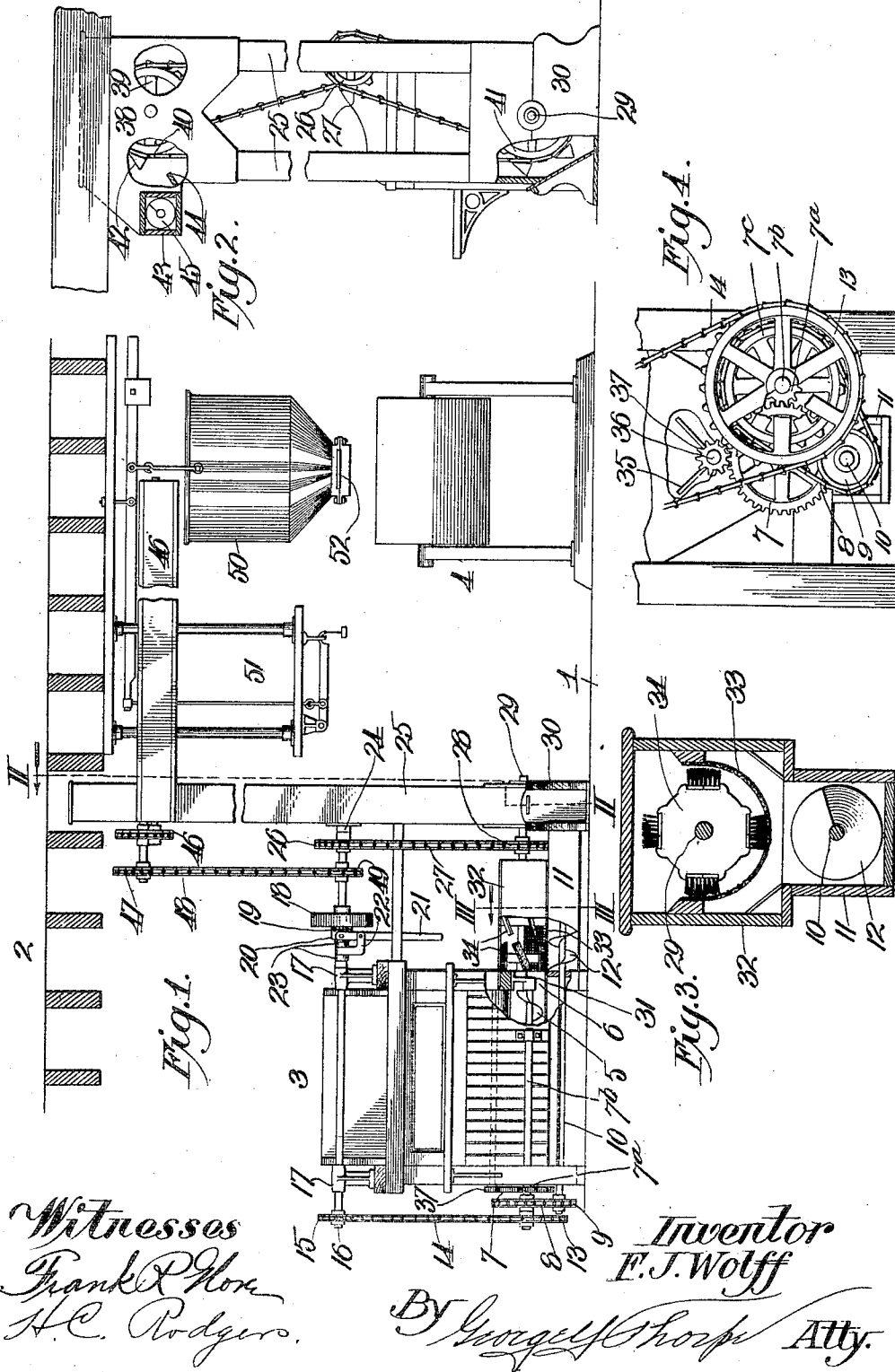


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 FLOUR HANDLING APPARATUS.
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971,811.

Patented Oct. 4, 1910.



