

J. LOUFEK.
SEPARATING MECHANISM.
APPLICATION FILED MAY 5, 1908.

938,256.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 1.

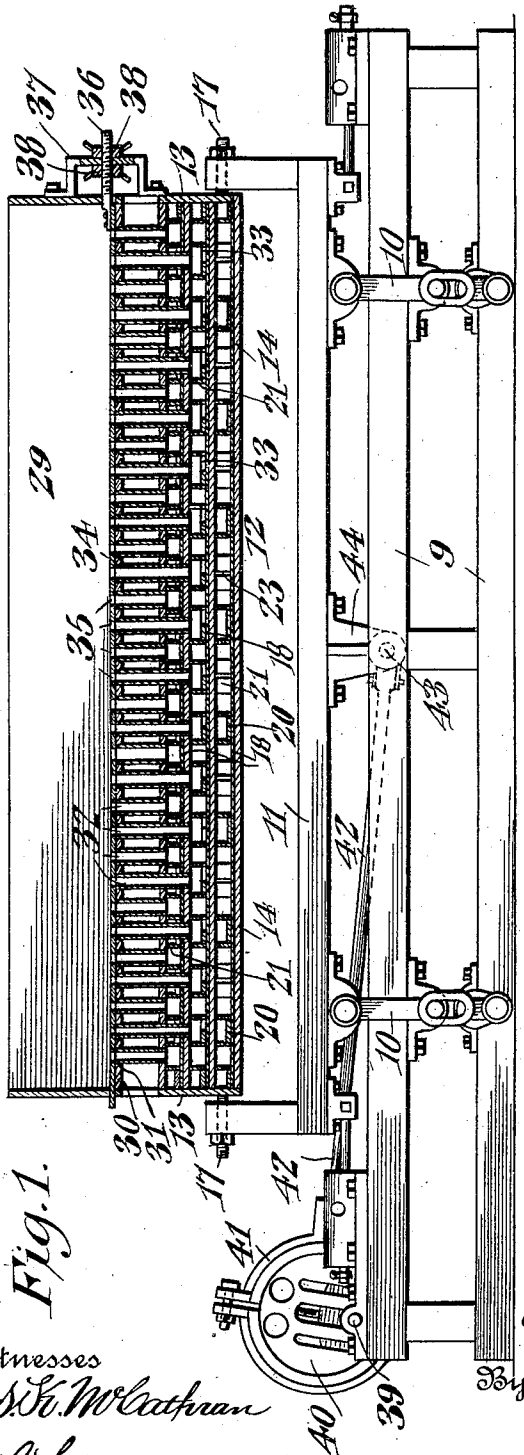


Fig. 1.

Witnesses
Jas. E. McArthur
R. L. Foster

Fig. 7.

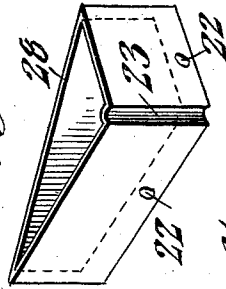


Fig. 5.

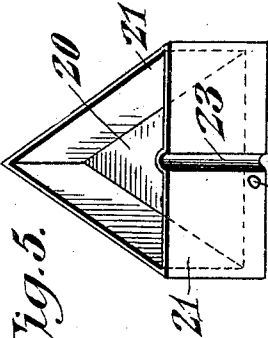


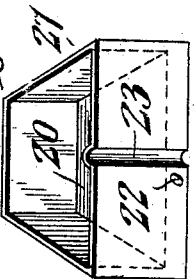
Fig. 4.



Fig. 8.



Fig. 6.



