

(No Model.)

2 Sheets—Sheet 1.

J. POLLOCK.
SEPARATOR AND SCREEN.

No. 505,723.

Patented Sept. 26, 1893.

Fig. 1.

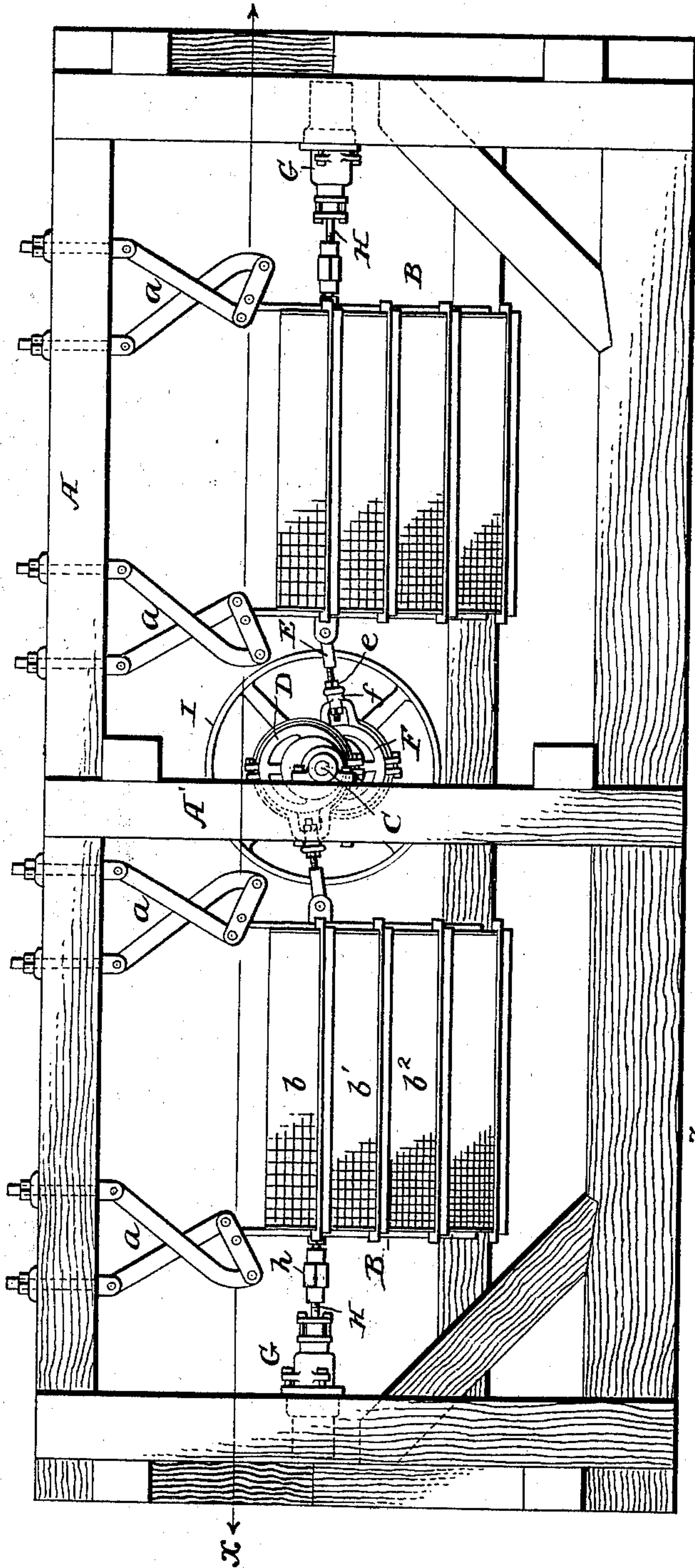


Fig. 7.

