C. GILBERT.

Starch Separator.

No. 81,888. Patented Sept. 8, 1868.

Fig. 1.

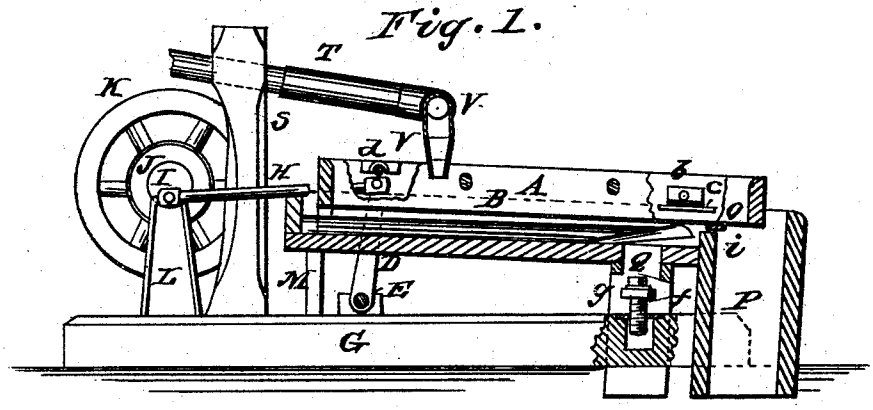
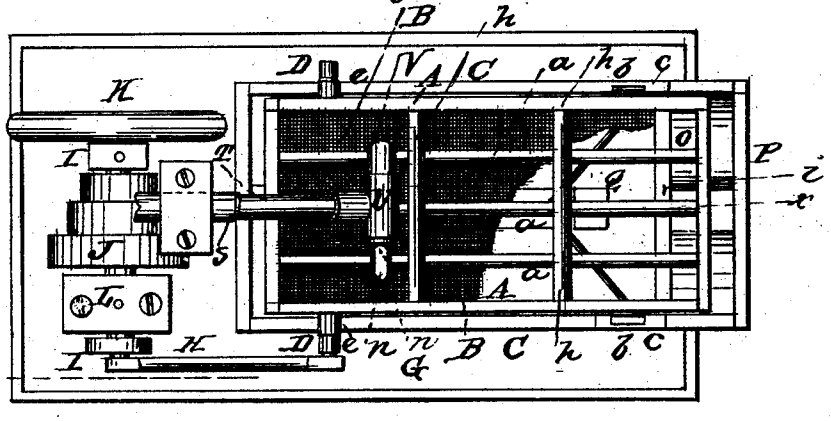


Fig. 2.



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Letters Patent No. 81.888, *dated September* 8, 1868.

IMPROVED STARCH-SEPARATOR.

The Schedule referred to in these Letters Patent and making part of the same

TO ALL WHOM IT MAY CONCERN.

Be it known that I, COLGATE GILBERT, of Buffalo, in the county of Erie, and State of New York, have invented new and useful Improvements in Starch-Separators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional side elevation of my invention, the section being taken through the line *x x* of fig. 1, which latter is a top or plan view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to improve a machine used in the manufacture of starch, which machine is usually called a separator, and its office is to separate, by means of a bolting-cloth, forming part of it, the coarser particles of the stock from the finer amylaceous particles, which are afterward manipulated to form starch.

The separators, as previously made, consist of a rectangular frame of wood, having for a bottom a bolting-cloth of muslin or other fine-meshed fabric. This frame is agitated with a longitudinal reciprocating movement from a pitman and crank-pulley, or similar device.

The finer particles of the stock pass through the bolting-cloth, and are received in an inclined box or receiver, over which the bolting-frame is arranged.

The coarser particles of stock pass off from the lower end of the bolting-frame.

My invention contains these general features, and is more particularly designed as an improvement on a separator used by J. J. Gilbert (see patent No. 65,664) in a patent for "improvement in the manufacture of starch."

The improvements consist in the method of supporting and vibrating the bolting-frame, and also the method of supporting the bolting-cloth, to keep it from bagging, together with other devices, perfecting the whole, as will be hereinafter fully set forth.

I employ a bolting-frame, A, having a cloth, B, the said frame moving to and fro over a box, C.

I support the bolting-frame by means of projections *b b*, at the lower end of the said frame, sliding on plate *c c*, affixed to the receiver C.

