S. C. Maine,

Screen and Sifter.

No. 57,529. Patented Aug. 28, 1866.

Fig. 2.

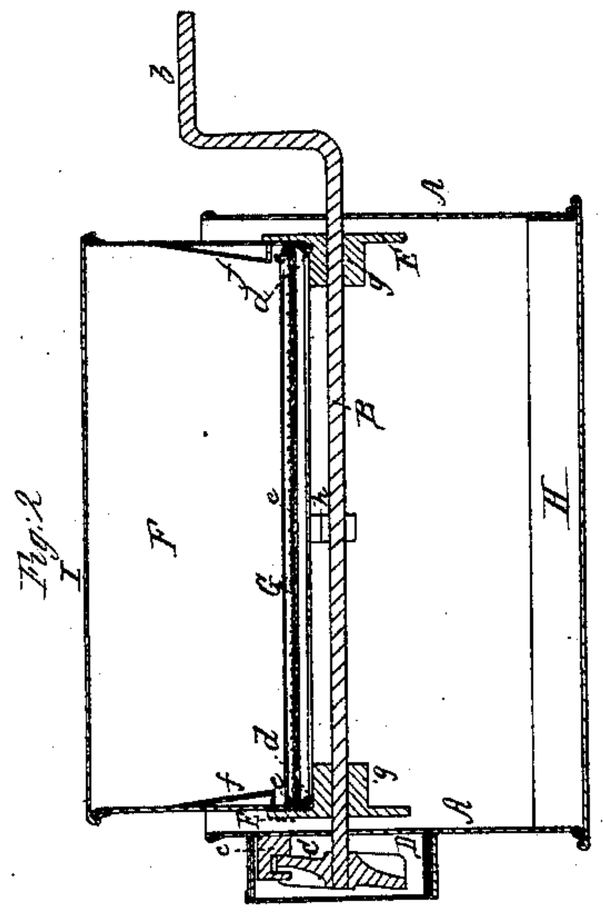


Fig. 3.

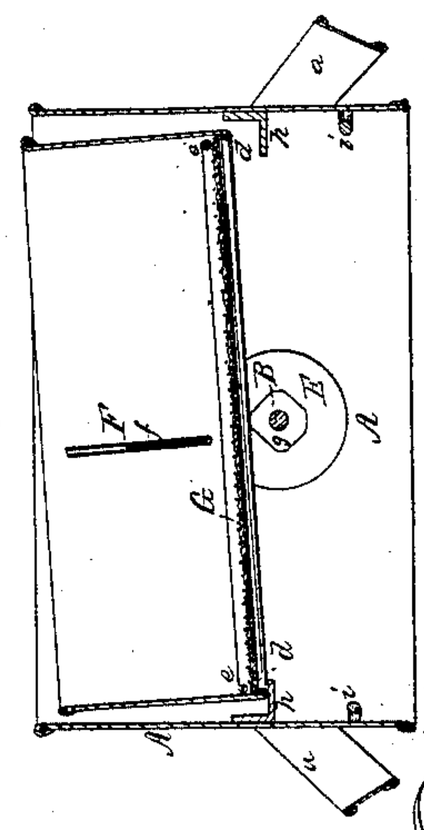


Fig. 4.

