

No. 732,750.

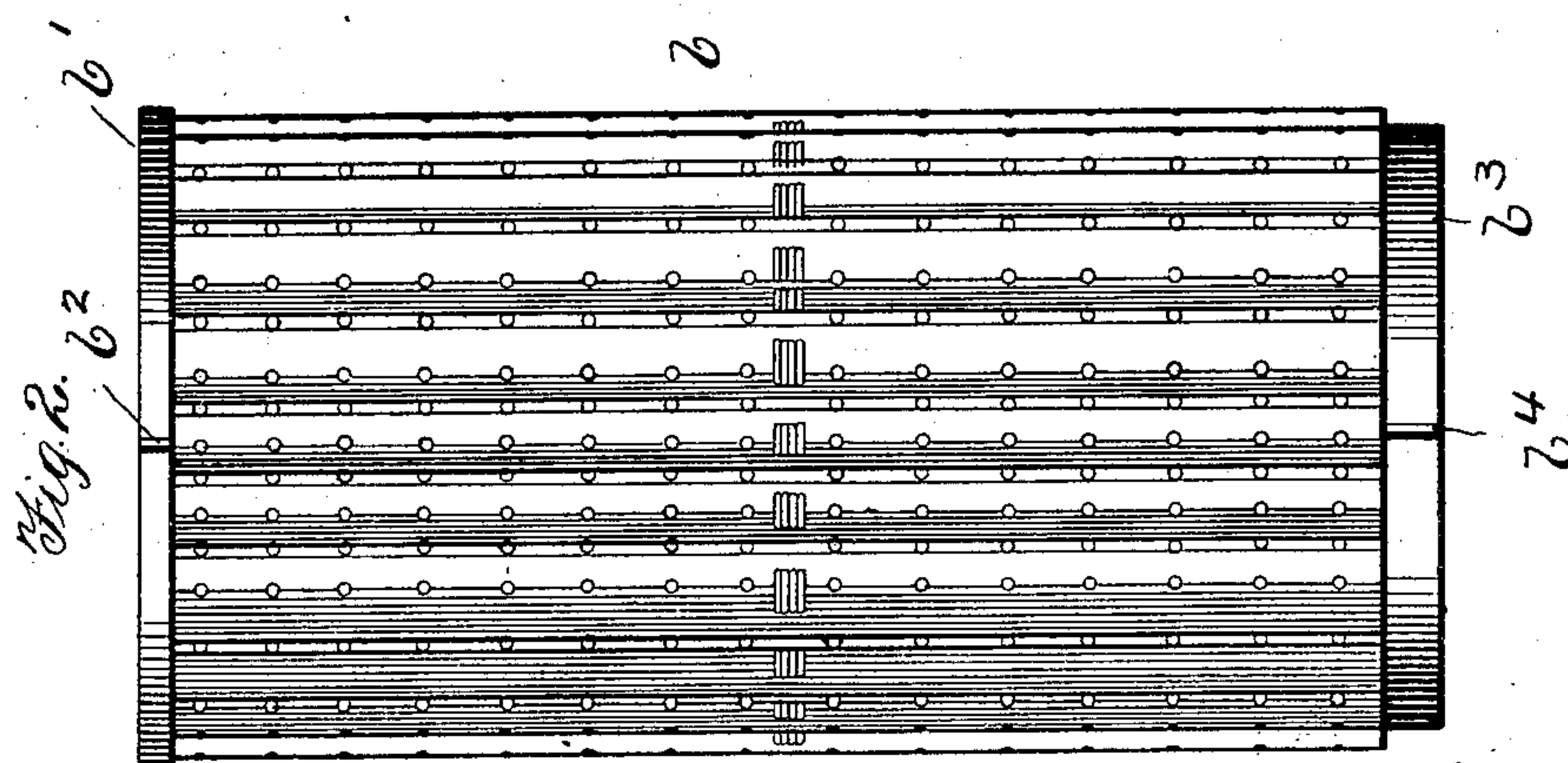
