

(No Model.)

3 Sheets—Sheet 1.

A. C. GETTEN.

COUNTING AND SEPARATING DEVICE FOR PAPER BAG MACHINES.

No. 552,361.

Patented Dec. 31, 1895.

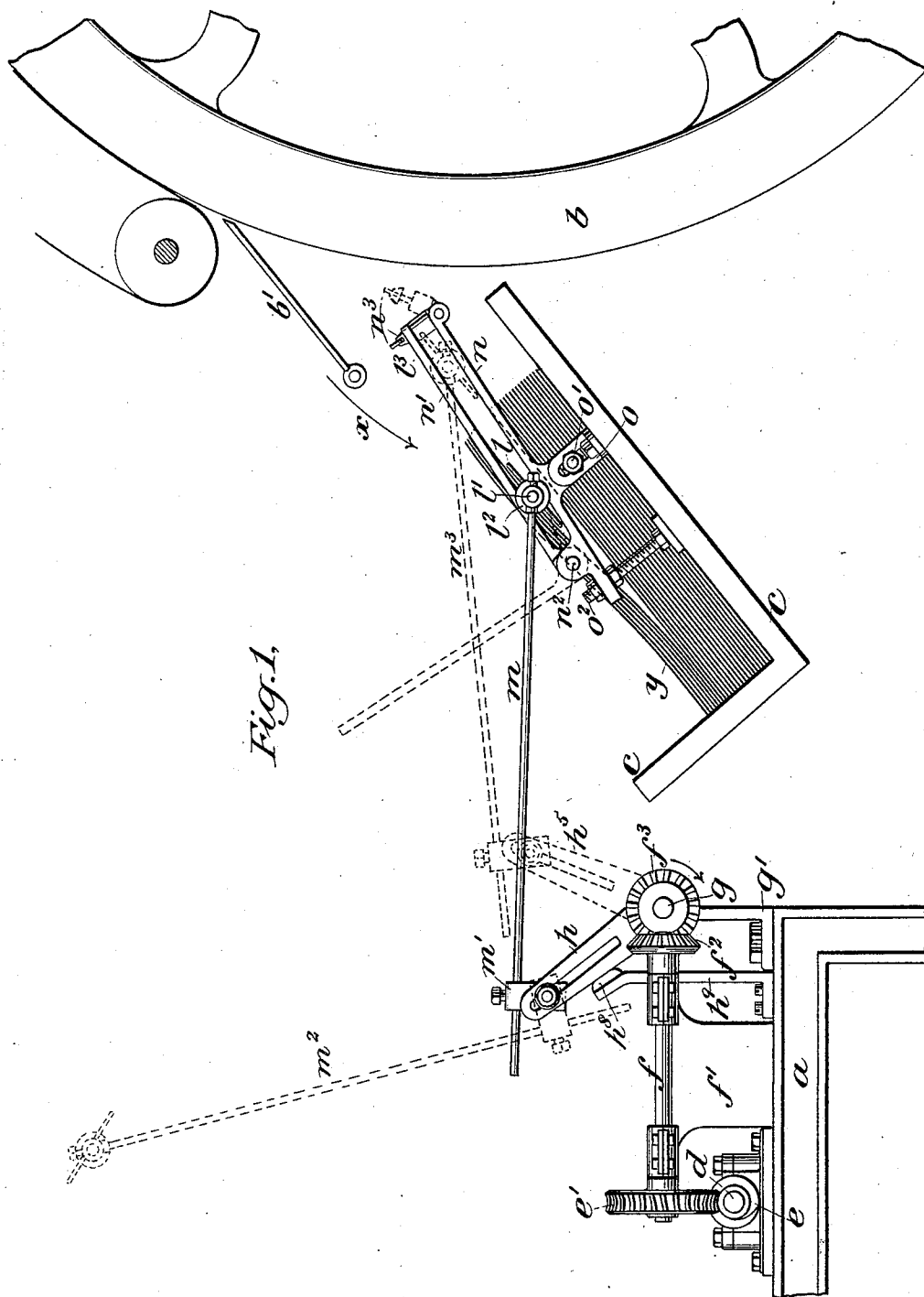


Fig. 1.

