

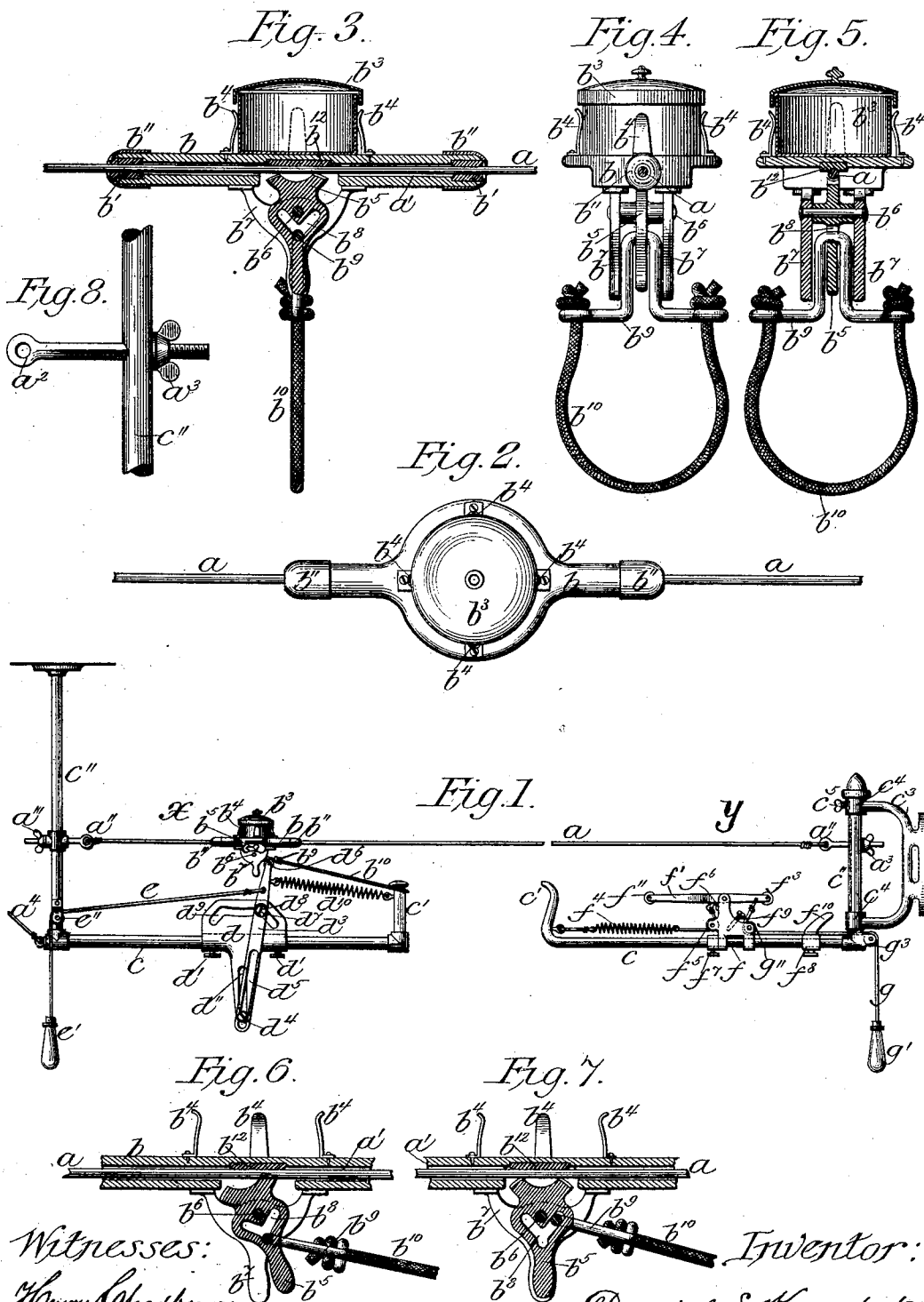
(No Model.)

