

(No Model.)

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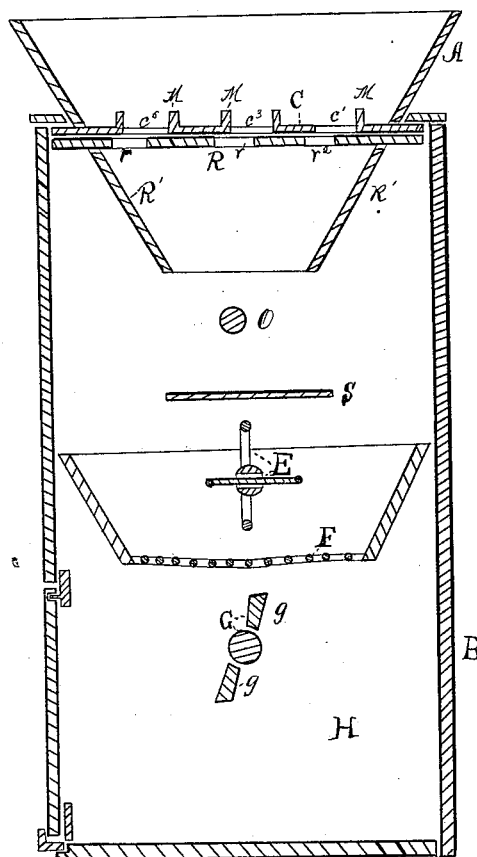
A. J. SUMMERS.

COMPOUNDING OR MIXING MACHINE.

No. 346,514.

Patented Aug. 3, 1886.

Fig. 1.



Witnesses.

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(No Model.)

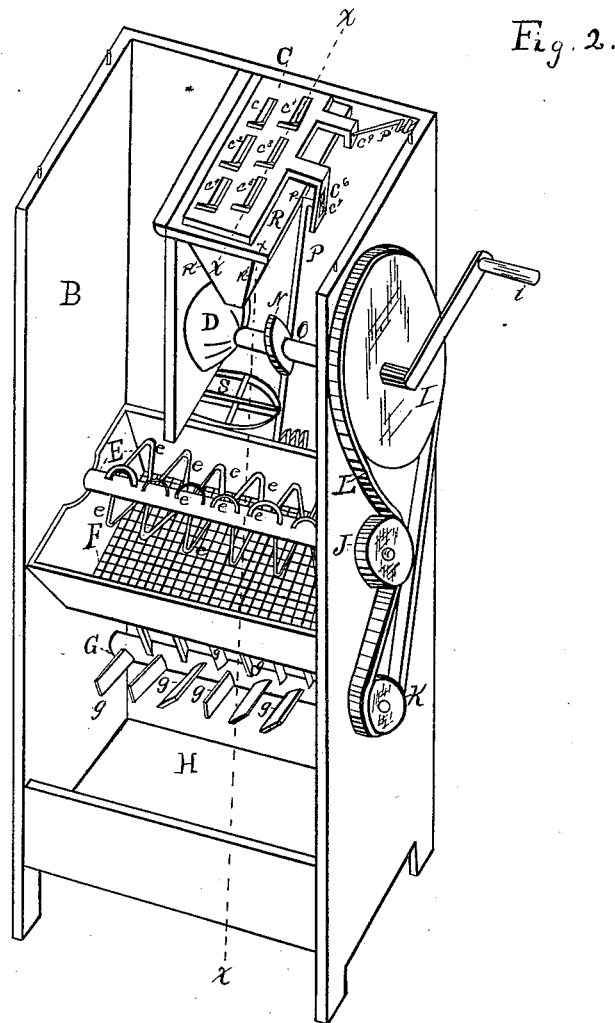
3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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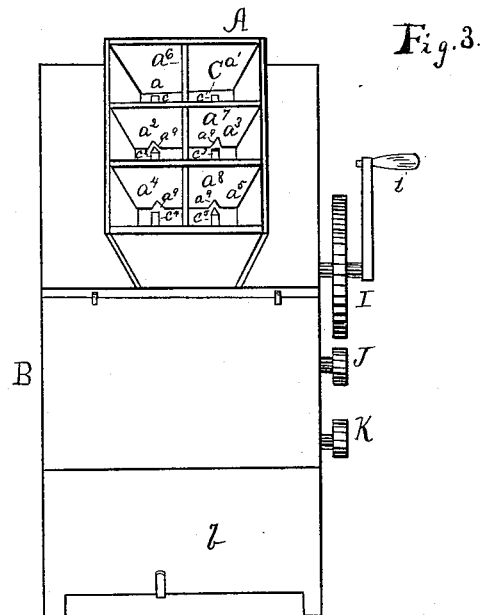


Fig. 3.

Fig. 4.

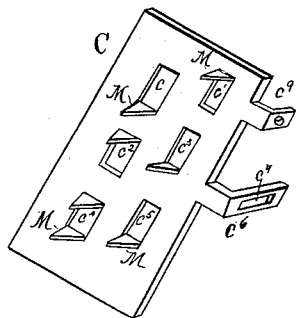
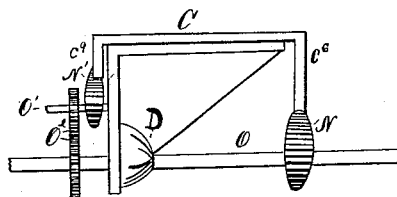


Fig. 5



Witnesses.

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UNITED STATES PATENT OFFICE.

ANDREW J. SUMMERS, OF ARCHIE, MISSOURI.

COMPOUNDING OR MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 346,514, dated August 3, 1886.

