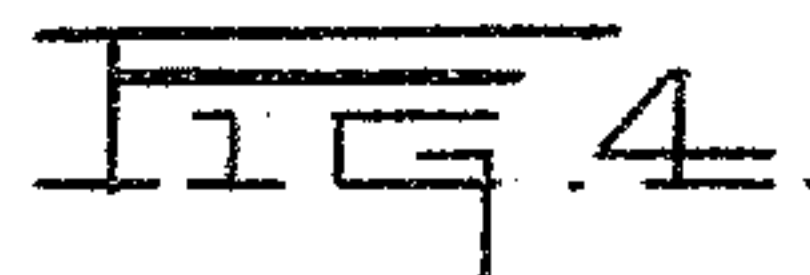
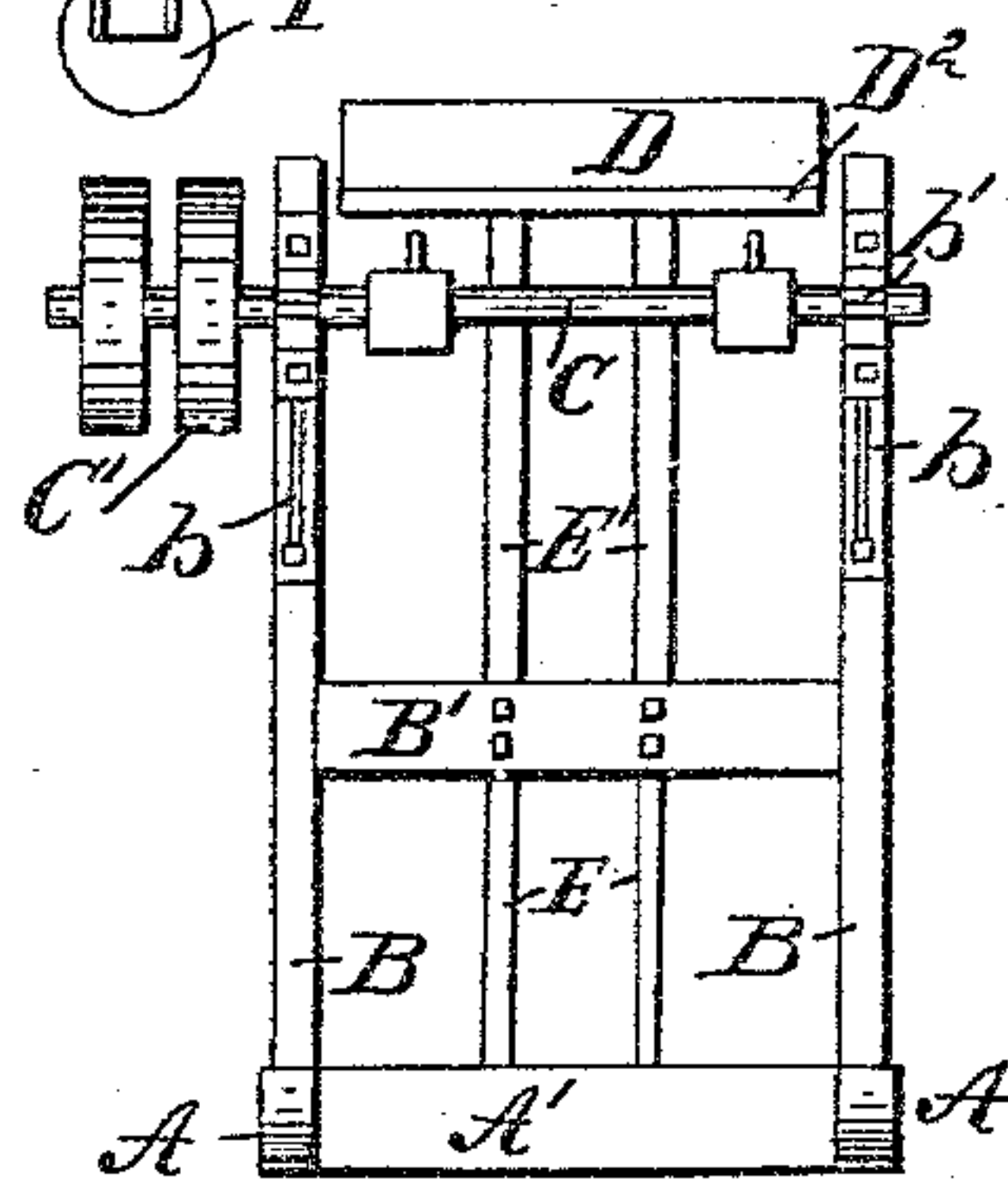
