

No. 631,863.

Patented Aug. 29, 1899.

G. C. SHEPHERD.

LEDGER SHEET FOR DETACHABLE BINDERS.

(Application filed Jan. 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

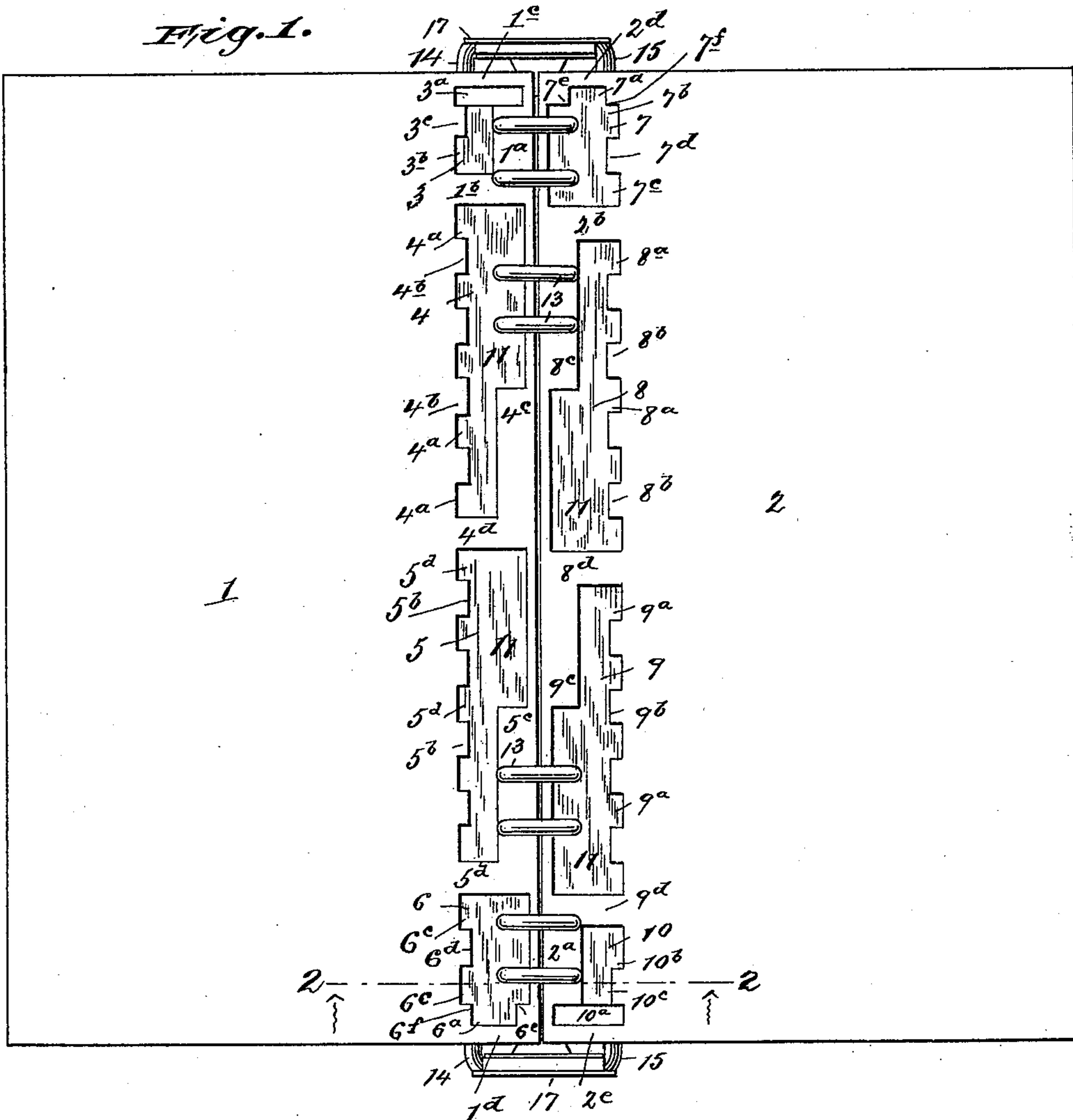
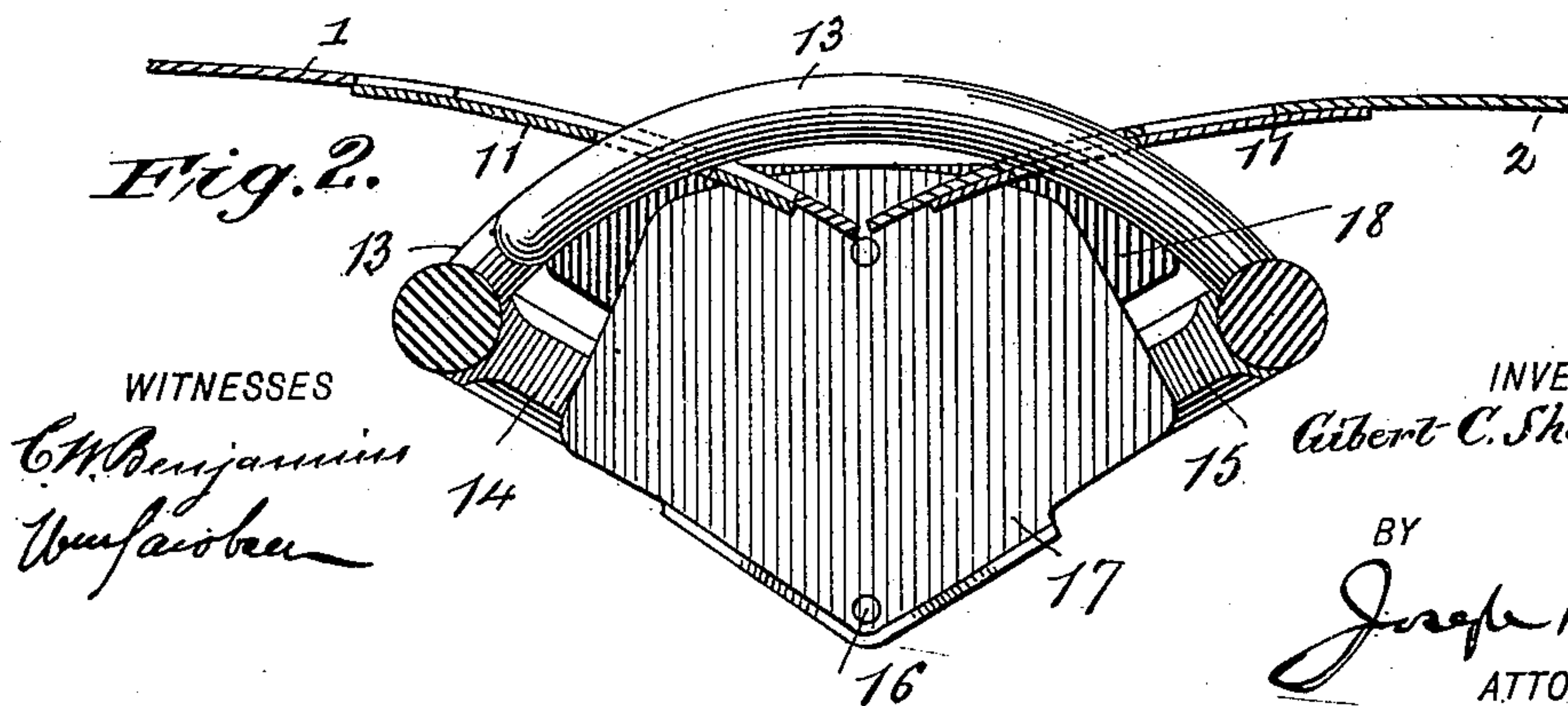