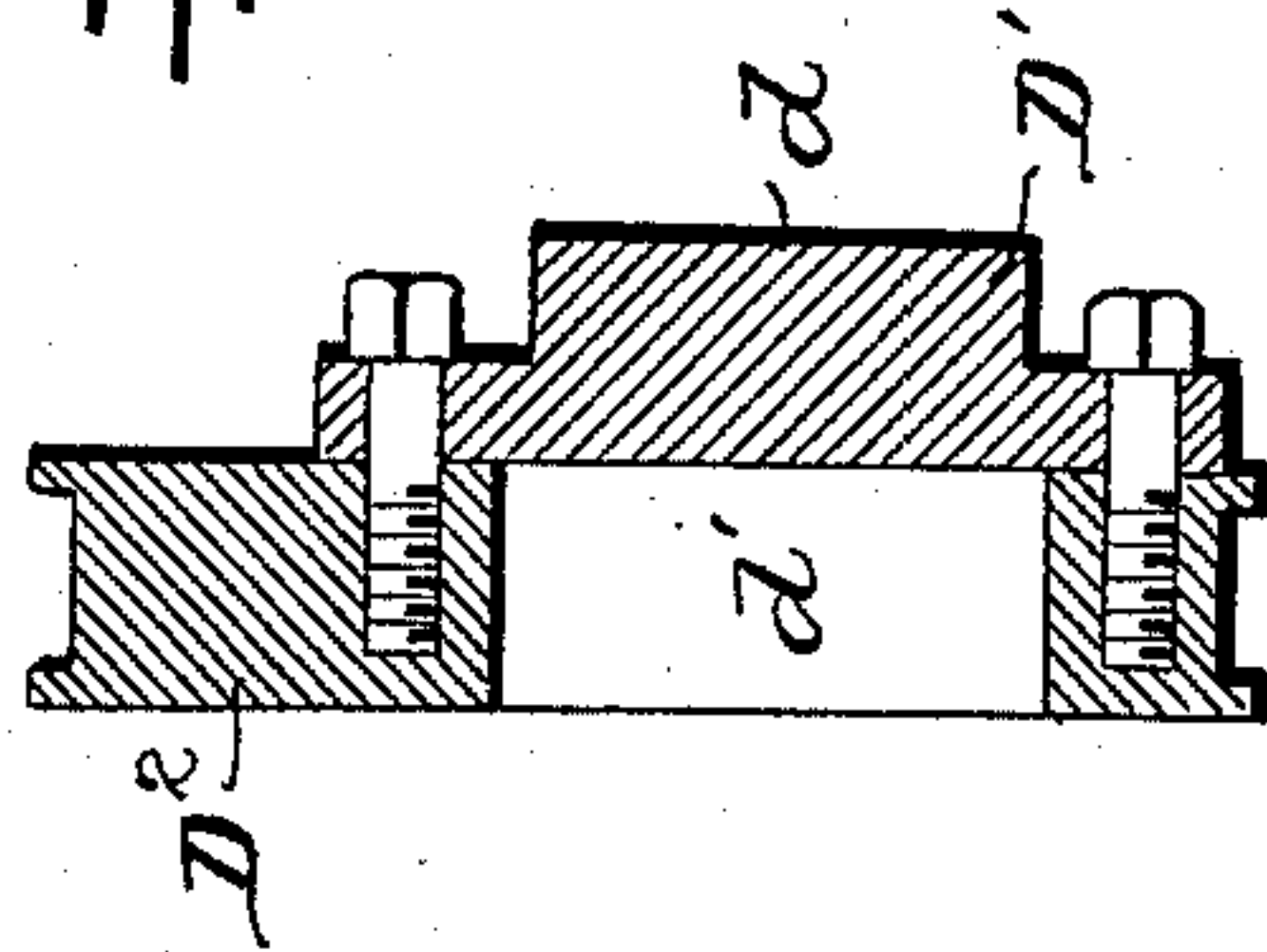


Fig. 6.

