L. B. BETHARDS.

SAFETY LOCKING MECHANISM FOR PACKAGE CARRIERS.

APPLICATION FILED MAR. 5, 1908.

955,628. **Patented Apr. 19, 1910.**

4 SHEETS—SHEET 1.

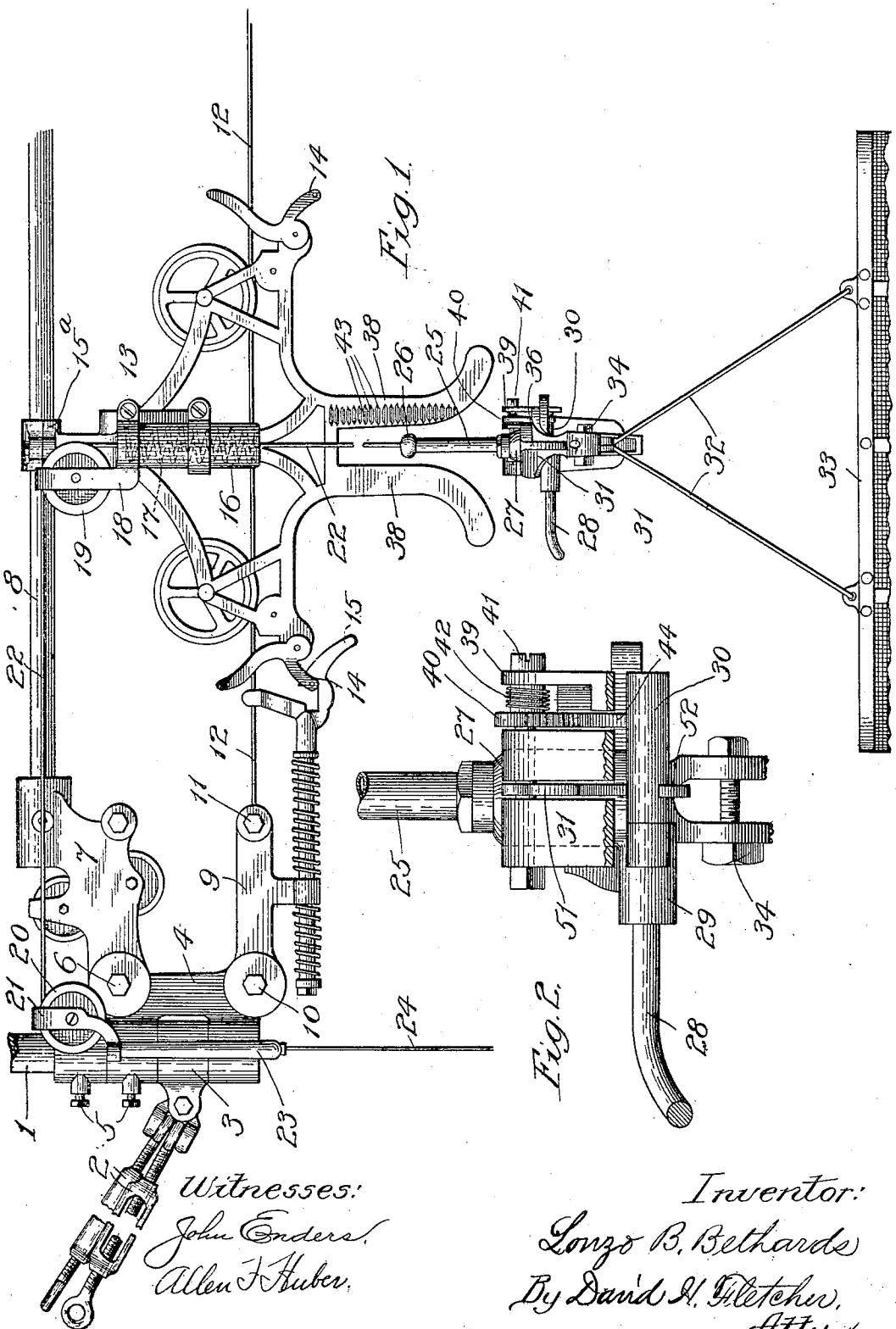

Fig. 1.

Fig. 2.