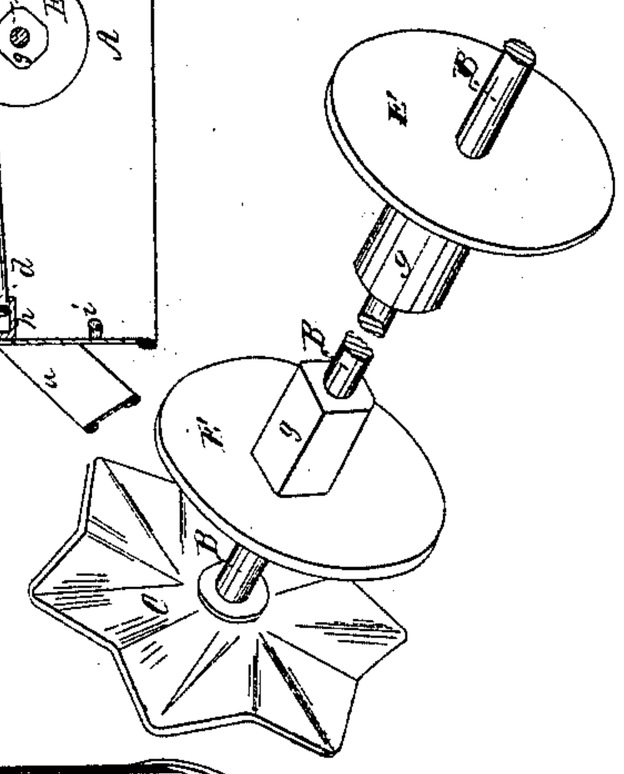


Fig. 5.

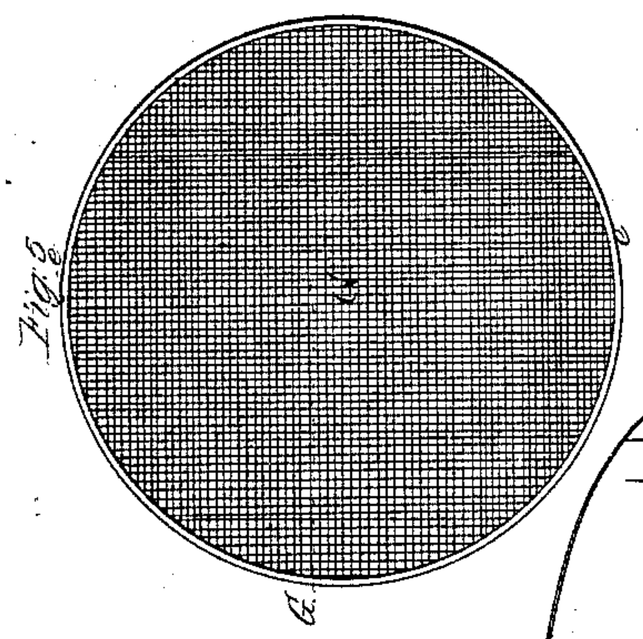
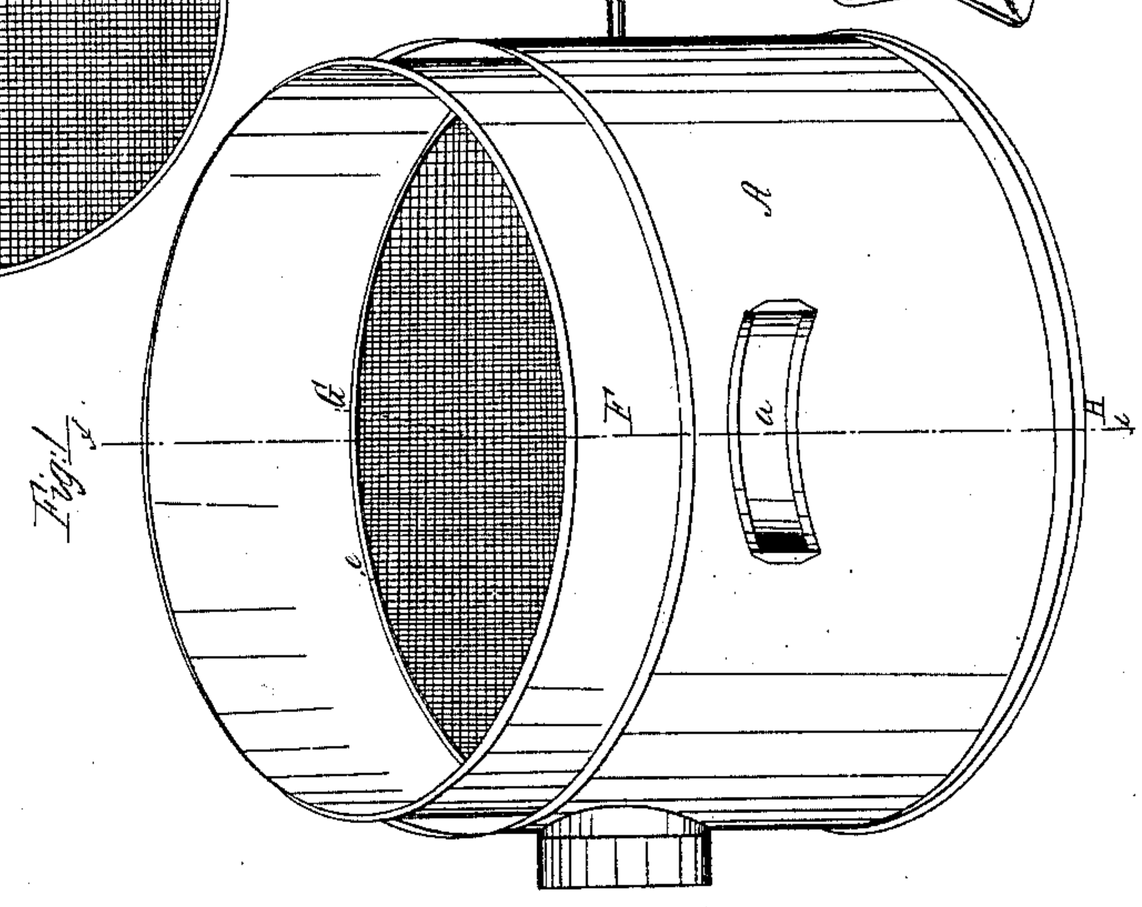


