

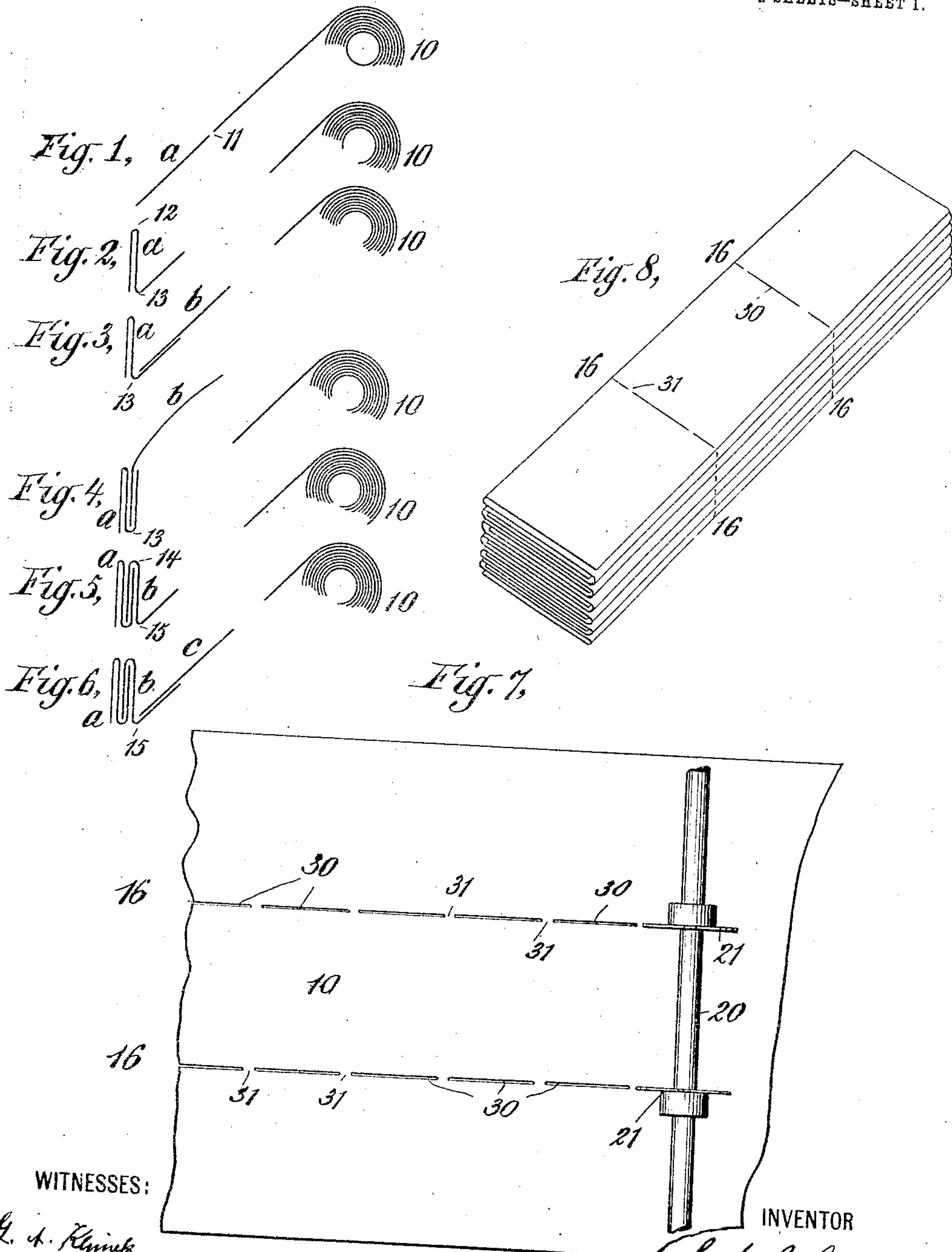
No. 837,892.

PATENTED DEC. 4, 1906.

S. WHEELER.  
PROCESS FOR PRODUCING INTERFOLDED PAPER PACKAGES.

APPLICATION FILED MAR. 28, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

*L. A. Kline*  
*Harry Cox*

INVENTOR

*Seth Wheeler*  
BY  
*Chapin Raymond*  
his ATTORNEYS

No. 837,892.

