

(No Model.)

C. & J. CLOSZ.
GRAIN SCREEN.

No. 471,073.

Patented Mar. 15, 1892.

Fig. 1.

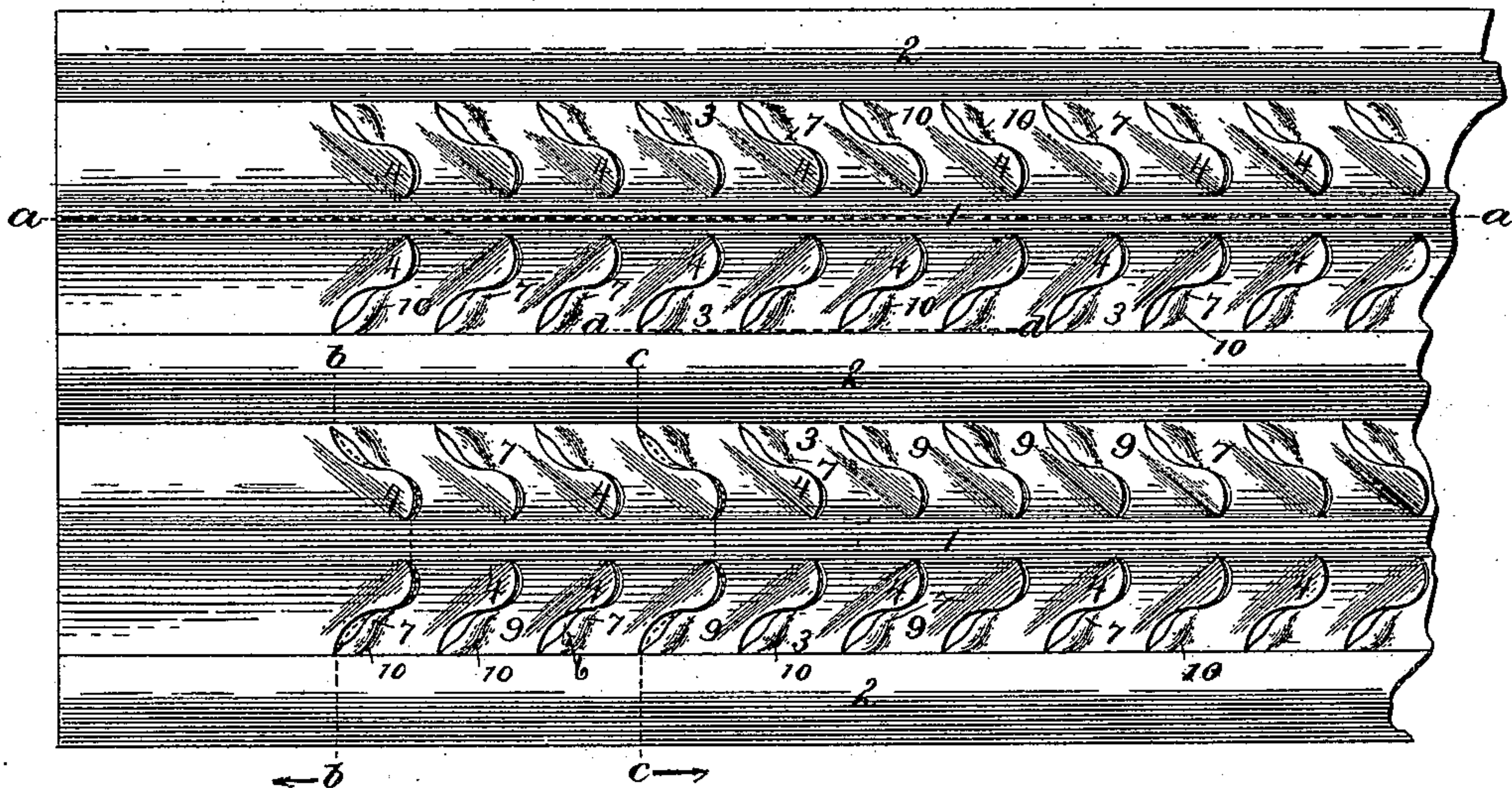
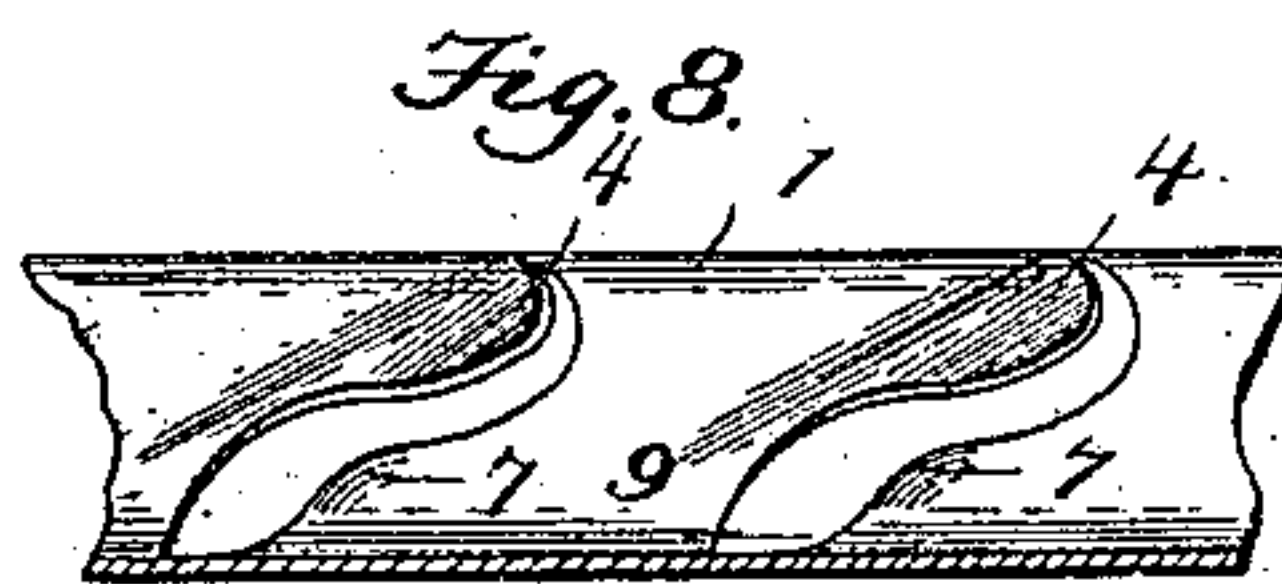
