(No Model.)

T. A. JEBB.

STARCH SEPARATOR.

No. 249,056. Patented Nov. 1, 1881.

Fig. 1.

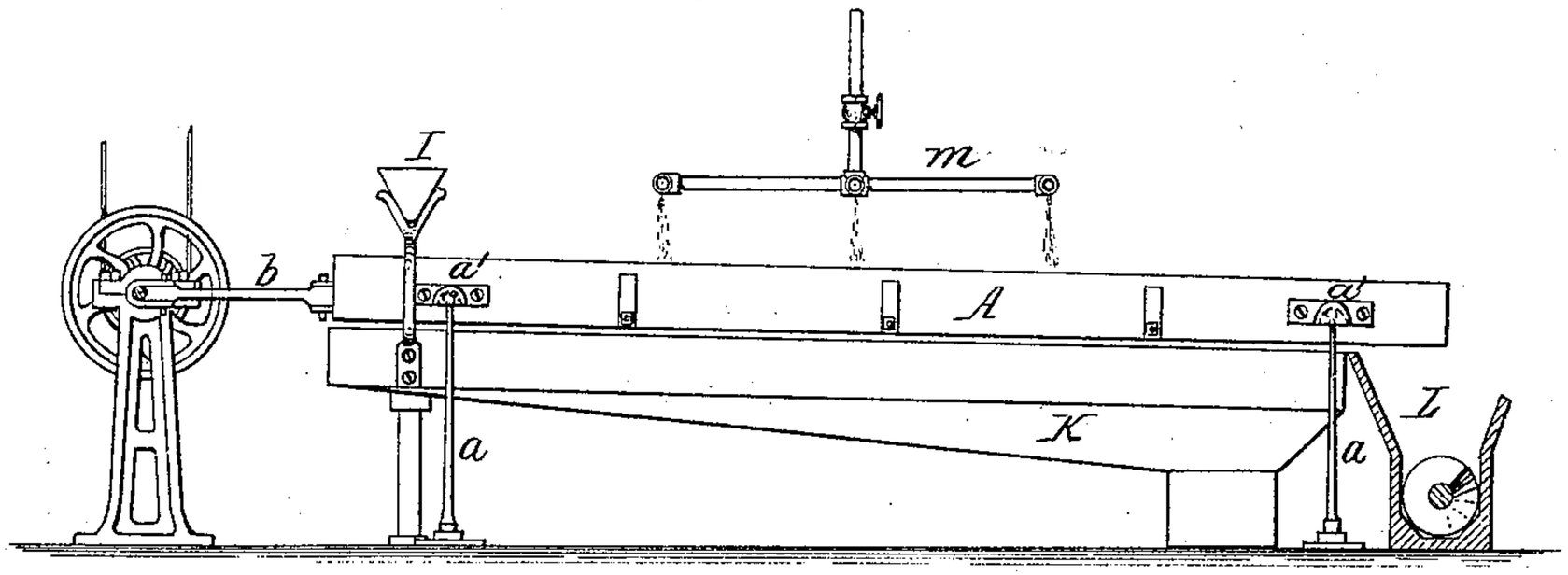


Fig. 2.

