

(No Model.)

2 Sheets—Sheet 1.

W. BARTELT.
SIEVE FOR THRESHING MACHINES.

No. 575,095.

Patented Jan. 12, 1897.

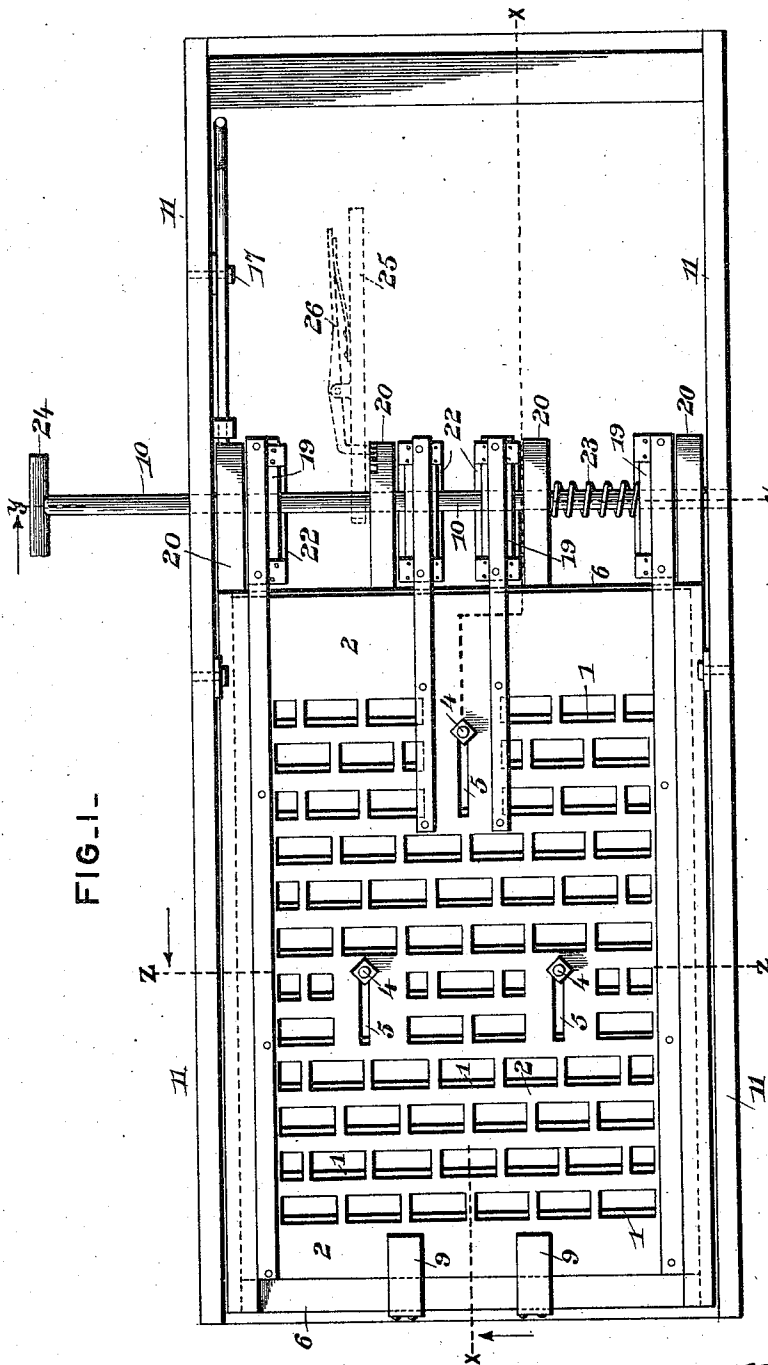
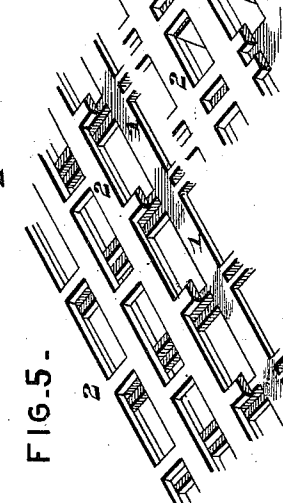
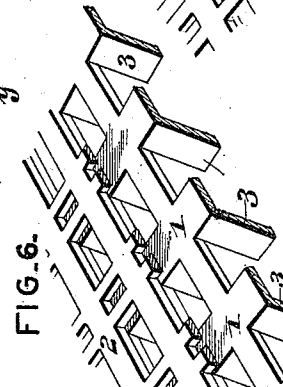
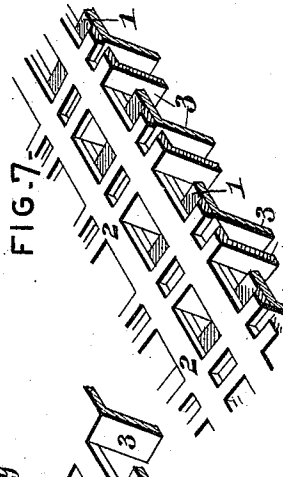


FIG. 1.



