(No Model.) 2 Sheets—Sheet 1.

L. E. ALEXANDER & W. B HATCH.

ROTARY SCREEN AND SIFTER.

No. 459,940. Patented Sept. 22, 1891.

Fig. 1.

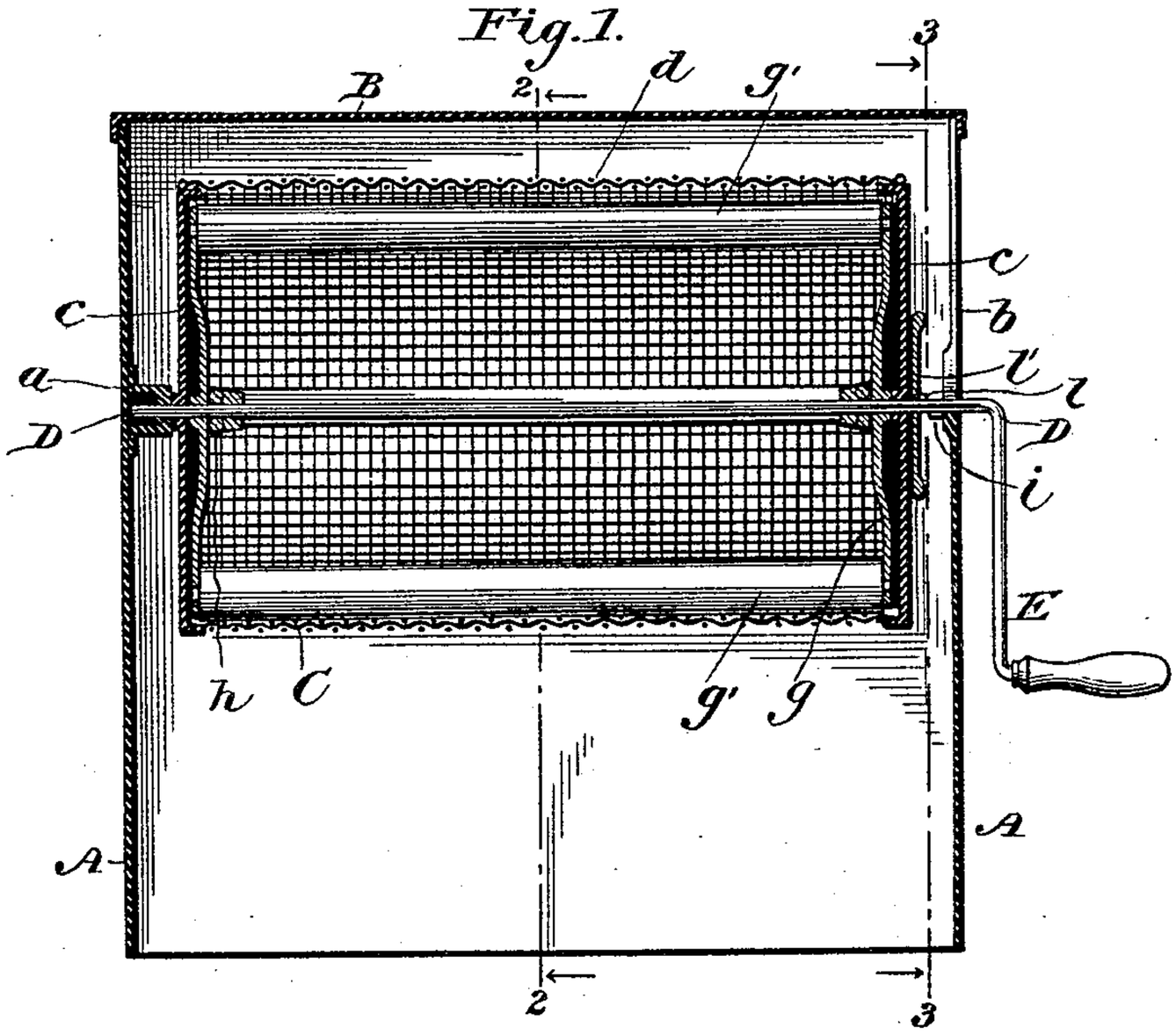
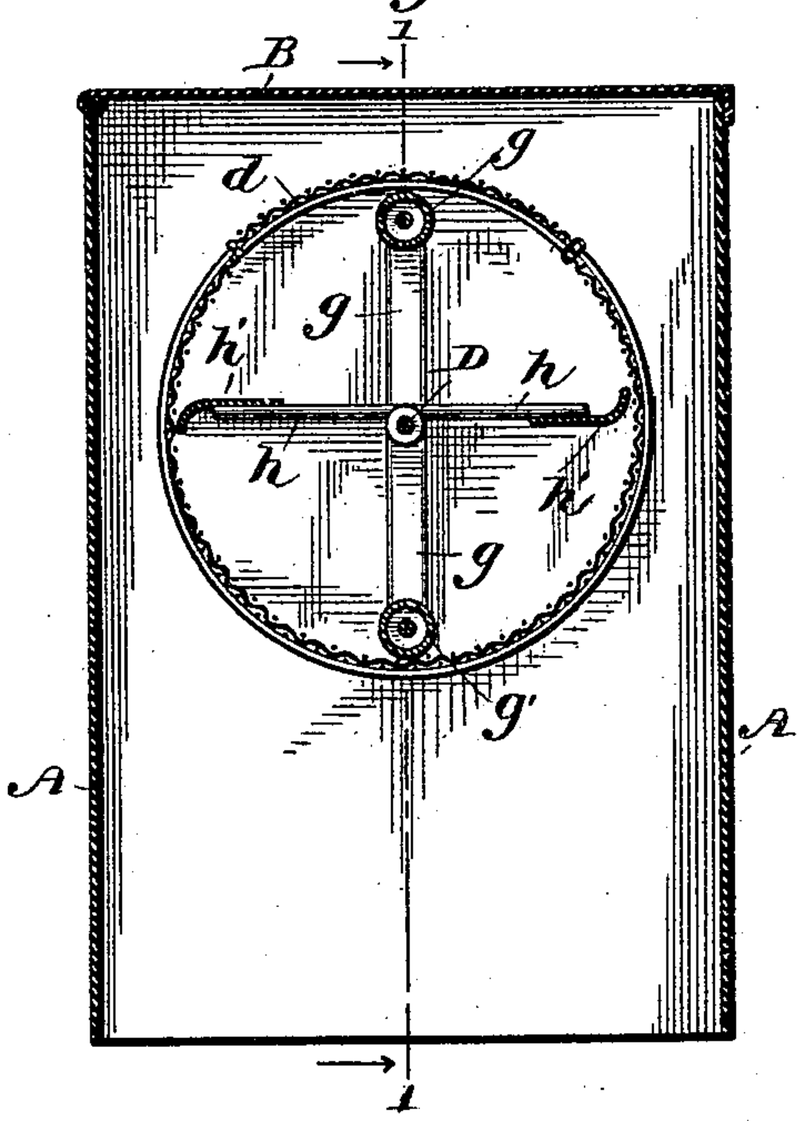