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UNITED STATES PATENT OFFICE.

FREDRICK J. WOLFF, OF KANSAS CITY, MISSOURI.

FLOUR-HANDLING APPARATUS.

971,811.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDRICK J. WOLFF, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Flour-Handling Apparatus, of which the following is a specification.

This invention relates to flour handling apparatus for bakeries, and my object is to produce efficient and reliable apparatus which operates efficiently and which is of inexpensive and compact construction as to be especially well adapted for use in small baking establishments where it is impossible to utilize the apparatus in common use requiring at least two floors in handling the flour, my special object being to cooperatively associate upon the same floor, a flour blending, sifting, weighing and dough-mixing apparatus.

With this object in view and others as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which;

Figure 1, is an elevation partly broken away of apparatus embodying my invention. Fig. 2, is a vertical section taken on the line II—II of Fig. 1. Fig. 3, is an enlarged section taken on the line III—III of Fig. 1. Fig. 4, is an enlarged end view of the lower part of the blender, with the end of the same broken away to expose the agitator within.

In the said drawing, 1 indicates the first and 2 the second floor of a building, and mounted upon floor 1, is a blending machine 3 and a dough-mixer 4. The blending machine is of the ordinary hopper-bottom type and is equipped with a longitudinally extending spiral conveyer 5 to discharge flour through the discharge opening 6, the front end of the shaft of the conveyer being equipped with a gear-wheel 7 meshing with a pinion 7^a on shaft 7^b suitably mounted at one side of the hopper-bottom, and said shaft is also equipped with a sprocket-wheel

7^c, connected by a chain 8, with a similar sprocket-wheel 9 on the front end of a longitudinally extending shaft 10 suitably journaled and centrally underlying the hopper-bottom, said shaft at the opposite end of the blender extending through a horizontal chute 11 and equipped within said chute with a spiral conveyer 12.

The front end of the shaft of the conveyer 5, is also equipped with a sprocket wheel 13 connected by a chain 14 with a sprocket wheel 15, on the front end of the longitudinal shaft 16 arranged at one side of the upper part of the blender and mounted in bearings 17, erected upon the blender. Said shaft is equipped rearward of the blender with a belt wheel 18 to which motion is imparted by a belt, not shown, said wheel being journaled in the customary manner upon said shaft and provided with a clutch-member 19, for engagement by a slidable clutch-member 20 rotatable with shaft 16, and said clutch-member 20, is engaged by a shifting lever 21 fulcrumed on a bracket 22 pivotally suspended from the shaft and prevented from longitudinal movement thereon by collars 23 mounted on the shaft. The rear end of said shaft is preferably journaled in a bearing 24, secured on a vertical elevator-chute 25, and mounted on said shaft adjacent to said bearing is a sprocket-wheel 26 connected by a chain 27 with a sprocket-wheel 28 secured on a shaft 29 journaled in the foot-portion 30 of the elevator-chute 25, the opposite or front end of said shaft being journaled in a bearing 31 which also forms a journal for the rear end of the shaft of the conveyer 5, and incasing said shaft 29 from its front end nearly to sprocket wheel 28, is a casing 32 communicating at its front end with the discharge opening 6 of the blender and provided with a U-shaped sieve 33 partitioning the casing 32 from the chute 11, and secured upon said shaft 29 within said casing 32, are rotary brushes 34, said brush-ends being arranged at an angle to the shaft so that in revolving they shall sweep the flour forced into the casing by conveyer 5, through opening 6,

toward the rear end of the casing and upon the sieve and thus act to sift the flour into the chute 11 for its full length.

To effect a thorough blending of flour in the blender, a rotary agitator 35 is arranged in the lower part of the blender vertically above the conveyer 5, the shaft 36 of said agitator being equipped at one end with a small gear wheel 37 meshing with the gear wheel 7.

