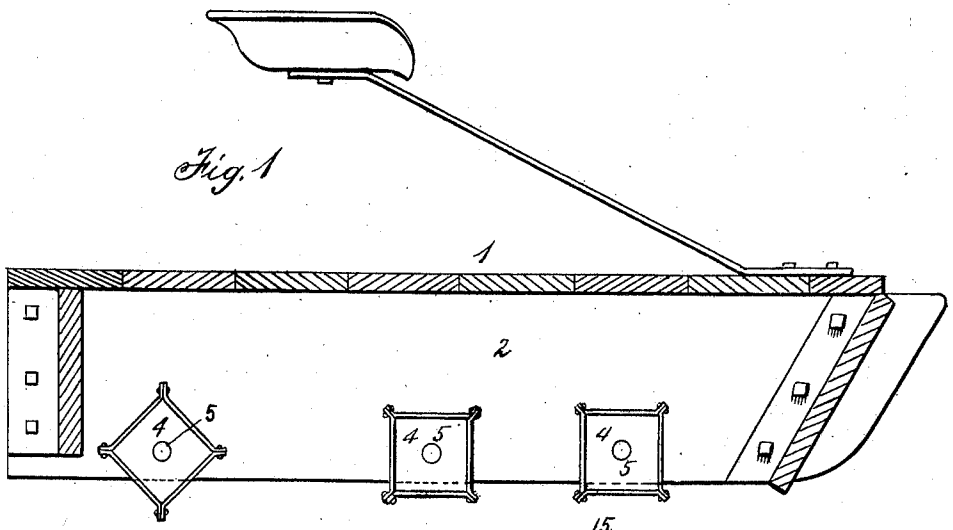
W. H. WORST & E. E. KILMER.

PULVERIZER ROLLER.

APPLICATION FILED OCT. 2, 1909.

984,989. **Patented Feb. 21, 1911.**

Fig. 1



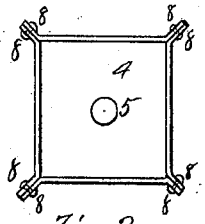


Fig. 2.

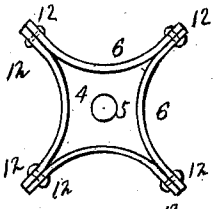


Fig. 3

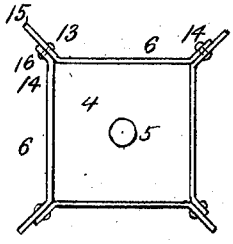
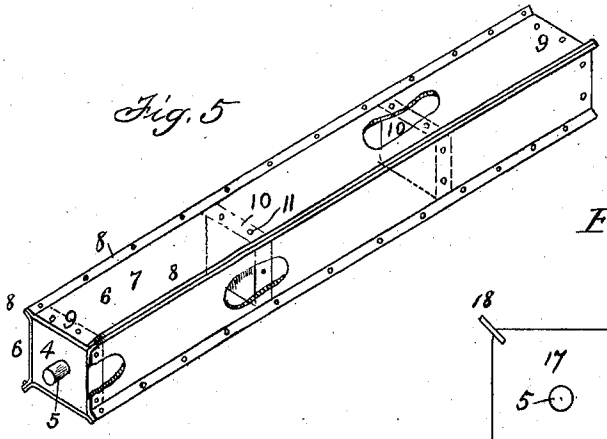


Fig 4

Fig. 5



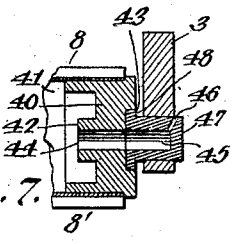


Fig. 7.

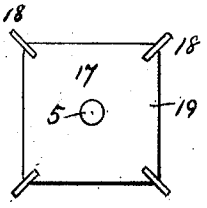


Fig. 6.

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UNITED STATES PATENT OFFICE.

WARREN H. WORST AND ELMER E. KILMER, OF NEW LONDON, OHIO.

PULVERIZER-ROLLER.

984,989. Specification of Letters Patent. Patented Feb. 21, 1911.

Application filed October 2, 1909. Serial No. 520,753.

To all whom it may concern:

Be it known that we, WARREN H. WORST and ELMER E. KILMER, citizens of the United States, residing at New London, in the county of Huron and State of Ohio, have invented certain new and useful Improvements in Pulverizer-Rollers, of which the following is a specification.

This invention relates to a new and useful improvement in devices employed in agriculture, and more particularly to a new and useful improvement in a pulverizer roller.

The main object of this pulverizer roller is cutting, pulverizing and packing the soil and also to provide an implement that can be manufactured of iron or steel, light in weight and minimum in cost. In our device it can be manufactured readily out of light material by having the corners projecting so that they may readily be riveted together. Besides by having the corners projecting it has more cutting effect on the clods than the plain square rollers and besides they make deeper incisions in the soil which more thoroughly pack the soil, which is essential in producing larger crops.

The invention consists in a pulverizer roller having the construction hereinafter pointed out and claimed.

In the annexed drawings,—Figure 1 represents a longitudinal median section of the device; Fig. 2 an end view of one form of roller; Fig. 3 an end view of another form of roller; Fig. 4 an end view of another form of roller; Fig. 5 a perspective view of the first form of roller; Fig. 6 an end view of a form of roller containing the invention but substantially different from the form shown in Figs. 2, 3, 4 and 5; Fig. 7 is a sectional detail.

