

(No Model.)

H. P. CHAMBERLAIN.  
FILTER PRESS PLATE.

No. 575,875.

Patented Jan. 26, 1897.

FIG. 1.

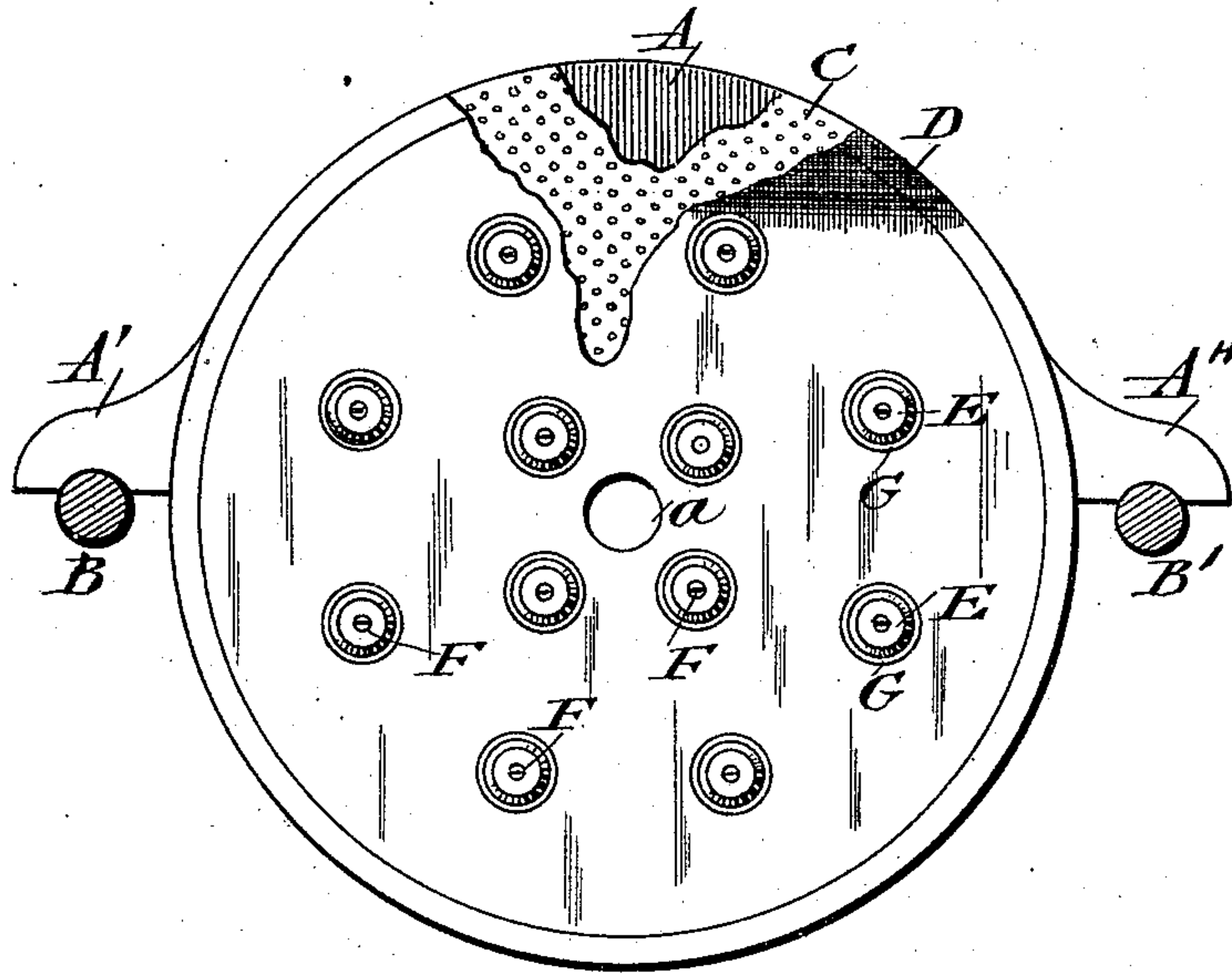


FIG. 2.