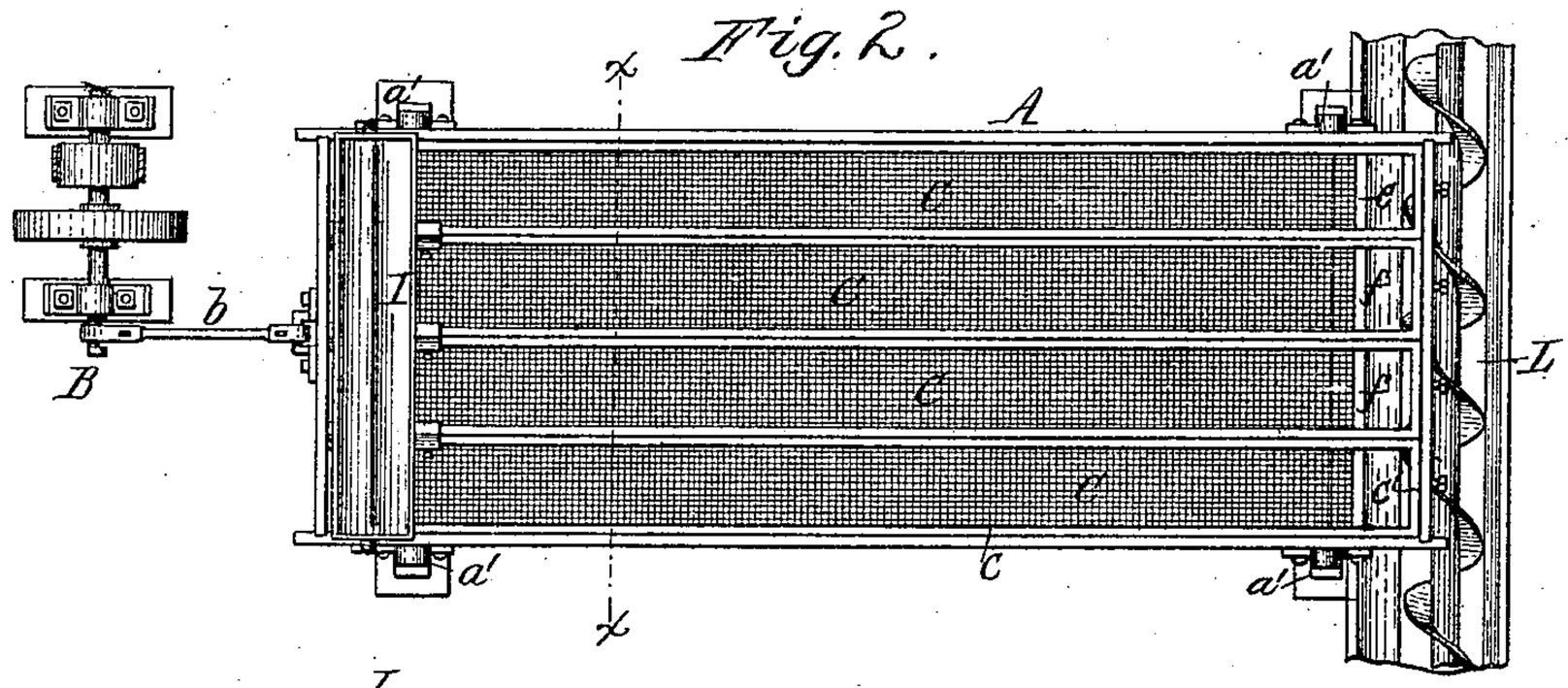


Fig. 3.

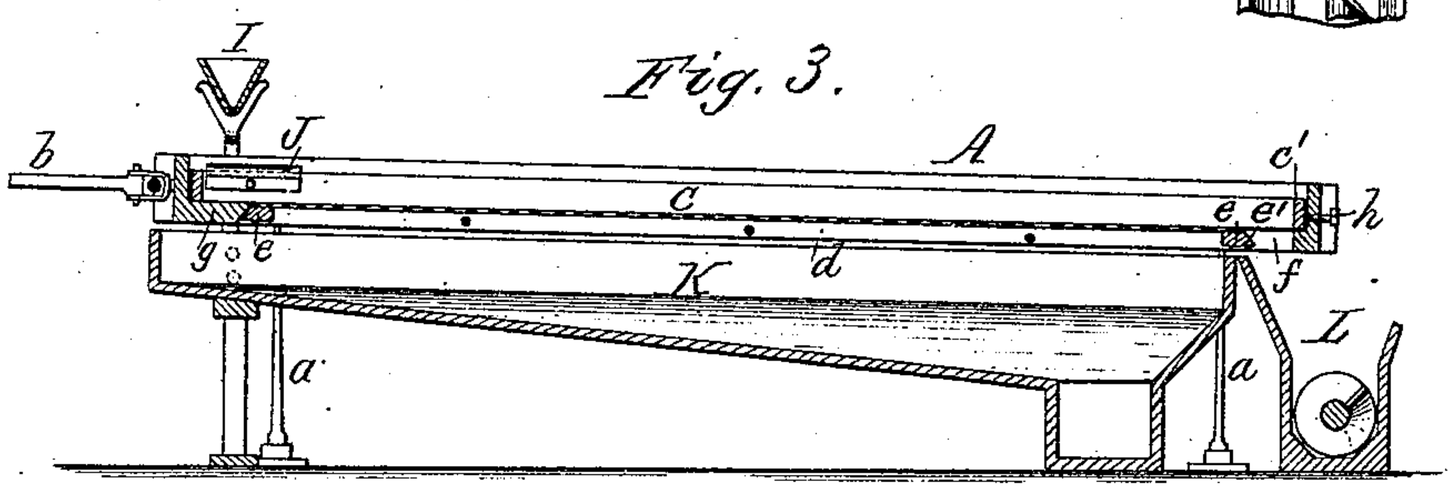


Fig. 4.

