W. R. SCHWARTZ.

GRAIN RIDDLE.

APPLICATION FILED APR. 3, 1918.

1,281,855.

Patented Oct. 15, 1918.

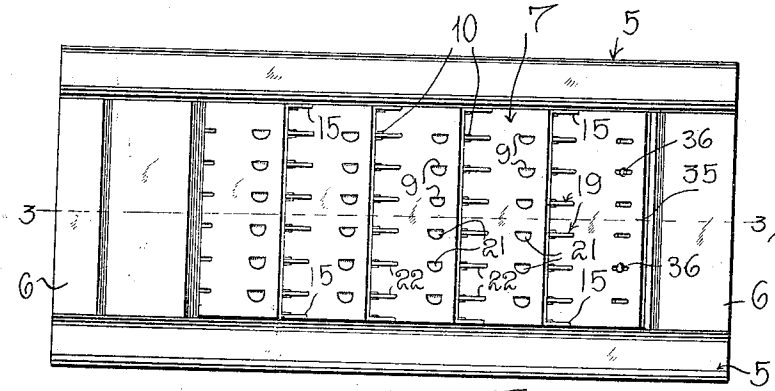


Fig. 1

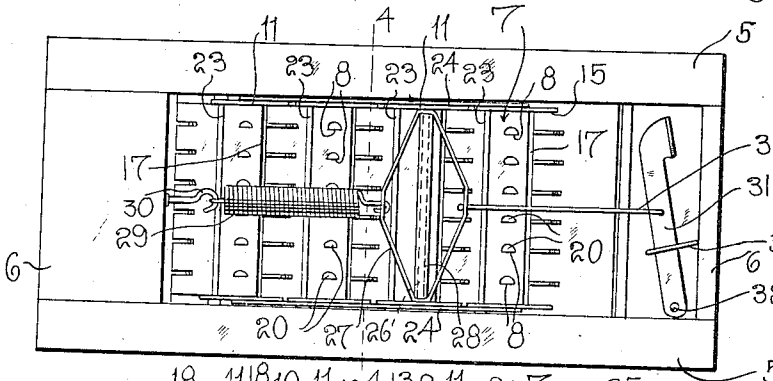


Fig. 2

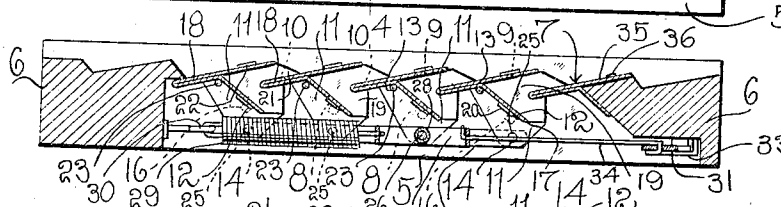


Fig. 3

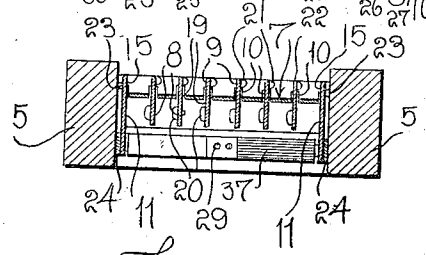


Fig. 4

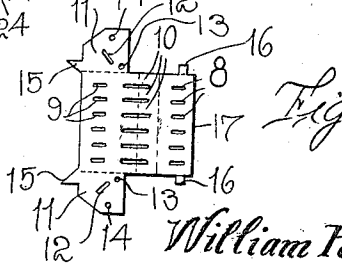


Fig. 5

Inventor

William R. Schwartz

By Watson E. Coleman

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM R. SCHWARTZ, OF INDEPENDENCE, NORTH DAKOTA.

GRAIN-RIDDLE.

1,281,855. Specification of Letters Patent. Patented Oct. 15, 1918.

Application filed April 3, 1918. Serial No. 226,514.

To all whom it may concern:

Be it known that I, WILLIAM R. SCHWARTZ, a citizen of the United States, residing at Independence, in the county of La Moure and State of North Dakota, have invented certain new and useful Improvements in Grain-Riddles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved grain riddle and has for its primary object to provide an improved riddle construction such as is used in grain cleaning machines for the removal of wild oats and other extraneous matter from the good grain.

It is an important object of my invention to provide a grain riddle embodying a plurality of relatively movable riddle plates and means yieldingly holding the plates in their normal positions, and means for moving said plates so as to dislodge wild oats and other worthless material which may have become clogged between the riddle plates.

It is also one of the detail objects of my invention to provide an improved construction of the riddle plate, whereby the plate is made strong and durable in practical use and may also be manufactured at relatively small cost.