The opposite end of the frame is supported on vibrating arms D, rising from a rocking shaft, E, which has bearings in the bottom frame or bed G of the machine.

The arms D are provided with studs *d*, projecting laterally from the arms inward, and on which bearing-plates *e*, having their under surface semi-cylindrical, to fit the said studs, rest.

These bearing-plates are affixed to the frame A, as shown.

A pitman, H, connects one of the arms D with the crank-pulley I, on the shaft of the speed-pulley J and fly-wheel K, which shaft has bearings in the uprights L, rising from the bed G, as shown.

Thus, by means of the vibrating arms D, bearing-plates *e*, projections *b*, and slide-plates *c*, I obtain a more even and firm motion, which is more efficacious in bolting the stock, and less subject to wear, than is the case when the frame is suspended by hanging rods, as in the said J. J. Gilbert's patent.

The box C is supported, in my invention, by legs M at one end, and by adjusting-screws *g* (the threads of which work in plates *f*, affixed to the bed G) at the other.

The feet of the legs M rest loosely in steps in the bed, so that, by turning the screws *g*, any suitable incline can be given to the box, as the lower end of the latter rests on the ends of the said screws.

By this feature of improvement, I am enabled to conveniently change the incline of the frame and box to suit the character of the stock being operated upon, which require a greater or less incline, according to circumstances.

I also employ longitudinal ribs *a a a*, &c., preferably of wood, extending from end to end of the frame A, at different intervals, across its bottom, and to which the bolting-cloth B is affixed, by tacks or otherwise.

These ribs serve to support the said cloth, and keep it from bagging down, as is the case when supported only by the frame A.

The cloth thus supported is capable of being stretched tighter, thus keeping the meshes from choking or closing, which they are liable to do when the cloth is loose or baggy.

h h are cross-braces, to stiffen the sides of the frame A.

The lower end of the cloth is affixed to a bottom cross-piece, *i*, which leaves a space, O, for the coarser particles of stock to pass through and discharge into the broad spout P, forming the lower end of the receiver C.

The stock, after passing through the bolting-cloth into the bottom of the box, escapes therefrom through a spout, Q, which opens into the bottom of the receiver, near the lower end of the same, as shown.

The bolted stock passes through this spout into a vat, to be further operated upon in the process of manufacturing starch

Another feature of improvement is the construction of the tube which conveys the ground grain and water from the grinding-stones. It consists of a metal tube, made extensible by a sleeve-joint, that is to say, by one of the parts, S, sliding into the other part, T.

To the part T is affixed a cross-tube, U, in which latter the elbow-nozzles V are fitted.

These several parts fit with sufficient looseness to enable them to be turned to adjust their position; that is to say, the cross-tube may be turned on its joint, and the nozzles may be turned on their joints to any suitable position for discharging the stock upon the bolting-cloth.

The orifice of each nozzle is divided by a septum or partition into two orifices, as shown at *n n*, which are flattened to obtain a greater lateral dispersion of the water and stock passing through them.

The cross-tube U can be removed, to permit the removal of the frame A from the receiver when the bolting-cloth requires washing.

The machine is driven by a belt on the speed-pulley J, which is composed of a number of different-sized pulleys, to regulate the speed at which the separator is to be driven.

In Figure 2, a portion of the bolting-cloth is broken away to exhibit the bottom of the receiver, which is inclined from the sides to form a central channel leading to the spout Q.

I claim as new, and desire to secure by Letters Patent—

1. The method of supporting and vibrating the bolting-frame A of a starch-separator, substantially as shown and described, and for the purpose set forth.

2. The method of supporting the bolting-cloth B of a starch-separator by longitudinal ribs *a a a*, &c., arranged and combined substantially as shown and described, and for the purpose set forth.

3. The extensible and adjustable tube, composed of the parts S T U V V, when forming part of a starch-separator, and arranged and combined to operate substantially as shown and described, and for the purpose set forth.

4. The method of adjusting the incline of a starch-separator by means of screws *g*, when the same are arranged in combination with the receiver C, frame A, and bed G, all substantially as shown and described, and for the purpose set forth.

5. An improved starch-separator, when constructed and arranged to operate substantially as shown and described, and for the several purposes set forth.

COLGATE GILBERT.

Witnesses:

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