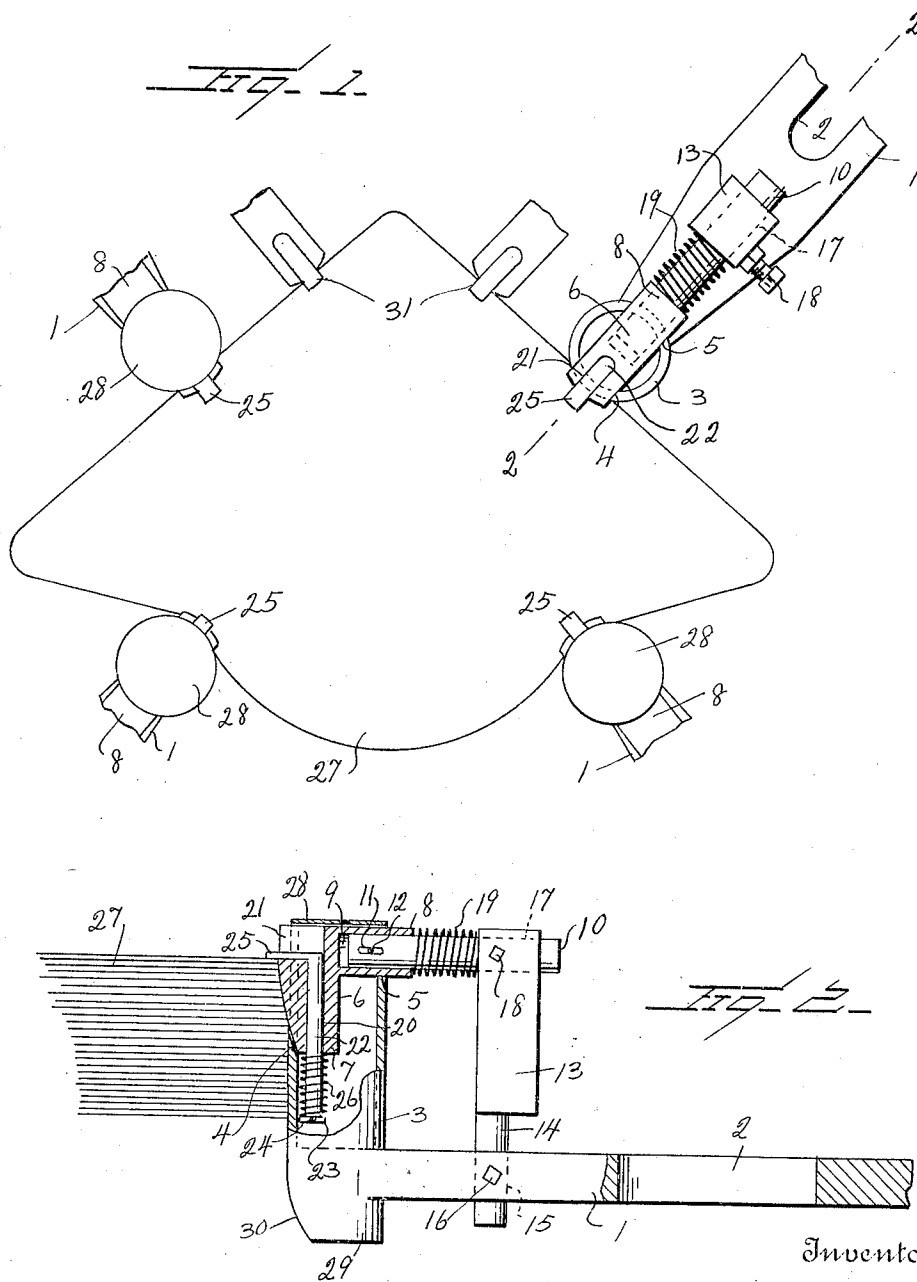


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 AUTOMATIC ADJUSTABLE PAPER SEPARATOR AND GUIDE POST;
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AUTOMATIC ADJUSTABLE PAPER-SEPARATOR AND GUIDE-POST.

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To all whom it may concern:

Be it known that I, FRANK J. GAFFNEY, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Adjustable Paper-Separators and Guide-Posts, of which the following is a specification, reference being had to the accompanying drawings.

