

(No Model.)

3 Sheets—Sheet 2.

H. SIMON.
SIEVE.

No. 390,913.

Patented Oct. 9, 1888.

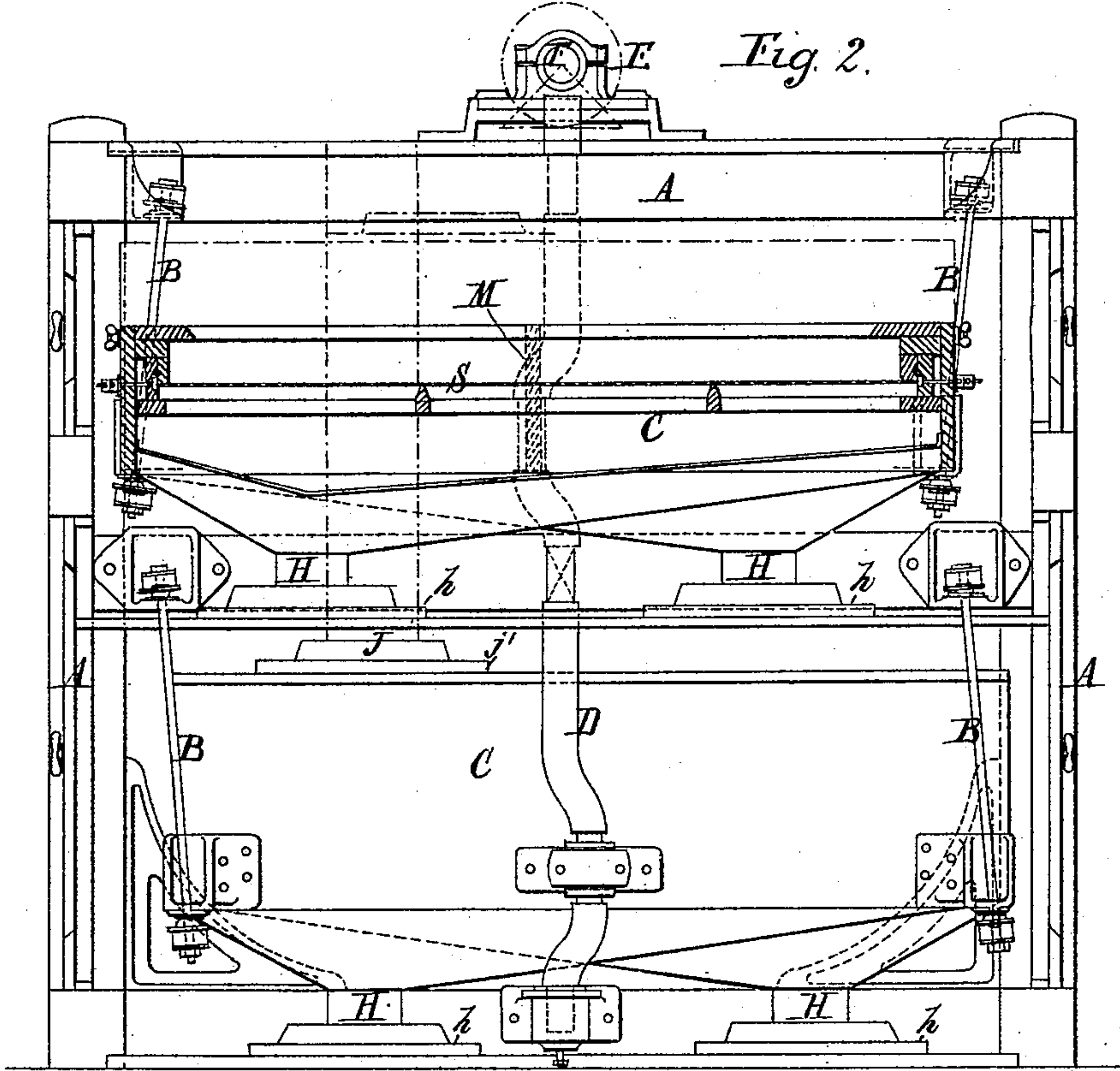


Fig. 2.