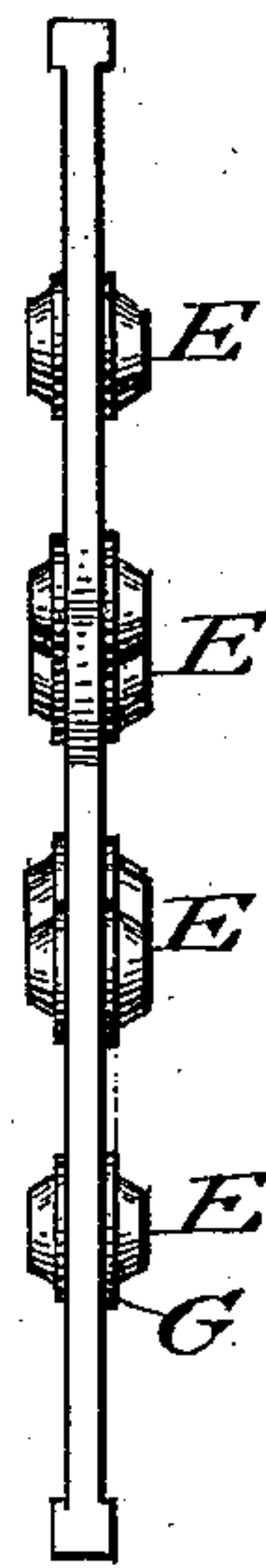


FIG. 3.

