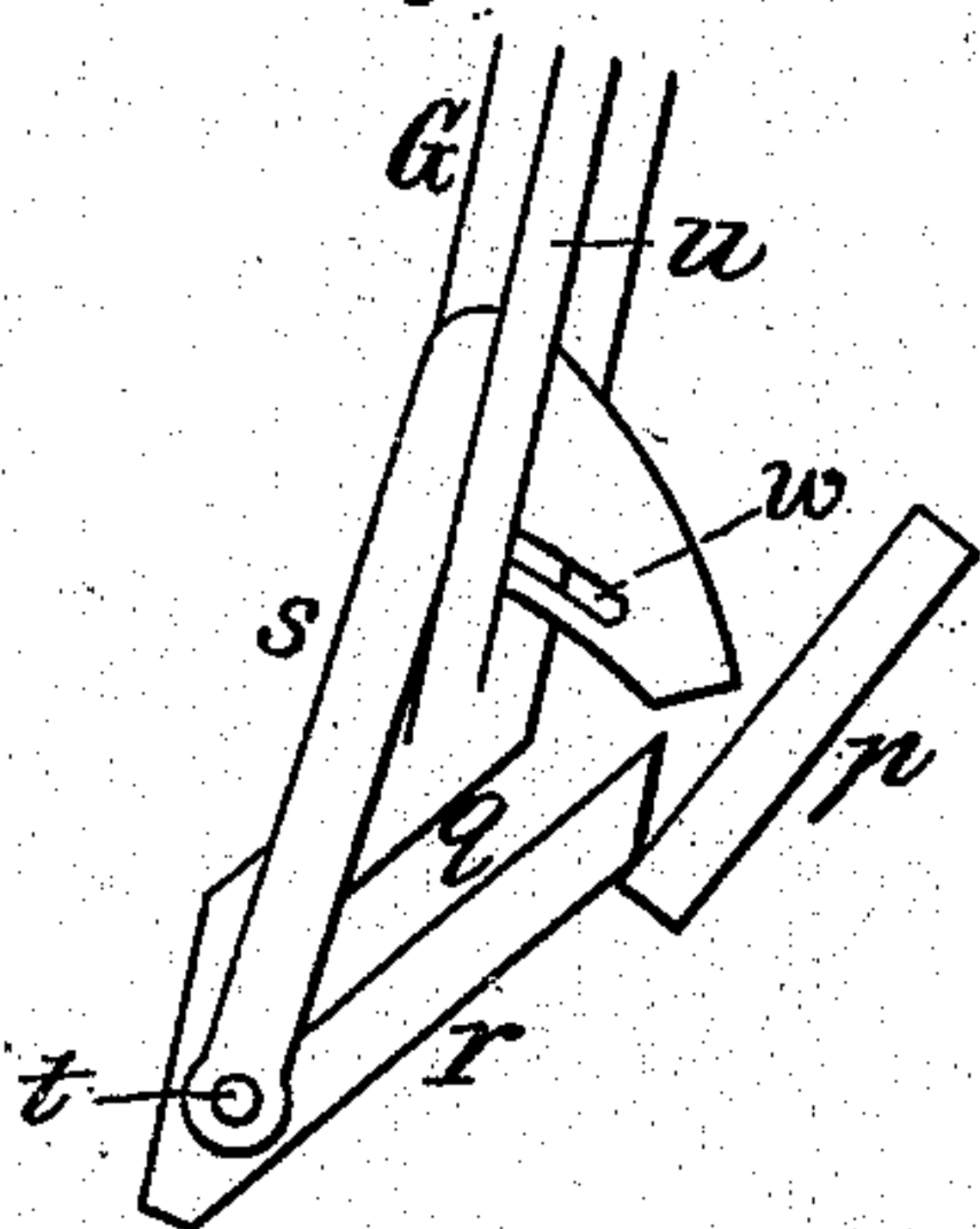


Fig. 12.