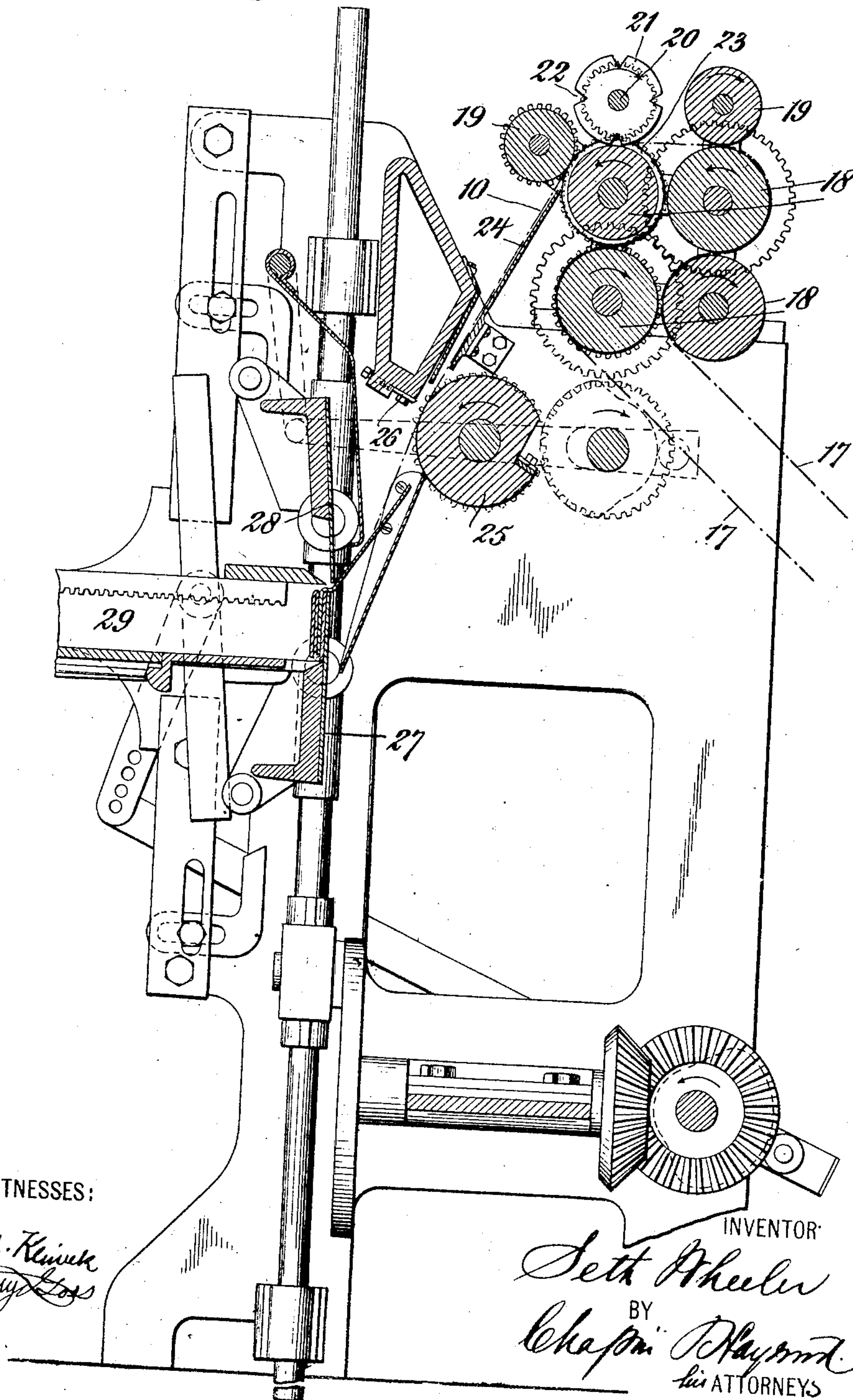
PATENTED DEC. 4, 1906.

S. WHEELER.  
PROCESS FOR PRODUCING INTERFOLDED PAPER PACKAGES.

APPLICATION FILED MAR. 28, 1906.

2 SHEETS—SHEET 2.

*Fig. 9.*



WITNESSES:

*G. A. Klineck*  
*Harry L. Cox*

INVENTOR

*Seth Wheeler*  
BY  
*Chapman Raymond*  
his ATTORNEYS



# UNITED STATES PATENT OFFICE.

SETH WHEELER, OF CASTLETON, NEW YORK.

