

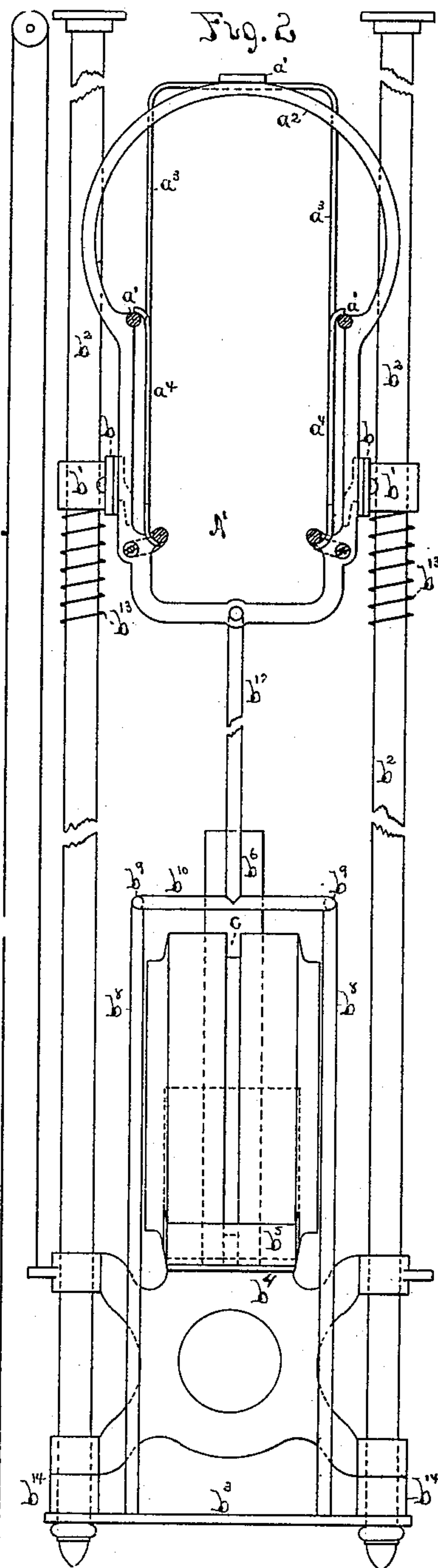
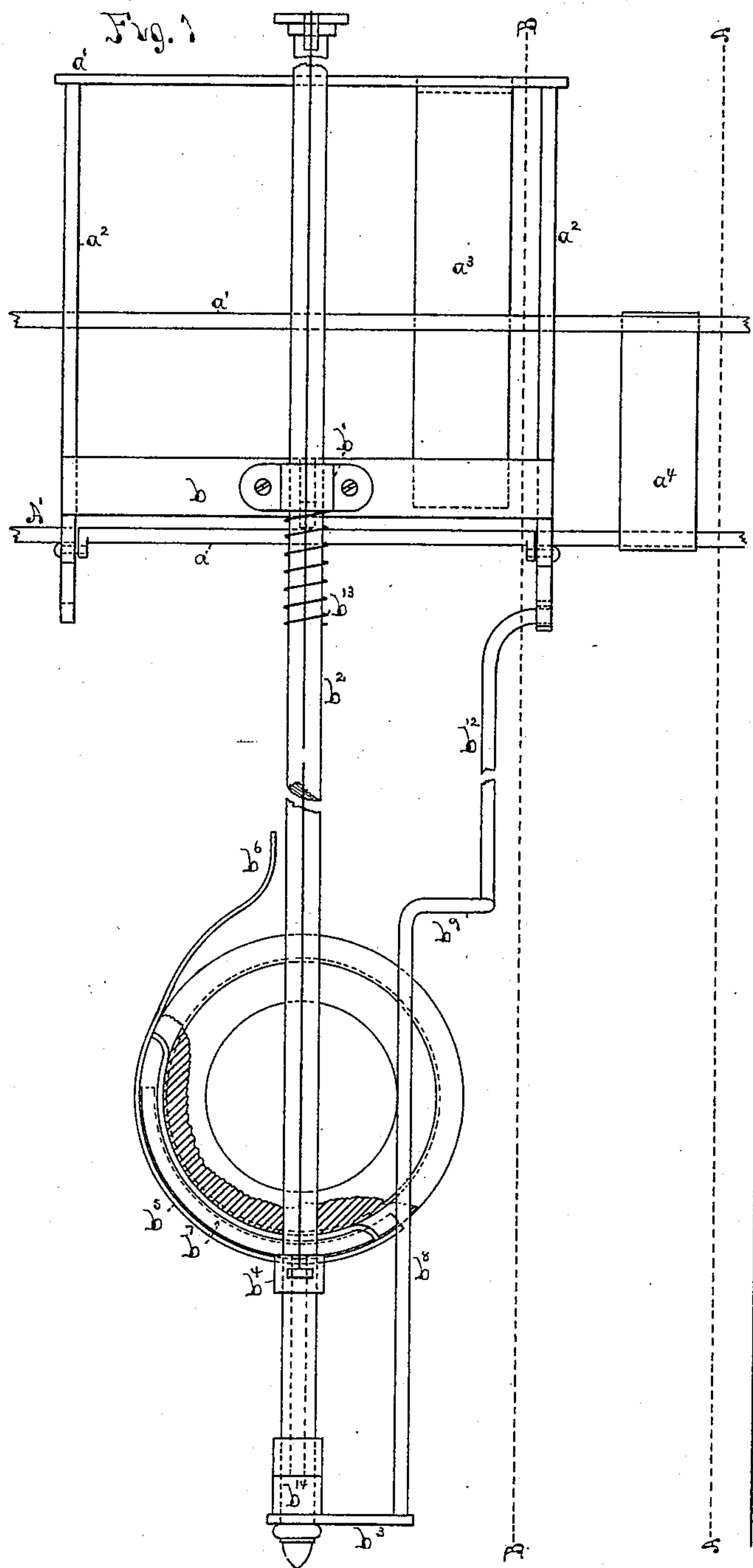
(No Model.)

