S. M. BRUA.

Process of Manufacturing Flour.

No. 209,795. Patented Nov. 12, 1878.

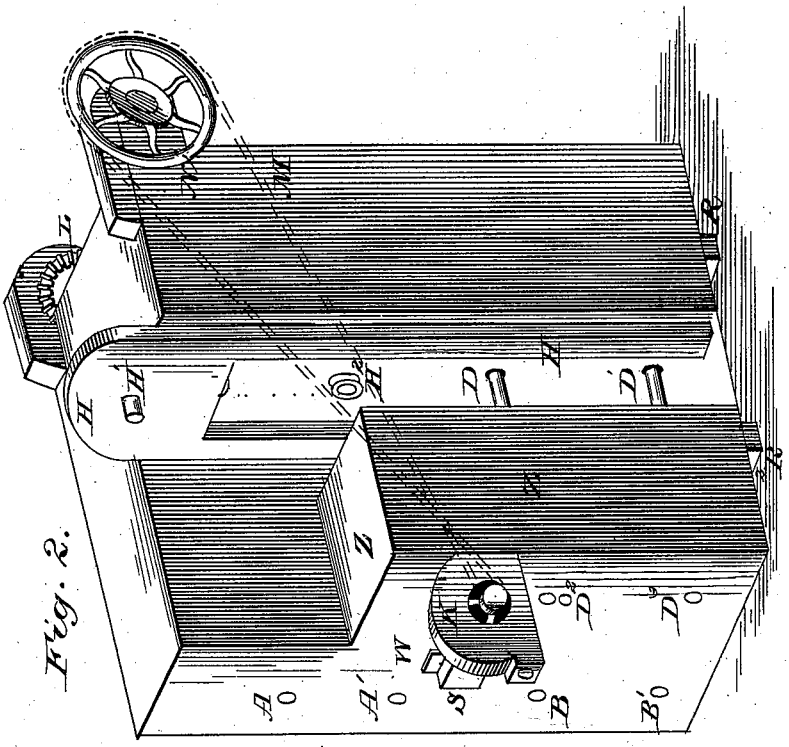

Fig. 2.

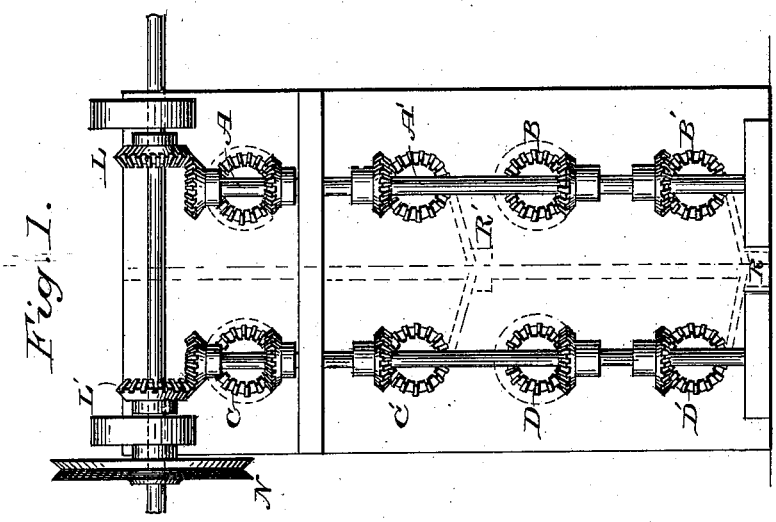

Fig. 1.

Witnesses:

Theophilus Weaver

Peter Stucker

Inventor

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UNITED STATES PATENT OFFICE.

SAMUEL M. BRUA, OF HARRISBURG, PENNSYLVANIA.

IMPROVEMENT IN PROCESSES OF MANUFACTURING FLOUR.

Specification forming part of Letters Patent No. **209,795**, dated November 12, 1878; application filed May 25, 1878.

To all whom it may concern:

Be it known that I, SAMUEL M. BRUA, of the city of Harrisburg, county of Dauphin, and State of Pennsylvania, have invented a new and useful Process of Thorough Flour-Milling, which process is fully set forth in the following specification, and the arrangement of the devices employed is shown in the accompanying drawing, in which—

Figure 1 represents a double-gang flour-chest, specially designed to facilitate milling in accord with my thorough or finished process. Fig. 2 represents my patent middlings-purifier, issued April 27, 1875, and numbered 162,620, connectedly arranged with my double-gang flour-chest and elevator.

To show the nature and object of my invention, I will first direct attention to present objectionable features in milling which my invention proposes to overcome.