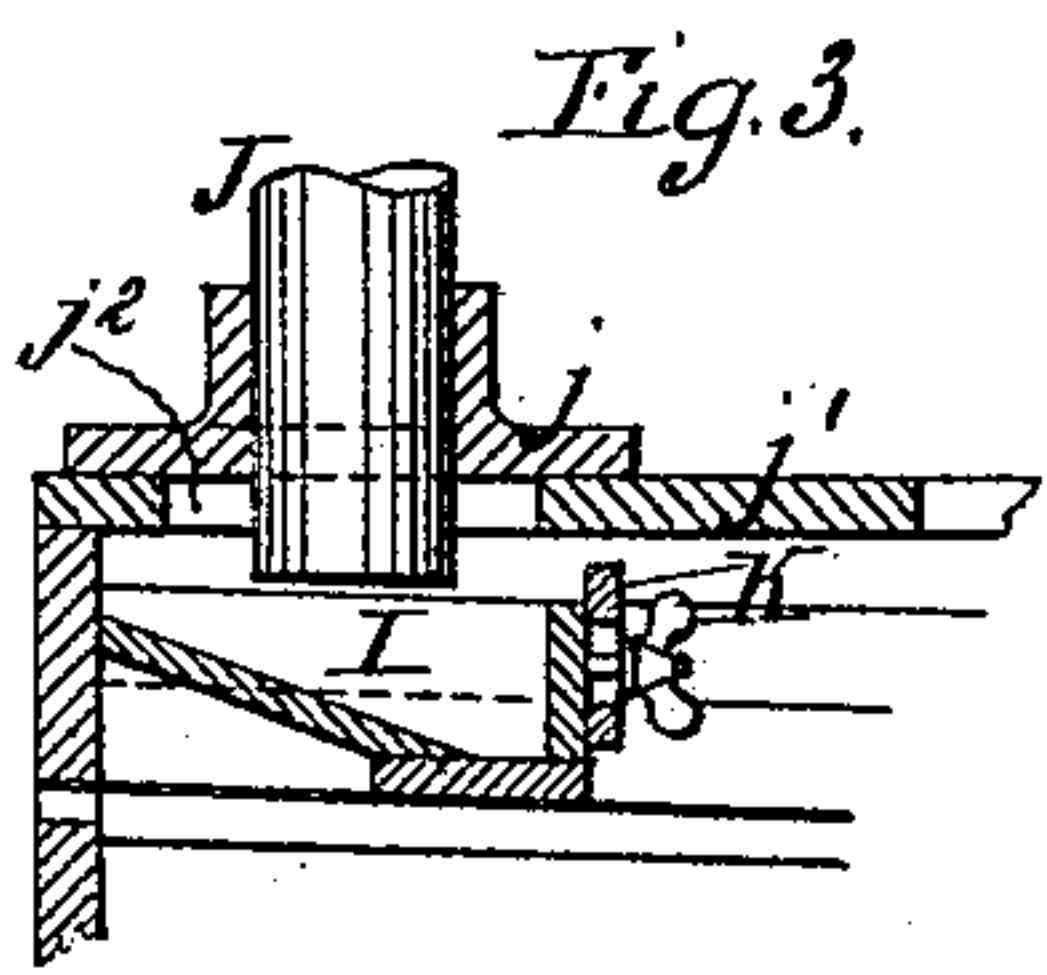


Fig. 3.

