(No Model.) 2 Sheets—Sheet 1.

# A. M. BINAU.

## COMBINED SIEVE AND MIXER.

No. 454,323. Patented June 16, 1891.

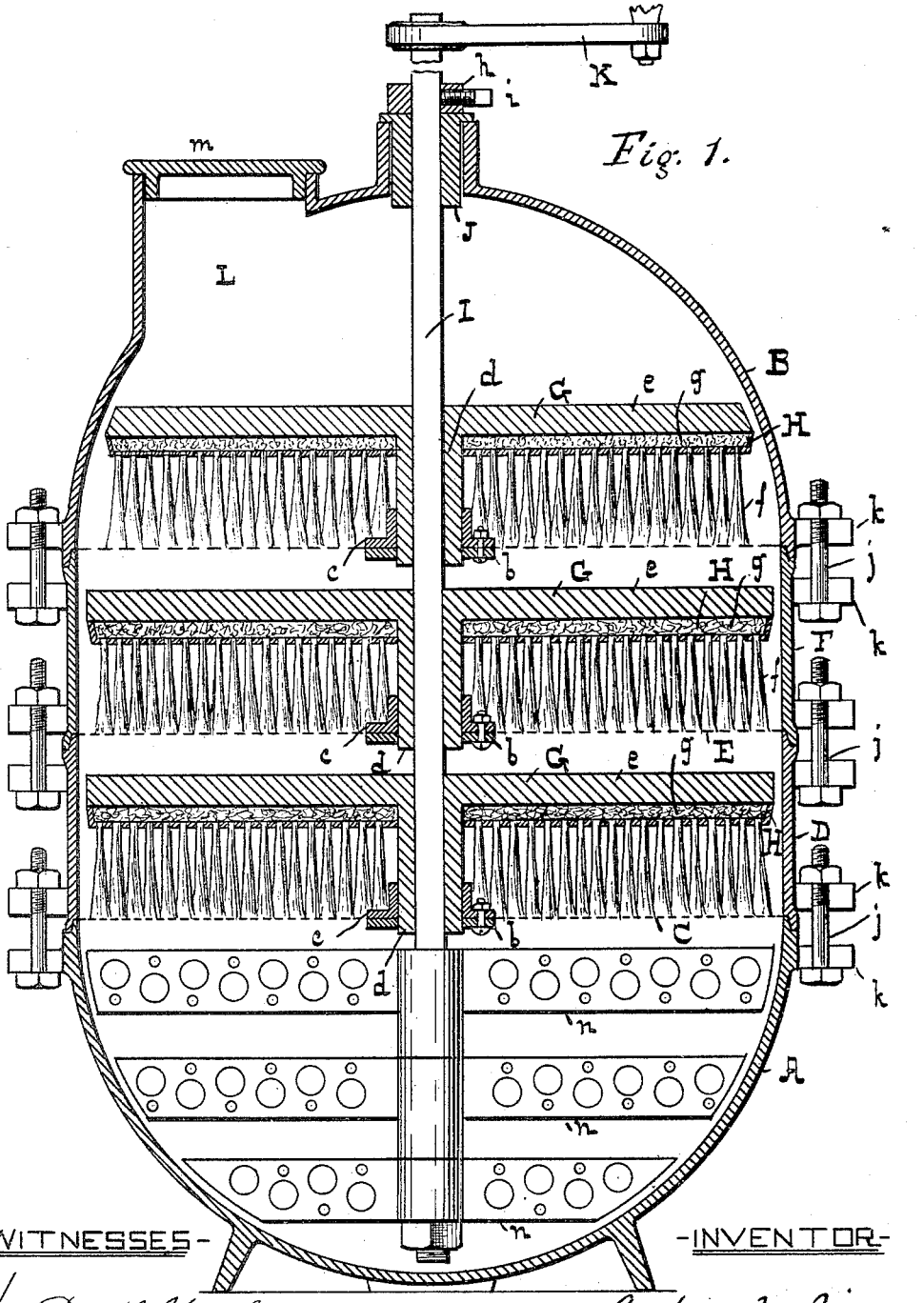


Fig. 1.

-WITNESSES-

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(No Model.) 2 Sheets—Sheet 2.

