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2,658,463

DRILL TOOTH

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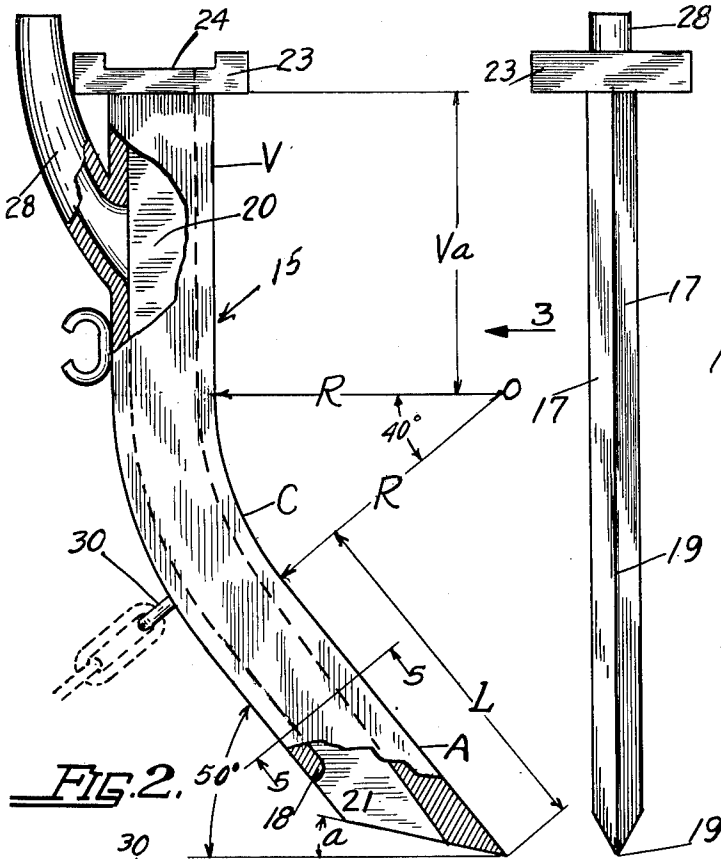


FIG. 2.

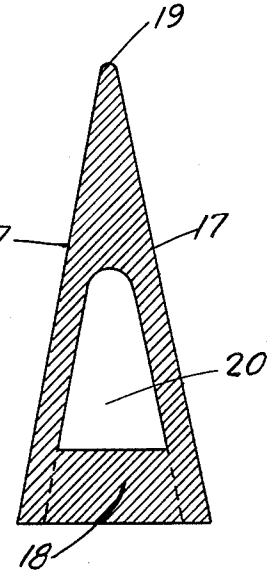


FIG. 5.

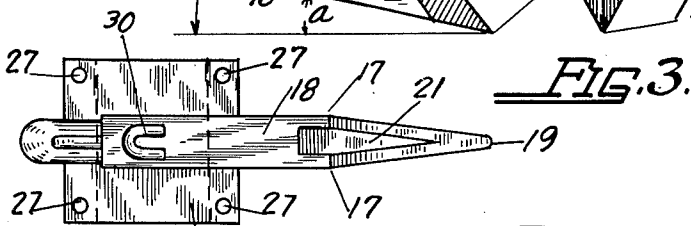


FIG. 3.

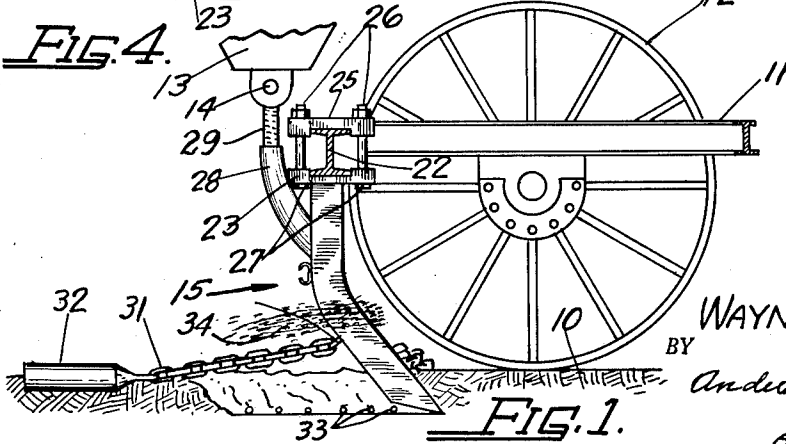


FIG. 4.

FIG. 1.

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DRILL TOOTH

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1 Claim. (Cl. 111—86)

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This invention relates to improvements in grain drills and has reference in particular to an improvement in the furrow opening devices usually referred to as "drill teeth."

In many parts of our country, grain is sowed in drills as distinguished from broadcast and it frequently occurs that the ground to be seeded is quite dry and hard and is often covered with a mulch of straw and/or weeds. In such cases, the drill teeth must be very strong in order to resist the powerful bending forces to which they are subjected during the furrow opening operation. Since the ground to be seeded is nearly always partially covered with straw, dry stubble and/or weeds, the furrow openers or drill teeth soon accumulate a considerable load of straw or weeds which bunches up around the teeth and seriously interferes with the proper operation. When such straw or weed accumulation occurs, it becomes necessary for the operator to stop at frequent intervals and remove such accumulations.