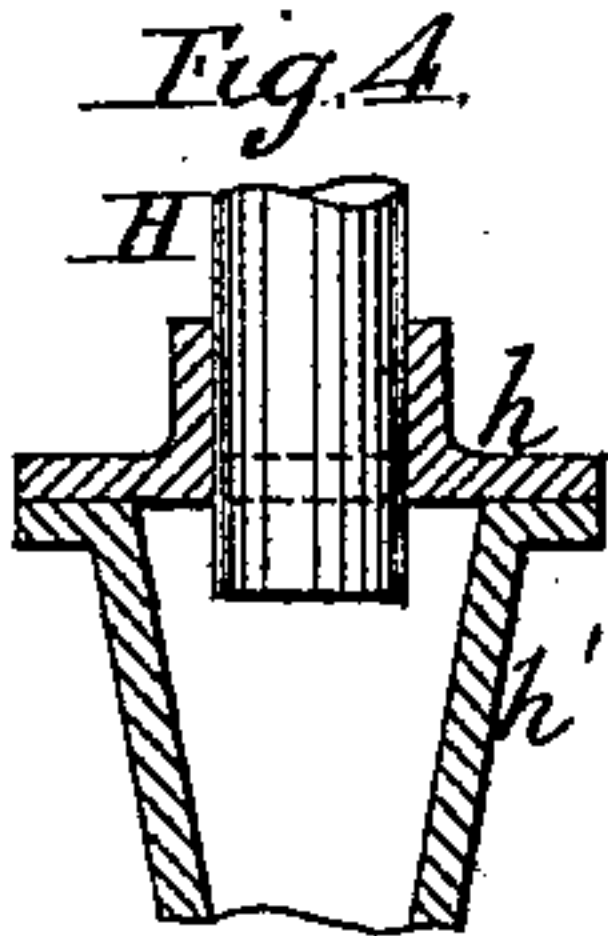


Fig. 4.

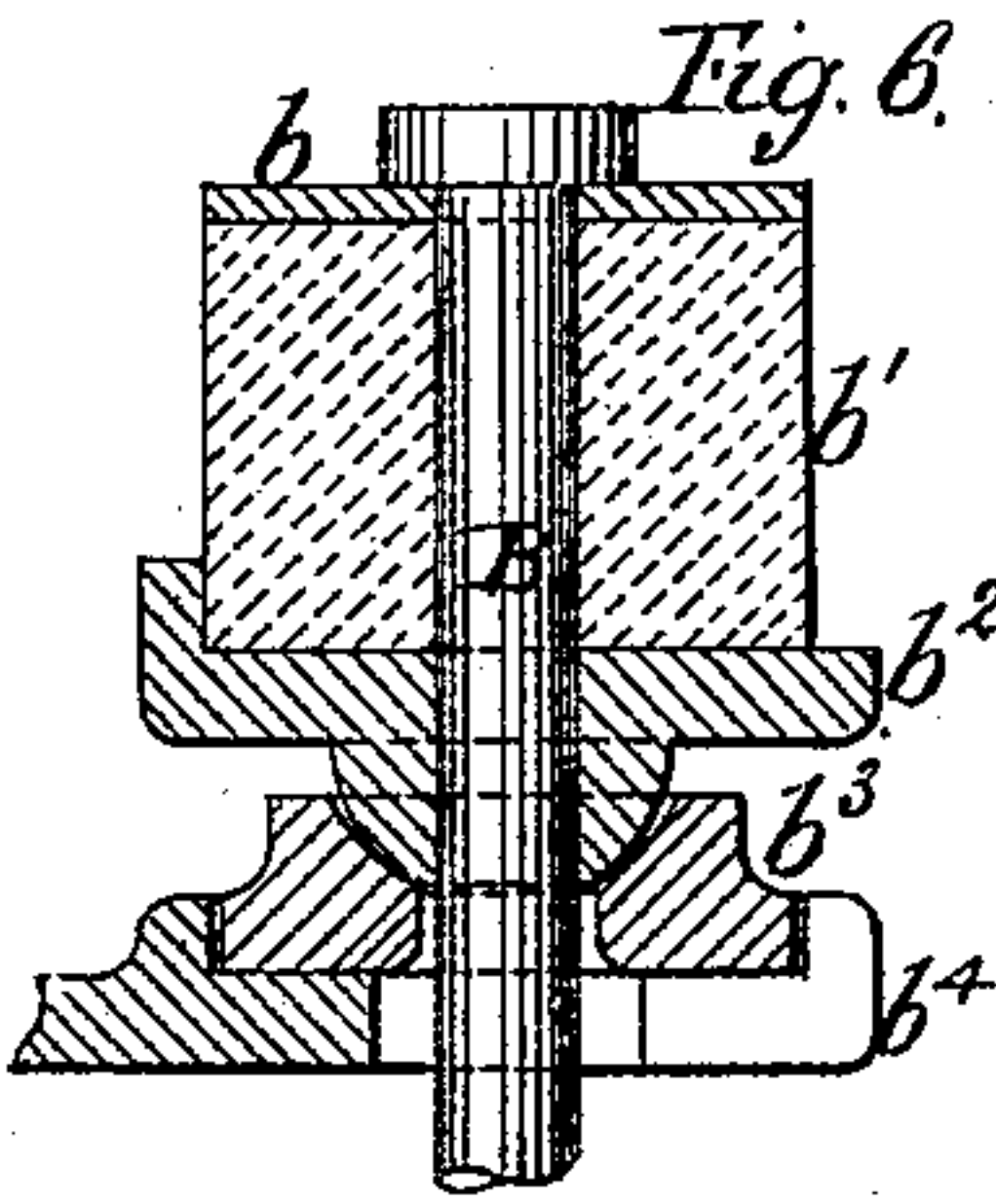


Fig. 5.