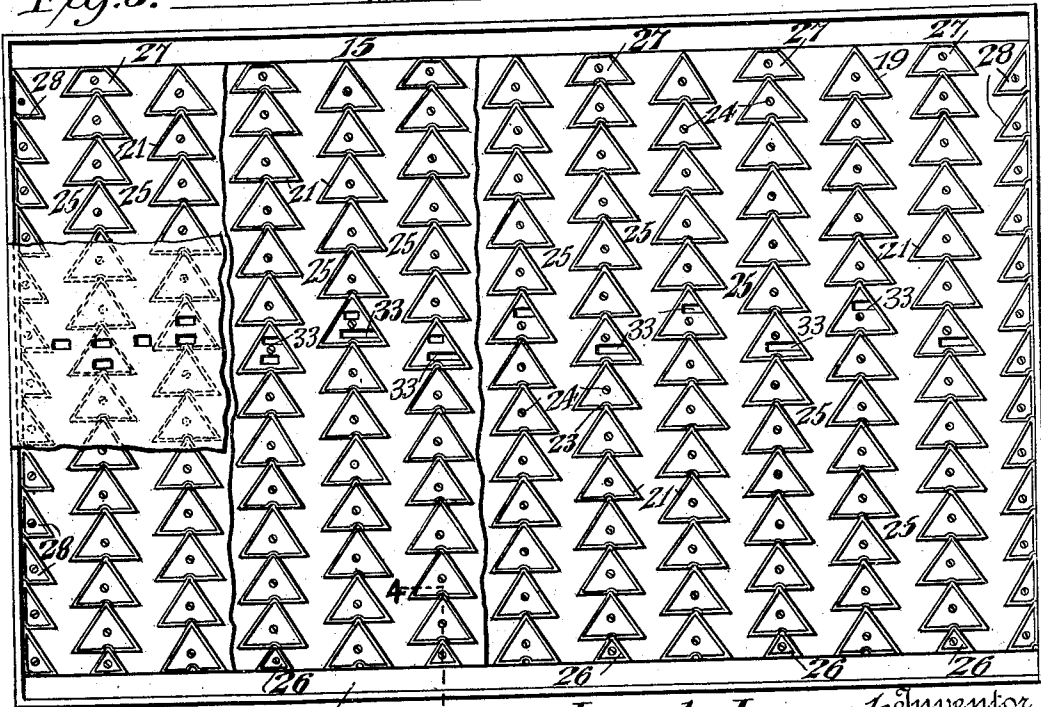
Joseph Loufek, Inventor

E. G. Siggers

Attorney

938,256.

Fig. 3.



Joseph Loufek, Inventor

Jas. E. McLaughlin

$$\mathcal{B}_Y$$

E. G. Siggers

Attorney

UNITED STATES PATENT OFFICE.

JOSEPH LOUFEK, OF ATCHISON, KANSAS.

SEPARATING MECHANISM.

938,256.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed May 5, 1908. Serial No. 431,062.

To all whom it may concern:

Be it known that I, JOSEPH LOUFEK, a citizen of the United States, residing at Atchison, in the county of Atchison and State of Kansas, have invented a new and useful Separating Mechanism, of which the following is a specification.

The present invention relates to improvements in means for separating that class of material with which screens are not practicable, and while particularly intended for separating oat groats from oats, shelled from unshelled rice, and the like, it can also be successfully employed for separating different grades of and foreign matter from materials of various sorts where there are differences in the specific gravity, in the character of the surfaces of the materials, or in the shape of the elements comprising the same.

The primary object of this invention is to provide novel separating mechanism, which while very compact in its character and requiring but little power to successfully operate it, is thoroughly efficient in performing its separating functions, and is capable of great output.

A further and important object is to so construct the mechanism that the various parts can be cheaply manufactured, readily assembled and new elements can be easily substituted for old ones when the latter are worn or broken without great expense and without the necessity of disturbing adjacent elements.

An embodiment of the invention that is at present considered the preferable one is illustrated in the accompanying drawings, wherein:—

