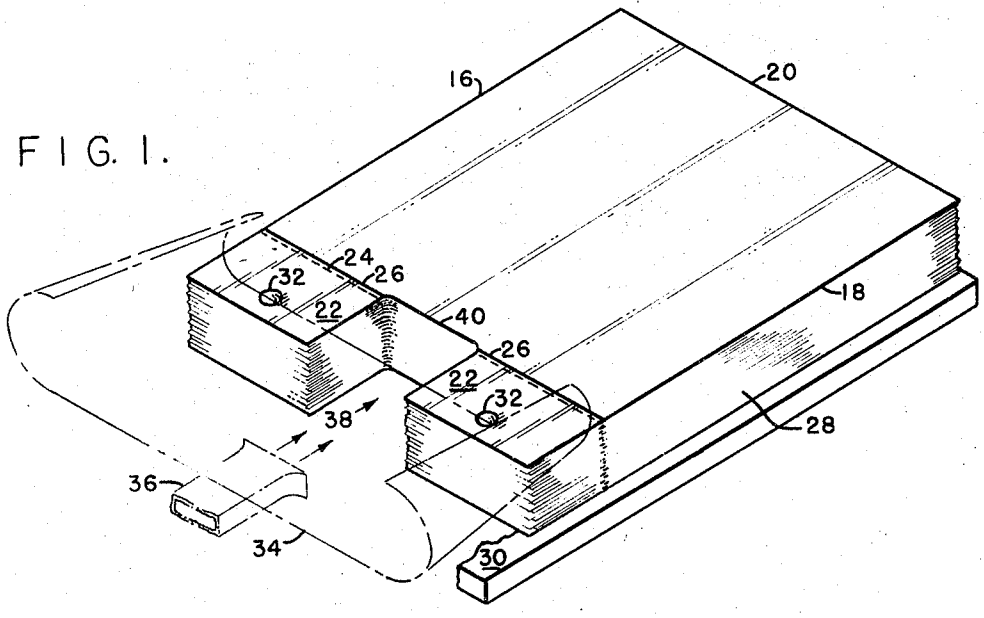
May 2, 1967 F. S. RUSSELL 3,317,037

BAG SUPPLY PAD

Filed April 11, 1962 2 Sheets-Sheet 1

FIG. 1.



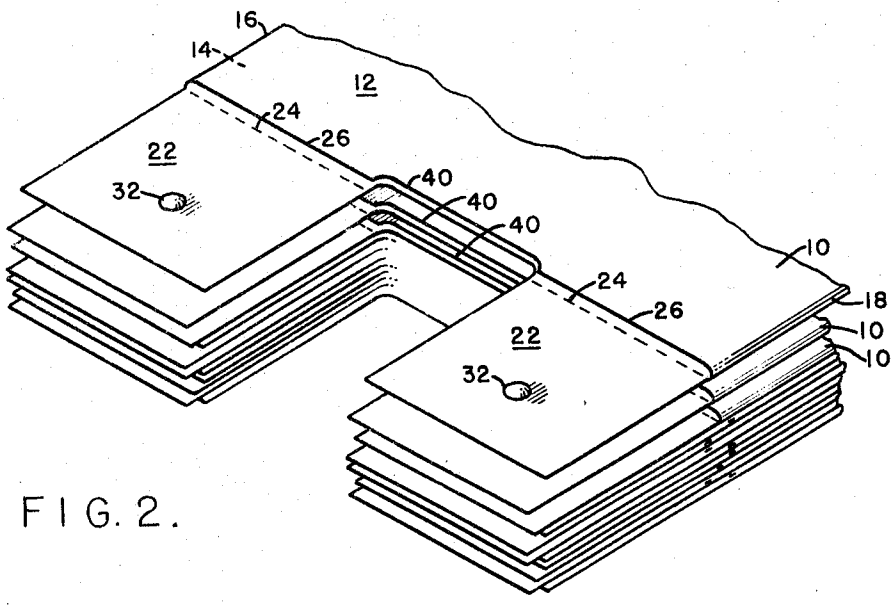


FIG. 2.