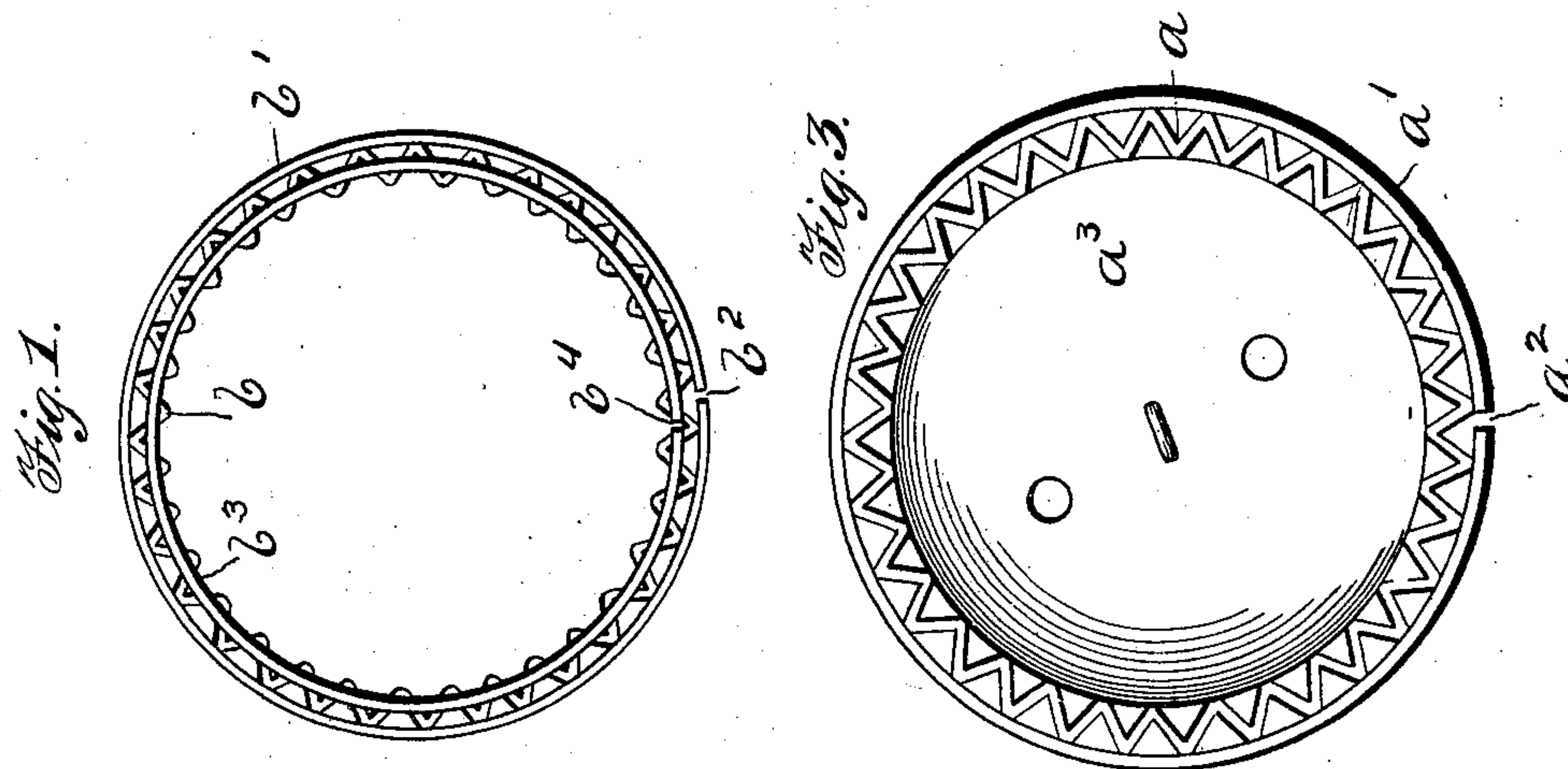