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By his Attorneys,

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Witnesses
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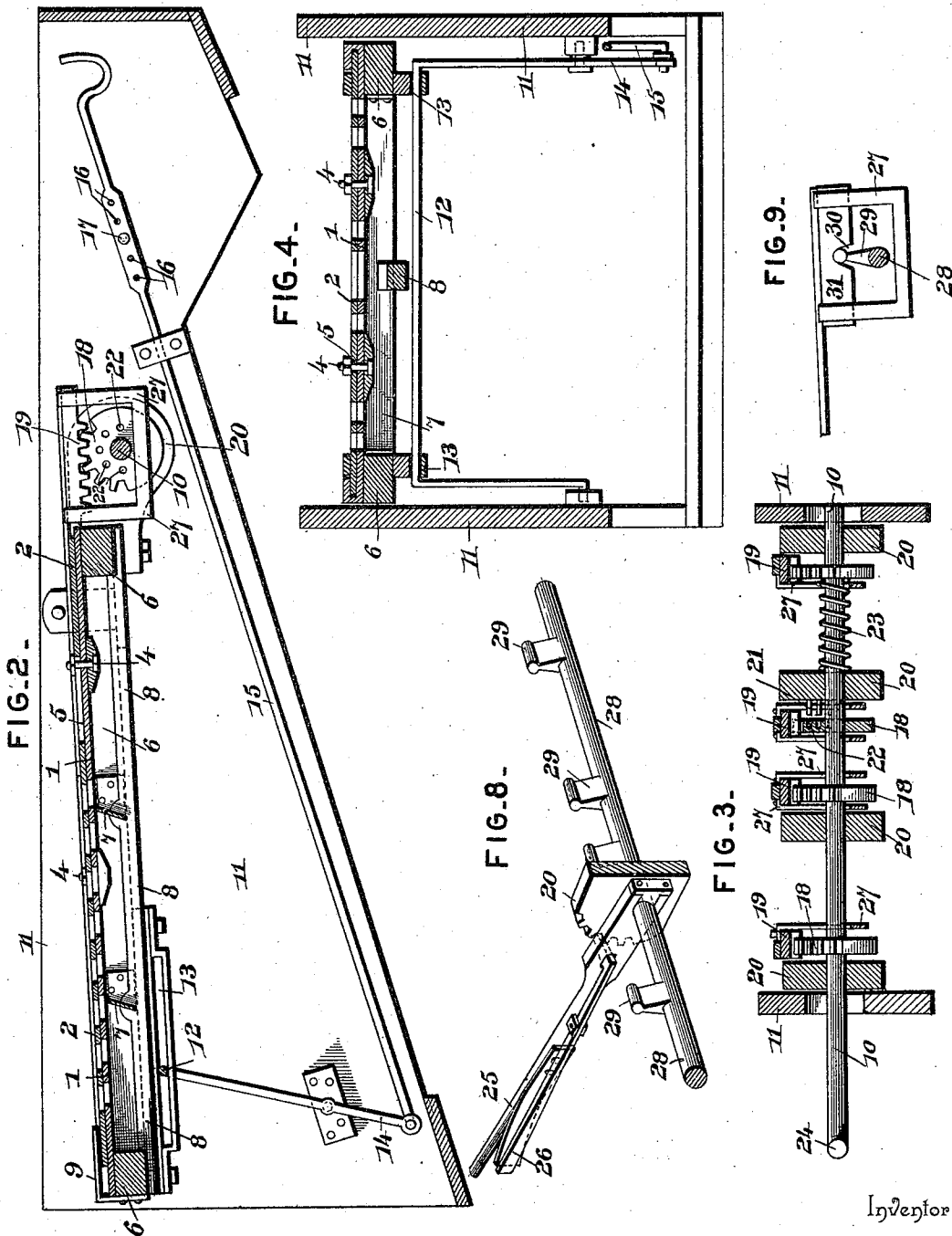
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM BARTELT, OF FAIRFIELD, WASHINGTON.

