

(No Model.)

3 Sheets—Sheet 1.

F. THOMPSON, Dec'd., & W. H. WILLIAMSON.

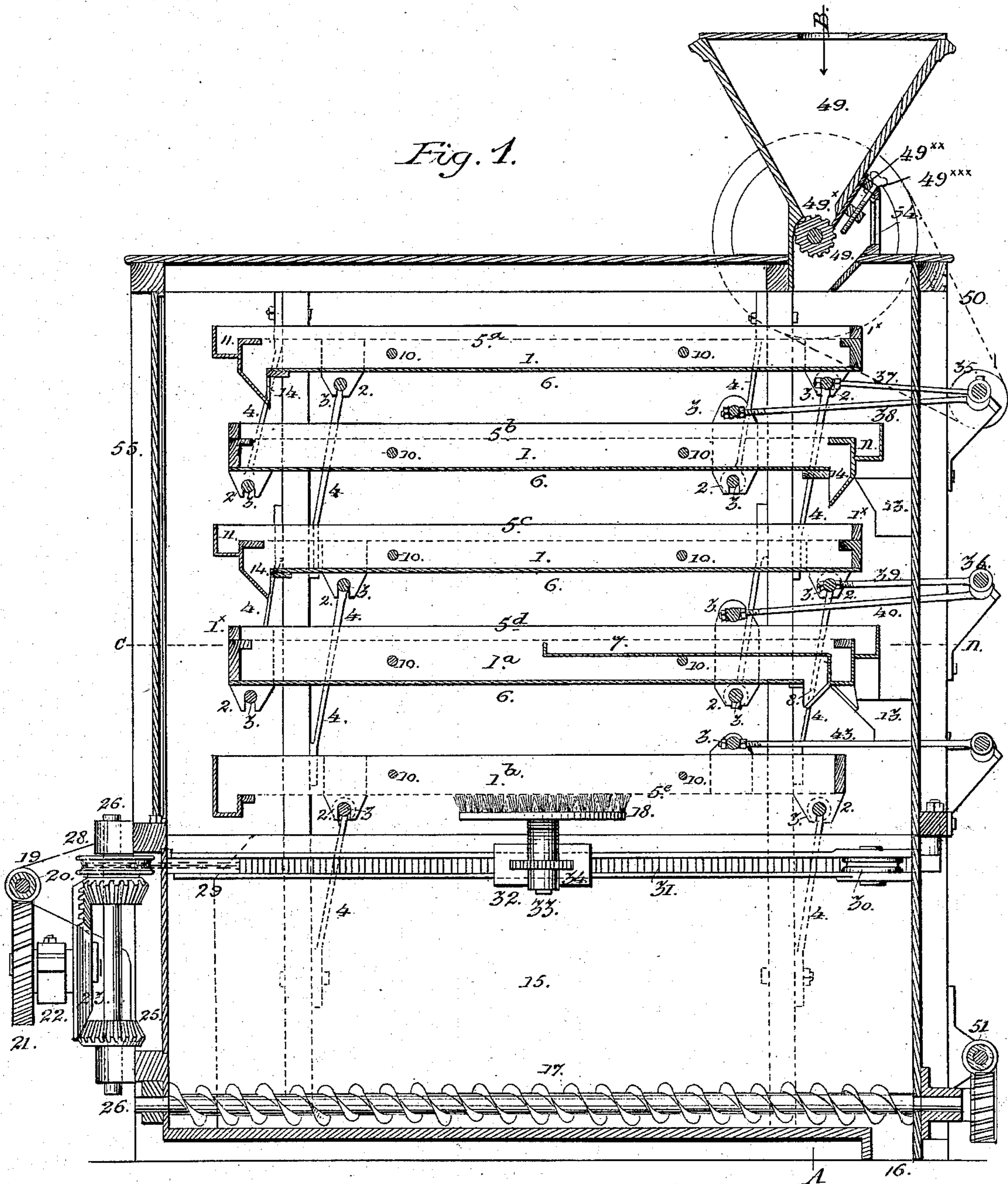
S. BRUCE and G. MARSH, executors of F. THOMPSON.

MACHINERY FOR DRESSING AND SIFTING FLOUR, &c.

No. 252,298.

Patented Jan. 10, 1882.

Fig. 1.



Witnesses:
Charles C. Stetson
W. C. Dey

Inventors:
F. Thompson
W. H. Williamson
by their attorney, T. J. Stetson.

(No Model.)

