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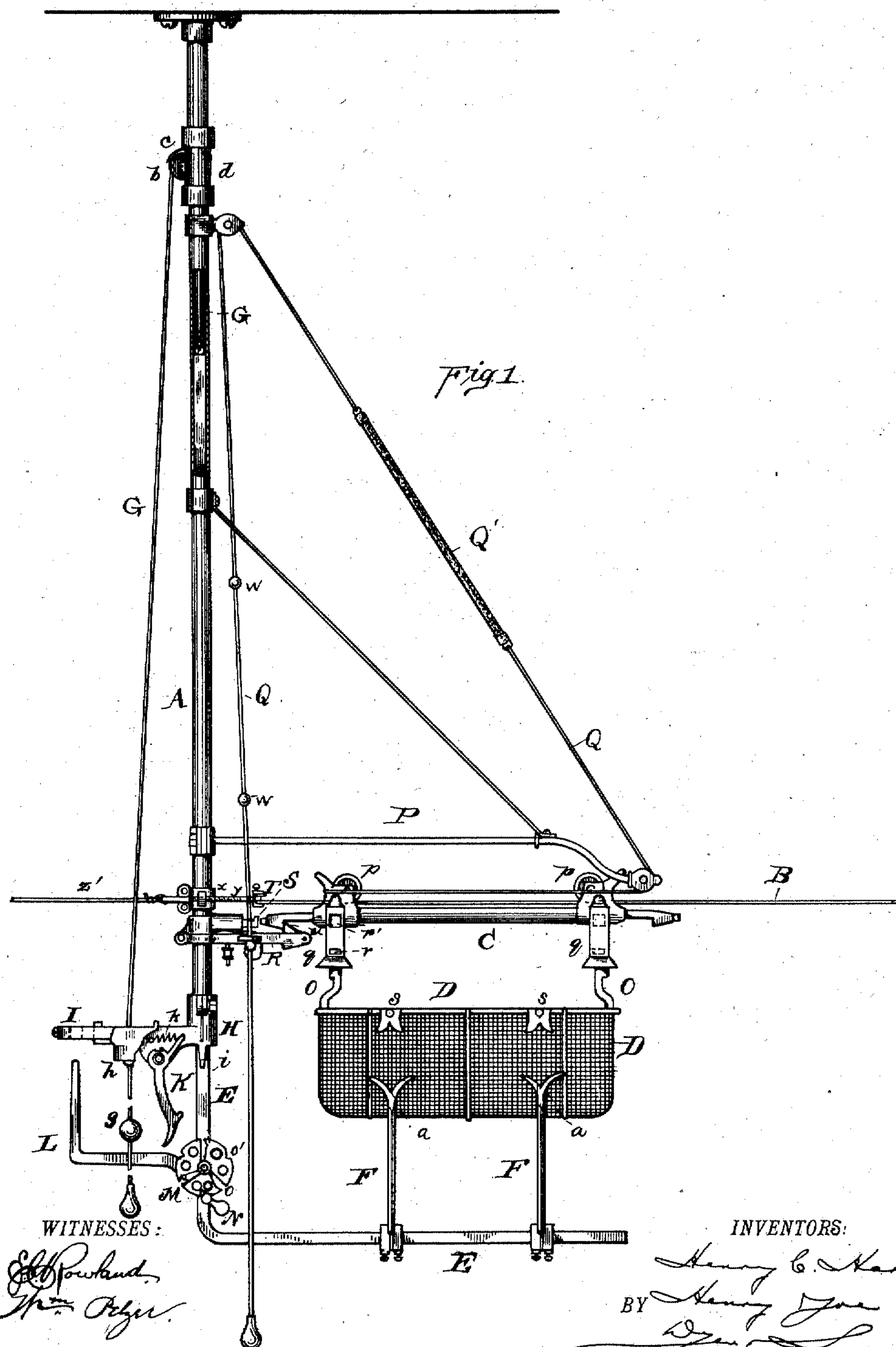
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H. C. HART & H. YOE.

STORE SERVICE APPARATUS.

No. 362,444.

Patented May 3, 1887.



WITNESSES:

INVENTORS:

