

No. 762,416.

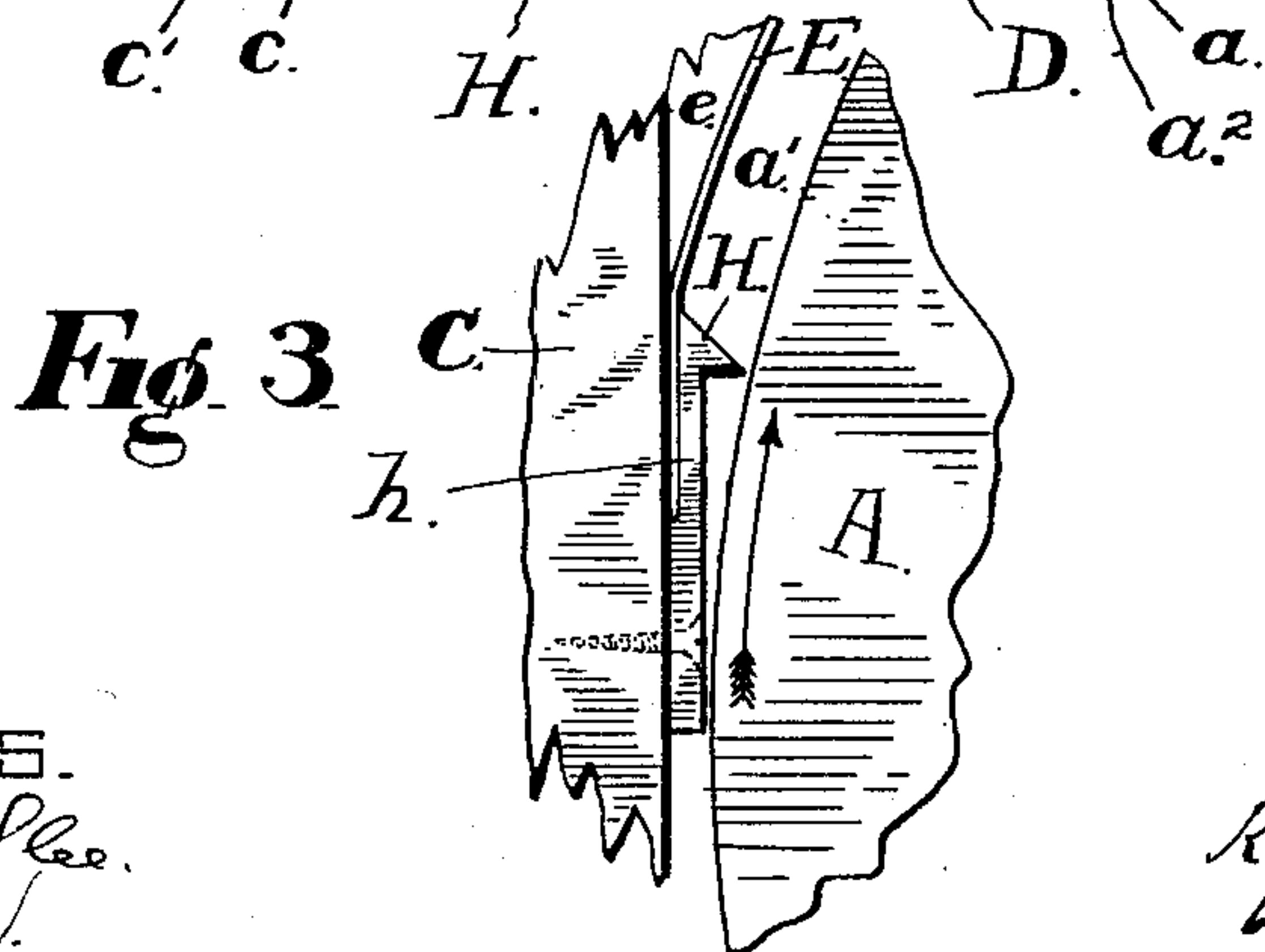
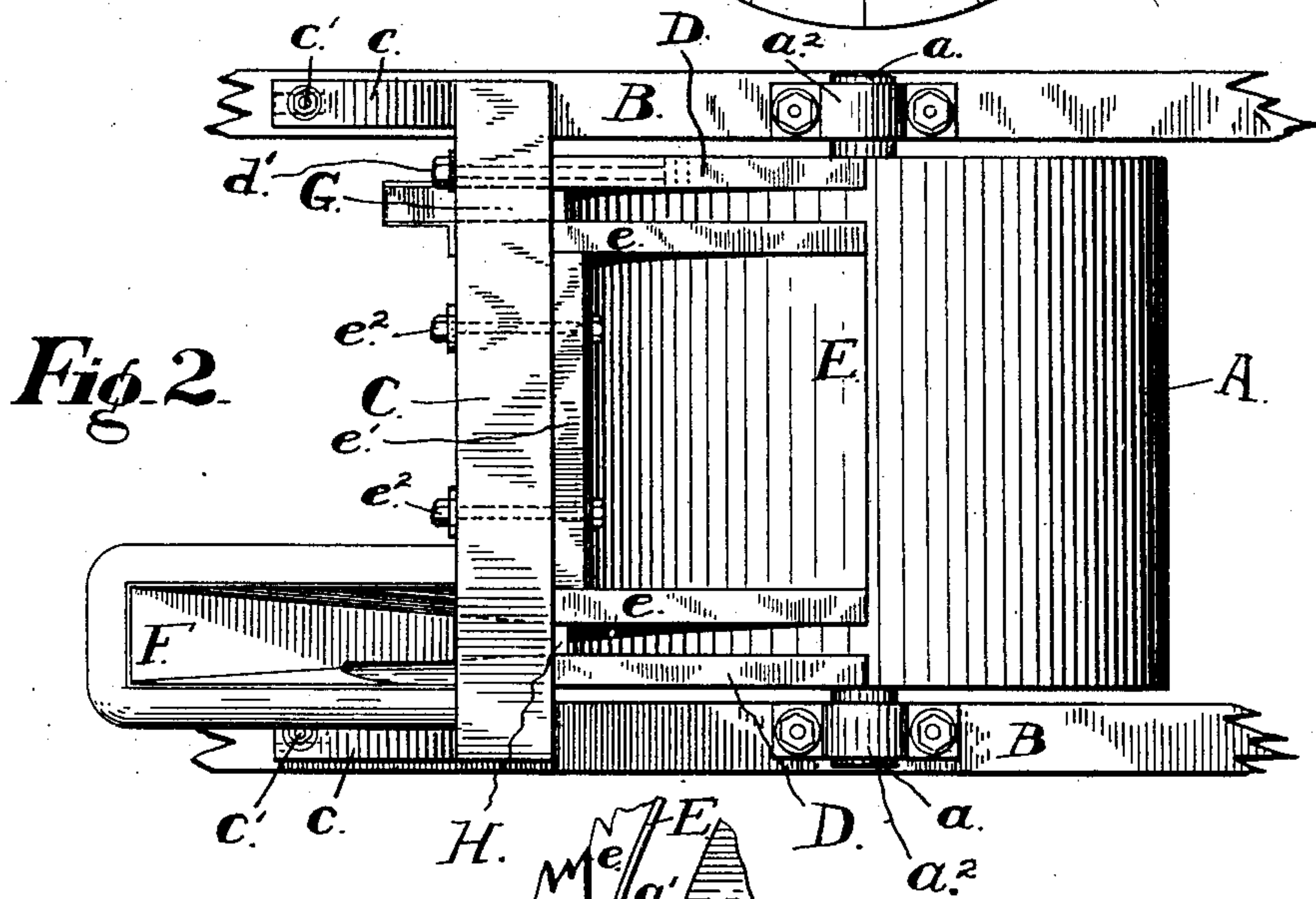