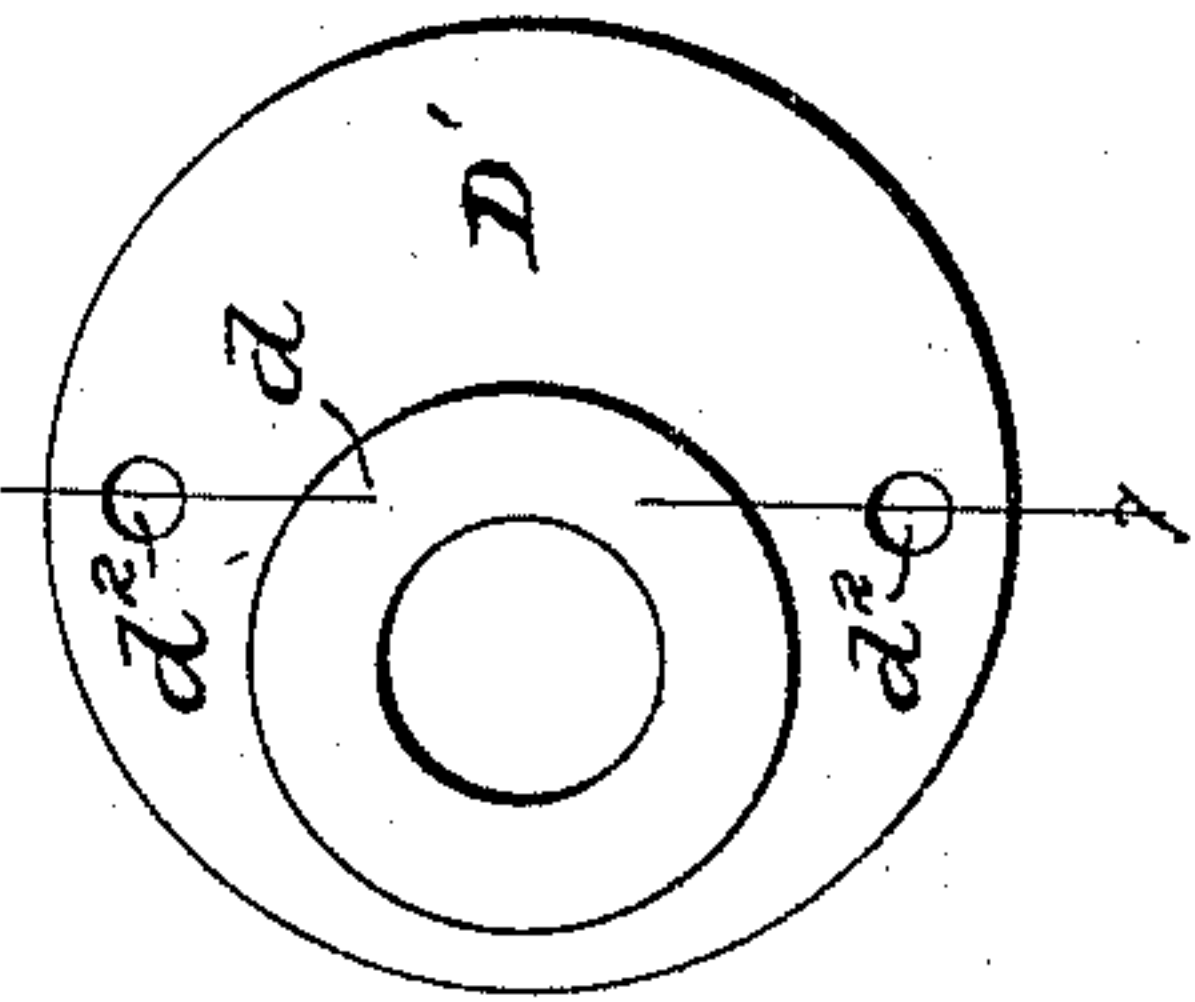