BY

ATTORNEYS

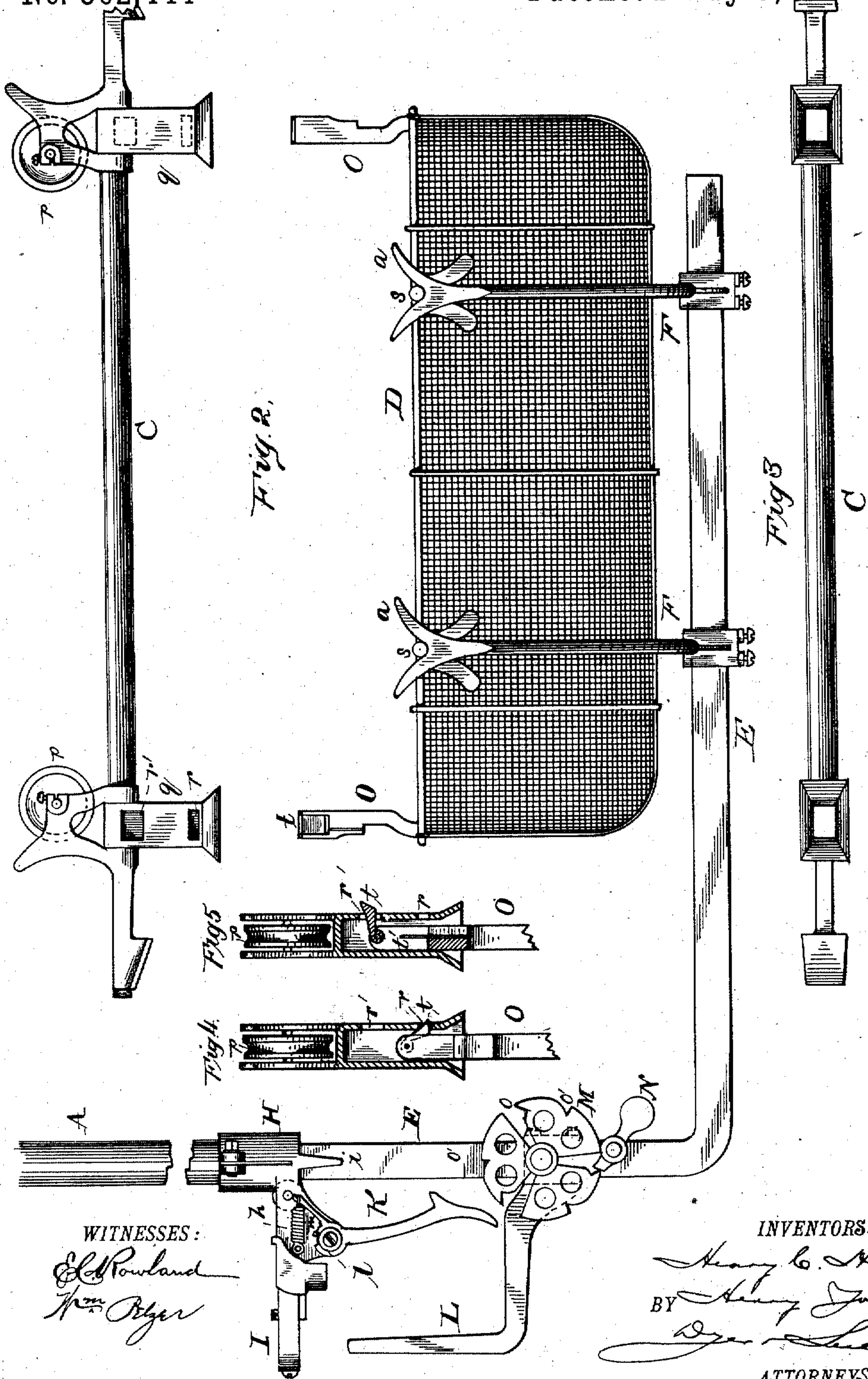
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WITNESSES:

