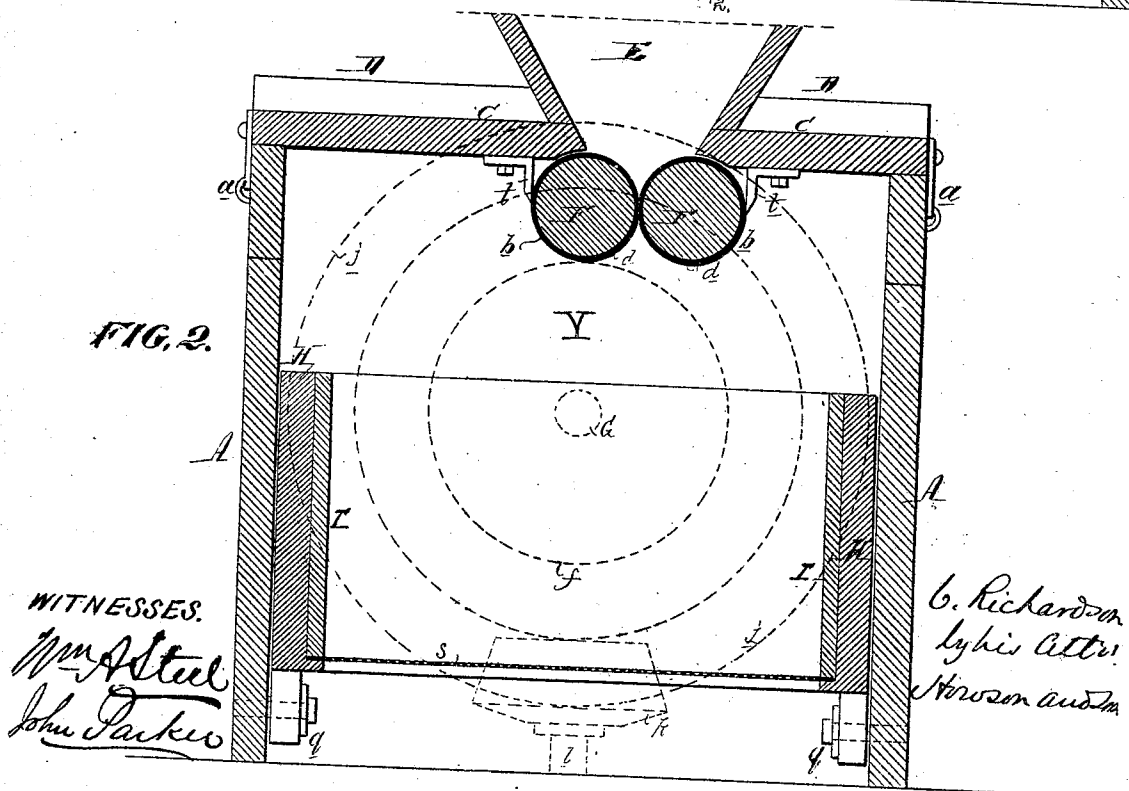
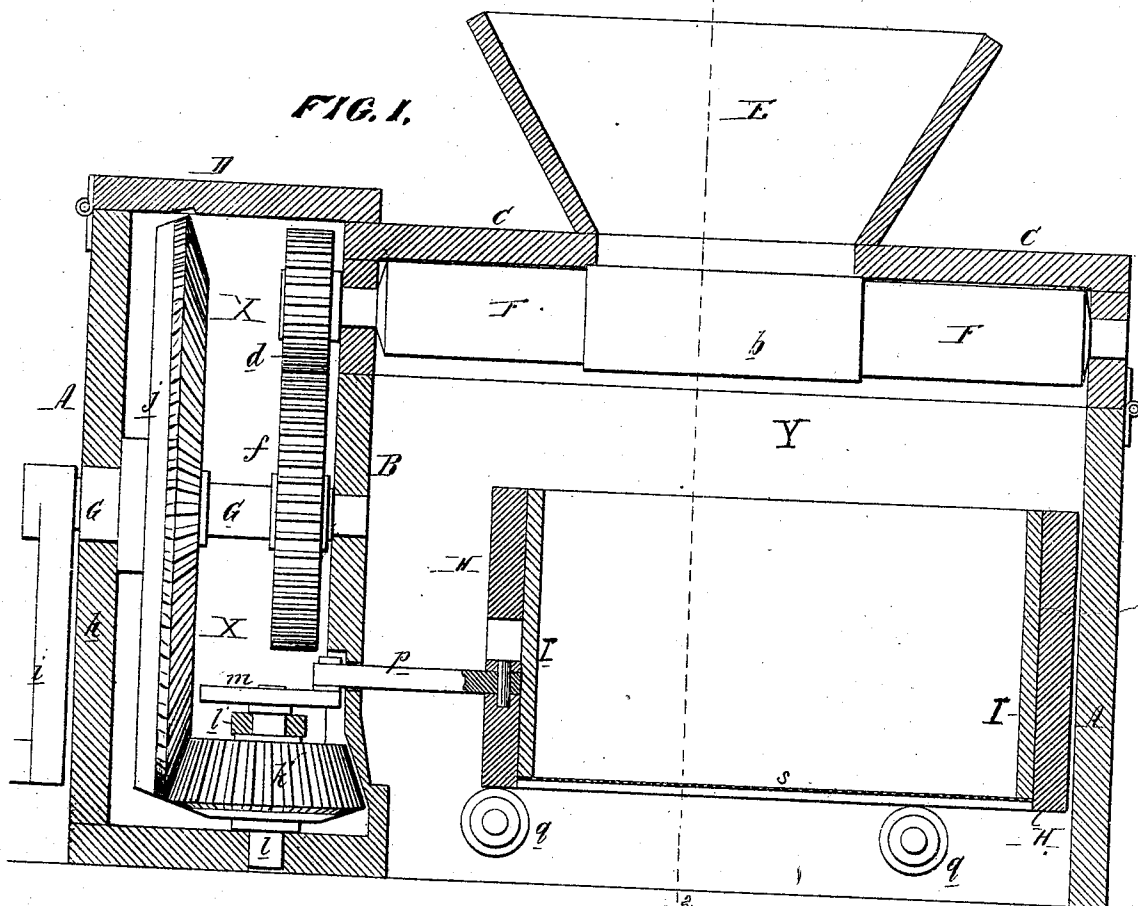