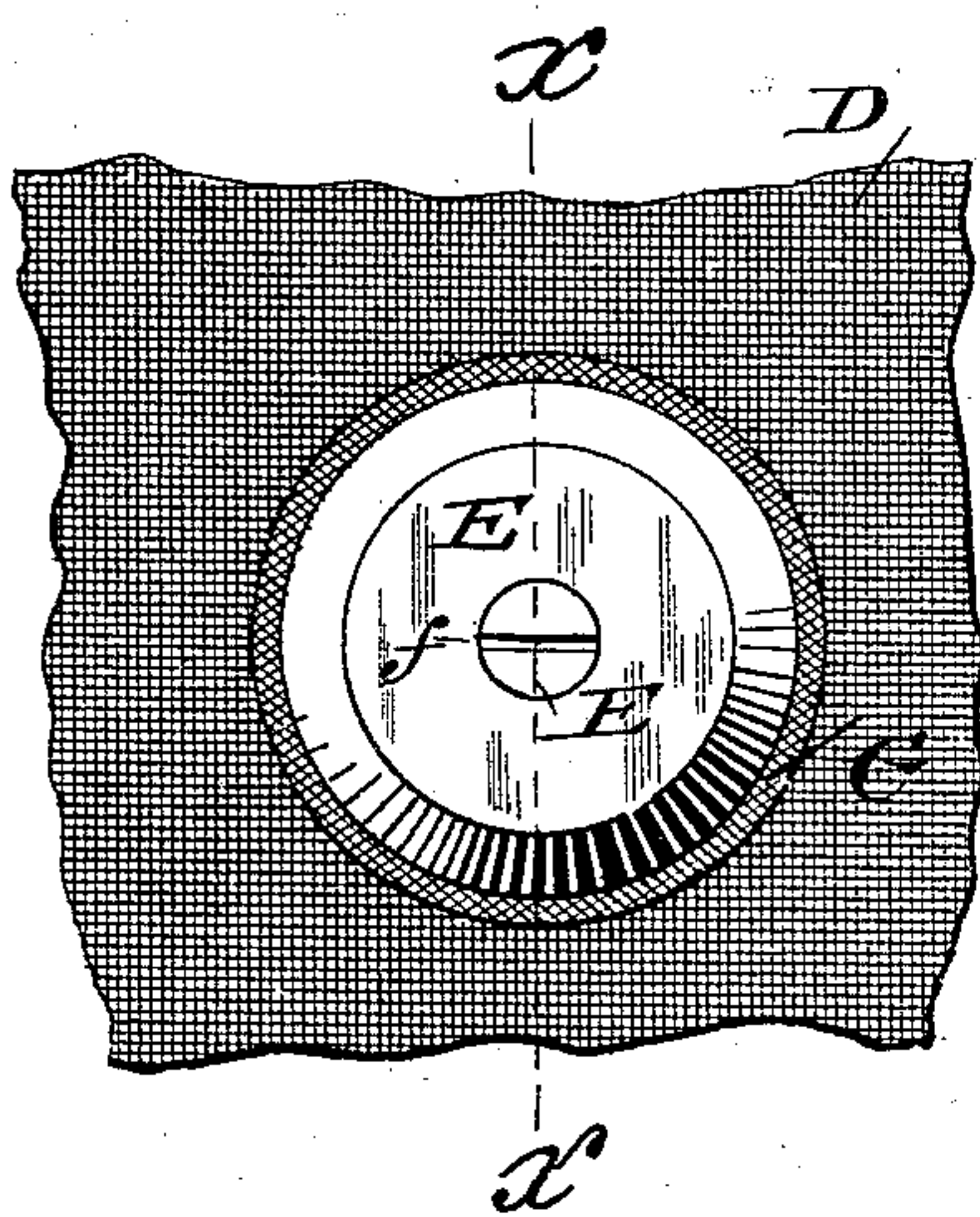


FIG. 4.

