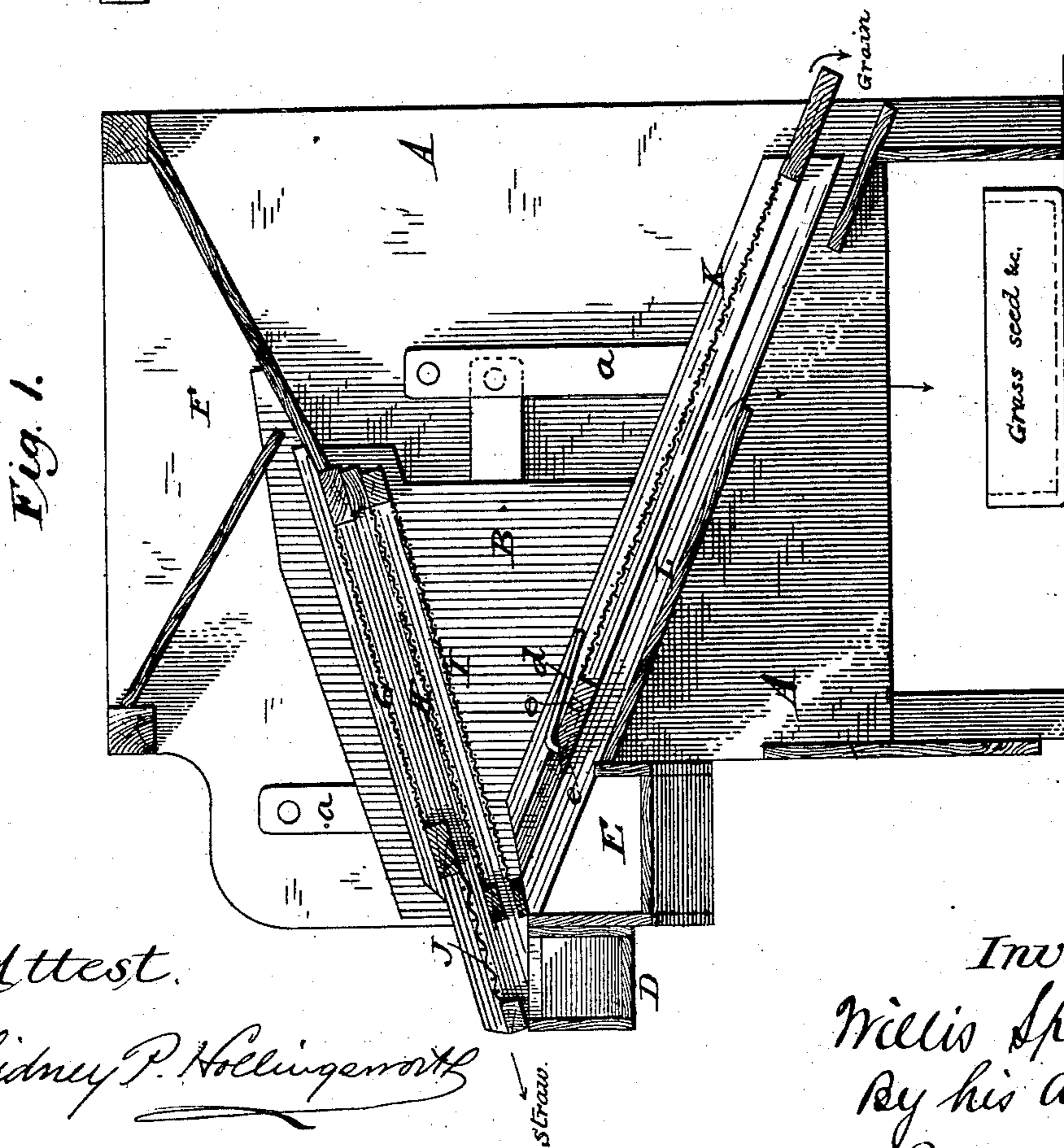
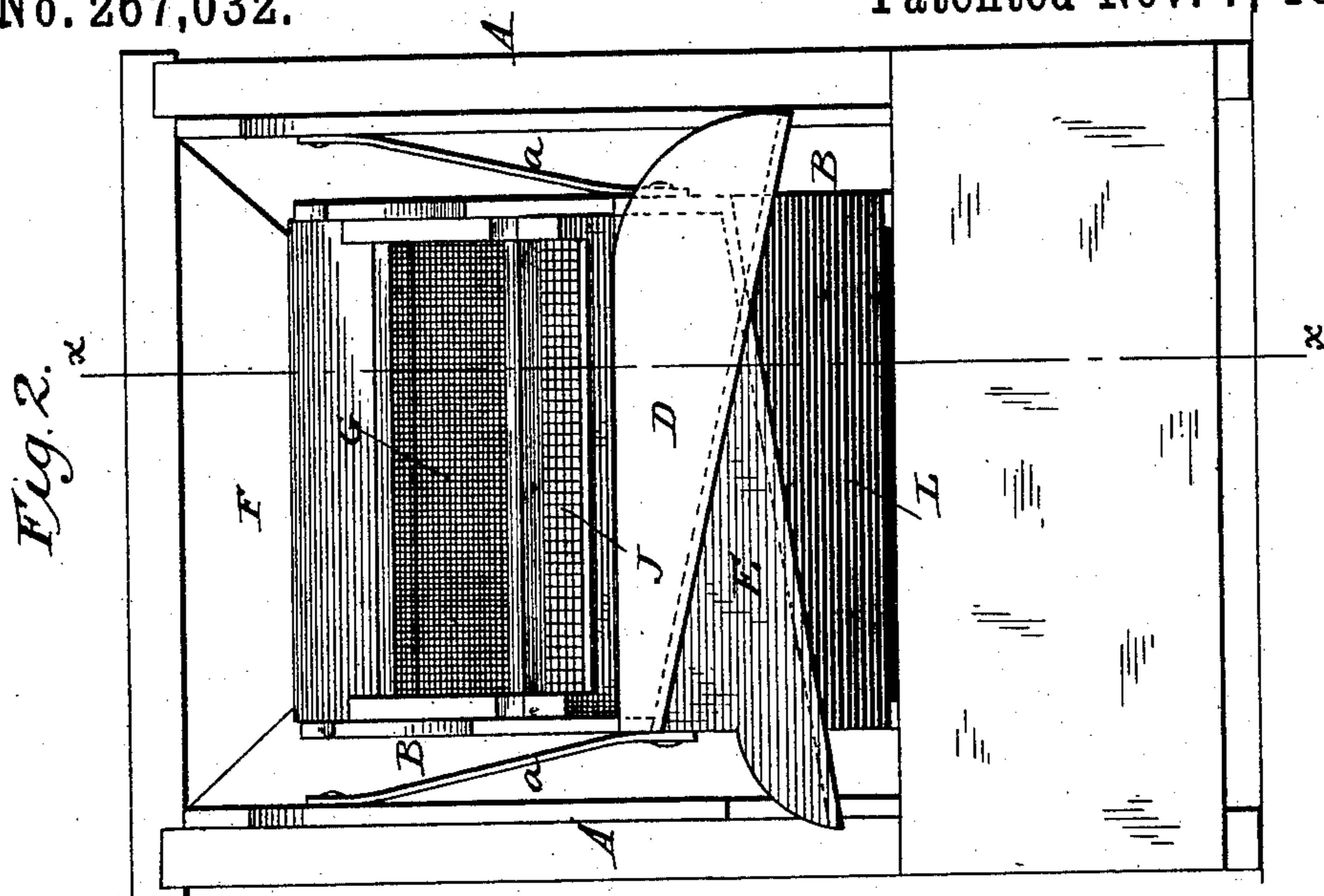