3 Sheets—Sheet 1.

D. H. RICE.
CASH CARRYING APPARATUS.

No. 320,965.

Patented June 30, 1885.



Witnesses

W. D. Brown
A. P. Ockington.

Inventor

David H. Rice

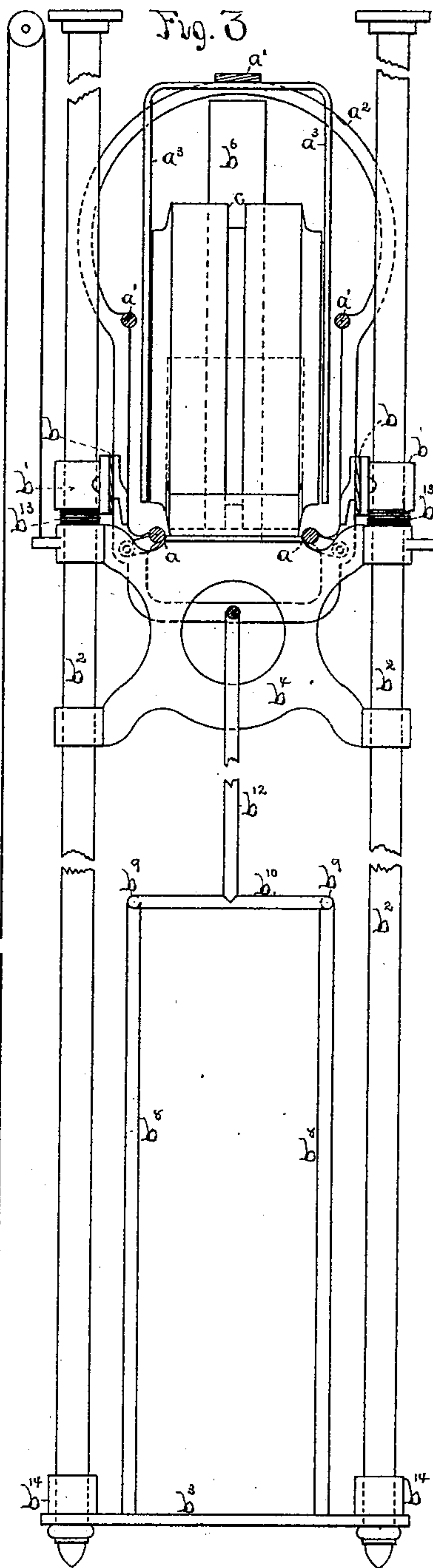
