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O. H. HULTIN

2,245,675

METHOD OF MAKING PAPER BAGS

Original Filed Nov. 17, 1936

2 Sheets-Sheet 1

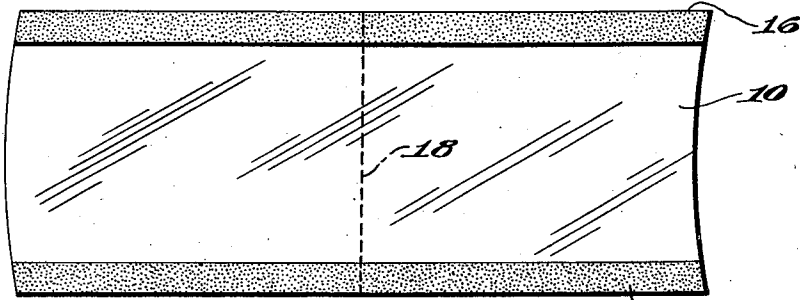


Fig. 1

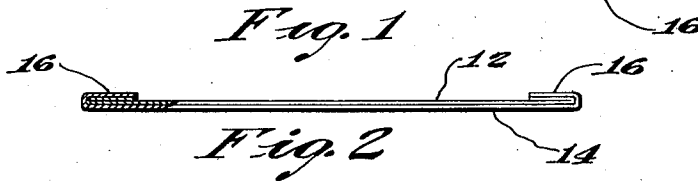


Fig. 2

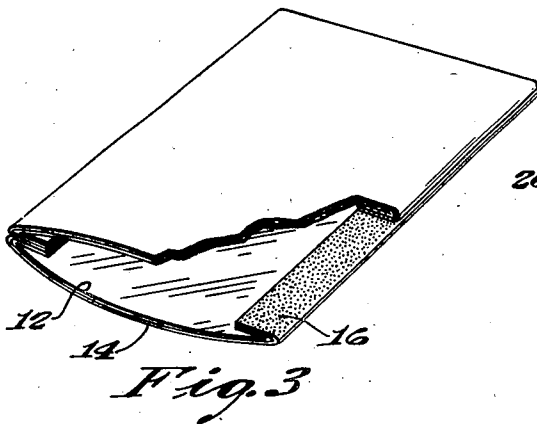


Fig. 3

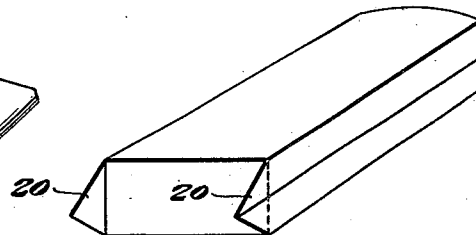


Fig. 4

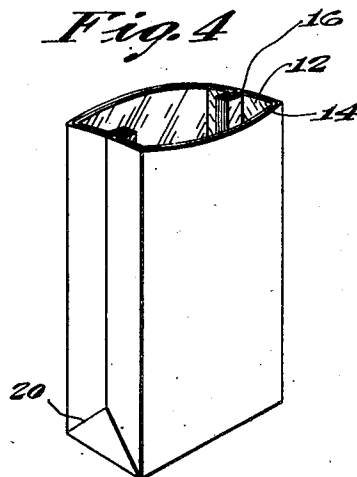


Fig. 6

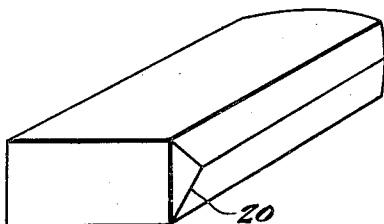


Fig. 5

Inventor
Oscar H. Hultin
J. Stanley Churchill,
Attorney

June 17, 1941.