W. SPERRY.

GRAIN CLEANING AND SEPARATING MACHINE.

No. 267,032.

Patented Nov. 7, 1882.



Attest.

Sidney P. Hollingworth

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By his attorney
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UNITED STATES PATENT OFFICE.

WILLIS SPERRY, OF DODGE CENTRE, MINNESOTA.

GRAIN CLEANING AND SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 267,032, dated November 7, 1882.

Application filed September 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIS SPERRY, of Dodge Centre, in the county of Dodge and State of Minnesota, have invented certain Improvements in Grain Cleaning and Separating Machines, of which the following is a specification.

My invention relates to that class of grain-separators commonly denominated "fanning-mills," wherein a series of inclined screens are combined with transverse conductors.

The invention consists in a peculiar combination and arrangement of screens and conductors, as hereinafter detailed, whereby the separation of the different materials passed into the machine is perfectly and rapidly effected and the materials delivered in such positions as to reduce the labor of tending the machine. The class of machines to which my improvements relate is well understood by those skilled in the art, a series of screens being combined with a fan or blast device, by which air is driven upward over and through their surfaces.

The present invention relating exclusively to the arrangement of screens and conductors, it is deemed unnecessary to represent herein the blast apparatus and other details attending the same.

Referring to the accompanying drawings, Figure 1 represents a vertical longitudinal section through the body of the machine, its screens, and the delivery-spouts or conductors. Fig. 2 is an elevation of the same, looking toward the delivery end.

Referring to the drawings, A represents the upright body or frame of the machine, and B the shoe or shaker, sustained in the frame by means of pendent links *a* or other suitable means adapted to oscillate transversely. The arrangement of devices for imparting the reciprocatory motion thereto, forming no part of my invention, is omitted from the drawings.

D and E represent two transverse inclined spouts, attached to the rear end of the shoe, one in front of the other, and inclining toward opposite sides of the machine. The inner spout, E, is constructed of greater width than the outer one, as shown.

