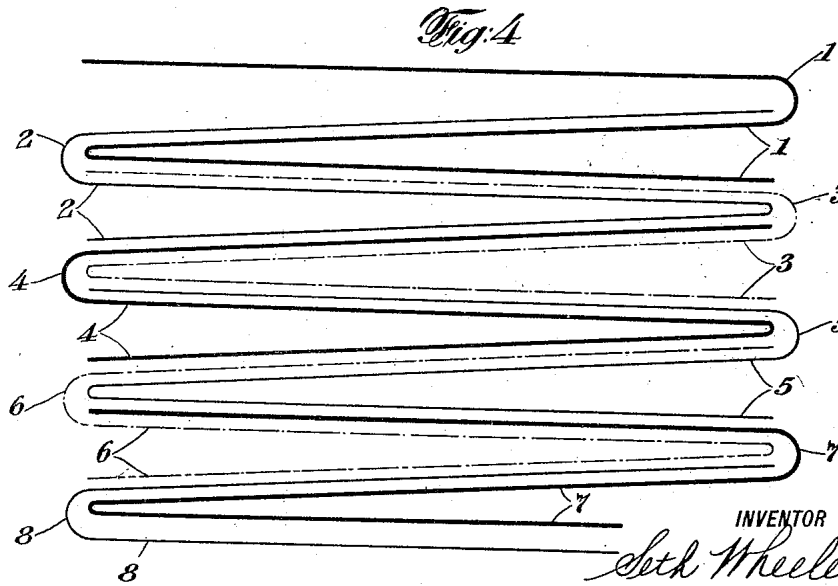
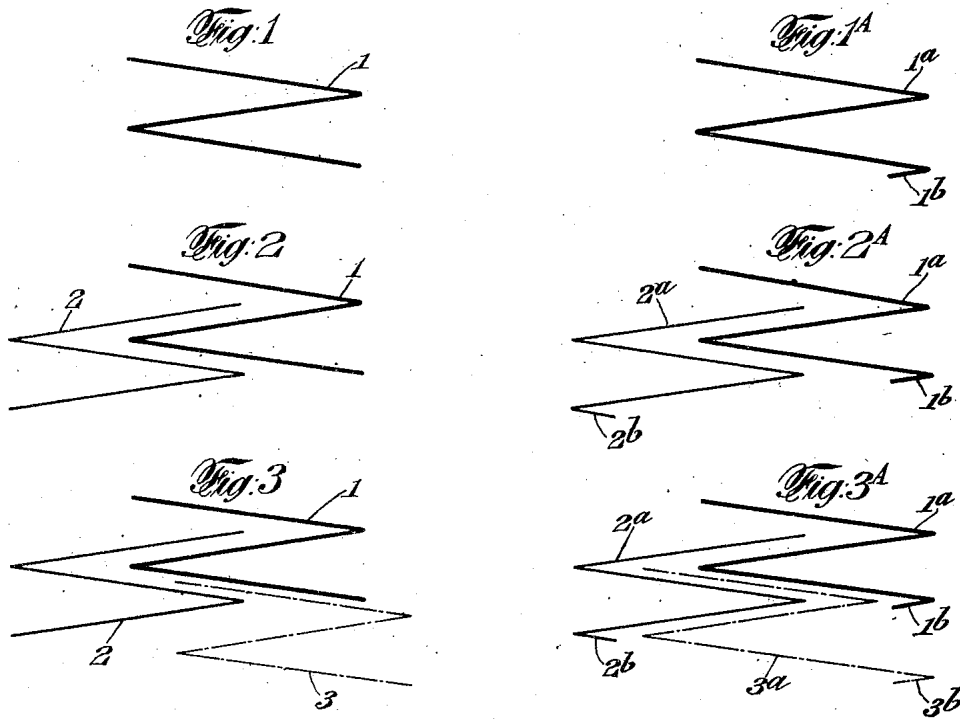


1,430,709.

Patented Oct. 3, 1922.



INVENTOR
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CASCADES
EX1022

UNITED STATES PATENT OFFICE.

SETH WHEELER, OF CASTLETON, NEW YORK.

PAPER PACKAGE AND PROCESS OF FORMING SAME.

Application filed November 6, 1917. Serial No. 200,512.

To all whom it may concern:

Be it known that I, SETH WHEELER, of Castleton, in the county of Rensselaer, and in the State of New York, have invented a certain new and useful Improvement in Paper Packages and Processes of Forming Same, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to paper packages and process of forming same and has for its object to provide an interfolded paper package from which sheets or units may be withdrawn one at a time.