Application filed August 31, 1885. Serial No. 175,864. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. SUMMERS, a citizen of the United States, residing at Archie, in the county of Cass and State of Missouri, have invented certain new and useful Improvements in Compounding or Mixing Machines; and I 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.

My invention relates to compounding or mixing machines, the object of which is to provide a cheap, simple, and convenient device for quickly and thoroughly mixing or compounding, grinding, and pulverizing any number of elements or ingredients in any desired proportions or amounts. These objects I attain by means of the device illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical longitudinal section on the line *x x* of Fig. 2. Fig. 2 is a perspective view of the device, the top and side being removed. Fig. 3 is a view in elevation of the device closed. Fig. 4 is a detail view showing the feed-slide. Fig. 5 is a detail view of a modification, showing the manner of operating the feed-slide each way by means of cams.

The same letters of reference indicate the same or corresponding parts in the several figures.

A is a hopper; B, a case; C, a sliding feed-plate; D, an ordinary mill of any kind to grind and pulverize the ingredients. F is a sieve; G, a fan; E, a beater; H, a receptacle.

The hopper A may be made of any desired size and shape, preferably as shown, having two or more subdivisions of various sizes, so that the different ingredients desired to be mixed or compounded will run out of the hopper at or nearly at the same time. For this purpose partitions *a^b a^c*, &c., may be placed in the hopper, so that the several divisions *a^a a^b a^c*, &c., will hold the same or different quantities of the ingredients in the proportions that they are desired to be mixed. Beneath this hopper is placed a feed-slide, C, which has two or more holes, *c^b c^c*, &c., which vary in size and number to correspond with the size and number of the divisions of the hopper, for the purpose of letting the contents of each part of

the hopper feed out in the desired proportions to form a given mixture or compound. To insure a constant feed the openings of the feed-slide are provided with projections M at either or both ends, which work back and forth through the material to be fed; and to let these projections have freedom of motion the cross-partitions *a^a a^b* are provided with notches *a^b* at their lower edges to permit the projections to pass. These openings in the feed-slide and the divisions of the hopper may, if desired, be made adjustable by any of the well-known means. This feed-slide may have arms *c^b c^c*, to be operated by means of cams N N', one of which is placed upon the shaft O, to throw the slide in one direction, and the other, N', upon the shaft O', which is operated by means of the cog-wheels O², to throw the slide in the opposite direction, as shown in Fig. 5; but the slide is preferably operated by means of a cam and spring or springs, thus: On the shaft O is placed a cam, N, which comes in contact with the extended arm *c^b*, or, preferably, with a long spring, P, which is secured at one end to the inner wall of the case and passing up by the shaft O, the other end, *p*, being bent and passed through a slot, *c^c*, in the arm *c^b*, so that the cam N will throw the feed-slide in one direction by pressing upon the spring, and the spring P, assisted by the spring P', which may be of any desired size and shape, will throw it back.

The feed-slide C is placed upon a plate, R, which is supported by a suitable frame in the upper part of the case B. Said plate has holes *r¹ r²*, &c., corresponding in size and number, respectively, with the holes in the feed-slide, so that as the plate C slides in one direction it closes the holes and prevents escape of the materials above in the hopper, and when it slides in the other direction it opens them.

The mill D may be an ordinary coffee-mill of any desired size and shape, operated by means of the shaft O, which is provided with a belt or cog wheel, I, and a winch, *i*, on the outside of the case.

R' R' are converging sides or conductors extending from the lower side of the plate R, for delivering the material into the mill to be ground and mixed. Below the mill is placed any suitable device for scattering the material immediately after being ground, before it

reaches the beater E. This may be accomplished by means of a cross-piece, S. The beater E consists of a shaft having a cog-wheel or belt-wheel, J, and arms *e e*, &c., placed in
 5 two or more rows, to rapidly beat and stir the material as it comes from the scatterer or deflector S, and keep it passing through the sieve, and also assist in further mixing the same. Sieve F is provided with a suitable
 10 frame to fit in the case below the beater, and is preferably provided with slanting sides, to cause the material to gather near the middle on the sieve.

G is a fan-shaft extending through the case
 15 below the sieve, and provided with fan-blades *g g*, &c., placed in two or more rows, and set at an angle to the line of motion, preferably at about forty-five degrees with the said line. The outer blades are arranged so as to throw
 20 the material inward, and the inner blades so as to throw it outward, thus assisting to complete the thorough compounding or mixing of the ingredients. This fan-shaft is driven by means of the belt or cog wheel K, which causes
 25 it to rapidly revolve by means of the belt L or suitable gearing-connections.

H is a receptacle, into which the thoroughly-mixed materials are permitted to fall, and from which they may be taken through an
 30 opening in the side of the case, which is closed by the door *b*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a compounding or mixing machine, 35 the combination, with a hopper, of an apertured plate, R, a feed-slide, C, having holes of various sizes, projections M and arms, and means for operating said feed-slide, substantially as shown and described. 40

2. In a machine for mixing or compounding different ingredients in varied quantities, a hopper, A, having divisions of different sizes, combined with apertured plate R and feed-plate C, having apertures and projections M, 45 substantially as shown and described.

3. The combination, with a hopper having divisions of various sizes, of a sliding feed-slide, C, and a plate, R, each having holes of various sizes, as described, and an ordinary mill for 50 grinding and mixing, substantially as set forth.

4. The combination of a hopper having divisions of various sizes, plate R, and a feed-slide having holes and arms, as set forth, springs P P', shaft O, cam N, and winch *i*, 55 substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW J. SUMMERS.

Witnesses:

S. A. HASELTINE,
 M. L. HASELTINE.