

A REVIEW PAPER ON PAPER POUCH MAKING MACHINE FOR UTILIZATION OF WASTE PAPER

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ABSTRACT

For a daily requirement of carrying a goods is carried out by the plastic bags. But Plastic bags are hazardous for our environment so we replace it with a paper pouch from waste newspaper which is pollution free and easily degradable or recycle. The machine that already exist is used for making a bags from other material such as drawing sheet, brown paper and paper rolls but has not a proper bottom shape. Ultimately it can be improve by some other investigator and overcome this problem. This bags has comparatively has large in size and for making these bags uses a complex machine. So we can overcome this problem for making newspaper pouch.

(**Keywords**-plastic bags, hazardous, environment, pollution, degradable, recycle)

I. INTRODUCTION

In day to day life increasing the awareness of hardaous effect of plastic in environment. One counter side plastic is non-biodegradable and is toxic further, people dump the plastic bag at many places which result in environmental degradation. These bags are sometime consumed by domestic animal leading to their death. That case we can replace the plastic bag to the paper pouch the existing machine high in cost and these inhabited a large space. So in these paper we have come up with a solution. A portable semiautomatic paper pouch machine by using the waste newspaper to build a paper pouch These newspaper is feed via human assistance, the arrangement of machine is such as the paper is pass through conveyor it fold automatic by folding arrangement and stick with the help of sticking arrangement, the pressure roller is press the pouch after that required pouch is obtained.

II. RELATED WORK

Francis Wolle [1] in 1852, he invented first paper bag making machine. In 1869 he and his brother founded a paper bag making company called "Union paper bag Machine Company" in savannah. His company generated \$ 4 million income in one year. Currently his company in under the ownership of International Paper.

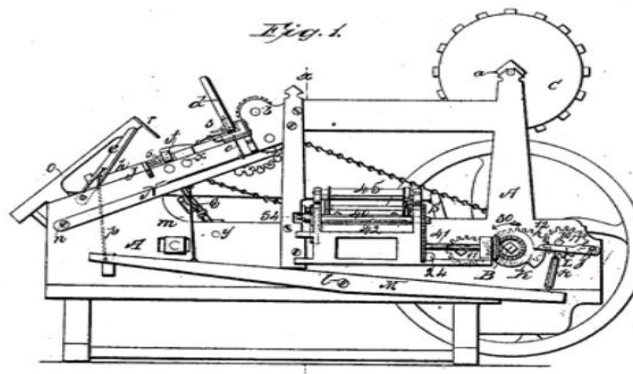


Fig-1

This invention consists in certain devices by the combined operation of which pieces of paper of suitable length are given out from a roll of the required width, cut off from the roll and otherwise suitably cut to the required shape, folded, their edges pasted and lapped, and formed into complete and perfect bags which when dried will be ready for use.

The working parts are all supported by a framing A, A, of suitable materials form, strength, and dimensions, all their movements being derived from the main shaft B, to which a continuous rotary motion is given by any suitable means in the direction of the arrow 30. The paper from which the bags are made which is represented in red color in the drawing, is in a roll of a width suited to the depth of the bags, and is wound upon a reel C, whose axis a turns freely in suitable bearings in the upper part of the framing near one end of the machine. One end is led between the two taking off cylinders D, D, which receive an intermittent rotary motion, being caused to make one revolution and then stop for a short time previous to making their next revolution. These rollers are of such diameter that one revolution will unwind from the reel a sufficient length of the roll of paper to make both sides of the bag and allow a piece for the lap of the joint; they receive their motion through an oval cog wheel E, which is fast on the axis b, of D, and is driven by an eccentric wheel F, of Segmental form on a shaft c, which receives motion through an endless chain G, passing over a chain wheel H, fast upon it, and around a chain wheel I, of corresponding size on the driving shaft. The chain gives a continuous motion to the shaft c, but the wheel F having no teeth on the part forming the chord of the segment ceases to give motion to E, while that part of its circumference is passing, thus the cylinders D, D, stop their revolution while the teeth of E, and F, are out of gear, but the teeth of F, being equal in number to those of E, always give it one complete revolution between the stoppages. The cylinders are geared together so as to revolve at the same Speed in opposite directions.

The paper drawn through or between the cylinder D, D' lays upon an inclined plane or table J, on the upper part of the framing, near the opposite end to the reel C, and as Soon as the cylinders have performed a revolution and delivered the paper for a bag and become stationary, the three shear arms d, e, f, come into operation, d, cutting off the piece from the roll, and e, and f, cutting away part of one edge so that the remaining part of the same edge can, when the piece is doubled-lapped over it to make the joint or seam in the bottom of the bag.