In the drawings the numeral 1 shows a substantial pulverizer roller frame provided with a set of runners 2, 3, in which the pulverizer rollers are to be journaled. One form of the roller, as shown in Fig. 5, consists of solid rectangular heads 4 having a journal 5. On the four sides of these rectangular heads are secured metallic plates 6. The four plates are substantially identical in shape and construction, or duplicates. Each plate 6 consists of a continuous flat portion 7 and continuous flared edges 8. The plates 6 are secured by their ends 9 to the edges of the heads 4 and the flared edges 8—8 of the plates 6 are riveted together, as clearly shown in Fig. 5. These edges 8 of the plates 6 being made flaring when two of them are united together they project from the corners of the heads 4 substantially at an angle of 45° with the edges of the heads 4, or the body portion 7 of the plates 6. At definite intervals between the heads 4 there are placed spacing or strengthening blocks 10 inside of the rollers, such blocks being securely held by rivets or bolts 11 to the plates 6. The roller, such as described, is shown in Figs. 2 and 5 and in sectional view in Fig. 1. However, instead of making the plates 6 flat they may be made concave as shown in Fig. 3. When they are made concave as shown in Fig. 3, the ends 12 of each plate 6 will follow the line of the curve and be united together as clearly indicated in Fig. 3, the curvature being such that the edges 12—12 when united together are at substantially the same angle of 45° as is shown in the form already described.

As shown in Fig. 4 the plates 6 which form the rollers may be so constructed that one of their continuous flaring edges 13 shall be made longer than the other continuous flaring edge 14 and the plates 6 are secured together so that the flaring edge 13 of one plate 6 will be secured to the flaring edge 14 of another plate 6. This produces, as clearly shown in Fig. 4, two ends, namely, 15 and 16, instead of one combined end as shown in the forms already described. In the form shown in Fig. 4 the plates are duplicates of one another. That is to say, the continuous flaring edges 13 and 14 are the same length in configuration in all the various plates so that each plate 6 will be of the same size and shape as the others.

In Fig. 6 is shown a still further modification of the invention. In this figure is shown an end view of a solid roller 17 rectangular or square in cross section. Narrow continuous plates 18 are inserted in recesses 19 in the corner of the roller 17, the plates 18 projecting at substantially an angle of 45° from the faces of the roller 17. So that in all these forms it will be seen that the continuous cutting edges of the rollers project at substantially an angle of 45° from the faces of the roller whether the latter be hollow or solid.

Fig. 7 shows a detailed modification of this device. In the forms of the pulverizer roller hitherto described the journal and the

head are made in one piece. But in the form shown in Fig. 7 the plates which form the roller are secured to a separable head 40. This head is provided with a peripheral bearing 41 so as to make an enlargement for securing the plates thereto, and a central boss 42, the bearing and boss both projecting inwardly. This head 40 is also provided on the outside with a central recess 43. Passing through the head over the recess and out through the boss 42 is a bore 44. In this bore 44 is held a rod 45 which forms a journal or gudgeon of the roller.

In the runners 2 and 3 are made alined holes 46 in which are inserted bearings 47. The rollers thus constructed are put in place by the outer end of the journal rod 45 resting in the bearings 47 and collars 48 of these bearings rest in the recesses 43 of the head 40 of the rollers.

The advantages heretofore set forth as inherent in this device are obtained by the general construction and arrangement already set forth. But there are certain other advantages which are obtained by some of the details of construction.

The cutting edges project from the body of the rollers at the corners, preferably, at an angle of 45°, and are arranged radially from the center of the rollers. Hence when the rollers are rotated the cutting edges strike the surface of the earth with a force as from the center of the rollers and at the same time in all the forms of rollers there is a compacting of the earth between each pair of cutting edges as the roller strikes the earth.

In the form which is set forth in Fig. 4 where there are two ends to each set of cutting edges there is a double breakage or incision of the surface of the earth. By the form shown in Fig. 3 in which the sides of the roller are concaved there is a still greater compacting of the surface of the earth than in the other forms because the shape of the roller causes the earth to be compressed or squeezed together.

Having described our invention, what we claim is,—

1. A pulverizer roller consisting of heads having journals, longitudinal plates having a main portion and flaring edges, the flaring edges of the plates being secured together and forming cutting edges.

2. A pulverizer roller consisting of longitudinal plates having a main portion and flaring edges of different widths.

3. A pulverizer roller consisting of longitudinal plates having a main portion and flaring edges of different widths, the flaring edges of the plates being secured together an edge of one width being secured to the edge of the other width on the adjacent plate.

4. A hollow pulverizer roller consisting of plates having flaring edges of different widths, the flaring edges being secured together, an edge of one width being secured to the edge of the other width on the adjacent plate.

5. A pulverizer roller consisting of a body portion having several faces or sides and cutting edges projecting from and beyond the corners of said faces or sides at an angle of 45 degrees to the faces or sides and heads provided with journals for attachment to a pulverizer frame.

In testimony whereof we affix our signatures in presence of two witnesses.

WARREN H. WORST.
ELMER E. KILMER.

Witnesses:
RALPH J. SMITH,
MABEL KELLEY.