(No Model.)

E. N. CUMMINGS.

TOILET PAPER.

No. 598,315. Patented Feb. 1, 1898.

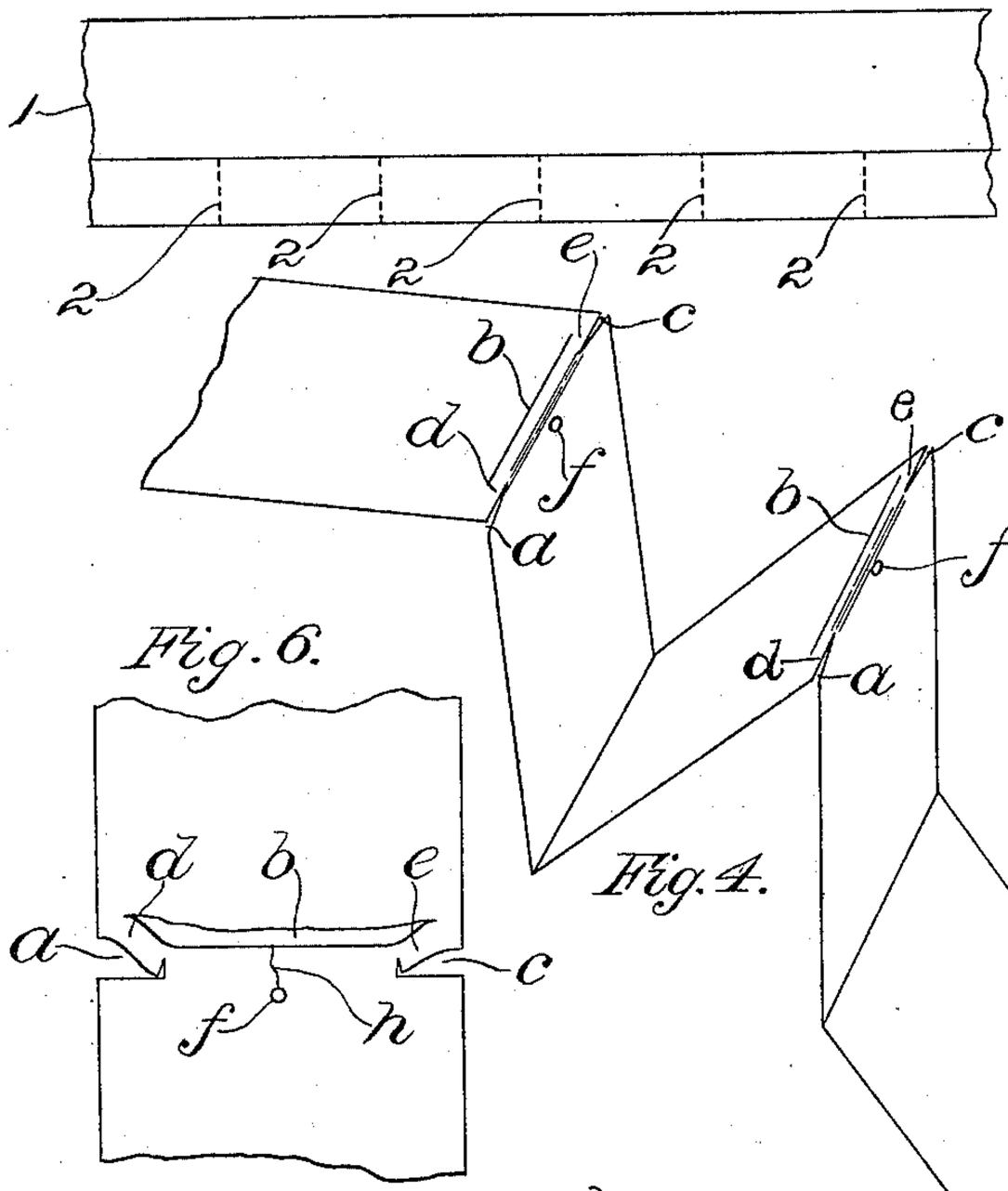


Fig. 7.

