(No Model.)

J. B. CORNWALL.

SIEVE.

No. 405,660. Patented June 18, 1889.

Fig. 1.

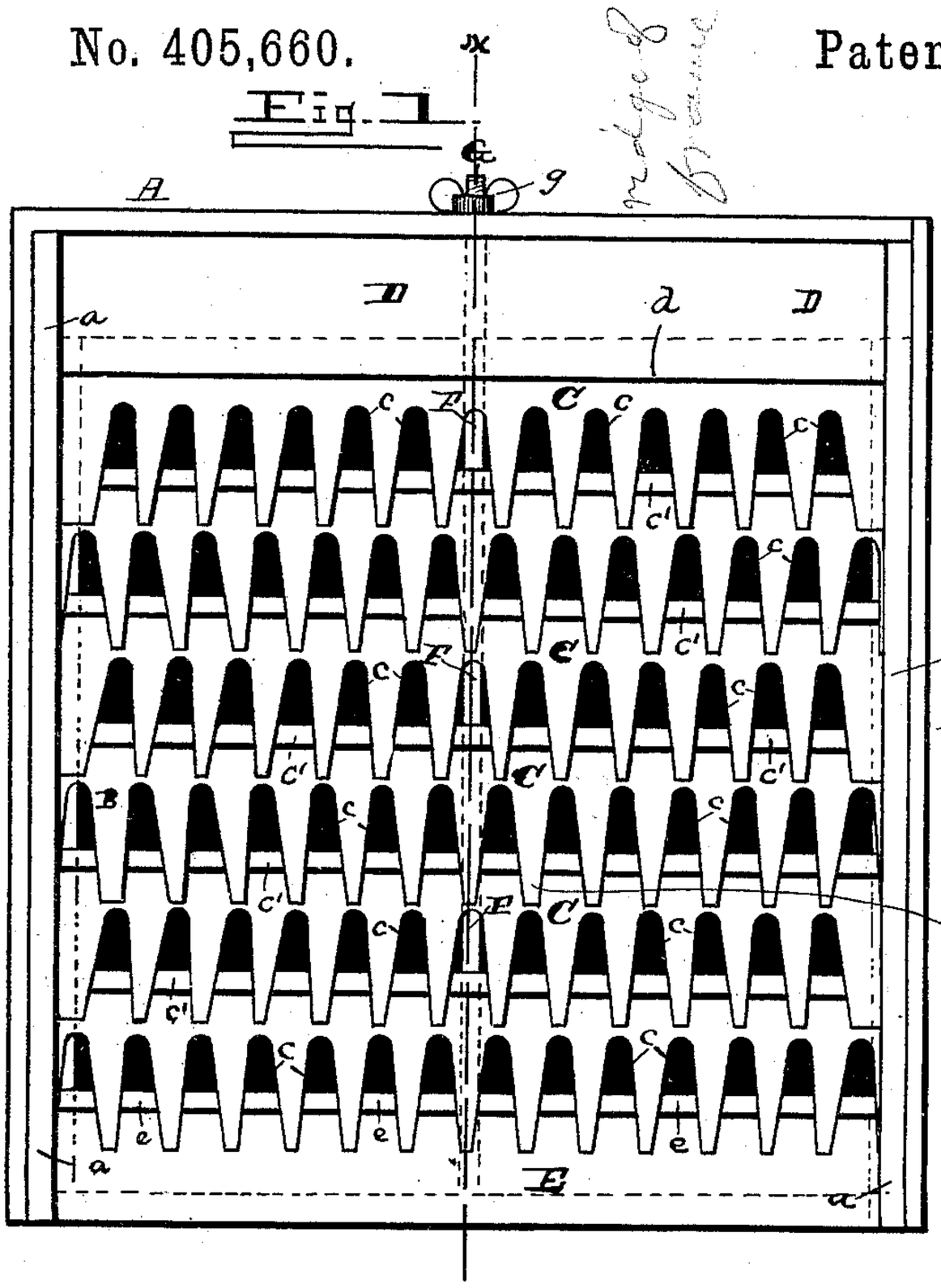


Fig. 2.