SIEVE FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 575,095, dated January 12, 1897.

Application filed July 8, 1896. Serial No. 598,466. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BARTELT, a citizen of the United States, residing at Fairfield, in the county of Spokane and State of Washington, have invented a new and useful Sieve for Threshing-Machines, &c., of which the following is a specification.

This invention relates to sieves or screens for threshing-machines, grain-separators, fan-mills, and for general use where it is required to alter the sieves or screens according to the size of the grain, product, or commodity to be screened. Generally the screens are substituted by others having different-sized meshes or openings to suit the work to be performed.

The present invention aims to obviate the necessity of removing and substituting screens and to provide a sieve or screen comprising superposed, adjacent, complementary, or overlying parts slidably related and having corresponding openings which are varied in size by moving the parts relatively the one upon the other.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a top plan view of a shoe having the invention applied. Fig. 2 is a longitudinal section on the line XX of Fig. 1. Fig. 3 is a transverse section on the line YY of Fig. 1. Fig. 4 is a transverse section on the line ZZ of Fig. 1. Fig. 5 is a detail view of a sieve devoid of lips. Fig. 6 is a detail view of a sieve, showing one of the members only provided with lips. Fig. 7 is a detail view of a sieve in which both members or parts have lips. Fig. 8 shows a different means for operating the movable part or section. Fig. 9 shows the means illustrated in Fig. 8 operatively related.

Corresponding and like parts are referred to in the following description and indicated in the several views of the accompanying drawings by the same reference-characters.

The vital feature of the invention is the sieve or screen, which embodies in its formation two parts 1 and 2, which are superposed or placed the one upon the other. These parts have corresponding openings which are varied upon moving the parts relatively. It is not absolutely necessary that the openings register in every particular or be of corresponding outline so long as the desired result is effected, namely, the altering of the size of the openings by moving the complementary parts of the sieve or screen. The parts 1 and 2 are formed of sheet metal, either steel or iron, and the openings therein are preferably arranged in transverse and longitudinal rows and are rectangular in outline, although it is to be understood that they may have any desired shape and be disposed in any preferred way. The transverse rows of openings are separated by strips in which are formed slots or contracted openings which when the parts 1 and 2 are moved in one direction to their utmost limit result in the production of a screen having a plurality of openings of like size and of minimum area. These slots or contracted openings may be formed in either one of the parts.

When the sieve or screen is to be used without a blast, both sides will be smooth. The same is true if the sieve is to be used in connection with an overblast. However, when an underblast is employed and it is desired to direct the same through the openings of the sieve or screen the latter will be supplied with inclined lips 3, formed in the usual way in the provision of the openings, said lips being punched from the body of the sheet metal comprising the screen. These lips 3 may be provided on only one of the parts, but, if preferred, each part may be supplied with the lips, so that when the parts 1 and 2 are moved to disclose the two sets of openings each set will have lips to deflect a portion of the blast upward through the sieve or screen. Pins or fastenings 4 are secured to one of the parts, preferably the lower, and operate through slots 5 in the other part and limit the relative movement of the parts 1 and 2. These pins or fastenings also assist materially in holding the parts of the screen together and will be located at such points so as to effect this end.

In order to give stability to the screen, the

latter is secured to a frame 6 and is strengthened by transverse strips 7, which are attached at their ends to the side bars of the frame. These strips are arranged edgewise with respect to the screen, so as not to detract from its workings, and incline to correspond to the inclination of the lips 3, thereby serving as deflectors to direct a portion of the air-blast through the adjacent openings of the screen. A longitudinal bar 8 is secured at its ends to the terminal cross-bars of the frame 6 and has transverse kerfs to receive the lower edges of the transverse strips 7, whereby the latter are strengthened and braced. The lower part 1 is secured in any substantial manner to the frame 6, and its edge portions are recurved to embrace the edges of the relatively movable part 2, so as to direct the latter in its movements and hold the two parts in close relation. Clips 9 are secured to an end bar of the frame 6 and extend over the adjacent end of the part 2 and press the latter close against the part 1, the overlying portion of the clips being elastic and exerting a downward pressure, so as to attain the desired end.