Witnesses:
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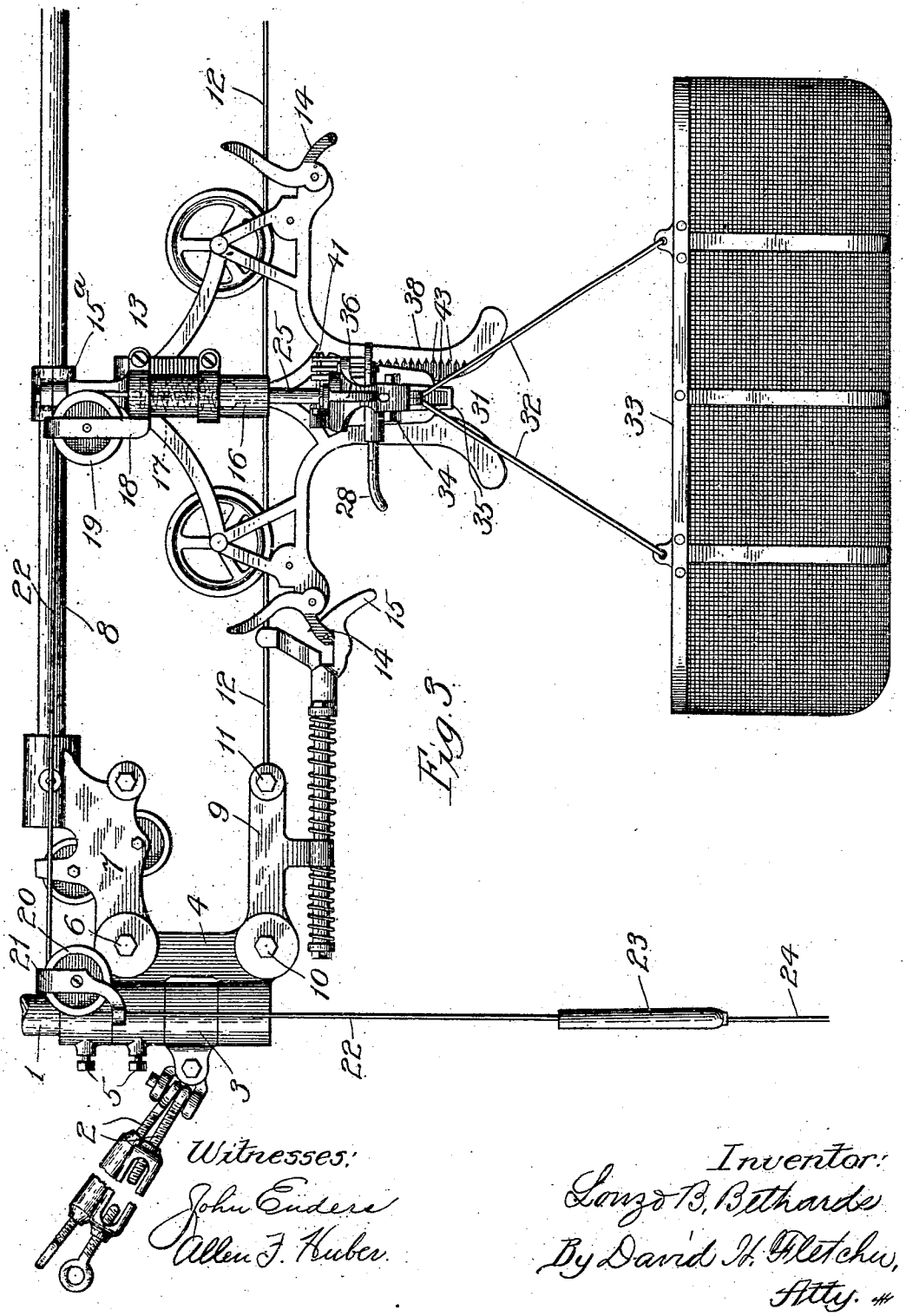

Fig. 3.

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4 SHEETS—SHEET 3.

Fig. 5.