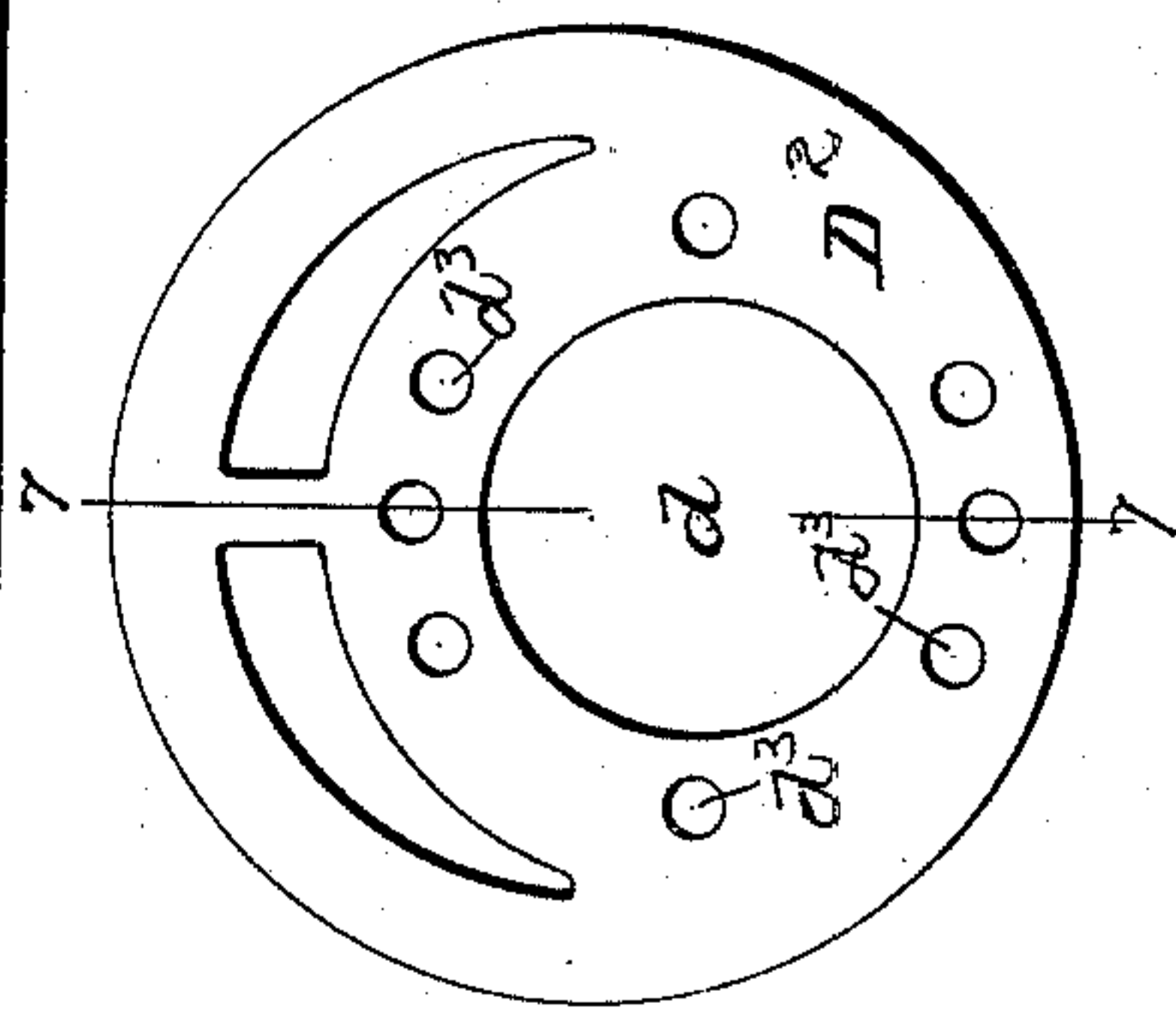