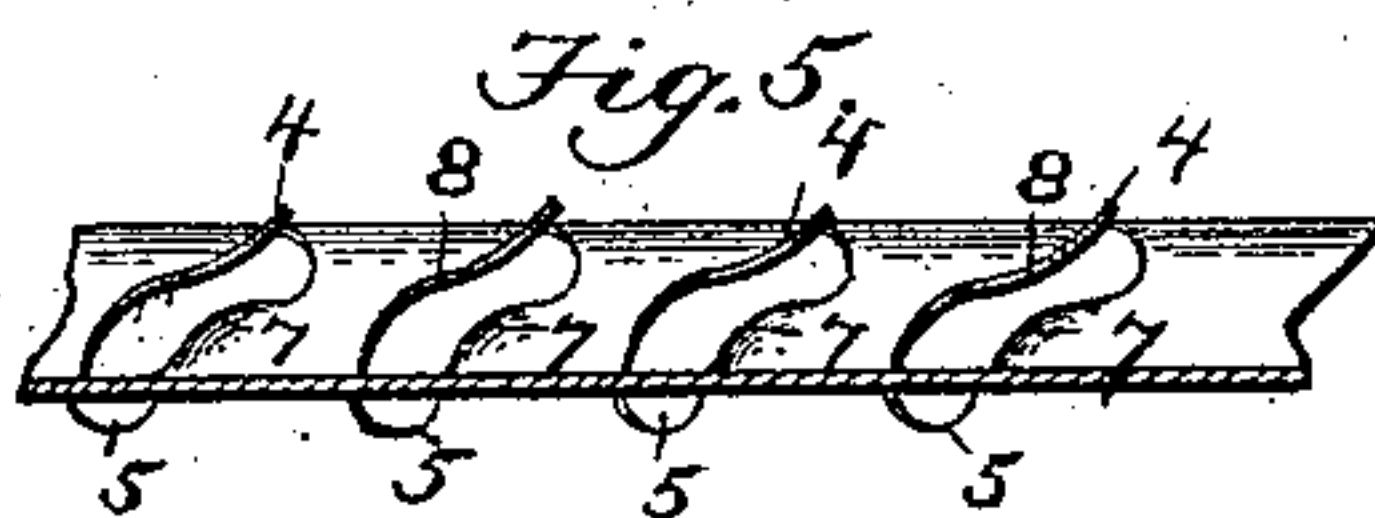
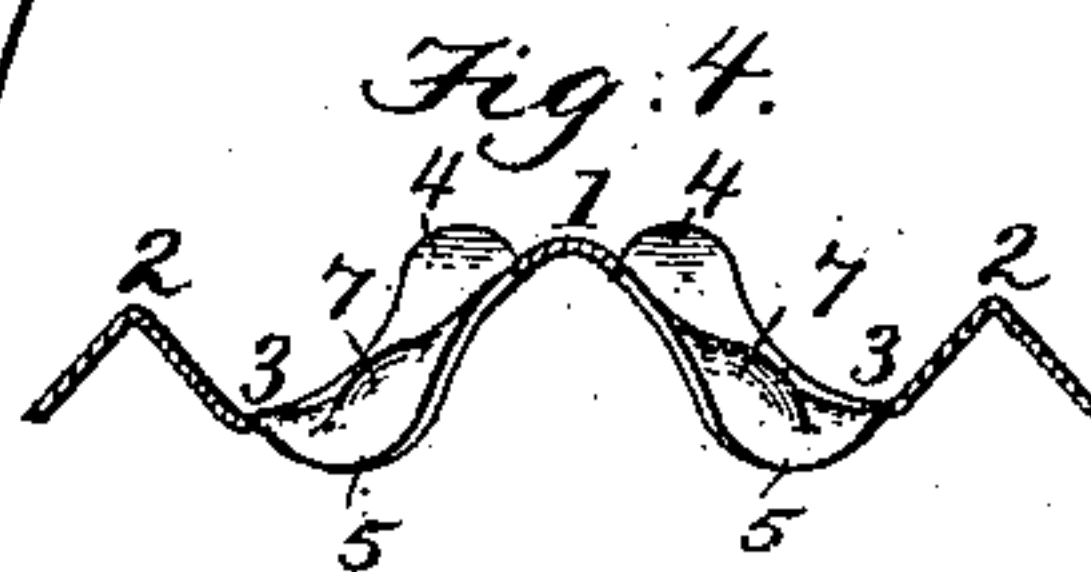