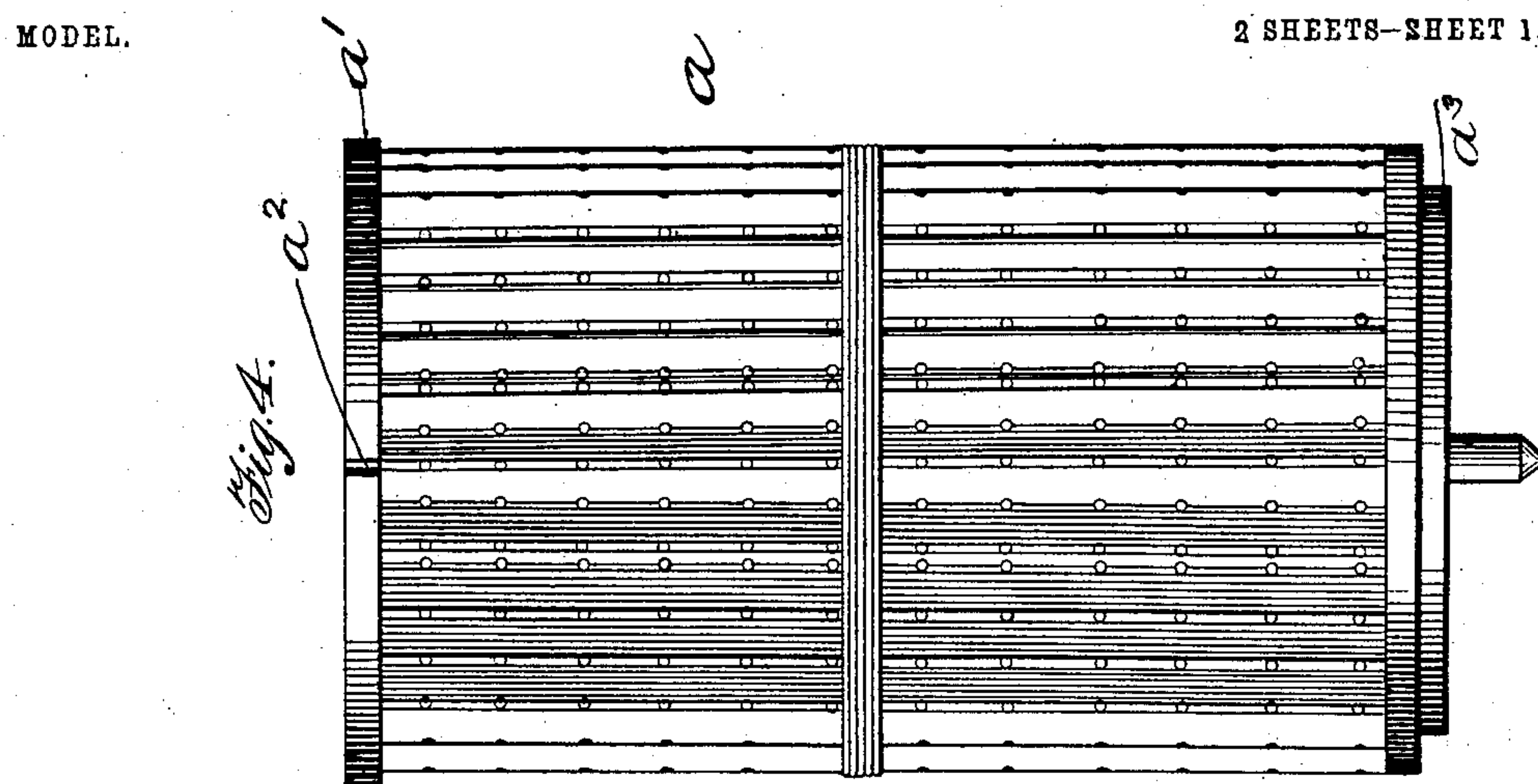
PATENTED JULY 7, 1903.

