

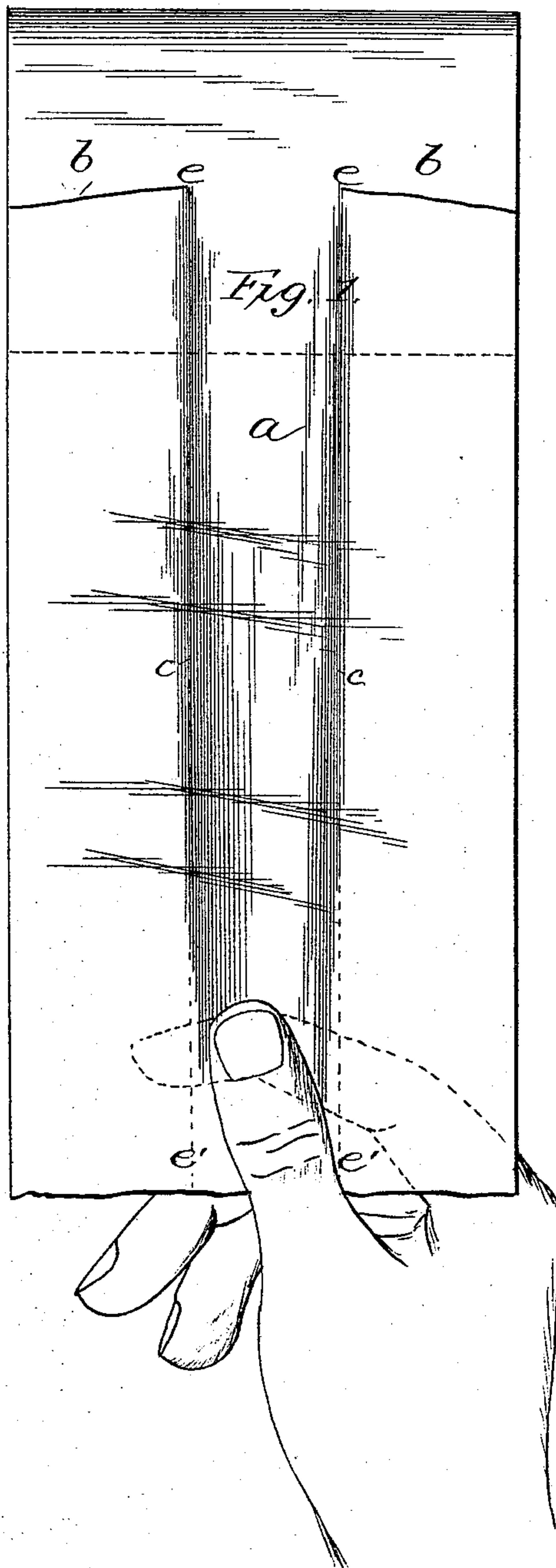
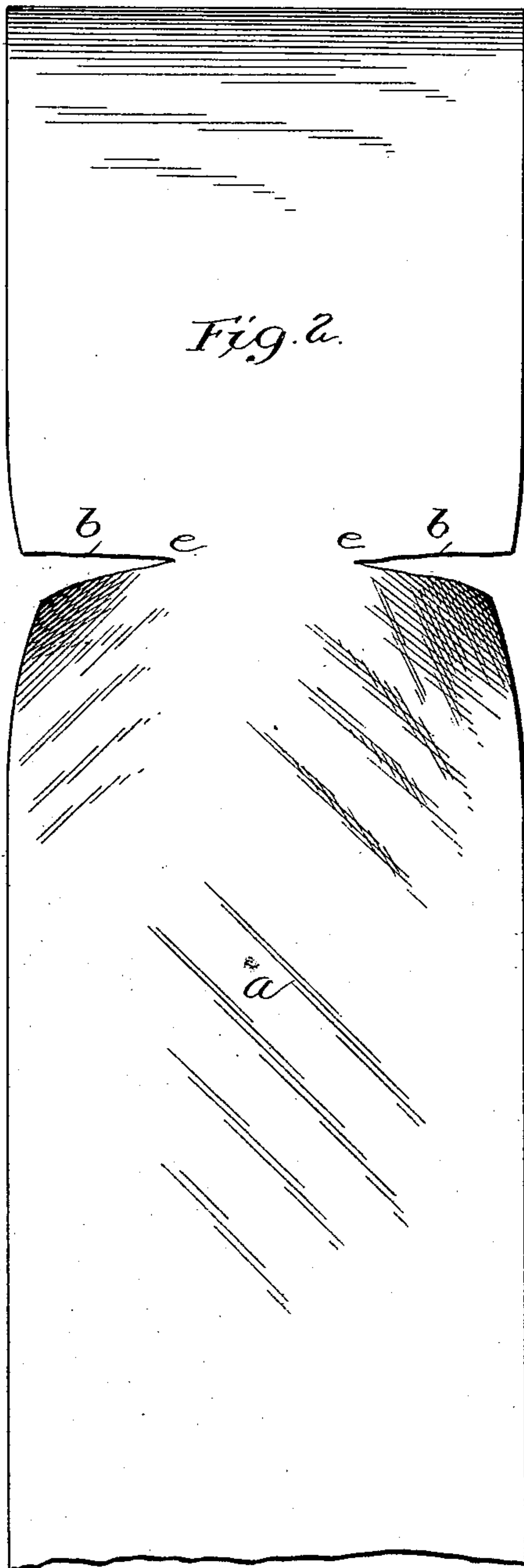
(No Model.)