In the present state of the art of flour-milling the first grinding and bolting do not present any objectionable features, except as they are delayed or interrupted to clear up the mill of middlings and leavings afterward. After the first bolting the middlings or middlings and bran unseparated are commonly stored on the mill-floors or in other places until a considerable quantity has accumulated. The direct or first bolting operation has then to be stopped, in order that the second-class matter, or leavings from the first bolting, may undergo treatment to extract more thoroughly therefrom at least a part of the flour still in it. It is therefore separated, and the middlings thus purified are reground and rebolted; but, as in the first case, there will again be a percentage of leavings, which, if disposed of as shorts, causes waste, but if to be better economized must again be stored up for a future reseparating, regrinding, and rebolting, while the direct grinding and bolting are meanwhile again resumed. Now, this mode doing mill-work is tedious, wasteful, and inconvenient, and produces several inferior grades of flour, as the products from the second boltings do not become regularly incorporated with the first grinding and bolting.

I therefore construct, arrange, and operate the flour bolting, separating, and purifying machinery in such manner that when the mill has once been fully engaged the direct process of grinding and bolting may go on uninterruptedly, and the indirect process of treating the middlings may also go on uninterruptedly at the same time, thus continuously causing the leavings of the direct process to be separated, purified, reground, and rebolted successively, and the flour thus obtained is continuously, and therefore uniformly, mingled with that obtained from the direct process, thus uniting the direct and the indirect processes to constitute my combined finished or thorough process. There is therefore no residuum except bran by my process, and the flour is a uniform first-class grade. The mill-floors are constantly cleared of leavings, and the miller's labors are thereby greatly lessened.

In doing work by my thorough process I run two series or gangs of bolts, conveyers, and separators, and these are preferably unitedly arranged in a double or vertically-divided chest, in such manner that the spouts from the same divisions may be readily united—that is, the flour is discharged by the conveyers at one spout, and the middlings are likewise discharged at one spout, suitably arranged to present them to an elevator, by which they are conveyed to my patent purifier already referred to. It is, however, evident that a combination of the parts or devices working together in my thorough process need not be juxtaposed or united in one chest, as suitable spouts may be extended so as to unite the products of the coactive or like devices, the main object being to do the milling work ongoingly and thoroughly, as before stated.

By reference to drawings it will be noticed, in Fig. 1, that in the double chest N N the operating devices A A′ B B′ and C C′ D D′ are arranged in gangs or series, with like parts by the side of each other. Thus A C represent flour-reels. A′ C′ are flour-conveyers. B D are separators, by which bran is separated from middlings. B′ D′ are middlings-conveyers, communicating, by suitable spouts R, with elevator H H′, by which the middlings are introduced into the purifier apparatus Z, consisting, mainly, of patent suction-blast reel already

referred to, K representing the fan, S a spout leading thereto from the reel, and W a slide for regulating the blast; R^2, its discharge-spout.

The right-hand gang of devices, A A′ B B′, is constantly at work only on the first-grinding products, and the other gang of devices, C C′ D D′, is constantly at work on the after-grinding products. The flour from both gangs is continuously run together, producing a uniform grade of first-class flour. The middlings from both gangs, after passing the separators, are run together, to be elevated together into and to be treated by the purifier, and thereafter to be reground and again passed through the left-hand gang or series of devices, and the valuable portion of the leavings therefrom is again incorporated with the next course of middlings in endless rotation.

There is therefore no waste by my thorough process, and the gangs, being once set to work properly, will continue to work automatically, and repeat the identical labor-saving operation thoroughly from day to day.

My invention therefore attains a new, useful, and valuable result by the novel arrangement and joint operation of devices already separately in use; and as the nature and construction of such devices are already well known, no special description thereof is here deemed necessary.

The interior arrangement of my double flour-chest is therefore not shown, and the spouts R R^1 of the middlings and of the flour conveyers, respectively, are only indicated as so extended as to run their contents together continuously—that is, flour with flour to be delivered to the packer, and middlings with middlings to be delivered to the purifier, as stated.

I claim—

The process of producing an improved grade of flour, consisting, essentially, in continuously mingling the corresponding grades of the valuable products of the first and after grindings, respectively, for running off the finished flour uniformly pending the regrinding and the rebolting, substantially in the manner and for the purpose specified.

In testimony that I claim the foregoing as my invention I have hereunto set my hand and seal this 20th day of May, 1878.

SAMUEL M. BRUA. [L. S.]

Witnesses:
THEOPHILUS WEAVER,
PETER STUCKER.