Fig. 1.



Witnesses:
H. Teschemacher
N. W. Stearns

Inventor:
S. C. Maine

UNITED STATES PATENT OFFICE.

SEBEUS C. MAINE, OF BOSTON, MASSACHUSETTS.

IMPROVED SCREENING AND SIFTING APPARATUS.

Specification forming part of Letters Patent No. **57,529**, dated August 28, 1866.

To all whom it may concern:

Be it known that I, SEBEUS C. MAINE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Apparatus for Screening and Sifting, for family use, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved apparatus ready to receive the material to be separated. Fig. 2 is a longitudinal central section through the same. Fig. 3 is a section on the line *x x* of Fig. 1. Fig. 4 is a view of the shaft and its cam, by the revolution of which the required motion is imparted to the screen or sieve. Fig. 5 is a plan of the wire-gauze and its frame, forming the bottom of the screen or sieve, detached.

That class of screens or sieves of the ordinary construction intended for family use as coal or flour sifters and sauce-graters combined are objectionable, for the reason that all of these offices cannot be properly performed by the same apparatus, owing to the fact that the beating which is essential to the sifting of coal and the pressure required in the straining or grating of the material for the sauce are objectionable when flour is required to be sifted, as the sour lumps or other impurities in the flour are thereby mashed or ground up and carried through the sieve, while the operation of the apparatus is frequently obstructed and the sieve itself broken by nails and other hard substances.

My invention has for its object to remove the above-mentioned difficulties; and it consists in a case through which passes a shaft provided with a cam and one or more enlargements, forming a bearing or bearings, which are so constructed as to receive and guide the sieve or screen during its varied movements when the shaft is revolved, a longitudinal motion back and forth being given the shaft by the action of the cam against any suitable guide or projection, whereby the screen or sieve is shaken forcibly in these directions, while the enlargement or enlargements of the shaft are so formed as to cause the sieve to be alternately raised and lowered, one of the enlargements of the shaft being made circular, if desired, in order to produce a horizontal (or nearly so) motion.

To enable others skilled in the art to understand and use my invention, I will now proceed to describe the manner in which I have carried it out.

In the said drawings, A is a metallic circular shell or casing, provided with handles *a*, and perforated at two points diametrically opposite, for the reception of a shaft, D, both ends of which project through the casing, one end forming a crank, *b*, to which power is applied to revolve the shaft, while the other end carries a cam, C, (of the form of a rosette, as seen in view Fig. 4,) which revolves in a slot, *c*, the cam being placed within an inclosure, D, formed on the outside of the casing.