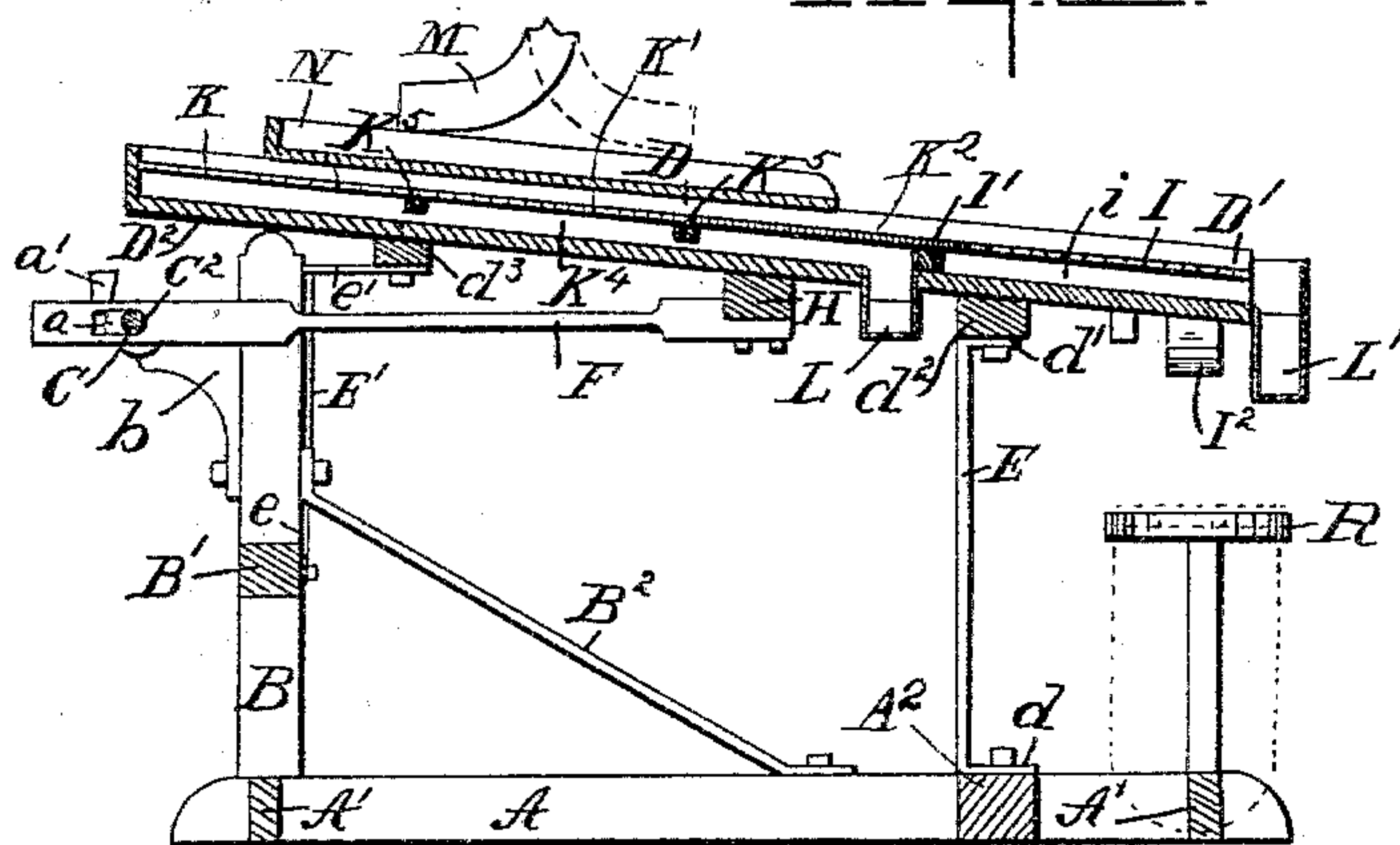