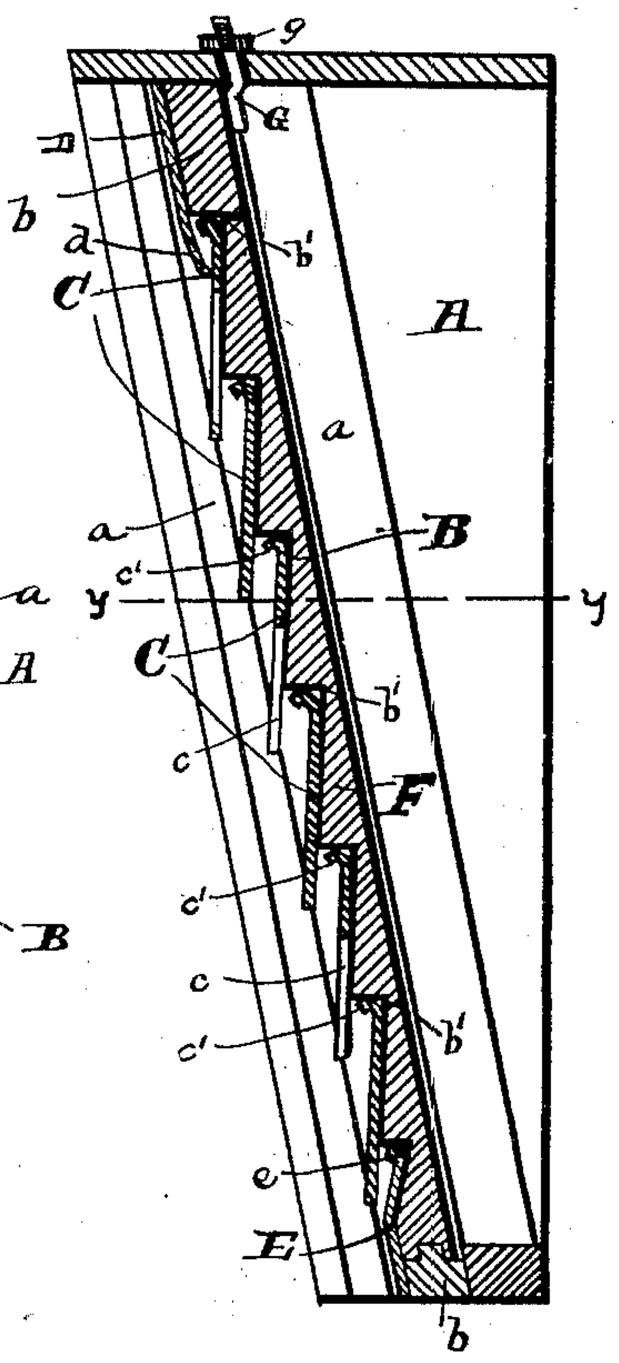


Fig. 3.

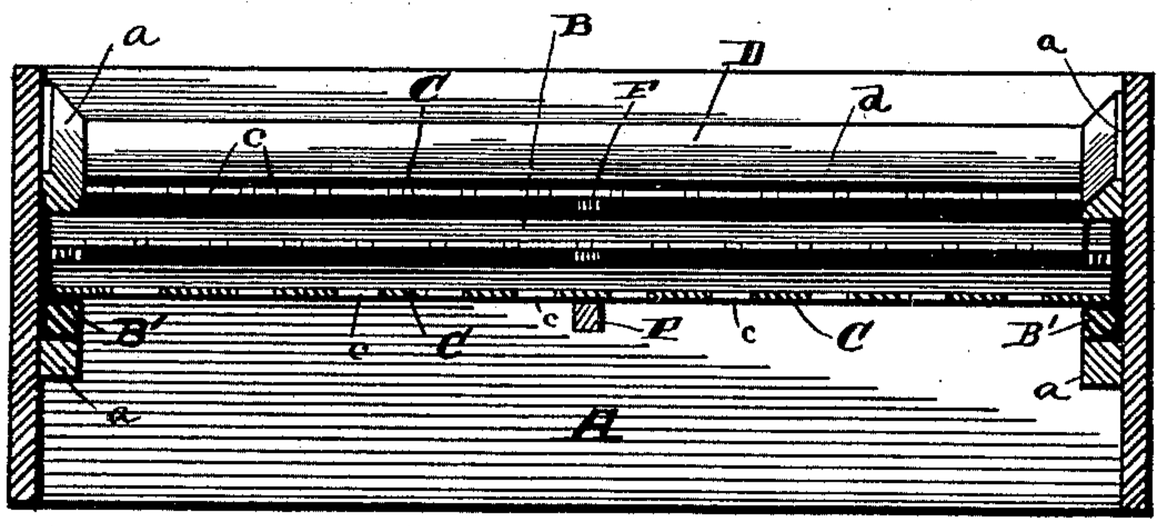


Fig. 4.