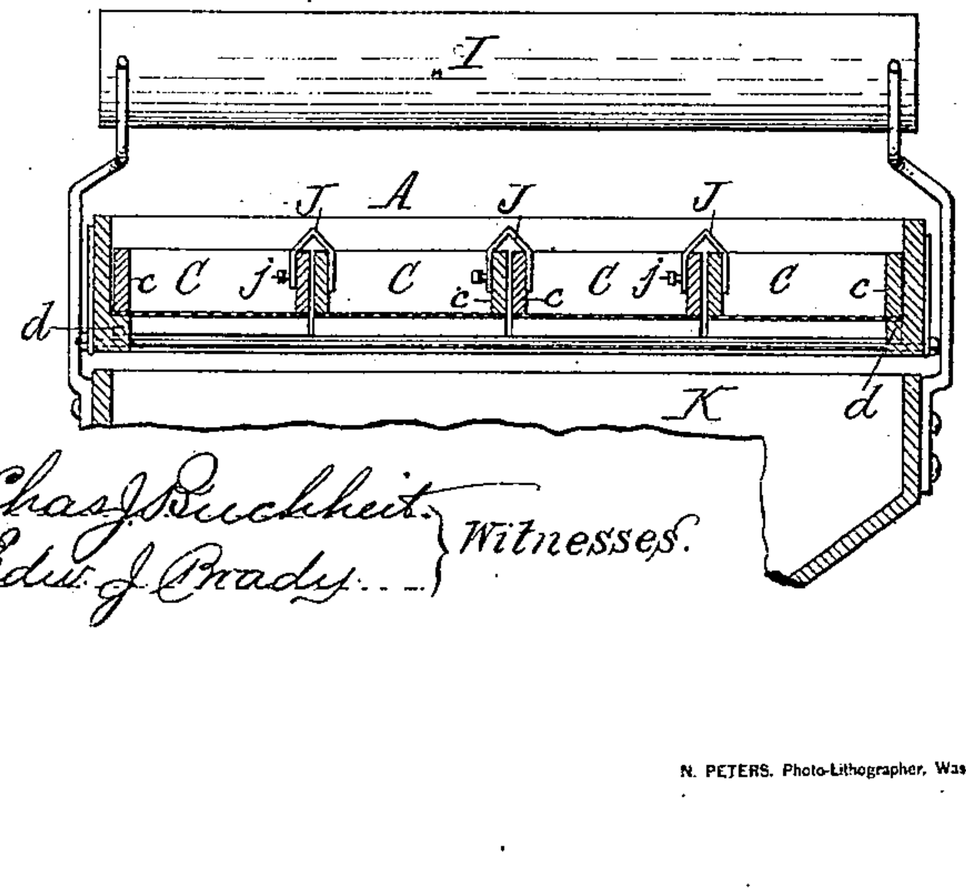
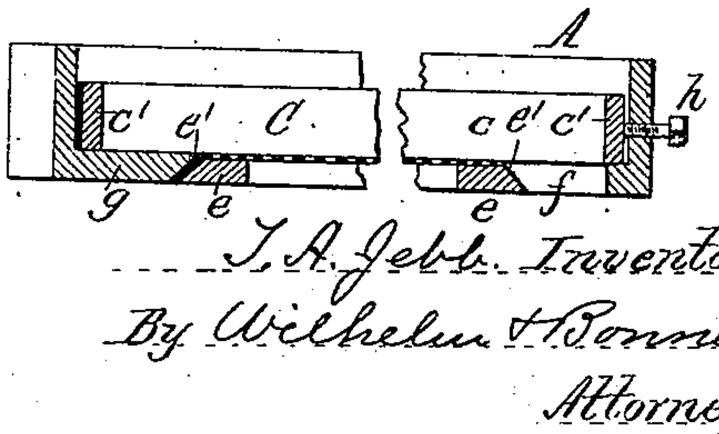


Fig. 5.



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UNITED STATES PATENT OFFICE.

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STARCH-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 249,056, dated November 1, 1881.

Application filed October 4, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. JEBB, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Starch-Separators, of which the following is a specification.

This invention relates more particularly to that class of separators which are employed for separating the crude starch from the husk and bran of the ground grain, and which consists, essentially, of a shaking sieve covered with bolting-cloth, through the meshes of which the starch and water are sifted, while the coarse refuse, such as bran and husks, pass over the tail end of the bolting-surface.

The object of my invention is to render these separators more convenient in their operation and more durable; and my invention consists of the peculiar construction of the separating-sieve, whereby the bolting-cloth can be turned end for end, thereby causing the parts of the bolting-cloth which are exposed to the greatest and least wear to change places in the sieve-frame when this becomes desirable; also, of means whereby the material is prevented from entering between the several sieve-frames, and of the means whereby the sieve is supported and vibrated, as hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of my improved separator. Fig. 2 is a top-plan view, and Fig. 3 is a longitudinal section, thereof. Fig. 4 is a cross-section, on an enlarged scale, in line *x x*, Fig. 2; and Fig. 5 is a fragmentary longitudinal section of the sieve.

Like letters of reference refer to like parts in the several figures.

A represents the rectangular sieve-frame, and *a* vibrating arms, which support both ends of the frame. The arms *a* may be secured with their lower ends to the floor and be made of elastic material, which permits the necessary flexion of the arms, or they may be pivoted to the floor, as may be preferred. They are connected with the sieve-frame by pivots, which enter sockets *a'*, secured to the sides of the sieve-frame. The latter receives motion by a connecting-rod, *b*, from an eccentric or crank on a driving-shaft, B.