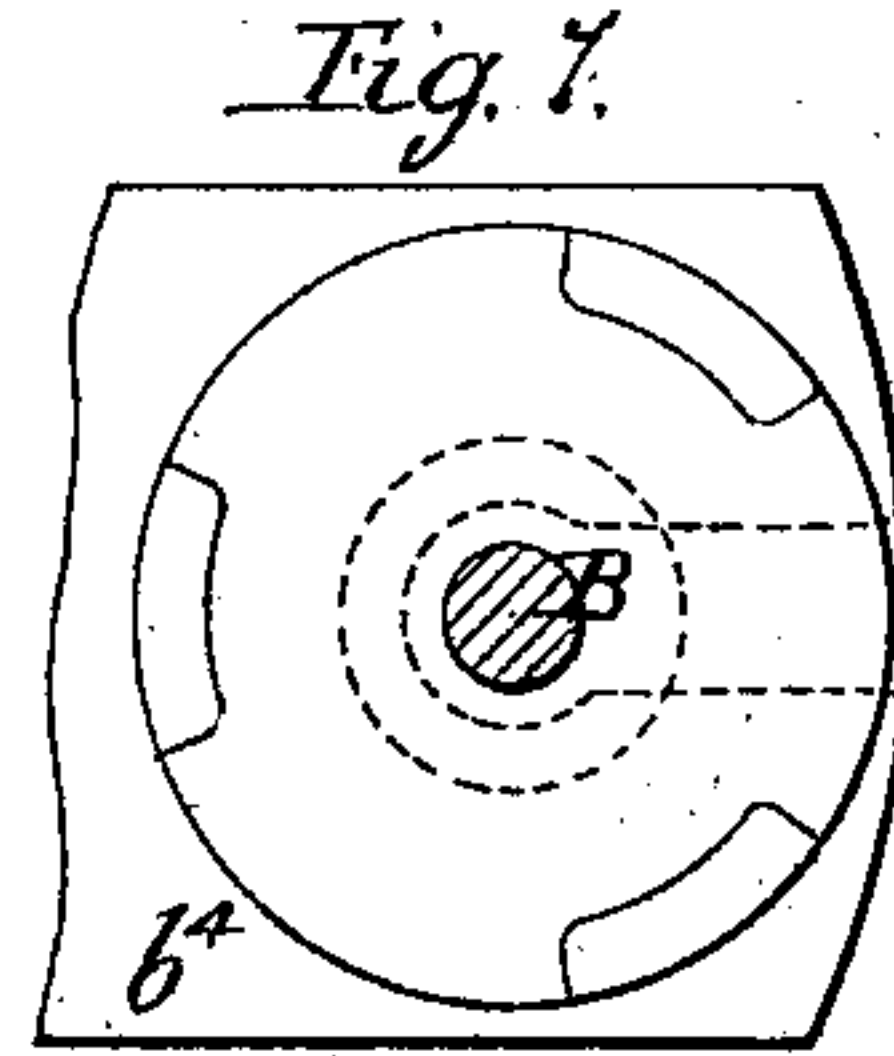


Fig. 6.

