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R. BRAUNSTEIN

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BLOCKS OF IMBRICATED SHEETS

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Fig-1

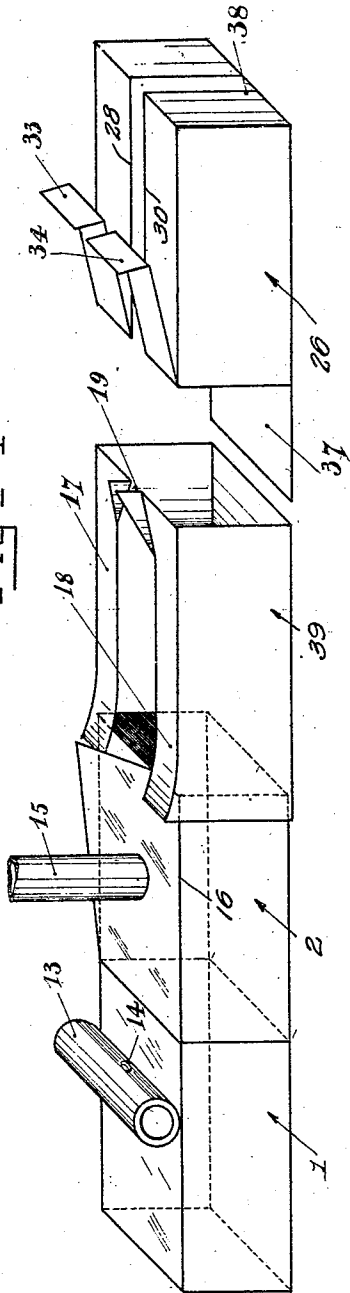


Fig-2

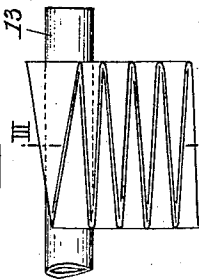


Fig-3

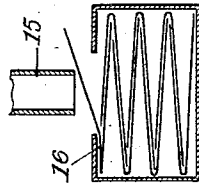


Fig-4

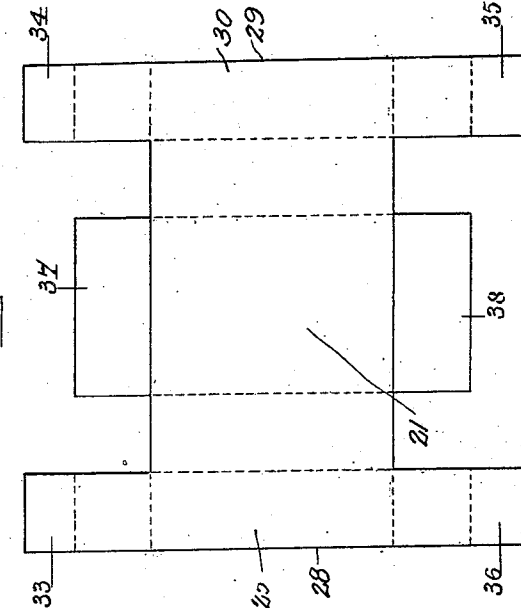


Fig-5

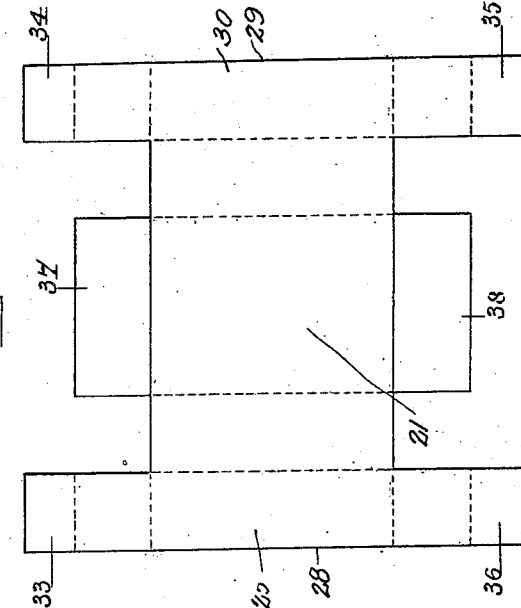
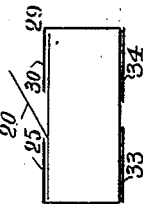


Fig-6



Inventor:  
R. Braunstein,  
Langmuir, Perry, Card & Langmuir  
Attorneys

# UNITED STATES PATENT OFFICE

ROGER BRAUNSTEIN, OF PARIS, FRANCE, ASSIGNOR TO THE SOCIÉTÉ ANONYME DES ANCIENS ÉTABLISSEMENTS BRAUNSTEIN FRÈRES, OF PARIS, FRANCE

## BLOCKS OF IMBRICATED SHEETS

Application filed April 9, 1928, Serial No. 268,602, and in France May 5, 1927.