# A. M. BINAU.

## COMBINED SIEVE AND MIXER.

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Fig. 2

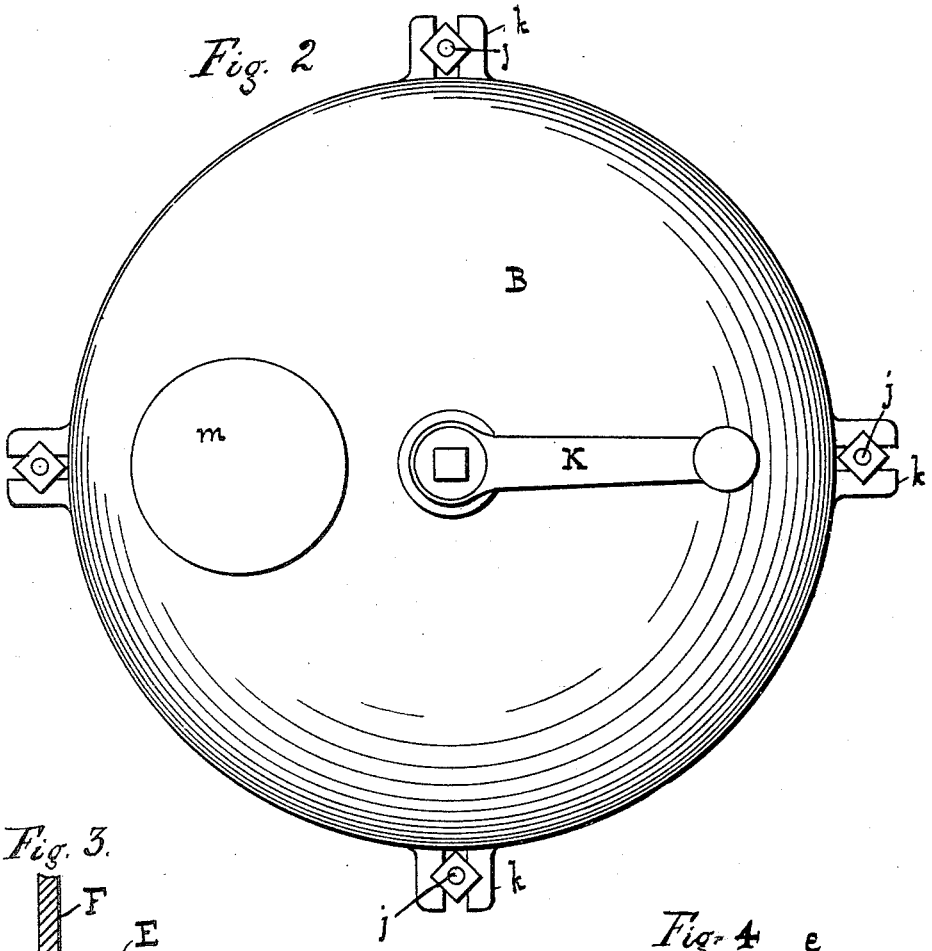



Fig. 3.

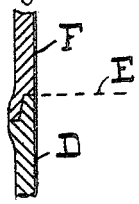
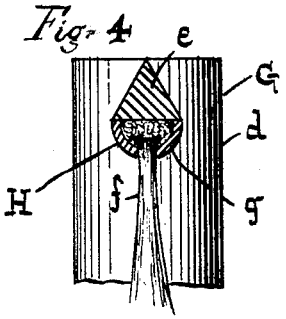



Fig. 4

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# UNITED STATES PATENT OFFICE.

ANTHONY M. BINAU, OF BALTIMORE, MARYLAND.

## COMBINED SIEVE AND MIXER.

SPECIFICATION forming part of Letters Patent No. 454,323, dated June 16, 1891.

Application filed February 14, 1891. Serial No. 381,436. (No model.)

*To all whom it may concern:*

Be it known that I, ANTHONY M. BINAU, of Baltimore, Maryland, have invented certain Improvements in a Combined Sieve and Mixer, of which the following is a specification.

This invention relates to an improved apparatus specially designed for the use of chemists and druggists, whereby powders of various kinds may be mixed and separated into bodies of different degrees of fineness, as will hereinafter fully appear.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a vertical section of the improved apparatus, and Fig. 2 a plan of the same. Figs. 3 and 4 are details of the invention on an enlarged scale.