Witnesses:-

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Inventor:-

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(No Model.)

3 Sheets—Sheet 2.

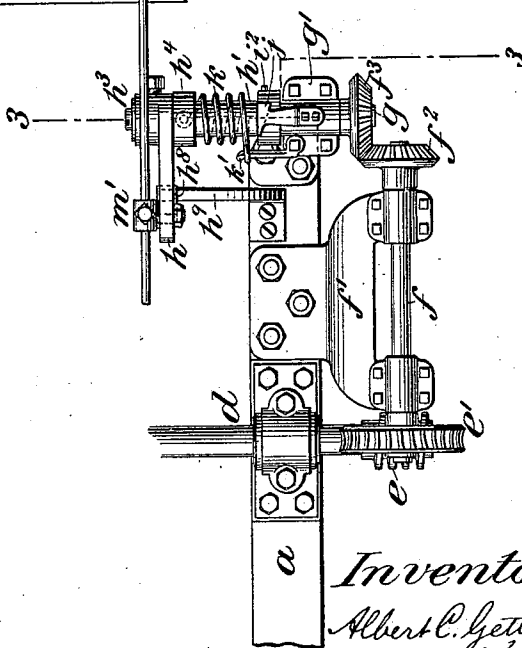
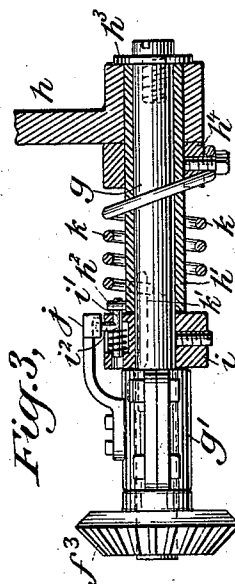
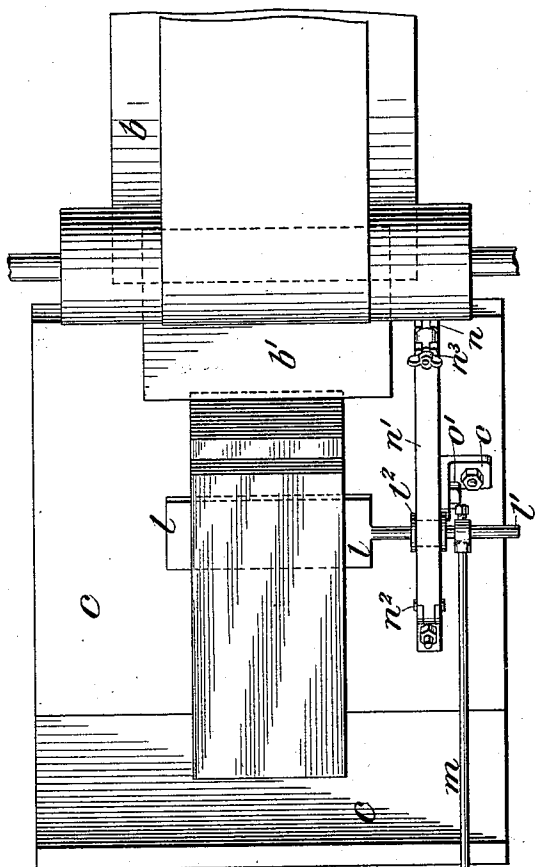
A. C. GETTEN.

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Fig. 2.



Witnesses:

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(No Model.)