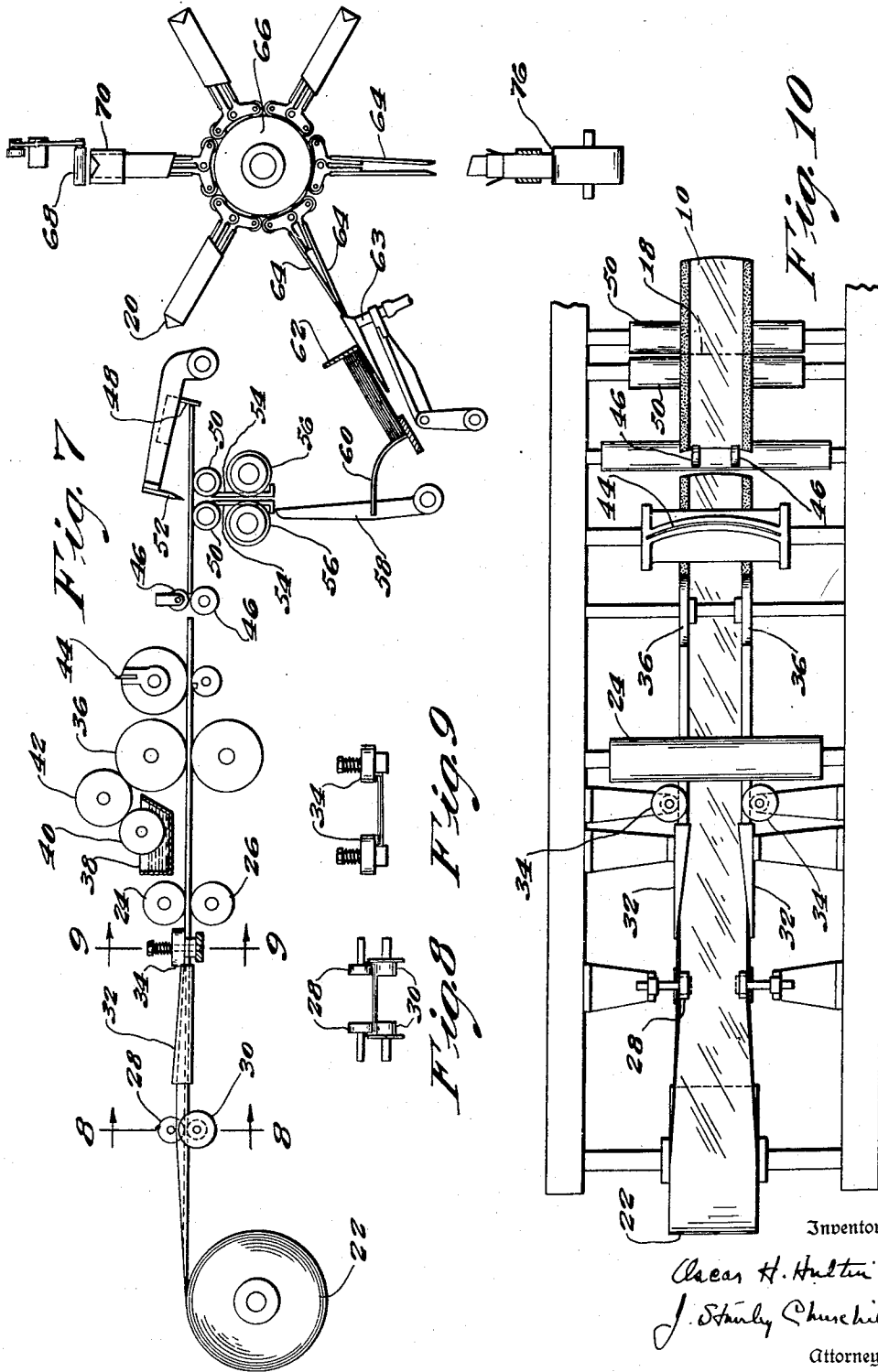
O. H. HULTIN

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METHOD OF MAKING PAPER BAGS

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2 Sheets-Sheet 2



Inventor

Oscar H. Hultin

J. Stanley Churchill,

Attorney

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METHOD OF MAKING PAPER BAGS

Oscar H. Hultin, Quincy, Mass., assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass., a corporation of Massachusetts

Original application November 17, 1936, Serial No. 111,267. Divided and this application February 11, 1938, Serial No. 190,012

2 Claims. (Cl. 93—35)

This invention relates to a method of making a paper bag.

