

No. 679,648.

Patented July 30, 1901.

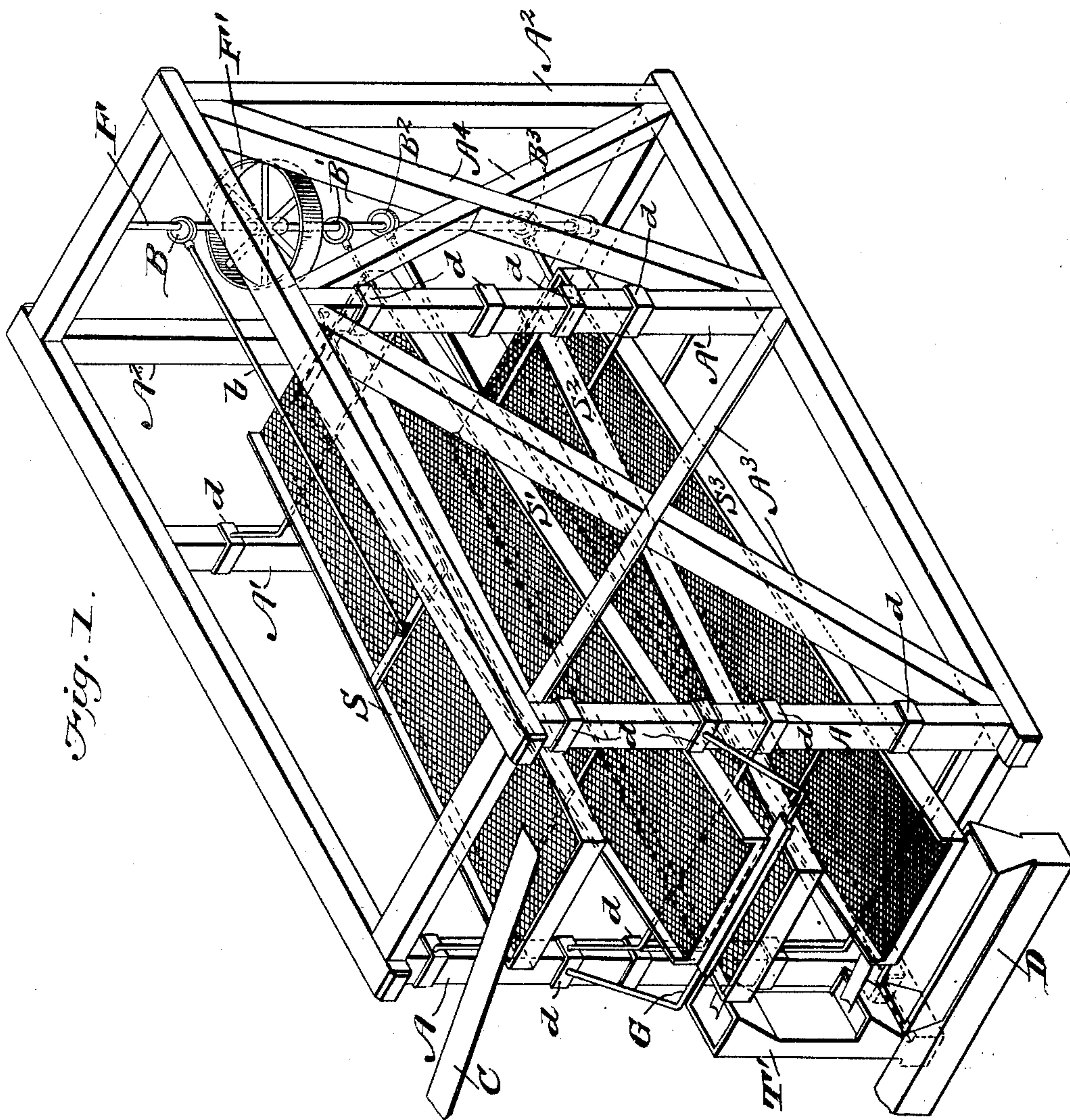
A. E. THORNTON.

SIFTING SCREEN.