Figure 1 is a longitudinal sectional view through the separating mechanism, the supporting and operating means therefor, being shown in elevation. Fig. 2 is a vertical cross sectional view. Fig. 3 is a plan view, different tiers being broken away in order to illustrate the internal construction. Fig. 4 is a detail sectional view on an enlarged scale and on the line 4—4 of Fig. 3. Fig. 5 is a perspective view of one of the wall-forming members. Fig. 6 is a perspective view of one of the end members. Fig. 7 is a perspective view of one of the side members. Fig. 8 is a detail cross sectional view through one of the members having a feed channel.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the structure disclosed, a base frame 9 is employed, on which is mounted, by means of swinging carrier links 10, a shaking frame 11 carrying the separating mechanism, which is designated as a whole, by the reference numeral 12. As illustrated, this separating mechanism comprises a casing composed of side walls 13 surrounding a plurality of bottoms or supports 14 arranged one above the other and set at an inclination, as shown. This casing is provided at its upper and lower ends with delivery spouts 15 at which the said bottoms 14 terminate. The casing has pivot mountings 16 on the shaking frame 11, and also has adjustable connections 17 therewith, whereby the angle of inclination of the bottoms can be varied as desired. Each bottom, has for its upper face, a sheet 18 of smooth metal, and located on each bottom are a plurality of spaced rows of wall-forming members 19, the majority of which are substantially triangular in form. Each member is separate and detachable from the others, and those in each row are disposed in a substantially straight line with the point of one abutting against the base of the next, as will be clear by reference to Fig. 3. Each of these members consists of a body block 20, preferably of wood, surrounded by metallic walls 21 corresponding in shape to the body block and formed of sheet metal, these walls extending above the body block, and being secured thereto by suitable fasteners 22. The base or rear end wall of each member has a socket 23 that is centrally disposed and receives the pointed end of the adjacent member. The various members are held in position by screws or other fasteners 24 that are passed through the body blocks and into the bottom or support on which the members are located.

It will be noted by reference to Fig. 3 that the members of the different rows are disposed in staggered relation, and thus a plurality of separating channels 25 are produced that communicate with the spouts or receivers 15 at the ends of the casing, the sides of the channel being formed of angularly disposed wall sections of sheet metal. It will of course be understood that at the ends of the rows the members are properly formed to fill the spaces. Thus at the lower

ends of certain rows, small triangular members 26 are provided, while at the upper ends, truncated members 27 are provided. In like manner, the members 28 at the opposite sides of the casing are right triangular in form.

Suitably mounted on top of the casing between the upper and lower ends thereof, is a feed box comprising side walls 29 and a bottom 30, this bottom being provided with delivery openings 31 that are arranged between the side walls 29 and communicate with vertically disposed conduits 32. These conduits extend downwardly to the various tiers of wall-forming members and terminate in channels 33 that are located in the bodies 20 of certain of said members, said channels communicating with the different separating channels 25. The arrangement is such that each of said separating channels is thus in communication through one of the vertical spouts or conduits 32, with the feed box 29. A slide valve 34 is mounted on the bottom 30, and is longitudinally slidable thereon. This slide valve is provided with openings 35 that are movable into and out of register with the openings 31 of the bottom. In order to effect the adjustment of the slide valve and to hold it in adjusted position, a threaded stem 36 projects from one end of the same and passes through a bracket 37 secured to the end of the feed box. Adjusting and holding nuts 38 are threaded on this stem and abut against the opposite sides of the bracket.

For the purpose of effecting the shaking movement of the separating mechanism, a drive shaft 39 is employed, carrying an adjustable eccentric 40 surrounded by a strap 41. This strap is connected to a pitman 42 which is pivoted as shown at 43 to a depending bracket 44 secured to the shaking frame 11. The operating mechanism *per se* constitutes no part of the present invention as the same is fully disclosed and claimed in a co-pending application filed simultaneously herewith and having Serial No. 431,061, filed May 5, 1908. Suffice it to state therefore that upon the rotation of the drive shaft 39 and eccentric 40, the casing 13, and consequently the separating mechanism contained therein, will be reciprocated transversely of the separating channels 25 produced by the rows of wall-forming members. If now, material to be separated is placed in the feed box it will be evident that the same will gravitate down the spouts or conduits 32, and be carried into the channels 25. As this material falls upon the various bottoms it is put in action by being thrown against the sides of the wall-forming members. The constituent parts that are of a heavier specific gravity roll by virtue of such gravity downwardly, and finally fall into the lower spout or receiver 15. The constituent parts, however, which