Fig. 2.



WITNESSES

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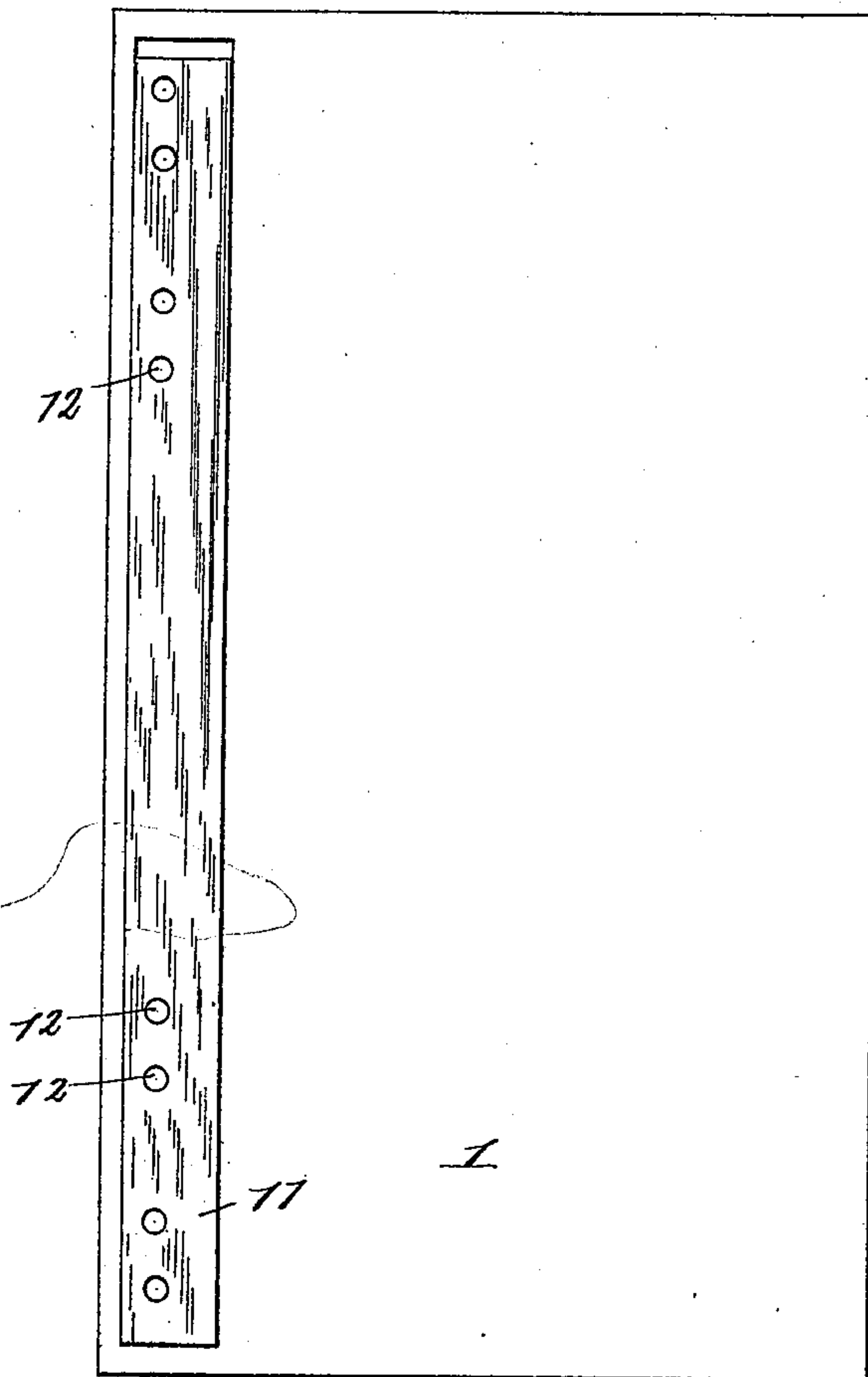
G. C. SHEPHERD.  
LEDGER SHEET FOR DETACHABLE BINDERS.

(Application filed Jan. 6, 1899.)

(No Model.)

2 Sheets—Sheet 2.

*Fig. 3.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

GILBERT C. SHEPHERD, OF NEW YORK, N. Y.

## LEDGER-SHEET FOR DETACHABLE BINDERS.

SPECIFICATION forming part of Letters Patent No. 631,863, dated August 29, 1899.

Application filed January 6, 1899. Serial No. 701,336. (No model.)

*To all whom it may concern:*

Be it known that I, GILBERT C. SHEPHERD, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have made new and useful Improvements in Ledger-Sheets for Detachable Binders, of which the following is a specification.

Heretofore ledgers or books have been provided with detachable sheets and made with a frame having pins to pass through apertures in the sheets or leaves, and to strengthen or reinforce the sheets at the binding fabric has been pasted or glued to the sheets; but this increased the thickness at the back or binding-point much more than at the front or free ends of the sheets.

It is the object, therefore, of my invention to provide sheets or leaves with reinforced or strengthened back portion, but in such manner as not to increase the thickness of the back of the book over that of the front, or, in other words, to have the book of substantially even thickness throughout notwithstanding that the sheets are reinforced at their bound edges.