In envelop machines blanks are cut out by dies from many sheets of paper at one time and blanks are fed into the machine in piles, and the piles previously fed into the machine are being raised up constantly from below, by the subsequent piles of blanks, as they are fed into the machine. The blanks are removed one at a time from the top of the pile, when proceeding with the further steps of folding the blanks, and this is accomplished by means of "pickers", which have flat surfaces corresponding to the portions of the blanks to be gummed, and owing to the gum on the "pickers", the blanks one at a time are removed from the pile of blanks.

The pickers work very rapidly, and the tendency is for the paper to stick together, particularly considerable bother and delay are caused by the second sheet adhering to the top sheet, hence being raised bodily out of place, and so disarranging it that it may be spoiled by some other part of the machine coming in contact with it and tearing it. This adhering of the sheets is particularly due to the fact that the pickers descend upon the upper sheet, striking it quite heavily, hence causing the bother and delay and the tearing of the paper as heretofore mentioned.

Hence, the present invention relates to an improved automatic adjusting separator, particularly adapted for use in connection with envelop making machines, with the aim to eliminate the adhering of the blanks, as they are removed or picked up one at a time, hence eliminating the bother and the disarrangement of the blanks, and also avoid tearing the same.

The invention further aims to provide an automatic adjusting separator, so constructed as to control the paper envelop blanks, so that when the pickers descend upon the top of the pile of blanks, the top sheet only will be removed, and in such wise as to pre-

vent the under sheet from following it by friction or otherwise.

The invention further aims to provide an automatic adjusting separator very simple in construction, and including means so self-adjustable as to accommodate envelop blanks in piles of different heights, said means also being capable of accommodating the irregularities or uneven formation of the pile, which may be due to the fact of the pile being lower on one side than the other or vice versa, or also due to the curling of the paper or to the paper being spongy on one side more than the other and vice versa, and operating efficiently so as to permit only one blank at a time to be lifted.

A further object of the invention is to provide an automatic adjusting separator, so used in connection with envelop machines, resulting in the increase of the speed of the operation of the machine, and thereby increasing the output of the envelops.

The invention further aims to provide a very simple, efficient and practical separator of this kind involving novel features of construction.

A further object of the invention is the provision of holding means for the pile of blanks, self-adjustable, in order to accommodate the blanks in piles of various widths, thereby facilitating the accuracy and speed of envelop machines, by permitting but one blank only at a time to be lifted.

While the design and construction at present illustrated and set forth is deemed preferable, it is obvious that as a result of a reduction of the invention to a more practical form for commercial purposes, the invention may be susceptible to changes, and the right to these changes is claimed, provided they are comprehended within the scope of what is claimed.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:

Figure 1 is a plan view of a pile of envelop blanks showing the self-adjusting separator or holders for the pile of paper in position, engaging the pile of blanks.

Fig. 2 is a sectional view on line 2—2 of Fig. 1, showing the detail construction of one of the automatic self-adjusting separators.

Referring more especially to the drawings, 1 designates a plate, which is elongated in form, and is provided with an elongated slot 2, for the reception of suitable means (not shown) whereby the plate may be secured upon an upstanding post (not shown) of an envelop making machine (not shown). One end of this plate is provided with an upstanding tubular member or cylinder 3, a portion of the wall of which is cut away forming an elongated vertical opening 4. This upstanding tubular member or cylinder near its upper portion diametrically opposite the opening 4 has a second opening 5, which constitutes a guide.

