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Patented Sept. 19, 1899.

H. E. & W. B. HASSENPLUG.  
GRAIN DRILL.

(Application filed June 15, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

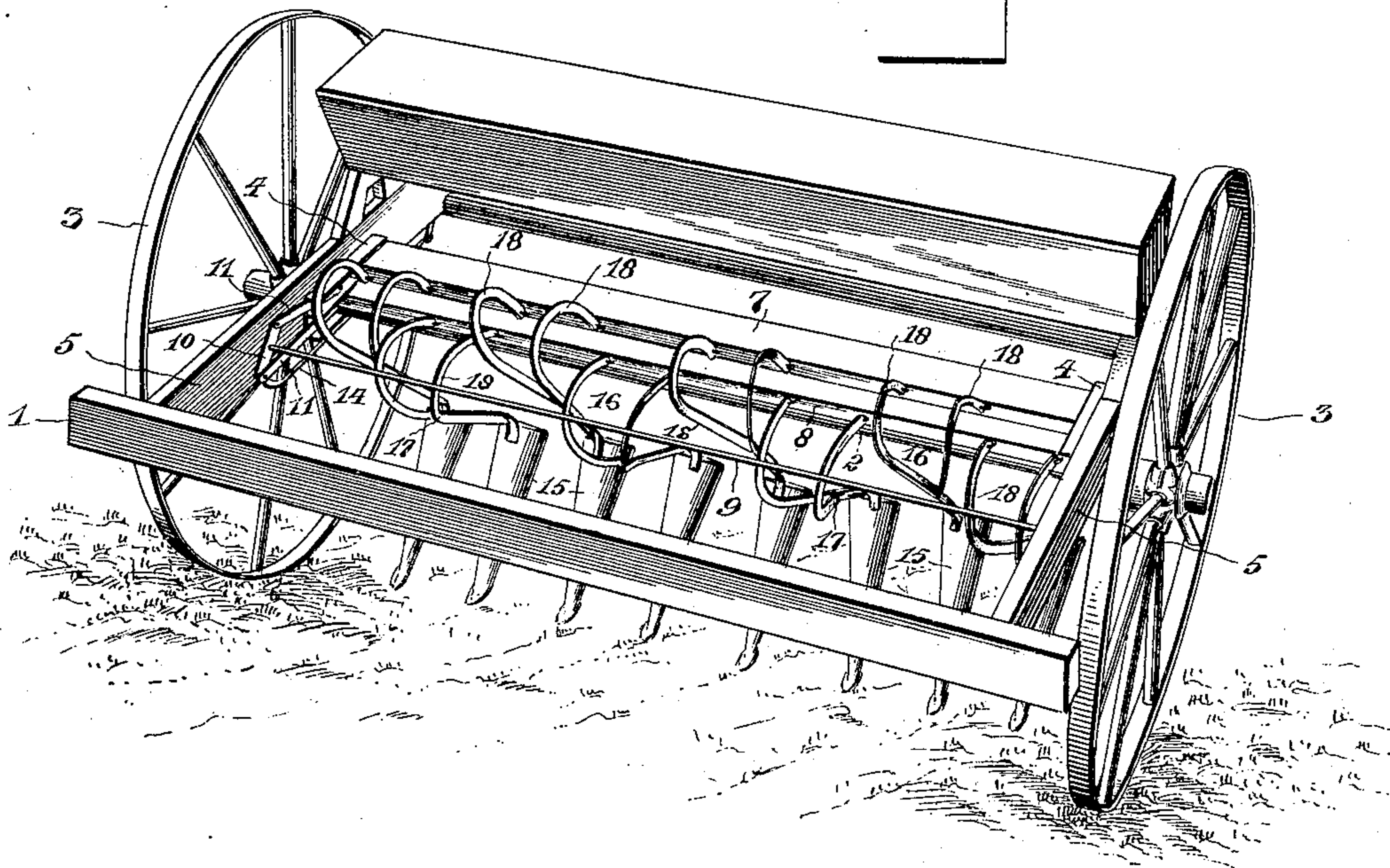
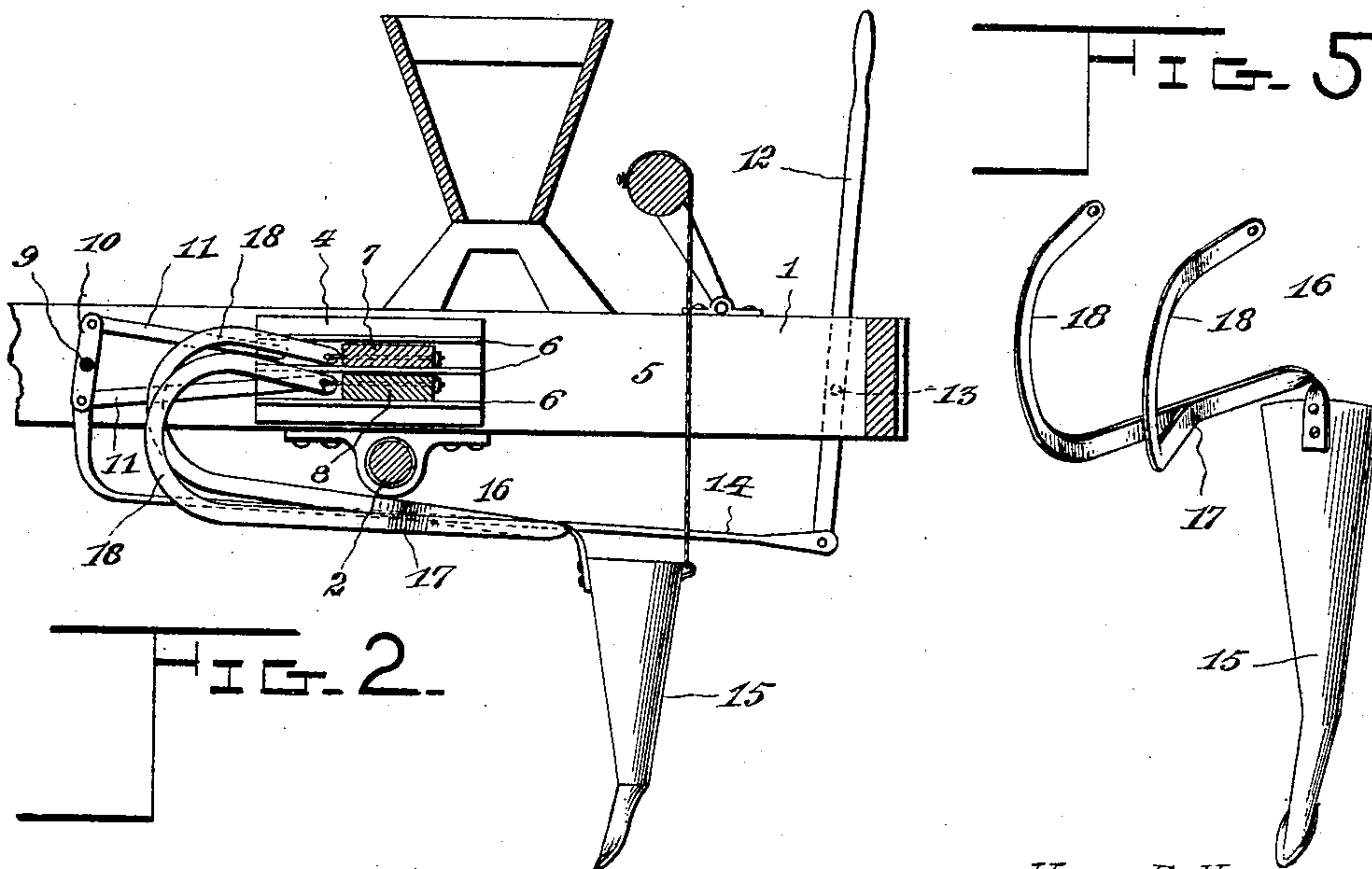


FIG. 5.