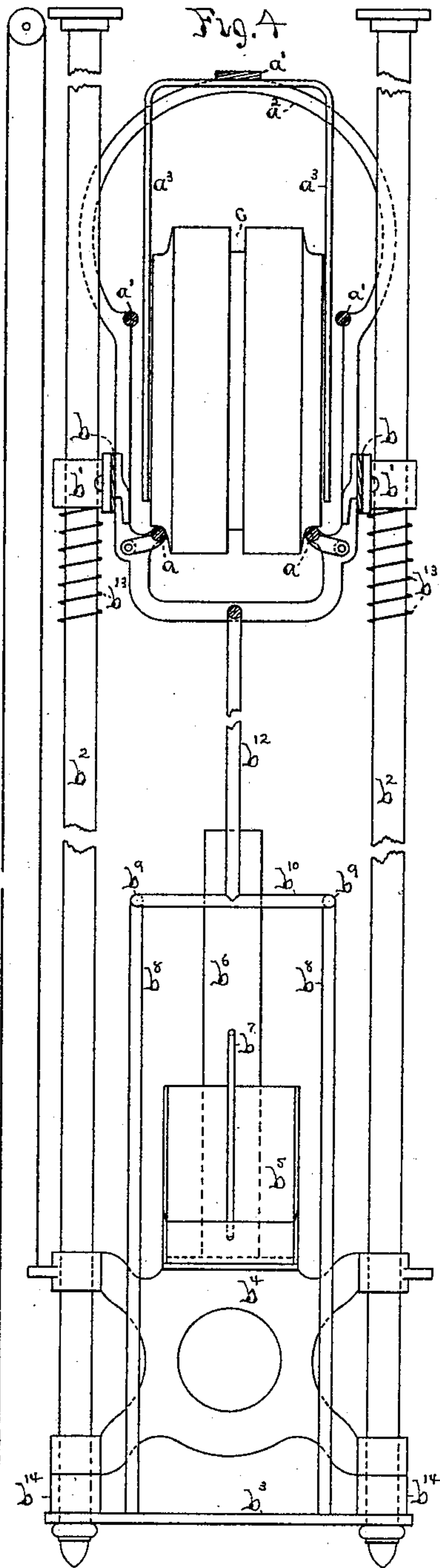
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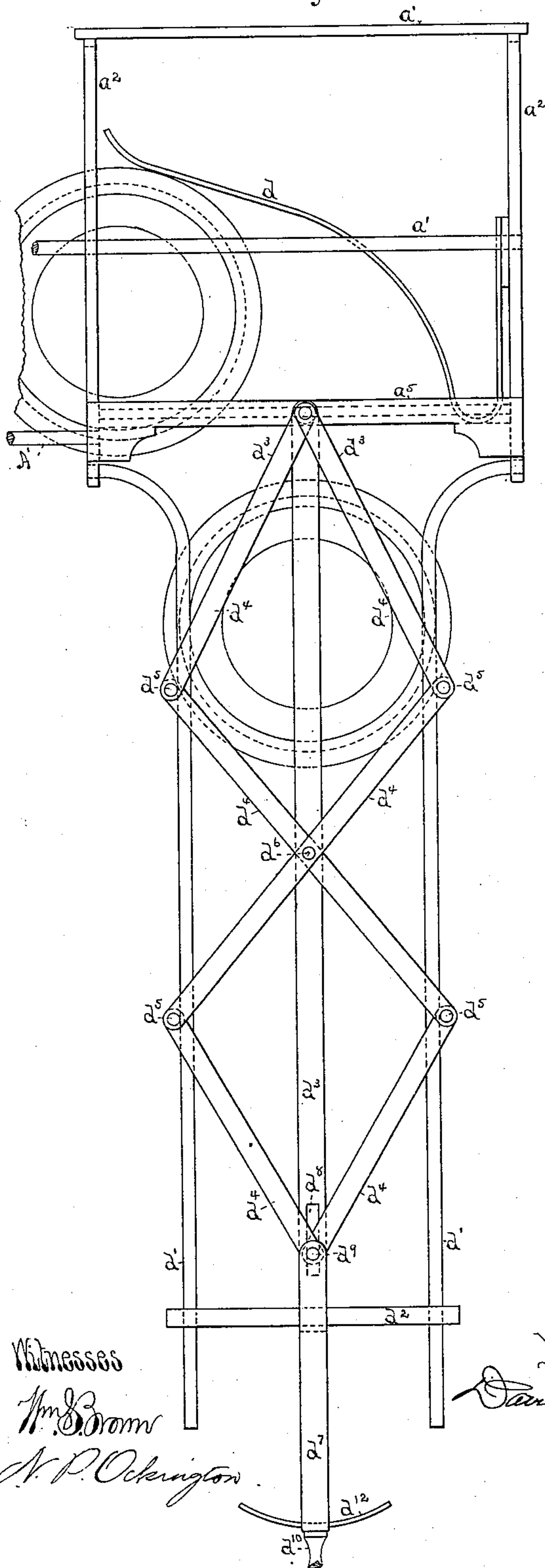
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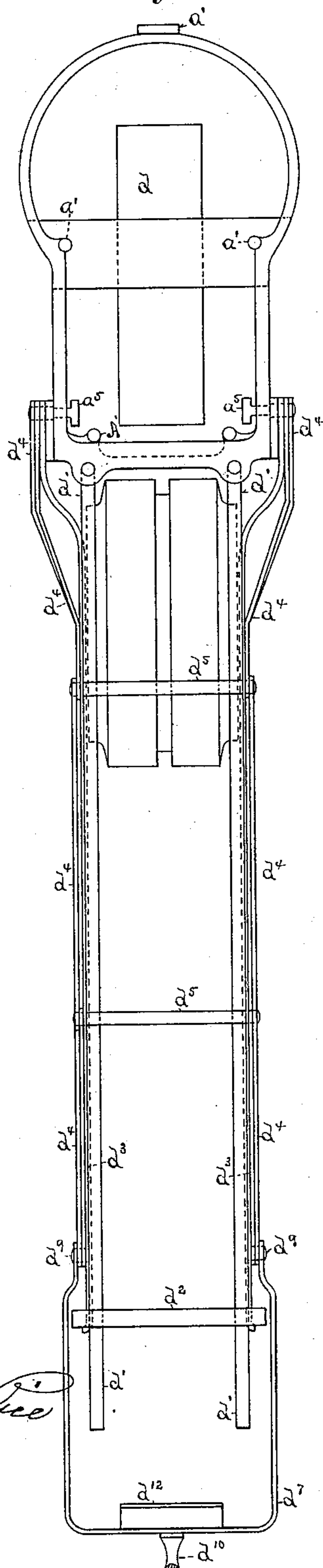
Fig. 5