Fig. 5.



Witnesses
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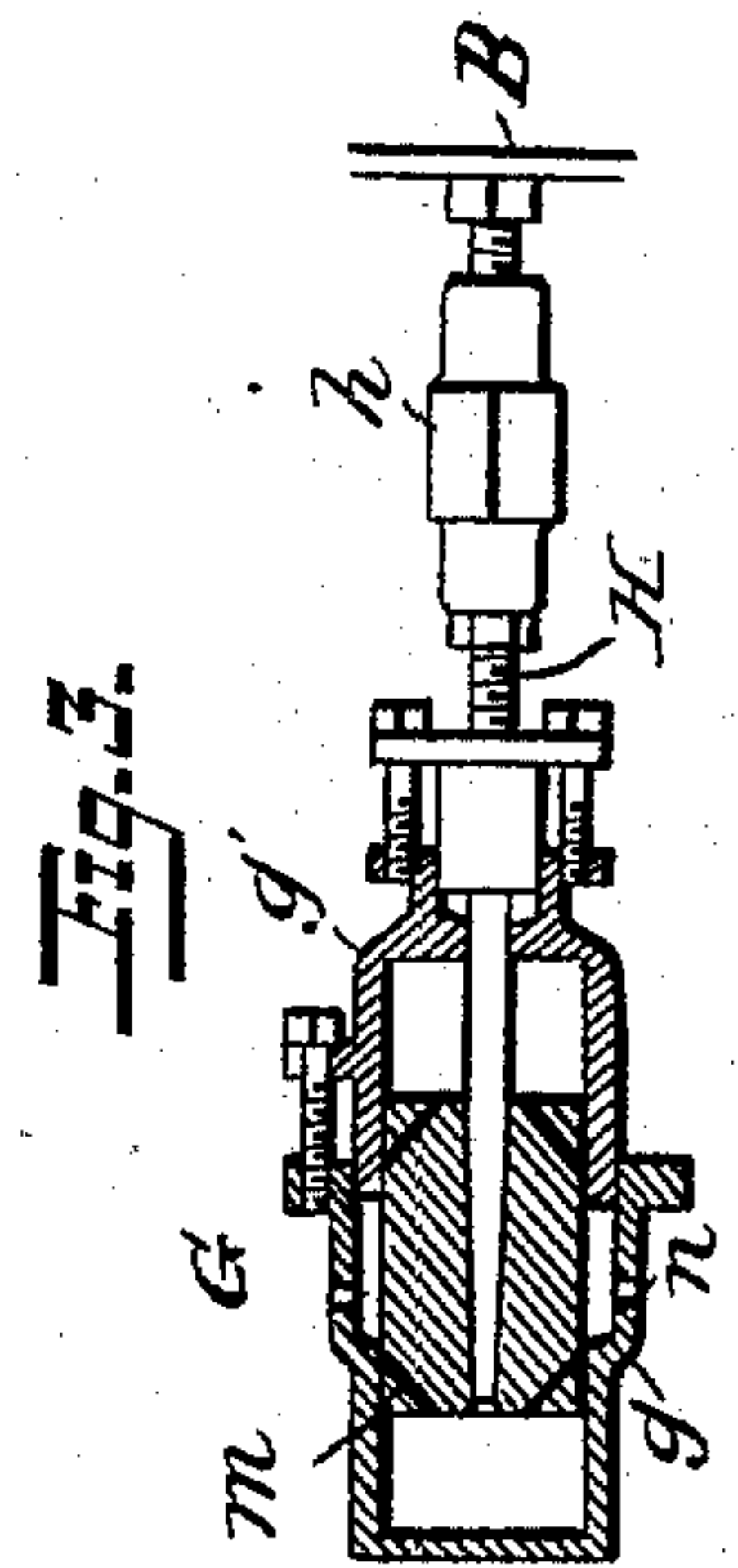