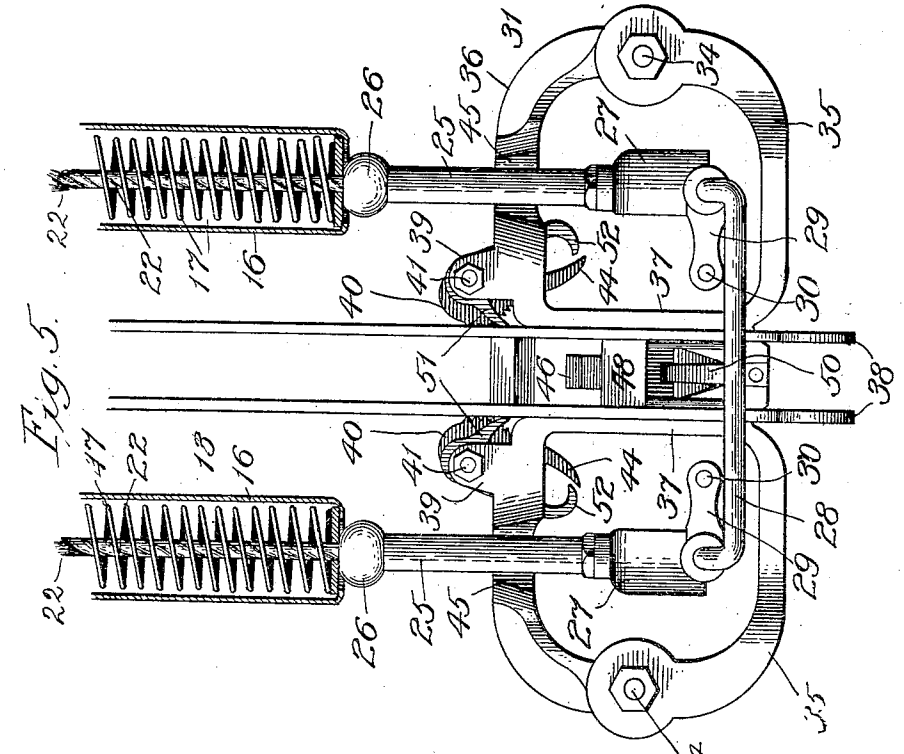
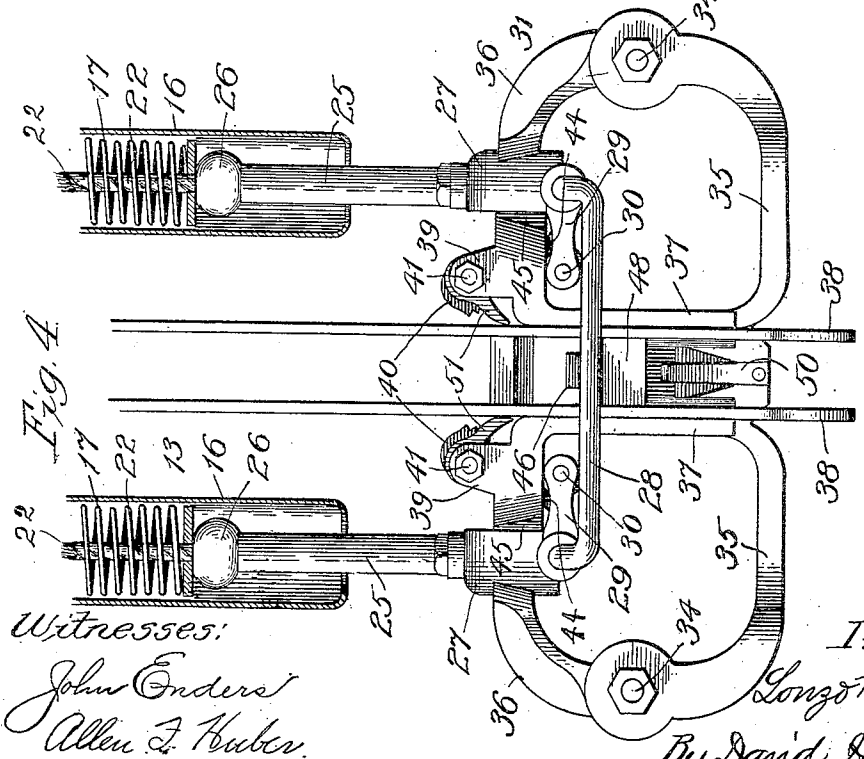


Fig. 4.