2 Sheets—Sheet 1.

E. JEROME.
TOILET PAPER.

No. 478,869.

Patented July 12, 1892.



Attest
Malcolm Macleason
F. L. Middleton

Inventor
Edgar Jerome
by Ellis Spear
Att'y.

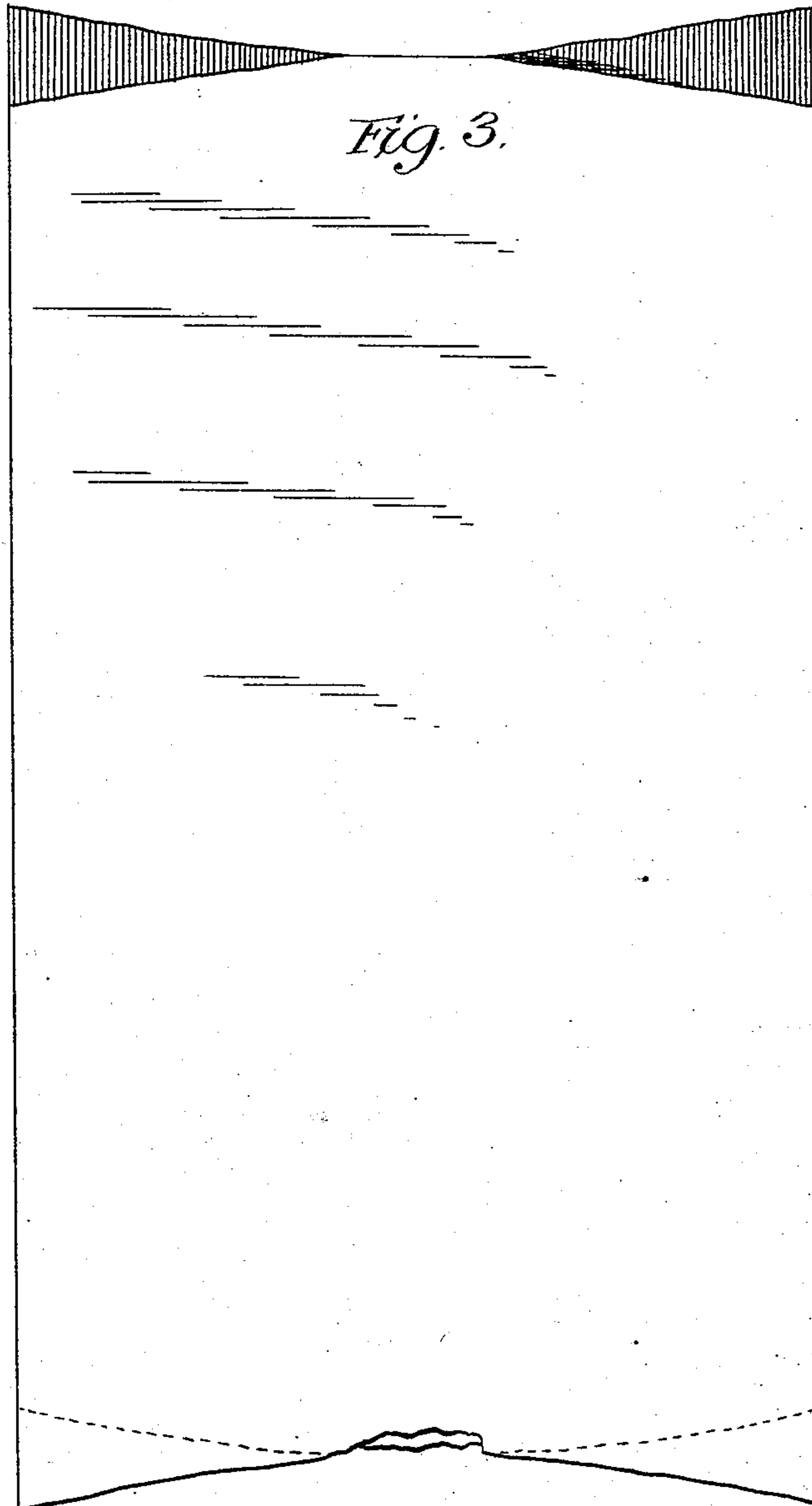
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2 Sheets—Sheet 2.