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David Hall Rice

Fig. 6



UNITED STATES PATENT OFFICE.

DAVID HALL RICE, OF LOWELL, MASSACHUSETTS.

CASH-CARRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 320,965, dated June 30, 1885.

Application filed May 27, 1885. (No model.)

To all whom it may concern:

Be it known that I, DAVID HALL RICE, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Cash-Carrying Apparatus, of which the following is a specification.

My invention relates to cash-carrying apparatus; and it consists in certain improvements in the elevators for tracks and carriers shown in the Letters Patent No. 314,264, granted to me March 24, 1885, and in an improved receptacle or basket for receiving the carriers from the track, substantially as hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of a portion of the track and an elevator provided with my improvements with the carrier partly in section. Fig. 2 is an end elevation of the same from the section-line A A of Fig. 1. Fig. 3 is a section of the same on the line B B of Fig. 1 with the elevator in the position of delivering the carrier upon the track. Fig. 4 is the same view with the elevator in position after having delivered the carrier to receive another from the operator. Fig. 5 is a side view of my improved basket receiver for the carrier. Fig. 6 is an end view of the same.

A' is the track formed of two rails in the form of round rods, and being supported by frames $a^2 a^2$, and stayed by horizontal braces or bars $a' a'$. In this track are interposed two pivoted rail-sections, $a a$, in the path of the elevator-carriage to allow the carrier to be passed between them onto the track, as described in my said former patent. All of the above parts are well understood, and their further description is unnecessary.