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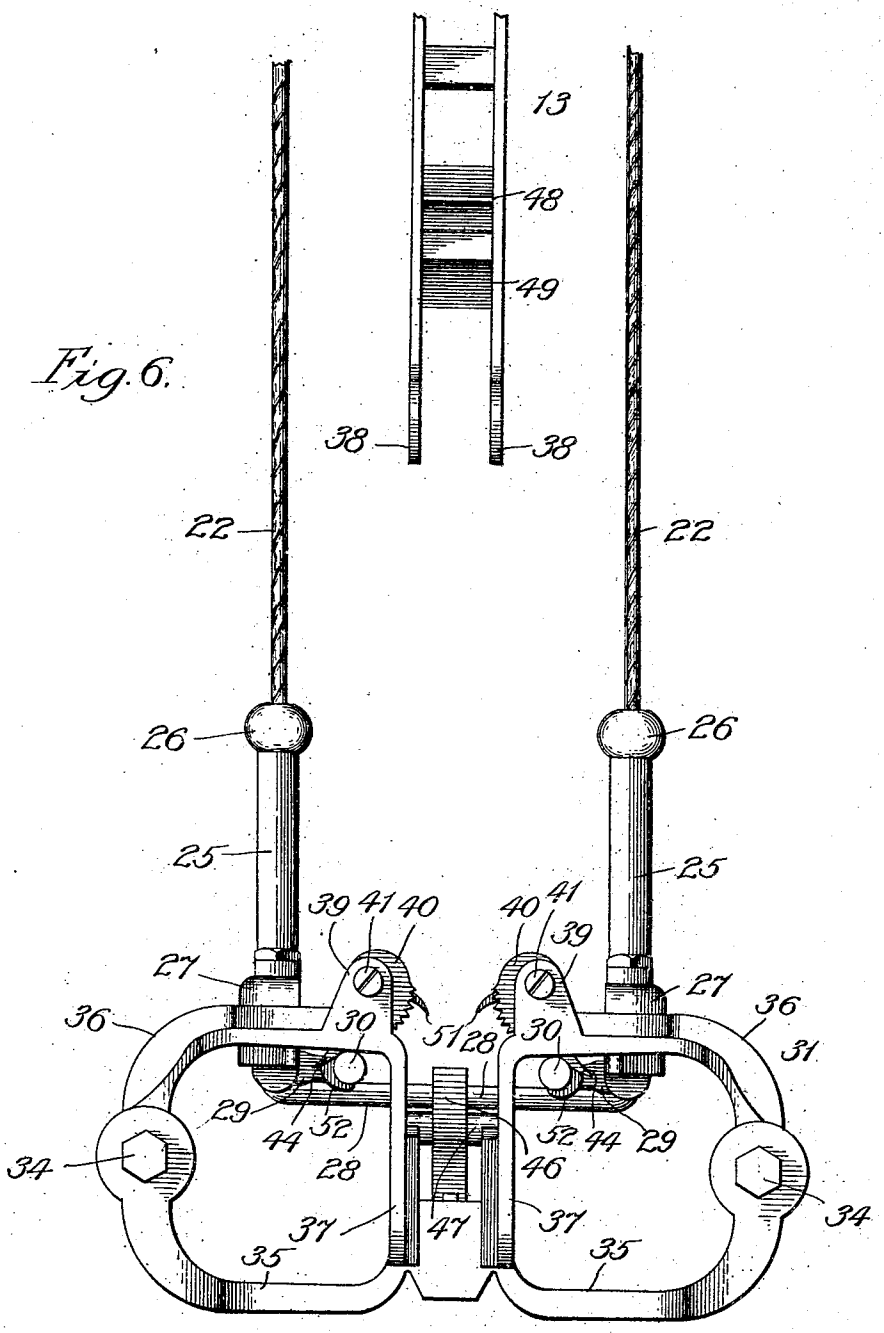
4 SHEETS—SHEET 4.

Fig. 6.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

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SAFETY LOCKING MECHANISM FOR PACKAGE-CARRIERS.

955,628. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed March 5, 1908. Serial No. 419,376.

To all whom it may concern:

Be it known that I, LONZO B. BETHARDS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety Locking Mechanism for Package-Carriers, of which the following is a description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding numerals of reference in the different figures indicate like parts.