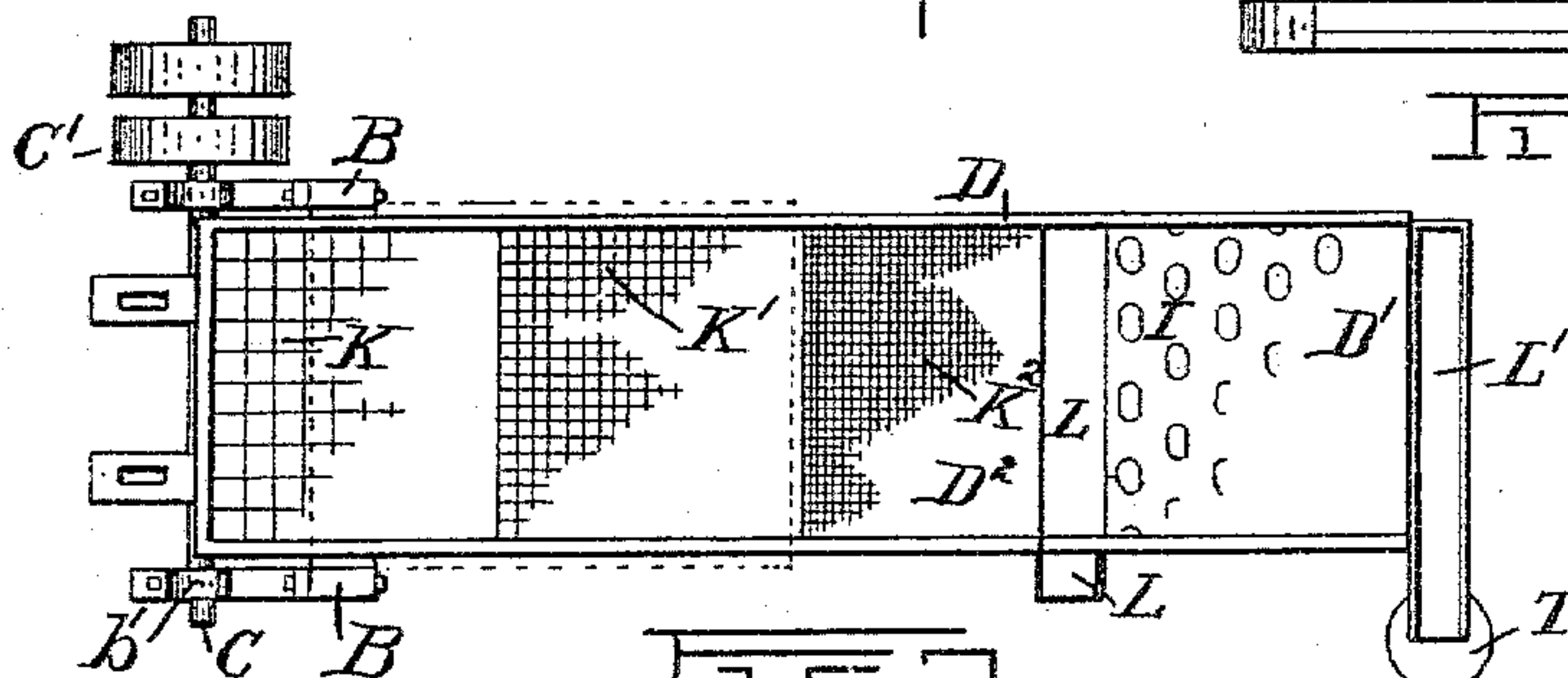
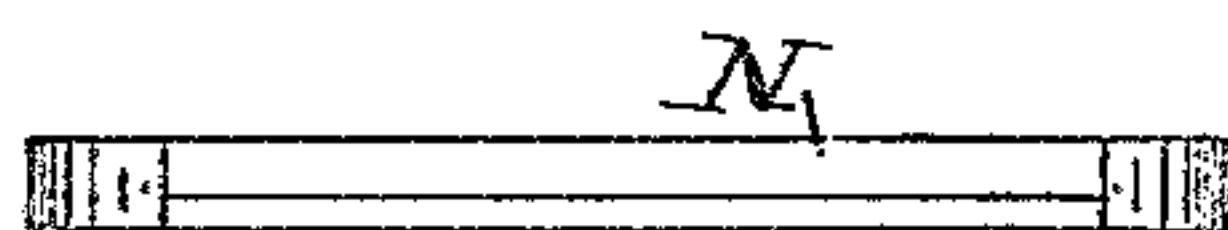