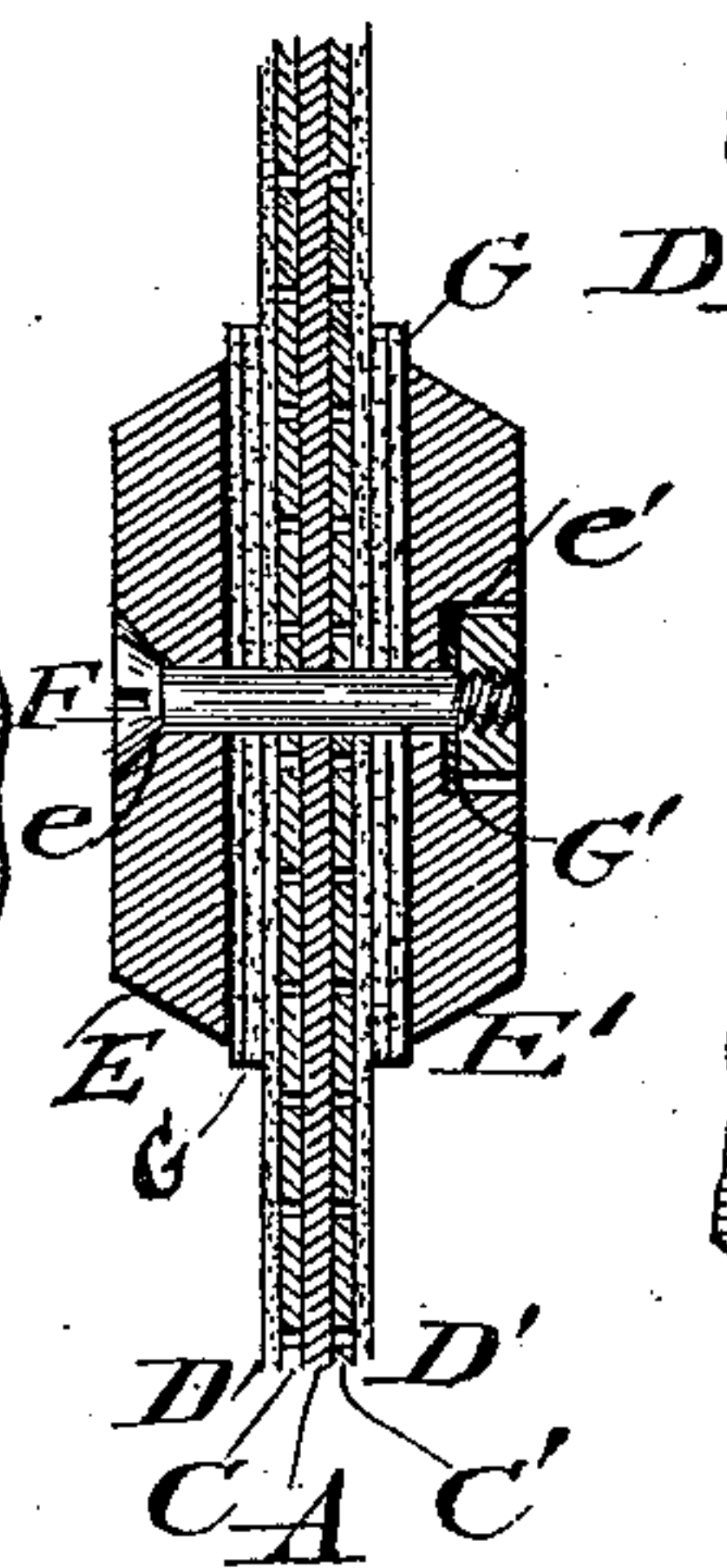
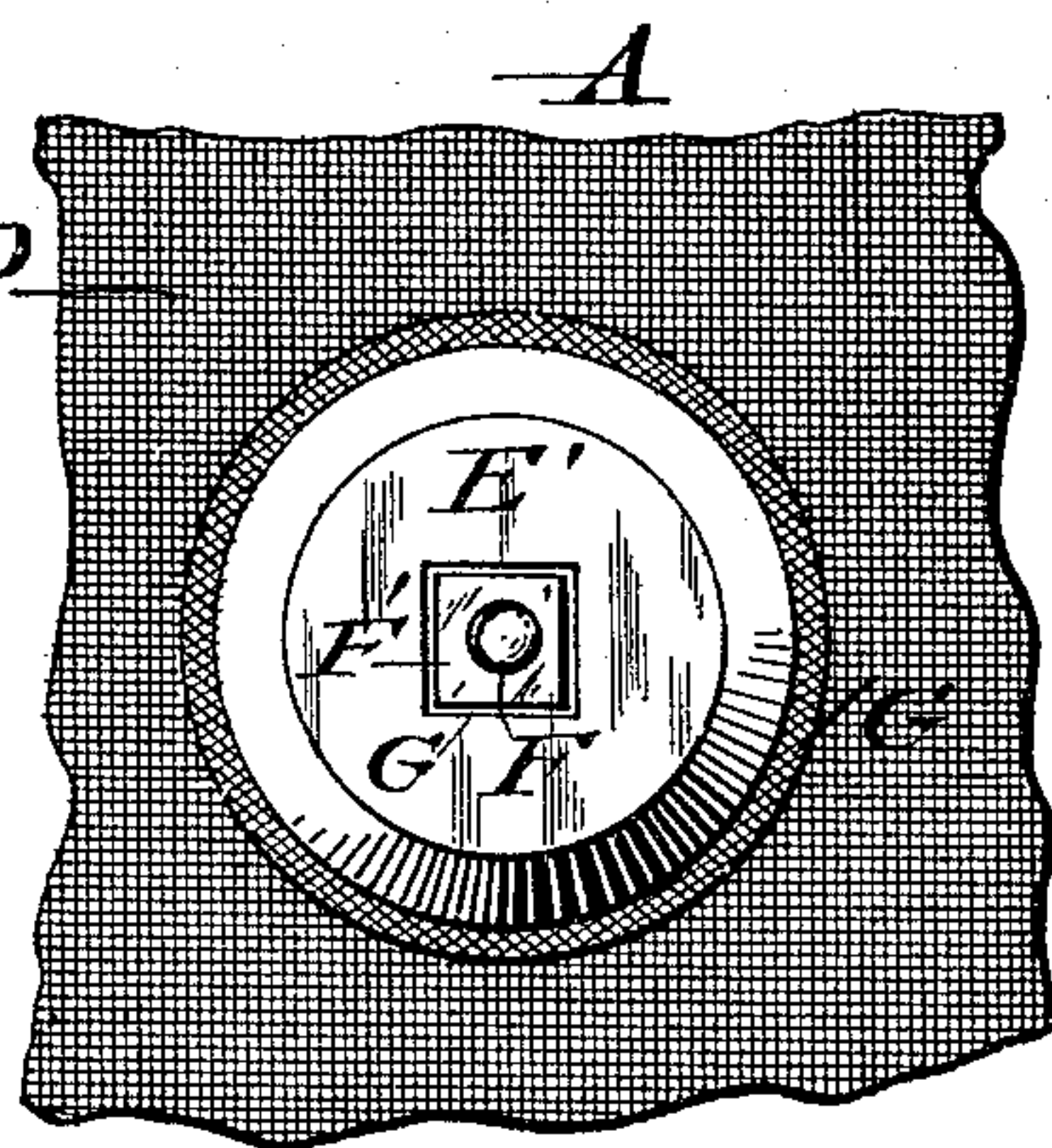


FIG. 5.