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TOILET PAPER.

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Attest
Walter Maddison
J. L. Maddison

Inventor
Edgar Jerome
by *Wm. Spear*
Atty.

UNITED STATES PATENT OFFICE.

EDGAR JEROME, OF NORWALK, CONNECTICUT.

TOILET-PAPER.

SPECIFICATION forming part of Letters Patent No. 478,869, dated July 12, 1892.

Application filed March 3, 1892. Serial No. 423,582. (No model.)

To all whom it may concern:

Be it known that I, EDGAR JEROME, a citizen of the United States of America, residing at Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Toilet-Paper, of which the following is a specification.

My invention is an improvement in toilet-paper of that class in which a continuous web is formed into a roll, the web being subdivided into sheets or units for use by regularly-recurring weakened portions of the paper. Various forms of such rolls are well known.

The principal object of my invention is to provide a bond between the sheets or units of the web sufficient to hold these units together in the necessary process of winding the sheets into a roll and adapted to be ruptured with ease and certainty on the line of weakness across the sheet when the sheet is pulled from the roll without causing the line of rupture to run into either of the sheets connected by the bond and thereby causing waste of the sheets so mutilated; also by the same form of bond I have provided a web which when the sheet is drawn from the roll indicates the position of the line of weakness readily to the eye of the user.

My invention is also designed to provide a form of sheet such that when one sheet is folded upon another the central portion will be of double thickness and the margin at the ends of the sheet will be of single thickness, whereby a practically double sheet is provided having greater area than the single sheet.

My invention consists, first, of a roll of toilet-paper formed of a web having transverse cuts from the margins inward, which, being opposite each other, determine the sheets or units for use, and which are of such extent in relation to the width of the web that they will leave a bond between contiguous sheets throughout the web, the margins of which bond coincide substantially with the lines of strain substantially parallel between the bond under strain and the point on the free end of the sheet where it is grasped by the thumb and finger of the user in separating the sheet, whereby the rupture is made with certainty on the line of weakening without running materially into either sheet.

My invention consists, secondly, in forming the lines of division or partial severance at an angle to the longitudinal line of the web, whereby when the two connected sheets are severed from the web and one folded upon the other the projecting parts are at opposite ends and form a double sheet at the center with single margins at the ends.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 shows the sheet and roll in plan. Fig. 2 shows the roll with a part of the web drawn therefrom. Fig. 3 is a view of two sheets folded.