The form of the piece after it is cut is shown in red lines in Fig. 6, the lines 1, 2 showing the form of the piece cut out by e, and f. To show the form more distinctly the Fig. 8, is given, the dotted lines showing the part cut out. The shear d, hangs on a pin 3, and cuts on the edge of a bar g, in front of the feed rollers (see Fig. 3, and dotted lines in Fig. 6); e,

hangs on a pin 4, and cuts on the side edge h, of the lower part of the inclined plane J, which is made narrower than the upper part, and f hangs on a pin 5, and cuts on the edge of a strip of steel i, standing out at a right angle to the edge h. meeting the said edge h, where the point of the shear e, meets it in cutting. The edge 9, and the edge h, are steeled and the shears d, e, f, may be steel bars, or wooden or iron bars having a strip of steel secured to them. The shears are caused to descend and make their cuts by means of a cam K, on the driving shaft B, which, once during every revolution of the shaft comes into operation under and raises a short lever Lu, hung on a fulcrum i, in the side of the framing; this lever L, is connected by a strap or link k, to one arm of a long lever M, which hangs on a fulcrum l, in the framing, the other arm of the said lever connecting by a rod n, With another lever N, on a fulcrum in, and the said lever N, connecting by a rod o, with the shear d, the lever M, is connected also by a rod p, to the shear e, by the action of the cam K, on the lever L, the shear d, and e, are brought down past the edges g, and , and as e, descends its end (being suitably formed for the purpose) presses on the end of f, and forces it down past the edge of i, thus, it will be seen that all the shears operate at the same time: they are all raised by springs attached to each, after the projection of the cam K, which operates on the lever L, has passed the lever and ceased to operate upon I.

MARGARET E. KNIGHT [2] she was an American inventor, notably of the flat bottomed paper bag. In 1868, Margaet knight invented a machine that folded and glued paper to form the flat bottomed brown paper bags. Knight build a wooden model of the device, but needed a working iron model to apply for a patent. She has been called “The most famous 19th century woman inventor”.



Fig-2

This invention relates to machines for making paper bags of the satchel-bottom class, and is an improvement on the machine represented in United States Patent No. 116,842,

Granted to M. E. Knight on July 11, 1871, to which reference may be had. The paper from a reel is formed into a tube and pasted together before being folded for the bottom of the bag. The bottom of the bag. This my present invention relates, chiefly, to the main folding-blade and an auxiliary feeding-blade having certain time and order of motion relatively to the finger and side-folders, as hereinafter described, whereby the bottom of the bag is completed, except as to its last fold, in an easy and rapid manner, without tearing or straining it out of shape; also, to the combination, with the side-folders, of pasting mechanism to apply paste to the said side-folders, they applying paste to one of the overlapping corners of the bag bottom.

CHARLES STILWELL [3] in 1883, he patented a machine that made square bottomed paper bags with pleated sides making them easier to fold and store. This style of bag came to be known as the S.O.S. or "Self-opening sack". Stilwell dedicated his free time to manufacturing an improve paper bag. Paper or grocery bags already existed, but they were not easy to fold or to store. They also could not stand on their own because of their v-shaped bottom. On June 12, 1883, The U.S. patent office granted Stilwell a patent for a machine that Manufacture a square-bottom bag. The bag also had pleated sides. The square bottomed allowed the bags to stand on their own, while the pleats permitted easy folding and storage of the bag.

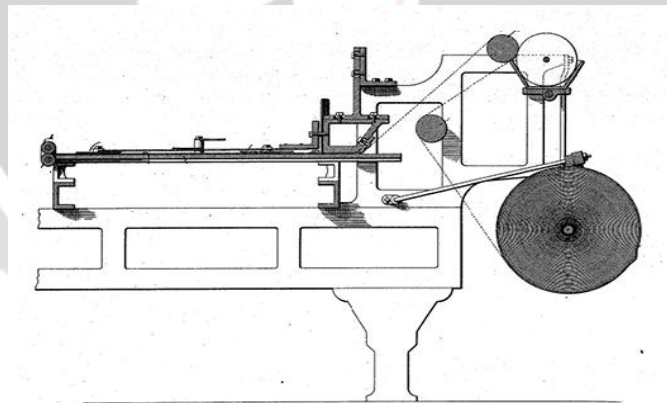


Fig-3

The S.O.S. because of the bags ability to remain standing and open without assistance of a person. Stilwell's invention dramatically improve the bag, making it much more desirable to American consumers. In essence, Stilwell bag was the precursor of modern day paper bags. Stilwell invented new and useful Paper-Bag Machinery, which is of the following is a true and exact description, His invention relates to the construction of that part of a paper-bag machine in which a Web of paper is folded into a bellows-sided tube preparatory to being cut into bag-blanks; and object is to provide improved devices whereby the alignment of the edges of the tube may be made more perfect and all injurious strains on the paper avoided.