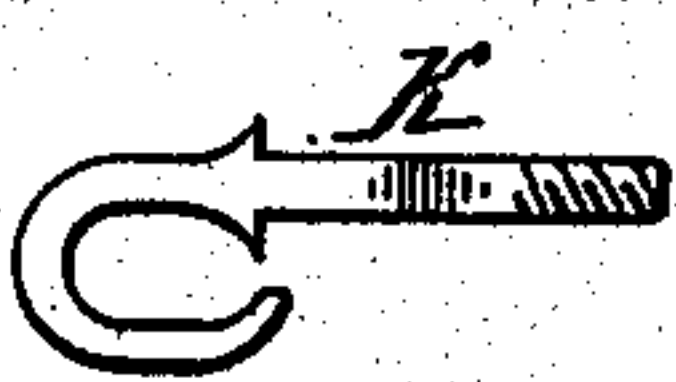


Fig. 13.

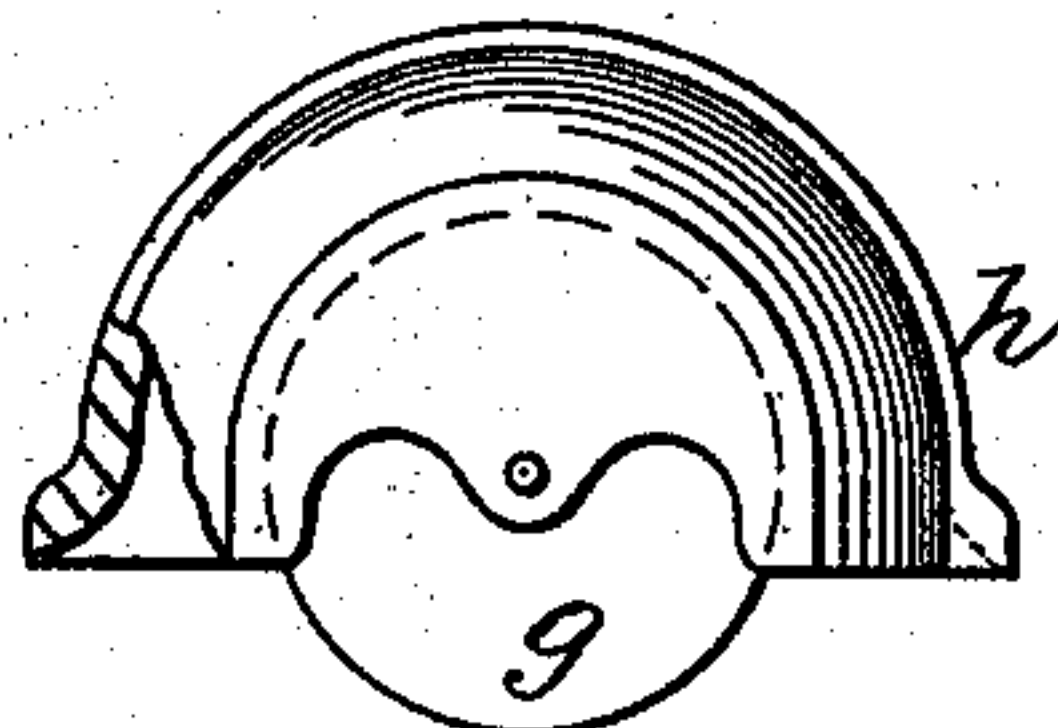
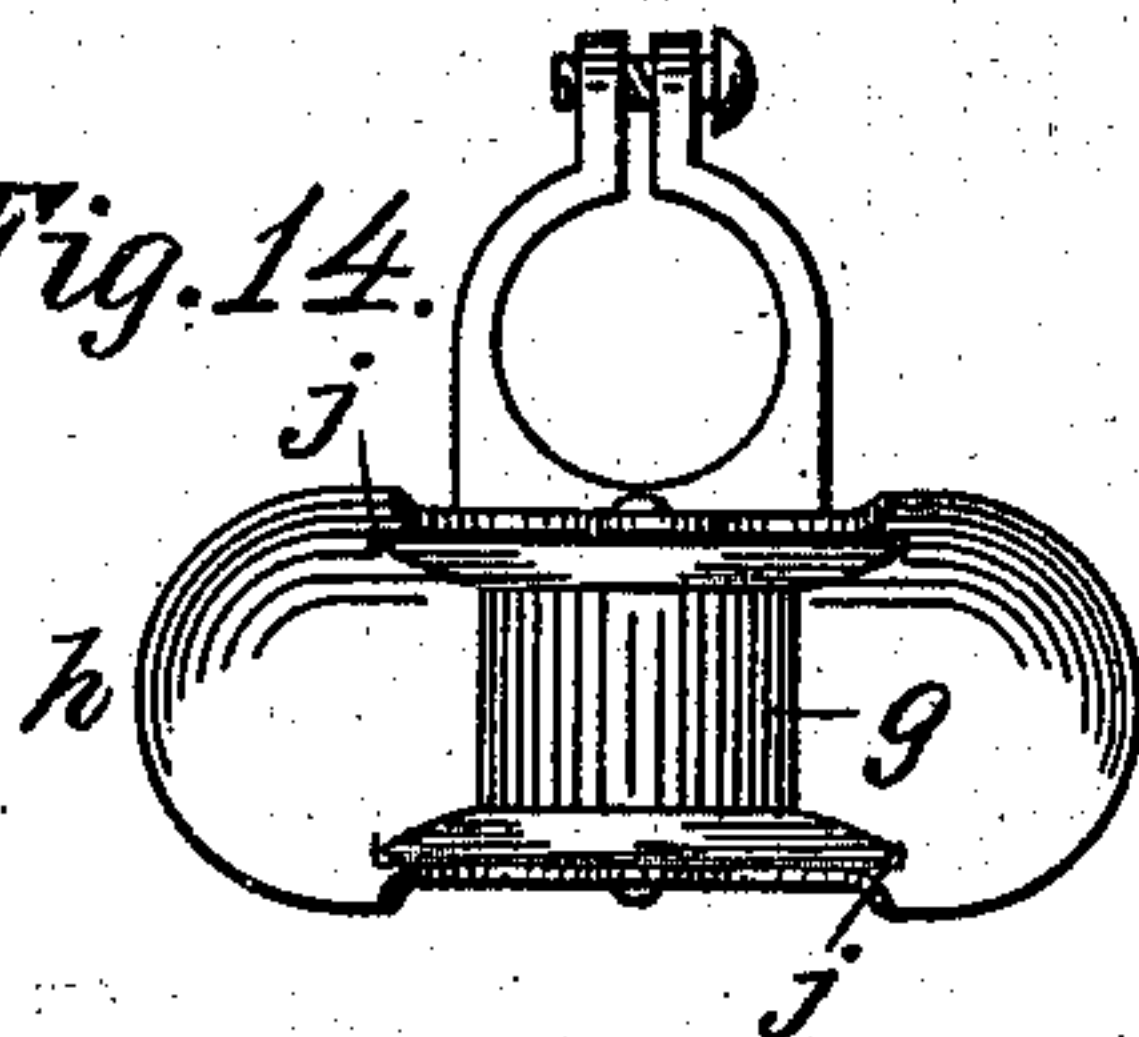