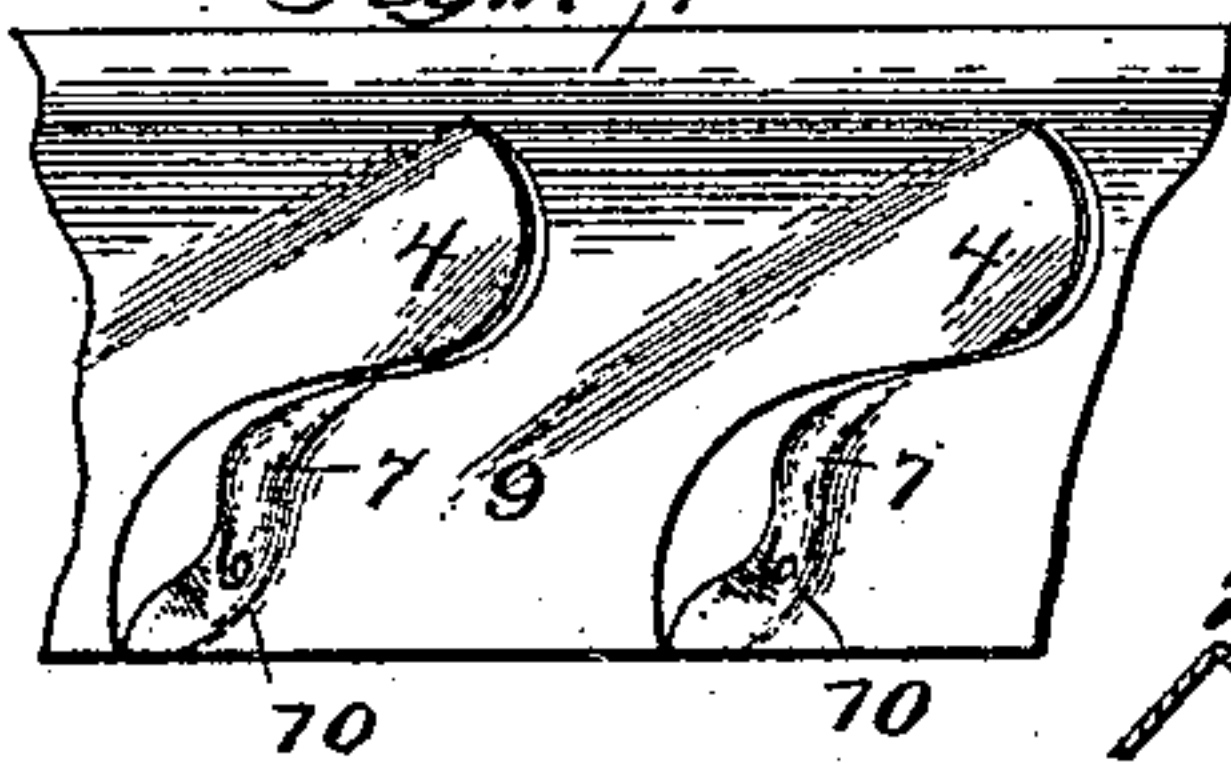
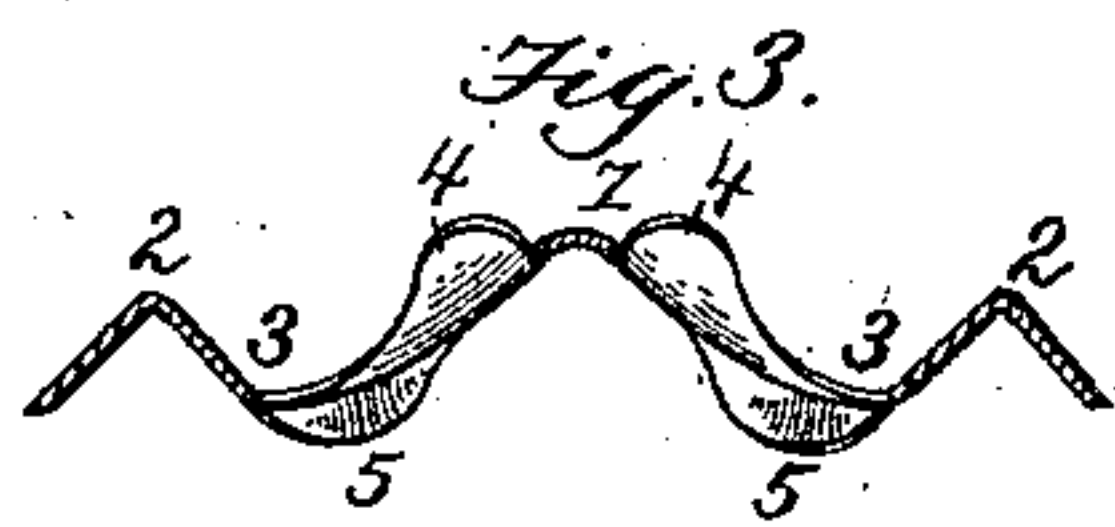