C represents a series of narrow rectangular frames arranged side by side in the main frame A, and having their under sides covered with bolting-cloth. These frames C are each composed of side pieces, *c*, and end pieces, *c'*, which rest upon a rabbet or shoulder, *d*, formed on the inner sides of the main frame A. The bolting-cloth is secured to the under sides of the side pieces, *c*, and to cross-pieces *e*, which are secured to the under side of the side pieces, *c*, at a short distance from the end pieces, *c'*, leaving an opening, *f*, between each cross-piece *e* and the end piece, *c'*, through which the coarse offal is discharged. The rabbet *d* is cut away at the proper places to make room for the cross-pieces *e*.

g is a plate or board extending across the bottom of the main frame at its head, below the frames C, and closing the openings *f* at the heads of the several frames C, the cross-pieces *e* of the frames C resting against the rear edge of the plate *g*, as clearly shown in Figs. 3 and 5. The outer faces, *e'*, of the cross-pieces *e* are preferably inclined or beveled downwardly, and the rear edge of the plate *g* is correspondingly beveled.

h are set-screws which work in threaded holes in the tail-piece of the main frame A, and which bear against the tail-pieces of the removable sieve-frames C. By tightening the screws *h* the cross-pieces *e* are pressed against the head-board *g*, and the inclined faces of these pieces form a tight fit and prevent the removable frames from being accidentally lifted out of place when the machine is in operation. The rear face of the board *g* may be covered with a strip of rubber or other elastic material, and the rear face of the head-board of the main frame A may be similarly covered to form a tight fit between the removable frames C and the main frame A. Upon loosening the screws *h* the frames C can be removed from the main frame or turned end for end, thereby bringing the former tail portion of the cloth to the head of the sieve, and the head portion of the cloth to the tail. As the wear of the cloth is greater at the head, where the material is fed upon the cloth, than at the tail of the sieve, the wear is readily equalized by reversing the frames from time to time. The frames C are made no wider than the strength of the bolting-cloth will permit, so that the bolting-cloth will not sag or bag under the weight of the material resting thereon. The

side pieces of the frames C form intermediate supports for the bolting-cloth, and also serve to divide the material and prevent it from working to one side when the sieve is not perfectly level in the direction of its width.

I represents the feed hopper or trough arranged over the head portion of the sieve, and extending across the entire series of removable sieve-frames C, whereby the material which issues from a slot in the bottom of the hopper is equally distributed over the entire width of the sieve.

J are covers or shields, which are fitted over each pair of contiguous side pieces, *c*, of the removable frames C underneath the feed-hopper, and which prevent the material which is discharged from the hopper from entering between the side pieces of two contiguous frames. These covers are secured by set-screws *j*, or other suitable means, so that they can be readily removed when the frames C are to be reversed.

K is a hopper or trough which is arranged underneath the sieve, and which receives the material which passes through the meshes of the sieve, and L is a trough which is arranged under the tail-openings *f* of the sieves and receives the coarse offal which escapes over the tail end of the bolting-surface.

m represents the water-pipes arranged in the usual manner above the sieve, and which deliver sprays of water upon the bolting-surface, whereby the starch is washed through the meshes thereof.

It is obvious that although my improvements are more especially designed for use in starch-separators, they may be advantageously employed in other shaking separators.

I claim as my invention—

1. The combination, with the main frame A, of a series of removable sieve-frames, C, arranged side by side in the main frame, substantially as set forth.

2. The combination, with the main frame A, of a series of removable sieve-frames, C, arranged side by side in the main frame, and means whereby the frames C are secured in the main frame, substantially as set forth.

3. The combination, with the main frame A, of a reversible frame, C, covered on its under side with bolting-cloth, and provided at each end with an opening, *f*, for the discharge of the coarse offal, substantially as set forth.

4. The combination, with the main frame A, having a head-board, *g*, of a reversible sieve-frame, C, covered on its under side with bolting-cloth, and provided at each end with an opening, *f*, and cross-piece *e*, adapted to fit against the head-board *g*, substantially as set forth.

5. The combination, with the main frame A, provided with a head-board, *g*, having a beveled rear side, of a removable sieve-frame, C, provided with cross-pieces *e*, having beveled faces adapted to fit against the beveled rear side of the head-board *g*, and means whereby the frame C is secured in place, substantially as set forth.

6. The combination, with the removable sieve-frames C, of the protecting covers or shields J, whereby the material is prevented from entering between the frames, substantially as set forth.

7. The combination, with the sieve-frame A, of the vibrating or rock arms *a*, supporting both ends of the sieve, substantially as set forth.

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