A further object of my invention is to provide a package in which the sheets are so interfolded that the withdrawal of a sheet will position a portion of the following sheet so that it may be grasped readily.

A further object of my invention is to provide a package in which the portion of the sheet positioned for withdrawal will have more than a single thickness.

A further object of my invention is to provide a package in which the sheets are folded so that the package will occupy only a portion of the actual length of the sheet.

A further object of my invention is to provide a package in which the sheets are folded or interfolded so that the height of the package on each edge is the same.

A further object of my invention is to provide a package the sheets of which may be interfolded with a minimum of time and number of operations.

Other and further objects of my invention will be apparent from the following description, and from the annexed drawings of embodiments thereof, in which—

Figure 1 is an edge view of a single sheet folded ready for interfolding with similarly folded sheets;

Figure 1^A a view similar to Figure 1 but showing a sheet with a doubled bottom edge;

Figure 2 is an edge view of two similarly folded sheets slightly removed from their interfolded position;

Figure 2^A a view similar to Figure 2 but showing each sheet with a doubled bottom edge;

Figure 3 is an edge view of three similarly folded sheets slightly removed from interfolded position;

Figure 3^A a view similar to Figure 3 but showing each sheet with a doubled bottom edge; and

Figure 4 an enlarged and slightly distorted view of a series of sheets interfolded in accordance with one embodiment of my invention.

Similar reference characters refer to similar parts throughout the drawings.

The folding and interfolding of sheets in order to form a package from which the sheets may be withdrawn one at a time has assumed large commercial proportions. Such packages are used for example, in connection with the dispensing of toilet paper, and at the present time the use of such packages in connection with the dispensing of paper towels is increasing rapidly. The packages of paper ordinarily are placed in dispensing cabinets with a suitable opening through which extends a portion of a sheet in position to be grasped so that the sheet may be withdrawn. It is desirable that the withdrawing of one sheet shall cause a portion of the following sheet to be drawn through the opening and in turn extend from the cabinet in position ready for grasping. It also is desirable that the cabinet shall occupy as little space as possible and that the sheets shall stack evenly to form an even package. In order to accomplish these desired ends, it has been customary to fold and interfold the sheets. The folding of the sheets enables them to be stacked in narrow packages and the interfolding of the sheets causes the withdrawal of one sheet to drag with it a portion of the following sheet. It is the purpose of my invention to provide an improved folded and interfolded package of sheets having the characteristics above set forth, but different from any package heretofore known and having distinct advantages in the saving of time and operations in folding and interfolding.

In the embodiment of my invention illustrated in the drawings, each sheet is shown as folded twice to form substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf. A sheet thus folded, therefore, occupies a length only approximately one third the actual length of the entire sheet, and each sheet has a fold on each edge. When the sheets then are interfolded, the package will occupy much less space than the full size of the sheet, and the sheets will stack evenly and form an even package. In Figure 1 an edge view of a sheet 1 is illustrated folded as described above.

In Figure 2 sheet 1 and a succeeding sheet 2 are shown slightly removed from interfolded position so as to indicate clearly the manner in which they are interfolded. Sheet 1 is indicated in heavier lines than sheet 2 merely for clearness of illustration, it being understood that all the sheets ordinarily will be of the same thickness. It will be noted that the middle and lower leaves of sheet 1 lie between the upper and middle leaves of sheet 2.

In Figure 3 sheets 1 and 2 are shown in the same partially interfolded position as in Figure 2, with a sheet 3 added and also shown as slightly withdrawn from interfolded position. Sheet 3 is indicated in dot-and-dash lines merely for clearness of illustration, it being understood that all the sheets ordinarily will be of the same thickness and size. It will be noted that the middle and lower leaves of sheet 2 also lie between the upper and middle leaves of sheet 3, and that the upper leaf of sheet 3 lies between the lower leaf of sheet 1 and the middle leaf of sheet 2.

By reference to Figure 4, which shows sheets 1, 2, 3, 4, 5, 6, and 7 folded and interfolded in accordance with one embodiment of my invention, it will be seen that the folded middle and lower leaves of each sheet lie between the upper and middle leaves of a succeeding sheet. It also will be seen that the upper leaf of each sheet after the second sheet lies between the middle leaf of the preceding sheet and the lower leaf of the preceding sheet one removed. Although this is the preferred manner of interfolding, it is obvious that the top fold of sheet 3 (Figure 3) could be inserted between the middle and lower folds of sheet 1 to form a package having some of the characteristics of that just described or that each sheet could be folded with both leaves on the same side of the middle leaf and interfolded as a plain doubled sheet.