E. L. Rowland
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INVENTORS.

Henry C. Hart
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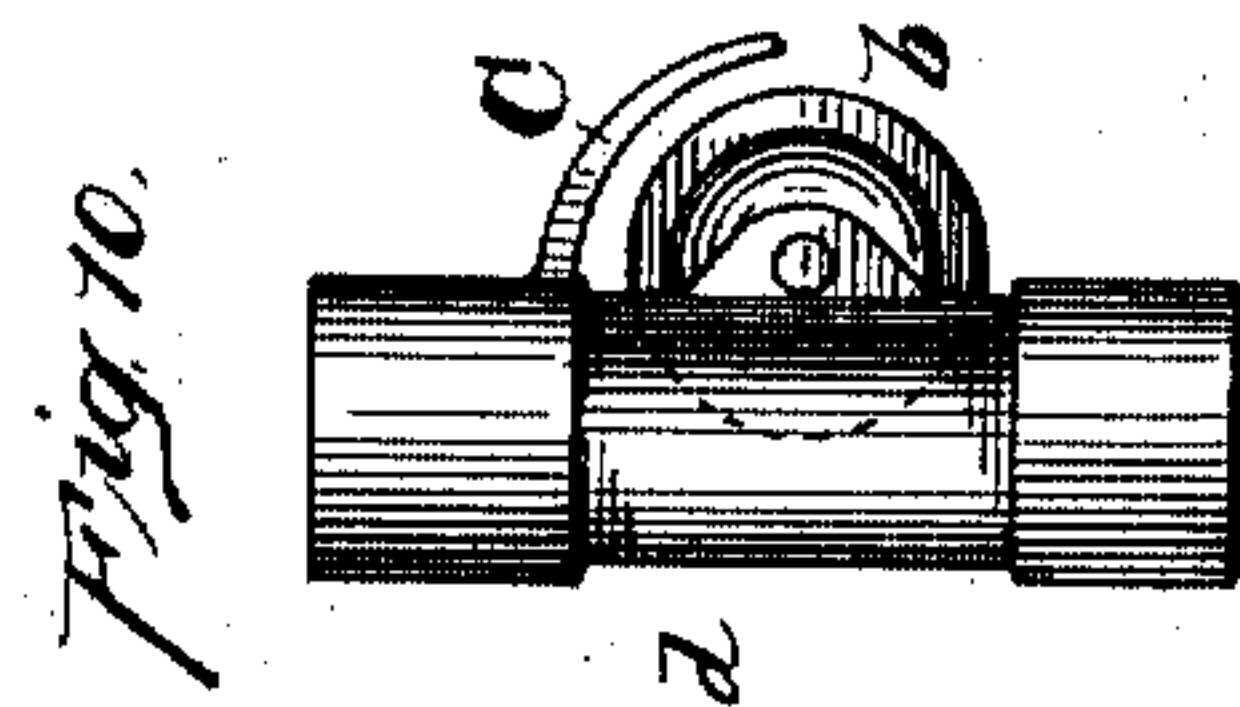