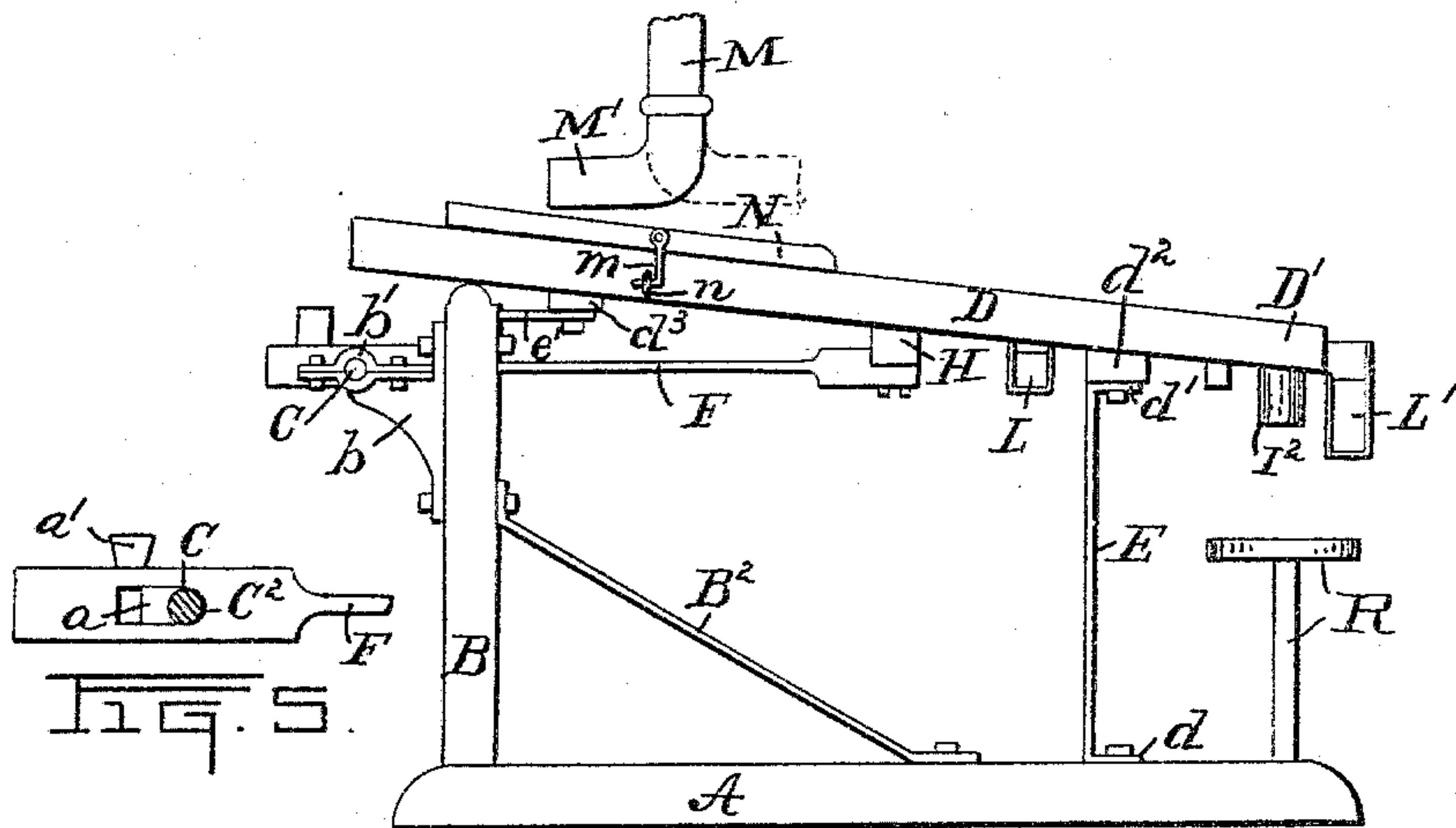


