

April 1, 1924.

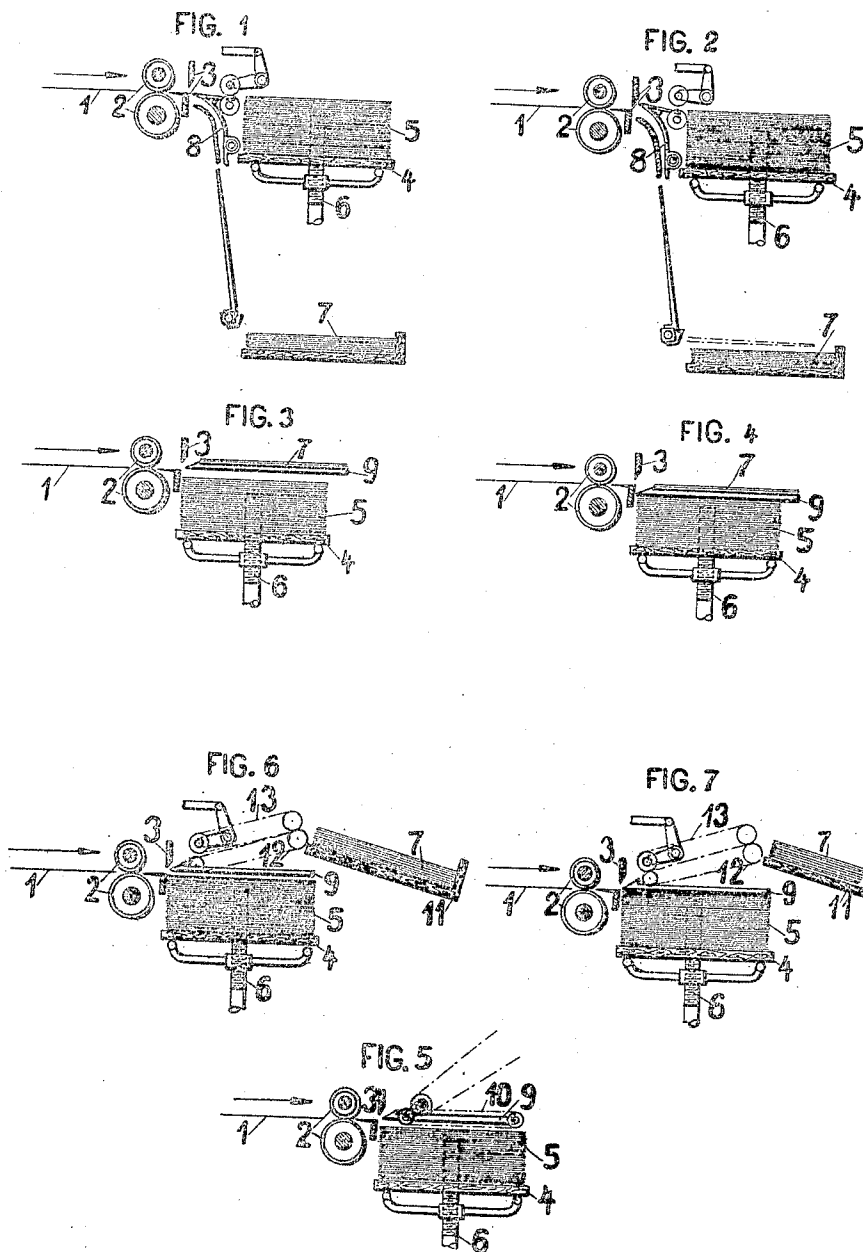
G. SPIESS

1,489,166

SHEET STACKING DEVICE

Filed May 2, 1922

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 8

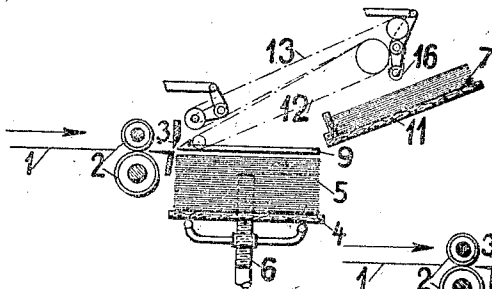


FIG. 9

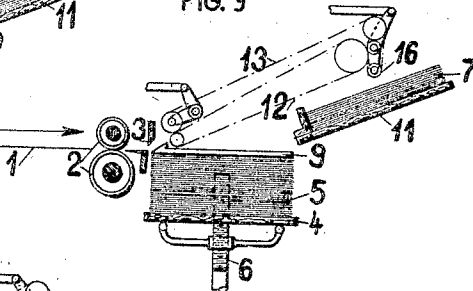


FIG. 10

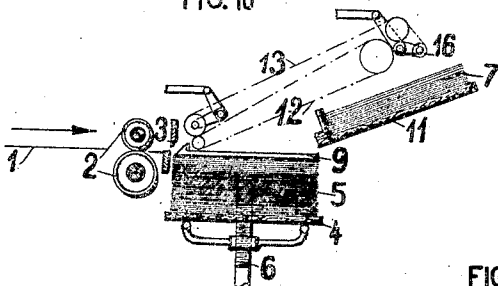


FIG. 11

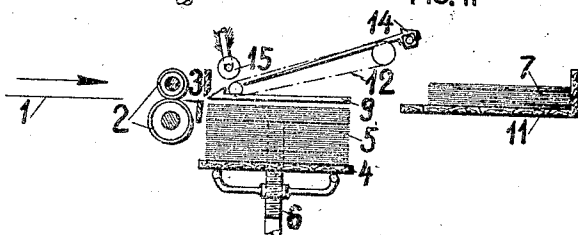
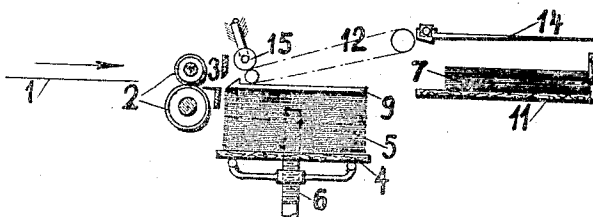


FIG. 12



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UNITED STATES PATENT OFFICE.

GEORG SPIESS, OF LEIPZIG-REUDNITZ, GERMANY.

SHEET-STACKING DEVICE.

Application filed May 2, 1922. Serial No. 558,026.

To all whom it may concern:

Be it known that I, GEORG SPIESS, a citizen of Germany, residing at Leipzig-Reudnitz, Germany, have invented certain new and useful Improvements in Sheet-Stacking Devices, of which the following is a specification.

My invention refers to devices for stacking paper, card board and the like and it is an object of my invention to increase the efficiency of such devices. As is well known to those skilled in the art, in devices of the kind above mentioned and more especially in the transverse cutters now in use, the sheets are usually deposited upon a table automatically, after leaving the machine. The table or the stack of paper or the like placed upon it should always be so arranged that the surface of the stack is permanently kept at the same level, the table being provided with means to gradually lower the same in accordance with the growth of the stack. After the table has reached its lowest position the stack or pile of paper or the like is taken off and the table again raised by the operation of a crank. During this time the machine is stopped because no sheets can be deposited, and by these repeated interruptions the output of the machine is considerably reduced. It is one of the objects of my invention to obviate this difficulty, and in view thereof I provide an auxiliary stack below or sideways of the main stack.

A device embodying my invention is shown by way of example on the accompanying drawing in several forms of construction, a transverse cutter being employed in each embodiment for the clearness of understanding, though my invention is not limited to a combination with a transverse cutter only.

In the figures the web of paper is indicated at 1 which is fed to the knife 3 by means of the pair of feeding rollers 2. The sheets cut off from the continuous web are deposited automatically upon a table 4, and are piled into a main stack 5 which is arranged immediately to the rear of the cutters 3. The table is supported on screw spindles 6 which are rotated by the machine so as to cause the table to be gradually lowered with the increase of the stack, and in such a manner that the surface of the stack becomes situated somewhat below the lower cutter. At the side of the main stack