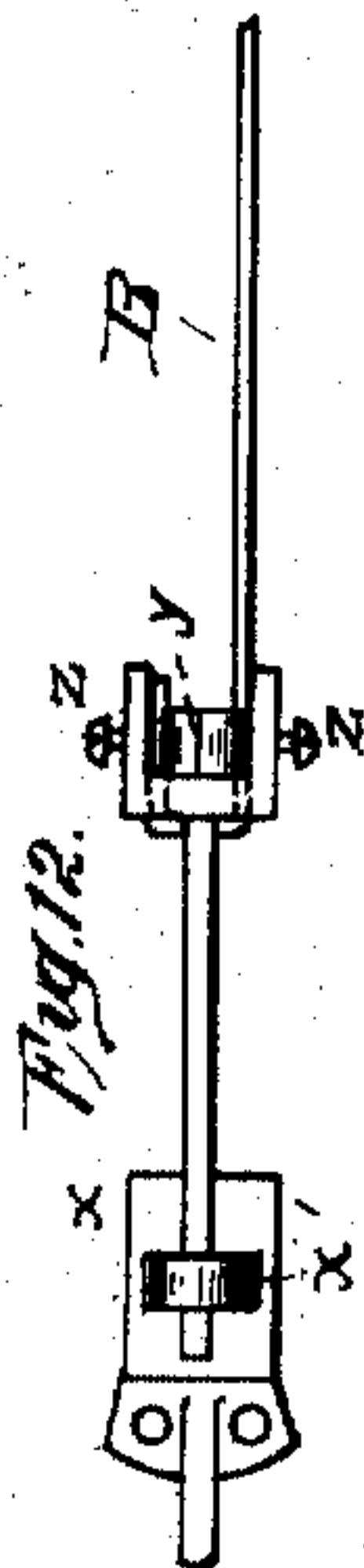
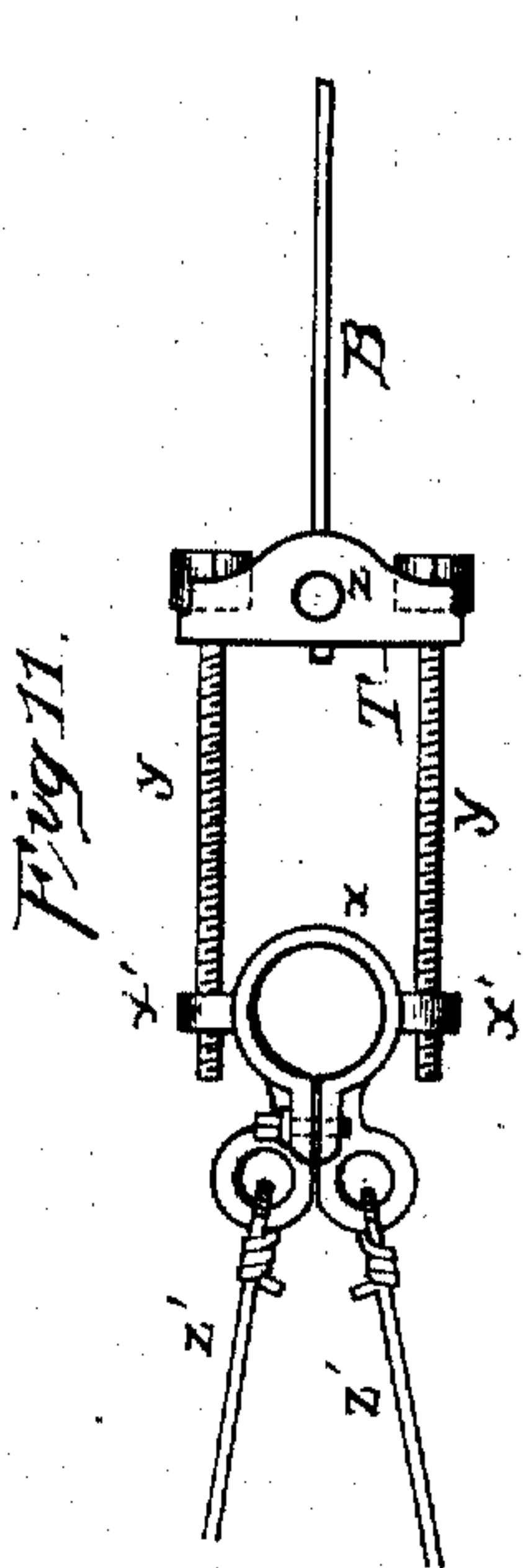
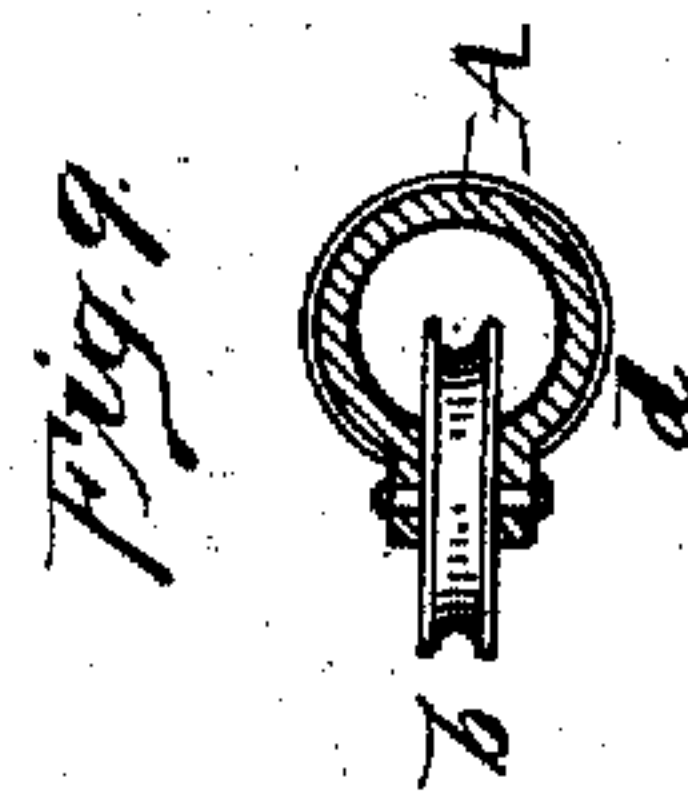
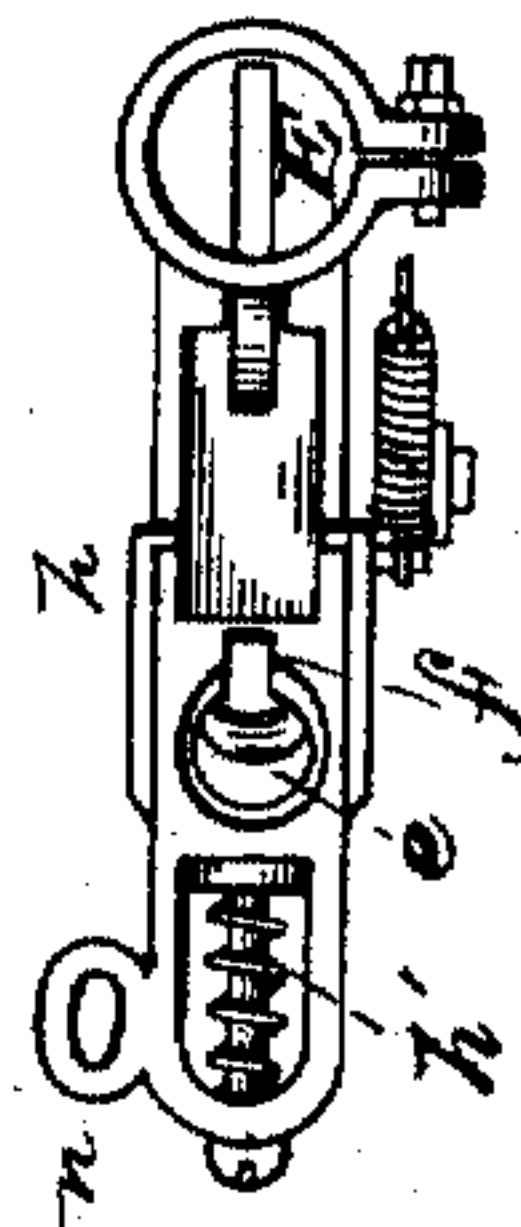