Fig. 14.



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UNITED STATES PATENT OFFICE.

WILLIAM MENDENHALL, OF CINCINNATI, OHIO, ASSIGNOR TO THE MENDENHALL STORE SERVICE COMPANY, OF SAME PLACE.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 413,859, dated October 29, 1889.

Application filed July 13, 1888. Serial No. 279,811. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MENDENHALL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Store-Service Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of store-service apparatus in which a carrier is propelled upon a way or wire, and carries beneath it a detachable receptacle for the articles to be transported; and it has for its object the provision of simple and efficient devices for raising and lowering the receptacle to and from the carrier and automatically attaching and detaching it, as well as improvements in the general construction and mode of operation of the device.

The novelty of my invention will be herewith set forth, and distinctly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a store-service apparatus embodying my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a perspective view of the same with the carrier and basket removed. Figs. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15 are enlarged details of the parts, to be referred to more particularly hereinafter. Fig. 16 represents a modification in the construction to be referred to hereinafter.

The same letters are used to indicate identical parts in all the figures.

The frame-work at the transmitting end is composed of a pendent post A, preferably tubular, secured to the ceiling or other horizontal support, and having attached to it by means of a socket *a*, adjustable, if desired, a horizontal arm B, in this instance tubular, in line with and directly over the way or transporting-wire C, of the usual or any suitable construction, and in this instance secured to a bracket-plate D, attached to the lower end of the post A. It is of course understood that the opposite or receiving end of the way or wire may be secured to a frame-work in all

respects the duplicate of that shown and so far described and to be hereinafter described, or it may be secured in any suitable manner.

Secured to and extending laterally and downwardly from the arm B are two arms E, with flattened perforated ends, in which are journaled small grooved pulleys *b*.

The basket or parcel-receptacle elevator is a rectangular frame composed of two end bars *c* and two side bars *d*. Cords *e*, attached to the ends of the bars *c*, pass up over the pulleys *b*, and, converging, are attached to or merged into a single cord *f*, passed over a single grooved pulley *g*, journaled in a hood or guide housing *h*, attached or clamped to the post A. The lower end of the cord *f* is provided with a grasping-handle *i*, in this instance weighted to counterbalance the elevator, and where found desirable an eye may be applied to the lower end of said handle to engage with a hook upon the counter.

By reference to Figs. 10, 13, and 14 the construction of the pulley *g* and its supporting and guiding hood will be readily understood. The hood, as seen in Figs. 10 and 14, is recessed, as at *j*, to receive snugly the flanges of the pulley *g*, which is made spool-shaped, thereby preventing the cord *f* or the four cords *e* from catching over the flanges as the elevator is raised or lowered. The lower sides of the hood extend below the horizontal diameter of the pulley, and their outer edges are beveled or rounded off, as seen by the broken-away portion of Fig. 13, to prevent wear upon the cord or cords and to more properly guide the same over the pulley.

The carrier-frame is composed of a horizontal bar F, with beveled latch-hooks *k* upon its ends; upwardly-projecting lugs *l*, between which are journaled grooved pulleys *m*, resting and traveling upon the wire C; hangers G, beveled and slotted at their ends to form hooks for the automatic attachment and detachment of the basket by the raising and lowering of the elevator, as presently described, and curved propelling-fingers *n*, straddling the wire C, for engagement with the propelling-springs, as presently described.

The parcel receptacle or basket H may be

of the usual or any suitable construction, adapted to be supported and raised and lowered by the elevator-frame. I have shown it as constructed of woven wire and with its sides beveled or rounded in to make it smaller at the bottom, so as to fit between and be supported by the bars *d*, (see dotted lines, Fig. 2,) and the bars *c* are provided with outwardly-extending guide-plates *e'* for guiding the basket to its seat in the receptacle. Secured at each outer end of the basket at its middle and near the top is a plate *o*, Fig. 8, from which projects an inclined lug *p*, and the lower end of each of the hangers *G* of the carrier-frame is beveled off in the direction of the upper side of the lug *p*, so that as the elevator is drawn up with its basket the lugs *p* come in contact with the beveled portion of the hangers and push the latter aside, thereby tilting the carrier on its wire. (See Fig. 9.) An inclined slot *q* is formed in the lower end of each hanger *G*, constituting with its beveled under side a hook *r*, and a curved latch *s*, pivoted as at *t*, and with its upper end passed through a slot in a rib *u* on the hanger, covers the mouth of the slot *q* and projects slightly beyond the point of the hook. A pin *v*, Fig. 4, passed through a slot *w* in the upper arm of the latch, limits its play. As soon as the lugs *p* in the raising of the basket have passed the point of the hook *r*, (see Fig. 5,) they engage with the latches *s*, and the carrier-frame, being freed, drops back by gravity to a vertical position, bringing the hooks *r* under the lower edges of the lugs *p*, so that by lowering the elevator-frame the lugs *p* slide into the slots *q*, and the basket is thus automatically attached to the carrier. (See Fig. 4.) The elevator is now lowered from engagement with the basket, and the carrier and its basket are then propelled on the way *C* to their destination. To detach and lower the basket, it is only necessary to draw up the elevator-frame and lift the basket thereby until the lugs *p* have passed up out of the slots *q*, thereby pressing aside the carrier and the latches *s* until the lower edges of the lugs have passed above the latches. The latches will then drop by gravity over the slots *q* and the end of the hook. (See Fig. 7.) When the elevator frame and basket are lowered, the lower side of the lugs *p* will bear against the upper inclined sides of the latches *s* and tilt the carrier to one side to permit the elevator and basket to descend, as will be readily understood. By means of the flat inclined lugs *p* and slots *q*, in which they snugly fit, the basket becomes rigidly attached to the carrier and cannot have independent vibration.