In Figures 1^A, 2^A, and 3^A, sheets 1^a, 2^a, and 3^a are folded and interfolded similarly to sheets 1, 2, and 3 in Figures 1, 2, and 3. The bottom edge of each sheet, however, is doubled over as indicated by reference characters 1^b, 2^b, and 3^b, for a purpose to be mentioned hereinafter.

When my invention is used in connection with paper towels it will be seen that the withdrawing of a bottom sheet, for example, will cause the doubled end of a succeeding sheet to be extended in position for grasping. The provision of a doubled end is particularly advantageous when the invention is applied to paper towels, as when wet hands grasp a single sheet the sheet is liable to tear. The doubled end of the bottom portion of each sheet 1^a, 2^a, and 3^a in Figures 1^A, 2^A, and 3^A is for the same purpose if the dispensing cabinet is of such a type as to cause this portion of the sheet to extend in

position for grasping. The edge may be doubled upon itself but preferably is doubled over the upper and middle leaves of a succeeding sheet as illustrated in the drawings.

An important advantage of my invention is the saving of folding cost. It will be seen that two portions of each sheet (sheet 3) are interfolded respectively with the terminal leaves of the two preceding sheets (1 and 2), obviously reducing the time required to interfold a given number of sheets with a resultant proportionate increased output in the number of sheets folded in a given time.

Many modifications of my invention will be apparent to those skilled in the art without departing therefrom or from the scope of the claims, my invention not being limited to the embodiment chosen to illustrate the same, but comprising sheets folded into substantially three equal parts and interfolded to present a folded edge for withdrawal and to reduce the time required to interfold.

Having described one embodiment of my invention what I claim and desire to protect by Letters Patent is:

1. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the initial and middle leaves of each sheet after the first sheet have three leaves of adjacent sheets therebetween.

2. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the initial and middle leaves of each sheet after the first sheet have two leaves of a preceding sheet and one leaf of a succeeding sheet therebetween.

3. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the middle and terminal leaves of each sheet except the last sheet are between the initial and middle leaves of a succeeding sheet.

4. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the middle and terminal leaves of each sheet and the top leaf of a succeeding sheet are between the initial and middle leaves of an intermediate sheet.

5. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle

leaf and interfolded so that the middle and a terminal leaf of each sheet and the top leaf of a succeeding sheet are between the initial and middle leaves of an intermediate sheet, the top leaf of said succeeding sheet being below the said middle and terminal leaves of a preceding sheet.

6. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that two leaves of each sheet are interfolded respectively with the middle and terminal leaves of the two adjacent sheets.

7. A package of sheets of units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the initial and middle leaves of each sheet after the first sheet embrace the terminal and middle leaves of a preceding sheet.

8. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the top leaf of each sheet after the first sheet lies over the middle leaf of a preceding sheet.

9. A package of sheets or units each of which is folded twice to form three substantially equal leaves two of which are on opposite sides of a substantially equal middle leaf and interfolded so that the top leaf of each sheet after the first sheet lies over the middle leaf of a preceding sheet and beneath the bottom leaf of the preceding sheet one removed.

10. The method of arranging sheets or units in interfolded piles which consists in folding substantially equal end leaves of each sheet one on each side of a substantially equal center leaf to form three substantially equal leaves and inserting over the middle and terminal leaves of each sheet the initial and middle leaves of a succeeding sheet.

11. The method of arranging sheets or units in interfolded piles which consists in folding substantially equal end leaves of each sheet one on each side of a substantially equal center leaf to form three substantially equal leaves and inserting over the middle leaf of each sheet the initial leaf of a succeeding sheet.

12. The method of arranging sheets or units in interfolded piles which consists in folding substantially equal end leaves of each sheet one on each side of a substantially equal center leaf to form three substantially equal leaves and inserting over the middle leaf of each sheet and under the terminal leaf of the preceding sheet the initial leaf of a succeeding sheet.

13. A package of sheets or units each of which is folded thrice to form four leaves and interfolded so that the first and second leaves of each sheet after the first shall have therebetween leaves of the preceding sheet and one leaf of a succeeding sheet.

In testimony that I claim the foregoing I have hereunto set my hand.

SETH WHEELER.

Witnesses:

WM. A. WHEELER,
SETH WHEELER, Jr.