## PROCESS FOR PRODUCING INTERFOLDED PAPER PACKAGES.

No. 837,892.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Original application filed October 10, 1905, Serial No. 282,151. Divided and this application filed March 28, 1906. Serial No. 308,397.

*To all whom it may concern:*

Be it known that I, SETH WHEELER, a citizen of the United States of America, and a resident of Castleton, county of Rensselaer, State of New York, have invented certain new and useful Improvements in Processes for Producing Interfolded Paper Packages, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to a new and improved process for folding and interfolding a series of units each comprising one or more sheets so as to simultaneously produce a plurality of interfolded packages, the units of each package having three or more leaves, the terminal leaves of which are interfolded with the terminal leaves of adjacent units.

In former United States Patents Nos. 777,761 and 821,562, granted to me December 20, 1904, and May 22, 1906, respectively, I disclosed a process and apparatus for folding and interfolding units comprising single or superposed sheets; but the process was for, and the capacity of the machine illustrated in Patent No. 777,761 was limited to, the interfolding of but a single series of units, and thus to the production of but a single package at a time.

It is the main object of my present invention to produce a plurality of such packages at a time from a sheet or web having a width greater than a single package, the entire width thereof being the total width of the plurality of packages to be produced at a time.

In attempting to produce a plurality of packages simultaneously I have found, first, that it is impracticable to fold a wide sheet into a single package and then sever the packages so produced to form a number of packages, owing to the difficulty and expense attached to the severing of the material after the packages are completed. I have also tried to sever a wide sheet into a plurality of strips as or before the same is subjected to the folding operations; but the result thereof has been that the edges of the interfolded sheets of one series of packages tend to overlap the edges of the sheets of adjacent packages on one side or the other thereof. This causes the adjacent packages to be connected together in such a way as to render their division quite difficult. Further, when under such conditions the adjacent packages are

finally divided one from another the edges thereof instead of being true, so that the packages will fit nicely into receptacles for dispensing them, are rough and uneven, certain of the units projecting beyond the body portion of the packages on both sides thereof. To attempt to straighten out such a package would take so much time as to increase the cost of manufacture to a prohibitive point. I have solved the problem, however, by partially severing the sheets or webs longitudinally thereof, (preferably by producing a series of slits interrupted by uncut portions which serve as frangible ties,) whereby the lateral relationship of the resulting units is in no case disturbed, then folding and interfolding the sheets in this condition, (thus forming a single wide package, comprised, however, of a number of smaller packages frangibly connected together,) and finally severing the said smaller packages laterally from each other along the lines of previous partial severance. The connecting portions or ties are so small and fragile that the severance thereof is easily accomplished; but even this slight connection is sufficient to prevent any lateral overlapping and a plurality of perfectly-formed packages is economically produced.

My invention then consists in an improved process for producing interfolded paper packages consisting in partially severing a web longitudinally, folding and interfolding a combined package the entire width of the web, and then separating the product thus formed into a plurality of packages by completely severing the web along its lines of partial severance.

In the drawings I have illustrated the several steps of the process necessary for producing the interfolded sheets and also for partially severing the web lengthwise, and I have also illustrated an apparatus in which my improved process may be carried out; but it will be understood that my process is entirely distinguished from any special form of apparatus and may, indeed, be readily carried out by hand, if desired.

Figures 1, 2, 3, 4, 5, and 6 are diagrammatic views illustrating the folding and interfolding of the units. Fig. 7 is a top view of a portion of a web or sheet of paper of a width sufficient to form three packages at a time and showing in connection therewith slitting means for partially severing the same



into strips united by frangible ties. Fig. 8 illustrates a set of three united packages produced in accordance with my process before the product has been severed into individual packages. Fig. 9 shows a view in central vertical transverse section of a machine in which the process may be carried out.