As a modification in the construction, reference is made to Fig. 15, where the latch *s*, instead of being hook-shaped and pivoted at the lower end of the slot in the hanger, is substantially straight and pivoted at a point

above the upper end of the hook, and the lugs *p*, instead of being flat and inclined, are simply projecting pins. The operation is, however, the same, as will be readily understood.

To propel the carrier with its basket from one end of the way to the other, I provide a bell-crank latch *I*, Figs. 1, 3, and 11, which is hung on the wire *C* and provided with a grooved pulley *a'*, around which a cord *b'*, fastened at one end to the bracket *D*, is passed and extends back over a second grooved pulley *c'*, journaled in the bracket *D*, and has its lower end provided with any suitable grasping-handle. Springs *J*, of rubber or other material, have their rear ends secured to hooked pins *d'*, Fig. 11, projecting from the latch *I*, and their forward ends to hooks *K*, Fig. 12, secured to the forward arm *E*, and serve to hold the bell-crank latch drawn forward in engaging position for the hook upon the adjacent end of the bar *F* of the carrier. This engagement is shown in Fig. 1. Another spring *L*, having its forward ends secured to the front arm *E*, engages with the curved fingers *n*. Upon drawing down the cord *b'* the bell-crank *I*, together with the carrier and basket, are drawn back toward the post *A* and the springs *J* and *L* are put under tension until the upright arm of the bell-crank comes in contact with the lower portion of the post *A*, whereupon the bell-crank is tilted and the carrier released. The retraction of the spring *L* thereupon propels the carrier to the opposite end of the line, and upon releasing the cord *b'* the retraction of the springs *J* draws forward the bell-crank *I* into engaging position. The carrier and basket are propelled with sufficient force to effect the automatic engagement of the former with the bell-crank at the opposite end of the line, as will be readily understood.

Instead of having lugs or pins at both ends of the basket to engage with two hanger-hooks, the construction shown in Fig. 16 may be employed, where the basket is provided with a bail having a central lug or pin upon a single hanger and having a single releasing-latch, as will be readily understood.

While I have provided novel devices for the automatic disengagement of the basket from the hanger, it will be understood that the means described for effecting the automatic engagement of the basket with the hanger may be advantageously employed where other devices for its disengagement are used.

Having thus fully described my invention, I claim—

1. In a store-service apparatus, a carrier having a hanger provided at its lower end with a hook rigid with the hanger, in combination with an elevator-frame and a detachable basket carried thereby and provided with a projection arranged, when the basket is elevated, to tilt the hook and hanger to one

side and become automatically engaged with said hook, substantially as and for the purpose described.

2. In a store-service apparatus, a carrier 5 having a hanger provided with a beveled lower side and an inclined slot to form a hook, in combination with an elevator-frame and a basket carried thereby and provided with a projection arranged, when the basket is elevated, to bear against the lower beveled side 10 of the hanger to tilt the same and become automatically engaged therewith, substantially as and for the purpose described.

3. In a store-service apparatus, a carrier 15 having a hanger provided with a beveled lower side and an inclined slot to form a hook, in combination with an elevator-frame and a basket carried thereby and provided with an inclined lug arranged, when the 20 basket is elevated, to bear against the lower beveled side of the hanger to tilt the same and become automatically engaged therewith and rigidly held therein, substantially as and for the purpose described.

25 4. In a store-service apparatus, a carrier having a hanger provided at its lower end with a hook, and a latch extending over the point of said hook, in combination with an 30 elevator-frame and a basket carried thereby and provided with a projection arranged, when the basket is elevated and lowered, to tilt the hook to one side and become automatically engaged therewith and disengaged 35 therefrom, substantially as and for the purpose described.

