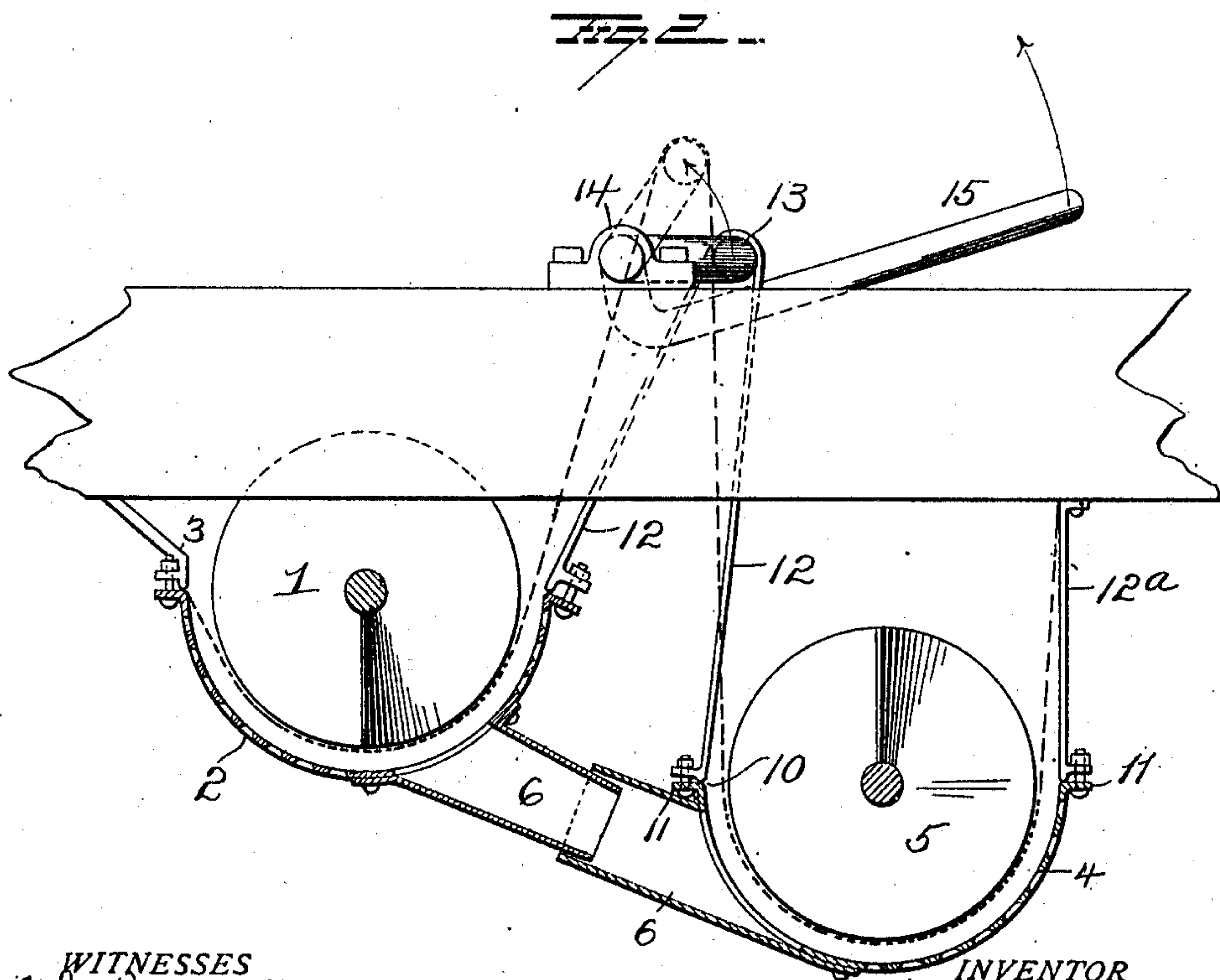