On the opposite sides of the frames $a^2 a^2$, I attach two horizontal flat bars, $b b$, and upon these affix collars $b' b'$, fitted to receive the vertical rods $b^2 b^2$, which depend from the ceiling of the room and pass through these collars, which thus steady the rods. These rods extend downward to within easy reach of an attendant, and are tied together at their lower ends by the cross-bar b^3 . On these rods is mounted a vertically-sliding gate, b^4 , by four collars, as shown, having on each side of the two upper ones eyelets to fasten cords upon to raise the gate. Upon the latter is fixed a cup, b^5 , formed of a segment of a circular piece of metal, of a curvature to fit the outer periph-

ery of the carrier and hold it while being elevated. This cup is made narrower transversely than the space between the rail-sections $a a$, and has its edge over which the ball is to be delivered to the track made lower than the opposite one, which comes up behind the carrier above its center to hold it securely upon that side and prevent its being thrown out by another carrier if struck by it while the elevator is above the track-level. On this side of the cup b^5 is attached an extension of it, b^6 , which curves around the carrier still farther, and then projects forward and upward in a wider curve and terminates in a vertical upward projection at its free end, like a finger or vertical bar. The purpose of this wider curve of b^6 is to form a deflector to fling the ball forcibly out of the cup b^5 upon the track, as hereinafter described, and the purpose of its vertical finger end is to throw another carrier, which may be passing along the track in the path of the elevator as it is raised, out of the way, as hereinafter described, both of which objects are accomplished by the conformation described in relation to the cup b^5 .

As each carrier has a circumferential groove, c , around it, I affix in the interior of the cup b^5 , in proper position to register with this groove, a curved spline, b^7 , which aids in holding the carrier in the cup b^5 .

The cross-bar b^3 is extended laterally upon the delivery side of the elevator, and two side rods, $b^8 b^8$, are set vertically with their lower ends fixed in this cross-bar in such position as to come on each side of the carrier when placed in the cup b^5 , thus insuring the quick and accurate delivery of the latter between them to the cup and its being tipped out of the latter sidewise. These side rods may be extended upward to the track, if desired, and where the spline b^7 is not used should do so. At a proper distance from their lower ends two short horizontal rods, $b^9 b^9$, project from them in the direction toward which the ball is delivered and parallel to the track-sections $a a$, and beyond the path of the carrier when raised in the elevator. The outer ends of these horizontal rods are tied together by the transverse bar b^{10} , also outside of this path of the carrier, and from the center of this transverse bar extends vertically upward, parallel with said path, the fixed rod b^{12} , having its upper end

bent toward and fixed in the contiguous frame a^2 , as shown. The function of this rod b^{12} , like $b^8 b^8$, is to prevent the accidental falling of the carrier from the cup b^5 while being elevated to the track.

Around the rods $b^2 b^2$ and below the collars $b' b'$ are attached spiral springs $b^{13} b^{13}$, as shown, by their upper ends being fixed in the collars.

Depending from the upper bar a' , on each side of the path of the carrier over the track, are flat side guides, a^3 , with their lower ends terminating above the path of the pivoted rail-sections $a a$, while to the track-rails on the same side of the elevator are attached two other flat guide-plates, $a^4 a^4$. The function of these guide-pieces is to oblige the carrier as it is flung from the cup b^5 to drop upon the track without cramping or binding.

Suitable cords and pulleys having been attached to the ceiling and the ears of the gate b^4 , the elevator is operated as follows: The carrier is rolled into the cup b^5 between the rods b^8 which guide its groove onto the spline b^7 . The elevator is then raised quickly until the collars of the gate b^4 compress the flexible springs $b^{13} b^{13}$ against the fixed collars $b' b'$, when the sudden stopping of the cup b^5 throws the carrier upward and it strikes against the deflector b^6 and is deflected forward, falling upon the track outside the cup b^5 and rolling away with the momentum thus acquired. Should, however, the gate b^4 be raised slowly until the springs b^{13} are thus compressed and it then be released—the track sections $a a$ having dropped beneath the wheel-treads of the carrier—the springs $b^{13} b^{13}$ will throw the gate quickly downward and bring the deflector b^6 against the back side of the carrier, thus giving it a momentum over the track.

It thus becomes impossible to raise the elevator either quickly or slowly without causing the deflector to project the carrier upon its path.