3 Sheets—Sheet 3.

A. C. GETTEN.

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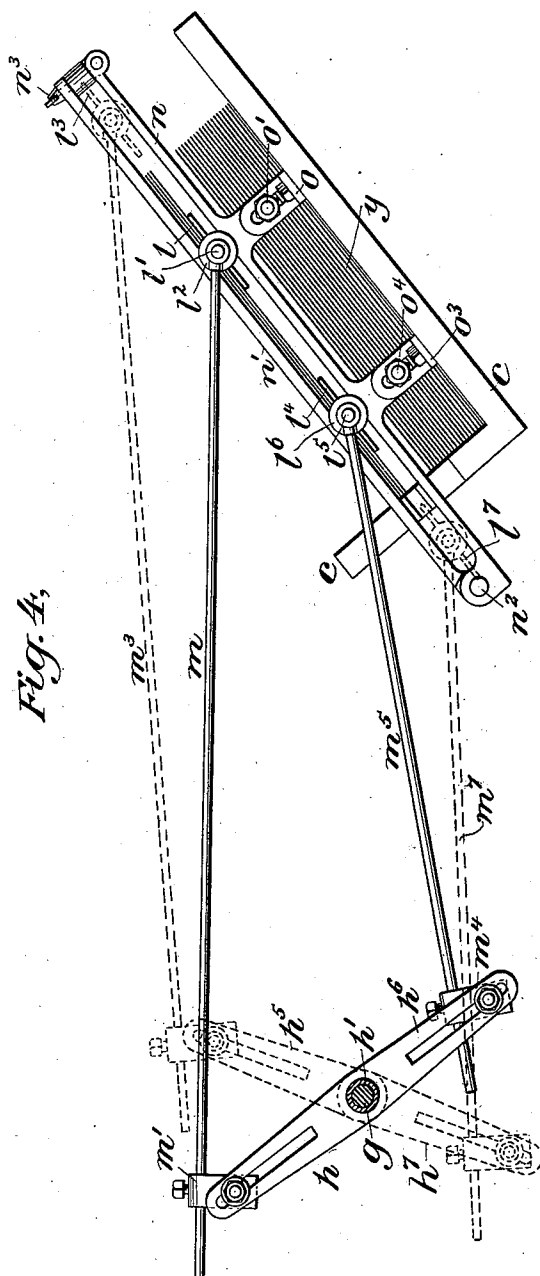


Fig. 4.

Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

ALBERT C. GETTEN, OF SANDY HILL, NEW YORK, ASSIGNOR TO THE UNION BAG AND PAPER COMPANY, OF SAME PLACE AND WATERTOWN, MASSACHUSETTS.

COUNTING AND SEPARATING DEVICE FOR PAPER-BAG MACHINES.

SPECIFICATION forming part of Letters Patent No. 552,361, dated December 31, 1895.

Application filed March 20, 1894. Serial No. 504,116. (No model.)

To all whom it may concern:

Be it known that I, ALBERT C. GETTEN, a citizen of the United States, and a resident of Sandy Hill, Washington county, State of New York, have invented certain new and useful Improvements in Counters and Separators for Paper Bags and other Articles, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to counting and separating articles, such as paper bags, and has for its object to provide means for automatically counting and separating paper bags and other articles as they are delivered upon a receiver.

In the means embodying the present invention a separator is arranged and operated to move over a mass or pile of such articles when a predetermined number has been accumulated and thus to intervene between and separate the articles accumulated from those subsequently delivered. The articles below the separator may then be removed in any suitable manner. The separator is also allowed to remain over the articles counted and separated for a sufficient time to permit these articles to be removed by hand or otherwise and is then moved clear of the articles so that those that have in the meantime accumulated above the separator may fall into the places of those removed, and when the desired number has again been accumulated the separator again moves over the pile of articles and the operations above described are repeated. Thus the separator periodically performs its function and accurately counts and separates the articles into masses or piles of the predetermined number. The separator moves over the mass or pile of articles in a direction approximating that in which the articles are delivered and is thus capable of performing its counting and separating functions notwithstanding the delivery of the articles at high speed and in very rapid succession, as theseparator and the delivered article move in nearly the same direction, and the separator may be adjusted to follow closely after the last article delivered of the predetermined number and to intervene between that

and the next article delivered when the articles follow each other with no appreciable interval or distance between them, for if the separator while moving into intervening position comes in contact with the next article it only assists that article to its proper position and its separating and counting function is not in any degree impaired. This separator is also equally effective for articles of large dimensions, such as the longest and widest paper bags, as for articles of small dimensions, and indeed the amount of its movement is not dependent upon the size of the article and need not be varied for articles of various sizes.