B. W. YOST.  
COFFEE CLEANER.

No. 545,185.

Patented Aug. 27, 1895.



Witnesses

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# UNITED STATES PATENT OFFICE.

BEYNARD W. YOST, OF LANCASTER, ASSIGNOR OF ONE-HALF TO JOEL P. SCHELLY, OF PHILADELPHIA, PENNSYLVANIA.

## COFFEE-CLEANER.

SPECIFICATION forming part of Letters Patent No. 545,185, dated August 27, 1895.

Application filed February 16, 1895. Serial No. 538,728. (No model.)

*To all whom it may concern:*

Be it known that I, BEYNARD W. YOST, a citizen of the United States, residing in Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Coffee-Cleaners, of which the following is a specification.

This invention relates to improvements in that class of devices designed for cleaning coffee; and the object of the improvement is to separate all undesirable matter from the coffee. In cleaning coffee it is desirable to remove all broken berries from the highest and best grades, while with the lower and poorer grades the broken and smaller berries are retained with the coffee and only the foreign matter and unseparated berries are removed therefrom; and the lower the grade the smaller the berries and parts thereof which are intended to be retained with the coffee.

With these ends in view the invention consists in the construction and combination of the various parts, as hereinafter described, and then pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of the cleaner; Fig. 2, a top plan view of the same, the screens being partially cut away; Fig. 3, a longitudinal vertical section; Fig. 4, an elevation of the end of the cleaner at which the power is applied; Fig. 5, an enlarged side view of the connection between the cam and a reciprocating rod, and Fig. 6 an elevation of the discharge end of the deflector.

Similar letters indicate like parts throughout the several views.

For the purposes of this specification the upper end of the screen-frame, or that to which the coffee is delivered, is termed the "head" and the lower or discharge end the "foot."

Referring to the details of the drawings, A indicates the longitudinal beams of the base of the frame supporting the cleaner, and A' the cross-pieces of said base.

B designates the posts supporting the operating mechanism, B' a cross-piece connecting the posts, and B<sup>2</sup> diagonal braces thereof. To the outer edges of posts B are attached

brackets b' on the tops of which are secured journal-bearings b' supporting the shaft C, actuated through belt-pulley C' mounted thereon.

