

J. M. STONE.
SCREEN.

APPLICATION FILED FEB. 7, 1910.

Patented Oct. 4, 1910.

2 SHEETS—SHEET 1.

971,701.

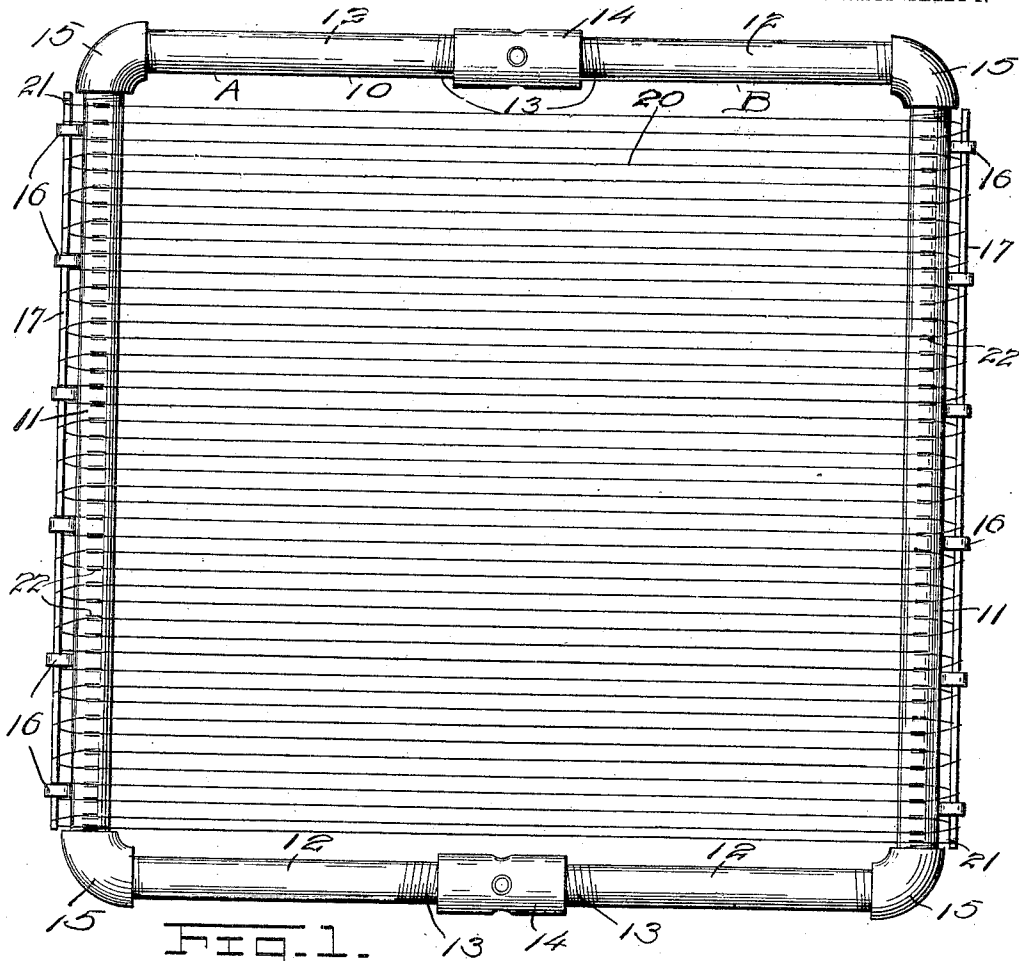


Fig. 1.

Fig. 2.

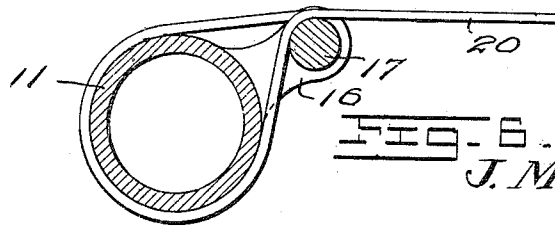
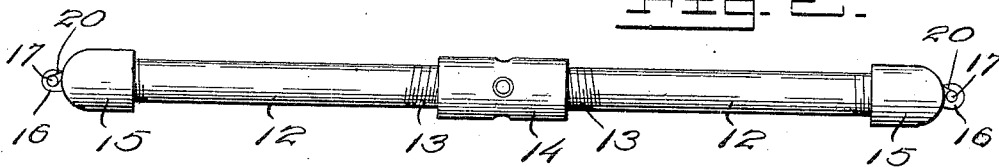


Fig. 3.

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FIG. 5.

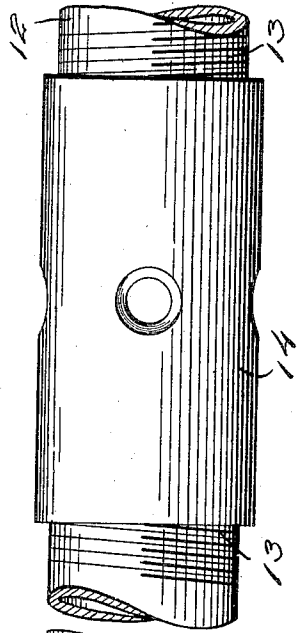


FIG. 4.