My invention is embodied in a construction employing a single separating-blade moving over the pile of articles in a direction approximating that in which the articles are delivered and in a construction employing two separating-blades arranged to move over the pile of articles from two sides of the article, so as to support the same along two edges, and in constructions employing any desired number of separator-blades.

My invention has been embodied in connection with paper-bag machinery for counting and separating paper bags as they are delivered upon a receiving-table, and I will therefore particularly describe such embodiment of my invention in connection with the accompanying drawings, which illustrate the same.

Figure 1 is a side elevation showing a portion of a paper-bag machine provided with a separating and counting mechanism embodying my invention, and Fig. 2 is a plan view of the same. Fig. 3 is an enlarged sectional elevation on the line 3 3, Fig. 2, of the spring mechanism for actuating the separator. Fig. 4 is a side elevation illustrating the construction in which two separator-blades are employed, operated so as to move over the pile of bags in opposite directions.

Referring to Figs. 1 and 2, in which portions of a paper-bag machine are shown, *a* designates a portion of the main frame, *b* a rotating drying-drum, and *b'* a guide or scraper, and *c* a receiver or delivery-table, which is arranged directly in the line of de-

livery of the articles from the drum *b*, and the drying-drum and scraper perform the usual operation of delivering the bags upon the receiver *c* so that they are superimposed one upon another, accumulating in a pile or mass thereon.

My improved separating and counting mechanism is operated from some moving part of the machine—such, for instance, as the rotating shaft *d*, which makes one revolution for every bag delivered by the machine—and a worm *e* secured or formed upon this shaft meshes into a worm-wheel *e'*, which is formed or secured upon the shaft *f*, having bearings in a bracket or bearing-piece *f'* secured to the frame *a*. Bevel-gears *f*² and *f*³ convey the movement of the shaft *f* to the shaft *g*, over which is loosely fitted the sleeve *h'* carrying the rocking arm *h*, whereby motion is imparted to the separator. The shaft *g* has a suitable bearing piece or standard *g'* secured to the frame *a*, and receives a continuous rotary motion from its operating mechanism. This rotary motion is changed into a very rapid movement of the rocking arm *h* in one direction and a slow return movement of said arm in the opposite direction by a spring-lock mechanism of substantially the same construction as that shown in Letters Patent granted to me October 25, 1892, No. 485,006. This mechanism is particularly shown in Fig. 3, and includes a collar *i* fixed upon the shaft *g* and provided with a recess or chamber in which is located the spring-locking bolt *i'*, and this bolt *i'* engages with a portion of the sleeve *h'*, such as the pin *h*², and has a projection *i*², which extends outward through a slot in the collar *i*, and is engaged in every revolution by the fixed cam or trip *j*, which is secured to the bearing *g'*. The sleeve *h'* is fitted so as to rotate freely upon the shaft *g*, but is held from longitudinal movement by the bolt and washer *h*³, or in any other suitable manner. The coiled or helical spring *k* is secured at one end to the sleeve *h'* or the collar *h*⁴ thereon, and at the other end to some fixed point, as the lug *k'*, projecting from the bearing *g'*. Collar *h*⁴ is preferably adjustable, as shown, or other means are provided for adjusting the tension of this spring. The operation of this mechanism is to generally wind up the spring and thus accumulate its strength until the bolt *i'* *i*² is tripped by the cam *j*. The tripping of this bolt disconnects the sleeve *h'* carried thereby from the shaft *g* and thus permits the spring *k* to act with great force and rapidity in moving the arm *h* in the direction opposite to that of the rotation of the shaft *g* from the position shown by the dotted lines *h*⁵ in Fig. 1 to that shown by the full lines in that figure, in which latter position it is stopped by the buffer *h*⁸, having a covering or cushion of soft material, as rubber, and suitably held, as by the bracket *h*⁹ secured to the frame *a*. The spring-bolt *i'* and the pin *h*² again come into engagement after the shaft *g* has moved through a greater