Above the cross-bar b^3 rubber collars $b^{14} b^{14}$ are placed upon the rods $b^2 b^2$ to prevent any shock by the gate b^4 in falling, which the gate does by its own weight.

In Figs. 5 and 6 is shown my improved receiving-basket for the carrier. I provide the frames $a^2 a^2$, between which the open space or trap is left in the track for the carrier to drop through, with guide-bars $a^5 a^5$, one on each side of the hole, projecting inward far enough to oblige the carrier to drop directly downward between them. Over this space and the track I fix the spring deflector d , which directs the carrier downward through the space. This deflector is made to press upon the top of the carrier slightly before it has left the track and thus check its momentum without stopping it, or preventing its falling through the space. To the frames $a^2 a^2$, I attach four rods, $d' d'$, bent inward and then carried directly downward under the space or trap in such relation to it and each other as to allow the carrier to slide freely down between them. A hoop or band, d^2 , of proper shape to allow the carrier to pass

through it, connects the lower ends of these rods. A flat side guide-strip, $d^3 d^3$, is also attached on each side of the trap to the bars $a^5 a^5$, and extends downward and is attached to the band d^2 to which it is attached.

It will be observed that the edge of the carrier projects outside of the rods $d' d'$ as it falls downward between them. On the outside faces of the guide-bars $a^5 a^5$, I pivot bars $d^4 d^4$, two on each side, so as to turn freely on their pivots, and these bars extend downward, so that the lower end of one of them on one guide-bar a^5 projects one way outside of the adjacent rod d' , and of the other one projects in the opposite direction outside of the opposite adjacent rod, while those on the other guide-bar project downward in like manner, so that their lower ends come opposite those of the first pair. The opposite lower ends of these bars $d^4 d^4$ are then connected across outside the rods $d' d'$ to each other and to other bars $d^4 d^4$ by the cross-rods $d^5 d^5$, so as to be pivoted thereon and articulate said bars $d^4 d^4$ together. The second pair of bars $d^4 d^4$ being thus articulated to the first pair on each side are carried downward and across the rods $d' d'$ on that side in opposite directions until their lower ends project beyond said rods, and where the said pair cross each other on each side they are pivoted together by a pivot, d^6 . The opposite ends of these second bars $d^4 d^4$ are then connected across by rods $d^5 d^5$ to each other, and to a third set of bars $d^4 d^4$, so as to pivot freely thereon and together. The lower ends of each pair of these third rods $d^4 d^4$ are then brought together downward on each side and connected to each other and to the opposite ends of a dependent bail, d^7 , by a pivot, d^9 , so that they and the bail will turn freely thereon. This latter pivot projects into a slot, d^8 , in the vertical guide-strip d^3 on each side of the receiver, so as to play freely up and down in said slot. The series of articulated bars $d^4 d^4 d^4 d^4 d^4 d^4$ and their cross-rods $d^5 d^5 d^5 d^5$ thus form with the side guide-strips, $d^3 d^3$, a receiver in which the latter, by means of the slots $d^8 d^8$ in them and the pivots $d^9 d^9$, which work up and down in the slots, cause the rods $d^5 d^5$ to be brought a proper distance apart and allow them to be separated by lifting on these pivots $d^9 d^9$ in proportion to the length of the slots.

The rods $d' d'$ or strips $d^3 d^3$ may be used with this articulated basket, or either said rods or said strips may be dispensed with and the other of them used, as either alone form convenient supports for the band d^2 and present a smooth surface upon the inside of the basket, and also regulate the distance apart of the bars $d^5 d^5$.

The upper pair of rods $d^5 d^5$, Fig. 6, are adjusted to the proper distance apart to allow the carrier falling through them to separate them by the pressure of its opposite curved sides and descend to the second pair of rods $d^5 d^5$. When another carrier falls upon the upper pair of rods and opens them, the car-

rier already in the basket has its supporting-
 rods also expanded and drops into the bail
 d^7 , while the second one is caught by the rods
 it has just left. Thus a second carrier drop-
 5 ping into the basket always automatically
 lowers the one already there to the next rods
 below or to the bail d^7 . This bail is provided
 with a handle, d^{10} , and if it is desired to bring
 a carrier down which has dropped upon the
 10 bars $d^5 d^5$ in the basket the operator takes
 hold of this handle and lifts slightly upon the
 bail, which raises the pivots $d^9 d^9$ and expands
 the bars $d^5 d^5$, allowing the carrier to drop
 down into the bail. The bail contains a con-
 15 cave platform, d^{12} , which prevents it from
 swinging away from beneath the carrier by
 the dropping of the latter upon it; but the
 bail may be swung away by hand and the car-
 rier removed at any time. The bail d^7 may
 20 be dispensed with and the carriers caught by
 hand as they are released from the bars $d^5 d^5$;
 but the bail is an important addition to the
 basket.