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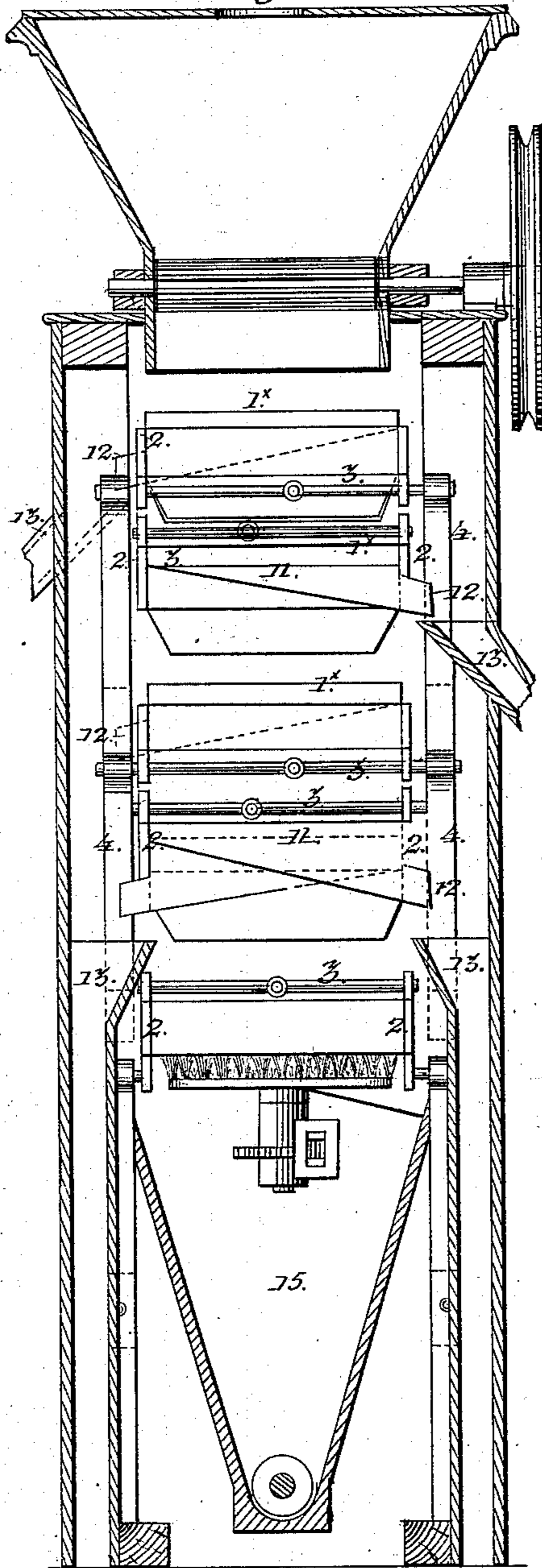
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Fig. 2.



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Charles C. Stetson
W. C. Dey

Inventors:

F. Thompson,
W. H. Williamson,
By their attorney J. L. Stetson.

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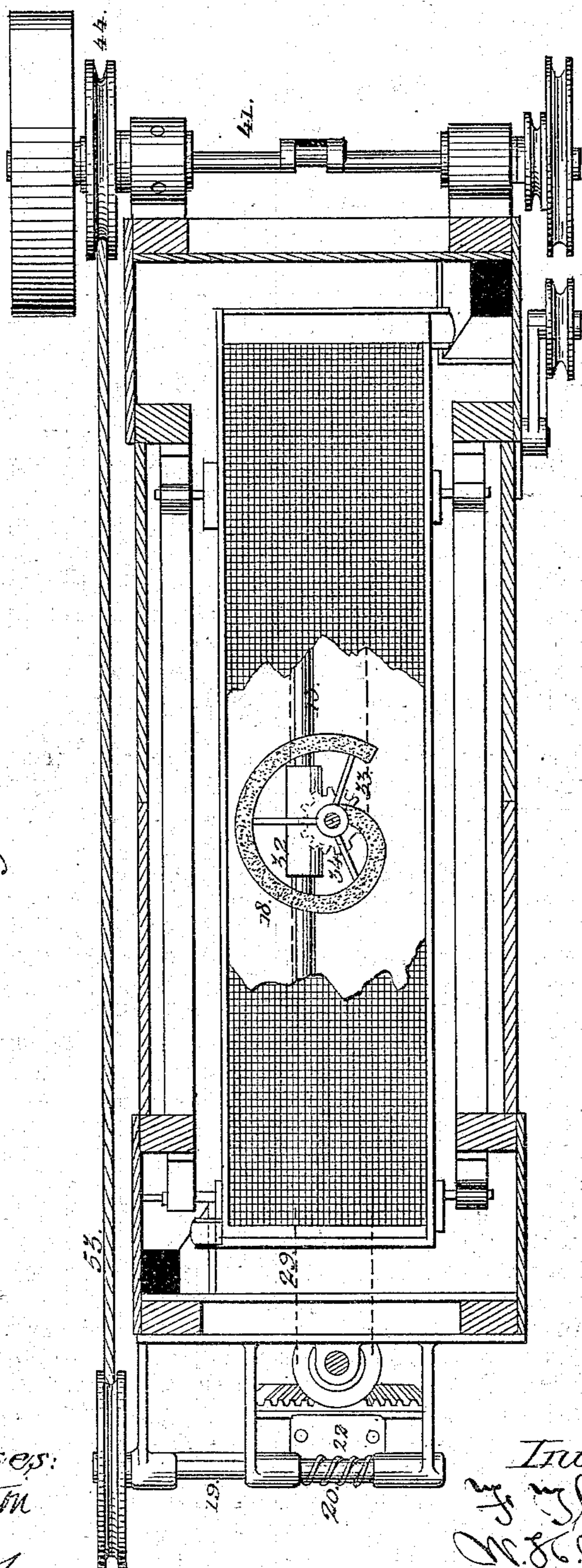
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Fig. 3.