When the invention is applied to a thresher, separator, or mill, the frame 6 will be hung so that its inclination can be changed, and, as shown in the drawings, the frame 6 is pivotally supported at one end upon a shaft 10, having bearings in a casing or shoe 11 and is supported at its opposite end upon a crank-shaft 12, the crank portion of the latter operating in keepers or guides 13, secured to the lower side of the frame, and the crank-shaft having an arm 14, which is connected at its lower end to a rod 15, by means of which the crank-shaft can be turned to effect a raising or lowering of the screen-frame, so as to change the inclination of the screen or sieve as required. The rod 15 extends within convenient reach and has a series of openings 16 near its free end, any one of which openings is adapted to receive a pin 17, so as to hold the rod in the located position.

Any suitable means may be resorted to for relatively adjusting the sieve or screen sections the one upon the other, and, as shown, the shaft 10 has pinions 18, secured thereon at intervals in its length, and these pinions mesh with rack-bars 19, having connection with the movable screen-section. Hence upon turning the shaft the movable part or section 2 is shifted, whereby the required size of openings is had. Brackets 20 extend from the frame 6, and the shaft 10 passes through openings in the brackets, and pins 21, projecting laterally from one or more of the brackets 20, are adapted to enter corresponding openings 22 in the adjacent side of the contiguous pinions 18, so as to hold the shaft 10 in the adjusted position. When it is desired to move the adjustable screen-section, the shaft 10 is shifted longitudinally in its bearings a sufficient distance to disengage the pins 21 from the openings 22, and after the desired adjustment is

secured and the shaft 10 is released it is moved inwardly by a coil-spring 23, so as to bring the pin or pins 21 into engagement with the registering openings 22, thereby securing the parts in locked relation. The shaft 10 may be actuated in any convenient way, depending upon its location and the construction of the machine to which the invention is applied. In some instances an end portion of the shaft 10 may be projected and provided with a handle 24, but in other cases a lever 25 may be advantageously employed, and is mounted upon the shaft 10 at a point between the side pieces of the shoe or casing, and is supplied with a hand-latch 26, to engage with notches in a bracket 20, whereby the parts may be secured when properly adjusted. Frames 27 depend from the rack-bars 19 and embrace the sides and bottom of the shaft 10, and serve to hold the rack-bars and pinions in mesh when operating the shaft 10 to shift the movable screen-section.

In Fig. 8 is shown a shaft 28, having lateral extensions 29, projecting radially, and which are adapted to enter notches 30 in bars 31, secured to the movable screen-section. Upon turning the shaft 28 in its bearings the movable screen-section will be shifted, as will be readily understood.

The upper screen-section has the front and rear portions bordering upon the openings beveled to a knife-edge, forming cutters which will sever any straw tending to cling between the sections, and will otherwise serve to keep the screen-sections clean and prevent shoulders being formed for the lodgment of grain or foreign matter.

Having thus described the invention, what is claimed as new is—

1. A sieve or screen comprising overlying sections or parts slidably related and having corresponding and registering openings which are varied by relatively moving the sections, and one of the sections having other openings of smaller size intermediate of the main openings, substantially as and for the purpose described.

2. A sieve or screen comprising overlying slidable sections or parts having corresponding openings and adapted to have the size of the openings varied by relatively moving the sections, and lips extending from the upper section and projecting through the openings of the lower section to extend across the joint between the two sections and provide lips therefor, substantially as set forth.

3. A sieve or screen comprising overlying slidable sections or parts having corresponding openings, lips projecting from the lower section, and other lips extending from the upper section and projecting through the openings of the lower section to overlap the joint formed between the sections and act jointly with the lips of the lower section, substantially as and for the purpose set forth.

4. The combination with a sieve or screen comprising relatively movable sections or

parts having corresponding openings, of a longitudinally-movable shaft, pinions secured upon the shaft, rack-bars having connection with the movable screen-section and meshing
5 with the pinions, and a locking mechanism for securing the parts in an adjusted position and engaged and disengaged by a longitudinal movement of the shaft, substantially as set forth.

10 5. In combination, a frame provided with a screen composed of overlying sections slidably related and having corresponding openings, means for supporting the frame at one end and serving to relatively adjust the sections,
15 keepers at the opposite end of the frame, a

crank-shaft having its horizontal portion operating in the said keepers, a rod having connection with an arm of the crank-shaft and extending within convenient reach to be operated for varying the inclination of the frame, 20 and means for securing the said rod and holding the frame in the adjusted position, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 25 the presence of two witnesses.

WILLIAM BARTELT.

Witnesses:

I. W. BRADSHAW,
BRAINARD DUNN.