In carrying out my invention I provide the sheets at their inner edges or portions with apertures and opposed recesses and tongues or projections, and over these apertures and the tongues or projections I paste or glue a strip of fabric to reinforce the sheet at such apertures. The arrangement is such that the aperture in one sheet will be opposed to the paper of the next adjacent sheet, and the projection on one sheet will be opposed to a recess in the opposite sheet. The fabric preferably should be of about one-half the thickness of the sheet of paper, so that the two adjacent strips of fabric, in connection with the recesses in two sheets and the tongues or projections that match the same, will not make a greater thickness than two sheets when placed together. The sheets so arranged are to be provided with apertures, which may be passed through the fabric or the fabric and the contiguous sheet, as the case may be, to receive pins carried by a frame or holder of any suitable or well-known construction used in books or ledgers having detachable sheets.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a face of a book or ledger opened, showing the sheets constructed in accordance with my invention. Fig. 2 is a cross-section, enlarged, on the line 2 2 in Fig. 1; and Fig. 3 is a face view of the sheet, looking from the side opposite to that shown in Fig. 1.

Similar numerals of reference indicate corresponding parts in the several views.

In the accompanying drawings, 1 2 indicate sheets of paper to be contained in a ledger or book. The sheets 1 2 are provided near their inner edges with apertures 3 4 5 6 7 8 9 10. The aperture 3 has a wide part 3<sup>a</sup> and an offset or recess 3<sup>b</sup>; and between them is a projection 3<sup>c</sup>, and between the aperture 3 and the edge of the sheet 1 is a strip of paper 1<sup>a</sup>, and between the aperture 3 and the aperture 4 is a strip of paper 1<sup>b</sup>. The aperture 7 of the next sheet lies opposite the aperture 3 and has a recess 7<sup>a</sup>, recesses 7<sup>b</sup> and 7<sup>c</sup>, and projections 7<sup>d</sup>, 7<sup>e</sup>, and 7<sup>f</sup>. The arrangement is such that when the sheets lie against each other the projections 7<sup>e</sup> 7<sup>f</sup> will aline with space 3<sup>a</sup>, the recess 7<sup>b</sup> will aline with projection 3<sup>c</sup>, the projection 7<sup>d</sup> will aline with recess 3<sup>b</sup>, and the recess 7<sup>c</sup> and the lower part of aperture 7 will aline with the strip 1<sup>b</sup>, while the strip 1<sup>a</sup> will also aline with aperture 7. The aperture 4 at one edge has a series of recesses 4<sup>a</sup> and projections 4<sup>b</sup>, and this aperture 4 is somewhat L-shaped, thus forming a strip 4<sup>c</sup> on sheet 1, and between apertures 4 and 5 the sheet 1 has a strip 4<sup>d</sup>. The aperture 8 is arranged similarly to aperture 4, but in reverse position, and has recesses 8<sup>a</sup> and projections 8<sup>b</sup>, and the sheet 2 has a strip 8<sup>c</sup>, forming a projection, and between the apertures 7 and 8 is a strip 2<sup>b</sup>. The arrangement is such that when the sheets lie together the strip 2<sup>b</sup> will aline with the aperture 4 at the recess 4<sup>a</sup>, the strip 8<sup>c</sup> will aline with the aperture 4, the strip 4<sup>c</sup> will aline with the aperture 8, the recesses 8<sup>a</sup> will aline with the opposed projections 4<sup>b</sup>, the recesses 4<sup>a</sup> will aline with the projections 8<sup>b</sup>, and the strip 4<sup>d</sup> will aline with aperture 8, whereby the cut-away part of one sheet and the uncut part of another sheet match. Between the apertures 8 and 9 the sheet 2 has a strip 8<sup>d</sup>. The aperture 5 is arranged similarly to aperture 4—that is to say, it has recesses 5<sup>a</sup> and projections 5<sup>b</sup> 5<sup>c</sup>, and between the apertures 5 and 6 the sheet has a strip 5<sup>d</sup>.