D. E. KEMPSTER.

CASH CARRIER.

No. 361,702.

Patented Apr. 26, 1887.



Witnesses:

Henry Chadbourne.

Harry W. Robinson.

Inventor:

Daniel E. Kempster.

UNITED STATES PATENT OFFICE.

DANIEL E. KEMPSTER, OF BOSTON, MASSACHUSETTS.

CASH-CARRIER.

SPECIFICATION forming part of Letters Patent No. 361,702, dated April 26, 1887.

Application filed February 3, 1886. Serial No. 190,676. (No model.)

To all whom it may concern:

Be it known that I, DANIEL E. KEMPSTER, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cash and Parcel Carriers for Store-Service, &c.; and I do hereby declare that the same are fully described in the following specification, and illustrated in the accompanying drawings.

My invention relates to improvements in cash or parcel carriers for store-service, &c., in which a car or carrier is caused to traverse a suspended wireway or overhead track from station to station by an impetus given said car or carrier by the operator at said station.

Overhead wireways or tracks, both horizontal and inclined, and trucks or cars traversing the same, propelled by gravity or an impetus given said car at its station, are old and well-known devices in mechanics for transporting various kinds of commodities, and heretofore in similar systems for store-service it has been found necessary to provide each station with a projecting spring or send-off device, also a spring-buffer to ease the shock or blow when the car or carrier is stopped at the station, and also to provide a catch or a spring-coupler at each station to engage the car or carrier and prevent in a measure the recoil of the latter after striking the buffer. All of the devices used heretofore for these purposes are more or less objectionable—as, for instance, the car or carrier does not always strike the buffer with the same force, even though the spring or other send-off device be nicely graduated to give the car or carrier at all times the same impetus, or even if so constructed as to vary the impetus to approximately suit the load to be conveyed, yet the great difference in the weight of the cash to be carried (ranging all the way from a ten-cent piece to several dollars in silver) must necessarily increase or diminish the friction of the moving parts of the carrier to a greater or less extent, as the case may be, and therefore the carrier arrives at the station with an ever-varying momentum, and consequently the buffer and catch or coupler at each station for preventing the recoil of the carrier must be adjusted so as to be sure and catch and hold the carrier when it arrives at the station with the least momentum or heavily loaded, and when the car-

rier arrives at the station with greater momentum or lightly loaded, the greater blow of the carrier will compress the spring-buffer and force the former considerably beyond the catch, and must then recoil until said catch engages. Now, it must be obvious that this is noisy, and so much rattling back and forth on the wireway at the stations soon wears out the parts, and if the spring-buffers were made more rigid to prevent the carriers from driving beyond their catches then they would soon break themselves to pieces from the force of the blow.

Buffers have also been made in the form of a frictional brake at each station—as, for instance, when the carrier is caused by its momentum to force or wedge itself between spring bars or under or over a spring or between a spring and the wireway on which it travels. Various ways of causing the carrier to gradually deflect a spring until the momentum of the former is overcome have been tried and are very good as far as they go, which is, in stopping the car or carrier without shock or recoil; but in all such devices heretofore it has been necessary for the operator to expend a corresponding amount of energy or power to force out the carrier from the frictional brake or buffer (when required to project it to the next station) as was stored up in the momentum of said carrier, and which forced it therein. Now this of course is very objectionable, and it must be apparent that the gradual deflection of a spring powerful enough to stop the momentum of the carrier within a desirable length of travel of the same by the wedging-in process must necessarily cause great friction and wear on those parts in contact.