Mounted in the tubular member or cylinder 3 is a movable holder 6. This holder comprises a pair of right angle extending parts 7 and 8, the former being arranged vertically in the cylinder 3 with a portion thereof normally engaging the opening 4, the latter part 8 is disposed horizontally and engages the guide opening 5. This holder is considerably smaller than the cylinder 3 and is capable of movement in a horizontal plane, so as to accommodate envelop blanks of different widths. The part 8 of the holder has a bore 9, which receives one end of the pin 10, there being a loose slot and pin connection 11 and 12 between the pin and the horizontal part 8 of the holder. An upright support 13, which may be any suitable shape or configuration, preferably rectangular in cross-section, though not necessarily, and its lower portion terminates in a reduced leg 14, which passes through an opening 15 in the plate 1 and is adjustably secured in said opening by means of the set screw or bolt 16. The upper end of the support 13 has a transverse opening 17, in which the pin 10 is adjustably secured by means of the set screw or bolt 18. The pin 10 may be adjusted in a horizontal plane very readily by loosening the set screw or bolt, so as to adjust the holder, as well as slightly regulating the tension of a coil spring 19, which is interposed between the upper part of the support 13 and the horizontal part 8 of the holder. The vertical part 7 of the holder is provided with a vertical bore 20, which is open at its lower end portion, and terminates at its upper part in a laterally extending opening 21. Mounted in the bore 20 is a vertical pin 22, the lower part of which extends below the lower end of the part 7 of the holder, and its extremity has a collar 23 secured thereto by means of a pin 24. The upper part of the pin 22 has a laterally extending flat extension 25, which may be any suitable thickness, and is guided in the lateral opening 21 of the bore 20. This flat extension of the pin 22 projects beyond the lateral opening 21 in such wise as to overlie the upper sheet of a pile

of envelop blanks, and to engage therewith. A tension coil spring 26 is in surrounding relation to the lower portion of the pin 22, and interposed between the collar 23 and the lower end of the part 7 of the holder, thereby so tensioning the pin 22, as to retain the lateral flat extension of the pin yieldably upon the top sheet of the pile of envelop blanks 27. This yieldable pressure of the lateral extension or pin is such as to permit the top blank to be readily removed, by means of a descending picker of the envelop machine, and yet at the same time maintain pressure, sufficient to hold the succeeding sheet in place, thereby preventing the two adjacent upper blanks from adhering frictionally or otherwise together, when the picker descends to lift the upper blank.

It will be observed that when the blanks are fed in lots constantly from below raising the pile of blanks, the pin 22 will yield, hence permitting of the feeding of the blanks into the machine.

Also, should the blanks vary in width, the holder is so mounted into the guide opening 5, as to permit a yielding movable action in a horizontal plane, the coil tension spring 19 acting to maintain pressure in a horizontal plane upon the edges of the blanks. The plate 1 may be adjusted in a horizontal plane upon the post of the envelop making machine by manipulating the means (not shown) which passes through the slot 2, so as to accommodate blanks of different widths, that is blanks which vary considerably in width to those illustrated in Fig. 1. The upper end of the cylinder 3 is closed by means of a metal cap or top member 28, which may be secured to the upper end of the cylinder or member 3 in any suitable manner. The under part of the plate 1 at a point immediately axially below the cylinder 3 is provided with an extension 29, which is provided with a curved cut away or beveled portion 30, which readily permits the feeding of blanks in piles upwardly under the lateral extension 25.

In the operation of the machine, that is when the picker (not shown) descends, and heavily engages the blank, the blank will give sufficiently, so as to pass from under the tongue or lateral extension 25, and the next blank below, therefore it is not attached by the gum on the picker, and will not be pulled sufficiently by friction or otherwise to allow it to give sufficiently to pass from under the tongue; hence it will remain in position from the next operation of the picker.

It is obvious that this improved automatic adjusting separator may be applied to any make of envelop making machine, or any post separator, or to any other similar machine, without in any way departing from

the spirit of the invention. Also arranged in position to engage the upper envelop blanks are blank holders 31.

While it is true that this separator is especially applicable to envelop making machines where envelop blanks are arranged in piles, it is obvious that the device is equally as well adapted for use in connection with any kind of machine, such as printing presses, or any machine adapted for holding paper blanks in piles, and in connection with which it is the aim to prevent the blanks of paper from adhering, as they are removed one at a time. Furthermore, it is to be noted that the device is particularly effective when used to operate upon transparent or very thin paper. In fact, the sheets or blanks of piles of any kind of paper may be separated and prevented from adhering, as the blanks or sheets are removed one at a time. In order to apply the separating device to any other kind of machine other than that illustrated, it would merely involve the rearrangement of the separators or guide posts in different positions, according to the dimensions and configurations of the blanks of paper.

