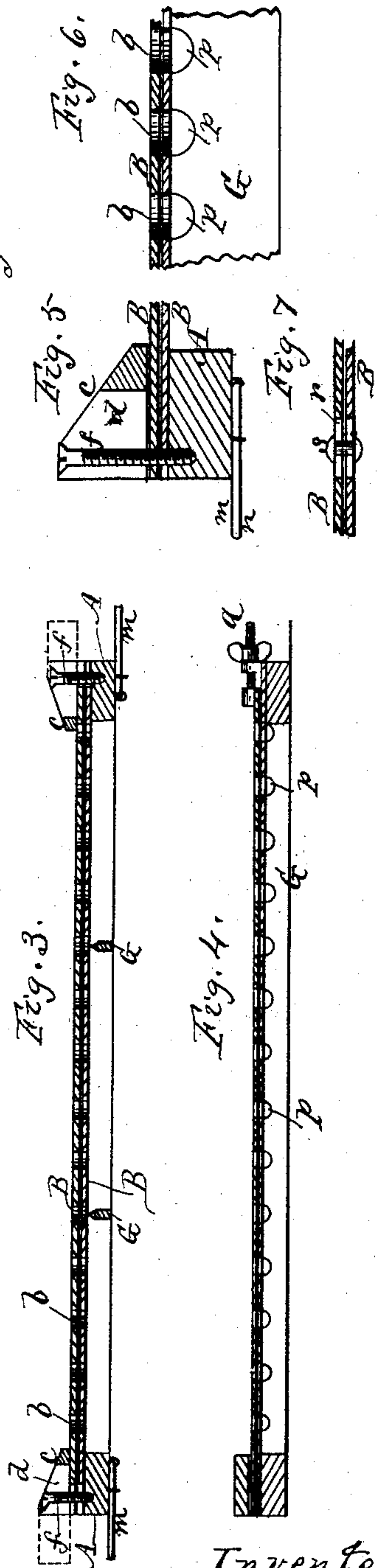
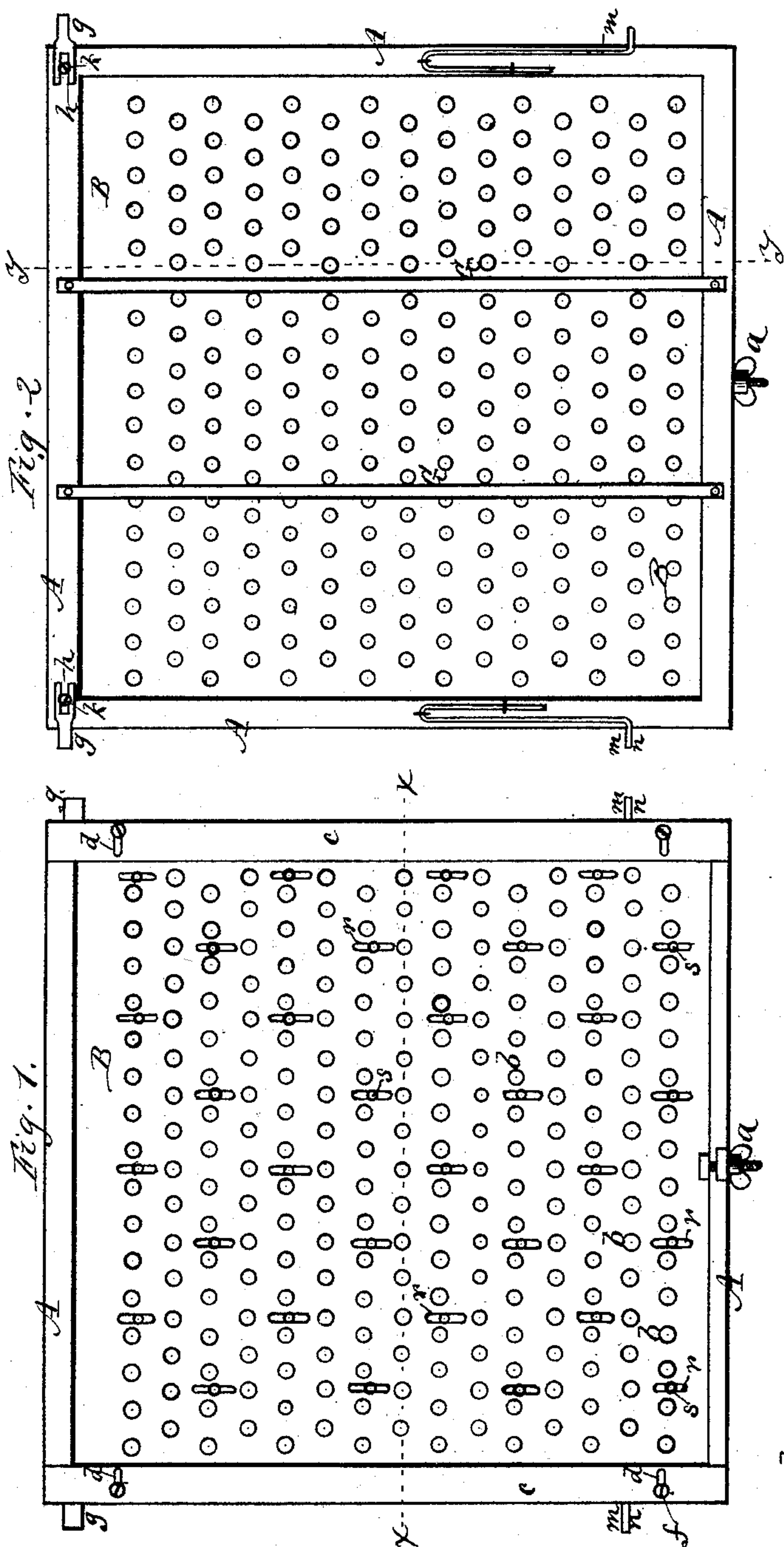