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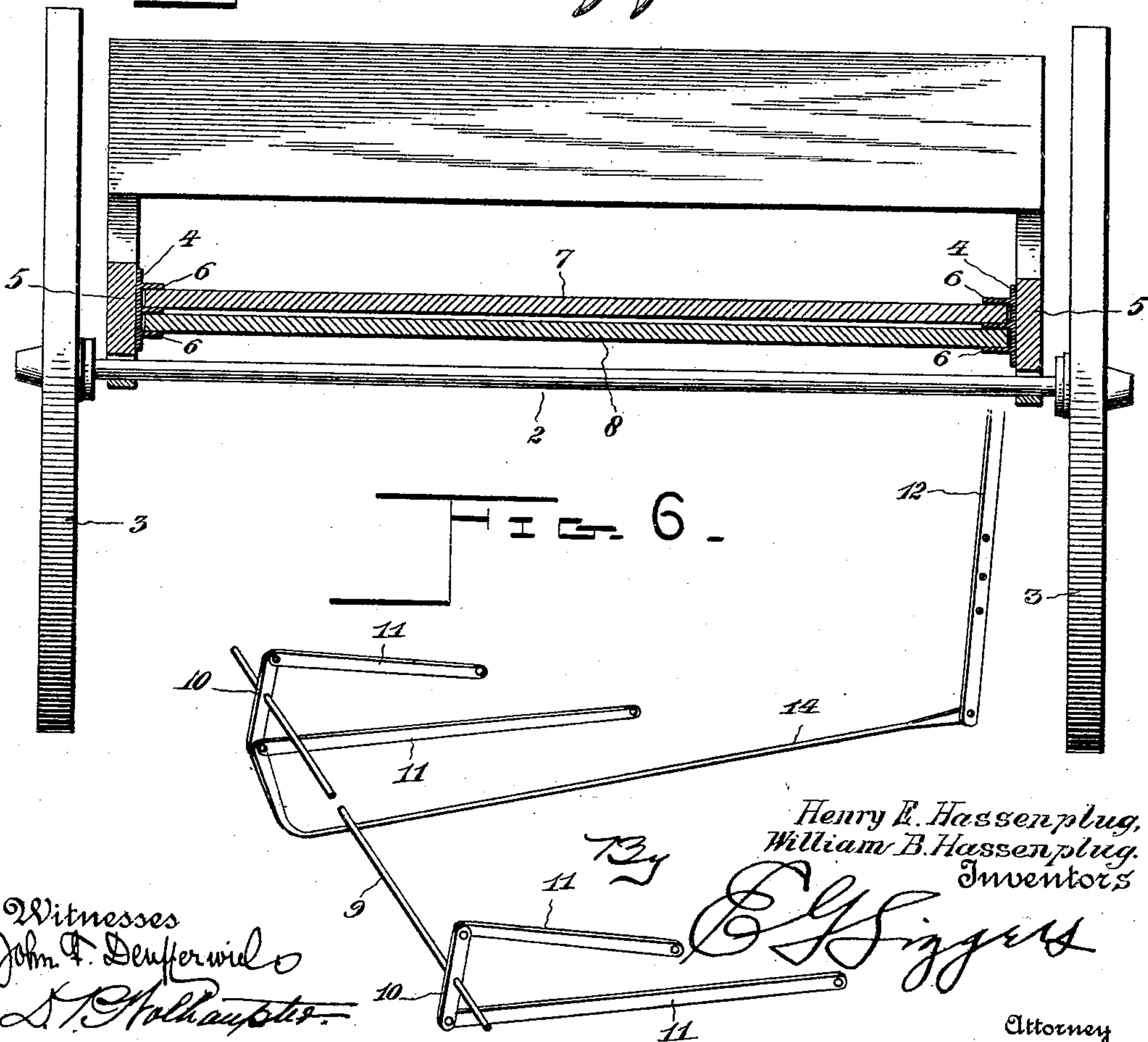