THOMAS PARKER SMITH [4] in 1905, He invented new and useful Improvements in Paper bag making machines, which of the following specification.

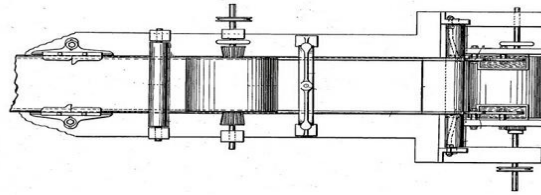


Fig-4

This invention has reference to machines for making those paper bags which are of comparatively large size, such as millinery and laundry bags, which are made of cap paper or other thin paper and which, owing to the thinness of the paper and the comparatively large size of the bags, have before been difficult to make by machinery. By constructing the bags and the machines for them in accordance with this invention it is enabled to produce the large-size bags much more quickly than before and with practically no waste.

In carrying out my invention I employ a thin-paper-bag making machine of the well-known kind in which the thin paper bags are made continuously from a roll of paper and are cut off and end to end to form the bottom is folded and pasted and the paper bags passed

round a drying-cylinder, so are delivered by the machine finished and dried ready for use. In this machine for making these ordinary thin-paper bags the width of the roll of paper from which the bags are formed is rather more than twice the width of the finished bag, as the side portions of the paper are by the machine folded over a dividing-plate and their overlapping edges pasted together, forming a longitudinal seam along the centre of the flat paper tube, which by the machine is divided into lengths, and one end of each length is pasted and folded over to form the bottom of the bag. To this machine I make certain additions, alterations, and improvements, so as to enable it to make large paper bags in accordance with this invention. The said machine which I employ has at one end a roll of paper which is about one and one-half inches, more or less, wider than the width of the finished bag, and this paper as it is unrolled from the roll passes under rollers and along and through guides, so that both its edges are turned over onto the body of the paper for a distance of about three-quarters of an inch, more or less, and these turned-over edges are pasted by means of ordinary paste-rollers. The ordinary dividing-plate is situated, as is usual, above the continuous length of paper and underneath the folded edges of the same. Above the continuous length of paper from the first roll and in front of the bridge which carries the dividing-plate I provide another continuous roll of paper, which by guide-rollers or other means is fed in and above and onto the paper from the first roll, and both papers travel along the machine together at the same speed. The width of this paper in the second roll is the same or very slightly less than the width of the paper in the first roll after its two edges have been folded down, as afore said, and as the two papers travel along the paper from the second roll is pressed down onto the turned-over and pasted edges of paper from the first roll, thus forming the necessary flat paper tube of which the paper from the upper roll forms the top side and the paper from the first roll forms the bottom side, and as this paper tube travels along it is divided into lengths and the lengths formed into bags by the ordinary mechanism of the machine, which forms no part of this invention.

HARRY ALFRED BARNETT [5] a residing of Romany Manor, Park, London, England, In 1913 he invented certain new and useful improvements in Paper-Bag-Making Machines, of which the following is a specification. This invention relates to the manufacture of bags, envelopes or the like, of paper or other material, and refers to an improved machine or apparatus by means of which the paper bags, envelopes or the like can be made up from suitably shaped blanks, which blanks are picked up from a pile, folded, and the edges pasted or gummed and turned over, the unfinished bag or the like being then passed through suitable pressing rollers into a delivering device or collector, from which the finished bags or the like may be removed by hand or from which they may pass to a suitable printing machine. The collecting device is also suitable for use for collecting sheets, bags, envelopes or the like generally, when delivered from bag-making, printing or other machines, from which sheets or the like have to be delivered at a high rate of speed. In order that my said invention may be clearly understood.

III. CONCLUSION

The overall analysis shows that, Plastic pouch which harm our environment, aquatic life and human health and moreover

are not degradable, have paper pouch as an alternative. And existing machines are too large, occupy huge area, imported, too costly, require many people to operate, need of separate machines for creasing, folding and gluing. We designed a paper pouch which will not only be eco-friendly and degradable, but also will Have high load carrying capacity, and nice aesthetics. Waste paper will be used as a raw material for manufacturing paper pouch of our design. This fabricated setup used waste paper as raw material due to which its raw material cost got reduced. This machine is cheaper, compact and portable than currently available paper pouch manufacturing unit.

IV. REFERENCES

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