My invention relates to that type of package carrier employed in store service apparatus, in which a car having a detachable basket, is arranged to run upon an elevated way, said carrier being provided with means whereby the basket may be raised or lowered to or from the car and automatically locked thereto or unlocked therefrom at will.

It is well known that in this class of carriers the lock frequently fails to engage or to remain in a locked position, thereby permitting the basket to fall; and the object of my invention is to obviate this uncertainty by providing a safety lock which will serve to effectually connect the basket to the car in the event of a failure to act of the main lock.

A further object is to provide means for locking the basket to the mechanism for elevating and lowering it to and from the car.

I accomplish said objects in the manner hereinafter more particularly described and definitely set forth in the claims.

In the drawings, Figure 1 is a side elevation of a car and detachable basket embodying the features of my improvement, the basket being shown as suspended below, but detached from the car, Fig. 2 is an enlarged central vertical sectional view of a portion of the stirrup and safety locking mechanism, Fig. 3 is a side elevation corresponding to Fig. 1, showing the basket as it would appear when locked to the car, Fig. 4 is an enlarged rear view taken at right angles to the body of the car showing the stirrup and yoke as they would appear when suspended by the lifting cords, in operative proximity to the car, with the primary emergency locking dogs held out of contact with the car body, Fig. 5 is a like view showing the stirrup lowered, and the primary emergency locking dogs in engagement with the car, and Fig. 6 is a front view showing the stirrup and basket yoke lowered from the car, said stirrup and yoke being locked together by means of the secondary emergency locking mechanism.

Referring to the drawings, 1, Figs. 1 and 3, represents a hanger suspended from a ceiling in the usual way and supported at the lower end by means of braces 2 connected with a collar 3. A fitting 4 is adjustably attached to said hanger by means of set-screws 5. Jointedly connected at 6, to the part 4, is a fitting 7, to the forward end of which is rigidly attached a rod 8, the forward end of said rod being supported by means of braces, not shown, extending back of the hanger as is customary for similar arms or in any approved way. A link 9 is jointedly connected at 10 with the part 4, and has upon its forward end a winch 11, to which is secured a track wire 12 having a car generally designated by 13, mounted thereon. Said car is provided with the usual spring catches 14, one at each end, adapted to engage with any approved form of buffer-hooks 15, for the purpose of holding the car in place at the station. Inasmuch as my invention relates only to certain emergency locking mechanisms for connecting the basket to the car as well as to the lifting stirrup, I have shown a cord elevating device which coacts therewith, but no propelling mechanism.

A transverse yoke 15^a is rigidly attached to the arm 8 and is so placed that when the car is locked in position, as shown, the yoke will be directly over the middle thereof. At opposite ends of the yoke are parallel depending tubes 16 sufficiently separated from each other to enable the car to pass between them. A coiled spring 17 is located in each of said tubes for the purpose hereinafter stated. Journaled in suitable brackets 18 at the respective ends of said yoke, are pulleys 19, the grooves of which are in alinement respectively with the axes of the tubes 17. Corresponding pulleys 20 are mounted upon a support 21, said pulleys being in alinement with the pulleys 19. Parallel lifting cords 22, shown in all but the second figure, are trained over the pulleys 19 and 20 respectively, the rear ends thereof being connected to the arms of the usual U-shaped counter-weight 23, Figs. 1 and 2, by means of which they are separated, while a cord 24 is attached to the weight to be grasped by the operator as hereinafter set forth. The forward ends of

the cords are passed downwardly through the tubes 16 and coiled springs 17 to an elevating stirrup having parallel vertical tubular members 25, shown also in Fig. 2, with which they are connected. Balls or knobs 26, upon the upper ends of said members, are adapted to be brought into engagement with the springs 17 when the stirrup is lifted;—said springs serving to maintain said stirrup normally in a predetermined position to be described. Upon the lower ends of the parts 25 of the stirrup, are formed enlarged portions 27, which are rigidly connected with each other by means of a horizontally placed U-shaped connecting rod 28 arranged to stand in the rear of the car when the latter is at the station. Rigid arms 29, 29, are extended inwardly toward each other from the parts 27, to each of which is rigidly attached a horizontal stud 30, said studs being parallel with each other and with the wire way 12.