The object of the invention is to provide a novel and highly efficient method of making a paper bag of the type possessing superior moisture resisting properties and which finds particular use as a liner for a carton.

With this object in view and such others as may hereinafter appear, the invention consists in the method of making the paper bag hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings, Fig. 1 is a plan view of a blank from which the present bag may be made; Fig. 2 is a view partly in section and partly in end elevation of the blank shown in Fig. 1; Figs. 3, 4, 5 and 6 are perspective views illustrating the successive steps in the production of the bag, the completed bag being shown in Fig. 6; Fig. 7 is a diagrammatic view illustrating apparatus for producing the present bag; Figs. 8 and 9 are sectional views on the lines 8—8 and 9—9 of Fig. 7; and Fig. 10 is a plan view of a portion of the apparatus shown in Fig. 7.

In general, the present paper bag comprises a composite sheet of paper and thin metallic foil, or equivalent, folded into bag form and with the metallic foil disposed to form the inner surface of the bag. The side edges of the composite sheet are folded inwardly to thereby present a paper to paper contact when the two half portions of the bag blank are folded together, and to thus enable the paper surfaces of the folded side portions of the bag to be adhesively secured together. The bag thus produced presents a continuous moisture resisting metal foil extending completely around the inner surface of the body of the bag, thus rendering the bag particularly useful in packaging tea and various commercial products. The improved bag may be used with advantage as a liner for a carton.

In accordance with the preferred method of making the present bag, the foil and paper may be adhesively affixed together in any usual or preferred manner and in any usual or preferred form of apparatus. A continuous strip of such composite material is preferably fed forwardly and the side portions thereof folded inwardly against the metallic foil to form relatively narrow side strips, presenting a paper upper surface. After the side portions of the composite strip have been thus folded, the strip is severed to form an individual bag forming blank and the latter is then folded about a central transverse line to bring the two halves of the bag together.

The paper surfaces of the folded side strips are adhesively secured together to form the side seams of the bag.

Referring now to the accompanying drawings, 10 represents a sheet of laminated or composite bag forming material, comprising a sheet of metal foil 12 and a sheet of paper 14, and as above stated, the metal foil and paper sheet may be adhesively affixed together in any usual or preferred manner. As herein shown, the longitudinal edges of the composite sheet 10 are folded over against the metal foil to provide side strips 16 having paper upper surfaces upon which adhesive is applied. The sheet is folded laterally on the central line 18, so that the adjacent adhesive coated surfaces come in contact with each other, to form a seal at each side of the bag as illustrated in Fig. 3, is produced. The flat bag thus produced is then preferably expanded into a square or rectangular shape as shown in Fig. 4, leaving two triangular flaps or tabs 20 projecting from the bottom of the bag. These projecting tabs are preferably folded over against the sides of the bag, as illustrated in Fig. 5 to form a sturdy and reliable bag, neat in appearance and which will hold its shape, preparatory to insertion into a carton or other protective outer container. It will be observed that in the present construction of the bag the metal foil comprises the entire inner exposed surface of the bag. While at the same time the side seams of the bag possess maximum strength because of the strength of the paper to paper adhesive seal or bond. In this manner a strong and durable metal lined bag is produced in a simple, economical and practical manner, and one which is particularly suitable for use as a liner for cartons in the packaging of various commodities such as tea, coffee or the like.