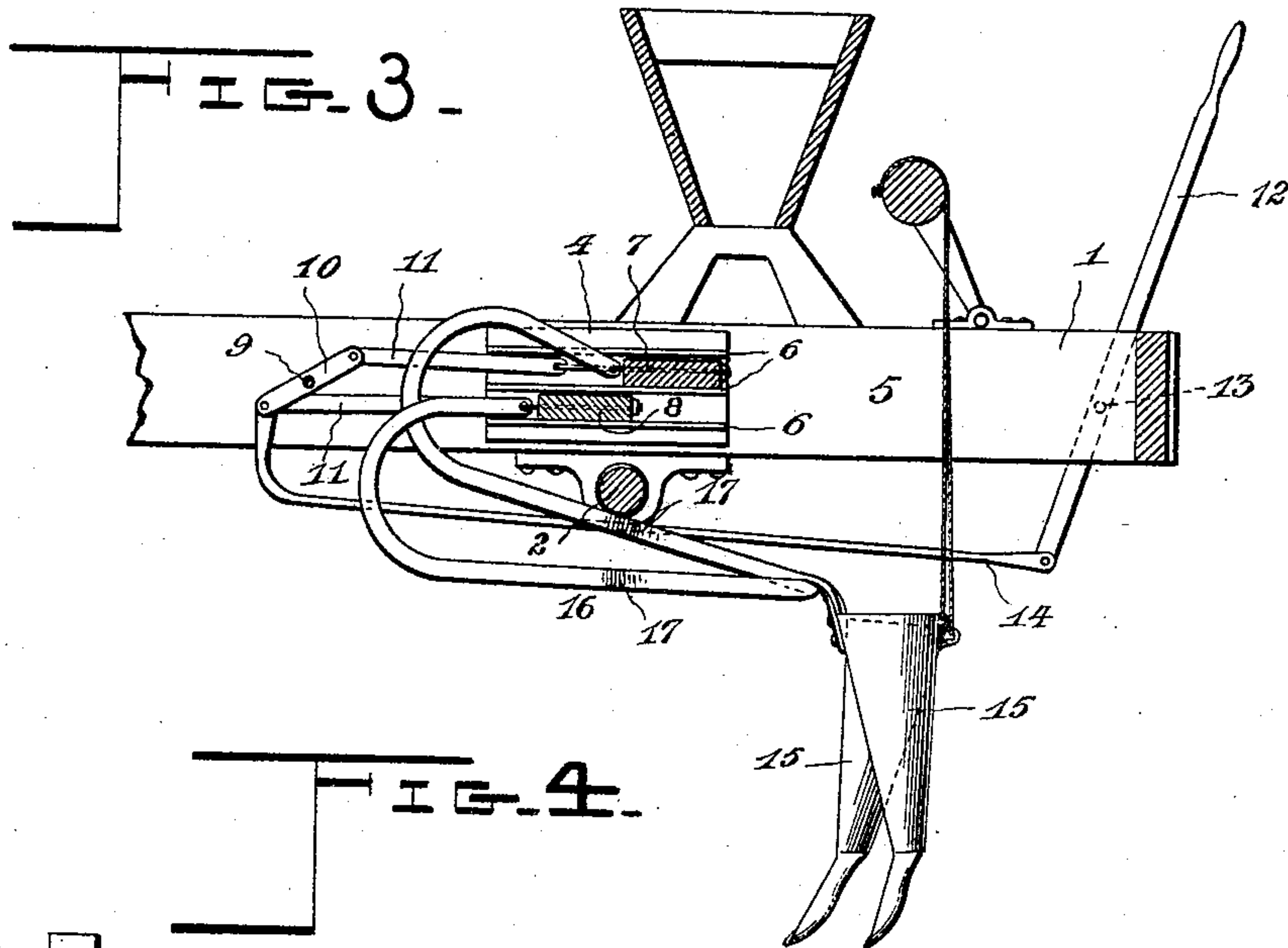
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