portion of its revolution and slowly retract the arm *h* until the tripping position is again reached.

The separator shown in Figs. 1 and 2 consists of a thin blade *l*, on the end of which is formed or secured a rod *l'*, and it is connected to the rocking arm *h* by the rod *m* adjustably clamped at one end to the rod *l'* and at the other end to a pivoted block *m'* adjustably held in a slot in the rocking arm *h*. A thimble or roller *l*² is mounted or secured upon the rod *l'* of the separator and works in a slot formed between guide-plates *n* and *n'*, which are substantially parallel with the line of delivery of the articles from the drum *b*, and preferably has a flange on each side to hold it true. The guide-plate *n* is adjustably held by a bolt-and-slot connection *o'* to the standard *o* secured to and projecting upward from the receiver *c*, and is further held by an adjusting-screw *o*² also secured to and projecting from the receiver *c* and having nuts above and below the guide-plate *n*. By means of these connections the height and angular position of the guide-plate *n* may be adjusted as desired. The guide-plate *n'* is hinged at its lower or left-hand end *n*² to the guide-plate *n* and is held at its upper or right-hand end in proper relation thereto by the tilting clamp *n*³ pivoted to the upper end of the guide-plate *n*. The object of thus pivoting the two guide-plates together is to permit them to be opened apart or separated by loosening the clamp *n*³ and moving it to about the position shown by the dotted lines and tilting the guide-plate *n'* to about the position shown by the dotted lines, so that the separator-blade *l* and its connecting-rod *m* may be tilted back to about the position shown by the dotted lines *m*² and will thus permit ready access to the parts of the paper-bag machine for adjustment.

As the separator-blade *l* is directly connected to and actuated by the rocking arm *h*, its operation will, of course, correspond with that of the rocking arm and it will be moved rapidly in one direction—to wit, a direction approximating that in which the bags are delivered—or in other words, in the line of delivery of the bags from the drum *b*, the direction in which the bags are delivered being indicated by the arrow *x*, and will be retracted quite slowly in the opposite direction, and the rapid movement first described carries it over the pile of bags upon the receiver *c* so as to intervene between the upper bag of the pile and the next bag delivered, while the retracting movement in the opposite direction will carry it clear of the pile of bags. The position in which the separator intervenes between the bags is shown in full lines in Fig. 1, and the position in which it is clear of the bags is shown by the dotted lines *l*³ in the same figure, the dotted lines *m*³ *h*⁵ representing the corresponding positions of the rod *m* and arm *h*. The pile of bags is lettered *y*, and a few bags are shown above the separator-blade *l*. The actuating mechanism is so ad-

justed and timed as to cause the separator-blade to move over the pile of bags immediately after the last one of the predetermined number has been delivered upon the receiver.

5 It will be evident that the separator-blade l will perform its function under the most difficult conditions. Its quick movement by reason of the spring mechanism for actuating it when it moves into intervening position and the fact
10 that the direction of this movement is very nearly the same as the direction or line of delivery of the articles enable it to separate articles moving at any practicable speed and with any appreciable interval of succession.
15 Even if the articles were delivered overlapping each other the separator would be effective. If the speed of delivery is so high and the interval so small that the separator comes in contact with any of the articles its
20 function is not in any degree impaired and it moves with the articles that it touches and assists them to their delivered positions.