In the drawings, *a* represents part of the web of paper, which is wound upon itself into the form of a roll *A* in the same manner as such a web of toilet-paper is ordinarily wound. The difficulty in separating sheets from the roll is caused, practically, by the longitudinal direction of the fiber of the paper in the web and by the necessity of having a bond between the sheets of sufficient strength to permit the web after it has been weakened, as above explained, to be wound into a roll. The tendency of the rupture of the bond is to run into one of the sheets which the bond connects, thereby causing considerable waste in the aggregate of the material. It is desirable, also, to weaken the paper on the transverse lines determining the division of the sheets without the removal and consequent waste of the paper, which waste also in the aggregate is of considerable importance. The second object I attain by cutting or rupturing the paper from the margin inward on a single line and the first by carrying these ruptures to such points, as *e e*, in relation to the inner ends of both that the bond remaining will be substantially within the lines of strain indicated at *c c*, these lines extending from the inner extremities of the cuts or ruptures *b b* in a substantially parallel direction to points just outside the grasp of the thumb and finger, (indicated at *e' e'*.) This leaves a bond sufficient to permit the web to be wound into the form of a roll. This bond also bears such relation in respect to its width to the width of paper ordinarily grasped at the free end between the thumb and finger of the user that the lines of strain are substantially parallel and include the bond. Practically the

pull is never exactly in line with the longitudinal axis of the web, and the tearing strain is a combination of the longitudinal and transverse strain, the transverse strain being toward the margin opposite that on which the rupture is started. So long as the rupture is within the field of direct lines of strain between the part of the web grasped by the thumb and finger and the point of greatest resistance the line of rupture will be at right angles to the margin of the web; but after the rupture has passed outside of this field it tends to follow the longitudinal fiber of the web either into the remaining sheet or into the sheet drawn off, according as the lateral strain is toward one margin or the other. If it were practicable to grasp the free end of the sheet equally all the way across, the rupture might be made by an even pull from a narrow or slight rupture on the margin without material divergence of the rupture from the direct line at right angles to the margin of the web remaining upon the roll when also evenly and firmly held; but as this is impracticable and the free end of the sheet is ordinarily grasped between the thumb and finger or fingers, and the width of the part pulled upon is thereby practically limited, I have made the bond of such width that the beginning of the rupture will not be materially outside the substantially parallel marginal lines of this part of the sheet thus subjected to strain. Within these lines the relation of the longitudinal to the lateral strain is so maintained that the rupture of the paper is inevitable between the inner extremities of the cuts or ruptures *b b*. This narrow bond also leaves loose and free margins or corners, which when the sheet is pulled from the roll drop and indicate the line of weak-

ness, and thus facilitates the rupture. It will be observed that the ruptures *b b* are not at right angles to the margins, but are inclined equally from the margins. This leaves a salient angle upon one sheet and a re-entrant angle upon the other or ends reversed in contour. Thus when two sheets are drawn off and folded one upon the other the projecting parts of each sheet will overlap the opposite sheet, as in Fig. 3, and form a sheet double in its main central portion and single on the margins at each end, which is a form convenient for use and also serves the purpose of economizing paper, which is of great importance in the aggregate.

I claim as my invention—

1. A roll of toilet-paper consisting of a web having transverse cuts from the margins inward, determining the units for use and leaving bonds whose margins substantially coincide with the lines of strain between the bonds under stress and the point of application of the thumb and finger.

2. A web of toilet-paper having a narrow bond between the sheets and cuts from the margins toward the center at an inclination to the margins, said cuts leaving a re-entrant angle on one sheet and a salient angle on the other, all substantially as described.

3. A roll of toilet-paper formed of sheets connected by bonds and having the contiguous ends of the sheets formed of reversed contour, substantially as and for the purpose set forth.

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

EDGAR JEROME.

Witnesses:

HENRY E. COOPER,
ELLIS SPEAR.