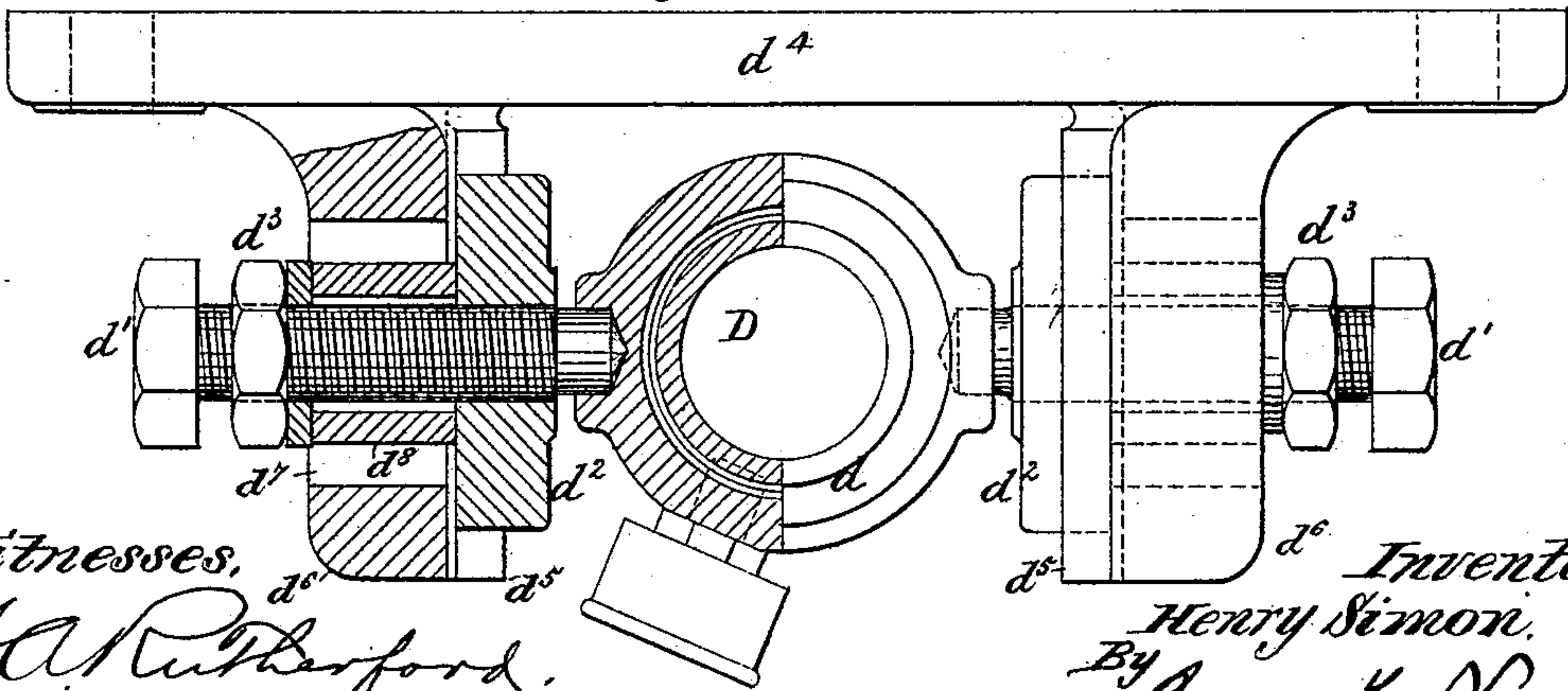


Fig. 7.

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Inventor,
Henry Simon,
By James L. Norris,
Att'y.

(No Model.)

3 Sheets—Sheet 3.

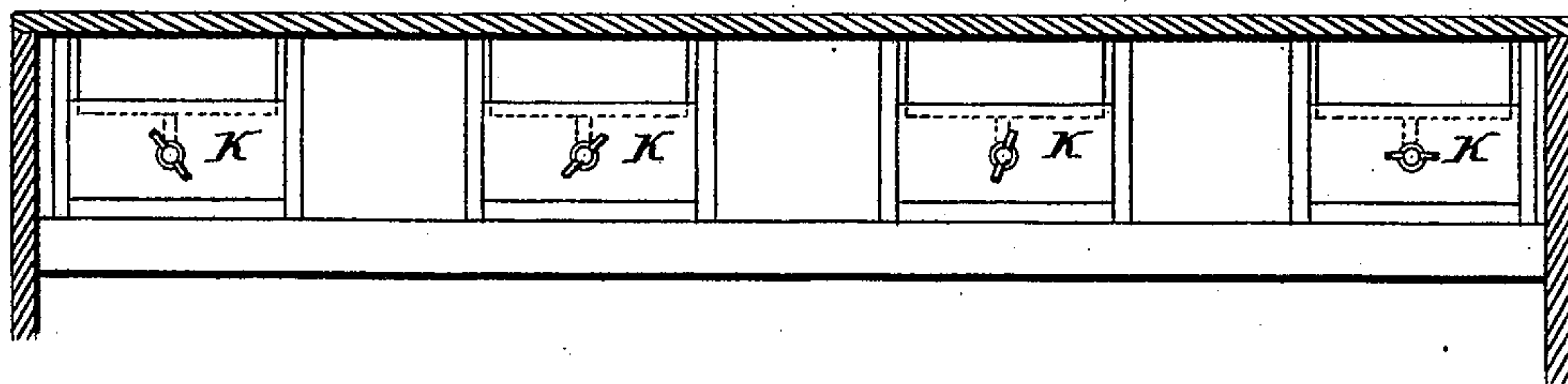
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Fig. 8.