Now, therefore, the object of this, my invention, is to dispense with the projecting devices, buffers, and catches now located at each station, and thus lessen the number of parts and cheapen the cost of construction, as well as dispensing with all the objectionable features pointed out with relation thereto; and my invention consists in, first, providing a cash or parcel car or carrier with a spring-loop pivoted thereon, and a horn, projection, or hook at the station for the said loop to engage upon, and thereby admit of producing tension in said spring-loop (by hand or by suitable mechanism hereinafter described) of sufficient force to give the carrier an initial impetus at

the station to impel it to its destination, as distinguished from impelling the carriage by a continuously-acting force—as by gearing and weights or clock-springs, &c.—and, furthermore, said impelling-spring also acting to actuate a frictional brake, and thus dispensing with any buffers at the stations; second, providing a cash car or carrier with a frictional brake, or means for automatically checking its momentum by a gradually-increasing friction on the wireway, and thus bringing said carrier to a stop and holding it thereon before reaching the end of the said wireway, and consequently without any concussion or recoil, and at the same time sets its projecting spring ready for the operator to project the carrier back to its other station; third, providing a cash car or carrier with a gradually-increasing frictional brake acting on the wireway, and arranged to be instantly released from such contact, so that the projecting spring or device can start to impel the carrier with the least possible resistance to overcome; fourth, providing each station with a send-off or tripping device acting on the car or carrier brake, and operated by simply a downward pull on a cord; fifth, providing a hanger adapted for attachment to a wall or other vertical support, and having a swiveling bar or standard to which the suspended wireway is attached, whereby the parts may be readily kept in line, regardless of how much the said wireways may diverge; and, sixth, the minor details going to make up the system as a whole, all of which will now be described and pointed out in the claims.

In carrying out my invention I prefer to construct it about as shown and described; but to a skilled mechanic it will be apparent that it can be considerably modified without departing from the spirit of my invention.

Figure 1 is a side view of my system, showing the stations X and Y. Fig. 2 is a plan view of the carrier and its wireway. Fig. 3 is a central longitudinal section of the carrier. Fig. 4 is an end view of the carrier. Fig. 5 is a central cross-section of the carrier; Figs. 6 and 7, details of the carrier-brake or locking device, showing it engaged and disengaged from the wireway; Fig. 8, a detail view of the square-shanked eyebolt and its supporting standard.

Similar letters of reference indicate similar parts in all the views on the drawings.

a is the wireway or track, upon which the carrier *b* travels. This way is preferably a wire stretched horizontally between two points, as shown in Fig. 1, although it may be inclined, if so desired. It is strained taut and is elevated enough not to interfere with the free passage of persons under it. The said wire goes through a passage, *a'*, extending longitudinally through the carrier *b*, and is arranged as shown in Figs. 3, 6, and 7. The carrier is provided with glass bushings *b'*, to lessen the friction on the wire, and they are held fast on the carrier by metal ferrules *b''* thereon. Said carrier is also provided with a detachable receptacle, *b³*, for holding cash or parcels, and

is provided with springs *b⁴* on the carrier for holding it thereon. Other suitable means may be employed for detachably holding the cash-box on the carrier. The carrier is also provided with a frictional brake or locking-piece, *b⁵*, pivotally attached to the hangers *b⁷* by its pivot *b⁶*. Said locking-piece or brake has a V-shaped slot, *b⁸*, through which passes a wire bail, *b⁹*, bent so as to freely swing between the hangers *b⁷*. Said bail has attached to its ends the ends of a spring or elastic cord, *b¹⁰*, which hangs in a loop or bight. The brake or locking-piece *b⁵* is made in the form of a pivoted lever, one end of which is grooved to fit the wireway and the other end forms a trip or trigger, all as plainly shown in Figs. 3, 6, and 7.

The V-slot *b⁸* is so constructed and arranged in the brake-lever or locking-piece that when the spring-cord *b¹⁰* is under tension, by being hooked over the projection or hook *c'* of the bar *c*, the brake-lever *b⁵* is caused to engage or disengage the wireway *a*, according as the bail *b⁹* is forced into one or the other positions in the slot *b⁸*, as plainly shown in Figs 6 and 7. A metal piece, *b¹²*, is fastened to the carrier *b*, just above the brake *b⁵*, and is grooved to fit the wireway, and thus assist in frictionally holding the said wireway between the two hardened surfaces.