Witnesses:
Charles C. Stetson
W. C. Dey

Inventors:
F. Thompson and
W. H. Williamson
by their attorney J. C. Stetson

UNITED STATES PATENT OFFICE.

FREDERICK THOMPSON AND WILLIAM H. WILLIAMSON, OF WAKEFIELD, COUNTY OF YORK, ENGLAND; GEORGE MARCH AND SAMUEL BRUCE, EXECUTORS OF SAID FREDERICK THOMPSON, ASSIGNORS TO SAID WILLIAMSON.

MACHINERY FOR DRESSING AND SIFTING FLOUR, &c.

SPECIFICATION forming part of Letters Patent No. 252,298, dated January 10, 1882.

Application filed May 8, 1880. (No model.) Patented in England March 30, 1880.

To all whom it may concern:

Be it known that we, FREDERICK THOMPSON and WILLIAM HENRY WILLIAMSON, both of Wakefield, in the county of York, Kingdom of Great Britain and Ireland, have invented new and useful Improvements in Machinery or Apparatus for Dressing and Assorting or Sifting Flour, Middlings, and other Matters, of which the following is a specification.

The invention relates to a traveling brush which moves backward and forward under the sieve. To this brush is imparted a rotating motion in addition to the horizontal travel, so that it revolves while it moves back and forth.

The accompanying drawings form a part of this specification, and illustrate the best means of applying the invention.

Figure 1 is an elevation of the brush and operating means mounted under the lower one of a series of sieves, which are shown in section. Fig. 2 is a transverse vertical section, showing the brush under the lower sieve. Fig. 3 is a section on line C D, Fig. 1, the sieve-bottom being broken away to show the brush.

In all the views the same reference-numbers are used to denote like parts where they occur.

The description of the sieves and their operating means is merely general, as we do not herein claim these, but reserve the right to make future application therefor.

1 1^a 1^b are sieve-frames with side bearers, 2, resting on cross-bars 3, carried by spring arms or levers 4. The arrangement of these arms 4 is such that a great length of spring may be availed of and consequently a stronger but at the same time a more yielding action obtained. The result is a very efficient movement of the sieves. The springs are arranged alternately on opposite sides of the upright posts, the one series extending upward and the other downward. The sieves are provided with bottoms of material suitable for sifting purposes, as shown at 5^a 5^b 5^c 5^d 5^e, and a ledge, 1^x, is screwed on round the edges of the clothing to retain the material while traversing over it on the sieve. The sieve-frames 1 and 1^a are provided with bottoms 6, which may be of wood or sheet metal, but are, by preference, of stout close can-

vas, stretched to form a bottom to each. The sieve-frames 8, 9, 10, 11, 12, 13, and 14 are outlets and spouts for carrying off the assorted materials. The lowermost sieve has no tight bottom. The siftings fall into a hopper, 15, at the bottom of the machine, terminating in a spout, 16, and provided with a suitable conveyor, 17, which will collect and deliver the product at the spout 16, or at any desirable point or points in the bottom of the machine at which an opening may be arranged.

