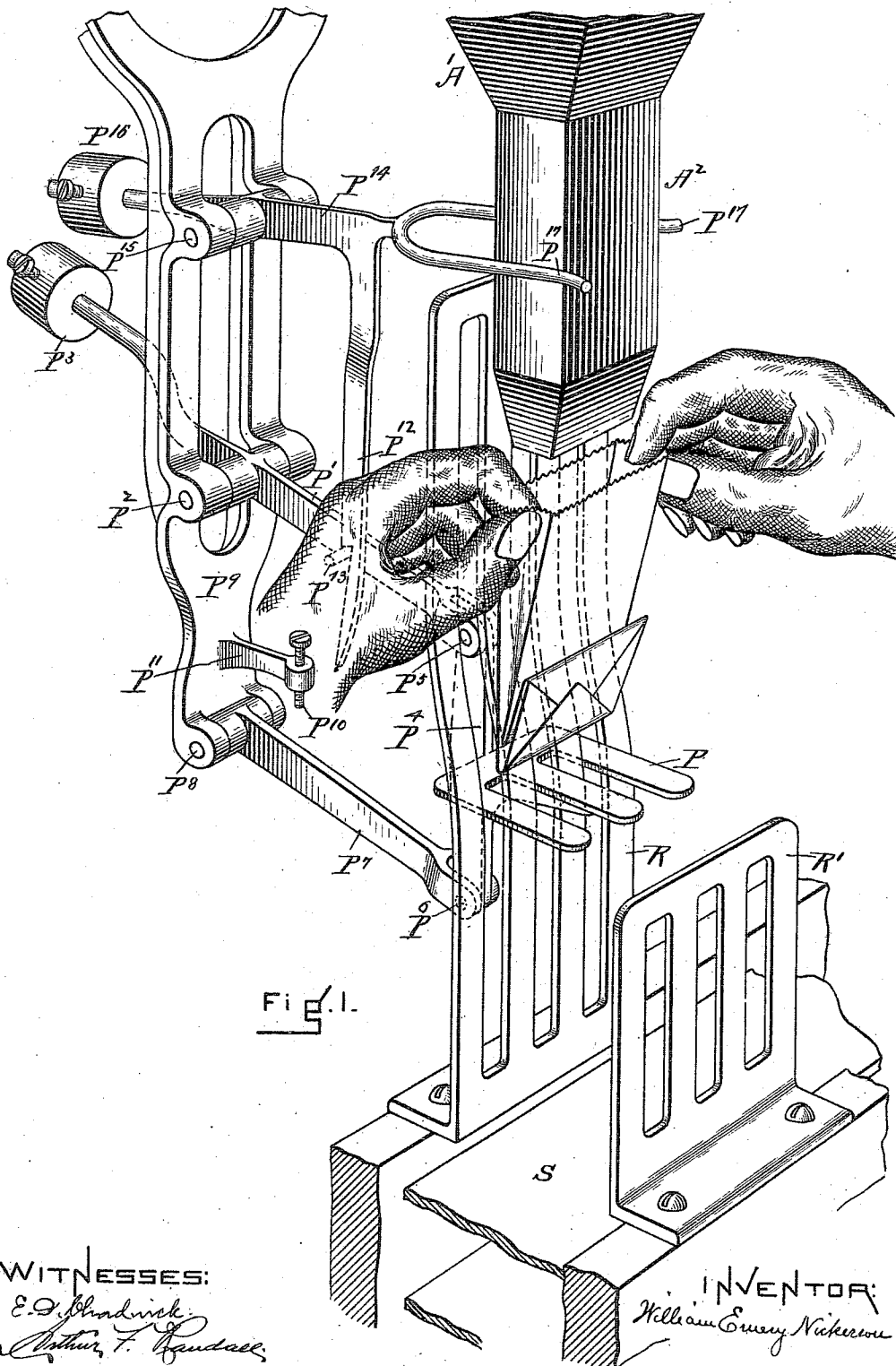


W. E. NICKERSON.
PACKAGE HANDLING APPARATUS.
APPLICATION FILED JUNE 28, 1902.

985,829.