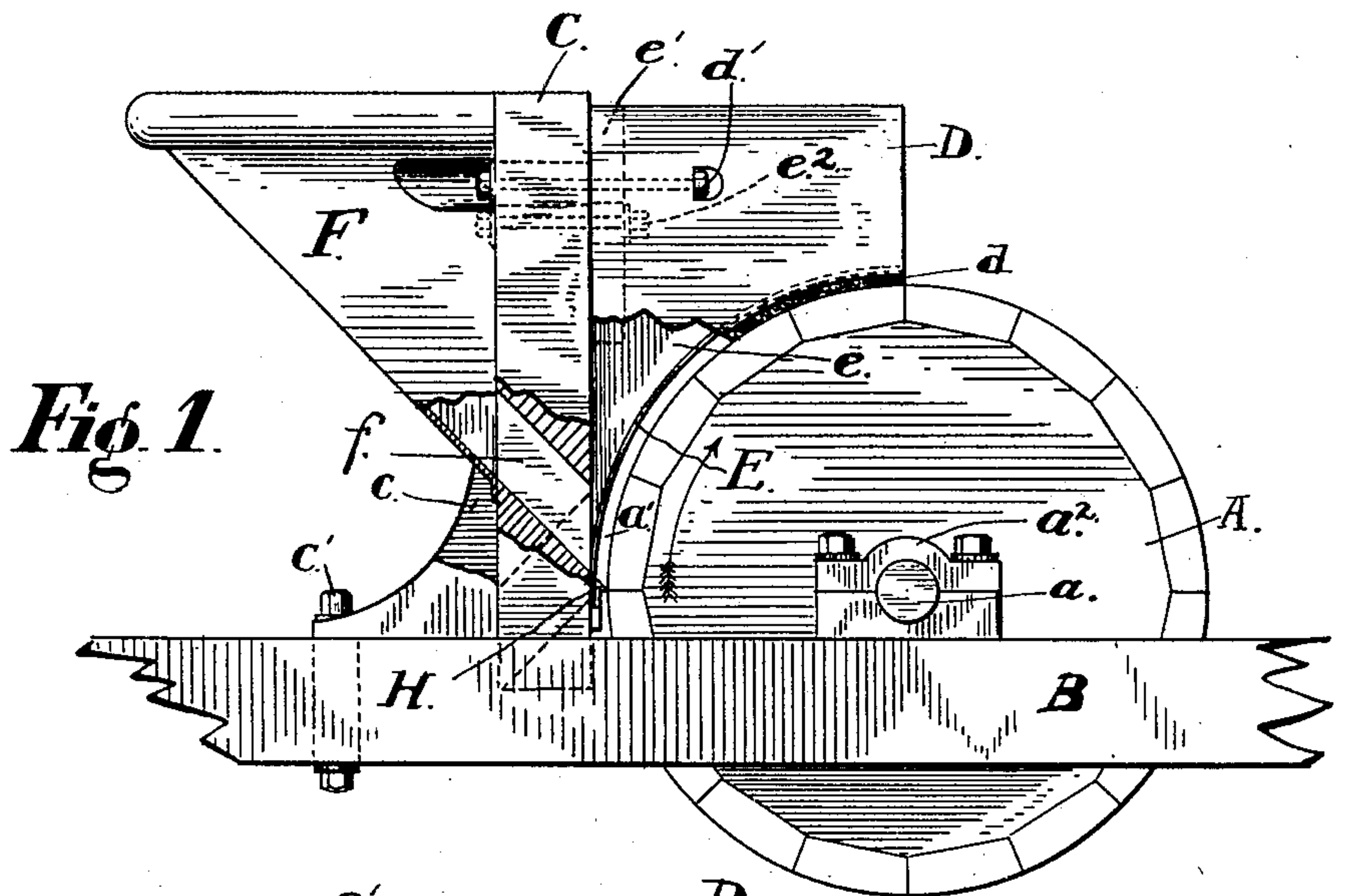
PATENTED JUNE 14, 1904.