INVENTOR.
FREDERICK S. RUSSELL
BY John F. Stevens
Agent

May 2, 1967 F. S. RUSSELL 3,317,037

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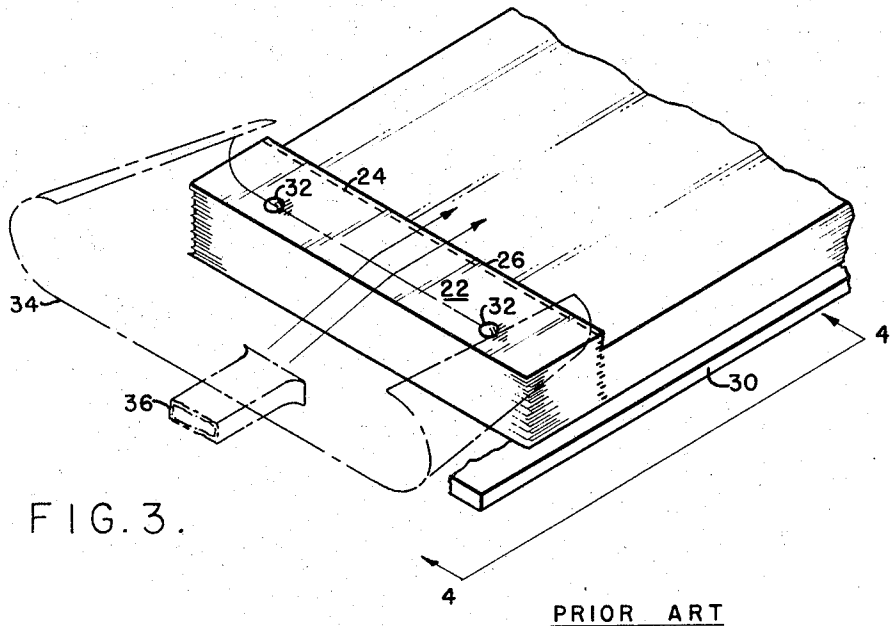


FIG. 3.

PRIOR ART

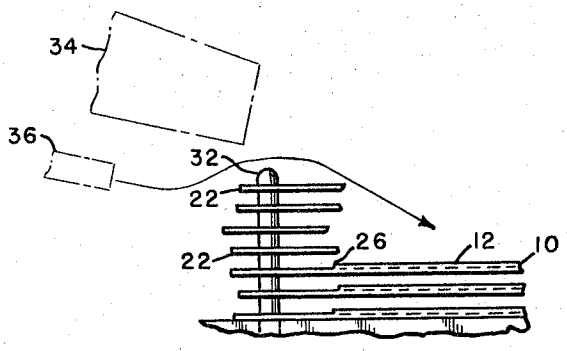


FIG. 4.

PRIOR ART

INVENTOR.
FREDERICK S. RUSSELL
BY John F. Stevens
Agent

United States Patent Office 3,317,037 Patented May 2, 1967

3,317,037

BAG SUPPLY PAD

Frederick S. Russell, Hampden, Mass., assignor to United States Envelope Company, Springfield, Mass., a corporation of Maine

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1 Claim. (Cl. 206—57)

This invention relates generally to pads of flattened bags, and more specifically, this invention relates to pads of bags made of a thin, flexible material, the bags being fastened together at one end to form a pad, and adaptable for use as a source of bag supply on filling and packaging machines.

The bagging machines on which it is contemplated to use the bag pads according to this invention basically comprise a loading or filling platform or station and a filling chute adjacent the filling station for guiding the material into the bag to be filled. A supply pad of bags is located at the filling station, the bags normally lying with the open end of the bag adjacent and in line with the discharge end of the filling chute.

The bags are filled individually before detachment from the pad, beginning with the outer bag of the pad, until the pad of bags is depleted. Each bag, prior to being filled, generally must be opened by the machine operator. An air duct positioned near the discharge of the chute directs a stream of air towards the mouth of the bag and maintains it open while still attached to the pad, allowing the machine operator to feed the material into the bag. When this top bag of the pad is thus filled, it is withdrawn from the pad and carried away for an end closing operation. The next bag in the pad now becomes the outer bag and is ready for filling. This procedure is repeated until the bags in the pad are exhausted.

Bags used on such machines usually consist of a front wall and back wall joined together at one end and at the sides. The open end of the bag, or mouth, is left open for insertion of the contents. The back wall is provided with an integral extension or tab joined to that wall by a weakened line. The bags are commonly made of a thin plastic film such as polyethylene.

To make the bags useable on such filling machines as hereinbefore described, the bags are gathered in stacks in front to back and end to end relation. The number of bags in each stack is usually around 50 or 100 but may be as many as 500 or 1000, depending on the contemplated uses. The bags are jogged, or otherwise "evened up" so that they are approximately coextensive at the edges. The bags are then clipped, stapled, or otherwise held together by pins or the like at the extension, to be made ready for use on the filling machine as hereinbefore described.