The sieve 5^e is provided with the brush 18, which forms the main feature of the present application, and which has imparted to it alternately in opposite directions an intermittent combined rotary and longitudinal movement, with a stoppage between each movement or traverse of greater direction than the movement or traverse itself, such stoppage occurring and lasting during the time the segmental cogs, hereinafter referred to, having left one pinion, pass onto and get in gear with the other. The brush is of a scroll shape; but the shape may be modified—as, for example, instead of being scroll-shaped, the brush may have one or more radial arms. The brush is operated as follows:

19 is a main driving-shaft, with a worm, 20, gearing into worm-wheel 21, which, through shaft 22, drives the wheel or disk 23, which is provided with cogs on a segmental portion of its periphery or face. These cogs, as the disk or wheel is rotated, are brought into gear with the pinions 24 25 alternately, and cause the vertical shaft 26, on which these pinions are keyed or fixed, to move round alternately in opposite directions; but during the time occupied by the cogged segment after it has left one pinion and is passing on to the other the vertical shaft 26 remains stationary, since it is not then in gear with either pinion. On the said shaft 26 is also keyed the sprocket-wheel or pulley 28, to work endless chain 29, which passes also round a similar pulley, 30, running loose at the opposite end of the machine.

31 is a bar, which is preferably made of wrought-iron, and is constructed with pins, forming a rack, or with teeth. This bar is fast-

ened to each end of the machine, but is capable of adjustment at each end, and is placed parallel with the sieve. On this bar a carriage, 32, is fitted, sliding motion being given thereto by means of the endless chain 29, which is attached to said carriage. The carriage also carries a small vertical spindle, 33, provided with a pinion, 34, keyed upon it and in gear with the teeth of the rack or bar. At the top of said spindle is mounted the brush 18, which may be of a soft material where the sieve is of silk and of stronger material where a wire sieve is used. The brush is in contact with the sieve, (or clothing,) and by reason of the bar 31 being adjustable, as aforesaid, more or less pressure may be applied, according to requirement, care being taken not to apply so much as to tilt up the sieve or wear the cloth. Likewise, when required, the brush may be removed from contact with the sieve or clothing. The intermittent and alternate motion of the endless chain 29 draws the carriage from one end of the sieve or clothing to the other, and back again, a stoppage of the brush occurring at each end. While the carriage, with the brush, is traveling longitudinally, the pinion 34 gives a rotary motion to the brush, being in gear with the rack, as aforesaid. During the return longitudinal motion the rotary motion of the brush is in an opposite direction. 35 and 36 are cranks on the shafts, which are, by means of connecting-rods 37 38 39 40, joined with the cross-bars 3, and thus move the sieve-frames in directions opposite to each other. 41 is the driving-shaft, driven by a band, 42, as shown, Fig. 1. The shaft 41 drives the lowermost sieve, 5^e, directly by means of the rod 43. It also, through pulleys 44, 45, and 46, drives the shafts 36 35, a cord, strap, or band, 47, provided with tightening-pulley 48, being employed for the purpose. The roller 49^x of the inclosed feed-hopper 49 is or may be driven from the shaft 35 by a strap, band, or belt, 50. The worm-shaft 51, for operating the conveyer 17, is driven from shaft 41 through

belt, band, or strap 52. The worm-shaft 19, for working the brush-gear, is driven from the shaft 41 by belt, band, or strap 53. The material to be treated is received by the hopper 49 and fed to the uppermost sieve by the feed-roller 49^x, the feed being regulated by the adjustable slide 49^{xx}, so that an even stream of material may be distributed upon the sieve. The slide 49^{xx} is controlled by a hand-screw, 49^{xxx}, which is engaged with its screw-threads in a perforated and threaded projection on the slide and turns freely in the framing. This gives a very accurate and positive adjustment.

54 is a glass window or removable door, provided to enable the operations of the feeding apparatus to be watched. 55 is a removable door (there may be several) to afford access to the sieves and enable them to be removed as required.

The sieves, if all of the kind represented at 5^e and provided with brushes, may be arranged to all pass the material in the same direction, the siftings falling from each sieve in such case, falling onto a worm or other suitable conveyer—such, for instance, as represented in Figs. 1 and 2—and being thereby carried back to be discharged onto the head end of the next lower sieve, which in turn has a hopper and conveyer below it, and so on, the arrangement and operation being repeated as required.

What we claim is—

1. The toothed way 31, adapted to be elevated or lowered, as set forth, in combination with a horizontally-revolving brush and operating mechanism, as shown and specified.

2. The combination of a brush, 18, with the pinion 34, carriage 32, toothed way 31, endless chain 29, pulleys upon which the chain is worked, and suitable operating mechanism to produce an alternate motion, as set forth.

FREDERICK THOMPSON.

WILLIAM HENRY WILLIAMSON.

Witnesses:

J. E. JOURITT,

JOSH. FARNDAL,

Solr.'s Clerks, Wakefield.