R. W. JESSUP.
SEPARATOR.

APPLICATION FILED FEB. 8, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.
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Charles E. Kane.

Inventor.
Robert W. Jessup
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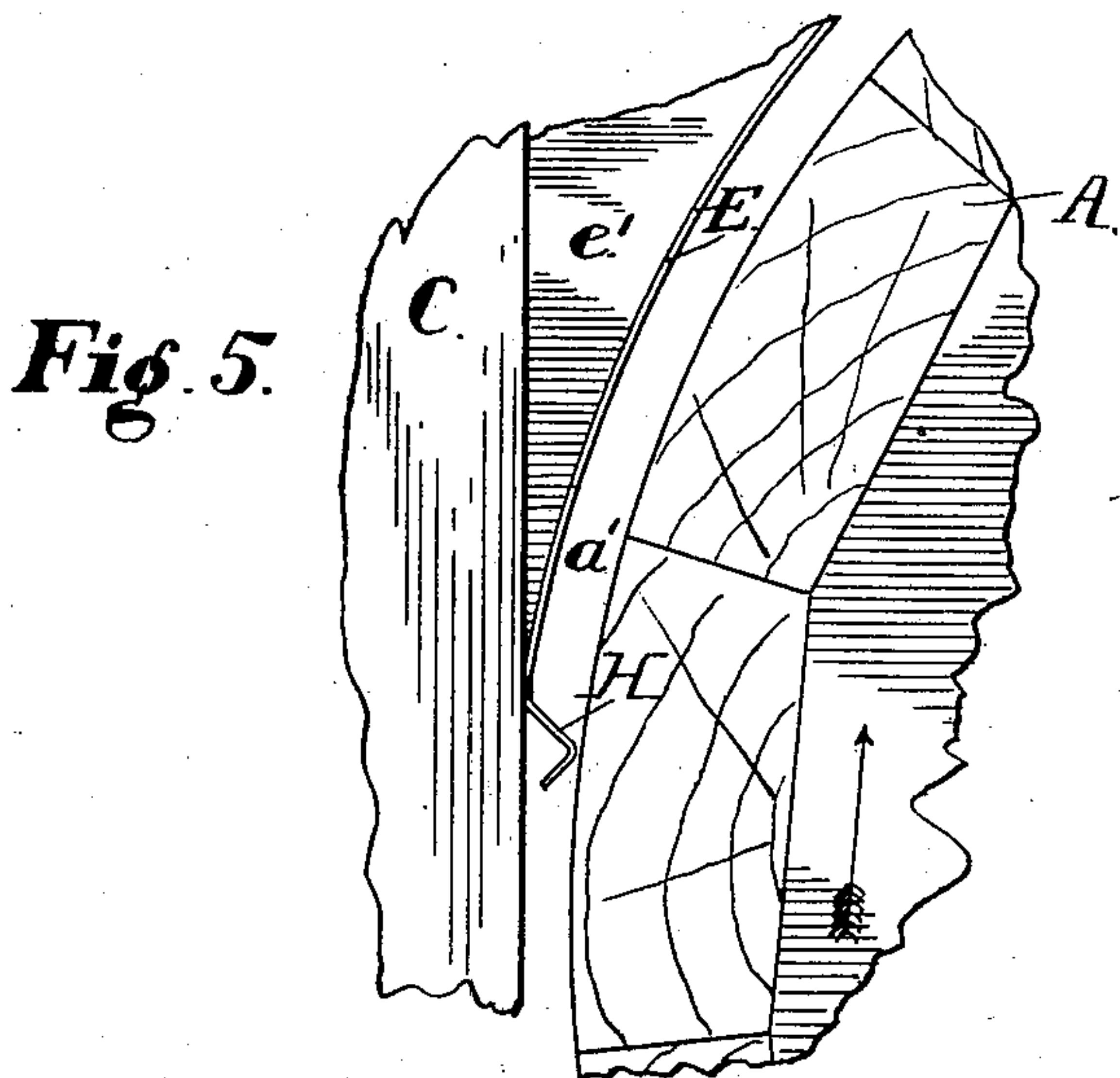
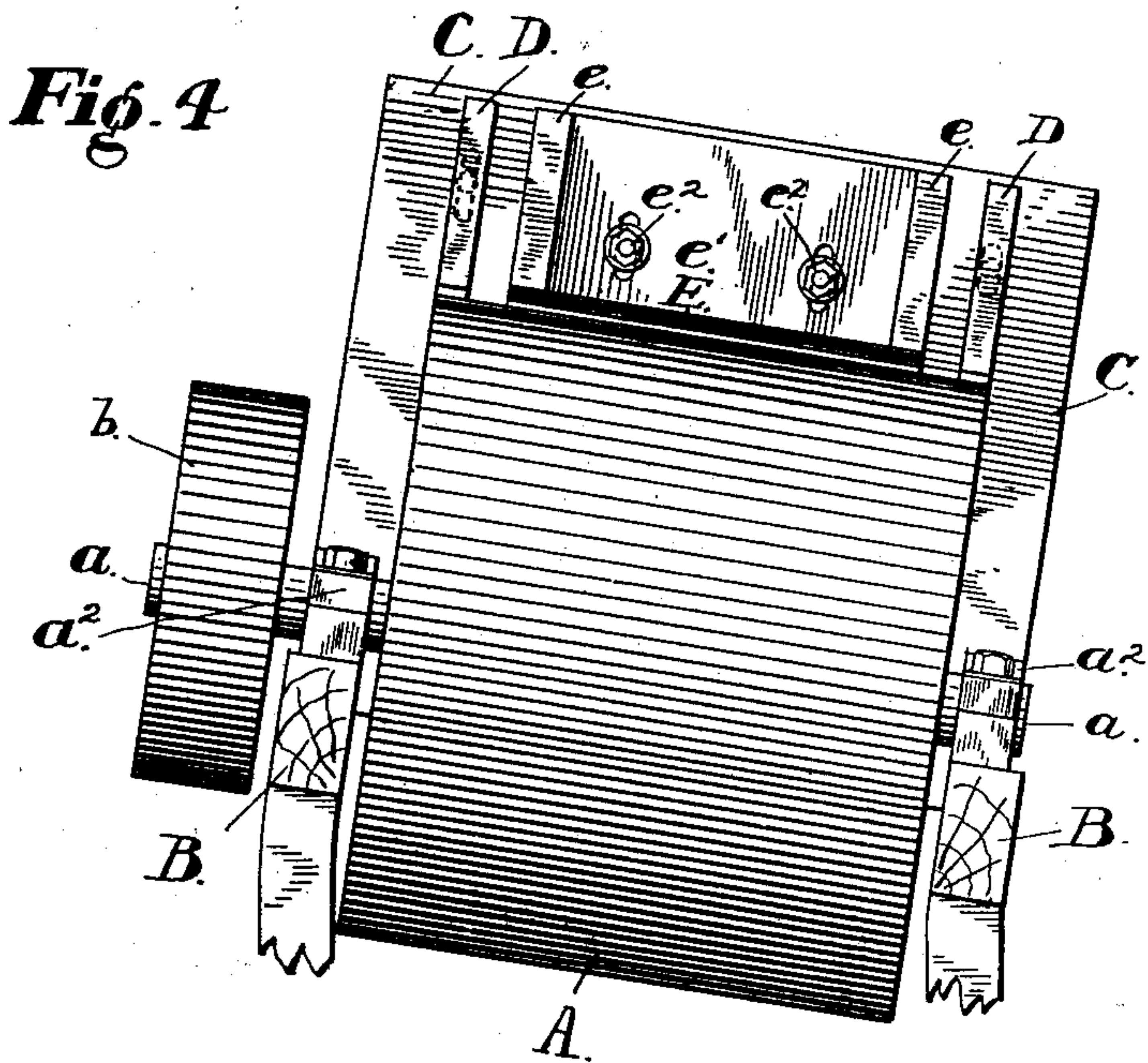
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2 SHEETS—SHEET 2.