It is generally the job of the machine operator to perform whatever operations that are necessary in filling the bag. For example if a bulky article of clothing or the like is inserted in the bag, the operator aids in guiding the article into the bag. The operator then withdraws the loaded or filled bag from the pad and loading platform to make ready for filling the next one. In another situation, it may be fruit or berries to be loaded into the bag. In this case, the platform may consist of a scale for weighing the contents and the operator would have to weigh the product, and start and stop the flow thereof when necessary.

During the formation of the bag pad to be used on a machine such as that described above, difficulty is invariably encountered in forming the pad such that the edges of the bags will be exactly even. This is due to the nature of a bag made from thin films of material such as polyethylene. The bag material is slick and light in weight, and consequently the bags tend to slide around such that

it is practically impossible to jog the bags evenly. Unevenness of the bags at the mouth portion of a pad of bags results in the following difficulties on the filling machine when the pad has been partially depleted:

(1) The extensions of some of the bags which have been torn away at the weakened line will overlie the lip of the front wall of the bag to be opened and filled. When this occurs, the stream of air cannot act on this lip portion and open the bag to be filled. This requires the operator to release the lip from under the overlying extension before air can enter the bag to hold it open for filling.

(2) The extensions remaining on the pad which held the withdrawn bags form a barrier which shields the lip of the front wall of the next bag from the air stream, and thus the air stream will not act thereon to open the bag. Again, this creates a situation where the operator has to release the lip of the bag and raise it into the stream of air being blown in the direction of the mouth of the bag.

The above difficulties do not necessarily form a heavy burden on the operator, but they are unnecessary and time consuming in high speed operations. The present invention seeks to overcome these difficulties by providing a bag pad to be used on such machines as hereinbefore described, by insuring that each bag in the pad will be acted on by the stream of air without requiring the operator to release the lip of any of the bags.

In the drawings:

FIGURE 1 is a perspective view of a pad of bags according to the present invention, and, in dot and dash lines, parts of a filling machine which are directly related to filling the bags.

FIGURE 2 is a partial perspective view illustrating a bag pad according to the present invention, with the outermost bags shown in somewhat of an expanded condition.

FIGURE 3 is a partial perspective view of a pad of bags used in the past, after being partially depleted on a filling machine and in dot and dash lines, parts of a filling machine which are directly related to filling the bags.

FIGURE 4 is a partial elevation view of a pad of bags used in the past, after being partially depleted on a filling machine in somewhat of an expanded condition, and showing in dot and dash lines parts of a filling machine directly related to filling the bags.

In each of the drawings the outer bag of the pad is shown in its deflated position for simplicity.

Referring to the drawings, **10** denotes generally the rectangular bag having front and back walls **12** and **14** respectively, connected along the sides **16** and **18**, and the end **20**. The bag **10** may be made in various ways—for example, walls **12** and **14** may be integrally connected along the bottom edge **20**, and heat sealed or glued along the side edges **16** and **18**. Other common ways of making the bag include folding the blank of material along an integral connection **16** or **18**, and providing seams at the other side edge and the bottom edge **20**. Back wall **14** is provided with an integral extention or tab **22** connected thereto by a weakened line **24** close to the edge **26** of front wall **12**.

The invention may best be understood by examining a pad of bags according to the prior art, illustrated in FIGURES 3 and 4. A predetermined number of bags **10** are first oriented into a stack **28**, with the bags placed in similar, i.e. front to back and end to end, relation. The stack **28** is then jogged to "even up" the edges of the bags **10** as best they can be. Due to the nature of the bags **10**, it is very difficult, if not impossible, to obtain a good jogging job, because the bags are very slippery, light in weight and flexible. Invariably, all the edges will not align properly in either the longitudinal or lateral directions. Nevertheless, the jogged stack **28** is

usually applied to a backing member **30**, and secured thereto by means such as pins **32**, running through the extended tab **22** of each bag and holding the bags in fixed relation to each other. The completed pad of bags, is next inserted into a magazine of a filling machine, and are secured thereto either by the pins **32** or other clamping means. Loading or filling chute **34** shown in broken lines, discharges near the mouth of bag **10**. Air duct **36**, also shown in broken lines, is normally placed just below the chute and blows air, usually at a relatively high volume and low velocity, so as to hold the bag fully open after the edge **26** has been positioned in the stream of air by the machine operator. The operator is required to raise the front wall **12** of each bag to be filled above the stack of tabs **22** so that the air stream will be effective to hold the bag open while the machine operator regulates the flow of material or articles out of the chute **34**.