It is also an object of the invention to provide a grain riddle having a series of pivotally mounted riddle plates, each plate being provided with a plurality of spaced slots therein, and partition members fixed to one edge of each of the plates and operating in the slots of an adjacent plate, said partition members coacting with the latter plate to limit the pivotal movement of the riddle plates toward each other and subdivide the space between the opposed faces of the adjacent plates.

It is also a further general object of the invention to provide a grain riddle as above characterized which is highly serviceable and convenient for the purpose in view, and is of such construction that it may be incorporated in grain cleaning machines of various types.

With the above and other objects in view, the invention resides in the improved construction, combination and relative arrangement of the several parts as will be hereinafter more fully described, subsequently claimed and illustrated in the accompanying drawing, in which similar reference characters designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a top plan view of my improved grain riddle;

Fig. 2 is a bottom plan view;

Fig. 3 is a longitudinal section taken on the line 3—3 of Fig. 1;

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 2; and

Fig. 5 is a plan view of one of the blanks from which the riddle plates are formed.

In the accompanying drawing, I have illustrated a suitable riddle supporting frame which includes longitudinal side bars 5 and the transverse end bars 6 connecting said side bars.

Between the side bars 5 of the frame, a series of riddle plates generally designated by the numeral 7 are operatively mounted. Each of these riddle plates is formed from a single plate of sheet steel, which is stamped or cut out as shown in Fig. 5 to provide a substantially rectangular body portion having the two series of spaced slots or openings 8 and 9, respectively, located adjacent to the opposite longitudinal edges of said plate. The body of the plate is further provided intermediate of the two series of openings 8 and 9, and approximately at the center thereof, with a third series of relatively long slots or openings 10. The body of the plate is provided at its opposite ends with the laterally projecting relatively narrow wings or extensions 11. Each of these wings or extensions is provided with an obliquely inclined slot 12, and in spaced relation to said slot, with an opening 13. Each wing is further provided in its outer end with a second opening 14. On the longitudinal edge of each wing 11, which constitutes a continuation of one longitudinal edge of the riddle plate, a lug or shoulder 15 is provided. The body portion of the riddle plate at each end thereof and adjacent its opposite longitudinal edge is provided with a laterally projecting tongue 16.

The riddle plate, after being stamped or cut out in the manner above explained, is bent longitudinally along a line substantially midway between the two series of slots 8 and 10 thereof, and the edge portion 17 of the body of the plate having the series of slots or openings 8 is disposed at an obtuse angle with respect to the plane of the adjacent body portion of the plate. The plate

is then again bent upon itself, and in a relatively opposite direction, along a line bisecting the slots 10, and the two portions of the plate in which the slots 10 are cut are disposed in close contacting relation upon each other as indicated at 18. The other longitudinal edge of the plate having the projecting wings 11 thereon extends beyond the first bend of the plate, so that the portion 17 of the riddle plate will extend at an acute angle with relation to this projecting edge portion of the plate in which the series of slots 9 are provided. Finally, the wings 11 are bent at right angles to the plane of the body of the plate and against the ends of the edge portion 17 of the riddle plate, the tongue 16 being received through the obliquely inclined slots 12 in said wings. These tongues are then bent over upon the outer faces of the wings 11. The openings 13 at the inner ends of the wings 11 are now disposed substantially in line with the first bend made in the riddle plate.

19 designates a plurality of partition blades or members with which each riddle plate is provided. Each of these partition members is likewise stamped or cut from sheet metal and is of irregular form in outline, said member being provided with tongues designated 20 and 21, respectively, on two of its edges and with a projecting stop shoulder 22 on another edge thereof. The lugs 20 are adapted to be engaged through the slots 8 in the riddle plate while the lugs 21 are engaged through the slots 9 in said plate, said lugs being then bent over upon one face of the plate to thereby rigidly secure the partition members in place. These partition members are adapted to operate in the slots 10 of an adjacent riddle plate, as clearly shown in Fig. 3 of the drawing and the shoulder 22 of each of said members projects beyond the inner end of the slot for engagement upon the upper side of the riddle plate, thereby limiting the movement of the contiguous edges of the riddle plates toward each other. The lugs or shoulders 15 on the wings 11 of each riddle plate engage with the adjacent riddle plate in a similar manner to the shoulders 22 of the partition members 19.