5. In a store-service apparatus, a carrier 40 having a hanger provided at its lower end with a hook and a gravitating-latch extending over the point of said hook, in combination with an elevator-frame and a basket carried thereby, and provided with a projection 45 arranged, when the basket is elevated and lowered, to tilt the hanger to one side and become automatically engaged with and disengaged from said hook, substantially as and for the purpose described.

6. In a store-service apparatus, the carrier-hanger having a beveled lower side and provided with an inclined slot to form a hook, 50 and a gravitating latch extending across the mouth of said slot, in combination with an elevator-frame and a basket carried thereby, and provided with a projection arranged, when the basket is elevated and lowered, to bear 55 against the lower beveled side of said hanger to tilt the same to one side and become automatically engaged with and disengaged from said slot, substantially as and for the purpose described.

60 7. In a store-service apparatus, a carrier having a hanger provided with a beveled lower side and an inclined slot to form a hook, and a gravitating latch extending across the 65 mouth of said slot, in combination with an elevator-frame and a basket carried thereby,

and provided with an inclined lug arranged, when the basket is elevated and lowered, to bear against the lower beveled side of the hanger to tilt the same and become automatically engaged with and disengaged from said 70 hook, substantially as and for the purpose described.

8. In a store-service apparatus, the carrier having the hangers G, provided at their lower ends with the hooks *r*, rigid therewith, and 75 having beveled lower sides, in combination with an elevator-frame and the detachable basket H, carried thereby, and provided with lugs *p*, arranged, when the basket is elevated, to bear against the lower beveled sides of the 80 hooks and tilt the same to one side and become automatically engaged therewith, substantially as and for the purpose described.

9. In a store-service apparatus, the carrier having the two hangers G, one at each end of 85 the carrier, and provided at their lower ends with hooks, and the latches S, extending over the points of said hooks, in combination with the elevator-frame and the basket H, carried thereby, and provided with lugs *p*, arranged, 90 when the basket is elevated and lowered, to tilt the hooks to one side and become automatically engaged therewith and disengaged therefrom, substantially as and for the purpose described. 95

10. In a store-service apparatus, an elevator-frame composed of the bars *c d*, the former provided with guide-plate *e'*, in combination with a basket smaller at the bottom 100 than at the top and adapted to fit between and be directly supported by said bars, substantially as described.

11. In a store-service apparatus, the combination, with the elevator-frame composed of the bars *c d*, of the operating-cords *e*, bars E, 105 provided with pulleys *b*, the grooved pulley *g*, covered by the guide-housing *h*, and the cord *f*, connected to the cords *e*, substantially as described.

12. In a store-service apparatus, the combination, with the carrier, of the bell-crank 110 latch I, the springs J, connected to said latch by hooked pins *d'*, the pulley *c'*, and operating-cord *b'*, substantially as and for the purpose specified. 115

13. The carrier provided with the two hangers G, one at each end of the carrier, said hangers having the slots *q*, and latches *s*, pivoted to the lower end portions thereof, in combination with a basket having plates provided with inclined lugs *p*, and a suitable 120 elevator for raising and lowering said basket, substantially as described.

14. The carrier provided with the hangers G, having the ribs *u*, upwardly-inclined hooks 125 *r*, and inclined slots *q* at the lower end of said hangers, and latches connected to said hangers and confined in slots in said ribs, in combination with a basket having plates provided with inclined lugs *p*, and a suitable ele- 130

vator for raising and lowering said basket, substantially as described.

15. In a store-service apparatus, the combination, with the track-wire C and the carrier
5 mounted thereon, and provided with the upwardly-projecting propelling-forks *n*, of the upright support A, the laterally-extending arm B, the arm E, secured to the outer end of the arm B, the spring L, having its ends
10 secured to the arm E and its loop resting on

the track-wire C, the bell-crank latch I, the springs J, secured at one end to the bell-crank latch I and at the other to the arm E on opposite sides of the track-wire C, and the operating-cord *b'*, substantially as and for 15 the purpose described.

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Witnesses:

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