C. RICHARDSON.
No. 121,197.

Improvement in Flour Sifters.
Patented Nov. 21, 1871.



UNITED STATES PATENT OFFICE.

CHARLES RICHARDSON, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN FLOUR-SIFTERS.

Specification forming part of Letters Patent No. 121,197, dated November 21, 1871.

To all whom it may concern:

Be it known that I, CHARLES RICHARDSON, of Philadelphia, county of Philadelphia and State of Pennsylvania, have invented an Improved Flour-Sifter, of which the following is a specification:

My invention relates to certain improvements in flour-sifters, too fully described hereafter to need preliminary explanation.

Figure 1 is a longitudinal sectional view of my improved flour-sifter, and Fig. 2 a transverse section of the same on the line 1 2, Fig. 2.

A is a box formed with an internal partition, B, and having two hinged lids, C and D, the latter of which closes upon the former, and both of which are arranged to be secured when closed by hooks or fastenings *a*. A hopper, E, is secured to the top of the lid C, and directly beneath the opening in the bottom of the said hopper are two crushing-rollers, F F, the journals of which turn in suitable bearing in the opposite ends of the lid. The crushing-rollers are covered with leather or other suitable material, *b*, at points directly beneath the hopper, and are geared together at one end within the compartment X of the box by cog-wheels *d d*. One of these cog-wheels gears into and receives its motion from a larger cog-wheel, *f*, on the driving-shaft G, which turns in the partition B and end *h* of the box, and is provided at its outer end with an operating crank, *i*. The driving-shaft has also within the compartment X of the box a large bevel-wheel, *j*, which gears into a small horizontal bevel-wheel, *k*, hung to a short spindle, *l*, the latter having its bearings in the bottom of the box and in a fixed cross-piece, *l'*. At the upper end of the spindle *l* is a crank, *m*, a short connecting-rod, *p*, from which extends through an opening in the partition B, and is attached to one end or side of a sieve-frame, H, contained within the compartment Y of the box, beneath the crushing-rolls, and which rests upon and is guided by wheels, *q*, secured to the sides of the box. The sieve proper is detachable from the frame H, and consists of an inner frame, I, adapted to the latter, and having a perforated or wire-gauze bottom, *s*.

In using the apparatus a suitable receptacle (which may form part of the box) is placed beneath the sieve and the driving-shaft is turned by means of its crank, when the crushing-rollers and sifting-frame will, through the medium of the gearing described, be simultaneously operated, the crushing-rolls being simply rotated,

while a rapid reciprocating movement, with a slight jerk at the termination of each stroke, is imparted to the sieve. The flour is fed in proper quantities into the hopper E and passes from the same between the rolls, which effectually crush all lumps, &c., it passing thence into and through the reciprocating-sieve, by which it is thoroughly cleansed of particles of foreign matter.

I have ascertained that by this combination of crushing-rolls and rapidly-reciprocating sieve flour can be cleansed and deprived of lumps much more quickly and thoroughly than by the ordinary means. I have also ascertained that a jerking motion sufficient to prevent the clogging of the sieve can be much more readily imparted to the latter by a short connecting-rod and rapidly-revolving crank than by any other means.

It will be observed that the whole of the gearing by which motion is transmitted from the driving-shaft to the crushing-rollers and sieve is separated from the latter by the partition B, the said gearing being, in fact, contained within a separate compartment formed in the box for its reception. This arrangement prevents the clogging of the wheels by the flour and the tainting of the latter by coming in contact with the said wheels, which, in order to run freely, must be lubricated. The adhering of flour to the crushing-rolls is prevented by "doctors" or scrapers *t t* (Fig. 2) bearing against each of the said rolls; and the latter can be lifted with the lid C when it is necessary to cleanse them or when it is desired to obtain access to the sifting-frame. The sieve being detachable from its frame, as before mentioned, can be lifted entirely out of the box without disturbing or disconnecting the said frame from the rod *p*.

I claim—

1. The box A provided with the partition B and hopper E, in combination with the crushing-rolls F F, reciprocating sieve S, and operating-gear described, or its equivalent, all arranged and operating substantially as and for the purpose set forth.

2. The box H, in combination with the detachable receptacle I, having at the bottom a sieve, *s*, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHAS. RICHARDSON.

Witnesses:

WM. A. STEEL,
JOHN K. RUPERTUS.

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