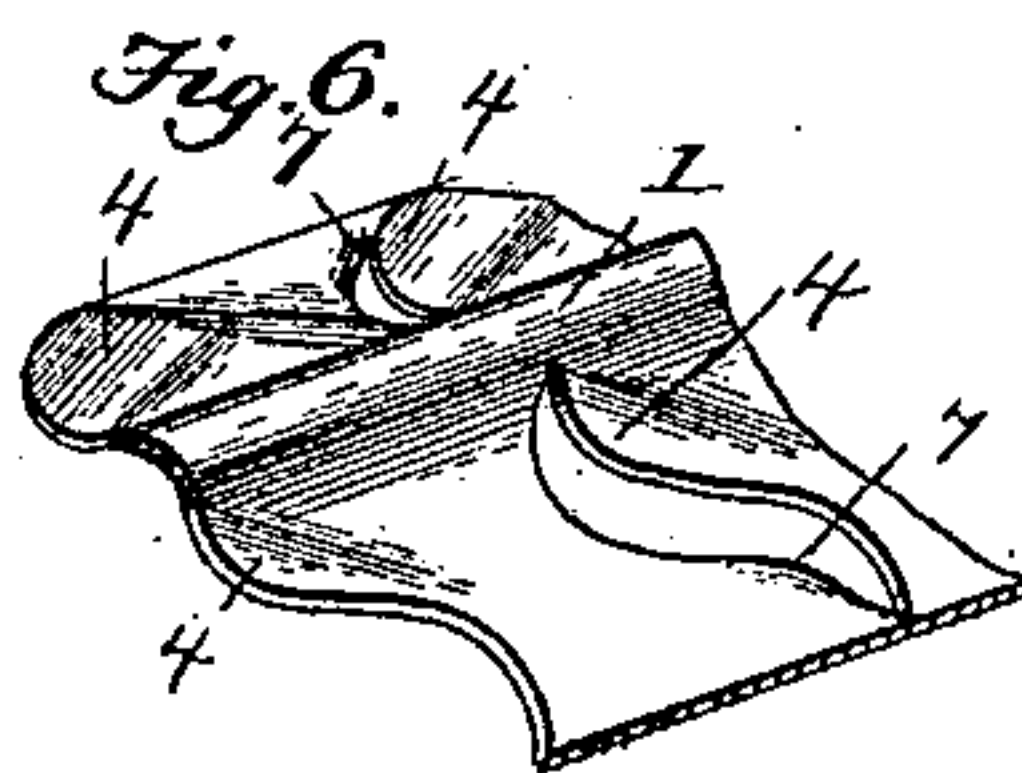
Fig. 2.