A yoke, generally designated by 31, constitutes a framework for the reception of the primary and auxiliary or emergency locking devices, and is connected to the bails 32 upon opposite sides of a basket 33, Figs. 1 and 3, by means of bolts 34, which are passed through suitable loops in said bails. Said yoke is arranged transversely to the body of the car and consists of an open framework having a continuous horizontal bottom portion or cross-bar 35, top portions 36, 36, extending toward each other with a space between and connected at their ends by means of parallel vertical plates 37, 37, with the part 35. The space between the plates 37 is slightly greater than the width of the body of the car 13, which is intended to be passed between them in the manner shown in Figs. 4 and 5. The car 13 is of a well known type having a frame consisting of parallel plates separated from each other between which the wire 12 is located. Said frame is provided with parallel depending members 38 curved in opposite directions as shown. The notch or space between the two is adapted to receive the yoke 31, which is passed upwardly between them and detachably locked in position. Formed upon one side of the part 36 are lugs 39 between which and the main body of the yoke are notches in which are located eccentric serrated cams 40, said cams being pivotally mounted upon the bolts 41. Coiled springs 42, Fig. 2, upon the bolts 41, have one end connected with the yoke and the other with the cam, the tendency of said springs being to press the cams or locking dogs against the sides of the parts 38 of the car when the yoke is lifted between said parts. Notches or cogs 43 are formed in the parts 38 in position to be engaged by the teeth of said dogs. The dogs 40 are provided with downwardly and outwardly curved arms 44, better shown in Figs. 2, 5 and 6, which are in position to be engaged by the studs 30 upon the lifting stirrup when the yoke is suspended therefrom as shown in Figs. 4 and 6; the object of such engagement being to hold the locking dogs out of contact with the car body when the basket is being raised or lowered to such a position as will enable the main or primary lock to act. The yoke 31 is provided with notches 45, Figs. 4 and 5, upon the rear side of the part 36 which are so placed as to receive the parts 25 of the stirrup when the car is at the station as shown in Figs. 1 and 3, the stirrup being normally held in the position shown in Fig. 5, by the action of the springs 17, so as to permit the parts 25 to enter said notches. The notches are of a size and shape adapted to receive the enlarged portions 27 of the stirrup, as shown in Fig. 4, so as to enable the yoke to be suspended therefrom.

I make no claim to the main or primary lock which is intended to be mounted upon the yoke and which may consist of any approved type. In the example shown, I have indicated in Figs. 4, 5 and 6, a well known form of automatic lock consisting of a dog 46 pivoted at or near its middle upon a pivot-pin 47, Fig. 6, which is journaled in the yoke. Cross-bars 48, 49, intervening between and connecting with the side-plates of the car are adapted to be engaged by said dog when the yoke is raised to a locking position, as shown in Figs. 3 and 5. A spring 50, Figs. 4 and 5, serves to retain the dog in an initial position to cause it to act when the yoke and car are brought into proper relation.

Loosely journaled upon the bolts 41 are elbow shaped gravity catches or locking dogs having inwardly and downwardly inclined arms 51, Figs. 2, 4, 5 and 6, the normal position of which is such that when the yoke is lifted into contact with the car, the arms are brought into engagement with the sides of the latter and thrown farther apart. Hooks 52 are formed upon the complementary arms of said dogs which are so positioned as to engage the studs 30, when the yoke is below the body of the car, so as to permit said dogs to hang in their respective normal positions. While I prefer to employ gravity dogs, it is obvious that they may be actuated by means of springs; the term "gravity" being employed more especially to distinguish these elements from the auxiliary locking dogs 40, the latter being intended to lock the yoke to the body of the car, and the former to lock said yoke to the stirrup at all times during its separation from the car.