Patented Mar. 7, 1911.

3 SHEETS—SHEET 1.



WITNESSES:
E. D. Chadwick
Arthur F. Randall

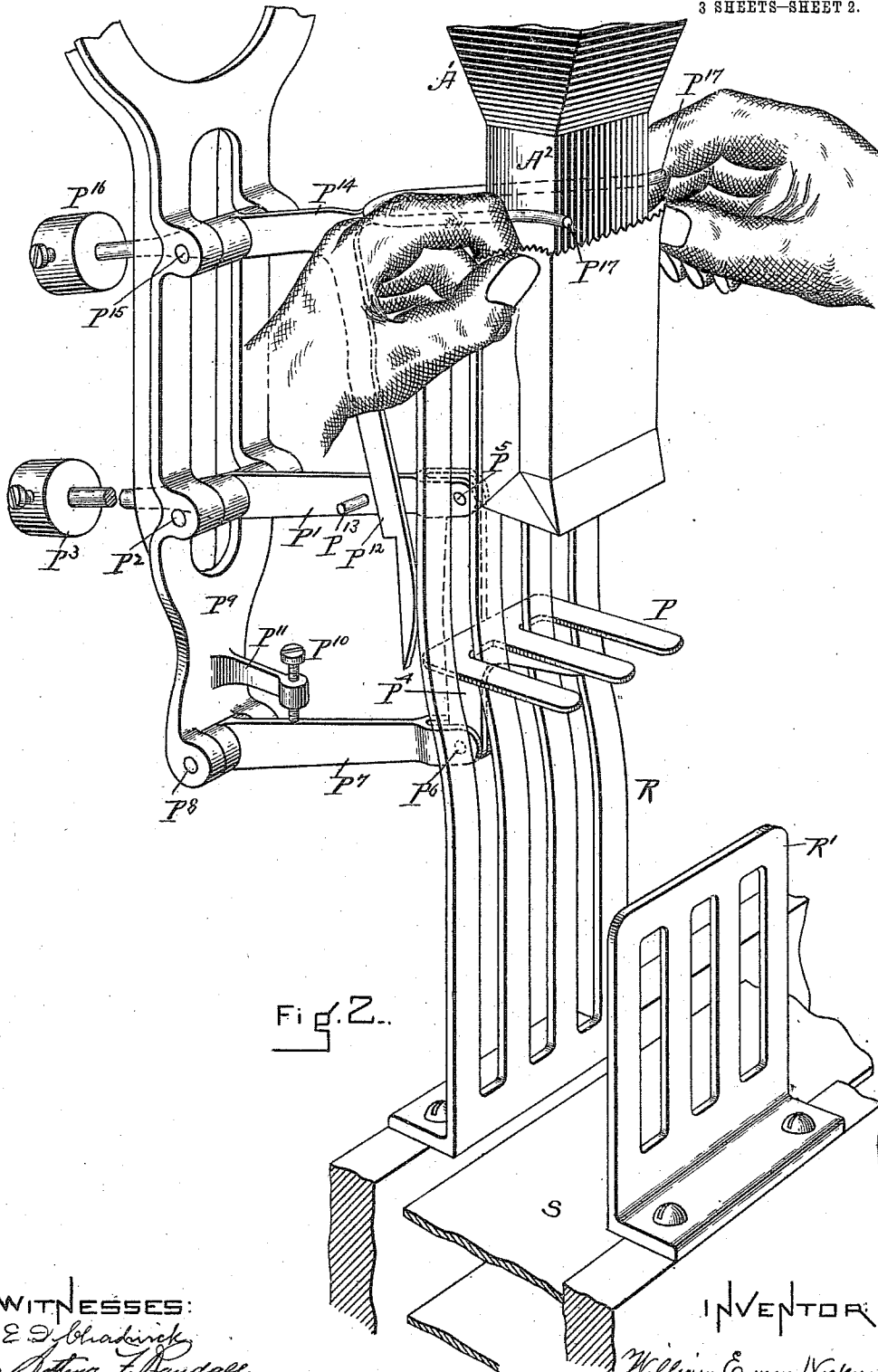
INVENTOR:
William Emory Nickerson

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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