The invention having been set forth, what is claimed as new and useful is:

1. In an automatic adjusting separator for machines for holding piles of blank paper, the combination with a guiding cylinder mounted upon the frame of the machine, of a holder guided in the cylinder and being movable in a horizontal plane to accommodate the width of the paper blanks, said holder having a vertical guide, and a member mounted in said vertical guide and being movable in a vertical plane to accommodate the pile of paper blanks as the pile increases and decreases.

2. In an automatic adjusting separator for envelop making machines, the combination with a guiding cylinder mounted upon the frame of the machine, of a holder guided in the cylinder and being movable in a horizontal plane to accommodate the width of the envelop blanks, said holder having a vertical guide, and a member mounted in said vertical guide and being movable in a vertical plane to accommodate the pile of envelop blanks as the pile increases and decreases, and yieldable means for the respective holder and said member to tension them, according to the width of the blanks and the height of the pile.

3. In an automatic adjusting separator for machines for holding piles of blank paper, the combination with a cylinder guide, of a pair of members movable respectively in horizontal and vertical planes, the member which is movable in the horizontal plane carrying and guiding the member which is movable in a vertical plane, whereby both members may accommodate

themselves to the width of the blanks and the height of the pile of blanks.

4. In an automatic adjusting separator for machines for holding piles of blank paper, the combination with a cylinder guide, of a pair of members movable respectively in horizontal and vertical planes, the member which is movable in a horizontal plane carrying and guiding the member which is movable in a vertical plane, whereby both members may accommodate themselves to the width of the blanks and the height of the pile of blanks, and yieldable tensioning means respectively for said members to tension the members in cooperation with the paper blanks.

5. In an automatic adjusting separator for machines for holding piles of blank paper, the combination with an upright guide adjustably mounted upon the frame of the machine, of a pair of members, one guided within the other, and one guided in the upright guide, and being movable respectively in horizontal and vertical planes, whereby said members may accommodate themselves to the width of the paper blanks and height of the pile of blanks.

6. In an automatic adjusting separator for envelop making machines, the combination with an upright guide adjustably mounted upon the frame of the machine, of a pair of members, one guided within the other, and one guided in the upright guide, and being movable respectively in horizontal and vertical planes, whereby said members may accommodate themselves to the width of the envelop blanks and height of the pile of blanks, and yieldable tensioning means for said members, whereby they may yieldably engage the blanks, so that the upper blank may be removed, without disturbing the succeeding blank.

7. In an automatic adjusting separator, the combination with a plate adjustably mounted upon the machine and provided with a cylinder guide, of an upright carried on the plate, a pin secured transversely of the upper end of the upright, a holder mounted in the cylinder guide and being movable in a horizontal plane and being loosely connected to the pin and mounted in the cylinder guide, a member guided in the holder and being movable in a vertical plane and having a part overhanging the pile of envelop blanks, yieldable tensioning means for said member, so that the member may accommodate itself to the height of the pile, and yieldable tensioning means between the uprights and the holder and carried by the horizontal pin, thereby tensioning the holder, whereby the holder may accommodate itself to the width of the pile of blanks.

8. In an automatic adjusting separator for envelop making machines, the combina-

tion with a cylinder guide adjustably mounted upon the frame of the machine, of a pair of members, one being mounted in the other for movement in a vertical plane, the
5 other being mounted in the cylinder guide for movement in a horizontal plane, the vertical movable member having a lateral part overlying the top of a pile of envelop blanks, and yieldable tensioning means respectively
10 for said member, whereby they may yieldably accommodate themselves to the width and height of the pile of envelop blanks.

9. In an automatic adjusting separator for envelop making machines, the combination with a plate adjustably mounted upon
15 the frame of the machine, of an upright carried by the plate, a cylinder guide on the

plate, a pair of members, one guided within the other for movement in a vertical plane, the other being guided on the cylinder guide
20 for movement in a horizontal plane, the member movable in a vertical plane having a lateral part overlying the top of the envelop blanks, a pin carried by the upright and having a loose guiding connection with
25 the member which is movable in a horizontal plane, yieldable tensioning means for said members, whereby they may yieldably accommodate themselves to the width and height of the pile of envelop blanks.

In testimony whereof I hereunto affix my signature. 30

FRANK J. GAFFNEY.