D indicates a screen-frame supported near the delivery end D' by posts E, having elbows d on their lower ends, bolted to a cross-piece A<sup>2</sup>, framed in beams A, and similar elbows d' on their upper ends, bolted to a cross-piece d<sup>2</sup> on the bottom of the screen-frame. Similar posts E' support the receiving end of the screen-frame, and have their lower ends e bolted to cross-piece B' and elbows e' formed on their upper ends and bolted to cross-piece d<sup>3</sup> on the bottom of the screen-frame. Posts E and E' are rigidly attached where connected with the other parts of the cleaner, and are formed of plates of spring metal or other elastic material. Longitudinal reciprocating motion is imparted to the screen-frame through rods F. One end of each of these rods has a cam connection with shaft C, as shown at C<sup>2</sup>, the wear of the bearings of said shaft in rods F being taken up by the horizontally-adjustable caps a and wedges a'. The other ends of rods F are rigidly secured to a plate H, extending transversely beneath the bottom D<sup>2</sup> of the screen-frame. Between their ends rods F are formed of any flat elastic or spring material.

The screen-frame carries four separate screens. The compartment i beneath the screen I at the lower end of said frame is separated from the compartment K<sup>4</sup> beneath the other three screens by a partition I. The screen K, covering the upper end of compartment K<sup>4</sup>, is of the coarsest mesh used with the cleaner, the screen K<sup>2</sup>, covering the lower end of said compartment, of the finest, and the screen K', between screens K and K<sup>2</sup>, of a medium-sized mesh. The refuse received in compartment K<sup>4</sup> through the screens above it is delivered into an inclined trough L, extending transversely of the lower end thereof, and thence discharged by the movement of the screen-frame. At the lower end of the screen-frame there is a similar trough L', which receives the refuse matter passing over all the screens.

The meeting edges of screens K, K', and K<sup>2</sup> are supported by transverse bars K<sup>5</sup>, se-



cured in the sides of the screen-frame above the bottom thereof. Over and above the bar  $K^5$ , on which screens  $K$  and  $K'$  meet, is a feed-pipe  $M$ , on the lower end of which is a revolvable elbow-spout  $M'$ , adapted to be turned to discharge on either screen  $K$  or screen  $K'$ . When it is desirable that the coffee be at once fed to screen  $K^2$ , a removable deflector or chute  $N$  is placed over the screen-frame and secured thereto beneath spout  $M'$  by hooks  $m$  and staples  $n$ , said chute delivering directly to screen  $K^2$ . The first three screens  $K$ ,  $K'$ , and  $K^2$  are of the ordinary wire mesh; but screen  $I$  is formed by puncturing a plate with oval openings of a size to permit the passage of fully-developed coffee-seeds, as seen in Fig. 2.

The cleaner herein described is more particularly designed for removing foreign matter from the coffee after it is roasted. The extent to which coffee is cleaned is determined by its quality, the coarser grades not requiring the amount of screening necessary for the finer grades. The finest coffee is delivered to the coarser screen  $K$  and is carried down over screens  $K'$  and  $K^2$  to screen  $I$  by the movement of the screen-frame, and passing through the oval openings in screen  $I$  into compartment  $i$  is discharged through a trough or chute  $I^2$  in the bottom thereof, being received by a bag (shown by dotted lines) supported by a frame  $R$ . The inferior kinds of coffee, according to their grades, are delivered directly to sieves  $K'$  or  $K^2$ . To reach the latter primarily the deflector or chute  $N$  is placed on the screen-frame beneath spout  $M'$  with its lower end in position to deliver the coffee to screen  $K^2$ . In all cases the ravelings of the coffee-bags or other fibrous matter pass over all the screens and are delivered into spout  $L'$  and thence discharged into a receptacle  $T$ , placed in position to receive the same.

To screen the coffee thoroughly it is necessary that the movement of the screen-frame be as smooth and gentle as possible. With this end in view the throw of the cams is comparatively slight; and in order to avoid undue jerking and jarring of the screen-frame the posts  $E$  and  $E'$  and rods  $F$  are formed of elastic or spring material and rigidly attached to said screen-frame instead of being of rigid material and having a hinge connection therewith.