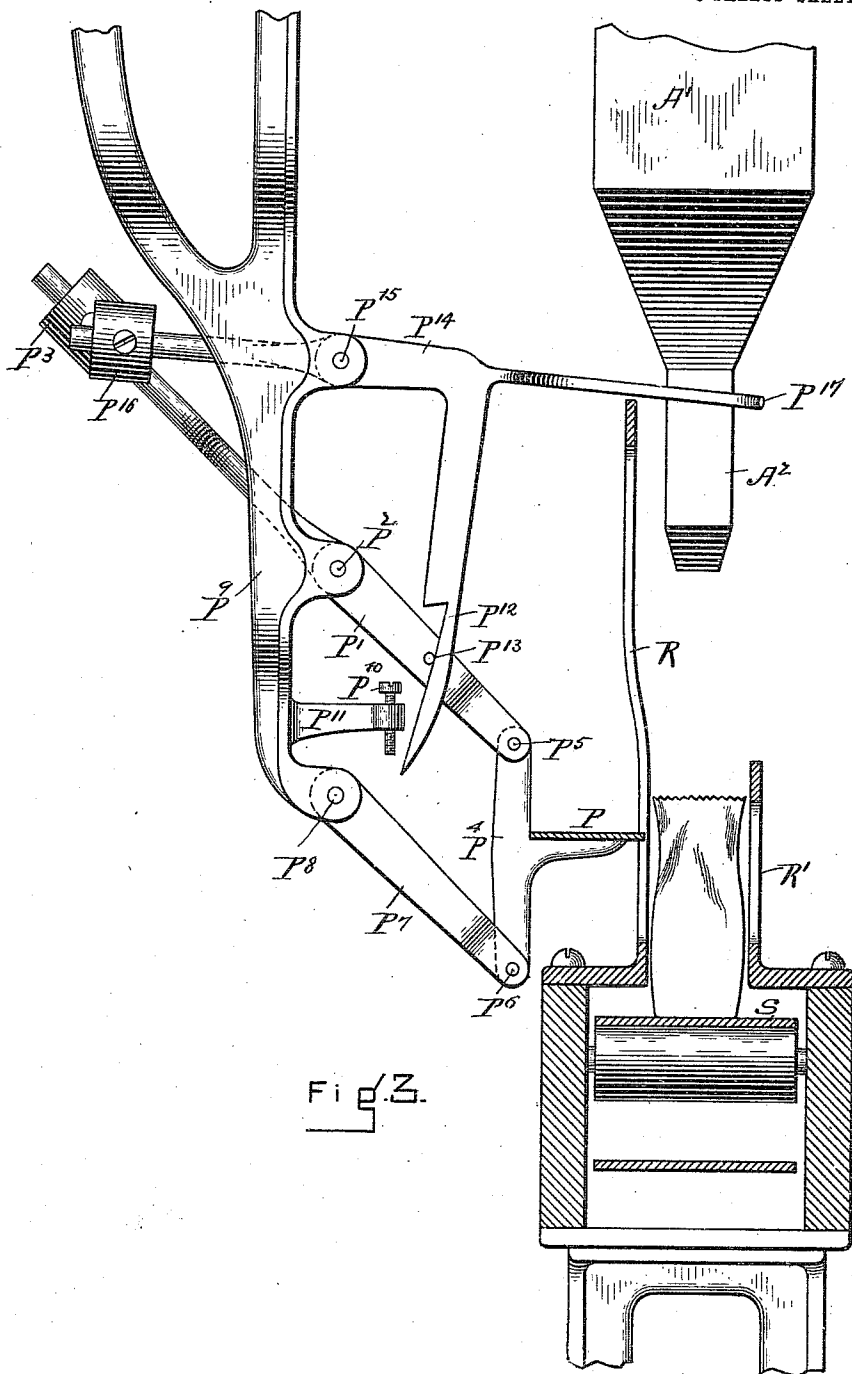


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM EMERY NICKERSON, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO AUTOMATIC WEIGHING MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PACKAGE-HANDLING APPARATUS.