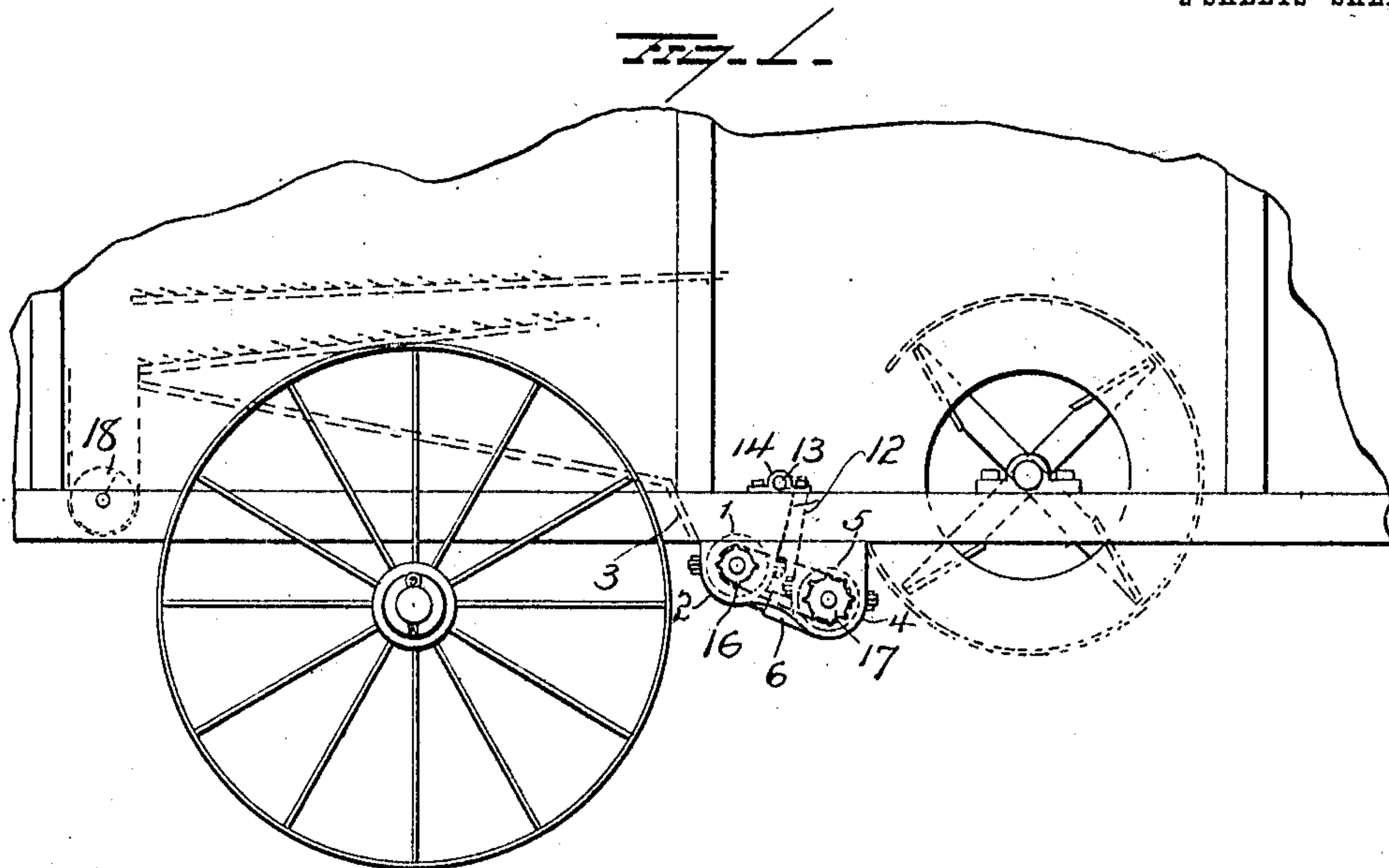