The bar *c* is arranged parallel, or nearly so, to the wireway *a*, and it is rigidly connected or made integral with an upright portion or standard, *c''*, which, when the station is located near the middle of the room, is secured to the ceiling thereof, and is strengthened by the guy *c⁴*, as shown at station X in Fig. 1; but when the station is located near the side of the room, or near any vertical wall or support, then the upright standard *c''* is pivotally attached to a wall-bracket, *c³*, having one or more arms with bearings or boxes *c¹*, one of which may be provided with a set-screw, *c⁵*, for securing the bar *c* in line with the wireway *a*, however much said wireway may diverge from a right angle to the wall or base of the bracket *c³*. This facilitates putting up the wires, and dispenses with any alteration to the walls in order to have the bar *c* in line with the wireway, as plainly shown at station Y in Fig. 1.

The standards *c''* of the bars *c* have each a square hole, through which pass the square shanked and threaded eyebolts *a''*, to which are attached the wireway *a*, kept taut by the nuts *a⁶*. By making the holes and shanks square I am not liable to twist and break the wireway when tightening it up.

At the station X in Fig. 1 the bar *c* is provided with a slotted plate, *d*, adjustably secured thereon by screws *d'*. The lower extremity of said plate *d* has a vertical slot, *d''*, in which is a sliding nut, held from turning therein by its sides fitting the slot. A slotted lever, *d³*, is pivoted on the side of the plate *d* by a shouldered screw, *d⁴*, passing loosely through its slot *d³*, and its shoulders tightened against the plate *d* by the nut in the slot *d''*.

The lever *d³* is free to swing on the tightened

screw d^4 , and its throw may be shortened or lengthened by slackening the screw d^4 and sliding the nut up or down, as required, in the slot d'' .

5 The lever d^3 has its upper end forked, and a small roll, d^5 , is freely pivoted therein; also, about midway in the said lever is a screw-stud, d^7 , on which is freely pivoted a roll, d^8 , which runs in a cam-shaped slot, d^9 , in the plate d . The lever d^3 is swung by a spring, d^{10} , into the position where the roll d^8 is in the end of the slot d^9 nearest the projection or hook c' on the end of the bar c , which brings the roll d^8 below the path of the carrier b .

15 A cord, e , having a ring or handle, e' , is attached to the lever d^3 , said cord being led back toward the standard c'' , and passes down over a grooved pulley, e'' , pivoted thereon.

The slot d^9 is of such shape that, when the lever d^3 is swung by pulling on the cord e , said lever first rises, being caused to do so by the roll d^8 ascending the incline shown at the end of the slot, the lever being free to do so by its slot d^9 . Then the upper end of the lever or roll d^5 travels in a line parallel, or nearly so, to the wireway, until it reaches the other end of the slot d^9 , when it quickly descends. On releasing the cord, the spring d^{10} draws the lever d^3 back into its normal position, as before described.

At the station Y in Fig. 1 the bar c , having the hook or projection c' thereon, is provided with a sliding carriage, f , which is held upright thereon by suitable means, in the present case the bar being squared for that purpose. The carriage f has pivoted thereon a lever, f' , both ends of which are forked and provided with pivoted rolls f'' f^3 .

One end of a spring, f^4 , is attached to the hooked end of the bar c , and the other end to a cord which passes around a small grooved pulley, f^5 , thence upward, and is attached to the lever f' quite near its pivot or fulcrum. This spring f^4 answers two purposes—one is to draw the lever f' into a horizontal position or until the stop f^6 strikes the carriage, and thus brings the roll f below the path of the carrier b , and the other is to return the carriage f to its normal position.

50 A cord, g , having a ring or handle, g' , is attached to the lever f in a similar manner to the spring-cord, before referred to, only the said operating-cord g is attached to the lever at a greater distance from the pivot or fulcrum of the latter, and thus exerts a greater leverage. Said cord g passes down under a grooved pulley, g'' , pivoted on the carriage f , and thence back toward the standard c'' , and passes down over a grooved pulley, g^3 , pivoted thereon.