Fig. 3.



Witnesses
Philip F. Larner.
Lowell Zettle



Inventors.
Charles Closz
Jacob Closz
John W. Johnson
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES CLOSZ AND JACOB CLOSZ, OF ST. ANSGAR, IOWA.

GRAIN-SCREEN.

SPECIFICATION forming part of Letters Patent No. 471,073, dated March 15, 1892.

Application filed June 25, 1891. Serial No. 397,465. (No model.)

To all whom it may concern:

Be it known that we, CHARLES CLOSZ and JACOB CLOSZ, citizens of the United States, residing at St. Ansgar, in the county of Mitchell and State of Iowa, have invented a certain new and useful Improvement in Grain-Screens, of which the following is a specification.

The improvement herein is directed to the production of a sheet-metal-platform screen adapted to clean and separate wheat from straws, weeds, and other kinds of grain, particularly oats, and is designed for use in thrashing-machines, receiving and milling separators and farming mills, and for either end-shake or side-shake machines. The surface construction of the screen is such as to effect the freest possible separation and discharge of the wheat through its openings and to effect the freest possible passage of such grain and foreign substances as ought to be carried out over the screen and to prevent choking or clogging with large screening capacity. The particular features of novelty in this surface construction will be pointed out in the claims concluding this specification, in connection with the accompanying drawings, in which—

Figure 1 represents in top view so much of a sheet-metal-platform screen as illustrates our improvement. Fig. 2 is a vertical longitudinal section of the same on the line *a* of Fig. 1. Fig. 3 is a cross-section on the line *b*, looking toward the receiving end of the screen. Fig. 4 is a similar view on the line *c*, looking toward the discharge end of the screen. Fig. 5 is a detail in section on the line *d*. Fig. 6 is a detail in perspective of a portion of the screening-surface. Fig. 7 shows enlarged in top view two of the lobed openings, and Fig. 8 a side view of the same.

The platform is constructed of longitudinal parallel corrugations of unequal width and preferably of unequal height, the widest, 1, of which are formed with the separating-openings, and the narrowest, 2, forming surface channels or passages 3 for carrying off the foreign matter. The sides of the widest corrugations are preferably slightly concave and are formed with openings, which stand obliquely upward and forward from the base-

line of the channels. These openings are made by a single cut, the curvature of which conforms as nearly as possible to the line of beauty or cyma. That edge of the line of beauty which terminates near the ridge 1 of the corrugation is raised and stands forward like an ear, the lobe 4 of which rises preferably slightly above the top line of the corrugation and overhangs that part of the opening. That edge of the line of beauty which terminates at the base-line of the channels is depressed and stands backward like an ear, the lobe 5 of which underhangs that part of the opening. The forward standing lobes 4 form concave backs, the inclination of which begins at the base-line of the channels and increases in pitch to the upper end of the lobe, while the inclination of the rearward standing under ears is greatest near the base-line, and with the forward standing edge forms a crescent-shaped opening, looking with a bird's-eye view, which obliquely crosses the channel. The under ear-lobes 5 are formed with an abrupt concavity 6, Fig. 7, in their widest surface, which terminates in an abrupt knoll 7 just under the side edge 8 of the upper forward standing lobe, and between this knoll 7 and the forward standing lobe 4 the surface is slightly concave, and this concavity extends down to the base-line and forms a sort of basin 9 in the channel between the openings. A slight surface ridge 10 is formed obliquely across the channel at the line of the bend of the under ear-lobe, so as to facilitate the discharge of the grain by forming a sort of dividing-line between the under sloping concave surface 6 of the ear-lobe 5 and the upper concave surface-basin 9. The openings and the lobe-surfaces 4 over them and leading thereto gives a sidewise discharge of the grain through the openings from the concave side of the corrugation and a discharge of the grain through the openings in the line of its movement in the channels, which gives a large screening capacity, while the forward standing lobes along the upper side of the corrugation prevent the lodging or sticking of anything in the openings. These openings are preferably coincident on the opposite sides of the corrugations; but they may be placed in alternate order, the essential fea-

ture being the form of the openings, the lobes covering their upper forward standing ends and terminating in the uncovered ends of said openings obliquely across the channels.

- 5 The imperforate corrugations give strength and increase the rigidity of the platform and form one side of each channel; but they may also be formed with the openings herein described, or one side only of each corrugation
10 may be imperforate and give good results, and the imperforate corrugation may be only a shallow ridge.