(No Model.)

S. H. BILLS.  
GRAIN SCREEN.

No. 327,061.

Patented Sept. 29, 1885.



Attest:  
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Atty.



# UNITED STATES PATENT OFFICE.

SETH H. BILLS, OF MOUNT MORRIS, NEW YORK.

## GRAIN-SCREEN.

SPECIFICATION forming part of Letters Patent No. 327,061, dated September 29, 1885.

Application filed June 19, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, SETH H. BILLS, of Mount Morris, in the county of Livingston and State of New York, have invented a certain  
5 new and useful Improvement in Grain-Screens; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

10 Figure 1 is a plan view of a grain-screen, showing my improvements. Fig. 2 is a bottom view of the same. Fig. 3 is a cross-section of the same in line *xx* of Fig. 1. Fig. 4 is a longitudinal section on line *yy* of Fig. 2.  
15 Figs. 5, 6, and 7 are detail views in section.

My improvement relates to screens for separating and sizing beans, peas, &c.; also for separating grain and removing cockle from wheat, and is of that kind where two metallic plates are  
20 placed face to face being provided with holes that come in the same longitudinal line, so that when one screen is moved longitudinally the holes will be enlarged or contracted to grade the separation of the grain.

25 The invention consists in the special construction and arrangement of the parts of the screen, whereby it can be enlarged or contracted to fit different widths of shoes without disturbing the metallic plates, all as hereinafter  
30 described and claimed.

In the drawings, A shows the frame of the screen, which is of square or rectangular form, and is made of four strips of wood securely fastened together.

35 B B are the two metallic plates which form the screen proper. The lower plate is tacked or otherwise rigidly fastened to the frame at the edges, and forms a fixture to the same. The upper plate is movable longitudinally by  
40 a screw and nut, *a*, or by other suitable means. Each plate is provided with a series of holes, *b b*, which lie in the same line longitudinally, so that the grain passing down over the upper  
45 screen will be separated by a portion passing through the holes. By moving the upper screen in one direction or the other the holes will be correspondingly enlarged or contracted, thereby grading the separation of the grain.