N. N. NELSON.
 SCREEN FOR THRESHING MACHINE SEPARATORS.
 APPLICATION FILED APR. 28, 1908.

945,187.

Patented Jan. 4, 1910.

2 SHEETS—SHEET 1.



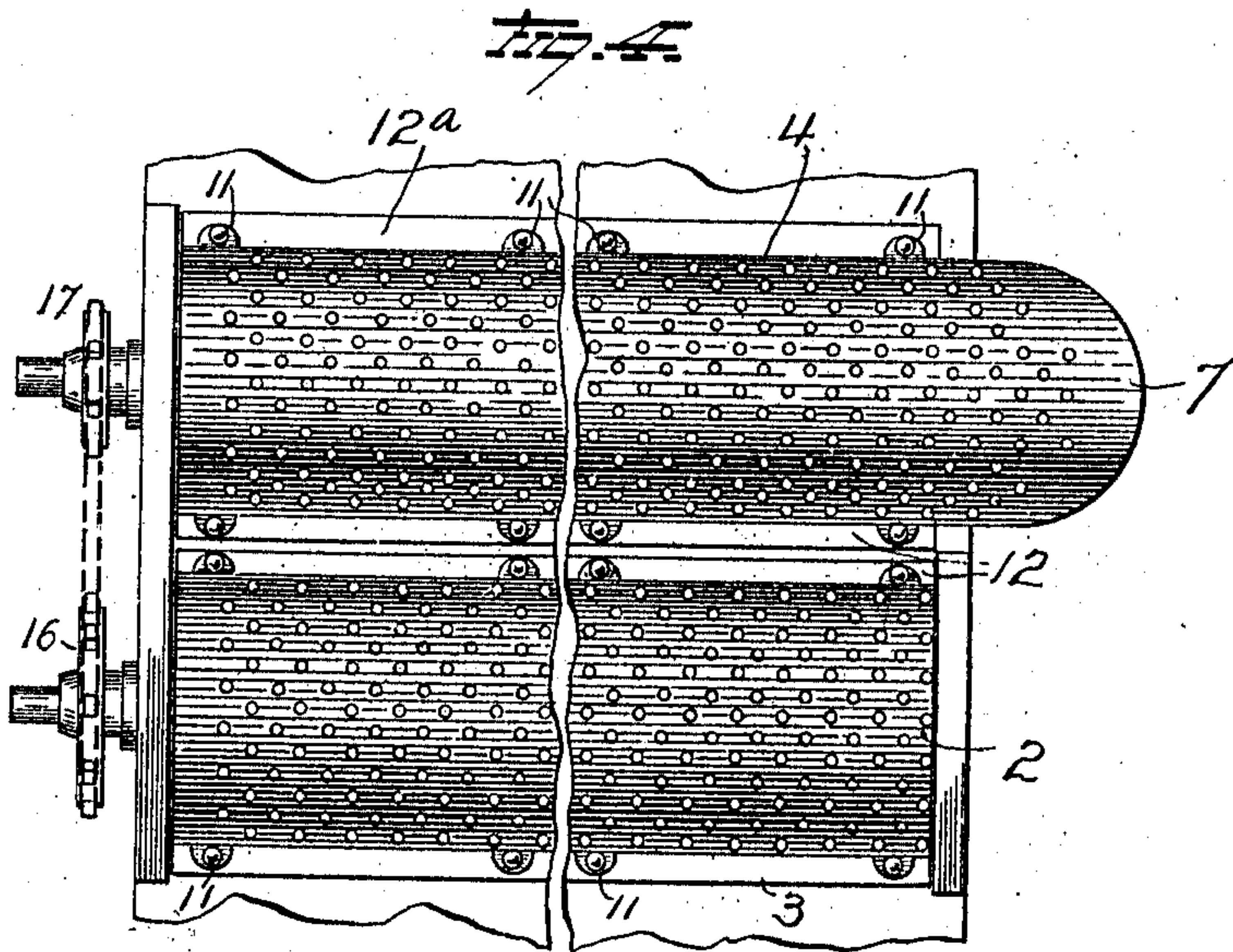
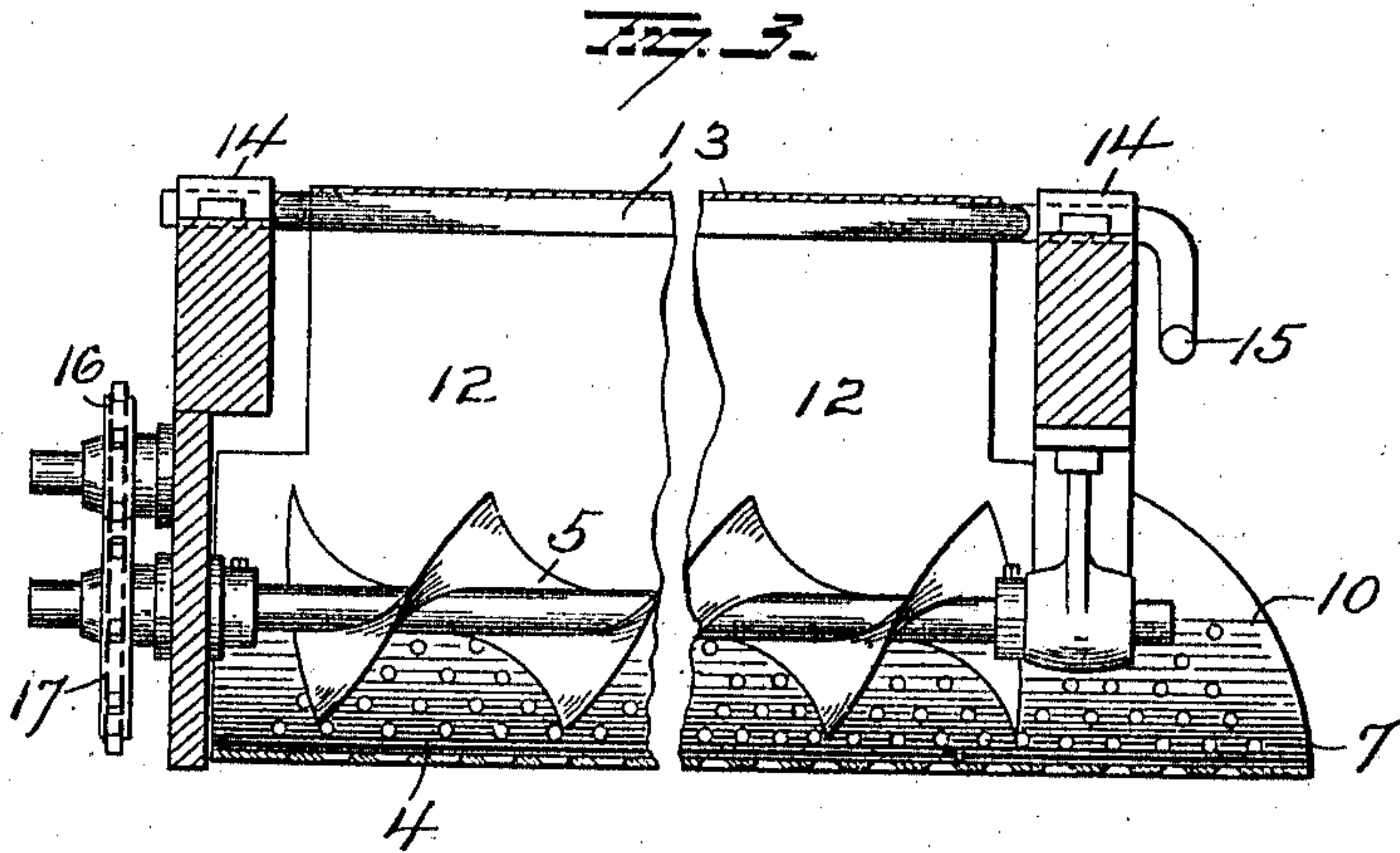
WITNESSES
E. Nottingham
G. J. Downing