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

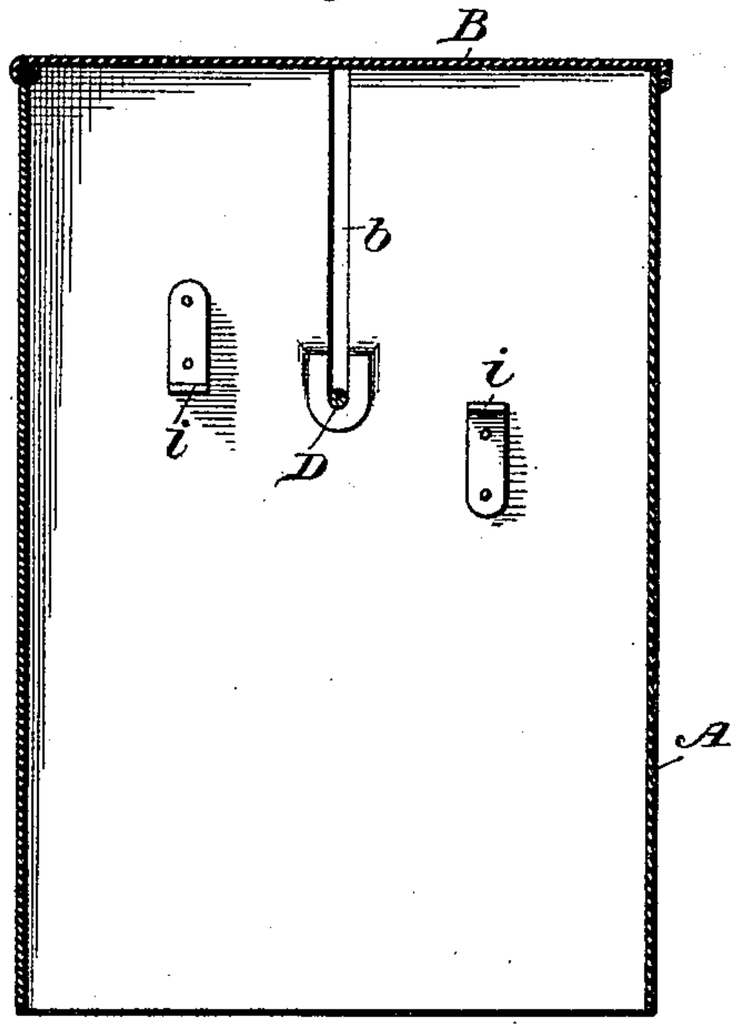
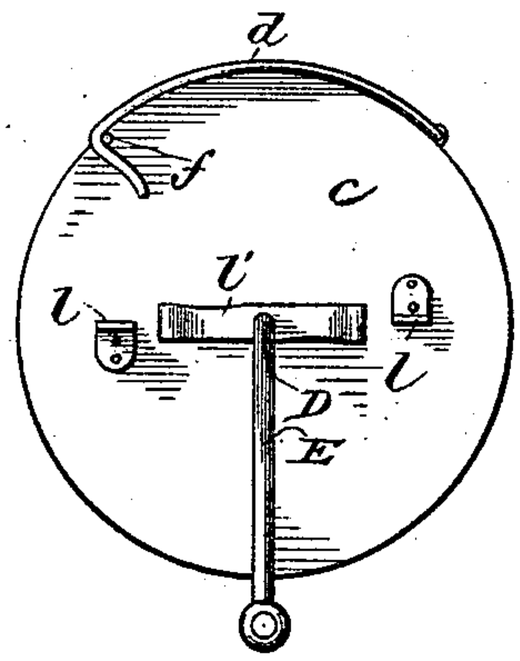


Fig. 4.



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LOUISA E. ALEXANDER AND WILLIAM B. HATCH, OF ELMIRA, NEW YORK.

ROTARY SCREEN AND SIFTER.

SPECIFICATION forming part of Letters Patent No. 459,940, dated September 22, 1891.

Application filed January 29, 1891. Serial No. 379,588. (No model.)

To all whom it may concern:

Be it known that we, LOUISA E. ALEXANDER and WILLIAM B. HATCH, citizens of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Rotary Screens and Sifters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention pertains to screens or sifters for domestic purposes, and has particular reference to rotary sifters for sifting flour, ashes, &c.

The object of the invention is to provide a sifter of this sort with an interiorly-arranged stirrer and scraper so constructed that it may be revolved with the cylinder, and so remain inactive while the sifting operation is going on, or be rotated independently of the cylinder to stir up and agitate the material contained in the sifter and to clean the meshes of the screen.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal central vertical section of a sifter embodying my improvements. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a similar section of the casing, showing the bearing for the shaft of the cylinder and the stops on the inner side of the end plate. Fig. 4 is an end view of the rotary cylinder, showing the lugs which co-operate with the stops shown in Fig. 3 to hold the cylinder against rotation.

A denotes a box-like casing of any suitable size or shape. It may have a hinged lid, as indicated by B, or any other form of movable top. One end piece of this casing is provided interiorly with a socket *a*, adapted to receive and form a bearing for one end of the shaft of the rotary receptacle. The opposite end piece of the casing is slotted, as indicated at *b*. The lower end of this slot forms the bearing for the opposite end of the shaft. The object of this construction is to permit the receptacle to be easily removed and replaced.

