

THE modern grain drill has largely replaced the other methods of putting in the seed. It has many advantages over the broadcast method, as the seed is placed at a uniform depth, is given a good covering; and, instead of following with a disc and harrow, the work is completed by going over the field but once. Then too by using any of the different furrow openers and presswheel attachments, the seed bed may be prepared and left in the most favorable condition. This machine is one of the most useful of all implements of the farm and, at the same time, very easily operated; yet upon its successful operation depends, to a large extent, the uniformity of the crop.

The requisites of a grain drill may be summed up under four heads:

- (1) Furrow openers that will make a proper seed bed, and deposit all the seed at any desired depth in any kind of soil, mud, gumbo; or in soil containing cornstalks, roots or rubbish.
- (2) An adjustable force feed that will discharge all kinds of seed evenly, and the same quantity in every drill.
- (3) Light draft and light weight throughout, without sacrifice of strength sufficient to provide against any excessive strain it might have to withstand at times.
- (4) Long wear with few repairs.

In the study of the drill each part will be considered separately, paying special attention to the different styles of construction, material used, and a comparison of the different types.

Frame.—The frame should be strong, but as light as possible, especially should the strength be considered if the drill be over ten feet in width. Angle bars, rectangular iron or round or square

The Grain Drill

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pipes are used to make the main frame. Sometimes a combination of them is used to make up a frame. The bars are often bent at the corners and supported by

be reinforced by rivetting a cast corner on the bent bars. This last method makes a secure corner. The back part of the frame may have a light I beam its entire



"Three heads are better than one."

a short brace, with a run of about one foot across the corners. Sometimes the bars are cut at the corners, and a cast iron corner rivetted to the bars to hold them in position. The bent corners can

width to support it as shown in Fig. 1; or the entire strain may be allowed to come on a well trussed box, and the axle, which is usually a continuous axle under such conditions as are shown by Fig. 2.

A combination of the I beam and truss rods may also be used, thus decreasing the size of the I beam. It is an advantage to have all joints in the frame, brackets or reinforcements rivetted securely, as it is sometimes difficult to keep nuts tight where two thin plates are bolted together. Whatever style of frame is used it should be well trussed, making it impossible for the machine to sag in the middle, which will cause the wheels to incline, and often rub against the grain box, thereby increasing the draft and making it difficult for the driver to gage an even width between the two outside drills. Tongue trucks are often used on drills and take weight off of the horses' necks and balance the drills. If trucks are not used the drill should be well balanced to be as easy as possible on the horses. Of course in travelling over hilly land the drill will not be well balanced, as the load will be thrown to the front or rear of the axle.

Seed Box.—The seed box should be of good material, and well put together with iron ends. Wood is more generally used for the seed box, and besides being light is durable, if of good wood and protected from the weather. The box should be of good capacity, and well braced or trussed to prevent sagging; also with sufficient clearance between the wheels and box, especially is this important when working in muddy, trashy ground. The bottom is generally made of angled steel so that it can be easily cleaned of all seed.

Feeding Device.—Upon the reliability of the feeding device depends the uniformity and accuracy of drilling. It is the heart of the grain drill, and must assure even distribution of the grain; therefore it should be adjustable, positive and accurate. Two