The aperture 9 is likewise arranged similarly to aperture 8, having recesses 9<sup>a</sup> and projections 9<sup>b</sup> 9<sup>c</sup>, and between apertures 9 and 10 is a strip 9<sup>d</sup>, so that the recesses and projections of apertures 5 will register with the projections and recesses of aperture 9, and the strip 5<sup>d</sup> will register with aperture 9, and the strip 9<sup>d</sup> will register with aperture 6. The aperture 6 of sheet 1 is arranged similarly to aperture 7 of sheet 2, but in reverse order, and has recesses 6<sup>a</sup> 6<sup>c</sup> and projections 6<sup>d</sup> 6<sup>e</sup> 6<sup>f</sup>. The aperture 10 of sheet 2 is arranged similarly to aperture 3 of sheet 1, but in reverse order, having recesses 10<sup>a</sup> 10<sup>b</sup> and projection 10<sup>c</sup>, and the sheet 2 has a strip 2<sup>a</sup>. Strip 2<sup>a</sup> will register with aperture 6. Projection 10<sup>c</sup> will register with recess 6<sup>b</sup>, and projection 6<sup>d</sup> will register with recess 10<sup>b</sup>.

I do not limit my invention to the particular arrangements of the apertures, recesses, projections, and strips pertaining thereto that I have shown and described, as they may be varied; but the object is to have the sheets so cut that where there is a recess or opening in one sheet there will be material of the opposite sheet to match or aline therewith, so there will be only one thickness of paper at such points. To reinforce the sheet at these cut-out places or the apertures, I glue or otherwise attach to each sheet a strip of fabric 11, preferably linen cloth, as shown in Fig. 3, which is so arranged as to fill in or cover up the apertures and recesses made in the sheets, and the projections or strips left in the sheets overlies and are glued to the strip 11. The strip 11 should not preferably be more than half as thick as the sheet of paper to which it is attached, and the strip of fabric is of just sufficient width to fill the widest part of the apertures, so as not to extend over and upon the sheets 1 2 where the sheet has no aperture. By this arrangement it will be understood that when two sheets lie together there will be no greater thickness than the thickness of the two sheets, for, notwithstanding that the fabric overlies the projections and the strips, these projections and strips by alining with the cut-out part of the next sheet prevent extra thickness from being produced at such matching places. For instance, on one sheet there will be the thickness of a projection, as 5<sup>b</sup>, plus the thickness of the fabric, and when the sheets lie together the projection 5<sup>b</sup> will enter the opposed recesses 9<sup>a</sup> and there will be left the thickness of the fabric 11 over such recess, and thus the thickness of the projection 5<sup>b</sup> and the two fabrics will be merely equal to the thickness of two sheets, (as the strips of fabric are only each one-half as thick as a sheet,) and thus there will only be the thickness of the two sheets of paper that lie together. However, by having the strips of fabric glued to the projections and strips on the sheets 1 2 the sheets are materially strengthened, and provision is thus made to permit the passage of pins to which the sheets are to be attached.

The strips of fabric 11 are provided with apertures 12, suitably arranged to receive holding-pins, and these apertures preferably extend through parts of the sheets, as shown in Fig. 1, so that the holding-pins pass through as to one sheet both paper and fabric for strength and as to the other only fabric to reduce the thickness of the reinforce at that point, as shown at 1<sup>a</sup> and 7, &c.

It will be understood that the fabric 11 does not extend beyond the outer edges of the recesses 6<sup>a</sup> 7<sup>a</sup> and extends merely to the inner edges of the recesses 3<sup>a</sup> 10<sup>a</sup>, so that there will be no undue thickness formed at the opposed strips 1<sup>c</sup> 2<sup>d</sup> and 1<sup>d</sup> 2<sup>c</sup> in the sheets 1 2 when they overlap.

The sheets 1 2 are to be detachably connected together, as by means of pins 13 adapted to pass through the apertures 12 in the sheets. The pins 13 I have shown are curved and arranged in pairs carried by hinged frames 14 15, (shown pivoted at 16 to head-pieces 17,) provided with locking-blocks 18, all of which may be of suitable or well-known construction, as this frame or holder forms no part of my present invention. The arrangement, however, is such that when the frames 14 15 are spread apart the pins or fingers 13 will be separated to permit the sheets 1 2 to be strung on the same, and then when the frames are closed together and locked the pins or fingers by passing through the apertures in the sheets and strips 11 will hold such sheets, as shown in Fig. 2. Thus the sheets are detachably connected together and may be arranged in the form of a book or ledger in well-known manner, and by means of my invention the sheets are so reinforced as to be durable and to resist wear and tear.