The sifter proper is composed of a cylindrical or other shaped receptacle C, of any suitable reticulated or perforated material, wire-gauze, as shown in the drawings, being preferable, said receptacle, if in the form of a cylinder, having imperforate metallic heads, as *c*. This receptacle is suspended within the casing by and upon the shaft D, which passes through central openings in the heads of the receptacle and has its bearings in opposite ends of the casing, as above described. The receptacle is journaled on this shaft instead of being fixed thereto, as usual, the object of this arrangement being to permit the shaft to be rotated while the receptacle is locked against rotation. The receptacle must of course be provided with an opening through which the material to be sifted is introduced and from which it may be emptied. In the drawings this opening is shown as provided with a hinged lid *d*, having a spring-catch *e*, taking over a pin or stud *f* on the heads *c*. Obviously, however, any other form of door may be employed.

Projecting radially from the shaft within the receptacle are the fixed stirrer-arms *g h*, the arms *g* carrying in their outer ends the rollers *g'*, and the outer ends of the arms *h* having the plates *h'* fixed thereto. These rollers and plates constitute stirrers for thoroughly agitating and mixing the material, and also serve as scrapers for cleaning the interior surface of the receptacle and freeing the meshes of the finer particles of the material which adhere and tend to clog the openings.

Upon the inner side of one end of the casing are located the stops or abutments *i*, and upon the head of the receptacle are correspondingly-arranged lugs or shoulders *l*, adapted, when the receptacle is moved toward that end of the casing, to engage the stops *i*, and thereby lock the receptacle against rotation. The shaft D is provided just outside of the head with a key or cross-head *l'*, and the head of the receptacle is held between the arms *g h* and the cross-head, thereby preventing the receptacle from moving lengthwise upon the shaft, but permitting the shaft to rotate independently of the receptacle. Enough space is left between the inner sides of the casing and the ends of the receptacle, as shown in the drawings, to permit a sufficient lengthwise movement of the shaft and the receptacle for the purpose of shifting the receptacle bodily, so as to bring the lugs *l* on

the head *c* into engagement with the stops *i* on the casing to lock the receptacle against rotation, or to free the lugs from engagement with these stops, so as to permit the receptacle to be carried around by the shaft. The outer end of the shaft D is provided with a crank and handle E, as shown. The head *c* of the receptacle is held closely between the key or cross-head *l'* and the arms *g*, so that there will be sufficient friction between the parts to cause the receptacle to be revolved with the shaft unless held positively against rotation.

The construction being as above described the operation is as follows: Flour, ashes, or other material to be sifted is put into the reticulated receptacle and the door or lid tightly closed. A slight end-thrust on the shaft will shift the receptacle so that the lugs on its head will not engage the stops on the casing. The crank being then turned, the receptacle will be revolved by and with the shaft, the stirrer and scraper remaining relatively stationary within the receptacle. When it is desired to agitate the material in the receptacle or to clean the meshes of the screen, the shaft is pulled in the opposite direction, whereupon the lugs on the head come into engagement with the stops on the casing and the receptacle is prevented from further rotation. The turning of the crank with the parts in this position causes the stirrer-arms to rotate with the shaft, carrying the rollers and scrapers around within the receptacle and serving to thoroughly mix and stir up the material being sifted, and also to scrape off the flour and finer particles which adhere to the sides and clog the meshes of the screen.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a rotary sifter, the combination of a casing, a central shaft adapted to rotate and to slide lengthwise therein, a reticulated receptacle journaled on the shaft, stirrer-arms fixed on the shaft within the receptacle, and means whereby the cylinder may be prevented from rotating when the shaft is moved endwise in one direction and permitted to turn therewith when moved in the opposite direction, substantially as described.

2. In a rotary sifter, the combination of a casing, a shaft mounted in bearings in the opposite ends of the casing, in which bearings the shaft is adapted to rotate and slide lengthwise, a reticulated receptacle journaled on the shaft, stirrer-arms fixed on the shaft within the receptacle, a stop on the casing, and a lug or shoulder on the receptacle, substantially as described.

3. In a rotary sifter, the combination of the casing A, the shaft D, mounted in bearings in the opposite ends of the casing and adapted to rotate and slide lengthwise therein, the receptacle C, of reticulated material, supported upon the shaft so that the latter may turn independently thereof, the stirrer-arms fixed upon the shaft within the receptacle, stops *l* on the inner side of the casing, and the lugs *i* on the head of the cylinder, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

LOUISA E. ALEXANDER.
WILLIAM B. HATCH.

Witnesses:
FRANK M. ROSS,
GEORGE K. LEACH.