It will be noted that the shaft g will move through a large part of a revolution after the
25 bolt i' of the trip mechanism has released the rocking arm h and permitted the spring k to quickly move said arm, and before the bolt i' again comes in contact with the pin h^2 , and therefore the separator-blade l will not be
30 withdrawn and moved clear of the bags for a large fraction of the time required for the accumulation of the predetermined number of bags and will thus remain in intervening position for a period ample to permit the oper-
35 ator to remove the counted and separated bags from beneath the separator l . It is of course evident that the bags or articles may be removed in any suitable manner and by any suitable mechanism if it is not desired to
40 remove them by hand.

In the construction shown in Fig. 4 two separating-blades are employed moving over the pile of bags from opposite ends and in opposite directions. The separator l and its connected actuating parts are of the same construction as already described in connection with the other figures of the drawings, and are similarly lettered. The rocking arm is double, having an upwardly-extending part h of
45 the same construction as in the other figures, and a downwardly-extending part h^6 of similar construction but oppositely arranged, and a pivoted block m^4 is adjustably mounted in a slot therein and adjustably connected to one
50 end of the rod m^5 , while the other end of the rod m^5 is adjustably held to the rod l^5 of the separator-blade l^4 , and a thimble or roller l^6 is mounted upon said rod l^5 , all these parts being similar in construction to the corresponding parts of the other separator mechanism.
60 The roller l^2 of the separator-blade l and the roller l^6 of the separator-blade l^4 both work in a groove formed between the plates n and n' , which are of the same construction as in the
65 other figures of the drawings, except that they are longer, and instead of the supporting-screw o^3 are adjustably held by the standard

o^3 and a bolt-and-slot connection o^4 therewith, all of the same construction as the standard o and its adjustable connection o' , which latter
70 are precisely the same in the construction shown in Fig. 4 as in the other figures of the drawings.

The mechanism for actuating the two separator-blades of Fig. 4 is not shown in that
75 figure for the reason that it may be of exactly the same construction as shown in the other figures of the drawings and heretofore described. The operation of the separator-blade l is exactly the same in Fig. 4 as in the
80 other drawings, while that of the separator-blade l^4 differs from it only in that it is in opposite directions. The dotted lines l^7 , m^7 and h^7 show the position of the separator l^4 , rod m^5 and lower rocking arm h^6 when clear
85 of the paper bags upon the receiver.

It will be seen that in the construction shown in Fig. 4 the separator intervenes between and supports the bags at both ends. This construction may be preferred for some pur-
90 poses and has the advantage that it will hold the bags above the separator entirely clear of the bags below the separator, which would not be true of the construction shown in Figs.
1 and 2 with the relative sizes of bag and
95 separator-blade shown in those figures.

It will be noted that all parts of the mechanism are adjustable. The lateral position of the separator-blades is adjustable by a set-screw, as shown, and the adjustment may be
100 further provided for by substituting blades of different sizes. The point at which the rod m is held by the pivoted block m' is adjustable by a set-screw, and the amount of
105 movement imparted to the rod m and connected parts may be adjusted by changing the position of the pivoted block m' in the slot of the rocking arm h . The guide-plates
110 n and n' may be adjusted both as to height and angular position by their adjustable sup-

The construction of the various parts of the mechanism above described may be modified and parts may be used in connection with other parts of different construction, and my
115 invention may be embodied in connection with other machinery than paper-bag machinery and for other articles than paper bags.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with mechanism for delivering paper bags or other articles and a suitable receiver substantially parallel with the line of delivery of said articles and upon which said articles are delivered, of a separator arranged substantially in the line of delivery of said articles, and mechanism for quickly moving the separator at intervals substantially in line with the delivery of the articles, into a position intervening between the
120 125 130 articles accumulated and those subsequently delivered, said mechanism being so constructed as to allow the separator to remain in said intervening position for a time and then to

move out of said position and clear of the articles being accumulated, substantially as set forth.