INVENTOR
N. N. Nelson
By H. A. Seymour
 Attorney

N. N. NELSON.
 SCREEN FOR THRESHING MACHINE SEPARATORS.
 APPLICATION FILED APR. 28, 1908.

945,187.

Patented Jan. 4, 1910.
 2 SHEETS—SHEET 2.



WITNESSES
E. Nottingham
G. J. Downing

INVENTOR
N. N. Nelson
Cy. A. Seymour
 Attorney

UNITED STATES PATENT OFFICE.

NICHOLAS N. NELSON, OF OJATA, NORTH DAKOTA.

SCREEN FOR THRESHING-MACHINE SEPARATORS.

945,187.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed April 28, 1908. Serial No. 429,743.

To all whom it may concern:

Be it known that I, NICHOLAS N. NELSON, of Ojata, in the county of Grand Forks and State of North Dakota, have invented certain new and useful Improvements in Screens for Threshing-Machine Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in screens for threshing machine separators, and it consists in the parts and combinations of parts as will be more fully explained and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of the rear portion of a threshing machine showing my improved screens applied thereto. Fig. 2 is an enlarged end view of the screens, the ends of the conveyer boxes being removed. Fig. 3 is a view in vertical section through one of the conveyer boxes, the conveyer being shown in elevation, and Fig. 4 is a bottom plan view of the screens.

My improvement consists in one screw conveyer 1 of usual form located over a screen 2 constituting the bottom of the conveyer box, the latter being in a position to receive the cleaned grain from the shoe 3 of the separator. This conveyer box is closed at one end and communicates at its opposite discharge end with a second conveyer box located in a plane below said first mentioned conveyer box. This second conveyer consists of a screen 4 constituting the bottom of the box and a screw conveyer 5, and communicates with the first mentioned conveyer box through the spout 6 located at the ends of the two boxes farthest removed from the discharge end 7 of the screen 4. The screw conveyer 1 in the higher box moves the grain endwise toward spout 6 and discharges it into the latter, and through which it gravitates by reason of the inclination of the spout 6.

The spout 6 is made in two telescopic sections as shown, one section being secured to the upper screen, and terminating within the upper end of the lower section, the latter being secured to the lower screen 4, sufficient space being provided to permit of the necessary movements of the screens.

This improvement is designed primarily for getting rid of the wild oats mixed in

with the grain, and this I accomplish by making the screens of sheet steel of sufficient thickness to stand the necessary wear. The sheets are provided with countersunk perforations of any suitable size according to the grain to be cleaned, and which form cutting edges, which cooperate with the edge of the screw conveyer, to cut up wild oats and force them through the perforations with the other screenings.

The concave screens 2 and 4 extend up to about the center line of the conveyers and are provided at their upper edges 10 with lugs 11 to which the sheet metal plates 12, constituting the sides or covers of the conveyer boxes are secured by bolts or other fastening means. In the upper conveyer, one edge of the screen is attached to the lower edge of shoe 3 and its other edge to a plate 12, whereas in the lower or discharging conveyer, one edge of the screen is connected to a plate 12, and the other to plate 12^a which is made fast at its upper end to the frame of the machine. The two plates 12 connected to the adjacent edges of the two screens, are connected at their upper ends, by any suitable means, to the crank 13 mounted at its ends in bearings 14 and provided with the handle 15 by which it may be turned. Ordinarily the crank rests in a horizontal position thus maintaining the screens at a distance removed from the edge of the screw conveyers as shown in full lines in Fig. 2; but when turned up as shown in dotted lines in the same figure, it elevates the screens into contact with the edges of their respective screw conveyers.

The screens are detachably connected to their supports so as to permit them to be readily detached and others having different size perforations, substituted therefor.

The two screw conveyers have sprocket and chain mechanism 16—17 so constructed as to drive the lower conveyer at least one third faster than the upper conveyer, and one screw conveyer has right hand flight and the other left hand flight, so that as the grain is fed to the upper box it is moved therein by its conveyer toward the spout 6 and discharges through the latter into the lower box, and is moved therein by its conveyer toward the open end 7 from which it is discharged into the measuring apparatus or to the wagon loader.

In the operation of the machine the grain drops through the separators onto the shoe 3

while the tailings are deposited into the conveyer 18 and are discharged by the screw therein. The grain passing from the separators falls onto the shoe 3, and gravitates
 5 from the latter into the upper conveyer, and from the latter into the lower conveyer and out through the open end of the latter to the measuring machine or wagon loader. When the grain has wild oats mixed therewith, the
 10 latter, owing to their size and shape, will enter the perforations and in some instances fall through but when too large will clog the openings and retard the passage of the grain over the screens. When this happens, or at
 15 regular or irregular intervals, the operator elevates lever 15 thus raising plates 12 and screens 2 and 4, until the latter are close up to the screw conveyers. The flights of the screw conveyers acting with a shearing and
 20 pressing action against the clogged grain, cut off the projecting portions thus permitting the remaining parts to fall through the perforations. The screens are then lowered to their normal positions and continue their
 25 work until it is again necessary to repeat the operation.