(Application filed June 29, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

M. S. Blondell
Edw. W. Byrnes

INVENTOR

A. E. Thornton
BY *Munn & Co.*

ATTORNEYS

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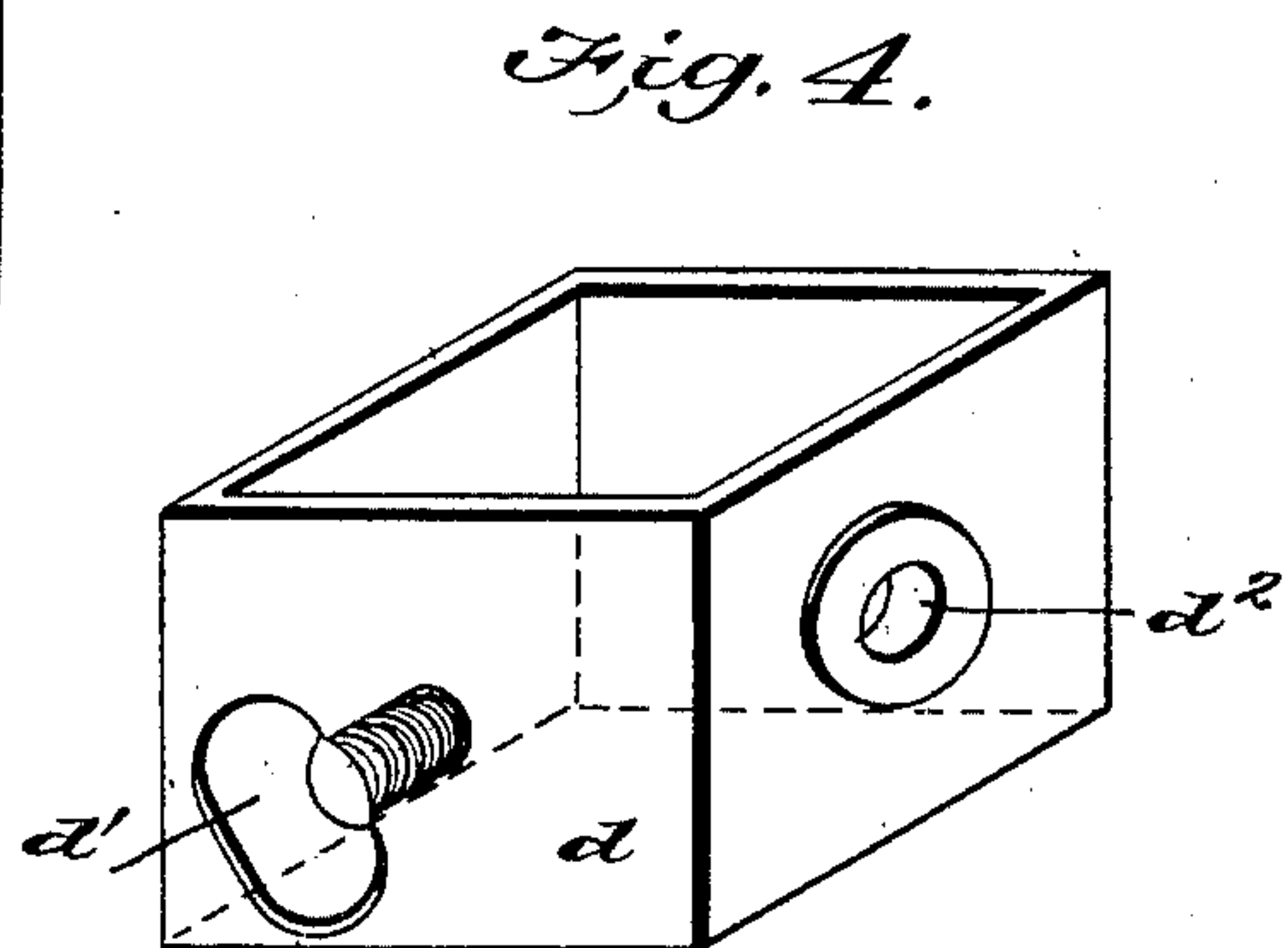
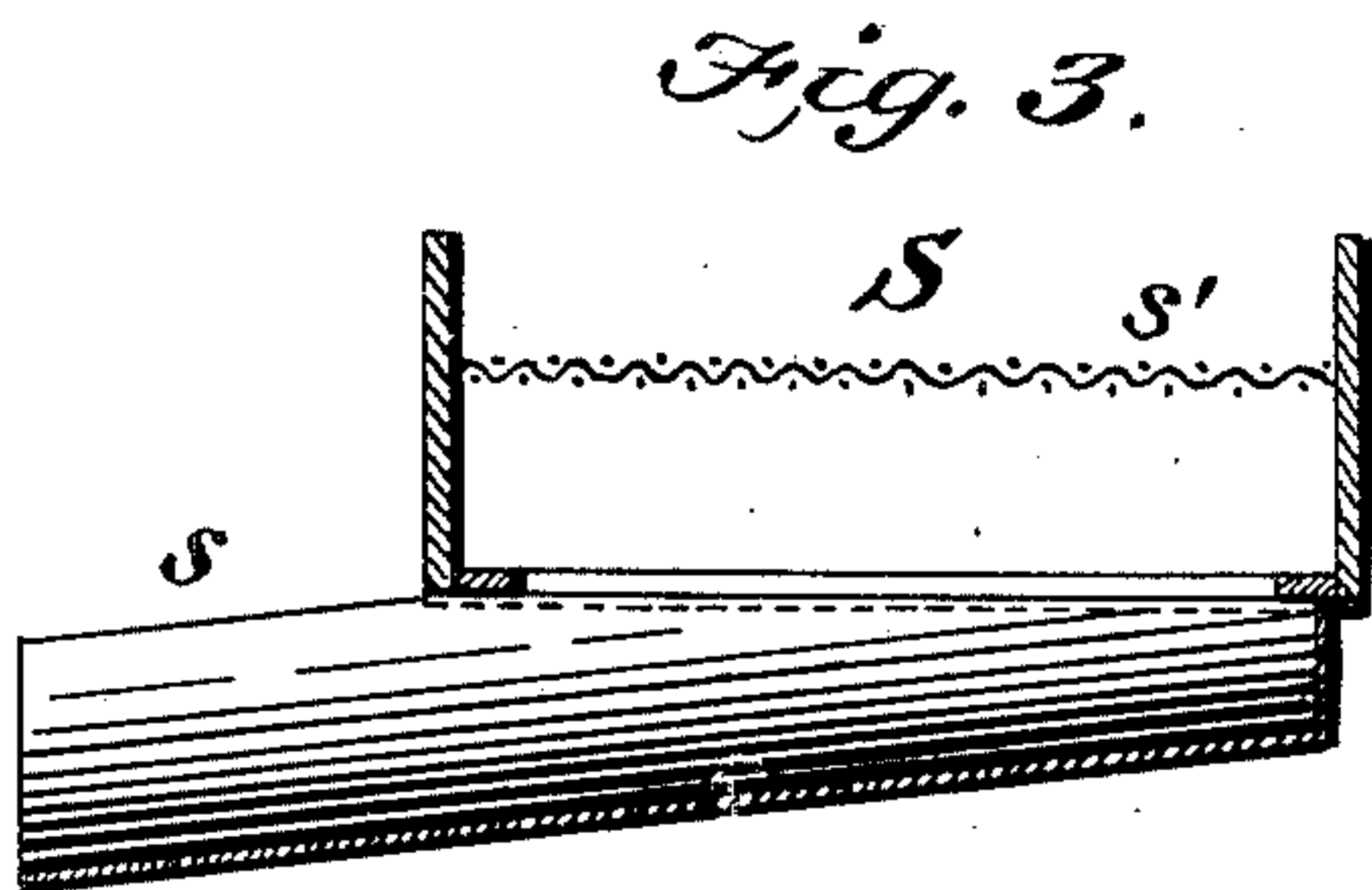
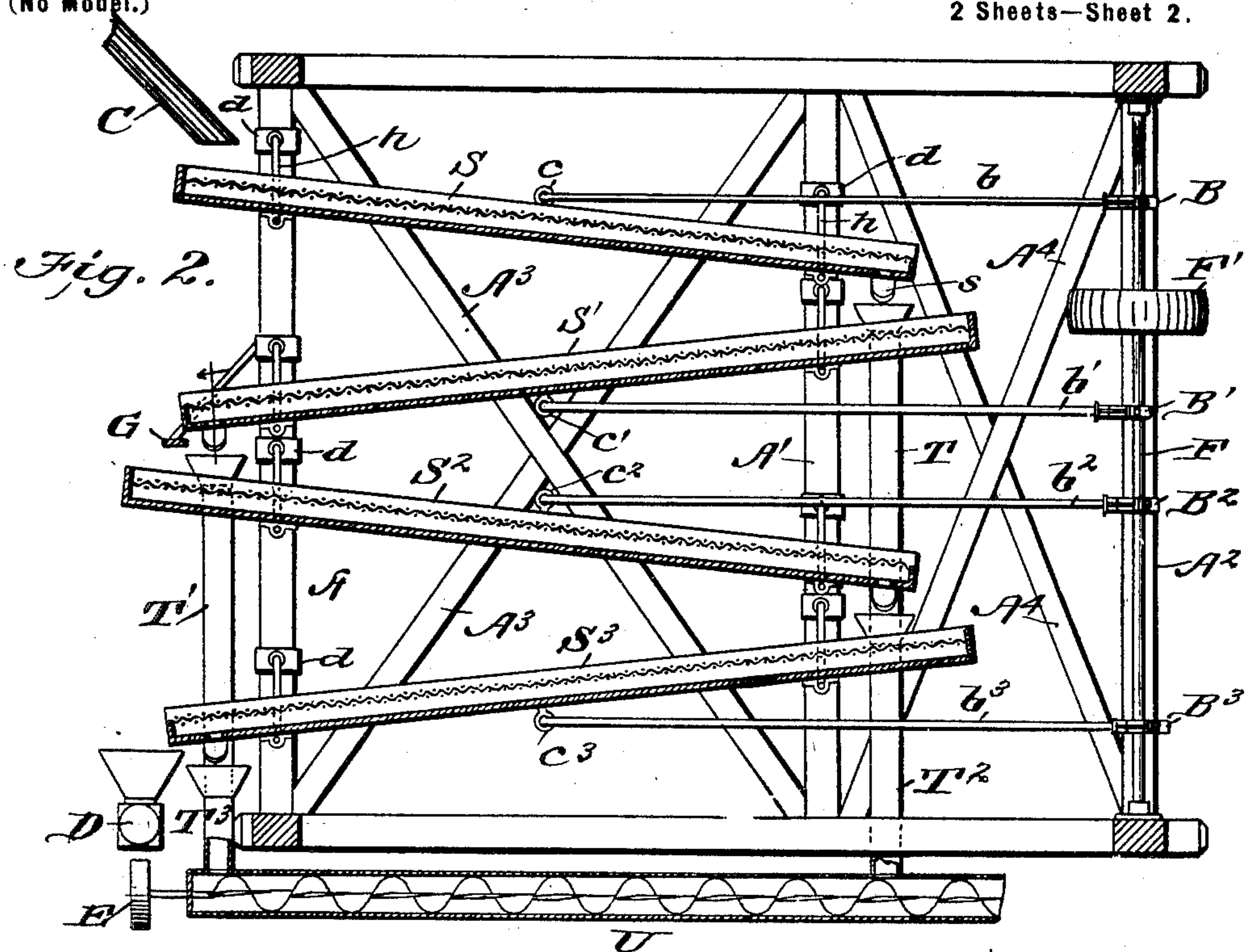
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UNITED STATES PATENT OFFICE.