F represents the feed-hopper, located in the top of the machine, to receive the material to be treated.

G, H, and I represent three parallel screens, mounted in the top of the shoe, and inclining downward from the hopper toward the delivery-spouts. The three screens G, H, and I extend downward to such point that the tailings passing over their rear ends will fall into the outer conductor, D. To or against the lower end of the upper screen, G, I connect a screen, J, forming a continuation of the same, and extending over and beyond the outer trough, D. The screens G, H, and I have a mesh of suitable size to permit the passage of the large and perfect grain, while the screen J has a coarser mesh adapted to carry the straw and other large matters over and beyond the spout D, and discharge them from the machine, while permitting the large grain to pass through into said spout.

In the shoe beneath the upper screens, G, H, and I, I mount a screen, K, inclining in the opposite direction. This screen has its edges mounted in grooves in the shoe, and is arranged to slide endwise therein, in order that its upper end may be projected to a greater or less extent over the top of the inner spout, E. Any suitable means may be employed for securing this sieve in position; but it is preferred to employ the device shown in Fig. 1, consisting simply of a hook, *d*, attached to the shoe and arranged to engage in one or another of a series of holes, *e*, formed in the screen-frame, as shown. This lower screen K is made with a mesh somewhat finer than that of the upper screens, G, H, and I, in order that it may retain upon its surface the wheat or large grain, while permitting the grass-seeds and other small impurities to pass through. Beneath the screen K there is attached to the shoe an inclined conducting-board, L, which serves to deliver the material falling through said screen at a point near the lower end of the machine, where a box or receptacle is ordinarily placed.

In the operation of the mill the entire mass of material is delivered upon the screen G. The large and perfect grain, accompanied by the small impurities, will pass mainly through the screens G, H, and I to the surface of the lower screen K, over which the perfect grain will pass and be deposited, in a thoroughly-cleansed condition, at the foot of the machine, while the

grass-seed and other fine impurities will fall through the screen K upon the conducting-board L, and be delivered near the foot of the machine into a receptacle placed therein or thereunder. The straw, chaff, and heavy materials are retained upon the surface of the screen G and passed over the same onto the screen J, which in turn carries them over the spout D and discharges them from the machine. That small portion of large grain which may be carried with the chaff and straw over the surface of the screen G will pass through the coarse screen J at the foot and be received in the conducting-spout D. Of the material which passes through the upper screens, G, H, and I, that portion escaping near the tail will be found to contain a greater or less percentage of impurities, requiring it to be again passed through the machine. The spout E, located above the upper end of the screen K and beneath the ends of the upper screens, serves to receive this uncleaned grain and deliver the same at the side of the machine, where it will be received into a measure or other portable receptacle, by which it may be readily returned to the hopper preparatory to its being again passed through the machine. By adjusting the screen K endwise, so as to cover the spout E to a greater or less extent, the separation of the cleaned from the uncleaned grain may be effected at such point as circumstances may require, it being necessary to vary the adjustment according to the quality of the grain and of the impurities contained therein.

It will be seen that by making use of the conductor E in connection with the lower screen K, I am enabled to effect the perfect separation of the cleaned and uncleaned grain, and to deliver the latter alone at the side of the machine in such position that it may be returned to the hopper with much less labor than when delivered at the rear end of the machine, as usual.

The series of screens G, H, and I may be increased or diminished in number as circumstances may require, as in other machines of this class, the invention not being restricted to any specific number of screens.

I am aware that machines have been variously constructed with double conducting-spouts therein, said spouts inclined in opposite directions.

I am also aware that coarse and fine screens have been employed in various combinations and under various arrangements, and I make no claim thereto; but I am not aware of any machine wherein the screens and troughs bear to each other the same relation as those herein described.

Having thus described my invention, what I claim is—

1. In combination with a hopper, the upper grain-receiving screen, G, the lower and coarser screen J, the adjustable lower screen K, inclined in the opposite direction, and the spouts D and E, arranged the former beneath screen J and the latter beneath the screen G, as described.

2. The combination of the screen G, the coarser screen J, adapted to receive the tailings therefrom, the spout D, located beneath the screen J, a second spout, E, inclined in the opposite direction and arranged to receive the material passing through the lower end of the screen G, and the bottom screen K, inclining in the opposite direction from the upper screen G, and arranged to receive the material passing through the upper end of said screen.

3. In a grain-separator, the vibratory shoe or shaker B, the two oppositely-inclined spouts D and E, attached to the foot of said shoe and partaking of its movements, in combination with the screens G and J and longitudinally-adjustable screen K, arranged in the relative positions described.

4. The combination of the screen G, coarser screen J, spouts D and E, longitudinally-adjustable screen K, and board L, arranged with respect to the inner spout and the adjustable screen as described and shown.

WILLIS SPERRY.

Witnesses:

R. MCNEILL,
U. CURTIS.