The riddle plates are mounted for pivotal or rocking movement between the longitudinal frame bars 5 upon the spaced rods 23 which are fixed at their ends in said frame bars, said rods extending through the openings 13 in the angularly disposed wings of the respective riddle plates and fitting closely in the bend of the riddle plate first above referred to. The several riddle plates are operatively connected to each other by means of the metal straps or bars 24, said bars being pivotally connected to the wings on the relatively opposite ends of the riddle plates by means of the pivot studs 25 which are engaged in the openings 14 in said wings. In lieu of the studs 25, the wings of one or more of the riddle plates are connected to the straps or bars 24 by means of a transverse rod 26. Upon this rod, an elongated member 27 having a sleeve 28 centrally positioned between the opposed portions thereof is engaged. To one side of the member 27 one end of a coil spring 29 is attached, the other end of said spring being connected to an eye indicated at 30 fixed in one of the transverse frame bars 6. 31 designates a lever pivoted at one of its ends as at 32 upon the other frame bar 6 and operating in a suitable guide 33. This lever is connected intermediate of its ends by means of the rod 34 to the other side of the member 27.

To the last named transverse frame bar 6 whereon the operating lever 31 is mounted, a stationary riddle plate 35 is secured. This plate is similar in constructon to the riddle plates above described with the exception that it is not provided with the angular wings 11 or the partition members 19, the longitudinal edges of said plate being rigidly fixed by means of suitable fastening elements indicated at 36 to the frame bar.

From the foregoing description taken in connection with the accompanying drawing, the construction, manner of operation, and several advantages of my improved grain riddle will be clearly and fully understood. It will be observed from reference to Fig. 3 of the drawing that in the normal positions of the riddle plates, their contiguous portions are held in spaced relation to each other and in obliquely inclined positions with respect to the plane of the frame bars 6 by the stop shoulders of the partition members 19 engaging upon the upper surface of the respective riddle plates. In the operation of the machine equipped with the improved riddle, the wild oats and other extraneous matter passes over the riddle plates as the riddle is longitudinally reciprocated, while the good grain passes between the spaced edges of the riddle plates and between the partition members 19 fixed thereto and is discharged beneath the riddle. Frequently, however, these spaces between the members 19 and between the riddle plates become clogged so that the bad grain is not separated from that which is good. In such instances the operator simply engages the end of the lever 31 with the finger and moves said lever toward the upper end of the riddle, thereby rocking the several riddle plates upon their respective pivots against the action of the spring 29, and upon the return of the riddle plates to their normal positions when the lever is released, the foreign matter will be dislodged and pass out through the spaces between the members 19. It will of course be understood that

any desired number of the riddle plates may be employed, and these plates may be otherwise connected for unitary pivotal movement than in the manner above described. By constructing the individual riddle plates from a single plate of sheet steel as hereinbefore explained, these plates can be expeditiously manufactured at relatively small cost. This construction also provides a riddle plate of great durability, and the partition members 19 which operate in the slots 10, effectually obviate relative shifting movement of the riddle plates in the line of other axes. The number of the partition members 19 may also be varied as desired. The several other parts of the device are likewise of very simple form so that the riddle as a whole can be produced and operatively incorporated in various types of grain cleaning machines without materially increasing the manufacturing cost of the latter.

While I have herein shown and described the preferred construction, relative arrangement of the various parts of the device, it is to be understood that the same are susceptible of considerable modification and I therefore reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the appended claims.

Having thus described my invention, what I claim is:—

1. In a grain riddle, a plurality of pivotally mounted riddle plates, each having folded contacting portions and spaced diverging portions, said contacting portions of the plate having spaced slots therein, partition members fixed between the diverging portions of each riddle plate and movable through the slots in an adjacent riddle plate, each of said partitions having a forwardly projecting stop lug to engage upon the upper surface of the adjacent riddle plate and limit the relative movement of said plates in one direction, and means for rocking the riddle plates upon their pivots.

2. In a grain riddle, a plurality of pivotally mounted riddle plates having overlapping portions, a plurality of spaced partition members fixed to each of the riddle plates, the adjacent riddle plate having slots therein to receive said partition members, said members each having means coacting with the latter riddle plate to space the overlapping portions of the plates from each other when the plates are in their normal positions, said partition members also transversely subdividing the space between said plates, and means for rocking the riddle plates upon their pivots.

3. A riddle plate for grain riddles consisting of a sheet metal blank bent upon itself to provide portions disposed at an acute angle with respect to each other, a plurality of partition members fixed between said portions of the riddle plate and adapted to coact with an adjacent riddle plate to space the plates from each other in the normal positions thereof, the riddle plate being further provided with a plurality of spaced slots to receive the spaced members fixed to an adjacent riddle plate, and wings projecting from the opposite ends of the riddle plate and adapted to be angularly bent with respect to the body of the plate, one of said inclined portions in the plate having means for the connection of said wings thereto.

In testimony whereof I hereunto affix my signature in the presenec of two witnesses.

WILLIAM R. SCHWARTZ.

Witnesses:
R. M. CRICHTON,
T. J. GAUGHAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."