Similar letters of reference indicate similar parts in all the figures.

Referring to the said drawings, A and B represent, respectively, the lower and the upper parts or sections of the apparatus, or, in other words, a bowl and its cover. These are preferably of hemispherical shape, and their edges are made so as to lap if the two parts are brought together. Between the bowl and its cover are placed the sieves through which the powders are to be passed. In the present case only three sieves are shown; but it will be evident that any number of sieves may be placed in the apparatus by the following description of the devices whereby the sieves are held in position.

C is the lower sieve, which may be made of perforated sheet metal or woven wire. This sieve rests on the edge of the bowl with its circumference bent down and cramped in the joint formed thereon. Over this sieve and the edge of the bowl is placed the first of a series of cylindrical extensions or rings D, and upon the upper edge of this ring is placed the second sieve E, which is of larger mesh and turned down at the edge in the same manner as the lower one. Over the second sieve is placed the second ring F, and upon it is the cover or top section of the main part of the apparatus.

From the above description it will be seen that any number of rings and sieves may be employed, as all the rings are of a similar shape and adapted to fit over each other in the manner shown by the drawings.

Each sieve is provided with a central hole, and the portion of the sieve immediately around this hole is clamped between two collars *b* and *c*, secured together by means of bolts, screws, or rivets.

G G are brush-frames consisting each of a hub *d*, of such diameter as to fit loosely in the collars *b* and *c*, and a cross-arm *e*, of a length slightly less than the inside diameter of the rings. To the under side of the said arms are secured the brushes H, which consist of tufts of bristles *f*, inserted in holes in hollow bars *g*, which are secured to the under side of the arms *e*. The hollow bars *g* are filled with some preparation which will prevent the withdrawal of the tufts of bristles, as is common in brushes. The brush-frames are loose on the central shaft I, preferably of square cross-section, and this shaft extends through a hole in the top of the cover. This hole is fitted with a loose sleeve J, through which the said shaft passes loosely, and the shaft is suspended by means of a collar *h*, held to the shaft by means of a set-screw *i*, which rests on the top of the sleeve, or by any other means. The shaft, with the brushes, is turned by means of a handle K, attached to the upper end of the shaft, as shown in Fig. 1. The top and the bowl, together with the ring, are held together by means of bolts *j*, which pass through lugs *k*.

Fig. 3 is an enlarged view of the adjoining edges of the bowl and a ring.

Fig. 4 is a cross-section of one of the brush-arms and its brush.

L is a filling-aperture provided with a cover *m*, which in the present case is merely inserted in the aperture; but it may be hinged, if required.

The bowl A below the lower sieve is provided with a series of arms *n*, through which the shaft I passes loosely. The lower arm *n* is secured to the shaft I by means of a nut, while the others are laid one upon another, as shown in Fig. 1. The arms *n* are perforated and serve as means for mixing the contents of the bowl after it has passed through the whole series of sieves.

I claim as my invention—

1. In an apparatus for sieving and separat-

ing powders, a vessel consisting of an upper and a lower section, each closed at one end, and a series of open-ended sections interposed between them, the edge of each section being adapted to overlap that of the adjacent section at the joints, combined with a series of sieves of varying degrees of fineness clamped between the said overlapping edges, each sieve having a central opening, a shaft passing through the upper section and extending down through the central openings in the sieves, a series of brushes resting on the sieves and revoluble with the shaft, suitable devices to secure the sections together, and means to rotate the shaft, substantially as and for the purpose specified.

2. In an apparatus for sieving and separating powders, a vessel consisting of an upper and a lower section, each closed at one end, and a series of open-ended sections interposed between them, the edge of each section being adapted to overlap that of the adjacent section at the joints, combined with a series of sieves of varying degrees of fineness clamped between the said overlapping edges, each sieve having a central opening, a shaft passing through the upper section and extending down through the central openings in the sieves, a series of brushes resting on the sieves and revoluble with the shaft, a series of arms carried by said shaft below the bottom sieve, suitable devices to secure the sections together, and means to rotate the shaft, substantially as and for the purpose specified.

ANTHONY M. BINAU.

Witnesses:
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G. M. COPENHAVER.