A. E. PIPE & R. L. LAFEVER.

SEPARATOR FOR ATTACHED OR NESTED ARTICLES.

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Fig. 1

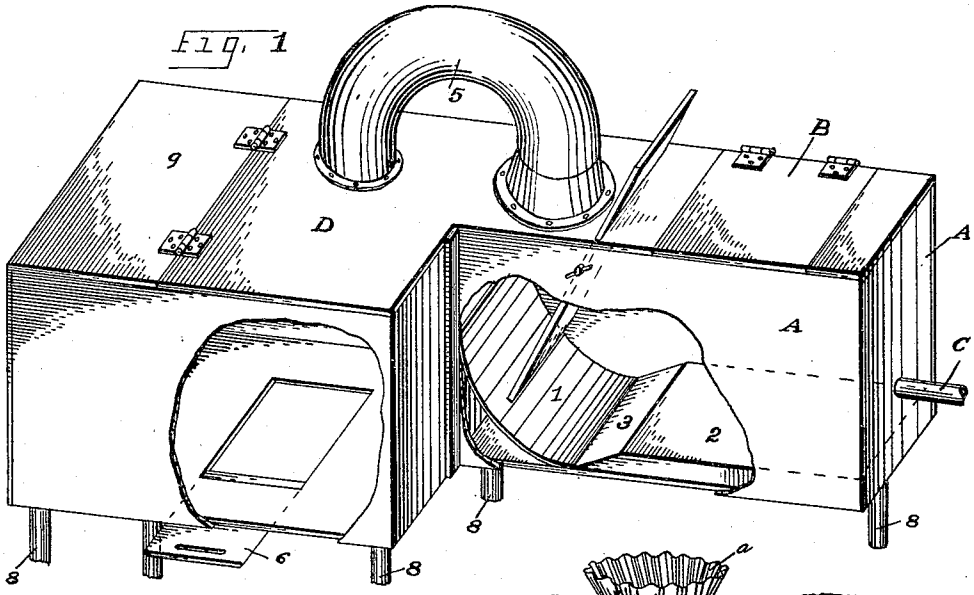


Fig. 4.



Fig. 3.

Fig. 2.

Arthur E. Pipe and
Robert L. Lafever INVENTOR.

WITNESSES:

F. W. Thomas.
C. L. McKinney

BY J. M. Thomas
ATTORNEYS.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR E. PIPE AND ROBERT L. LAFEVER, OF SALT LAKE CITY, UTAH.

SEPARATOR FOR ATTACHED OR NESTED ARTICLES.

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To all whom it may concern:

Be it known that we, ARTHUR E. PIPE and ROBERT L. LAFEVER, citizens of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Separators for Attached or Nested Articles, of which the following is a specification.

Our invention relates to devices and methods for separating nested articles and has for its object to provide a device to mechanically separate the nested pieces of paper in which confections and other similar articles are wrapped, and particularly to separate the small frusto-conically shaped cups in which chocolates and similar confections are carried. These objects we accomplish with the device illustrated in the accompanying drawings in which similar letters and numerals of reference indicate like parts throughout the several figures, and as described in the specification forming a part of this application and pointed out in the appended claims.

In the drawings in which we have shown a substantial embodiment of our invention, Figure 1 is a view in perspective of the device parts cut away, and parts shown in dotted lines. Fig. 2 is a vertical longitudinal section through the device. Fig. 3 is an elevation of some of the confection papers bunched and nested as sold to the candy manufacturer. Fig. 4 is a view in perspective of one of the individual confection cups.

To economically cut and form the individual paper cups in which chocolates and similar confections are now packed, the sheets of paper from which they are cut are stacked in bunches of fifteen or more, and by means of dies circular pieces are cut and then crimped and pressed by machinery into the frusto-conically shaped bunches similar to those shown in Fig. 3. These bunches are nested, packed into boxes and sold to the candy manufacturer in bulk. When the manufacturer desires to use said cups they must be separated in order that each piece of candy may be placed in its individual cup. The work of separating these cups has heretofore been by manual labor, more tedious than laborious and requiring close attention. Our device does this work mechanically and much cheaper than it can be done by hand, thus expediting the work of packing the candy and at a saving of labor.