P. L. KIMBALL.  
CENTRIFUGAL CREAM SEPARATOR.

APPLICATION FILED MAY 5, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
Frank G. Campbell.  
A. H. Kimmich.

Inventor  
Percy L. Kimball  
by H. E. Kall  
Attorney.





# UNITED STATES PATENT OFFICE.

PERLEY L. KIMBALL, OF BELLOWS FALLS, VERMONT, ASSIGNOR TO VERMONT FARM MACHINE COMPANY, OF BELLOWS FALLS, VERMONT, A CORPORATION OF VERMONT.

## CENTRIFUGAL CREAM-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 732,750, dated July 7, 1903.

Application filed May 5, 1903. Serial No. 155,737. (No model.)

*To all whom it may concern:*

Be it known that I, PERLEY L. KIMBALL, a citizen of the United States of America, residing at Bellows Falls, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Centrifugal Cream-Separators, of which the following is a specification.

The object of the invention is to produce a device of the class specified having features of novelty and advantage.

In the drawings, Figure 1 is a bottom view of the inner liner shown in Fig. 2. Fig. 2 is a side view of the inner liner. Fig. 3 is a top view of the outer liner shown in Fig. 4. Fig. 4 is a side elevation of the outer liner. Fig. 5 is a view of the inner and outer liners assembled in a bowl.

My invention comprehends the use of stiffening-bands for the inner liners, by means of which they are firmly positioned when the machine is in operation.

$a$  denotes the outer liner.  $a'$  denotes the stiffening-band, secured to the upper end thereof. This band is split, as at  $a^2$ . The lower end of this liner is cupped or recessed, as at  $a^3$ , for the purpose hereinafter mentioned.

$b$  is the inner liner, having at its top a stiffening-band  $b'$ , split as at  $b^2$ . At its lower end there is the band  $b^3$ , split as at  $b^4$ . In every case it is preferable that there shall be a substantial space between the ends of the split bands on both liners.

As shown in Fig. 5, the outer liner has a pintle  $a^4$ , which positions the bottom of the liner in the bottom of the bowl  $c$ . The upper end of the liner is positioned by the band  $a'$  bearing against the inner wall of the bowl. The inner liner is supported at its top in the cover  $d$ , the band  $b'$  engaging the inner walls of the recess in the cover. The band  $b^3$  at the lower end of the inner liner is of such size that it fits snugly within the recess  $a^3$  in the bottom of the outer liner.

The liners themselves are made of light ma-

terial and are liable to expand during the operation of the machine, causing the split rings to bind firmly against their contacting surfaces, insuring a tight fit and a proper co-location of the parts.

I do not wish to be understood as limiting myself to the exact construction herein shown and described; but

What I claim as new, and desire to secure by Letters Patent, is—

1. In a centrifugal separator the combination with the bowl, of one or more liners, and one or more split bands secured to said liners, for the purposes set forth.

2. In a centrifugal separator the combination with the bowl, of the outer liner properly supported at its lower end and having a split band secured to its upper end and engaging the inner wall of said bowl, of the inner liner having a split band at its upper end which engages the cover and a split band at its lower end which engages a shoulder formed at the lower end of the outer liner, substantially as described.

3. In a centrifugal separator the combination with the bowl, and the outer liner suitably supported therein, and having a recess formed in the bottom thereof, of the inner liner positioned within the outer liner having a split band secured to its lower end which fits within the recess in the outer liner, substantially as described.

4. In a centrifugal separator the combination with the bowl and the cover therefor, of a liner supported at bottom and top by said bowl, and a second liner supported at top by said cover and at bottom by an expansible band, engaging the first-mentioned liner, substantially as described and for the purposes set forth.

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

PERLEY L. KIMBALL.

Witnesses:

F. C. HILDRETH,  
GEO. H. MUZZEY.