(No Model.)

# C. CLOSZ.

## GRAIN SEPARATING SCREEN.

No. 455,998. Patented July 14, 1891.

Fig. 1.

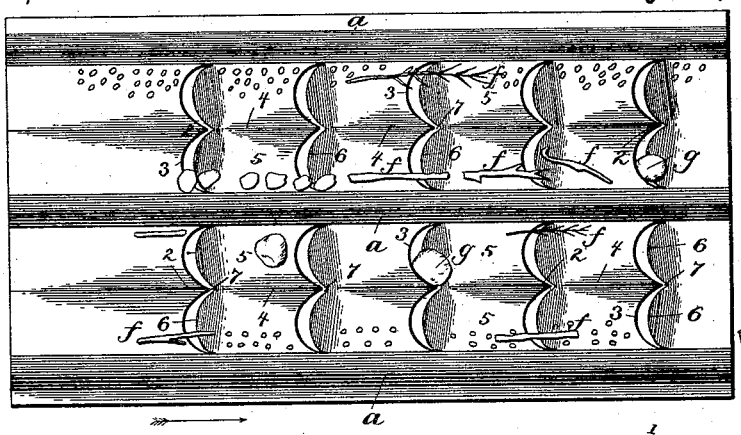


Fig. 7.

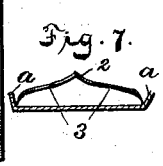


Fig. 2.

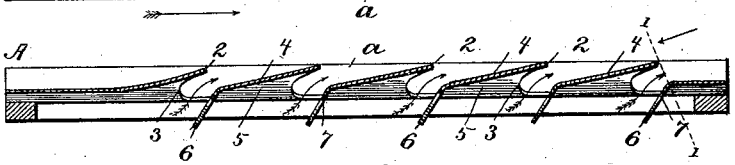


Fig. 3.

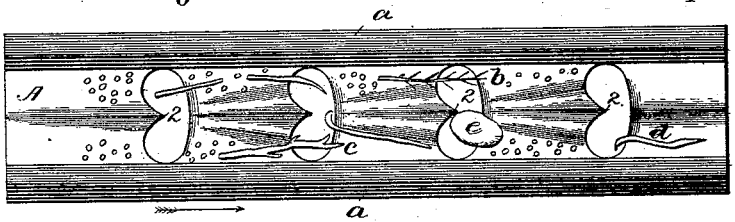


Fig. 4.

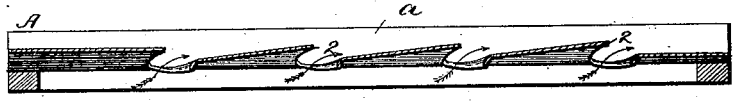


Fig. 5.

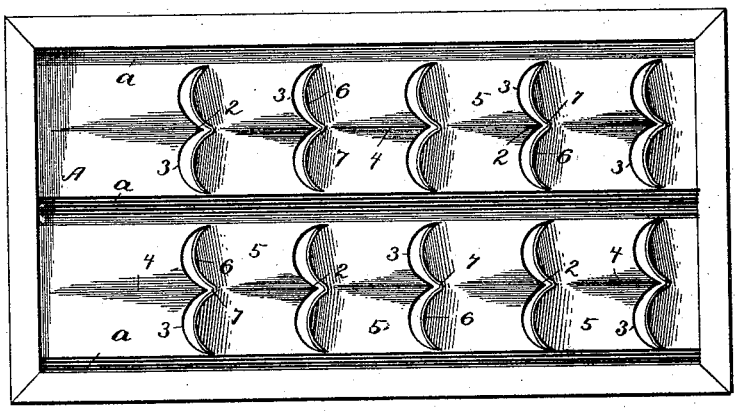
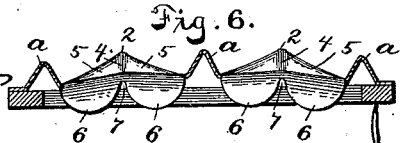


Fig. 6.



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# UNITED STATES PATENT OFFICE.

CHARLES CLOSZ, OF ST. ANSGAR, IOWA.

## GRAIN-SEPARATING SCREEN.

SPECIFICATION forming part of Letters Patent No. 455,998, dated July 14, 1891.

Application filed January 20, 1891. Serial No. 378,445. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES CLOSZ, a citizen of the United States, residing at St. Ansgar, in the county of Mitchell and State of Iowa, have invented new and useful Improvements in Grain-Separating Screens, of which the following is a specification.

My invention relates to improvements in shaking screens for grain-separators, and particularly of the corrugated sheet-metal platform construction shown and described in my patents Nos. 434,246, 434,247, 434,248, and 434,249, dated August 12, 1890; and the object of my present improvement is to provide a better cleaning and separating surface; to cause the long stuff to pass off more freely and to prevent its catching in the openings, and to facilitate the construction of such platform.

The particular improvement I will specifically point out in the claims concluding this specification, in connection with the accompanying drawings, in which—

Figure 1 is a top view of my improved platform-shaking screen. Fig. 2 is a longitudinal section of the same. Figs. 3 and 4 show in top view and longitudinal section so much of my said patented screen as illustrates the difference of construction between it and my present improvement. Fig. 5 is a bottom view of my improved shaking screen. Fig. 6 is a cross-section of the same, and Fig. 7 shows a cross-section taken at one of the openings, looking toward the raised spear-pointed edge of said opening to illustrate its enlarged middle part.