HENRY E. HASSENPLUG AND WILLIAM B. HASSENPLUG, OF ROCHESTER,  
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## GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 633,196, dated September 19, 1899.

Application filed June 15, 1899. Serial No. 720,664. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY E. HASSENPLUG and WILLIAM B. HASSENPLUG, citizens of the United States, residing at Rochester, in the county of Fulton and State of Indiana, have invented a new and useful Grain-Drill, of which the following is a specification.

This invention relates to grain-drills; and the invention has for its object to provide simple and efficient means whereby the drill teeth or hoes may be supported at a point immediately adjacent to the axle of the machine, thereby taking the weight from the necks of the draft-animals and at the same time providing means whereby the drill teeth or hoes may be shifted by the operator while on the machine for bringing the drill-teeth into a straight row or into zigzag or staggered relation to each other, according as to whether the machine is to be used for drilling ground which is clean or free from obstructions or operating upon ground which is full of clods and weeds, &c. In connection with means for adjusting the relative positions of the drill-teeth we employ a special form of bracket by means of which each tooth is connected to its respective carrying-beam.

The detailed objects and advantages of the invention will be fully pointed out in the course of the subjoined description.

The invention consists in a grain-drill embodying certain novel features, and the details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims.

In the accompanying drawings, Figure 1 is a perspective view, looking from the front, of a grain-drill constructed in accordance with the present invention. Fig. 2 is a longitudinal section through the machine with the parts adjusted so that the drill-teeth are arranged in a single line or straight row. Fig. 3 is a similar view showing the parts adjusted so that the drill-teeth are arranged in staggered relation. Fig. 4 is a detail transverse section taken adjacent to and in a plane parallel with the machine-axle, showing the manner of mounting the sliding beams which carry the drill-teeth. Fig. 5 is a detail perspective view of one of the brackets and the drill-

tooth connected thereto. Fig. 6 is a detail view of the rock-shaft and the links by which it is connected to the sliding beams.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 designates the machine-frame, which for convenience is shown of rectangular form and mounted at an intermediate point on the machine-axle 2, having the ground or carrying wheels 3 at its ends. The parts above referred to may be of any usual or preferred construction, as they are not essential to the carrying out of the invention hereinafter disclosed.

The present invention contemplates the use, in connection with a machine-frame, of a pair of guides 4, secured to the inner adjacent surfaces of the side bars 5 of the machine-frame at points immediately adjacent to and preferably over the axle 2. Each of said plates extends in a substantially horizontal direction and comprises inwardly-extending parallel flanges 6, arranged at a suitable distance apart to receive between them and to embrace the opposite ends of a pair of relatively-movable sliding beams 7 and 8, 7 designating the upper beam and 8 the lower beam. One of the flanges 6 is interposed between the ends of the beams 7 and 8, while the other or outer flanges extend above and beneath the upper and lower beams, respectively. The channels comprised between said flanges form guides or ways in which the ends of the beams slide in a direction longitudinally of the machine-frame or in the direction of the path of movement of the machine when in operation.

In order to provide for simultaneously shifting the beams in opposite directions, we provide a rock-shaft 9, arranged, preferably, in advance of the axle and suitably journaled in the side bars 5 of the machine-frame. This rock-shaft 9 has fast upon it at or near its opposite ends cross-heads or double cranks 10, and connected pivotally to the opposite ends of such cross-heads are links or bars 11, said links being pivotally connected at their opposite or rear ends with the beams 7 and 8 at or near the front edges of the latter. By this arrangement as the rock-shaft is turned



one of the beams 7 or 8 is drawn forward, while the other is pushed rearward. The shaft 9 is rocked or oscillated by means of a hand-lever 12, fulcrumed at a point 13 intermediate its ends on the machine-frame and having attached pivotally to one extremity a connecting-rod 14, the opposite end of said rod being curved upward and connected pivotally to one end of one of the cross-heads 10, as clearly illustrated in the drawings. The operator while on the machine by grasping and vibrating the hand-lever 12 may thus shift the beams 7 and 8 for a purpose which will presently appear.