It will be understood that by means of my invention a book can be constructed that will be of substantially the same thickness throughout—that is to say, its back portion or binding part will not be substantially thicker than the front portion or unbound part, notwithstanding the presence of the strips 11, owing to the fact, as before described, that the strips are not more than half as thick as the sheets, and that wherever the strip is opposed to a sheet there is a corresponding opening or space in the next sheet to allow for the presence of the strip.

It is evident that the number of apertures in each sheet and the number of corresponding recesses and projections connected with said apertures may vary in accordance with the manner in which it is desired to reinforce the sheets or to connect them with a holder, and I therefore do not limit my invention to the number or arrangement of such apertures, projections, and strips, as it is evident that there could be one or more of such apertures in each sheet and one or more opposed recesses and projections in connection with such aperture.

A convenient means of producing the apertures in the sheets so that each pair of



sheets will match in the manner described  
 is to punch the apertures in all the sheets—  
 for instance, as shown in Fig. 1—and then  
 to reverse the position of each alternate sheet,  
 5 so that the apertures 3 and 10 of adjacent  
 sheets will lie at opposite sides of the book,  
 by which means a projection of one sheet  
 will aline with a recess in the other sheet, and  
 it will be seen that by thus reversing the po-  
 10 sitions of the sheets, although they are all  
 punched alike, the various apertures are  
 brought in such relation that the projections  
 and recesses will match, as before described.

Having now described my invention, what  
 15 I claim is—

1. A ledger or book comprising a plurality  
 of sheets provided with apertures and ar-  
 ranged in pairs, each aperture having a re-  
 cess and a projection and arranged so that  
 20 the projection of one sheet will match or aline  
 with the opposed recess of the opposite sheet,  
 substantially as described.

2. A ledger or book comprising a plurality  
 of sheets provided with apertures, said sheets  
 25 being arranged in pairs, each aperture hav-  
 ing a recess and a projection and arranged  
 so that the projection of one sheet will match  
 or aline with the opposed recess of the oppo-  
 site sheet, a strip of fabric secured to each  
 30 sheet in line with the apertures and the pro-  
 jections, and means for holding or binding  
 such sheets together, substantially as de-  
 scribed.

3. A ledger or book having a plurality of  
 35 sheets, each sheet being provided with one or  
 more apertures each having one or more pro-  
 jections and recesses, the projection in one  
 sheet matching or alining with a recess in  
 the opposed sheet, and a strip of fabric se-  
 40 cured to each sheet, the strip of fabric being  
 of less thickness than the sheet to which it  
 is attached so that when the sheets are laid  
 together the thickness of the pile will not be

increased, and means for holding the sheets  
 through the medium of said fabric, substan- 45  
 tially as described.

4. A ledger or book having a plurality of  
 sheets each sheet being provided with aper-  
 tures that have recesses and projections, the  
 sheet having a strip between each two aper- 50  
 tures, the aperture of one sheet alining with  
 the strip of the opposed sheet and the pro-  
 jections of one sheet alining with the recesses  
 of the opposite sheet, and a strip of fabric  
 secured to the sheet and to said strips and 55  
 projections, and means for securing the sheets  
 together through the medium of said fabric,  
 substantially as described.

5. In a ledger or book, the combination of  
 a frame having movable pins, with a series 60  
 of sheets having apertures provided with re-  
 cesses and projections and strips of fabric  
 secured to the sheets in line with such aper-  
 tures and also secured to the projections, the  
 projections of one sheet matching or alining 65  
 with the recesses of the opposed sheet, sub-  
 stantially as described.

6. In a ledger or book, the combination of  
 a frame having movable pins, with a plurality  
 of sheets having apertures provided with re- 70  
 cesses and projections, and strips of fabric  
 secured to the sheets in line with such aper-  
 tures, and also secured to the projections,  
 holes formed in a projection and passing  
 through the paper and fabric and likewise 75  
 formed in the fabric over the recess, whereby  
 said pins will pass through fabric only as to  
 one sheet and the cloth and fabric of the other,  
 substantially as described.

Signed in the city, county, and State of New 80  
 York this 5th day of January, 1899.

GILBERT C. SHEPHERD.

Witnesses:

WM. JACOBSEN,  
 CHAS. G. HENSLEY.