WITNESSES.
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UNITED STATES PATENT OFFICE.

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SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 762,416, dated June 14, 1904.

Application filed February 8, 1904. Serial No. 192,564. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. JESSUP, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Separators; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of separators which depend for their operation upon the different coefficients of friction of the particles composing the material, and while my invention is applicable for use with any material composed of relatively rough and smooth particles it is very useful in the separation of broken kernels of wheat from cockle, in which mixture the broken wheat-kernels constitute the relatively rough particles and the cockle the relatively smooth particles.

The object of my invention is to provide a simple and effective separator of this kind in which the operation is continuous; and to this end my invention consists, primarily, in a rotatable roller, a stationary hood conforming to the uprising upper quadrant of the roller and separated from the face thereof by a space to which the material is fed and in which the separation is effected and a suitable stop defining the base of said space.

It also consists in the novel construction, arrangement, and combination of parts, which I shall now describe by reference to the accompanying drawings, in which—

Figure 1 is an end view, partly broken, of my separator, shown horizontal to avoid confusion. Fig. 2 is a top view of the same. Fig. 3 is an enlarged detail of the stop, defining the base of the separating-space. Fig. 4 is a front view of the machine, showing it tilted to indicate the inclination of the roller, the position it has in operation. Fig. 5 is an enlarged detail to show a modification in the construction of the stop, defining base of the separating-space.