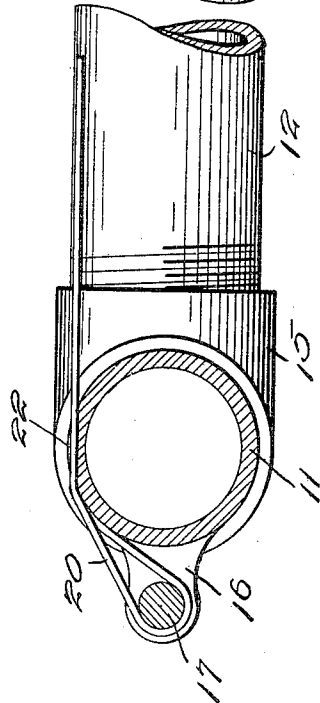
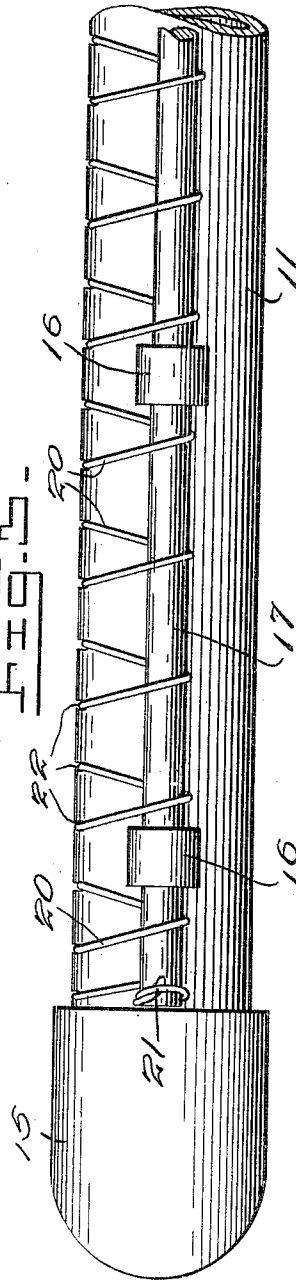


FIG. 3.



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JOHN M. STONE, OF NEWBERG, OREGON.

SCREEN.

971,701.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN M. STONE, a citizen of the United States, residing at Newberg, in the county of Yamhill and State of Oregon, have invented certain new and useful Improvements in Screens, of which the following is a specification.

This invention relates to grain separators, and more especially to the separating screens thereof, and has for its object to provide a grain separating screen of novel structure and arrangement, which will separate grains with relation to their differences in weight, rather than their differences in size.

A special object is to provide a screen which may be adjustable to give different results, within certain limits, and which may be used without the necessity for the application of power thereto, the separating being done solely through the agency of gravity.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims, without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts of the several views,—Figure 1 is a top plan of the screen, Fig. 2 is a side view thereof, Fig. 3 is an end view, Fig. 4 is a detailed section at one end of the screen, Fig. 5 is a detail of the adjusting means, Fig. 6 is a view similar to Fig. 4 of a modified form of the device.

Referring now to the drawings, there is shown a rectangular frame 10, comprising two sections, A and B, each consisting of a bar 11, having at each end an elbow 15, turned in a common direction, and in which there is engaged a standard member 12, these two standard members being thus in parallel relation. The bars 11 and standard members 12 are formed of iron pipe, as shown.

The standard members 12 of the two frame sections are disposed in alinement with each other, as shown, and the inner ends of the corresponding standard members are oppositely threaded, as indicated at 13, and have engaged therewith similarly threaded sleeves 14, having radial openings for the reception of a turning tool. By op-

erating these sleeves 14, therefore, the two sections A and B may be moved toward or away from each other, for a purpose to be presently described.

Carried upon the outer sides of the bars 11, there are bracket members 16, having their outer ends recessed for the reception of polished drum-bars 17, one for each of the bars 11, and extending parallel therewith, as shown. A length of piano wire 20 is secured by one end to one of the bars 17, as indicated at 21, and this length of wire is carried across the frame, and engaged around the bar 17 at the opposite side, when it is returned to the other side and engaged around the bar 17 thereat, the wire being thus carried tortuously across the frame and engaged around the bars 17 at each turn, the final strand of the wire being secured to the opposite end of the bar 17 opposite to that bar to which its initial end is attached.

The supporting bars 11 are each provided with a longitudinal series of transversely extending spaced notches 22 on their upper sides, in which the strands of the wire are engaged to hold them accurately spaced from each other, and in parallel relation.

While only one screen is shown in the drawings, it will be understood that a plurality of screens may be used, in which the strands are spaced different distances to suit various seeds, or rather, to suit the relative characters of the two or more seeds to be separated.