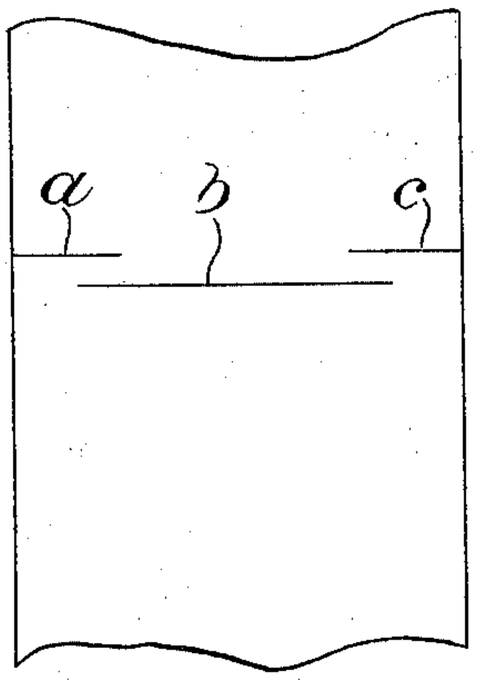


Fig. 5

Fig. 4.

Fig. 6.

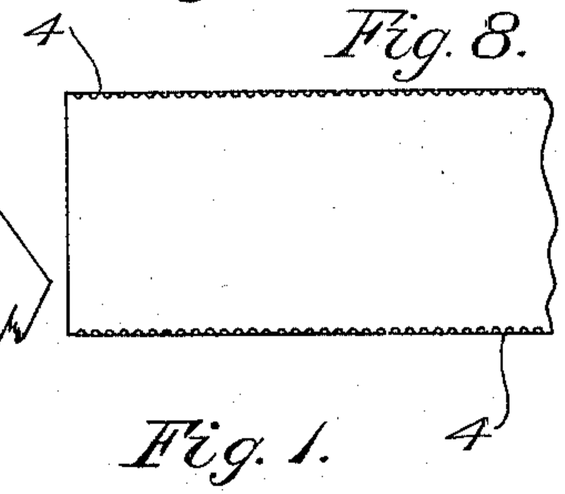


Fig. 8.

Fig. 3.

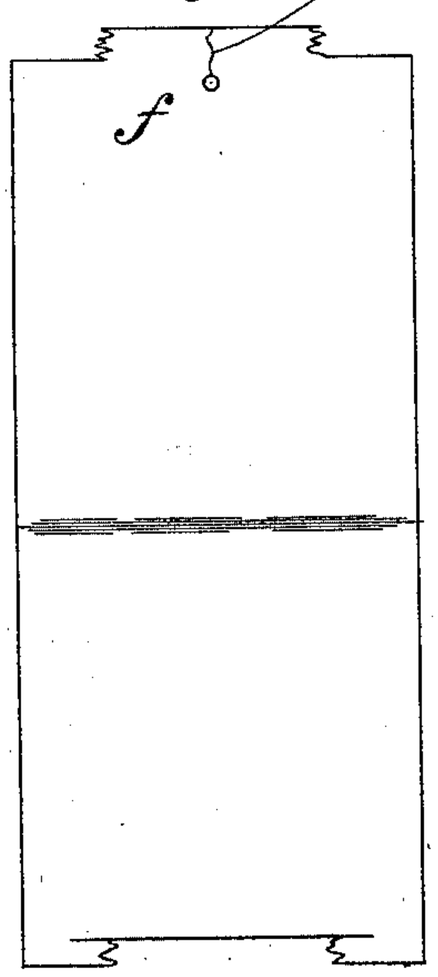


Fig. 2.