985,829.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed June 28, 1902. Serial No. 113,558.

To all whom it may concern:

Be it known that I, WILLIAM E. NICKERSON, a citizen of the United States, and resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Package-Handling Apparatus, of which the following is a specification.

My invention is intended to provide an apparatus which may be used in connection with package filling machines, and will facilitate the handling of the receptacles which are filled by such machines, my object being more particularly to provide for the handling of paper bags and similar receptacles in such manner that the only work necessary to be performed by the attendant will consist in placing the empty bags or other receptacles beneath a delivery spout in position to receive their respective charges, whereupon the subsequent filling, handling and removal of the packages will be performed automatically. To this end I provide a vertically movable package support which is normally located in position to support an empty receptacle beneath a spout which delivers the successive charges of material, and is counterbalanced in such manner that the weight of a filled package resting upon it will cause it to descend. As said support is thus caused to descend by the weight of a filled package, said package is automatically removed from the support and deposited on a conveyor or otherwise disposed of, whereupon the package support is restored by its counterbalance to the position in which it receives another empty receptacle.

My invention also includes an arrangement whereby collapsible or non-rigid receptacles such as paper bags and the like may be readily distended when placed in position to receive a charge of material, and suitably supported while being filled therewith.

An apparatus embodying my invention in its preferred form is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the complete apparatus, showing the position of its parts when the attendant is starting to place an empty receptacle in position to receive a charge, Fig. 2 is a similar view showing the position of the parts at a later stage of the operation, and Fig. 3 is a side elevation

of the parts in the position which they assume at the instant of delivering a filled package.

In the drawings, A' represents the lower end of a chute leading from a weighing or measuring machine of any desired construction suited for delivering successive loads or charges of material of definite amount. The lower end of the part A' is provided with a spout A² having an open lower end, and of such size and shape as to be capable of entering and fitting loosely the bags which are to receive the material weighed or measured.

P represents the package support, which is made capable of movement in a vertical plane preferably by being suspended from an arm P' pivoted as at P² to a stationary frame work P³. Said arm P' is provided with a counterweight P³, the effect of which is such that it will be slightly overbalanced when a filled package rests on the support P, but will overbalance said support and its movable connections at all other times. This counterweight P³ is preferably made adjustable on the arm P', in order to adapt the apparatus to the handling of different weights of material. For removing the filled packages from said support P as the latter is thereby caused to descend, I provide preferably an upright guide R, the upper end of which is located adjacent to the spout A² and thus provides a lateral support for the packages while being filled, while its lower end is so located that when the package support P descends, the filled package as it slides down the guide R will be forced laterally thereby off said support and onto a suitable receiving device, which is herein represented as a conveying belt S by means of which the filled packages are removed to any desired point.

The package support P is kept horizontal in all positions by means such as a link P⁷ pivoted at P⁸ to the framework P⁹ and having a length equal to that of the arm P' between the pivots P² and P⁵, the link P⁴ which carries the support P being pivoted to the link P⁷ at P⁶ and thus completing a parallelogram whereby said link P⁴ is kept parallel with the lower end of the framework P⁹ in an obvious manner.

The guide R is herein shown as provided with a number of vertical slots, the package support P being composed of a correspond-

ing number of fingers which pass loosely through said slots, and the withdrawal of said fingers from beneath a filled package and through the slots in the guide R as said support P descends may be accomplished in part by bending the lower portion of said guide R away from the framework P⁹ and in part by so locating the pivots P² and P⁸ that when the package support P is in its uppermost position, the arm P' and link P' will be horizontal or substantially so, whence it will result that as said package support descends, it will simultaneously retreat from the guide R. The framework P⁹ is intended to be secured at its upper end to some convenient part of the machine which delivers the material, or to some fixed support.