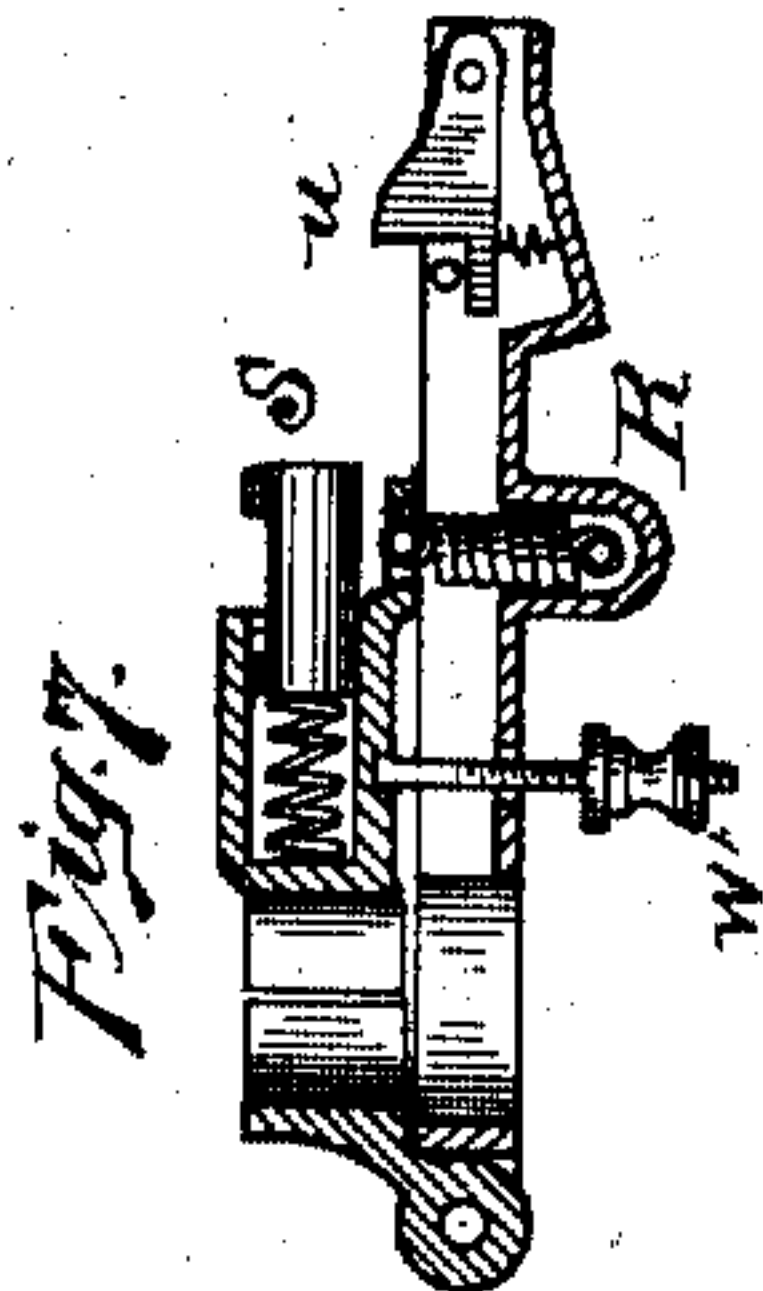
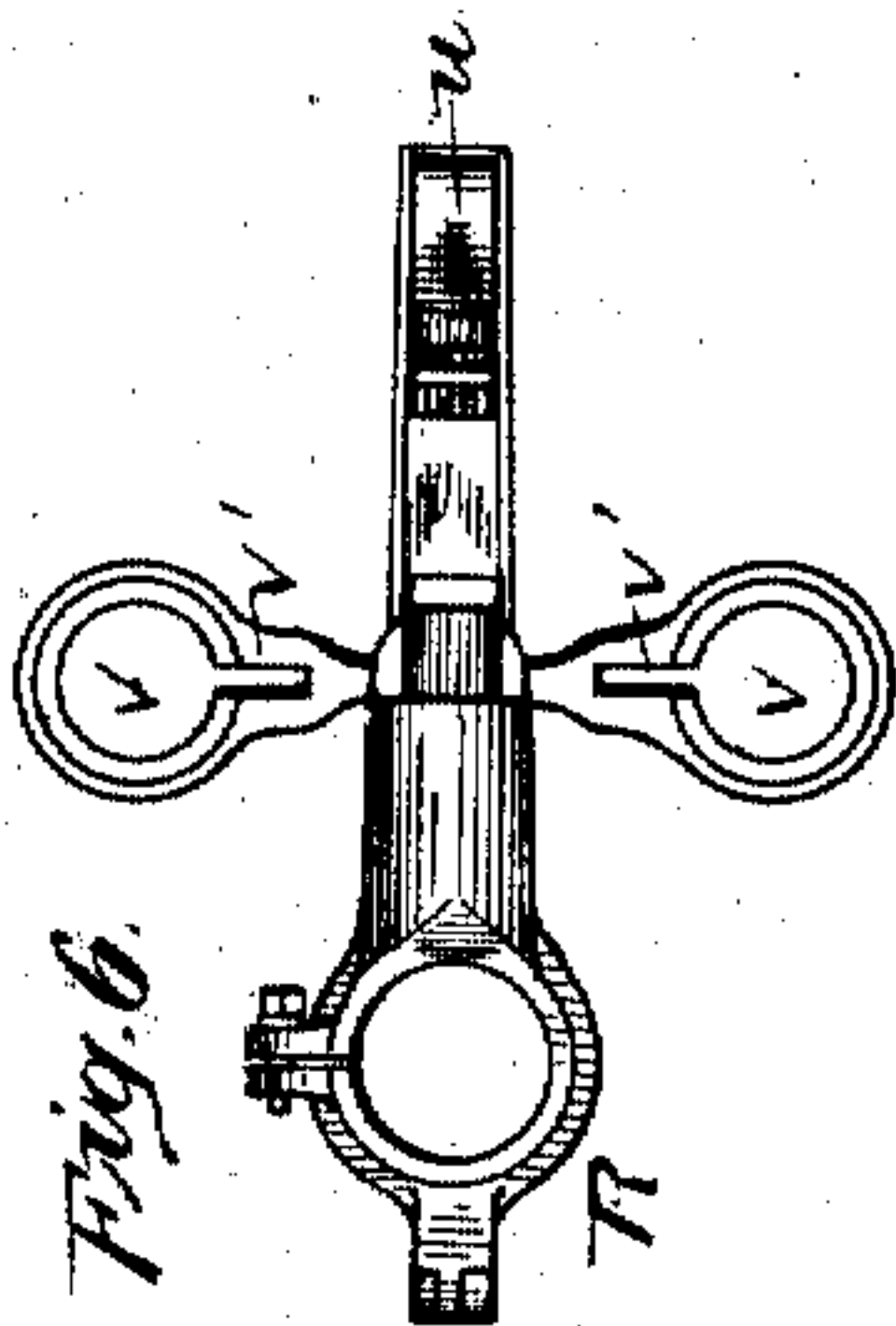
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3 Sheets—Sheet 3.