Adjustable collars or stops f^7 f^8 limit the sliding motion of the carriage f . A screw, f^9 , in the carriage f , limits the elevation of the long end of the lever f' and roll f'' , and an incline, f^{10} , on the collar f^8 elevates the short end of the lever and roll f^3 , and of course depresses the opposite end of the lever and roll f'' .

Having described the construction of my de-

vice, the operation is as follows: Assuming the carrier b to have been projected by its spring b^{10} from the station Y, it glides swiftly along the wireway a until the loop or bight of the 70 aforesaid spring catches onto the projection c' on the bar c , located in the path of the carrier b , at the station X. This swings the bail b^9 around into line with the loop or bight of the spring, and as the bail is resting at the bottom of the V-slot in the brake-lever it also swings the latter on its pivot and into contact with the wireway, and as the momentum gradually increases the tension on the spring b^{10} the brake 80 is caused thereby to gradually increase its frictional contact on the wireway, and thus quietly bring the carrier to a state of rest without any shock or recoil, and the brake securely locks the carrier to the wireway, all as plainly 85 shown in Fig. 6. The cash-box b^3 may now be removed, its contents adjusted as desired, and then replaced between the springs b^4 on the carrier b .

If desired to forward said carrier to the station Y, it is only necessary to pull down on the cord e by its handle e' on the same. This, through the action of the roll d^8 traveling in the cam-shaped slot d^9 , causes the lever d^3 to ascend until the roll d^8 is in line with the path 95 traveled by the carrier. Then said roll travels parallel, or nearly so, to the wireway and toward the carrier until it brings up against the trip or trigger on the brake-lever b^5 , as shown in Fig. 1, station X, and continuing to 100 travel forces the trigger back into the position shown in Fig. 7, which changes the inclination of the V-slot b^8 with relation to the strained spring b^{10} , and this causes the bail b^9 to change its position from the bottom to the 105 top of the said slot, which brings said bail and spring in line with the pivot of the brake-lever, and thus holds it in a vertical or nearly vertical position and out of contact with the wireway. Still continuing to draw down on the 110 cord e , the car or carrier is forced back by the roll d^8 against the hangers b^7 until its spring b^{10} is sufficiently strained to give the required impetus to said carrier, when the lever is caused to descend by the action of the roll and slot, 115 before referred to, until the roll d^8 clears the carrier and the latter shoots toward the station Y. On releasing the cord e , the lever d^3 is brought back to its normal position by its spring d^{10} .

It should of course be understood that the 120 time required to describe this operation of drawing down the cord e in nowise represents the actual time required, as it is all accomplished in an instant by a quick downward pull.

The operation at the station Y is very similar to that described with relation to station X. As the carrier arrives, the loop or bight catches the projection and applies the brake on the carrier and stops it in position on the 130 wireway, as before described.

On drawing down on the cord g by its handle g' , the lever f' swings on its pivot until its shorter end strikes the stop f^7 on the carriage

f, being caused to assume this position by the action of the increased leverage of the point of attachment of the cord *g* over the point of attachment of the spring *f*⁴ on the opposite end of the said lever. As the cord continues to be drawn down, the carriage *f* travels along the bar *c* with the lever-roll *f*³, in line with the path of the carrier, until it releases the brake and forces the carrier back to give its projecting spring the proper tension, when the lever-roll *f*³ strikes and rolls up the inclined face *f*¹⁰ on the stop *f*⁸, and thus depresses the other end of the lever, so that the roll *f*³ clears the carrier *b*, and it is projected by the recoil of its spring *b*¹⁰, as before described. On releasing the cord *g*, the carriage *f* and lever *f*³ assume their normal positions by the action of the spring *f*⁴, as shown.