To understand clearly the purpose of my present process and the manner of carrying same out, reference will first be made to the diagrammatic views Figs. 1 to 6, in which the folding and interfolding of the units is illustrated. Referring to these figures by reference characters, 10 designates a roll of paper constituting a web to form a continuous supply for the sheets. In Fig. 1 the web is partially unrolled and a section thereof constituting a single sheet *a* is severed from the web 11. In Fig. 2 the sheet *a* is shown as completely folded at 12 and partially folded at 13, the folds 12 and 13 being opposite and in opposite directions. In Fig. 3 a new sheet *b* is shown as severed from the web 10, its forward end being inserted in the incomplete fold 13 of the sheet *a*. In Fig. 4 the fold 13 of the sheet *a* is shown as completed, the forward end of the sheet *b* being embraced between the body of the sheet *a* and the terminal thereof. In Fig. 5 the sheet *b* is shown as folded over the terminal end of the sheet *a* at 14 and partially folded backward upon itself, so as to form an incomplete fold at 15. In Fig. 6 another sheet *c* is shown as having been severed from the web, its forward end being inserted in the incomplete fold 15 of the sheet *b*. A continuation of the foregoing steps in the order named will produce a package of folded and interfolded sheets of the required thickness. In Fig. 7 I have shown the web to be of a width sufficient to form three packages at a time, and I have shown the said web as partially severed along the lines 16 16 by means of perforations or slits 30, having interposed between them short sections of the material 31, comprising frangible ties, as above set forth.

In carrying out my process herein I partially sever the material along the line 16 16 prior to the folding and interfolding operation, the frangible ties 31 holding the strips of the web together well enough so that the strips will be held together for all intents and purposes as one sheet while the folding is going on. The package produced, however, is of the character shown in Fig. 8, the same being substantially a multiple package having a plurality of (in this case three) sections. These sections or individual packages may be readily severed by hand along the lines of partial severance 16, as will be well understood.

In Fig. 9 I have shown a machine in central transverse section in which the process may be carried out. This machine is illustrated fully and completely in a copending

application, Serial No. 282,151, filed October 10, 1905, of which the present application is a divisional and is claimed in the said application; but I will briefly describe the main features herein, as the same forms a simple and efficient apparatus by which my process may be carried out. The web in this instance comprises a plurality of sheets 17 17, which, however, are united in the feeding means to form a single web 10. It is understood that in the use of the term "web" herein the same may constitute a single sheet or one or more superposed sheets, as may be desired, and similarly the term "unit" is intended to apply either to a single sheet or several superposed sheets, as obviously my invention is equally applicable to the folding of units of either character. The sheets 17, forming the web 10, are passed around feed-rollers 18 and beneath presser-rollers 19. A shaft 20 carries slitting-disks 21, the peripheries of which are interrupted, as at 22, so that the severance of the web thereby will be only partial. The disks 21 fit into grooves 23, formed in one of the feed-rollers 18, and suitable gearing is provided to drive the slitting-disks synchronously with the feed-rollers, so as to partially sever the web as it is being fed to the folding means. The web passes down an inclined guide 24 to a transverse cutting means comprising a rotary cutter 25 and a stationary cutter 26, by which the web is severed transversely into sheets (or "units," as they have been heretofore termed) the entire width of the web. and 28 comprise reciprocating and rocking folder-blades, which are moved up and down at suitable times and rocked upon their supports, so as to fold and interfold the units in the manner set forth in the description of Figs. 1 to 6 of the drawings and as specifically described in the said copending application. The folded sheets are forced into a box or receptacle 29, from which the multiple packages may be removed from time to time and after their removal the said multiple packages may be divided by hand into individual packages.

What I claim is—

1. The herein-described process of producing interfolded paper packages, consisting in partially severing a web longitudinally, folding and interfolding the partially-severed web to form a connected gang of packages, and then separating the product thus formed, into a plurality of individual packages by completing the said partial severance.
2. The herein-described process of producing interfolded paper packages, consisting in partially severing a web longitudinally, then completely severing the web transversely into sections of predetermined lengths, then folding and interfolding the said sections to form a gang of packages connected laterally along the line of partial severance, and in



finally separating the product thus formed into a plurality of individual packages by completing the said partial severance.

3. The herein-described process of producing interfolded paper packages, which consists in partially severing units into a plurality of smaller units, folding and interfolding the partially-severed greater units into a connected package, and then completely

severing the connected package where partially severed, to constitute a plurality of smaller packages each containing a combination of the smaller units.

SETH WHEELER.

Witnesses:

EDGAR WHEELER,  
WM. A. WHEELER.