The pad is held stationary on the filling machine by clamps (not shown). When each bag **10** of the pad is filled, it is withdrawn from the pad by tearing along the weakened line **24** of the bag. This is usually effectuated by a simple pull away from the secured extensions **22**. The filled bag is then taken away for subsequent operations on other machines.

By a close examination of the pad shown in FIGURE 4, it can readily be seen why it is necessary for the machine operator to lift up the edge **26** of the front wall **12** of each bag before the stream of air ejected by duct **36** will act thereon. After several bags have been withdrawn from the pad, the accumulated tabs **22** of the withdrawn bags stand substantially higher than the wall **12** of the next bag to be filled. Thus, the stream of air flowing in the direction of the arrows is prevented from acting on the edge **26**, unless it is lifted up into the path of the air stream by the machine operator. Another problem, and perhaps more important, is that, due to the fact that the bags are not jogged perfectly even, the weakened lines **24** of the bags will be uneven or staggered, thereby causing a condition illustrated in FIGURE 4, i.e., a tab **22** of a withdrawn bag will overlap the edge **26** of the bag to be filled, and even if the stack of tabs **22** is not high enough to prevent the stream of air indicated by the arrows from acting on the bag, the stream of air cannot act on edge **26** underlying tab **22**, and the operator is required to pull the edge **26** of wall **12** away from under the overlying tab **22**.

The difficulties described above are overcome, and the machine operator is relieved of his unnecessary and time consuming tasks by use of a bag pad according to the present invention, illustrated in FIGURES 1 and 2. The bags forming the pad are constructed in a manner hereinbefore described. A selected number of bags are collected into a stack, the bags being placed in end to end and front to back relation. The stack is usually jogged to even up the edges as well as possible, and the tabs of the bags are bound together at the side portions thereof as indicated in FIGURES 1 and 2, by members **32** which may be staples, pins, or the like, leaving space at the medial portion of the tabs **22** for a reces **38**, which is made after the pad has been formed.

As shown in the drawings, the recess **38** is preferably substantially rectangular in shape to give a longer edge **40** for the air stream to act on. It must extend inwardly entirely across the extension of every bag in the pad **28**, or in other words, the recess **38** must extend inwardly from the end of the pad at least as far as the inwardmost front wall edge **26**. The recess **38** provides an edge **40** in the front wall **12** of each bag in the pad positioned directly in line of the flow of air.

Referring particularly to FIGURE 2, the recess penetrates into the pad far enough so that the edges **40** of every bag will lie past the weakened lines **24** which separate the extensions **22** from the back walls **14** of the bags **10**, and at least up to the front wall edge **26**. For simplicity, only several of the outer bags have been shown in the expanded condition. Even though the bags in the pad **28** are not jogged evenly, the edges **40** are always unobstructed from the direction of the flow of air (see FIGURE 1). The edge **40** of the front wall of the succeeding outer bags, as the supply in the pad is depleted, will be acted upon by the flow of air flowing in the direction of the arrows (FIGURE 1). Lower bags in the pad will not open because the air, taking the path of least resistance, will enter the top bag of the pad, where there is the least weight to lift. After one or more bags are withdrawn from the pad, and the air flow begins to be deflected at the side of the pad by the extension **22** which remain on the pad, the air nevertheless can act on the edge **40** of the outer bag to quickly and automatically open the bag succeeding the one which is being withdrawn. The filling operation is thus simplified and speeded up as it is no longer necessary for the machine operator to open the bags prior to filling. Immediately upon withdrawing the outer bag after filling, the next bag is opened automatically by the flow of air from duct **36**. The bags are maintained open during filling by the flow of air, as in the past, until it is withdrawn from the anchored pad **28**.

I claim:

A pad of bags suitable for use on an automatic bagging machine comprising a plurality of bags made of flexible film-like material arranged in end to end and front to back relation, each of the bags having a front wall, a back wall, an open end forming a mouth, and an integral, detachable extention of the back wall extending for the entire width of the back wall of the bag connected thereto by a weakened line extending the entire width of the bag, said front wall terminating along a line substantially even with said weakened line, and said extensions extending upwardly from the back wall above the top edge of the front wall, each of said bags having a U-shaped recess in the mid-section of its extension, said recess beginning at the top edge of the extension and running parallel to the sides of said extension and the base of the recess intersecting the weakened line connecting the extension to the bag, and means formed in the extensions near the sides of said recess holding the bags together in a pad with said recesses in alignment.

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LOUIS G. MANCENE, *Primary Examiner.*

EARL J. DRUMMOND, GEORGE O. RALSTON, *Examiners.*