Having thus described the several coacting parts of my improved device, I will now explain its operation: Assuming the car to be locked in position at the station, as shown

in Figs. 1 and 3, and the basket to be locked to the car as shown in said last named figure, the lifting springs 17 will cause the stirrup to stand in relation to the yoke as indicated in Fig. 5, with the parts 25 in the notches 45. When in this position, the stud 30 will be below and out of engagement with the arms 44 of the serrated locking dogs 40, thereby leaving the latter free to be pressed by the springs 42 against the parts 38, and causing the teeth thereon to engage the notches 43. The dogs 40, being eccentric in form as shown, it follows that the weight of the basket will cause said dogs to firmly grip the sides of the car and lock the yoke securely thereto. This action, of course, is entirely independent of that of the main primary lock. When it is desired to disconnect the basket from the car, the operator pulls downwardly upon the cord 24, which lifts the stirrup against the action of the springs 17, releases the main lock in a well known way and at the same time brings the studs 30 into engagement with the arms 44, thereby disengaging the teeth of the dogs from the notches 43 as shown in Fig. 4. The basket is then permitted to descend by its own gravity, the parts 27 of the stirrup being in engagement with the notches 45. As long as the body of the car intervenes between the parts 37 of the yoke, the arms 51 of the gravity dogs are held by the sides of the car in non-engaging positions with respect to the studs 30 upon the stirrup; but as soon as the yoke is lowered sufficiently to permit the arms 51 to be disengaged from contact with the car, the dogs assume the locking position shown in Fig. 6 and, passing beneath said studs, effectually lock the stirrup to the yoke. This feature constitutes an important factor in the operation of the device, for it often happens that in the act of lowering the basket, it is brought into contact with some obstruction which serves to interfere with its descent and the stirrup, becoming thereby disengaged, permits the basket to fall. This contingency, however, is wholly prevented by means of the gravity dogs which remain in engagement with the studs and lock the stirrup and yoke together during all the time that the latter remains disengaged from the car. Upon placing articles in the basket, the operator pulls down upon the cord 24, thereby elevating the basket until it is locked to the car. Inasmuch as the yoke is suspended from the stirrup until the maximum elevation is reached, the eccentric locking dogs are held in a non-locking position, but it will be seen that in order that the stirrup may be lowered to permit them to lock, it is essential that the gravity dogs 52 should first be released from engagement with the studs 30. This is accomplished as a result of the contact of the arms 51 with the depending parts 38, so that as soon as the tension upon the pull-cords is released the stirrup descends to its normal position thereby permitting the safety locks 40 to act and hold the basket suspended, even though the main lock may have failed to perform its function.

Aside from the factor of safety which results from doubly-locking the basket to the car as well as in locking the stirrup to the yoke during the act of raising and lowering, the device possesses other minor advantages, such, for example, as preventing the goods, when the basket is over full, from interfering with the locking mechanism and thereby causing derangement.

Having thus described my invention, I claim:—

1. In a device of the class described, the combination with a car mounted upon an elevated way, of a detachable receptacle having a yoke thereon provided with a primary lock for connecting the same to the body of the car, a spring controlled serrated eccentric cam pivotally mounted upon said yoke, the same being arranged to stand adjacent to the side of the car when the latter is in position to engage the primary lock, the side of the car being notched to receive the teeth of said cam, a stirrup for engaging said yoke to lift said receptacle into engagement with the car, means for normally holding said stirrup out of contact with said yoke, and means upon said stirrup for engaging said eccentric cam to disengage it from and hold it out of contact with the body of the car when the weight of said receptacle is supported upon said stirrup.

2. In a device of the class described, the combination with a car of a detachable receptacle having a supporting yoke, eccentric serrated cams pivotally mounted upon said yoke upon opposite sides of the car, springs arranged to press the same against the sides of the car, said car being provided with corrugations to engage said serrated cams, a stirrup arranged to engage said yoke to lift the receptacle, means for normally holding the same out of contact with said yoke, and studs upon said stirrup for engaging said eccentric cams to hold them in non-engaging positions when the yoke is suspended from the stirrup.

3. In a device of the class described, the combination with a car mounted upon an elevated way, of a detachable receptacle having a yoke thereon provided with a primary lock for connecting the same to the body of the car, spring actuated serrated clamping elements pivotally mounted upon said yoke for engaging counterpart elements upon the body of the car, an elevating stirrup for holding said clamping elements out of contact with the car while the yoke is suspended by said stirrup, locking dogs upon said yoke

for engaging said holding means, and means for holding said locking dogs out of engagement with said holding means when the yoke is in position to be connected with the car.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses, this 25th day of February 1908.

LONZO B. BETHARDS.

Witnesses:
D. H. FLETCHER,
CARRIE E. JORDAN.