This articulated basket is connected to the
 25 track A' , and is made to receive the carriers
 sent by the elevator mechanism before de-
 scribed, and the form of the two is adapted to
 operate the same carrier; but the basket may
 be used with another form of elevator or track
 30 and carrier by the proper changes in its form.

What I claim as new and of my invention
 is—

1. In combination with the track A' , the
 elevator-cup b^5 , provided with the deflector b^6 ,
 35 bent over the cup with such a curve and at such
 a distance as to cause the carrier to strike
 against it when the cup is elevated and sud-
 denly stopped and the carrier to be deflected
 out of said cup, and appliances for elevating
 40 and stopping said cup suddenly, substantially
 as described.

2. The combination of the guide-rods $b^2 b^2$,
 the cup b^5 , sliding thereon and provided with
 the deflector b^6 , curved over said cup, the piv-
 45 oted track-sections $a a$, and one or more springs,
 b^{13} , adjusted to throw the cup and deflector
 quickly downward after the trap-sections have
 dropped beneath the carrier in the cup and
 thus give an impulse to the carrier on the
 50 track, substantially as described.

3. The combination of the track A' , provided
 with pivoted track-sections $a a$, the vertically
 rising and falling elevator-cup b^5 , provided
 with the arm b^6 , projecting upward above the
 55 carrier-seat in said cup in position to pass be-
 tween said track-sections in advance of the
 carrier being elevated and push aside another

carrier traversing the said track, and mechan-
 ism for elevating said cup, substantially as
 described.

4. The combination of the elevator-cup b^5 ,
 provided with the spline b^7 , and the carrier
 provided with the groove c , registering there-
 with when the carrier is in position in the cup,
 substantially as described.

5. The combination of the track A' , the ele-
 vator-cup b^5 , adapted to pass freely through
 between the rails of said track, and the vertical
 guide-rods $b^8 b^8$, placed on each side of the path
 of the carrier when elevated in said cup, and
 70 mechanism for elevating said cup, substan-
 tially as described.

6. The combination of the track A' , the ele-
 vator-cup b^5 , adapted to pass freely through
 between the rails of said track, the vertical
 guide-rods $b^8 b^8$, fixed on each side of the path
 75 of the carrier in said cup, the front guard-rod,
 b^{12} , extending upward from a point beneath
 which the carrier is introduced into the cup,
 and mechanism for elevating said cup, sub-
 8 stantially as described.

7. The combination of the track A' , having
 a trap or space therein or connected therewith
 for the passage of the carrier downward, and
 the articulated basket formed of the series of
 85 pivoted side bars, $d^4 d^4$, their opposite connect-
 ing-rods $d^5 d^5$, and one or more supporting-
 pieces for said side bars, adjusted to regulate
 the distance which said opposite rods $d^5 d^5$ can
 approach each other while allowing them to
 90 recede from each other, substantially as de-
 scribed.

8. In combination with the articulated bas-
 ket formed of the pivoted side bars, $d^4 d^4$, and
 opposite connecting-rods $d^5 d^5$, and one or more
 95 supporting-pieces for said side bars, adjusted
 to regulate the distance which said opposite
 rods $d^5 d^5$ can approach each other while allow-
 ing them to recede from each other, the piv-
 oted bail d^7 , substantially as described.

9. The combination of the track provided
 with a space or trap for the passage of the car-
 rier downward and a receiver beneath said
 trap provided with a swinging bottom part
 pivoted to the receiver by side bars, and pivots
 105 $d^9 d^9$ above the lower end of the same, and
 adapted to be swung from under the carrier
 and allow the latter to drop downward out of
 the receiver, substantially as described.

DAVID HALL RICE.

Witnesses:

WILLIAM P. BLAKE,
 N. P. OCKINGTON.