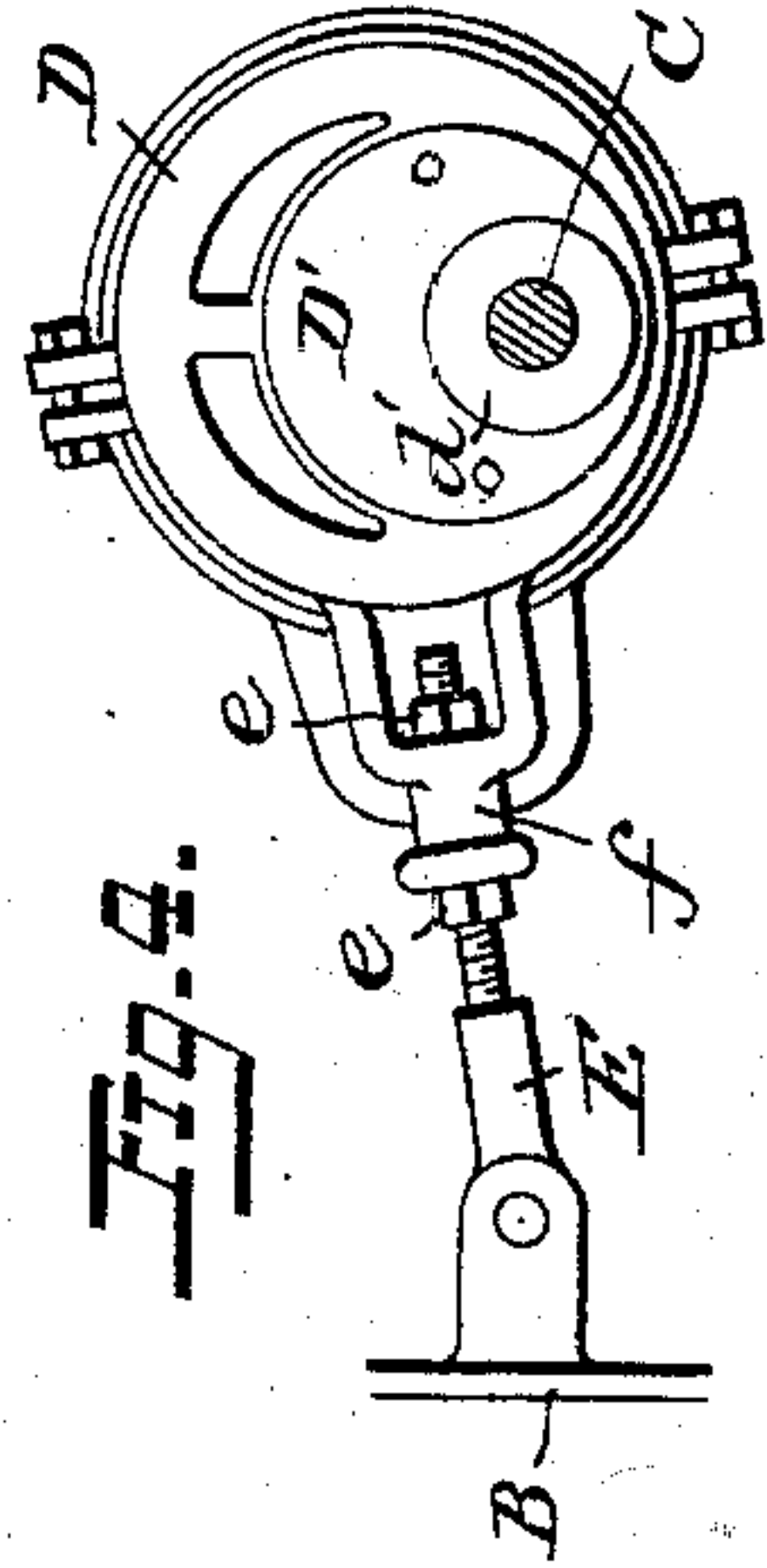
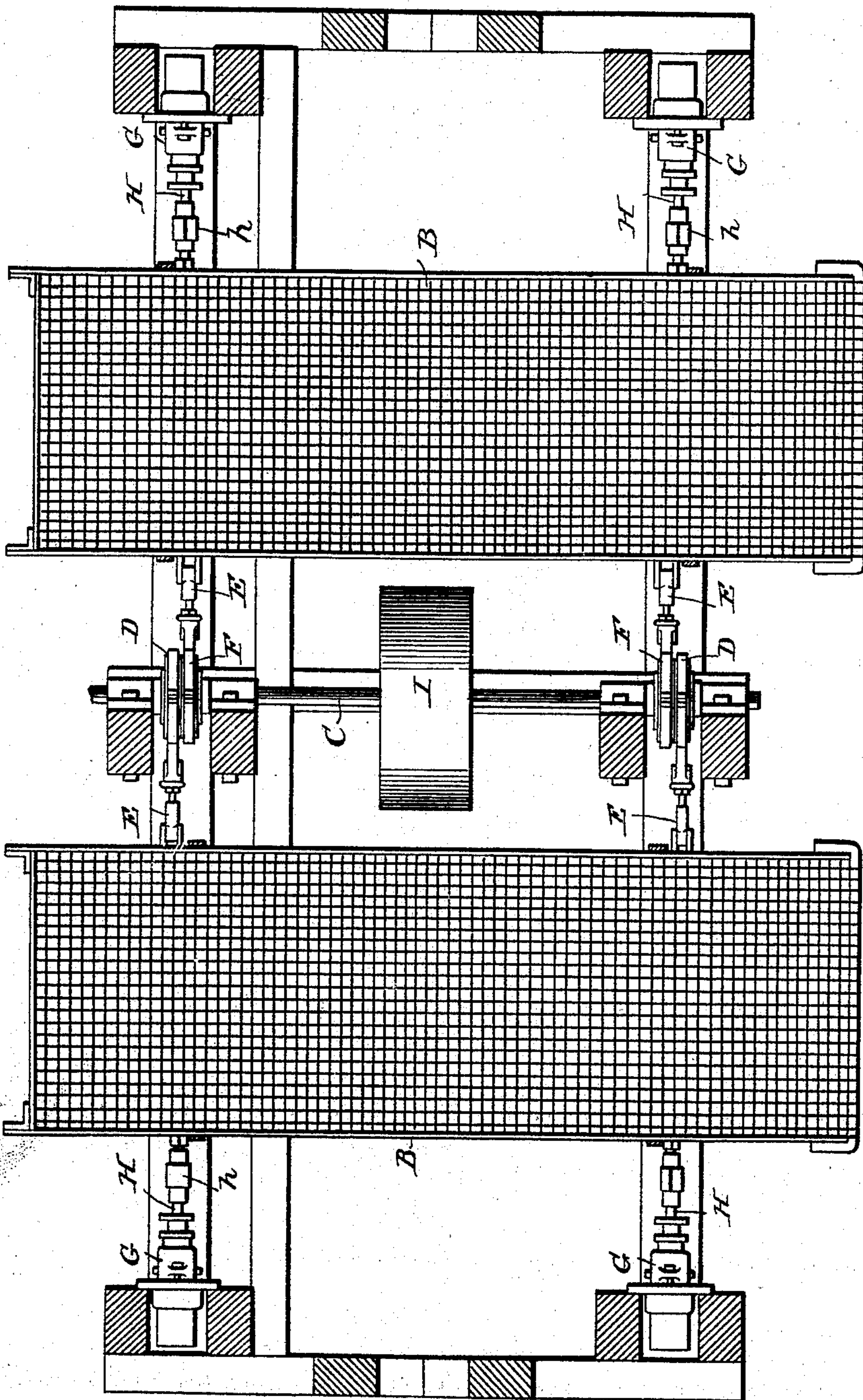
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2 Sheets—Sheet 2.