The present invention relates to the automatic manufacture of blocks or piles of imbricated sheets such as blocks of cigarette paper or toilet paper, characterized by the fact that when each sheet is drawn out, it will pull out one half of the following sheet. The manufacture has hitherto been carried out in the following manner.

The set or block of sheets is surrounded by a sheet of pasteboard which is then properly pasted, and the first sheet is drawn out through an opening punched in the pasteboard part which covers the top of the block of sheets.

According to the present invention, the sheet of pasteboard or the like is preliminarily folded in order to form the box; but one end of the box remains open and the block of sheets is inserted through this end. A slot is formed in the box cover which extends to the open end, so that the set of sheets may be inserted into the box with the first sheet in the raised position, and the operation is finished by closing the said box.

Instead of cutting out the slot by the punching process, I prefer to manufacture the box by the use of a blank whose width is such that after folding, a space will be formed between the edges which represent the said slot.

The first sheet of paper is raised by means of a tube connected with a vacuum pipe. It is preferable to loosen up the sheets beforehand, since the block is cut at the edges by the use of a straight form, and the edges of the sheets will tend to adhere together due to this cutting.

The sheets can be loosened by means of a hollow cylinder subjected to a vacuum, and the said cylinder will draw up the sheets by one or more apertures formed in its periphery which will turn about when the cylinder is rolled and thus moves away from the edge to be loosened.

To insert the set of sheets into the box, I use to advantage a suitable guide by which the set of sheets may be guided while maintaining the first sheet in the raised position.

The flaps of the box are preferably pasted upon the bottom of the box on the side opposite the slot, so that the paste or glue will not

make contact with the block of sheets. I prefer to employ two additional flaps of smaller size, and when these are folded in place they will protect the edge of the said block.

The appended drawings show by way of example an embodiment of the present invention.

Fig. 1 is a perspective view showing the sequence of the operations. Fig. 2 is an end view of a block of sheets subjected to the loosening action. Fig. 3 is a section on the line III—III of Fig. 2. Fig. 4 relates to the drawing out of the first sheet. Fig. 5 is a plan view of the blank for the box. Fig. 6 shows the box completed.

Fig. 1 represents a block of imbricated sheets 1 which are subjected to the loosening process. Above the block or set of sheets is a tube 13 (Figs. 1, 2 and 4) pierced with an aperture 14 and rotating in the direction of the arrow 15. The tube 13 is connected with a vacuum pipe. In its motion, the tube 13 raises the first sheet of paper, as shown in Figs. 2 and 3, and due to the imbricated arrangement, all of the sheets will be successively raised, so that they will cease to adhere together.

After this operation, the set of sheets is pushed into the position 2 (Fig. 1) so as to be slightly engaged in the guiding case 39; the set or block of sheets is now situated below a suction tube 15 which is connected with a vacuum pipe. Under the effect of suction, the top sheet of the block is raised (Fig. 4), pivoting upon the fold 16, the said top sheet, when half raised, will engage upon one or the other of the guides 17, 18, according to the direction in which the paper is folded. The block is then driven to the right of the figure, and the first sheet is made straight by passing through the said guides which gradually come together as far as the opening 19. When leaving the apparatus, the block enters the box 26 whose end is open.

The said box is manufactured from the blank which is shown in Fig. 5. The bottom of the box which is observed in cross section in Fig. 6 consists of the part 21 of the blank (Fig. 5) the two parts 25 and 29 form the top of the box but the edges 28 and 30 are not in

contact, and a space is left between them for drawing out the sheets.

The flaps 33—34—35—36 at the ends are folded down and are pasted to the bottom in such manner that the paper in the box can never be touched by the paste or glue. The two flaps 37—38 are folded down at the edges and protect the edges of the paper.

With this arrangement, the box can be made from a very small width of packing paper or pasteboard and the waste is reduced to a minimum.

I claim:

1. The process of packing in a box, a block of imbricated sheets of that type in which the sheets are issued one by one through a slot of the box; comprising introducing into an open end of the box the block of imbricated sheets, raising the first sheet of the block to cause it to pass through the open end and protrude from the slot in said box.

2. A process of packing in a box, a block of imbricated sheets as claimed in claim 1, in which the lifting of the first sheet is by means of a vacuum before introducing it into said box.

3. The process of packaging in a box having an open end and a slot extending longitudinally therein, blocks of imbricated sheets; comprising arranging the box to receive the block of sheets, lifting the topmost sheet by suction, and passing the block of sheets into the end of said box while the free end of the topmost sheet is raised so that it advances through said slot and remains protruding therefrom.

ROGER BRAUNSTEIN.

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