The degree of tension of the projecting spring before the release of the carrier may be varied to suit the distance desired to be traversed on lines of different lengths by adjusting the throw of the lever *d*³ at station X, and the same may be accomplished by adjusting the stops *f*⁷ *f*⁸ at station Y.

It is apparent that the wireway may be either horizontal or inclined, and that any number of said wireways may diverge from the cashier's desk or a central station and extend to any and all points or stations in a store, and when it is considered that for every single one of such lines or wireways, by my system, I am able to, by embodying in the carrier all the necessary devices, save one-half of the expense of the projecting springs, buffers, and catches, that would otherwise occur if said devices had to be provided at each station or end of the wireway or line, the simplicity and cheapness of my invention must be appreciated.

If preferred, the carrier may be drawn back by hand and the trip or trigger released by the finger, and thus dispense with all of the send-off mechanism described for this purpose; also, the carriers may be provided with wheels instead of the bushings, and the springs may be made of other material or in a different form. Various changes can be made, if so desired.

I desire to claim—

1. The combination of the wireway *a*, the carrier *b*, the spring *b*¹⁰, the brake *b*³, and the projection or hook *c*¹, substantially as set forth.

2. The carrier *b*, having bushings *b*¹, and ferules *b*², as and for the purpose set forth.

3. The carrier *b*, the projecting spring *b*¹⁰ thereon, and brake mechanism, substantially as described, connected with said spring, in combination with the co-operating projection or hook *c*¹, substantially as and for the purpose specified.

4. In a cash-carrier apparatus, the combination, with the bar *c*, arranged parallel with the wireway, of the pivoted lever on said bar and connected mechanism, whereby said lever

is adapted to produce tension in an impelling-spring located on the carrier, and then release said carrier, for the purpose set forth.

5. In a store-service apparatus, the combination, with a way, a carrier traveling thereon, and a projecting spring attached to said carrier, of a lever arranged to draw the carrier back against the tension of said spring and means for tripping said lever so as to release the carrier, as set forth.

6. In a store-service apparatus, the combination, with a way, a carrier traveling thereon, and a projecting spring attached to said carrier, of a lever arranged to draw the carrier back against the tension of said spring, means for tripping said lever so as to release the carrier, and means for returning the lever to its normal position, substantially as set forth.

7. The combination, with the way and carrier thereon, of the bar *c*, arranged contiguous thereto, the cam-plate *d*, the lever *d*³, the cord *e*, and spring *d*¹⁰, all substantially as set forth.

8. The combination, with the way and carrier thereon, of the bar *c*, arranged contiguous thereto, the carriage *f*, the lever *f*³, the stops *f*⁷ *f*⁸, the cord *g*, and spring *f*⁴, all substantially as set forth.

9. In a store-service apparatus, in combination, the line or way, the carrier thereon, the frictional brake, and a projecting spring on the carrier, means at the station for placing said spring under tension, and means for releasing it, for the purpose set forth.

10. In a cash or parcel carrying apparatus, in combination, the wireway *a*, the carrier thereon, the standard *c*², the square-shanked eyebolt *a*² therein, connecting said wireway and standard together, as described, and the wall-bracket *c*³, having the boxes *c*⁴, through which passes the said standard *c*², substantially as and for the purpose set forth.

11. The carrier adapted to move along a wireway and provided with a movable brake, *b*³, having a V-shaped slot, *b*³, combined with a bail, *b*⁹, therein, the V-slot and bail coacting, whereby the brake is applied and released, substantially as set forth.

12. In a store-service apparatus, the combination, with a cash-car, of a single brake-lever pivoted on said car, one end of which lever is adapted to engage the track or way, and the other end extended downward as a trip or trigger, whereby the brake may be released by hand or otherwise, substantially as set forth.

13. The cash or parcel car, composed of the body *b*, cash-box *b*², hangers *b*¹, brake *b*³, bail *b*⁹, and spring *b*¹⁰, all combined substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL E. KEMPSTER.

Witnesses:

HENRY CHADBURN,
CHAS. H. FIGG.