50 My improvement is as follows: The screen is designed to be used in the shoe of a grain-separator, and in different machines there is a great difference in the widths of the shoes

which the screen must fill. To provide for this, the screen is provided at its sides with cleats *cc* on top of the screen, the cleats having slots *d d*, through which pass set-screws *f*  
55 *f*, by which means the cleats can be set out at any time to fill the space between the body of the screen and the sides of the shoe. The inner edges of the cleats are beveled off to throw  
60 the grain inward and rest over the edges of the plates, the upper one of which has free movement. By this means the screen is adapted to any width of shoe without disturbing the plates at all.

65 *g g* are arms forming bearings, attached on the under side of the screen at the upper end and projecting out so as to rest in the grooves formed in the sides of the shoe, and thus sustain the screen at the upper end. These arms  
70 are provided with slots *h h*, through which pass set-screws *k k*, by which means the arms can also be adjusted out or in to fit different widths of shoe in the same way that the cleats can.

75 *m m* are springs at the lower end of the screen on the under side, having right-angled ends *n n*, which project out and either strike into the grooves in the sides of the shoe or against the walls of the shoe, thereby sustaining the  
80 lower end of the screen. The main length of each spring is of considerable extent, so that the right-angled end will throw out to sufficient extent to meet different widths of shoes without any adjustment, such as the upper bear-  
85 ings have. By the use of these springs they can be fitted into the same grooves in which the upper bearings, *g g*, rest; or they can be set higher or lower, bearing against the sides of the shoe, thus giving a different pitch to the  
90 screen, which is very necessary in use.

G G are longitudinal bars, attached to the frame on the under side, and extending longitudinally close to the under plate. They serve as supports to the plates to keep them from  
95 sagging. They are beveled down to a thin edge next the plate, and at the points where the holes come half-circular sockets *p p* are cut out, which allows free passage of the grain downward through the screen. By this means  
100 the plates are always kept in a perfectly level position, so that the grain will flow down over the surface evenly and uniformly.

*r r* are a series of slots made in the upper



plate, extending longitudinally, and *s s* are screws or studs passing through the slots and entering the lower plate. By this means the two plates are kept in close contact over their whole extent, and at the same time the upper plate is allowed its free longitudinal movement, as before described. The object of this arrangement is to prevent the passage of the grains downward between the plates, thereby separating them, as would be the case if they were not stayed together, as described.

I am aware that screens have before been known in which the frame is expansible to fit different widths of the shoe; but in such case the frame itself is expansible, and has to be constructed with loose sides, which can be moved out and then clamped in place again. A stiff frame cannot be used, as in my case. In such case, also, the slots in the plates have to be made elongated, and cannot be made round or square, as in my screen. The upper plate, also, to compensate for the adjustment, must have strips at the edges, provided with slots through which pass set-screws to set the upper plate to a new adjustment, all of which is complicated, and requires a nicety of adjustment that renders the screen difficult to use.

It is the object of my invention to make the frame stiff and rigid, and to attach the perforated plates thereto in such a manner that when

once applied they require no change, and to make attachments to the rigid frame, by which the necessary expansion can be attained without at all disturbing the rigid frame and perforated plates. This is done by the use of the cleats at the sides of the frame, the adjustable bearings at the top of the frame, and the springs at the bottom, all as before described.

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

The grain-screen herein described, consisting of the rigid frame *A*, the perforated plates *B B*, the lower one attached fast to the frame, the upper one movable longitudinally, the cleats *cc* at the sides adjustable laterally to fit different widths of shoes, the adjustable bearings *g g* at the top, and the springs *m m* at the bottom, the longitudinal stays *G G* on the under side of the screen, and the slots *r r* and screws *s s* for retaining the plates in contact, the whole arranged to operate in the manner and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SETH H. BILLS.

Witnesses:

L. C. BINGHAM,

C. W. BINGHAM.