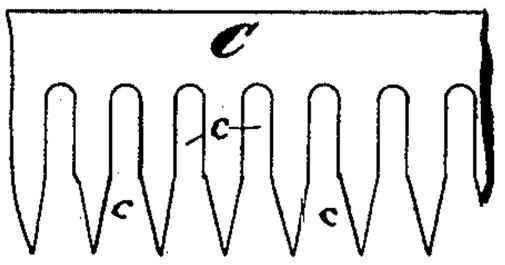


Fig. 5.

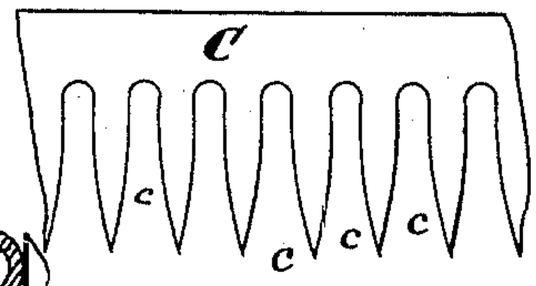
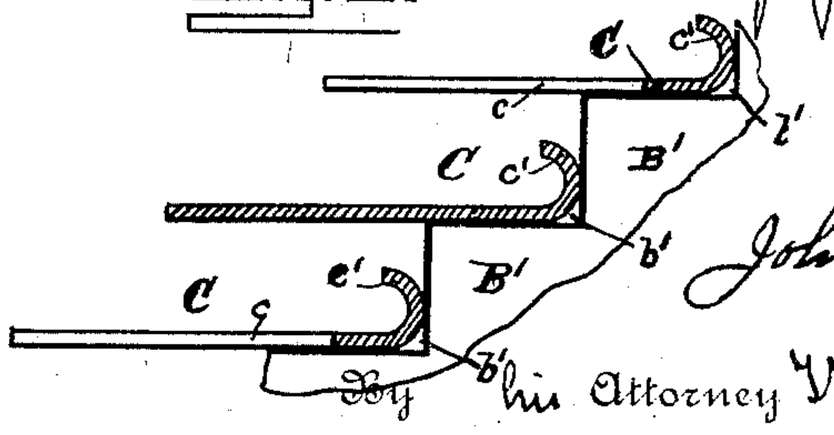


Fig. 6.



Witnesses
P. L. Brooks.
A. E. Sowell.

Inventor
John B. Cornwall
by his Attorney W. Alexander

UNITED STATES PATENT OFFICE.

JOHN B. CORNWALL, OF MOLINE, ILLINOIS, ASSIGNOR TO THE BARNARD & LEAS MANUFACTURING COMPANY, OF SAME PLACE.

SIEVE.

SPECIFICATION forming part of Letters Patent No. 405,660, dated June 18, 1889.

Application filed May 9, 1888. Serial No. 273,316. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. CORNWALL, of Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Sieves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a top plan view of my improved sieve. Fig. 2 is a vertical cross-sectional view of the same on line *x x*, Fig. 1. Fig. 3 is a section on line *y y*, Fig. 2. Figs. 4 and 5 are details illustrating modifications of the form of the teeth and slots of the strips C. Fig. 6 is a detail sectional view.

This invention is an improvement in screens or sieves; and its object is to provide a screen that will more effectually separate pieces of cob and other impurities from corn, will more thoroughly clean other grain and seeds, which will not choke, and which will thoroughly scatter the grain passing over it.

To these ends the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the drawings, and particularly specified in the appended claim.