J. POLLOCK.
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No. 505,723.

Patented Sept. 26, 1893.



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Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES POLLOCK, OF WILKES-BARRÉ, PENNSYLVANIA.

SEPARATOR AND SCREEN.

SPECIFICATION forming part of Letters Patent No. 505,723, dated September 26, 1893.

Application filed September 17, 1892. Serial No. 446,167. (No model.)

To all whom it may concern:

Be it known that I, JAMES POLLOCK, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Separators and Screens, of which the following is a specification.

My invention relates to screens and separators and it consists in a machine adapted to screen and separate into different sizes coal, salt, ores and other material requiring separation.

The present invention consists in various improvements upon the separator and screen for which I received Letters Patent No. 464,476, dated December 8, 1891. These improvements I shall now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is an end elevation of a pair of screens constructed in accordance with my invention. Fig. 2 is a sectional plan view looking down from the line $x-x$ of Fig. 1, the hangers being removed. Fig. 3 is a sectional view of one of the air cushions showing the adjustable cylinder and the adjustable piston-rod. Fig. 4 is a side view of one of the adjustable eccentrics with its adjustable eccentric rod. Figs. 5 and 6 are side views of the parts forming the adjustable eccentric, and Fig. 7 is a cross-section showing the two parts of the eccentric on the lines 7—7 of Figs. 5 and 6.

In my former patent I have illustrated and described a machine having several screens, one above the other arranged in a frame which is suspended by links from a stationary main frame in such a manner that the screens reciprocate horizontally. In the present case the construction of the screens and the arrangement of the links by which the screens are suspended are substantially the same as shown in the aforesaid patent and a detailed description may therefore be omitted. Suffice it to say that the screens are so suspended by inclined links as to receive a practically horizontal movement within the limits of their travel.