In separating oats from wheat the peculiar curved and inclined lobes over the upper
15 part only of the openings tend to file the oats downward into the base track or line, and thereby cause their movement lengthwise across the openings, which at this point freely permit the passage of the shorter
20 grains of wheat through them, as at this point the concave downward sloping surface increases the width of the opening. The convex projection or knoll 7 and the oblique ridge 10 are advantageous to form a dividing-
25 line for supporting and for separating the oats and the wheat at the exposed part of the opening and for preventing the backward action of the grain and checking it at the base of the opening. These various surface
30 parts co-operate to give a free forward movement of weeds and straws and screen the grain therefrom, while the lobes standing forward near the ridge of the V-shaped corrugation serve effectively in agitating and facilitating the forward movement of the chaff
35 and straw on the ridges of the corrugations between the lobes and over their sloping backs. The curve of the upper end of the opening is preferably shorter than that which
40 extends down to the base-line of the channel, so as to form comparatively small ear-lobes along the corrugated surface near the ridge and comparatively large openings along the channels, and these lobes may be compara-
45 tively flat on their upper surface, or they may be turned up with a bend and form, in connection with the unbroken surface of the ridge, an elevated smooth ridge having openings shielded at the side thereof and exposed
50 along the channel, one side of which is bounded by the imperforate corrugation. When the ridge-lobes are made flat, the concave edge of the opening is depressed to give the required width of opening under the lobes.
55 The openings are made a suitable distance apart and the degree of their forward standing inclination is such as to give a free movement of the grain and stuff over the raised parts along the ridge and along the channel.
60 It will be understood that the length of the openings will be governed by the degree of their inclination in the sides of the corrugations and that by reason of being so peculiarly guarded at their upper ends and ex-
65 posed at their lower ends along the base-channel give an increased screening capacity

to the screen, which is very advantageous under a crowded flow over the surface, as the grain is thereby caused to discharge along the entire opening, while under a light flow
70 the discharge is along the base-channels. It will also be understood that the openings formed and guarded, as stated, may be arranged at right angles to the line of overflow.

We claim as our improvement--

1. A corrugated sheet-metal-platform screen having openings of cyma form in the sides of the corrugations terminating in the channel in under rearward-sloping ear-lobes, for the purpose stated.

2. A corrugated sheet-metal-platform screen having openings of cyma form in the sides of the corrugations terminating in the channel in under rearward-sloping ear-lobes formed with abrupt cavities crossing the line of the
80 channel, for the purpose stated.

3. A corrugated sheet-metal-platform screen having openings of cyma form, the upper convex edges whereof terminate in forward-standing ear-lobes along the sides of the ridge of the
90 corrugation, the lower convex edges of said openings terminating in the channel in under rearward-sloping ear-lobes along the base-line of the corrugation, for the purpose stated.

4. A corrugated sheet-metal-platform screen
95 having openings of cyma form, the upper convex edges whereof terminate in forward-standing ear-lobes along the sides of the ridge of the corrugation, the lower convex edges of said openings terminating in the channel in under
100 rearward-sloping ear-lobes joining the base-line of the corrugation and formed with an abrupt concavity, an abrupt convexity, and an oblique ridge crossing the channel at the surface thereof, for the purpose stated.

5. A corrugated sheet-metal-platform screen having cyma-formed openings obliquely standing in the sides of the corrugations, shielded at their upper ends along the sides
110 of the ridge and having their lower ends exposed in the channels, for the purpose stated.

6. A sheet-metal-platform screen formed with alternating wide and narrow corrugations, the sides of the widest corrugations slightly concave and having openings of cyma
115 form standing obliquely and formed with concave ear-lobes along and below the channel, sloping downward and rearward into the lower ends of said openings, for the purpose stated.

7. A corrugated sheet-metal platform having cyma-formed openings supplemented at their upper ends by lobes inclining forward and upward on the side of the ridge, for the purpose stated.

8. A sheet-metal-platform screen having
125 longitudinal parallel ridges rising from the base-channels and forming sloping concave surfaces having openings standing upward therein, supplemented at their upper ends by forward-standing lobes having sloping backs,
130 for the purpose stated.

9. A sheet-metal-platform screen having

longitudinal parallel corrugations provided with sidewise-standing openings supplemented at their upper ends with forward-standing lobes and terminating in uncovered ends
5 crossing the base-channels, for the purpose stated.

10. A sheet-metal-platform screen formed with longitudinal parallel corrugations having openings standing crosswise in the sides
10 thereof, supplemented at their upper ends by forward-standing lobes, their lower ends ex-

posed along the channels bounded on one side by an imperforate corrugation, for the purpose stated.

In testimony whereof we have signed this 15 specification in the presence of two subscribing witnesses.

CHARLES CLOSZ.
JACOB CLOSZ.

Witnesses:

MARTIN MOE,
JEFF. TOLLEFSON.