2. The combination with mechanism for delivering paper bags or other articles and a suitable receiver substantially parallel with the line of delivery of said articles upon which said articles are delivered, of a separator blade, and guides therefor, disposed substantially in the line of delivery of the articles and actuating mechanism connected to said separator blade and constructed so as to move the said separator blade at predetermined intervals substantially in the line of delivery of the article into intervening position between the articles accumulated and those subsequently delivered, and to move said separator blade out of said intervening position, substantially as set forth.

3. The combination with mechanism for delivering paper bags or other articles, and a suitable receiver substantially parallel with the line of delivery of said articles and upon which said articles are delivered, of a separator blade, and guides therefor disposed substantially in line of delivery of the articles, devices for supporting said guides adjustably with respect to said receiver, and actuating mechanism connected to said separator blade and constructed so as to move said separator blade at predetermined intervals, substantially in line with the delivery of the articles, into intervening position between the articles accumulated and those subsequently delivered, and to move said separator blade out of said intervening position, substantially as set forth.

4. A counter for paper bags or other articles, comprising a suitable receiver substantially parallel with the line of delivery of said articles and upon which said articles are delivered, a separator, guides therefor arranged substantially in the line of delivery of said articles, a rocking arm connected to said separator, a spring for imparting a quick movement to said rocking arm in one direction, substantially in line with the delivery of the articles and means for retracting said rocking arm, substantially as set forth.

5. A counter for paper bags or other articles comprising a suitable receiver substantially parallel with the line of delivery of said articles upon which said articles are delivered, a separator, guides therefor, a rocking arm connected to said separator, and means for actuating said rocking arm so as to cause the separator to move substantially in line with the delivery of the articles and to periodically intervene between articles accumulated upon the receiver and those subsequently delivered, substantially as set forth.

6. A counter for paper bags or other articles comprising a suitable receiver substan-

tially parallel with the line of delivery of said articles and upon which said articles are delivered, a separator blade and rod for the same, guides arranged substantially in the line of delivery of said articles and within which said rod or a roller thereon is caused to move, a rocking arm, and a rod connecting said separator rod to the rocking arm, and means for actuating said rocking arm so as to cause the separator blade to move substantially in line with the delivery of the articles and to periodically intervene between articles accumulated upon the receiver and those subsequently delivered, substantially as set forth.

7. The combination with a machine for making and delivering paper bags or other articles, of a suitable receiver substantially parallel with the line of delivery of said articles and upon which said articles are delivered, a separator and guides for the same arranged substantially in the line of delivery of said articles, said guides being adapted to be opened so as to release said separator, a rocking arm and a rod connecting said separator and rocking arm and having a pivoted connection with said rocking arm, and means for actuating said rocking arm connected to some moving part of the machine, substantially as set forth.

8. A counter for paper bags or other articles comprising a suitable receiver for the articles, the separator blade l and rod l' , the guides n, n' , for the same, and adjustable supports for said guides, the rod m adjustably connected to the rod l' , the pivoted block m' adjustably connected to the rod m , the arm h adjustably carrying the block m' , and means for actuating said arm h , substantially as set forth.

9. The combination of a receiver upon which paper bags or other articles are delivered from a machine for making such articles, the separator blade l and rod l' , the guides n, n' , for the same adapted to open to release the separator, adjustable supports for the guides, the rod m connected to the rod l' , the pivoted block m' connected to the rod m , the rocking arm h carrying the pivoted block m' , and means for adjusting the position and throw of said separator relatively to said rocking arm h , and means for actuating said rocking arm so as to impart to it a quick movement in one direction and a retractile movement, said means being connected to a moving part of the machine, substantially as set forth.

This specification signed and witnessed this 15th day of March, A. D. 1894.

ALBERT C. GETTEN.

In presence of—

L. R. STEVENS,

IRA C. GETTEN.