The elevator chute hereinbefore mentioned, is equipped with a top or head 38 in which is arranged a sprocket wheel 39 connected by an endless cup-conveyer 40 to a similar sprocket wheel 41 within the foot portion 30 and upon shaft 29, the cups 42 of the conveyer being adapted to discharge into one end of a box 43, the receiving end of the box having an inclined extension 44 whereby the flour dumped from the cups will be directed into the box and within the range of action of a spiral conveyer 45 within said box, and said spiral conveyer is geared as at 46 or in any other suitable manner to the shaft of wheel 39. The said shaft derives its motion through the sprocket wheel 47, chain 48 and sprocket wheel 49 on shaft 16. The box is arranged to discharge into the hopper 50 of a weighing scale 51 secured as shown or otherwise to the second floor joists of the building, the discharge end of the hopper being controlled by a slide or cut-off 52, so that when said slide or cut-off is opened the flour from the weighing hopper will drop into the mixer 4.

In practice the different kinds of flour to be blended are deposited in the mixer and the clutch members 19 and 20 are thrown into engagement for the purpose of operating the various shafts described. The rotation of the agitator results in the thorough mixture of the flour deposited in the blender and the conveyer 5 forces such mixed flour through opening 6 into the casing 32 where it is swept by the brushes 34 over the sieve 33, the fine particles dropping through the sieve or sifter and the coarse particles escaping from the discharge end of said casing. The fine flour which drops into the chute 11 is caused by the conveyer 12 therein to enter the foot portion of the vertical elevator-chute from which it is removed by the successively presented cups 42 and carried up through the right-hand leg of the chute into the top or head 38 and then successively discharged by said cups into the receiving end of the box 43, through which it is conveyed by the conveyer 45 and discharged into the weighing hopper 50, it being understood that the scale is set so that the hopper will descend when the contents attain a predetermined weight and that when the scale operates, lever 21 is manipu-

lated to separate the clutch members and arrest the blending operation. When it is desired to make dough, the flour is discharged from the hopper 50 into the dough mixer 4 by opening the cut-off 52. When the discharge is completed the cut-off is reclosed so that the weighing hopper will be ready to receive and hold flour after the apparatus is again set in operation.

From the above description it will be apparent that I have produced a flour handling apparatus, embodying the features of advantage enumerated as desirable in the statement of the object of the invention, and which is susceptible of modification in minor particulars without departing from the spirit and scope of the appended claims.

Having thus described the invention what I claim as new and desire to secure by Letters-Patent, is:

1. A flour-handling apparatus, comprising a flour blending machine, a weighing scale supported above the discharge point of the blending machine and provided with a hopper having a cut-off at its discharge end, conveying means to receive the flour from the blending machine and elevate and discharge it into the hopper from a point above the same, and a dough mixer below the plane of the hopper and adapted to receive the flour when withdrawn from the hopper by the opening of the cut-off thereof.

2. A flour-handling apparatus, comprising a flour blending machine provided with means for sifting the coarse particles from the fine after the blending operation occurs and for discharging each at different points, an elevator to receive the fine particles and convey them upward and discharge the same at a suitable height, a box to receive the flour discharged from the elevator, a conveyer within the box to discharge the flour therefrom, a weighing scale having a hopper to receive the flour discharged from said box and provided with a cut-off, and a dough mixer to receive the flour withdrawn from the hopper by the opening of the cut-off.

3. A flour handling apparatus, comprising a flour blending machine having a discharge opening, a casing communicating at one end with said opening and open at its opposite or discharge end, means to discharge flour from the blender through said opening into said casing, a sieve forming the bottom of said casing, rotating brushes to advance the flour through said casing upon said sieve to effect the discharge of the fine particles of flour through the sieve and the expulsion of the coarse particles from the discharge end of the casing, a chute to receive the flour discharged through the sieve, a rotating spiral conveyer in said chute to discharge the flour therefrom in combination

with an upright elevator chute to receive the flour from the chute underlying the sieve, a suitably-driven endless cup conveyer within the elevator chute, a box communicating
5 with the upper part of said elevator chute, a conveyer in the box to discharge the flour therefrom, a weighing scale, a hopper carried thereby and underlying the discharge end of said last-named chute, a cut-off con-

trolling the discharge of flour from said 10 hopper, and a dough mixer underlying said hopper.

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

FREDRICK J. WOLFF.

Witnesses:

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