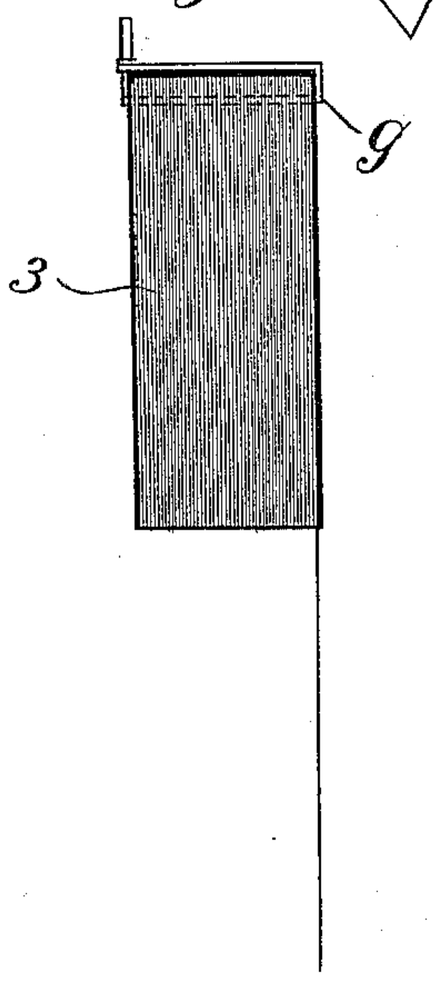
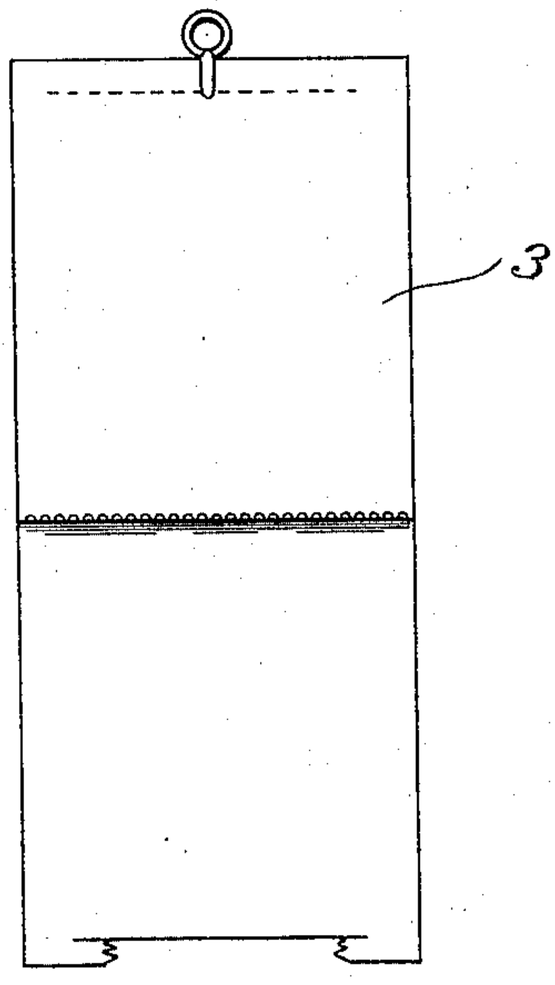


Fig. 1.



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UNITED STATES PATENT OFFICE.

EDWARD N. CUMMINGS, OF LYNN, MASSACHUSETTS.

TOILET-PAPER.

SPECIFICATION forming part of Letters Patent No. 598,315, dated February 1, 1898.

Application filed March 30, 1897. Serial No. 629,975. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. CUMMINGS, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Toilet-Paper, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide an improved package or bundle of toilet-paper.

In the accompanying drawings I have shown a package of paper embodying my invention, and in the following description I will refer to the same.

In said drawings, Figure 1 is a front view of a package of paper with the front lap or half of the front double sheet hanging down in position to be readily grasped. Fig. 2 is an edge view of the package shown in Fig. 1. Fig. 3 is a view of a double sheet of paper detached, showing how it is torn in detaching it. Fig. 4 is a perspective showing two double sheets and a portion of a third detached and serving to illustrate the method of folding. Fig. 5 shows a modification. Fig. 6 shows the position assumed by the parts when a sheet is under strain in the act of detaching it. Fig. 7 is a view showing a long roll of paper previous to the division of the latter into strips. Fig. 8 is a bottom view of a part of the lower end of the package.

In constructing the package of paper in accordance with my invention I first form a roll of paper of considerable width, as at 1, Fig. 7. This roll I cut into strips of suitable width, as indicated by the dotted lines 2 2 in Fig. 7. Each of the continuous strips thereby produced is folded at regular intervals reversely upon itself, the said continuous strip having first been severed at the place of each alternate fold by transverse cuts in more than one line. In the drawings I show three cuts, which are designated *a*, *b*, and *c*. The cuts *a* and *c* enter from the sides of the sheet and project toward the central portion thereof, preferably directly opposite each other and at right angles to the length of the strip. The cut *b* extends across the central portion of the sheet, so as to overlap the inner ends of the cuts *a* and *c*, and is parallel therewith and a short distance therefrom. The cut *b* may be placed on either side of the cuts *a c*, as will be clear from Figs. 4 and 5. By this method of cutting all the fibers of the sheet are severed crosswise and one double sheet of the strip is connected with the adjoining sheet by means of the two narrow tongues *d e*. If now a slight strain be applied to one of the double sheets by tearing at the tongues *d e*, the tearing may be effected with a very slight strain, since the direction of tear is lengthwise of the paper and not across the fibers. A double sheet may therefore be detached from the adjoining sheet with certainty and without injury, and the sheets will separate one at a time.