Witnesses:

*P. L. Sanger*  
*Jas A. Smith*

Inventor :

*Horace P. Chamberlain,*  
by *Michael J. Smith & Sons*  
Attorneys.



# UNITED STATES PATENT OFFICE.

HORACE P. CHAMBERLAIN, OF BUFFALO, NEW YORK.

## FILTER-PRESS PLATE.

SPECIFICATION forming part of Letters Patent No. 575,875, dated January 26, 1897.

Application filed November 5, 1895. Serial No. 567,980. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE P. CHAMBERLAIN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Filter-Press Plates; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheet of drawings, forms a full, clear, and exact specification, which will enable others skilled in the art to which it belongs to make and use the same.

This invention has general reference to improvements in filter-press plates; and it consists, essentially, in the novel and peculiar combination of parts and details of construction, as hereinafter first fully set forth and described and then pointed out in the claim.

In the drawings already referred to, which serve to illustrate my said invention more fully and form a part of this present specification, Figure 1 is a plan of a filter-press plate embodying my improvements. Fig. 2 is an edge view of the same. Fig. 3 is a plan of a fragment of said filter-press plate, showing one side of one of the separating-disks employed thereon. Fig. 4 is a transverse section in line  $x x$  of Fig. 3. Fig. 5 is a plan of a filter-press plate, showing that side of the separating-disk opposite the one illustrated in Fig. 4.

Like parts are designated by corresponding letters of reference in all the figures.

The object of this invention is the production of a durable, serviceable, convenient, and cheap method of applying the canvas coverings and separating-disks to filter-press plates. To attain these results, I construct my improved filter-press plates of a series of disks, the central one of which, A, is a circular sheet of metal having in its center an aperture  $a$  for the passage of the liquid to be filtered, and on its edge and on opposite points lugs  $A' A''$ , by means of which the filter-press plate is suspended from the press-rods  $B B'$ . On both sides of this central plate there are circular perforated plates or disks  $C C'$ , which are covered on their outer sides with canvas  $D D'$ , as clearly indicated in Figs. 1, 3, 4, and 5. These plates and their canvas covering are secured together by means of a series of separat-

ing-disks  $E E'$ , being conical bodies having centrally an aperture for the passage of a bolt F, one of these separating-disks, E, having a countersink  $e$  to receive the head  $f$  of said bolt F, while the other (opposite) one has a square or oblong recess  $e'$  for the retention of the nut  $F'$  of said bolt F. Underneath the separating-disks  $E E'$  there are placed canvas washers G, to protect the canvas covering  $D D'$  of the perforated plates from injury by coming in contact with the metallic separating-disks and to make a tight joint around the same, while in the square or angular recess  $e'$  of said separating-disks and underneath the nut  $F'$  is placed a soft-metal washer or packing  $G'$  for a similar purpose.

Heretofore separating-disks have been applied to filter-press plates by means of rivets. During use the canvas covering of the perforated plates is liable to injury, and when repair is necessary these rivets have to be withdrawn by chipping or drilling them out, which frequently results in denting the delicately-perforated plates, bending, and otherwise injuring them, while the canvas also is more or less hurt. Furthermore, it is necessary that these separating-disks are very securely affixed to the plates, and this is difficult to accomplish by riveting, owing to the rather soft and yielding nature of the canvas. By substituting the bolts F for such rivets and by screwing them very tightly up I have accomplished the result that the plates are not affected in the least either by applying or removing the separating-disks, while at the same time the removal and attachment of the said separating-disks are accomplished in a very short space of time, which is quite an essential feature when a costly filter-press and valuable material to be filtered has to wait for repairs of the plates.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

As an improved article of manufacture a filter-press plate consisting, essentially, of a central disk having centrally an aperture and provided at diametrically opposite points with lugs, of two perforated disks located one on each side of said central disk, canvas covers on the outer sides of said perforated disks, a series of separating-disks upon said canvas

covers and canvas washers under said separating-disks, said separating-disks being secured to the plates and covers by bolts having countersunk heads in one of the said series  
5 of separating-disks, and angular nuts embedded in corresponding recesses in the opposite series of separating-disks, all as hereinbefore set forth and described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand 10 in the presence of two subscribing witnesses.

HORACE P. CHAMBERLAIN.

Attest:

P. L. SANGER,  
JAS. A. PINCOTT.