In order that the package support P, by rising immediately to its uppermost position after delivering a filled package, may not interfere with the placing of the succeeding empty receptacle in position beneath the spout A², I prefer to provide an arrangement whereby said upward movement of the support P is arrested when partly accomplished. To this end I employ an arm P¹⁴ pivoted at P¹⁵ of the framework P⁹ and carrying a downwardly extending notched portion P¹², which forms a latch adapted to engage a pin P¹³ secured to the arm P' and arrest the upward movement of said latter arm. The arm P¹⁴ is provided with latch releasing means such as fingers P¹⁷ which embrace the sides of the spout A², and may also carry, if desired, a counterweight P¹⁶, which is not quite heavy enough, unassisted, to release said latch.

As thus constructed, the operation of my apparatus is as follows: As soon as a filled package has been delivered to the conveying belt S, the parts being then in the position shown in Fig. 3, the counterweight P³ lifts the package support P until the position shown in Fig. 1 is reached, in which position the pin P¹³ is engaged by the under-cut notch in the arm P¹² and the upward movement of said support P is thereby arrested. The operator now slips the open end of a paper bag or other receptacle over the lower end of the spout A², and in the case of a paper bag draws it upward over said spout until the bag is distended, as shown in Fig. 2. The end of this operation causes the hands of the operator to strike against the fingers P¹⁷ and thus raise the arm P¹⁴, thereby disengaging the latch P¹² from the pin P¹³, whereupon the counterweight P³ raises the package support P into its uppermost position, where it is arrested by means such as an adjustable stop pin P¹⁰ carried by a projection P¹¹ secured to the frame work P⁹. The bag or other receptacle is then dropped upon the support P, and is ready to receive a charge of material through the chute A' and spout A². As soon as this charge has

been delivered, the weight of the filled package causes the support P to descend, carrying said package with it, and simultaneously with such descension said support is withdrawn from under the package, which is guided and kept vertical by the guide R acting in conjunction with a second guide R' located on the opposite side of the belt S. The filled package is thus deposited on said belt and is conveyed away thereby, whereupon the support P is again raised into the position shown in Fig. 1 as previously described. The stop pin P¹⁰ may be so adjusted that after a bag has been distended by drawing it over the spout A² and the support P has risen to its uppermost position, the lower portion of said spout will remain within the bag while the latter is resting on said support and will thus serve as a form to keep the bag distended while it is being filled. In this case, if the bag is filled nearly full, the last portions of the charge will remain within the lower part of the spout A² until the support P descends, whereupon said portions will fall into the bag as it drops away from said spout. Thus by means of my apparatus, paper and other bags, as well as more rigid receptacles, may be supported while being filled, and delivered automatically without requiring any attendance beyond that involved in properly locating the empty receptacles with respect to the spout A².

I claim as my invention:

1. In a package handling apparatus, the combination with a delivery spout and a conveyer located below the same, of a package support movable upward and downward beneath the delivery spout, means for holding said support with an unfilled receptacle thereon beneath the spout, and means for automatically transferring the filled receptacle from the support to the conveyer upon the descent of said support.

2. In a package handling apparatus, the combination with a delivery spout adapted to enter loosely into a collapsible receptacle and hold the same distended, of a package support adapted to move upward and downward beneath the discharge end of said spout, means for holding said package support in position to support the bottom of the receptacle while the latter is held distended by the spout, a conveyer located below said spout, and means for automatically transferring the filled receptacle to the conveyer upon the descent of the package support.

3. In a package handling apparatus, the combination with a delivery spout of a package support mounted to have an up and down movement beneath the spout, means normally holding said support in elevated position and arranged to permit a downward movement thereof under the weight of

the filled package, and an upright guide intersecting the path of downward movement of said support and arranged to remove the filled package therefrom when the support descends.

4. In a package handling apparatus, the combination with a delivery spout adapted to fit loosely within a collapsible receptacle and hold the same distended, of a package support having an up and down movement relatively to said spout and normally held beneath said spout in position to support the bottom of a receptacle, and means for automatically removing a filled receptacle from said support when the latter descends.