A is a roller carried by a shaft a , which is mounted in boxes a^2 on the frame timbers or sills B. Motion on its axis is imparted to the

roller in the direction of the arrow by any suitable means, such as by the pulley b in Fig. 4. The roller A is inclined lengthwise, as seen in Fig. 4—that is to say, its axis is at an angle to the horizontal.

C is a backboard secured to sills B by means of brackets c , and said board may be fixed in place or the board and the roller may be relatively adjustable to or from each other either by having the roller adjustably mounted or, as here shown, by having the backboard adjustable, as by means of the bolts c' , which fit in slots in the brackets, as indicated in Fig. 2.

To the face of the backboard C are secured the end partitions D. There is one of these near each end, and they project forwardly to about the plane of the vertical diameter of the roller, their under faces being curved concentrically with said roller down to approximately the plane of the horizontal diameter of the roller. These curved faces of the partitions are provided with suitable material, such as felt or sheepskin with the wool on, (indicated by d in Fig. 1,) which, as shown, rests upon the roller and forms a joint therewith sufficiently close to prevent any material from within passing beyond the partition over the roller ends.

The partitions D may be secured rigidly to the backboard or they may be fastened thereto adjustably, as by means of the bolts d' , passing through slots in the backboard, as indicated in Figs. 1 and 4, whereby said partitions may be raised or lowered. Over and concentric with the uprising upper quadrant of the roller lies a hood E, which is carried by two end brackets e , secured to a cross-plate e' , which is itself secured to the backboard C either rigidly or, as here shown, adjustably by means of the bolts e^2 , passing through slots in the plate, as seen in Fig. 4, whereby said hood may be raised or lowered. The end brackets e of the hood are separated from the end partitions D, as seen in Figs. 2 and 4, and into the space formed by this separation at the upper or head end of the roller enters the

neck-passage f of the feed-hopper F, said passage extending through the backboard, as seen in Fig. 1. From the space between the hood-bracket and the partition at the foot or lower end of the roller issues through the backboard the discharge-opening G, Fig. 2. It will be seen that between the hood and the roller there is left a space, (indicated by a'), which forms the space in which the separation is effected. At the base of this space, just below the lower plane or floor of the feed-entrance passage f and extending the full length between the partitions D, is an inclined stop H, which slopes downwardly and terminates in proximity to the roller-surface. This stop may be formed as a separate piece, as shown in Figs. 1 and 3, in which case it will be fixed in position, being screwed by its legs h to the backboard C, or, as shown Fig. 5, the stop may be formed integral with the lower end of the hood E, in which case it will be adjustable with the hood. In the form shown in Figs. 1 and 3 the lower edge of the hood-plate E is best inserted behind the stop H to form a smooth joint.

The various adjustments of the parts results, as will readily be seen, in varying the width of the separating-space a' either uniformly, as by adjusting the backboard or the roller, or in varying its width relatively in different portions, as by vertically adjusting the hood, or in other ways by combining these adjustments.

The operation is as follows: The material is fed by the hopper through its entrance-passage to the base of the separating-space a' near its head end. It is caught by the stop H and as the roller revolves upwardly the material is lifted in said space and falls down again repeatedly. As the action progresses it will be found that the rougher particles, such as the broken kernels of wheat, are carried up farther and farther by reason of their greater frictional coefficient, while the smoother particles, such as cockle, roll back more constantly to the base of the space, where they, as well as the fresh material, are redirected by the inclined stop H to the face of the roller. In time, therefore, the greater portion of the upper layers of material will be the rough particles, which will finally be carried up over the roller and discharged over its top, while the lower layers, consisting of the smoother particles, will by the inclination of the axis of the roller work along the length of the roller in the lower levels of the separating-space and will be discharged at the opening G at the foot end. Thus the action will be continuous throughout the length of the roller, the inclined stop below continually directing to the face of the roller both the fresh material and that which drops back, and the material constantly spreading itself over the length of the roller.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a separator, the combination of a rotatable roller, a stationary hood conforming to the uprising upper quadrant of the roller and separated from its face to leave an intervening space for separating action, dependent upon varying coefficients of friction in the particles, and a suitable stop defining the base of said separating-space.