This screen is intended to be used with a suitable structure for holding it in inclined position, with the strands running longitudinally of the incline, and in this position, grain to be screened may be allowed to fall upon the upper ends of the strands. It will be understood that, by reason of the character of the wire employed, it is possessed of considerable resilience, and this resilience may be varied within certain limits by shifting the relative distance of the two bars 11. As will be seen, the provision of the rods 17 equalizes the tension of all of the strands of wire, as these strands are free to slip around the polished bars 17. When grain is allowed to fall upon the strands, these strands will be caused to vibrate by the force of the individual grains striking them, and it will be obvious that a heavy grain will set up a greater vibration than a light grain. By reason of this fact, the heavier grains, upon striking the strands of wire, will rebound

therefrom and will again fall upon and strike the strands at a point nearer their lower ends, and will again rebound, until these heavier grains have passed from the lower end of the screen. On the other hand, the lighter grains, striking the strands will set up a much weaker vibration, and will not rebound to so great an extent. Some extremely light grains will rebound to no appreciable extent, but will fall sidewise from the strands and pass therebetween. Those of slightly greater weight will possibly rebound twice, when their momentum will be exhausted, and they will pass between the strands. The seeds are thus separated with relation to their weight, and in this way grains of practically the same size, but of different weights may be easily separated. This is notably the case in the separation of vetch and wheat, which are seeds of practically the same transverse dimension, but of different specific gravities. Vetch is a heavy seed, while wheat is relatively light. In the use of this screen in the separation of vetch and wheat, the vetch rebounds from the screen and again strikes it and rebounds, and finally passes from the lower end of the screen, whereas the wheat passes between the strands and falls through the screen with very little passage thereover. In the same way, wheat, which is relatively heavy, may be separated from oats which is relatively light, in this case, the wheat being the grain to pass over the screen, while the oats fall through. A different adjustment of the wires, or a screen having a wire of greater resilience, is of course necessary for the separation of wheat from oats than in the separation of vetch from wheat. In some instances, of course, during the passage of grain to be separated over the screen, the heavier grain will fail to strike any of the wires and will pass directly therebetween, being mixed with the lighter grains which have passed through. It is intended, however, that a series of these screens shall be used, and after passing over a reasonable number of screens, say from three to five, these few stray seeds passing through the screen have been separated.

In Fig. 6 there is shown a modification of the device in which the supporting drum-bars are located inwardly of the bars 11, the strands being extended over the bars 17 and around the members 11.

What is claimed is:

1. A device of the class described comprising a frame having spaced support portions, a continuous strand member carried therebetween, said strand member being extended back and forth between the members in parallel relation, and means for moving the members relatively for adjusting the tension upon the strands.

2. A device of the class described comprising

a frame having spaced support portions, a continuous resilient strand member carried therebetween, said strand being extended back and forth between the members in parallel relation, and means for moving the members relatively for adjusting the tension upon the strands.

3. A device of the class described, comprising opposite U-shaped sections, having parallel support portions, and having their arms in opposition, the end portion of the opposite arms being threaded in opposite directions, a sleeve threaded upon the adjacent arms for operation to move the arms toward and away from each other, and a continuous strand member extended tortuously between the support portions in parallel spaced relation and in a common plane.

4. A grain separating screen comprising a frame, and a continuous resilient strand member engaged tortuously across the frame.

5. A grain separating screen comprising a frame including portions movable with respect to each other, a continuous resilient strand member carried tortuously across the frame, and means for shifting the two portions of the frame with respect to each other.

6. A grain separating screen comprising a plurality of supporting members, drum-bars connected with the supporting members, and a continuous resilient strand wire carried tortuously around the drum-bars and across the space between the supporting members.

7. A grain separating screen comprising a plurality of supporting members, drum-bars connected with the supporting members, and a continuous resilient strand wire carried tortuously around the drum-bars and across the space between the supporting members, and means for varying the distance between the supporting members.

8. A grain separating screen comprising spaced members each provided with a longitudinal series of transverse notches, extensible connecting members for the spaced members arranged for operation to vary the distance between the spaced members, drum bars mounted outwardly of the spaced members, and strand wires integral with each other and engaged around the drum bars and at a common side of the spaced members, and in the notches of the spaced members.

9. A grain separating screen comprising spaced parallel supporting members, means for varying the distance between the supporting members, drum-bars located outwardly of the supporting members, said supporting members having longitudinal series of transverse notches, and a continuous resilient strand member engaged tortuously around the drum-bars and carried across the space between the supporting members, said strand member being engaged in the notches of the supporting members.

10. A grain separating screen comprising supporting members, a continuous resilient strand member carried by the supporting portion to produce a plurality of spaced
5 strands, and means for simultaneously equalizing the tension of the several lengths of the strand members. supporting members, a resilient strand member engaged tortuously with the supporting 15 members to produce a plurality of strands for the reception of grain thereagainst, and means for varying the tension of the several strands of the strand member simultaneously. 20

11. A grain separator comprising supporting members, and a continuous wire engaged
10 tortuously upon the supporting members to produce a plurality of strands adapted to receive grain to be separated thereagainst. In testimony whereof I affix my signature, in presence of two witnesses.

JOHN M. STONE.

Witnesses:

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EDWARD H. CAHALIN.