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No. 362,444.

Patented May 3, 1887.



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UNITED STATES PATENT OFFICE.

HENRY C. HART AND HENRY YOE, OF DETROIT, MICHIGAN; SAID HART
ASSIGNOR TO THE RAPID SERVICE STORE RAILWAY COMPANY, OF SAME
PLACE.

STORE-SERVICE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 362,444, dated May 3, 1887.

Application filed October 21, 1886. Serial No. 216,883. (No model.)

To all whom it may concern:

Be it known that we, HENRY C. HART and HENRY YOE, both of Detroit, in the county of Wayne and State of Michigan, have jointly
5 invented a certain new and useful Improvement in Store-Service Apparatus, of which the following is a specification.

Our invention relates to store-service systems in which a carrier runs on an overhead
10 way, supporting beneath it a detachable receptacle for parcels or other articles; and our object is mainly to provide simple and convenient means for raising and lowering the receptacle and for connecting it to and disconnecting it from the carrier, and also to provide certain improvements in the propelling
5 devices which move the carrier upon the way.

Our invention consists in the novel devices and combinations of devices employed by us
10 in accomplishing these objects, as hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a view in elevation of the apparatus at one end
25 of a store-service line employing our invention; Fig. 2, an enlarged elevation showing the carrier, detached receptacle, and elevator therefor; Fig. 3, a bottom view of the carrier. Figs. 4 and 5 are respectively sections of the
30 connecting devices of the carrier and receptacle, showing different positions thereof. Fig. 6 is a top view, and Fig. 7 a vertical longitudinal section, of the catch for holding the carrier; Fig. 8, a top view of the stop for the elevator-cord; Fig. 9, a cross-section of the stand-
35 ard, and Fig. 10 an elevation of a portion thereof, both illustrating the pulley for the elevator-cord; and Figs. 11 and 12 are respectively a top view and a side view of a wire tightening and securing device which we
40 employ.

A is the main supporting standard, which is a tube, and is preferably supported from the ceiling, as shown.

B is the wireway, C the carrier, and D the
45 detachable receptacle.