It is the object of this invention to produce a drill tooth of such a construction that it shall, first of all, have sufficient strength to resist all bending forces to which it may be reasonably subjected, and then it must be so shaped that it will permit accumulations of straw and weeds to slide upwardly into positions where they will not interfere with the proper operation and from which they will be automatically dislodged.

The above and other objects that may become apparent as the description proceeds, or to which attention may hereinafter be called, are attained by means of a construction and arrangement of parts that will now be described in detail, for which purpose reference will be had to the accompanying drawing in which the invention has been illustrated and in which:

Figure 1 is an assembly view showing, in a general way, the relation of the several parts of a grain drill equipped with drill teeth of the construction to which this application relates;

Figure 2 is a side elevation of a drill tooth on a larger scale, portions being broken away and shown in section to better disclose the construction;

Fig. 3 is a front elevational view looking in the direction of arrow 3, Figure 2;

Figure 4 is a bottom plan view, and

Figure 5 is a transverse section taken on line 5—5, Figure 2, showing the same on a still larger scale.

In the drawing reference, numeral 10 designates the surface of the ground to be seeded,

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reference numeral 11 designates the drill frame, numeral 12 the supporting wheels, 13 the seed hopper, 14 the feed mechanism, and numeral 15 the drill tooth to which this invention relates, and which has been illustrated to an enlarged scale in Figures 2 to 5 inclusive, to which reference will now be had.

The drill tooth is constructed of steel whose cross sectional shape is as shown in Figure 5 from which it will be seen that the cross section has the shape of an isosceles triangle whose sides or side walls have been designated by numeral 17, the base or rear wall by numeral 18, and the vertex by numeral 19. It will be noted sides 17 are between two and three times as great as base 18. Extending the entire length of the tooth is an opening 20 of substantially the size and shape shown. The exact size and shape of opening 20 is governed more particularly by practical consideration of manufacture.

The tooth has a shape substantially like that shown in Figure 2 and has a lower straight section A that is inclined to the horizontal at an angle of about 50 degrees and a length L which in the full size device is about 9 inches in length. Section A is connected with a vertical section V by an intermediate arcuate section C that subtends an arc of about 40 degrees about a center O on a radius R. The length Va of the vertical section V may be of any suitable length. The lower end or bottom of the tooth is inclined with respect to the horizontal at a small angle. The base or rear wall 18 terminates short of the bottom of the tooth to leave an opening 21 of sufficient length to assure that the seed that drops through opening 20 will not be trapped but will be allowed to rest where they fall while the drill advances.

For the purpose of effecting an attachment with a support beam 22, a plate 23 is attached to the top of section V by welding. Plate 23 has a recess 24 for the reception of the lower flange of the support beam 22. A plate 25 of the same size and shape as plate 23 is positioned on top of beam 22 and the two plates are connected by bolts 26 that pass through openings 27 in the plates.

In order to conduct seed from the seed feed 14 to opening 20, tooth 15 has been provided with a tubular extension 28 whose lower end is welded to base member 18 and communicates with opening 20, as shown in Fig. 2. A short and preferably flexible tube 29 extends from the feed mechanism 14 to a point within tube 28. An eye 30 is welded to base 18 at a point substantially as shown in Figure 2 and serves as a means for the attach-

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ment of chain 31 to whose trailing end a metal cylinder 32 is attached whose function is to drag soil back into the opening or furrow formed by the tooth.

When the drill is in operation, the drill teeth, of which many are attached in spaced relation to beam 22, project the desired distance into the soil and open a seed furrow on the bottom of which the seeds 33 are deposited. Reference numeral 34 designates straw and weeds that have collected and shows how they move upwardly into the curved section.

Having described the invention, what is claimed as new is:

As an article of manufacture, a drill tooth consisting of a hollow steel member having a transverse cross section in the form of a forwardly tapering elongated isosceles triangle with the sides of the triangle being between two and three times as great as the base of the triangle, said member having side walls converging to a forward edge and corresponding to the sides of said triangle and a transverse rear wall corresponding to the base of said triangle, said member having two straight sections joined by an intermediate arcuate section subtending an arc of approximately 40 degrees, one of said straight sections being vertically disposed and forming the upper portion of the drill tooth, the other straight section sloping downwardly and forwardly and forming the lower portion of the drill tooth, a transversely grooved horizontal plate fixed to and

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closing off the upper end of said member and forming part of a means for attaching the drill tooth to a support, the lower end of said member lying in a plane sloping upwardly and rearwardly from the lowermost end of said forward edge at a small angle with respect to the horizontal, the rear wall of said member terminating above said plane to provide an opening for the deposit of seed, and a tube fixed to said rear wall near the upper end of said member and in communication with the hollow interior thereof so that seed fed into the tube will pass through said member and out the opening at the lower end.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
199,081	Matthews	Jan. 8, 1878
260,042	Norris	June 27, 1882
332,919	Marks	Dec. 22, 1885
939,983	Cook	Nov. 16, 1909
2,334,923	Hand	Nov. 23, 1943
2,505,872	White	May 2, 1950

FOREIGN PATENTS

Number	Country	Date
19,255	Great Britain	1899
52,201	Denmark	Sept. 21, 1936
340,058	France	May 3, 1904