This machine is essentially a coffee-cleaner, not a coffee-grader. It is intended to remove undesirable matter from coffee of different grades, not to separate the seeds of different sizes from each other. With this object in view the screens are arranged in the order shown and described. Coffees of the best quality are fed to the upper screen  $K$ , the mesh of which is of such size as to permit all matter therein of smaller size than the fully-developed berries to pass through; and after the coffee leaves the upper screen no other

matter is separated therefrom by the screens it moves over until it reaches the last one  $I$ , through the openings in which the berries of normal size pass, the fibrous or other long matter and the unseparated berries sliding down to the lower spout  $L'$ . The only possible benefit this grade of coffee can receive from passing over the intermediate screens  $K'$  and  $K^2$  is in having rubbed off of it any dust which may have adhered thereto. It is not desirable that the next inferior grade be cleaned as thoroughly as the best—that is to say, the smaller seeds are not to be removed or sorted out—and therefore this grade is fed directly to screen  $K'$ , having a finer mesh than screen  $K$ . In like manner with the feeding of the next lower grade to screen  $K^2$  still smaller grains are intended to be retained in it, the dust, the unseparated berries, and the long matter only being removed from it.

It is evident that numerous changes in the construction of the cleaner might be resorted to without departing from the spirit and scope of my invention. Hence I would have it understood that I do not confine myself to the exact construction shown and described, but consider myself at liberty to make such changes as fairly fall within the spirit and scope of my invention.

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

1. The combination, with a reciprocating screen-frame, of series of screens arranged in succession from the head toward the foot thereof, the mesh of said screens decreasing in size from the head to the foot of said frame, a device adapted to discharge alternatively onto two of said screens adjoining each other, means for conveying the discharge from said device directly to a screen below said two adjoining screens, and a screen forming a continuation of said series of screens and having a mesh larger than the mesh of any of the screens of said series, for the purpose specified.

2. The combination, with a reciprocating screen-frame, of a series of screens of different sizes of mesh, a revolvable spout adapted to deliver onto two of said screens adjoining each other, means for conveying the discharge from said spout directly to a screen below said two adjoining screens, and a screen forming a continuation of said series of screens and having a mesh larger than the mesh of any of the screens of said series, for the purpose specified.

3. The combination, with a reciprocating screen-frame, of a series of screens of different sizes of mesh, a revolvable spout adapted to deliver onto two of said screens adjoining each other, a chute constructed to be removably secured to the frame under the spout and discharging to a screen below the spout, and a screen forming a continuation of said series of screens and having a mesh larger than the



mesh of the screen onto which said chute delivers, substantially as and for the purpose specified.

4. The combination, with a reciprocating screen-frame, of a series of screens arranged in succession from the head toward the foot thereof, the mesh of said screens decreasing in size from the head to the foot of said frame, a single compartment extending beneath said series of screens and having a discharge opening, a device adapted to discharge alternatively onto two of said screens adjoining each other, means for conveying the discharge from said device directly to a screen below said two adjoining screens, a screen forming a continuation of said series of screens and having a mesh larger than the mesh of any of the screens of said series, and a separate compartment located beneath said screen having the larger mesh, for the purpose specified.

5. The combination, with a reciprocating

screen-frame, of a series of screens arranged in succession from the head toward the foot of the frame, the mesh of said screens decreasing in size from the head toward the foot 25 of the frame, a single compartment extending beneath said series of screens and having a discharge opening, a revoluble spout adapted to deliver onto two of said screens adjoining each other, a chute constructed to 30 be removably secured to the frame under the spout and discharging to a screen below the spout, a screen forming a continuation of said series of screens and having a mesh larger than the mesh of any one of said series of 35 screens, and a separate compartment located beneath said screen having the larger mesh, substantially as and for the purpose specified.

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