The elevator consists of a rod or bar, E, preferably of flat form, as shown, which is placed within the hollow standard A, and, extending below the same, is turned at a right
50 angle and extends out horizontally under the

wireway B. Here there are attached two pairs of upwardly-extending curved branching arms, F F, each arm being forked at its upper end, as seen at *a a*. To the upper end of bar E is attached a cord, G, which passes
55 out from the standard A through a slot and over a grooved pulley, *b*, placed in said slot. Above said pulley is placed a curved guard-plate, *c*. For supporting these parts a sleeve or collar, *d*, is placed upon the standard. At
60 the lower end of the standard a sleeve, H, is coupled upon it, from which extends a plate, I. This plate has an aperture, *e*, through it and a smaller connected slot, *f*. (See Fig. 8.) Through this aperture the cord G passes, and
65 the cord has upon it buttons *g*, of such size as to pass through *e*, but not through *f*. A part, *h*, slides upon the plate I, having a spring, *h'*, for moving it in one direction. Sleeve H has a downwardly-extending finger, *i*, which acts
70 in connection with certain parts on the elevator, hereinafter described, as a stop for said elevator.

Pivoted on a lug on plate H is a dog, K, having a spring, *k*, attached to it. At *l*, in its
75 upper end, dog K is slotted, and a stationary pin, *m*, is provided to limit the movement of the dog. From the bar E, below the standard, extends the rigid arm L, which is so situated as to enter the eye *n* of plate I, Fig. 8, to
80 guide the elevator in raising it. Also placed upon bar E is a turning disk, M, having alternate deep notches *o* and short notches *o'*. A pawl, N, prevents the turning of the disk in one direction, but allows it to turn in the
85 other.

The carrier consists of a body, C, suspended from grooved rollers *p p*, which run on wire B. Below the body C extend bell-mouthed tubes
90 *q q*, each of which has in one side two slots or openings, the lower one, *r*, being narrower than the upper one, *r'*.

The receptacle consists of a basket, D, preferably of wire, having lateral pins *s s* at its upper edges, adapted to rest in the forks *a*
95 of the elevator. At each end of the basket is an upwardly-extending arm, O, having pivoted at its upper end a swinging dog, *t*, which normally rests against a flat spring, *t'*.

The main features of the propelling device 100

and catch for the carrier which we prefer to use are as set forth in patents to R. A. McCarty, dated September 1, 1885. A forked arm, P, extends from standard A, having pulleys at its ends, and over these pulleys, and also over a pulley near the top of the standard, passes a cord, Q, having interpolated in it a rubber spring, Q'. The cord lies in a loop on wire B until it is caught by the projecting horn of the carrier.

The catch for the carrier consists of a plate, R, hinged upon the standard, and having a spring-latch, *u*, with which the downwardly-extending hook at end of carrier engages. The cord Q passes through a ring or eye, *v*, of plate R, whose main aperture has a connected slot, *v'*, extending from it. Cord Q has buttons *w* upon it, which are of such size as to pass through *v*, but not through *v'*. Heretofore in apparatus of this character only one eye *v* has been provided, extending from one side of the catch-plate R. We provide two such eyes, one on each side, (see Fig. 6,) whereby the cord may be brought down on the side which is more convenient for the operator, according to the situation in which the apparatus is placed. A set-screw, *w'*, is provided for limiting the movement of plate R. S is a spring-buffer for receiving the carrier and preventing it from striking the standard, which is desirable when the receptacle contains a heavy load.

It has heretofore been usual to pass the wire B through the main standard and attach it to the wall behind by a turn-buckle, so that it might be tightened thereby. Since, however, we have the bar E within the standard, we cannot conveniently do this, and we therefore provide the arrangement shown in Figs. 11 and 12. A ring, *x*, is bolted around the standard, having lugs *x'*, one on each side. From these lugs screws *y* extend to a clamp, T, in which the wire B is held by set-screws *z*. The standard is braced from the wall by stays *z'*, extending from eyes attached to ring *x*. The wire is tightened by screwing down the screws *y*.

The operation of the apparatus is as follows: In Fig. 1 the receptacle D is shown in the act of leaving the carrier C for the elevator E. In Fig. 2 the receptacle is resting in the elevator below the carrier. When it is desired to attach the receptacle to the carrier and to propel the same upon the way, the salesman, cashier, or other operator draws down upon the cord G, thus raising the elevator E, with the receptacle supported upon it, until the arms O enter the tubes *q* and the pawls *t* reach the slots *r*, whereupon the springs *t* throw the pawls out into the slots and the receptacle is held thereby. The movement of the elevator is stopped by the finger *i* entering one of the short notches *o'* of disk M, so that the pawls *t* cannot at this time pass the slots *r*. As the elevator rises, the arm L enters the eye *n*, which steadies and guides the elevator, so that the arms O will certainly enter the tubes *q*. At the same time the disk M pushes the