an auxiliary stack 7 is provided upon which the sheets may be deposited upon the removal of the main stack or for other purposes. The means of causing the depositing upon the auxiliary stack may be of different construction. The device hereinafter described though otherwise known is herein shown in a new combination, and the arrangement of the auxiliary stack and stacking means is varied in accordance with the depositing means for the auxiliary stack.

In the embodiment of my invention shown by way of example in Figures 1 and 2 a switch 8 is employed which is arranged between the cutter and the principal stack 5. If it is desired to deposit the sheets upon the main stack, the switch 8 takes the position of Figure 1 the sheets being caused to pass along the switch 8. If the sheets are to be deposited upon the auxiliary stack arranged below the principal stack 5 the switch is reversed as indicated in Figure 2. The switch 8 in this position closes the passage to the main stack for the sheet, and causes it to be downwardly deflected. In the modification represented in Figures 3 and 4 a grate 9 is employed as a support for the auxiliary stack, the said grate being raised when the sheet is deposited upon the principal stack so as to allow the sheet of paper to slide beneath it (Figure 3) while in order to be deposited upon the auxiliary stack 7 the grate 9 (Figure 4) is correspondingly lowered in such a manner that its pointed forward end for causing the deflection of the sheets becomes situated in front of the knife 3. In order to prevent the sheets from becoming unevenly deposited upon the main or principal stack 5 as a result of being moved along the bottom of the grate 9, a permanently rotating apron 10 may be arranged between the grate 9 and the main stack 5, as appears from Figure 5.

Another structural modification of this arrangement of operating parts is shown in Figures 6 and 7 of the drawing. For the depositing of the sheets upon the auxiliary stack a special table 11 is provided unto which the sheets are conducted by means of a continually rotating apron 12 mounted above the grate 9, when the latter is lowered (Figure 7). Above the apron 12 another apron 13 is arranged and the two aprons are in contact with each other at their ends confronting the auxiliary stack 7. The

rollers at the other end of the upper apron 13, however, are usually lifted off from the lower apron 12 so that the web of paper which is moved by the feeding rollers is not yet caught by the aprons 12, 13 when it is conducted between the same by the lowering of the grate 9. After the cut has been effected, however, the left hand rollers of the upper apron 13 are lowered so as to produce a perfect contact between the upper and lower aprons, and the cut-off sheet which is held between the aprons is thereby safely conducted to the auxiliary stack 7 (see Figure 7).