E are circular plates, which are slipped over the shaft and confined thereon at any desired distance apart, in order to accommodate screens or sieves of varying diameters, and serve as guides or stops for holding a screen securely in place upon the shaft when revolved during the various movements produced thereby.

The receptacle (or sieve proper) in which the article to be sifted is placed consists of a circular ring or band, F, having a flange, *d*, at its bottom, projecting inside, upon which rests the rim *e* of a circular wire-gauze sieve-bottom, G, which may be readily removed and one of different-sized meshes substituted therefor by operating-springs *f*, the upper ends of which are soldered to the inside of the band F, while their lower ends are bent and free to be pressed out through holes therein provided for their reception, as seen in Fig. 2, thus admitting the use of any number of sieve-bottoms of different degrees of fineness within one and the same band. The inner portion, *g*, of each of the circular plates E is of a polygonal form in section, and serves to support the sieve or screen, which is also supported by brackets *h*, attached to the inside of the casing, when the flat sides of the portions *g* are in a horizontal position, as seen in Fig. 2, while, when the shaft is revolved so as to bring the corners uppermost, as seen in Fig. 3, the receptacle containing the article to be sifted is lifted off the brackets *h* and tipped from side to side,

thus giving it an oscillating motion, guides *i* being provided to prevent too much motion from this cause.

H is a receptacle for receiving the article after having passed through the sieve, and I is a cover, both of which may be dispensed with, if desired, any pan of the ordinary construction being employed to receive the sifted substance.

Operation: When it is required to use the apparatus above described for sifting and removing impurities from meal or flour and separating the particles of flour from each other, a bottom of the proper-sized wire netting is fitted in place in the manner previously explained, and the sieve placed with its edges resting on the portions *g* of the guide-plates E, and, the crank being revolved by hand, the sieve is moved forcibly back and forth longitudinally with the shaft, the periphery of the cam being composed of straight lines connected by short radii, by which construction the cam is made to strike the sides of the slot *c* so abruptly as to violently agitate or shake the flour or meal from side to side, while the bottom of the sieve is receiving successive and rapid concussions from the polygonal portions *g*, causing the sieve to be alternately raised and lowered with a rocking or lateral tipping motion, by means of which motions the article is effectually and rapidly sifted, without the liability of breaking the sour lumps or mashing other impurities contained therein.

When it is desired to use the apparatus for straining or grating material for sauce, a flat plate of a convenient size and of a form corresponding to the periphery of the inside of the receptacle may be used in one hand and pressed sufficiently hard against the sauce to force it through the meshes, the operator at the same time revolving the crank with the other hand.

When it is desired to pass a considerable quantity either of flour or sauce through the sieve or screen, and a more violent rocking or tipping motion is required, it is only necessary to invert the casing and place within it the sieve or screen, when it is allowed to vibrate a greater distance before striking the guides or stops *h*.

One of the portions *g* may be made circular in section, and a horizontal rotary motion produced thereby, should it be found desirable; or instead thereof a corrugated wire may be placed around the band *i*.

The method of operating the apparatus when intended for use as a coal-sifter is similar to that already explained.

It will thus be seen, that while the frame or casing is of such a construction as to be adapted for the reception of any description of screen or sieve, it is also obvious that the sieve proper, with its shifting bottom, may be conveniently used as a hand-sieve independently of the remainder of the apparatus, if desired.

The apparatus above described can be made of desirable size and form and of suitable material, and may be furnished at a low cost.

What I claim as my invention, and desire to secure by Letters Patent as an improvement in apparatus for screening and sifting for family use, is—

1. The shaft B, constructed with its guide-plates E, or their equivalents, for receiving and operating a sieve or screen of any size or form, substantially as described.

2. For family use, a sieve or screen, with its removable bottom, in combination with a receptacle provided with a shaft operated by a cam, C, or its equivalent, substantially as set forth.

S. C. MAINE.

Witnesses:
P. E. TESCHEMACHER,
N. W. STEARNS.