The present invention consists in a pair of screens arranged to move simultaneously in opposite directions so that the shock due to

reversing the movement of each will be more or less counter-balanced by the reversal of the movement of the other. It also consists in adjustable eccentrics or cranks for said screens to adapt them for different grades and kinds of material, in combination with adjustable air cushions, and other devices for preventing shock and facilitating the operation of the machine.

Referring to the drawings A indicates a main frame from which is suspended by means of suitable links a the screen frames B, each provided with a series of screens $b, b', b'',$ &c. A shaft C is mounted in suitable bearings upon a portion of the main frame A between the screen frames and upon the shaft C are mounted eccentrics D which, as shown, are adjustable to vary the throw imparted to the screens.

Referring to Figs. 4, 5 and 6 it will be seen that the eccentrics D are each composed of two parts, one part D' having a hub d at one side of its center adapted to be fastened rigidly upon the shaft by means of a key or set-screw. The other part D^2 has a peripheral groove to receive the eccentric strap and a larger opening d' through which the shaft C passes. The part D' is provided with a pair of bolt holes d^2 and the part D^2 has a number of corresponding pairs of bolt-holes d^3 arranged around the opening d' to permit the part $D' D^2$ to be bolted together in different relations to vary the throw of the screens. The shaft opening in the hub d is eccentric to such a degree that the part D' may be bolted to the plate D^2 in such a manner as to bring the shaft opening in the former part coincident with the center of the part D^2 , rendering the eccentric strap concentric with the shaft and depriving it of any motion. By adjusting the plate D^2 upon the plate D' around the opening d' more or less eccentricity may be given to the said plate, ranging from nothing up to twice the eccentricity of the shaft opening in the plate D' . In this way the amount of movement of the screens may be regulated and the screens adapted to different kinds and grades of material.

The screens should always hang normally in the same position and in order that the eccentrics may be adjusted without disturbing the position of the screens I provide adjust-

able eccentric rods E connecting the screen frames with the eccentric straps. These rods may be lengthened or shortened in any well known manner. As shown they pass through yokes *f* upon the eccentric straps F and are held in any desired position by nuts *e*.

The air cushions G are substantially the same as those described and claimed in my former patent. The cylinders are each composed of two parts *g, g'* adjustably connected together and the piston rod H is adjustable as to length by means of a right and left hand screw or other equivalent device. In order to obtain as nearly as possible the uniform movement of the shaft C and the screens I sometimes provide a fly-wheel I mounted upon or connected with the shaft. This wheel may also be used as a pulley to drive the power shaft.

In preparing the machine for operation the eccentric is adjusted so as to give the desired amplitude of vibration to the screens. The eccentrics of the different screens are fixed upon the shaft diametrically opposite to each other so that the screens are drawn toward each other and then forced apart simultaneously. The pairs of opposite eccentrics are close together so as to bring the smallest amount of lateral strain to bear upon the shaft. The eccentric rods should be adjusted so that the screens will be swung to the same distance each way from the central position which they would assume if permitted to hang freely upon the links. The length of the air cylinders should be increased or diminished in proportion to the throw of the eccentrics and the piston-rods of the air cylinders should be adjusted so that the pistons will reciprocate centrally within the cylinders. In operation the shock which would be imparted to the frame by either screen is counteracted by the shock of the companion screen and the entire machine runs smoothly and steadily without racking the frame-work in any way.

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

1. The combination of a main frame, a pair of screens suspended by links from said frame, a power shaft located between said screens, adjustable eccentrics on said power shaft and adjustable connecting rods from the eccentrics to the screens, substantially as described.

2. The combination of a main frame, a pair of screens supported by said frame, a shaft between the screens, adjustable eccentrics on the shaft, adjustable eccentric rods between the eccentrics and the screens and air cushions each consisting of a cylinder adjustable in length attached to the main frame and adjustable piston rods between the air cylinders and the screens, substantially as described.

3. The combination of a main frame, a pair of screens suspended from the main frame by pivoted incline links, a power shaft located between the screens, the eccentrics upon the power shaft, the connecting rods between the eccentrics and the screens, and the air cushions arranged between the screens and fixed abutments, substantially as described.

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

JAMES POLLOCK.

Witnesses:

DAVID COTTLE,
H. S. ROBINSON.