A similar form of construction as in Figures 6 and 7, is also shown in Figures 8 to 10. It is only distinguished therefrom by the difference in the arrangement of the auxiliary stack, and by its position relatively to the main stack. For the purpose of depositing the sheets upon the auxiliary stack 7 the sheets that have been fed by the aprons 12, 13 are not merely dropped at the ends thereof, but they are deflected by a roller 16 on which the bands of the upper apron 13 are conducted in such a manner that their front ends are pointed in the direction of the principal stack. The sheets are, therefore, turned over before they become deposited upon the auxiliary stack 7. After the sheet of paper with its front edge has been placed against a stop on the stacking table, the roller 16 is moved to the right so that the sheet of paper is free to be smoothly deposited upon the auxiliary stack 7 (see Figure 10).

In the modified form of construction shown as an example in Figures 11 and 12 of the drawing a grate or the like 9 capable of lifting and lowering motion and an apron 12 are also used. The depositing of the sheets from the apron upon the stack 7 is effected in this case by means of an otherwise known rake or grate 14 which in the ordinary position is situated between the aprons so that the upwardly conducted sheet is deposited thereupon. After the reception of the sheet the grates or rakes are rocked on their pivots, and deposit the sheet upon the auxiliary stack 7, as shown in Figure 12. Above the apron a roller 15 is provided adapted to bear upon the left rollers or the apron 12 upon the lowering of the grate or rake, so as to produce an absolutely reliable feeding of the sheets.

Inasmuch as when the principal or main stack is taken off and the table is made ready for another operation, the sheets are deposited upon the auxiliary stack by a corresponding actuation of the operating means, there is no necessity of causing the transverse cutter to be thrown out of gear during these procedures, and the machine is therefore, better utilized in this manner, and produces a much higher output.

The arrangement described may also be employed with advantage for other purposes; by inserting for instance into the transverse cutter an observation guideway for the paper for the examination of the sheets, which arrangement is not shown in the drawing, the main stack may be employed for delivering thereupon the good sheets, while the deficient sheets are deposited upon the auxiliary stack. The operator who watches the web of paper, then adjusts the deflecting device in such a manner that the sheet is directed either to the main or to the auxiliary stack according to its quality. By this means the further advantage is obtained that the special gripping and feeding means which are otherwise provided behind the transverse cutter for conducting the spoiled sheets to the auxiliary stack are no longer necessary. These feeding devices usually require considerable space and interfere with a high efficiency of the transverse cutter, in view of the fact that the chains on which the gripping means are usually mounted, should not exceed a certain velocity in order to be sure of reliable and smooth operation.

The arrangement herein described may also be employed in connection with other kinds of machinery for the treatment and manipulation of paper and the like, where the material has to be piled up in stacks at the rear of the machine, and it is also obvious that my device is capable of a variety of other changes and modifications in accordance with local and other requirements and to suit the convenience of operation, and without deviating from the spirit of my invention, as pointed out in the claims.

I claim:

1. Sheet stacking mechanism of the class described comprising feed rollers, a main stack adjacent thereto in the line of travel of the sheets, an auxiliary stack, guide means arranged over the main stack, and a deflecting device intermediate the main stack and the guide means and bodily shiftable to deflect the sheets from their travel to the main stack onto said guide means for delivery to the auxiliary stack.

2. Sheet stacking mechanism comprising feed rollers, main and auxiliary stacks adjacent thereto, guide means to receive and convey the sheets to one of said stacks, deflecting means shiftable into the path of travel of the sheets to the other of said stacks whereby to direct them to the guide means aforesaid, and means coacting with the guide means to turn the sheets over upon leaving said guide means.

3. Sheet stacking mechanism comprising feed rollers, a main stack adjacent thereto, an auxiliary stack in advance of said main stack, guide aprons intermediate the feed

means and said stacks, a deflector arranged between said main stack and aprons, and a turning device at the end of the aprons to reverse the sheet incident to deposit on the
5 auxiliary stack.

4. Sheet stacking mechanism of the class described comprising feed rollers, a main stack adjacent thereto, a deflector arranged
10 above the main stack in the line slightly above the line of travel of the sheets from the feeding means, said deflector being shift-
able downwardly toward the main stack to

intercept the path of travel of the sheets from the feed means and deflect them later-
ally of said path of travel, guide means ar-
ranged over the deflector in position to re-
ceive the sheets deflected by the latter, an
auxiliary stack in advance of the main stack,
and turning means cooperative with the
guide means for reversing the sheets in de-
positing the same upon the auxiliary stack.

In testimony whereof I affix my signa-
ture.

GEORG SPIESS.