ALBERT E. THORNTON, OF ATLANTA, GEORGIA.

SIFTING-SCREEN.

SPECIFICATION forming part of Letters Patent No. 679,648, dated July 30, 1901.

Application filed June 29, 1900. Serial No. 22,065. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. THORNTON, of Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful
5 Improvement in Sifting-Screens, of which the following is a specification.

The object of my invention is to provide a sifting-screen to be used primarily as a separator to take the meal from the ground-up
10 cotton-seed immediately after leaving the huller, but which may also be used for a sand-screen or for other analogous purposes. It is designed with reference to securing a better adjustability of the screens of a larger
15 amount of shaker-surface in proportion to the floor-space occupied and to facilitate the substitution of different sizes of screens and to require a minimum amount of power and give a uniform action; and to these ends it
20 consists in the special construction and arrangement of the device which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the entire
25 machine; Fig. 2, a vertical longitudinal section; Fig. 3, a transverse section of one of the screens, taken through its subjacent discharge-spout; and Fig. 4 is a detail perspective view of one of the hanger-cuffs.

30 The main frame of the machine consists of three vertical posts $A A' A^2$ on each side, connected at top and bottom by a rectangular frame. The posts $A A'$ are set farther apart than $A' A^2$ and are connected by X-shaped
35 braces A^3 , and similar braces A^4 are arranged between $A' A^2$. Between the posts $A A'$ are arranged a vertical series of inclined shaking-screens $S S' S^2 S^3$. Each of these consists of a shallow flat-bottom trough (see Fig. 3) hav-
40 ing at its lower end a subjacent transversely-arranged discharge-spout s , and having a little distance above its bottom a woven-wire screen s' . These screens in the vertical series are placed one above the other and inclined
45 reversely, so that the material falling off the low end of one screen drops onto the high end of the next one below. The spouts s of the several screens discharge into hoppers $T T' T^2 T^3$ of different altitudes, and these com-
50 municate at the bottom with a casing U , containing a spiral conveyer E . The material rejected by the lower screens S^3 or which fails

to pass through its wires is delivered into a trough D .