My sieve is made up of a number of toothed strips secured to a proper carrying-frame in stepped tiers, and the frame is preferably inclined so that the horizontal toothed edge of one strip projects over the plain edge of the adjoining lower strip. The teeth of these strips are tapered outwardly and the slots or serrations between the teeth are tapered inwardly, so that the spaces between the teeth are narrower at base than at the extremities of the teeth, as shown, and the toothed edge of one strip is made to project over the plain edge of the next lower strip just far enough to cause the coarse impurities passing through the slots of the strip to fall upon the lower strip, while the clean grain can pass through the slots without being caught by the lower strip. The strips are far enough apart to allow impurities projecting part way through the slots to pass freely off onto the lower plate. No impurities can pass through the slots until they pass down to where the slots widen sufficiently to let them pass or to the ends of the slots, and the plain edge of the lower strip is adjusted just to the point where it will be sure to catch such impurities and allow clean grain only to pass through the screen. If the plain or upturned edge of the lower strip lay close to the toothed edge of the upper strip it would prevent the escape of impurities projecting partly through the slots, thereby choking the sieve; therefore I arranged the sieve in stepped tiers, as shown. The plain edges of the strips are preferably upturned or flanged, or have small strips attached, so that grain would be compelled to pass to and over the toothed edge in order to escape from the strip.

From the foregoing it will be understood that unless the material on the screen can pass between the teeth of a strip it will escape over the toothed edge of the strips onto the next lower strip, and so pass the entire length of the screen without escaping therethrough. The slots between the teeth have, preferably, diverging sides, so that the mouths of the slots are wider than the inner ends thereof.

It will be seen that by varying the amount of overlapping of the strips the size of the screen openings can be regulated—in other words, the plain edge of one strip in connection with the toothed edge of another strip constitute the screen-openings, although from the vertical distance between them it does not prevent impurities from passing off unobstructed from the slots.

Referring to the drawings by letter, A designates a portion of a screen-shoe, having inclined guides *a a* on its sides.

B designates a frame fitting in guides *a a*. and composed of end pieces *b b* and side pieces B′, which are formed on their upper edges with a series of shoulders *b′*, which are of such pitch that when the frame is in its guides the upper faces of said shoulders will be about horizontal.

C C are plates or strips of suitable material, preferably of metal, secured transversely of frame B to the side pieces B′ on the shoulders

thereof. The said plates overlap, as shown, without impinging, and the overlapping edge of each plate is toothed, the slots *c c* between the teeth extending rearward beyond the rear edge of the adjoining lower strip, as shown. The plain or rear edges *c'* of strips C are upturned, as shown, or beaded or otherwise formed to prevent escape of material rearward and to direct the currents of air upward between the strips.

D is a transverse plate at the head of the screen to receive and deliver the material to the strips, its inner edge *d* being bent down close to the rear edge of the uppermost strip C.

E is a plate at the foot of the screen, receiving material from last strip C, and having its rear edge *e* upturned.

The sides of slots *c c* may be parallel; but preferably diverge toward the front edge of the strips, in the manner shown in Figs. 1, 4, and 5, or in other desired manner. The amount of overlapping of the strips regulates the size of the screen-openings, as before stated. The slots *c* being open at front, should any grain or trash catch in the slot, but be too large to pass through without impinging on the strips C next below, the vibrations of the screen will shift such trash forward and out of the mouth of the screen, where it will be caught by the lower strip and shifted from thence to the next lower strip, and so on down to the lowermost strip, whence it is thrown on plate E, the upturned edge *e* of the latter plate partially closing the slots in the lowermost strip. The rear upturned edges of strips C impinge against the material on the strips as the screen is vibrated and drive the material forward over the toothed edges, thus aiding in clearing the screen. The diverging sides of the slots also facilitate the escape of material therefrom. The strips C can be applied to any screen-shoe in which the motion of shake of the shoe is in line with the flow of grain.

As the side of the screen-openings can be varied by varying the relative positions of the strips, it is obvious that the same size of strips can be employed in making screens for different-sized grain or material.

F is a bar similar to the pieces B' and secured to the end pieces *b* and bracing the strips C.

G is a screw-threaded stud attached to the head end of frame B and passing through the head-board of shoe A, where it is engaged by a nut *g*, to keep the frame in position.

Having described my invention, I claim—

The combination of the shoe and the inclined frame having shouldered side bars secured therein with the sieve composed of strips C, arranged in a stepped tier on said bars, overlapping but not touching each other and having their rear edges curved upward and forward and provided with slots in their outer edges having outwardly-diverging sides, all substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN B. CORNWALL.

Witnesses:
E. H. SEIFFRT,
CHAS. S. KERNS.