It is deemed unnecessary to show the platform-separator as applied for use in an organized machine, as it will be understood by those using such machine that the grain to be separated is delivered from a suitable hopper or conveyer upon the inner end A of the platform, and that the latter is connected to a suitable device for giving it a longitudinally-reciprocating movement, and that the platform for this purpose may be suspended from the frame of the machine or supported upon fixed ways of the frame, and that it may be made adjustable to incline it downward toward the discharge end for the passage of the straw and long stuff therefrom, as may be required in use. The separator-platform is of sheet metal, of the proper width and length to suit the machine in which it may be intended for use.

In Figs. 3 and 4 the openings are shown as having approximate heart shape, forming spear-points 2, standing within the openings toward the discharge end of the platform, the metal being cut out to form the openings, and thereby presenting an edge under which a bearded head of grain would be liable to catch.

Referring to Figs. 1, 2, 5, and 6, the openings are shown as being made by a cut, so as to form the upper spear-point 2 and the under divided lobes 6 6, and it is this construction which constitutes my present improvement, as I will now more particularly describe.

The platform is provided with corrugations *a*, which extend in parallel relation to the length of the platform and at such height and distance apart as to form channels for the passage of the matters to be separated. Across these channels and at suitable distances apart the openings are formed, and they extend from the base of one corrugation to the other, the spear-point of each standing toward the delivery end in the middle of the opening and forming on each side deep concave edges 3 3, which terminate at the base of the corrugations on a plane with the surface. A surface-ridge 4 extends from the spear-point on a downward incline toward the receiving end and terminates at the point 7 of the cut, forming the surfaces 5 5, inclining from the spear-point downward toward the opening and toward the corrugations, as seen in Fig. 6, and such construction is identical with that set out in my said patents. The other or forward side of the cut is bent downward, and being the counterpart of the spear-point-forming edge forms two convex-edged lobes 6 6 and a middle meeting space 7 between the lobes, so that the surfaces of the platform along the corrugations will be on a plane terminating in the lobes. These lobes stand inclined downward toward the receiving end of the platform and make that part of the opening between the spear-point and the dividing-point of the lobes the largest or widest. It is this peculiar underturned formation of the

openings, which I have found to co-operate with the raised spear-point formation, to give the surest feed of the long stuff over the openings and to prevent the choking of the platform. The inclination of these underturned lobes is about sixty degrees, and they are formed in the operation of stamping out the platform by dies.

Looking at Fig. 3, which shows the openings of my patented screen, at *b* is seen a bearded head of grain with its beards liable to catch under the edge of the opening as it is moved forward under the reciprocating movement of the screen. At *c* and *d* are also seen pieces of sticks or nails as liable to catch under the edges, while at *e* a large grain of corn is seen as lodged across the opening at the spear-point.

Looking at Fig. 1, which shows my improvement, at *f* are seen a bearded head of grain and sticks or nails passing off over the openings and over the underturned lobes without hinderance, while at *g* is seen a large grain of corn passing through the largest part of the opening under the spear-point. The provision of the divided turned-down lobes gives a better effect to the air-blast, as seen in Fig. 2, in its upward force through the openings, because the blast striking the lobes under the spear-point is turned more directly upward on each side of the spear-point, and lifts the light stuff as it passes over the openings and cleans out the light stuff more effectively.

In Fig. 4 the blast is more in a straight line and does not act so thoroughly. In Fig. 3 the opening is the largest at its rounded ends, while in Fig. 1 the openings are largest under the spear-points and smallest along the corrugations where nearly all the long stuff travels, and is therefore much better adapted for removing such stuff from the grain. The length of the spear-points will govern the length of the underturned lobes, and the pitch of the latter will be regulated according to their length. The surface feed and dividing function of the spear-points is supplemented and made more complete by the side underturned lobes or lips to give effective shaking and separation to the stuff to be carried off and free escape of the grain through the openings.

It will be seen that the separating action of the screen-surface causes both the grain and heavy long stuff to collect along the walls of the corrugations, and as the ends of the openings are only made large enough to permit the grain to pass freely through them substances larger than the grain would be liable to lodge in and obstruct the openings at these points; but by making the openings largest under the spear-points such substances larger than the grain will work toward the spear-points and pass out, as seen at *g* in Fig. 1. A sectional diagram, taken on the line 1 1 of Fig. 2, showing this form of the opening, is seen in Fig. 7; and it will be understood that it is the relation of the underturned lip-lobes to the curved ends of the openings that makes that part of the opening smaller than that part under the spear-point where the lip-lobes meet, so that the larger substances would pass out in the space between the underturned lip-lobes, and thus prevent the lodgment of obstructions in the ends of the openings.

I have stated that the openings are formed by a line cut, and that the upper spear-point edge and the under lobe-turned edges are of coincident contour, and this is the construction I prefer; but it is obvious that the underturned lobe-lips may be of different form as to their edge contour so long as the construction embraces the forward overhanging spear-points and the rearward underhanging lobe-lips divided in the line of the spear-points.

I claim as my improvement—

1. A screen for grain-separators, constructed of a sheet-metal platform, corrugated and having openings standing crosswise, bounded by forward overhanging spear-points and by rearward underhanging lobe-lips divided in the line of the overhanging spear-points, for the purpose stated.

2. A screen for grain-separators, constructed of a sheet-metal platform, corrugated and having openings standing crosswise, bounded by overhanging spear-points and by underhanging lobe-like lips, the said projecting parts standing in opposite directions and having coincident contour, for the purpose stated.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHAS. CLOSZ.

Witnesses:
MARTIN MOE,
N. LORENZEN.