For supporting the several screens so that
55 they may be shaken their opposite ends are carried by bail-shaped hangers $h h$, whose upper ends are bent at right angles to the radial portion and enter seats or bearings d^2 in the rectangular metal cuffs d , which closely em-
60 brace the posts A and A' and are adjustably fixed thereto at any desired height by binding-screws d' . (See Fig. 4.) By loosening these binding-screws and raising or lowering
65 the cuffs on the posts the distance between the screens may be regulated or their inclination changed, as may be desired. This same support also forms a convenient and quick means for substituting new screens
70 when changing the run of the machine.

For shaking the screens each has a connect-
ing-rod, as shown at $b b' b^2 b^3$, connecting it with its own eccentric $B B' B^2 B^3$ on a verti-
75 cal shaft F , provided with a drive-pulley F' . These eccentrics are set quartering or at an angle of ninety degrees to each other on the shaft, so that their thrust and pull on the screens are so divided up in the com-
80 plete revolution of the shaft that the work is performed in a graduated and uniform way with but little vibration and noise and with a minimum of power. The connecting-
85 rods are all attached to the screens about their middle parts, the rods b and b^2 being connected to a cross-bar on the top side of the screens S and S^2 and the rods $b' b^3$ being
90 connected to the bottoms of the reversely-inclined screens $S' S^3$. This arrangement is of importance for several reasons. In the first place, it connects the rods with the screens at
95 their centers of gravity, and, in the second place, it permits the inclination of the screens to be changed without changing the position of the attaching-points of the rods or changing the latter from their normal horizontal po-
100 sitions—that is to say, as any rod connects with its screen in the middle that screen may be raised at one end and lowered at the other to increase its inclination without changing the position of its joint with respect to its connecting-rod, said joint forming a center of motion about which the screen is adjusted and which adjustment therefore involves no change in the plane of the connecting-rod.

In the operation of my machine the ground-up cotton-seed leave the huller and passing through the spout C fall on the top screen, the meats being sifted through the wire screen, while the hulls and meats which do not pass through drop onto the next screen, and so on, the hulls passing on for further cleaning and the meats passing out through the spouts to the hoppers T and conveyer U E.

By means of this shaker-screen the fine meats are not rolled or wallowed in the fine fiber, but a perfect separation is effected.

When used as a screen for cleaning cotton-seed, the upper screen takes out all the material larger than a cotton-seed, letting the seed fall through. The two next screens take out all the fine dust and sand, and the last screen lets all the small and faulty seed pass through, which are placed by themselves until the last of the season, when they can be worked separately. By working cotton-seed in this way they are obtained of nearly the same size, and the huller is enabled to do better work, and the separation is more perfectly accomplished. When used as a cotton-seed screen, where the seed fall from one shaker to the next, they are made to pass over a fixed bar-magnet G, which catches and removes all pieces of iron.

The advantages of my invention are as follows: It requires the smallest amount of power, as the machine is self balancing or compensating, one shaker balancing the other, as they are set on quarters. There is also a very large screen-surface in proportion to the floor-space. The mill can be easily changed by substituting different screens of larger or smaller mesh. The material to be separated is not wallowed, and the fine particles of meat do not get inseparably driven into the fiber of the hulls. Furthermore, the machine is all open and the operator has at all times an unobstructed view of what the machine is doing.

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

1. A separating-screen comprising a framework having four vertical posts provided with hangers having vertically-adjustable connections with said posts, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with

said screens at points midway the length of the screens, and means for reciprocating said rods substantially as described.

2. A separating-screen comprising a framework having four posts provided with hangers having vertically-adjustable connections with said posts, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at a point midway the length of the screens, one set of rods being connected to their screens below their planes and the alternate set of rods to their screens above their planes, and means for reciprocating said rods substantially as described.

3. A separating-screen comprising a framework having four vertical posts provided with hangers having vertically-adjustable connections with said posts, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at points midway between their hangers, one set of rods being connected to their screens below their planes, and the alternate set above their planes, a vertical shaft arranged beyond the ends of the screens and having eccentrics or cranks connecting with and imparting reciprocating motion to said rods and screens substantially as described.

4. A separating-screen comprising a framework having four vertical posts provided with cuffs or sleeves made vertically adjustable thereon, hangers swinging in said cuffs, a series of reversely-inclined screens supported upon said hangers, a series of horizontal rods connecting with said screens at points midway between their hangers, one set of rods being connected to their screens below their planes and the alternate set above their planes, a vertical shaft arranged beyond the ends of the screens and having eccentrics or cranks set quartering, said eccentrics or cranks being connected to the horizontal rods to impart a balanced reciprocating motion to the screens substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT E. THORNTON.

Witnesses:

JAMES S. FLOYD,
D. B. DE SAUSSURE.