Referring now to Fig. 7, the preferred apparatus has been more or less diagrammatically illustrated, wherein 22 represents a supply roll of the composite metal foil material and a paper from which the bag blanks are to be cut. The composite material is drawn from the supply roll by a pair of feed rolls 24, 26, through suitable folding rolls 28, 30, which turn the edges of the strip up at right angles, see Fig. 8. The material is then drawn through suitable guides 32, to lay down the upstanding edges, and thence through rollers 34 which complete the edge folding operation, as shown in Fig. 9. The strip is then advanced to adhesive applying rollers 36, the upper of which receives glue from a glue pan 38 through transferring rollers 40, 42, and as the

strip advances, the upper roller 36 operates to apply adhesive to the folded side portions. The sheet then passes under a rotary cut-off knife 44 which severs the sheet to form a blank from which the bags are made. Advancing rolls 46 carry the blank up to a stop 48 which positions the blank over a pair of folding rolls 50. A blade 52 is now caused to descend, which urges the blank between the folding rolls 50, thereby forming the lateral fold 18 and causing the glued strips to be brought together and pressed in sealing engagement. The flat bag thus formed is, as herein shown, received between guides 54 and advanced by rollers 56 to a position in front of a transferring arm 58, the bottom of the bag resting upon a curved member 60. As the arm 58 is swung, it transfers the flat bag to a magazine 62 where a suitable supply of bags are stored to allow the sealed edges of the bags to become firmly set before the expanding operation is performed. In the operation of the apparatus, the bottom-most bag is withdrawn from the magazine by an air suction nozzle 63 and thereafter the bag is transferred over expanding blades or arms 64 which are mounted on an intermittently revolving spider 66. The arms 64 are in their contracted position when the bag is drawn up over them and immediately, upon movement of the spider, the arms are caused to expand and thus form an open bag of square or rectangular cross section. The triangular flaps 20 formed during the expanding process and extending from the bottom of the bag are folded over at one of the succeeding stations in the path of the movement of the spider 66 and as herein shown this operation is performed by rollers 68 which are arranged to fold the flaps over fixed side plates 70 so that when the bag leaves this station the triangular flaps are folded against the sides of the bag. At one of the succeeding stations where the bag is removed from the arms 64, the latter may again be contracted to allow the completed bag to be inserted into a carton upon a conveyor 76 to be carried to filling and sealing machines to complete the packaging of the product.

In the illustrated apparatus the various roll-

ers, arms, spider and other instrumentalities may be operated by power derived from any suitable source, through any usual or preferred driving and operating connections, not shown.

The rotary cutter 44 preferably severs the blank along a curved or arcuate line, as illustrated, to facilitate the reception of the flat bag onto the expanding arms 64. As will be seen in Fig. 3, when the flat bag is formed, one edge of the mouth of the bag projects beyond the other and in the operation of the apparatus the expanding arms 64 contact with the extended edge facilitating the opening of the bag and permitting the bag to be easily drawn up over the arms.

While it is preferred to utilize a metallic foil, such as tin foil, in the production of the composite bag forming sheet as above described, other moisture resisting sheets may be used if found advantageous in place of such metallic foil, such as moisture resisting regenerated cellulose.

This application is a division of my application, Serial No. 111,267, filed November 17, 1936.

Having thus described the invention, what is claimed is:

1. The method of making a metal foil lined bag which consists in folding edge portions of a composite foil and paper sheet over upon the metal foil surface thereof and applying adhesive thereto to form seam forming strips having adhesive carrying exposed paper surfaces, folding the sheet about a center line into bag forming relation and pressing together the contacting adhesive carrying paper surfaces of said seam forming strips.

2. The method of making a moisture resisting bag comprising folding side edge portions of a composite sheet comprising a paper sheet and a moisture resisting sheet over upon the moisture resisting sheet and applying adhesive thereto to form side seam forming strips having adhesive carrying exposed paper surfaces, folding the composite sheet about a center line into bag forming position, and pressing the contacting adhesive carrying paper surfaces of said side seam forming strips together.

OSCAR H. HULTIN.