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UNITED STATES PATENT OFFICE.

HENRY SIMON, OF MOUNT STREET, MANCHESTER, COUNTY OF LANCASTER,
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SIEVE.

SPECIFICATION forming part of Letters Patent No. 390,913, dated October 9, 1888.

Application filed December 22, 1887. Serial No. 258,711. (No model.) Patented in England September 2, 1886, No. 11,193.

To all whom it may concern:

Be it known that I, HENRY SIMON, a citizen of England, residing at Mount Street, Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Sieves, (for which I have obtained a patent in Great Britain, dated September 2, 1886, No. 11,193, and made application for a patent dated October 13, 1887, No. 13,914,) of which the following is a specification.

This invention has for its object to provide a novel sieve; and it consists in the features of construction and combination of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 shows in its upper part a longitudinal section and in its lower part a side view, the outer side casing being supposed to be removed, illustrating my invention in connection with two parallel sieve-frames. Fig. 2 shows in its upper part a transverse section of the same and in its lower part an end view, the outer end casing being supposed to be removed. Fig. 3 is a vertical section, to an enlarged scale, of one of the feeding mouths and tubes of the sieves. Fig. 4 is a vertical section of one of the delivery mouths and tubes. Fig. 5 is a plan, partly in section, of one of the crank bushes or bearings. Fig. 6 is a vertical section, and Fig. 7 is a plan, of one of the suspension-joints of the sieves; and Fig. 8, a detail face view of the distributing-trough at the receiving end of the sieve.

Referring first to Figs. 1 and 2, within a casing, A, are suspended, each by rods B, giving freedom of swing in all directions, (as will hereinafter be described with reference to Figs. 6 and 7,) two parallel sieve-frames, CC, the one above the other. At the ends of the casing are journaled two vertical shafts, D D, driven in the same direction at the same speed. This may be done from a horizontal shaft, F, worked from any suitable motor; or, either of the two vertical shafts being driven, the other may be driven from it by a belt or by rods coupling cranks on the two shafts. On each of the two shafts D are two cranks, the lower crank being formed opposite the upper crank on each shaft, but the pair of cranks at the same level on the two shafts being set parallel to each

other. Each crank at the one end of the casing is connected by a bushed bracket, G, to one of the sieve frames, and at the other end of the casing each crank is connected to one of the sieve-frames by a peculiar self-accommodating bearing, which will hereinafter be more fully described with reference to Fig. 5. The sieve S, of wire-gauze, perforated metal, porous fabric, or any material such as is ordinarily used for sifting, is fixed on an incline within the frame C, which is covered partly, or, when fine material is dealt with, is wholly covered over, and under the sieve is a bottom, which may be of sheet metal, sloping to a delivery-tube, H. At the feeding or left hand end of the sieve-frame C there is formed a trough, I, into which opens the feeding-tube J. From the trough I there are openings at the upper part of its side next the sieve, each opening provided with an independent adjustable gate or door, K, which can be shifted up or down and set by a thumb-nut higher or lower, thus adjusting the feed from the trough I to the sieve, so as to give equal distribution of the material to be sifted. While the finer particles that pass through the meshes of the sieve are collected on the inclined bottom and issue by the delivery tube H, the coarser material, which does not pass through the meshes, collects in the trough L at the lower (right hand) end and passes away by an outlet-tube similar to H. Each sieve may be divided by a longitudinal partition or a transverse partition, M, (shown in dotted lines,) so as to convert it into two independent sieves; but in that case each half has to be provided with feed and delivery appliances such as I have described.

The metal or other rigid and stationary feeding-tube J, Fig. 3, has fitted on it a flanged ring, *j*, which rests and slides on the cover *j'* of the sieve frame, the tube J itself projecting through the hole *j²* in the cover, which hole is large enough to admit of all the movement of the sieve without its sides encountering the tube J. The flanged ring *j* is made of such width that in all positions of the sieve-frame it overlaps the edges of the hole. In like manner the rigid delivery-tube H, Fig. 4, has fitted on it a flanged ring, *h*, which rests and slides on the mouth of the discharge-duct *h'*. The flanged rings *j* and *h* at the feed and de-

livery apertures, respectively, by always covering the orifices, which are made large enough to permit the sieve movement, effectually prevent escape of dust.