5. In a package handling apparatus, the combination of a pivoted arm carrying a package support at one end and a counterbalance at its other end, an upright guide intersecting the path of said support and arranged to push a filled package from said support as the latter descends, and means for holding said package in an upright position while being removed from said support.

6. In a package handling apparatus, the combination of a pivoted arm carrying a package support at one end and a counterbalance at its other end, said package support being composed of parallel fingers, an upright slotted guide through which the fingers of said support pass during a portion of its travel, and a cooperating guide located opposite the lower portion of said upright guide, for the purpose set forth.

7. In a package handling apparatus, the combination with a delivery spout of a package support having an up and down movement beneath said spout and arranged to be forced downward by the weight of a filled package, and a latch for arresting the upward movement of said support when in an intermediate position.

8. In a package handling apparatus, the combination with a delivery spout of a package support having an up and down movement beneath said spout and arranged to be forced downward by the weight of a filled package, a latch arranged to arrest the upward movement of said support in an intermediate position thereof, and latch-operating fingers located adjacent to said delivery spout.

9. In a package handling apparatus, the combination with a delivery spout of a counterbalanced package support having an up and down movement beneath said spout and arranged to be forced downward by the weight of a filled package, means for removing the filled package from said support when the latter descends, and a latch arranged to arrest the upward movement of said support in an intermediate position thereof.

10. In a package handling apparatus, the

combination with a delivery spout of a fixed upright guide located adjacent to said spout and provided with vertical slots, a cooperating guide opposite the lower portion of said fixed guide, and a pivoted arm provided with a counterbalance and carrying a package support composed of parallel fingers adapted to project through the slots of said fixed guide, said pivoted arm being substantially horizontal when the package support is in its uppermost position.

11. In a package handling apparatus, the combination of a pivoted arm carrying a package support at one end and counterbalanced at its other end, said package support being composed of parallel fingers, and an upright slotted guide through which the fingers of said support pass during the upper portion only of its travel, for the purpose set forth.

12. In a package handling apparatus, the combination with a delivery spout adapted to fit loosely within a collapsible receptacle and hold the same distended, of a package support having an up-and-down movement and normally located beneath said spout in position to support the bottom of said receptacle, said package support being composed of parallel fingers, and an upright slotted guide through which the fingers of said support pass during the upper portion of the travel of the latter.

13. In a package handling apparatus, the combination with a delivery spout adapted to fit loosely within a collapsible receptacle and hold the same distended, of a package support having an up-and-down movement and normally located beneath said spout in position to support the bottom of said receptacle, said package support being composed of parallel fingers, an upright slotted guide through which the fingers of said support pass during the upper portion of the travel of the latter, and a cooperating guide located opposite the lower portion of said upright guide, substantially as described.

14. In a package handling apparatus, the combination with a delivery spout adapted to fit loosely within a collapsible receptacle and hold the same distended, of a counterbalanced package support having an up-and-down movement and normally located beneath said spout in position to support the bottom of said receptacle, said package support being composed of parallel fingers, an upright slotted guide through which the fingers of said support pass during the upper portion of the travel of the latter, and a latch arranged to arrest the upward movement of said support in an intermediate position thereof.

15. In a package handling apparatus, the combination with a delivery spout adapted to fit loosely within a collapsible receptacle and hold the same distended, of a counter-

balanced package support having an up-
and-down movement and normally located
beneath said spout in position to support the
bottom of said receptacle, said package sup-
5 port being composed of parallel fingers, an
upright slotted guide through which the fin-
gers of said support pass during the upper
portion of the travel of the latter, a latch ar-
ranged to arrest the upward movement of
10 said support in an intermediate position

thereof, and latch operating means located
adjacent to said delivery spout.

In testimony whereof, I have hereunto
subscribed my name this ninth day of June,
1902.

WILLIAM EMERY NICKERSON.

Witnesses:

E. D. CHADWICK,

JOSEPH T. BRENNAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents"
Washington, D. C."