In folding the paper the cuts are all brought to one end of the package. Each alternate fold is preferably along the line of the two side cuts *a c*, as shown in Fig. 4, and for the purpose of securing the package together and of furnishing a convenient method of suspending it I make a hole *f*, which is so located with reference to the top of the package that the wire which is placed therein will pass through the cuts *b*. In this way the hole *f* passes through each double sheet but once, and when strain is applied to detach a sheet only a very slight strain is necessary to tear the sheet from the wire, the tear taking place lengthwise of the paper and along a line indicated at *h*, Fig. 3. As will be clear, more strain would be required to detach a sheet and the tear would be more irregular if the wire should pass through both sheets adjacent to the line of fold instead of passing through the front sheet and through the cut *b* in the adjoining sheet. As soon as a double sheet is detached from the wire *g* that sheet and half of the succeeding sheet will drop down and a slight additional strain will sever the pendent sheets by tearing across the tongues *d e*, so that each time a sheet is detached one-half of the succeeding sheet will be left hanging down below the remainder of the package, as shown in Figs. 1 and 2, in a position to be readily seized. In detaching a sheet from the succeeding one by tearing across the tongues *d e* the position and character of the cuts which partially sever the sheets are such that the strain applied to detach the sheet first operates to separate the sheets at the point of partial severance. (See Fig. 6.) This cramps the tongues, which then begin to tear from the end of one of the cuts,

as shown in Fig. 6. The strain is thus applied at two points only and at the corners of the tongues. The fibers thus are parted one at a time, and the sheets are detached with certainty, without damage, and with a very slight strain. By this arrangement of package the points of partial severance are between each two double sheets. Each double sheet is folded in the middle, which is a convenience. The sheets are detached readily without danger of tearing and will be detached one at a time. All of these things are desirable and effect a considerable saving in the manipulation and preparation of the package. The cuts which partially sever the adjacent double sheets being at the folds, the paper works better in the folding-machines in manufacturing the packages than it would if the cuts were made at some other point on each sheet, in which latter case the paper would be weakened at a place where, for the purposes of folding it, it is not desirable that it should be weakened.

3 designates a cover or wrapper, which preferably I apply to the package and again which I prefer to apply thereto before the wire *g* has been connected therewith. This wrapper consists of a strip of paper wrapped lengthwise around the package, the said strip being perforated or formed with lines of weakening along the lines 4 4, (see Fig. 8,) the said lines corresponding with those on which the wrapper is bent around the angles of the lower end of the package. This enables the portion of the wrapper or cover which fits against and covers the lower end of the package to be completely removed or torn away, so as to fully expose the said end and yet leave a package which shall be comely in appearance after having been opened for use in presenting no torn or projecting ends of the wrapper or cover. (See Fig. 2.) By passing the wire *g* through the cover as well as the remainder of the package the cover is bound tightly down to the latter and held permanently in place.

What I claim is—

1. A package of paper consisting of a continuous strip reversely folded upon itself and partially severed by transverse cuts in different lines at the folds at one and the same end of the package, substantially as described.

2. A package of paper consisting of a continuous strip reversely folded upon itself and partially severed by transverse cuts in more than one line at each of the folds at one end of the package and fastened by a wire passing through said package at or near the said cuts at one end of the same, substantially as described.

3. A package of paper consisting of a continuous strip reversely folded upon itself and partially severed at every alternate fold, the line of fold coinciding with that of a portion of the cuts, and having a securing-wire passing through that end of the package at which the partially-severed folds lie, said wire passing through the cuts which partially sever the sheets, and thereby puncturing each double sheet only once, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD N. CUMMINGS.

Witnesses:

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