5 At the one end (the left-hand) each sieve-frame is connected to the crank by an ordinary bracket, G, with a bushed eye embracing the crank; but at the other end (the right) the bracket and bush are arranged as shown in
10 Fig. 5 to admit of a little rocking and sliding movement in case of want of parallelism of the two vertical crank-shafts or inaccuracy in the alignment or throw of the two cranks that work the one sieve-frame.

15 Referring to Fig. 5, D is the crank fitted to revolve in the bushed eye of a boss, d , which is pivoted on two set-screws, d' , as trunnions. The slide-plates d^2 are located directly opposite each other on guides d^3 , formed on the
20 inner sides of two arms, d^6 , projecting from a bracket, d^4 , which is secured to the discharging end of the sieve-frame C. The arms d^6 are each provided with an elongated slot, d^7 , in which is adapted to slide to and from the
25 bracket d^4 a tubular block, d^8 , through which the set-screw d' loosely passes. The slide-plates d^2 have screw-threaded orifices through which the set-screws d' pass, and are locked by nuts d^3 , the inner ends of the set screws
30 being journaled in seats in the bushed boss d , in which the crank of the shaft D is journaled, all in such manner that the revolution of the crank reciprocates the bracket and the sieve-frame connected therewith. The bushed eye
35 d , being solely supported by the ends of the set-screws d' , is free to rotate thereupon in the movements of the sieve-frame. The object of this construction is to allow for errors of alignment or eccentricity of the vertical shafts D
40 and their cranks. As the bushed eye or bearing d encircles the crank and is free to rock or rotate on the ends of the set screws d' , which can move to and from the bracket d^4 , if the crank at the one end of the sieve-frame should
45 have a little more or less throw or should not be quite parallel to the crank at the other end, the bushed eye or bearing can rock or rotate and slide sufficiently to allow for the error.

50 The rods B, by which the sieve-frames are suspended, are mounted as shown in Figs. 6 and 7. The rod B is formed with a bolt-head, and is passed through a metal washer, b , a pad, b' , of caoutchouc or equivalent elastic mate-

rial, and a plate b^2 , having on its lower side a hemispherical boss which rests in a corresponding hollow in a bearing, b^3 , that is held 55 in position between three ribs projecting from a plate, b^4 . The plate b^4 , which is fixed on the stationary framing, has a hole through it for passage of the rod B, and a notch extends from 60 this hole to the end of the plate, by which the rod can be introduced. The lower end of each rod B is connected to the sieve-frame by a joint, which is the same as that shown in Fig. 6 inverted, the plate b^4 being in this case fixed to 65 the sieve-frame.

Having thus described the nature of my invention and the best means that I know of for carrying the same out in practice, I claim—

1. The combination, with the frame A, sieve-frames C, and rotary crank-shafts D, of the vertical suspending-rods B, yielding spherical bearings at the upper and lower ends of the rods, the bushed brackets G, connecting one end of the sieve-frames with one crank-shaft, 75 and the sliding and pivoted eyes connecting the opposite ends of the sieve-frames with the other crank-shaft, substantially as described.

2. The combination, with the main frame A, the rotary crank-shafts D, and sieve-frames C, 80 operated thereby, of the suspending-rods B, having at each end the washer b , cushion b' , plate b^2 , provided with a hemispherical boss, and the supported bearing b^3 , having a seat receiving said boss, substantially as described. 85

3. The combination, with the main frame A, sieve-frame C, and rotary crank-shafts D, of the bracket d^4 , secured to one end of the sieve-frame and having the slotted arms d^6 , the slides d^2 , supported by said arms, the set-screws 90 d' , passing through the arms and slides, and the rocking-eyed boss d , encircling a crank of one of the crank-shafts and pivoted on the inner ends of the set-screws to rock and thereby accommodate errors of alignment or eccentricity of the crank-shafts, substantially as described. 95

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of November, 100 A. D. 1887.

HENRY SIMON.

Witnesses:

JOSEPH INGLEBY,
W. SCHROLLER.