No. 648,836. Patented May 1, 1900.

J. M. BLAISDELL.

METHOD OF SEPARATING SHEETS OF PAPER.

(Application filed Feb. 16, 1898.)

(No Model.)

Fig. 1.

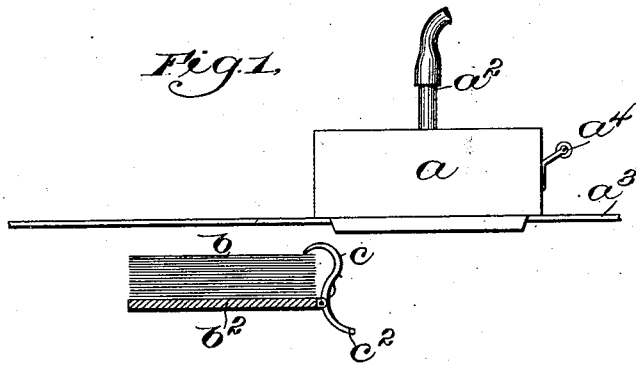



Fig. 2.

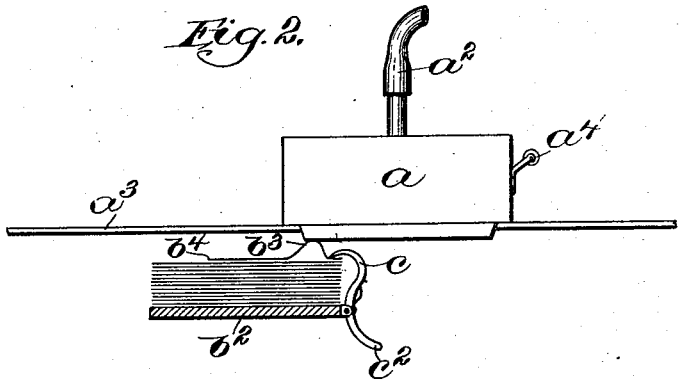
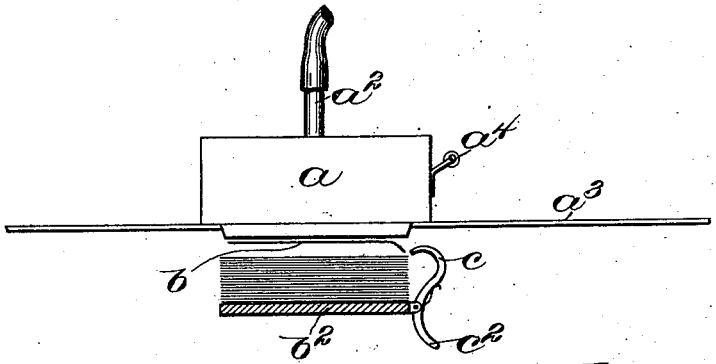



Fig. 3.




Witnesses
Jas. J. Maloney.
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# UNITED STATES PATENT OFFICE.

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## METHOD OF SEPARATING SHEETS OF PAPER.

SPECIFICATION forming part of Letters Patent No. 648,836, dated May 1, 1900.

Application filed February 16, 1898. Serial No. 670,508. (No specimens.)

*To all whom it may concern:*

Be it known that I, JAMES M. BLAISDELL, of Winthrop, county of Suffolk, and State of Massachusetts, have invented an Improvement in Methods of Separating Sheets of Paper, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The present invention relates to the art of feeding sheets of paper from a pile of such sheets, and is embodied in a novel method of separating the top sheet from the rest of the pile through the agency of atmospheric pressure.

Proceeding in accordance with the method which forms the subject of the present invention, a portion only of the sheet between the extreme edges thereof is first subjected to atmospheric pressure by exhausting the air just above that portion of the sheet, so that the air between it and the sheet next below will exert an unbalanced pressure tending to lift up that portion of the sheet and separate it from the surface of the sheet below, and to wholly lift up the sheet the same action is extended to succeeding portions, thus affording a progressive action finally resulting in complete separation. To determine the distance by which the said sheet is to be separated from the others, an object having a suitable surface may be placed over the sheet, the said object preferably consisting of a chamber from which the air is partially exhausted and having openings in that one of its walls which is adjacent to the sheet, so that it affords the means for exhausting the air above the surface of the top sheet. It is obvious that the picking up of a portion of the sheet in this way will draw the ends of said sheet toward each other, so that the said ends will travel along instead of away from the sheet below, thus obviating the tendency to carry the said sheet upward by cohesion or atmospheric pressure, as is the case where an attempt is made to lift the sheet directly without producing a longitudinal movement thereof along the surface of the sheet below. To completely separate the sheet from the one next below it, the surface of said sheet is caused to be progressively acted upon by the pressure—that is to say, the air is progressively rarefied or exhausted above successive portions of the sheet—this being preferably accomplished by moving the chamber aforesaid along adjacent to the surface of the top sheet, or vice versa. It is desirable in order to prevent the sheet from being bodily carried forward before it is fully picked up to retain one edge thereof in contact with the sheet next below during the progressive action above described and to release the said edge after the remainder of the sheet is wholly separated.

Figure 1 is a side view of an apparatus which may be employed in carrying out the method; Fig. 2, a similar view showing the parts in a different position, and Fig. 3 a similar view showing the top sheet practically separated from the one below.

To illustrate the method, a chamber $a$, from which the air is continually kept exhausted, as through a pipe $a^3$, is herein shown as capable of being moved along adjacent to the top sheet $b$ of a pile of sheets shown as lying on a table or support $b^2$. The wall of the said chamber which is adjacent to the top sheet is perforated, so that the air rushing in will exhaust or rarefy the air between the wall of said chamber and the surface of the top sheet, so that the unbalanced pressure of the air immediately below the said top sheet will tend to lift the same at $b^3$, as shown in Fig. 2, when the chamber $a$ is moved over the same. The lifting of the part $b^3$ will draw the end $b^4$ of the sheet along the surface of the sheet below with no tendency to carry the said sheet with it, and as the air is progressively rarefied or exhausted above the surface of the sheet $b$ the unbalanced pressure below the same will continue to separate it from the sheet next below until, as shown in Fig. 3, it is substantially wholly picked up and separated.

It is desirable to hold a portion of the sheet stationary with relation to the other sheets during the progressive action, and to illustrate this a clip $c$ is herein shown as provided with a finger-piece $c^2$ for releasing the same after the sheet is fully separated.

As the chamber $a$ is moved from the position shown in Fig. 1 to that shown in Fig. 3 (the said chamber being shown as mounted

on a track $a^3$ and provided with a handle $a^4$) the sheet $b$ is progressively acted upon by atmospheric pressure, first taking the position shown in Fig. 2 and finally that shown in Fig. 3, at the end of which time the end of the said sheet held by the clip $c$ may be released and will be at once drawn up, so that the sheet is then completely separated.

It is to be understood that the apparatus shown and described herein forms no part of the present invention, but is shown merely for the purpose of clearly illustrating the method involved, and it is not intended to limit the invention to any specific means for carrying out the method.

I claim—

1. That improvement in the art or method of separating the top sheet from a pile of sheets which consists in progressively rarefying or exhausting the air along and over the surface of said sheet to subject successive portions of the said sheet to unbalanced pressure from below, substantially as described.

2. That improvement in the art or method of separating the top sheet from a pile of sheets which consists in progressively exhausting the air along and over the surface of said sheet to subject successive portions of the said sheet to unbalanced pressure from below, retaining a portion of said sheet stationary during such progressive operation, and subsequently releasing the same, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES M. BLAISDELL.

Witnesses:

H. J. LIVERMORE,

NANCY P. FORD.