are of a lighter specific gravity, are thrown upwardly by the angular sides of the working or separating channels, and finally they reach and are delivered into the upper receiver. The stroke of the separating mechanism can be readily varied by adjusting the eccentric 40 and the speed can be regulated by any suitable means. The feed of the material is controlled by adjusting the slide valve 34 to cause the openings 35 therein to register more or less with the delivery openings in the bottom, and this is readily accomplished by the proper turning of the nuts 38. The angle of inclination of the casing, and consequently of the channels can also be varied as will be evident. It will be clear that in this structure the members by which the working or separating channels are produced, can be cheaply manufactured, and being separate parts, can be readily placed in position or removed without difficulty. Therefore they can be interchanged and new ones substituted for old ones with ease and expedition. Furthermore because of the arrangement disclosed, a comparatively great number of channels can be formed in a comparatively small amount of space, thus producing a separator, which while small, and requiring but little power to successfully operate it, will have a comparatively great output. It will of course be understood that any number of channels may be provided and any number of tiers of the same may be employed.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In separating mechanism of the character set forth, the combination with a supporting plate, of a series of rows of independent triangular closed-sided wall-forming members, the apex of each triangular member being against the middle of the base of the next consecutive member, each of said members being independently attachable and removable.

2. In separating mechanism of the character set forth, the combination with a supporting plate, of a series of rows of independent triangular closed-sided wall-forming members, the apex of each triangular member being against the middle of the base of the next consecutive member, the members of one row breaking joints with the members of the next adjacent rows, and each

of said members being independently attachable and removable from the plate.

3. In separating mechanism of the character set forth, the combination with a supporting plate, of a series of rows of independent triangular hollow closed-sided wall-forming members, the apex of each triangular member being against the middle of the base of the next consecutive member, each of said members being composed of base blocks having upstanding sides, and each of said members being independently attachable and removable, and each of said members having fastening devices passing through said base blocks into said supporting plate.

4. In separating mechanism of the character set forth, the combination with a shaking inclined support, of spaced rows of separate independent closed-sided wall-forming members located on the support, said members each comprising a tapered body, and the members in each row being arranged with the smaller end of one body pointed upward and abutted against an intermediate portion of the wider end of the next, said rows forming between them a separating channel.

5. In separating mechanism of the character set forth, the combination with an inclined shaking support, of spaced rows of separate independent interchangeable closed-sided wall-forming members located on the support, said members each comprising a tapered body and the members in each row being arranged with the smaller end of one body abutted against an intermediate portion of the wider end of the next, said rows forming between them a separating channel, means for separately securing each member to the support to permit the detachment of any independently of the others, and means for shaking the support.

6. In separating mechanism of the character set forth, a shaking support having a separating channel, one of the side walls of the channel comprising a plurality of members arranged end to end, each member having a socket in one end and the adjacent member having a portion fitting in said socket.

7. In separating mechanism of the character set forth, a shaking support having a separating channel, one of the side walls of the channel comprising a plurality of substantially triangular members, the base of each member having a socket in which the

smaller end of the adjacent member is engaged.

8. In separating mechanism of the character set forth, a support having a separating channel, one of the walls of said channel comprising a plurality of members arranged end to end, and composed of independently detachable and removable body blocks and closed metallic upstanding sides secured thereto, and means passing through the body blocks for securing the members to the support.

9. In separating mechanism of the character set forth, a support having a separating channel, one of the walls of said channel comprising a plurality of independently attachable and detachable tapered members arranged end to end, each member consisting of a tapered body block and closed metallic sides secured thereto and extending above the same, and fastening means passing downwardly through the body blocks for securing the members to the support.

10. In separating mechanism of the character set forth, a support having a metallic face plate and spaced rows of wall-forming members mounted on the face plate, each member consisting of a triangular body block and metallic walls secured to the various sides thereof and extending above the same, the base wall being provided with a socket, the members in each row being disposed in a substantially straight line and having the smaller end of one engaged in the socket of the next adjacent, the members of the different rows being arranged in staggered relation, and fastening devices passing downwardly through the bodies and securing the same to the support.

11. In separating mechanism of the character set forth, the combination with a shaking support, of spaced rows of separate wall-forming members located on the support, said members, each comprising a tapered body, and the members in each row being interchangeable and of the same size, with the smaller end of one body abutted against an intermediate portion of the wider end of the next, said rows forming between them a separating channel.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH LOUFEK.

Witnesses:

J. P. ADAMS,
HENRY DENTON.