The drill teeth, hoes, or points (shown at 15) are rigidly attached at their upper ends to the pendent or lower ends of a series of brackets or hangers 16. Each of said brackets extends forward from its respective tooth and is bifurcated, as shown at 17, to provide a fork consisting of diverging arms 18, which are curved in semicircles and attached at their upper ends to the beams 7 and 8 at or near the forward edges of the latter. The object in bifurcating the brackets is to give a bracing effect thereto and prevent lateral swinging motion of the hoes or teeth. Some of the teeth are connected to one of the beams and the other teeth to the remaining beam, or, in other words, the teeth are alternately connected to their respective beams, so that as the beams are relatively shifted every other tooth will be carried rearward or forward, as the case may be, while the alternate teeth will be shifted in an opposite direction. The curvature of the upper ends of the brackets admits of the free shifting of the carrying-beams without interference, and in addition to this the shape of the brackets enables the teeth to yield in a rearward and upward direction for passing over obstructions and freeing themselves therefrom, thus preventing breakage of the teeth and brackets.

From the foregoing description it will be seen that the teeth are supported at a point immediately adjacent to the axle, thus relieving the necks of the draft-animals of their weight and lightening the draft of the machine. It will also be seen that the teeth may be shifted into alinement with each other or into staggered or zigzag relation to each other and that under all conditions the teeth are free to rise or move upward upon meeting with obstructions. In this manner the machine is adapted for use in drilling clean or unobstructed ground or for operating upon ground filled with clods or weeds or other obstructing matter. It is obvious that the shifting mechanism, &c., may be used on all types of grain-drills and is not limited to use in connection with hoe-drills alone.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described grain-drills will be apparent to those skilled in the art without further description, and it will be understood that changes in the size, shape, propor-

tion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a grain-drill, the combination with the machine-frame, of a pair of sliding beams extending in planes parallel to the axle and arranged one above the other and both directly over the axle, hangers having their upper portions curved to embrace the lower beam and alternately connected to said beams, drill-teeth carried by said hangers, and means for simultaneously shifting said beams in opposite directions, substantially as described.

2. In a grain-drill, the combination with the machine frame, of guides thereon having parallel flanges disconnected at their ends, sliding beams arranged one above the other and having their ends movably and detachably mounted between said flanges, hangers connected alternately to said beams and curved to embrace the lower beam, drill-teeth carried by said hangers, and means for simultaneously shifting said beams in opposite directions, substantially as described.

3. In a grain-drill, the combination with carrying-beams, arranged one above the other and means for simultaneously sliding said beams, of drill-teeth, and interposed hangers each connected at one end to one of said teeth and having its opposite end bifurcated to provide integral divergent arms which are curved in substantially semicircular form and connected pivotally at their extremities to one of said beams, substantially as described.

4. In a grain-drill, the combination with a pair of beams arranged to slide in parallel planes one above the other, of drill-teeth connected in alternate order to said beams by means of hangers, said hangers being curved to pass around the edges of the beams to obviate interference between the beams and hangers, substantially as described.

5. In a grain-drill, the combination with the machine-frame, of a pair of sliding beams extending in planes parallel to the axle and arranged directly over the axle, drill-teeth carried by said beams and alternately connected thereto, an operating-lever fulcrumed on the frame in rear of the axle, a rock-shaft journaled in the frame, cross-heads thereon, links connecting said cross-heads and beams, and a connecting-rod interposed between the operating-lever and one of said cross-heads, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

HENRY E. HASSENPLUG.  
WILLIAM B. HASSENPLUG.

Witnesses:

M. A. BAKER,  
C. B. MOORE.