We provide a rectangularly shaped box or receptacle A, a portion of the top of which is hinged as at B. Through one end of said box A, and at near the center thereof we insert an air pipe C. Across the lower opposite corner of said box A we provide a curved sheet of metal 1, and we fill the remaining portion of the bottom of said box A with a horizontal piece 2, preferably made of wood, with the corner adjacent said curved sheet of metal cut off as at 3, and forming an incline of about 30 degrees and meeting the lower end of the curved surface of said sheet 1. An adjustable gate or slide valve 4 is provided in and across said box A and set at an incline, with its lower end, if extended, bisecting the curve of said sheet 1. This gate or valve piece 4 acts as a baffle to the air currents and also to the bunches of paper cups, and is to be raised or lowered to regulate the escape or discharge of the individual cups after they are separated. In the upper side of said box A and back of said gate 4 an opening is cut in the top preferably circular in form and about six inches in diameter, and a discharge pipe 5 with its greater portion of slightly less diameter than the said opening connects said box A with a contiguous receiving box or receptacle D. This box discharges through an opening in the bottom which is provided with a slide or covering 6. An air vent 7 is provided in the upper portion of said box D which is fitted with a slide or cover by which the air currents are regulated. In order to remove the separated cups from said box D with despatch, the device is provided with legs 8 to maintain it above the floor of the room, and for convenience in regulating the said gate 4 a portion of the top of said box D is hinged as a door 9.

The operation of our device is as follows:—An air current is allowed to flow through the pipe C, from a power driven blower or air compressor, not shown and of any of the well known makes, and through the said boxes A and D to the exit as regulated through the vent 7. Nested bunches of said paper cups 10 are dumped into said box A, through the door B, and the said door closed, as shown in Fig. 2. The current of air will drive said bunches 10 against the gate 4, with force enough to cause them to separate, first into the pressed bunches of fifteen or more, as they are manufactured, second, each pressed bunch will be again

separated into the individual form shown in Fig. 4. When the gate 4 is raised, similar to its position as shown in Fig. 2, a gentle air current will flow under said gate 4 and carry the individual cups *a* from the upper portion of said box A, under the lower end of said gate and as directed by the curved sheet 1, through the pipe 5 into the receiving box D. The weight of the bunched cups, even when only two are yet together is sufficient to retain them in the box A, where the bunches are subjected to the rolling, tumbling and knocking action of the stronger air currents until they separate. The stronger air currents are directed within the lower portion of said box A, as shown by the arrows, by the gate 4 and the incline 3, and roll and tumble the bunches around until they separate, when separated the individual cups will float or be carried in the upper portion of said box by the more gentle air currents until they escape from under the gate 4. The air currents passing under the said gate and through the pipe 5 are regulated by the vent 7. When sufficient numbers of the individual cups *a* are deposited in the receiving box D the air currents are cut off and the slide door 6 is opened, and the cups *a* are removed for use. The flow of the air and the height of said gate 4 to properly regulate the movement of the individual cups *a* may be observed by the operator through the said door 9 in the action on said cups as they fall into the said box D.

Having thus described our invention we desire to secure by Letters Patent and claim:—

1. A device for separating nested articles, consisting of a receptacle; an air pipe alined horizontally central to said receptacle; an inclined adjustable gate partitioning said receptacle; a discharge pipe connecting the upper portion of one division of said receptacle with a receiving box; and means to direct and regulate a flow of air through said receptacle and box, said means consisting of a curved member in the bottom corner of said receptacle and an air vent in the receiving box.

2. A device for separating nested articles which consists of a receptacle; an air pipe entering the central portion of one end of said receptacle; an inclined adjustable gate partitioning said receptacle; a discharge pipe connecting the upper portion of one division of said receptacle with a receiving box; and means to direct and regulate a flow of air through said receptacle and box, said means consisting of a curved member filling the lower corner of said receptacle opposite the air pipe entrance; a portion of the bottom of said receptacle inclined upward; and an adjustable vent in the upper portion of said receiving box.

3. A device for separating nested articles, consisting of a rectangular box; an air pipe entering said box at one end; an inclined adjustable gate dividing said box into two compartments; a portion of the bottom of said box inclined from said gate; the corner of said box adjacent the bottom of said gate filled with a curved member; a discharge pipe leading from back of said gate to a receiving box; a receiving box adjacent said rectangular box and connected by said discharge pipe; and an air regulating vent in said receiving box.

4. The method of separating attached articles, which consists of moving attached articles about within a receptacle by directed air currents until said articles separate, and then floating and carrying said individual articles by reduced air currents from said receptacle into a receiving box, without interrupting the separating process.

5. The method of separating nested articles, which consists of moving bundles of said articles about within a closed box by directed air currents until they separate, and as fast as they are separated to float and carry the individual articles by reduced air currents out of said closed box.

In testimony whereof we have affixed our signatures in presence of two witnesses.

ARTHUR E. PIPE.
ROBERT L. LAFEVER.

Witnesses:
JOHN MARESH,
SAM RANEY.

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