2. In a separator, the combination of a rotatable roller, a stationary hood conforming to the uprising upper quadrant of the roller and separated from its face to leave an intervening space for separating action, dependent upon varying coefficients of friction in the particles, and a stop traversing the base of said space and inclining downwardly toward the face of the roller.

3. In a separator, the combination of a rotatable inclined roller, a stationary hood conforming to the uprising upper quadrant of the roller and separated from its face to leave an intervening space for separating action, dependent upon varying coefficients of friction in the particles, and a suitable stop defining the base of said separating-space.

4. In a separator, the combination of a rotatable inclined roller, a stationary hood conforming to the uprising upper quadrant of the roller and separated from its face to leave an intervening space for separating action, dependent upon varying coefficients of friction in the particles, and a stop traversing the base of said space and inclining downwardly toward the face of the roller.

5. In a separator, the combination of a rotatable roller, a stationary hood conforming to and separated from the face of the uprising upper quadrant of the roller, a stop defining the base of the space between the roller and hood, means for feeding the material to said space near one end, and a discharge from the base of said space near the other end.

6. In a separator, the combination of an inclined rotatable roller, a stationary hood conforming to and separated from the uprising upper quadrant of the roller, means at the upper end of the roller for feeding the material to the space between the roller and hood, means at the lower end of the roller for discharging from the base of said space, and a stop for defining the base of said space.

7. In a separator, the combination of a rotatable roller, a stationary hood conforming to and separated from the uprising upper quadrant of the roller, a stop traversing the base of the space between the hood and roller and inclining downwardly toward the roller-face, means for feeding the material to said space near one end, and means for discharging from the lower part of the space near the other end.

8. In a separator, the combination of an inclined rotatable roller, a stationary hood conforming to and separated from the uprising upper quadrant of the roller, a stop traversing the base of the space between the roller and hood and inclining downwardly toward the roller-face, means at the upper end of the roller for feeding the material to the space, and means at its lower end for discharging from the lower part of the space.

9. A separator comprising a rotatable roller, partitions near each end of said roller the faces of which conform to and form a close joint with the face of the uprising upper quadrant of said roller, a stationary hood lying between said partitions, said hood conforming to the face of said quadrant of the roller and separated from it to leave an intervening space for separating action, means for feeding the material to said space near one partition, and means for discharging it from said space near the other partition.

10. A separator comprising a rotatable inclined roller, partitions near each end of said roller the faces of which conform to and form a close joint with the face of the uprising upper quadrant of said roller, a stationary hood lying between said partitions, said hood conforming to the face of said quadrant of the roller and separated from it to leave an intervening space for separating action, means for feeding the material to said space near the upper partition, and means for discharging it from said space near the lower partition.

11. A separator comprising a rotatable roller, partitions near each end of said roller the faces of which conform to and form a close joint with the face of the uprising upper quadrant of said roller, a stationary hood lying between said partitions, said hood conforming to the face of said quadrant of the roller and separated from it to leave an intervening space for separating action, means for feeding the material to said space near one partition, means for discharging it from said space near

the other partition, and a stop traversing the base of said space between the partitions and inclining downwardly toward the face of the roller.

12. A separator comprising a rotatable inclined roller, partitions near each end of said roller the faces of which conform to and form a close joint with the face of the uprising upper quadrant of said roller, a stationary hood lying between said partitions, said hood conforming to the face of said quadrant of the roller and separated from it to leave an intervening space for separating action, means for feeding the material to said space near the upper partition, means for discharging it from said space near the lower partition, and a stop traversing the base of said space between the partitions and inclining downwardly toward the face of the roller.

13. A separator comprising an inclined rotatable roller, a backboard, end partitions secured to said board and having faces conforming to and forming with the face of the uprising upper quadrant of said roller a close joint, brackets secured to said backboard and separated by a space from the partitions, a hood carried by said brackets conforming to the said quadrant of the roller and separated from its face to leave an intervening space for separating action, a feed-hopper leaving an entrance-passage extending through the backboard to deliver the material to the intervening space near the upper partition, a discharge-passage in the backboard from the intervening space near the lower partition and a stop secured to the backboard and traversing the base of said space, said stop inclining downwardly toward the face of the roller.

In witness whereof I have hereunto set my hand.

ROBERT W. JESSUP.

Witnesses:

WALTER F. VANE,
D. B. RICHARDS.