dog K aside against its spring *k*, the disk being itself prevented from turning by pawl N. The operator now permits the elevator to descend, leaving the receptacle suspended from the carrier, and as it descends the dog K turns the disk M the distance of one notch, and thus a long notch, *o*, is brought below finger *i*, instead of a short one, *o'*. To propel the carrier, the operator draws down the cord Q through one of the eyes *v*, distending the spring Q' until the right tension is produced in the spring, when he draws the cord into the slot *v'*, and one of the buttons *w* engages therewith and moves the hinged plate R down, so as to release the carrier, whereupon the force of the spring Q' acts to impel the carrier upon the way. The elevator is allowed to descend a short distance only, far enough to clear the receptacle, and it is then stopped by moving the cord G into the slot *f*, so that the button *g* comes directly beneath said slot, and the cord is thereby held, and itself holds the elevator at the point at which it is placed. This movement of the cord moves the slide *h* back against its spring.

It is preferred to have at the other end of the way B another apparatus similar to this. When the carrier is thereby returned, it is caught by the catch R. To detach the receptacle, the cord G is drawn down slightly, when the spring-slide *h* pushes it out of the slot and keeps it in a central position. On further drawing down on the cord the elevator is raised and catches the receptacle and continues to push it up, because, as just explained, the disk M has been turned so as to present a deep notch, *o*, to finger *i*. The pawl *t* is therefore pushed out of slot *r* and up into slot *r'*. The pawl *t* is free to swing backward, and the slot *r'* is large enough to permit it to do so, and therefore, if the cord is now released, the receptacle will be free to leave the carrier, and the elevator and receptacle are lowered to any desired point, where they may be stopped by stopping the cord G, as already explained. Such articles as are in the receptacle are then removed, or articles are placed therein. The receptacle may be allowed to remain on the elevator, or it may be lifted off for this purpose.

What we claim is—

1. In store-service apparatus, the combination of the way, the carrier thereon, the detachable receptacle, the main hollow standard, and the elevator consisting of a bar sliding in said standard and having a horizontally-extending part provided with supports for said receptacle, substantially as set forth.

2. In store-service apparatus, the elevator consisting of a vertically-moving bar having a horizontally-extending part provided with forked branching arms, in combination with the receptacle having pins adapted to rest in the forks of said arms, substantially as set forth.

3. In store-service apparatus, the combination of the elevator for the detachable receptacle, the cord for raising and lowering the same,

provided with buttons, the stationary plate having an aperture and a smaller connected slot, through which said cord passes, and the sliding piece on said plate, having a retracting-spring, substantially as set forth.

4. In store-service apparatus, the combination of the carrier having downwardly-extending tubes and the receptacle having arms provided with pivoted catches adapted to enter said tubes, said tubes having slots engaging said catches when they are made to enter said tubes and releasing them when the receptacle is further raised, substantially as set forth.

5. In store-service apparatus, the combination of the carrier, the receptacle, interlocking parts on said carrier and receptacle engaging each other when the receptacle is raised and releasing each other when it is further raised, the elevator for raising and lowering the receptacle, and an automatically-adjustable stop for said elevator, substantially as set forth.

6. The combination of the carrier having the tubes *q*, provided with apertures *r* and *r'*, the receptacle having the pivoted spring-dogs *t*, the elevator for raising and lowering the receptacle, and an automatically-adjustable stop for said elevator, substantially as set forth.

7. The combination of the carrier, the receptacle adapted to engage said carrier by an

upward movement and to be disengaged by a further upward movement, the elevator for raising and lowering the receptacle, the turning disk attached to said elevator, having alternate deep and short notches, the stationary finger adapted to enter said notches, and the spring-dog for turning said disk, substantially as set forth.

8. The combination of the carrier having the tubes *q*, provided with apertures *r* and *r'*, the receptacle having the pivoted spring-dogs *t*, the elevator for raising and lowering the receptacle, the turning disk *M* on said elevator, having the notches *o* and *o'*, and the stationary finger *i*, substantially as set forth.

9. The combination, with the way, the carrier, the detachable receptacle, the hollow standard, and the elevator sliding in said standard, of the plate extending from the standard, having an eye, and the arm in said elevator adapted to enter said eye, substantially as set forth.

This specification signed and witnessed this 10th day of September, 1886.

HENRY C. HART.
HENRY YOE.

Witnesses:

CHARLES F. BURTON,
ELLWOOD T. HANCE.

It is hereby certified that in Letters Patent No. 362,444, granted May 3, 1887, upon the application of Henry C. Hart and Henry Yoe, of Detroit, Michigan, for an improvement in "Store-Service Apparatus," an error appears in the printed specification requiring correction, as follows: On page 1, in the title, the words "said Hart assignor to" should be stricken out and the words "*assignors to*" inserted instead; and that the Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 10th day of May, A. D. 1887.

[SEAL.]

D. L. HAWKINS,
Acting Secretary of the Interior.

Countersigned:

BENTON J. HALL,
Commissioner of Patents.