The advantages of this method of clearing the screens of wild oats, will be evident at once to threshing machine operators. Here-
 30 tofore it has been impossible with the machines devised for that purpose, to rid the screens of wild oats with sufficient speed to run grain through properly cleaned to the rated capacity of the machine. In fact no
 35 threshing machines as at present made, so far as I am aware, have means for ridding themselves of wild oats. Another advantage in the use of the double screens is that in a sixty inch machine, all the grain travels from
 40 five to ten feet over screening surface, whereas in other forms the screening surface is less than three feet.

The construction is such that the screens may be attached to any threshing machine,
 45 and by making the screens detachable I am enabled to use screens, the perforations in which are of a proper size for the particular grain being cleaned.

It is evident that changes in the construction and relative arrangement of the several
 50 parts might be made without avoiding my invention and hence I would have it understood that I do not restrict myself to the particular construction and arrangement of
 55 parts shown and described, but,—

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

1. In combination with a screen and a
 60 shearing conveyer, each of rigid material, and means for elevating the screen toward the conveyer to coöperate therewith to shear material projecting through the screen.

2. In a grain separator, the combination
 65 of two communicating screens of rigid ma-

terial, and a screw conveyer in each screen, one of said screens being located in a lower plane than the other and both screens adapted to coöperate with the screw conveyer therein to shear wild oats. 70

3. In a grain separator, the combination of two screens of rigid material arranged in different planes, the upper screen being closed at both ends and the other being open at one end, a spout connecting one end of the
 75 upper screen with one end of the lower screen, and a screw conveyer in each screen adapted to coöperate therewith to feed grain over the screens and shear wild oats.

4. In grain separators, the combination of 80 two communicating screens of rigid material, one located in a plane above the other and adapted to receive the grain from the shoe of the separator and discharge it onto the lower screen, and a screw conveyer of 85 rigid material for each screen and adapted to coöperate therewith, as and for the purpose set forth.

5. The combination with a screw conveyer of rigid material and a screen of rigid material, of means for elevating the screen toward the conveyer to insure the coöperation of the screen and conveyer to shear wild
 90 oats, and means for actuating the screw conveyer. 95

6. The combination with a screen having countersunk perforations therein, of a conveyer of rigid material for moving the grain along the screen, means for elevating the screen into contact with the conveyer to insure the coöperation of the screen and conveyer to shear wild oats, and means for actuating the conveyer. 100

7. The combination with a screen of rigid material having perforations therein, and detachably secured in place, of a conveyer of rigid materials for moving the grain over the surface of the screen means for actuating the conveyer and means for elevating the screen into contact with the conveyer to co-
 105 operate with the latter to shear wild oats. 110

8. The combination with two screens located in different horizontal planes and a spout connecting them, of a conveyer of rigid materials for each screen and means for elevating the screens into contact with the conveyers to coöperate therewith to shear wild
 115 oats. 120

9. The combination with two screens located in different horizontal planes and a spout connecting them, of a conveyer of rigid material for each screen means for actuating the conveyers and means for simultaneously elevating the screens into contact with their respective conveyers to co-
 125 operate with the latter to shear wild oats. 125

10. The combination with two screens, and conveyers of rigid material therein, of plates connected thereto, and a crank shaft connected to the upper ends of said plates for
 130 130

raising and lowering the screens relatively to the conveyers, of a spout connecting the screens and means for actuating the conveyers.

5 11. The combination of two screens, a conveyer of rigid material in each screen, one screen being closed at both ends and the other open at one end the said screens being in different horizontal planes and a tele-
10 scopic spout connecting the two screens.

12. The combination with two screens located in different horizontal planes and a section of a telescopic spout connected to each screen, of a conveyer for each screen
15 and means for elevating the screens into contact with their respective conveyers.

13. The combination with two screens lo-

cated in different horizontal planes and a telescopic spout connecting the screens, the overlapping ends of the sections of the spout 20 being of such size as to permit of the necessary movements of the screens, of a conveyer of rigid material for each screen and means for elevating the screens into contact with their respective conveyers to coöperate 25 with the latter to shear wild oats.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

NICHOLAS N. NELSON.

Witnesses:

O. B. BURTNESSE,
B. G. SKULASM.