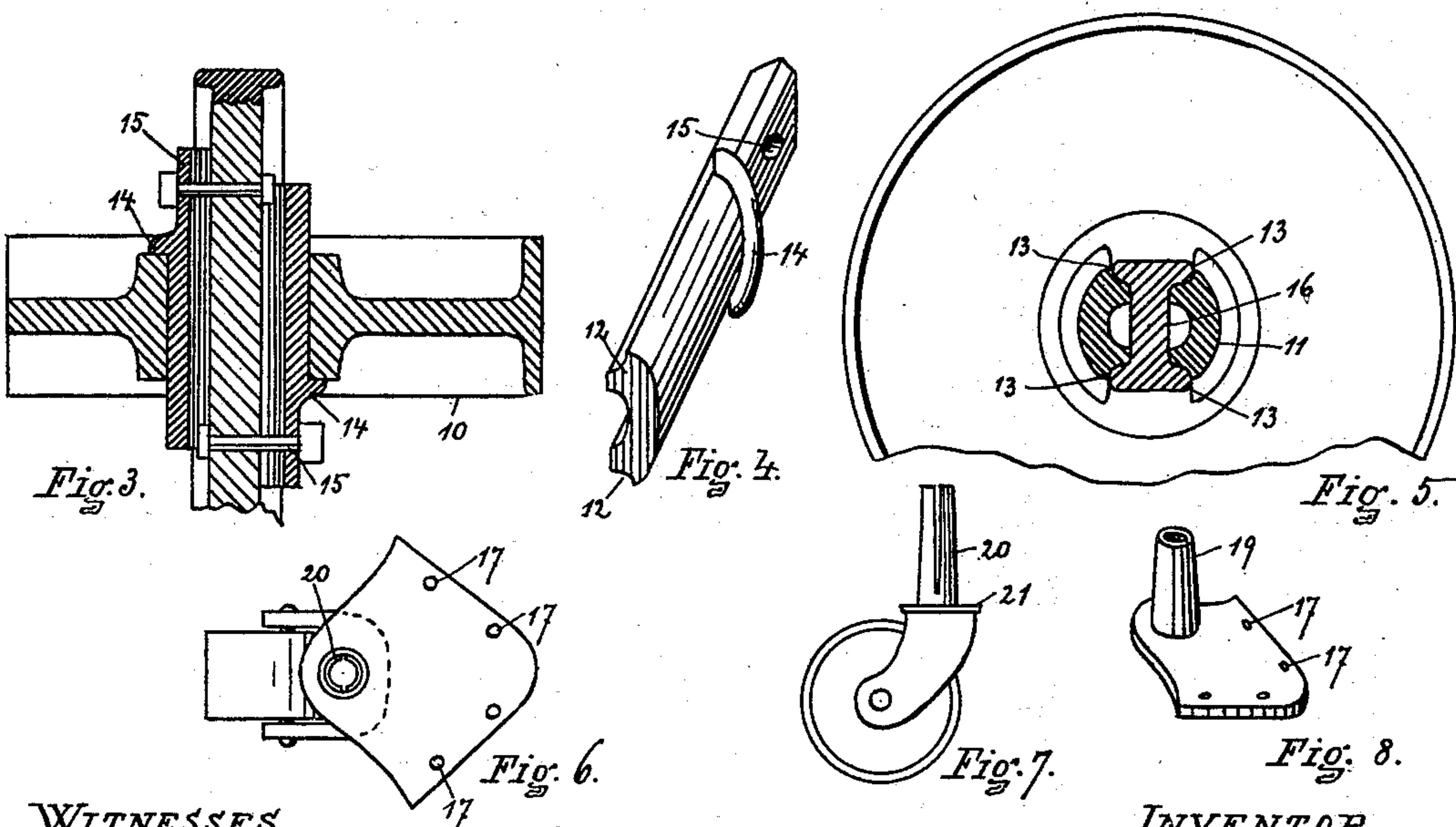
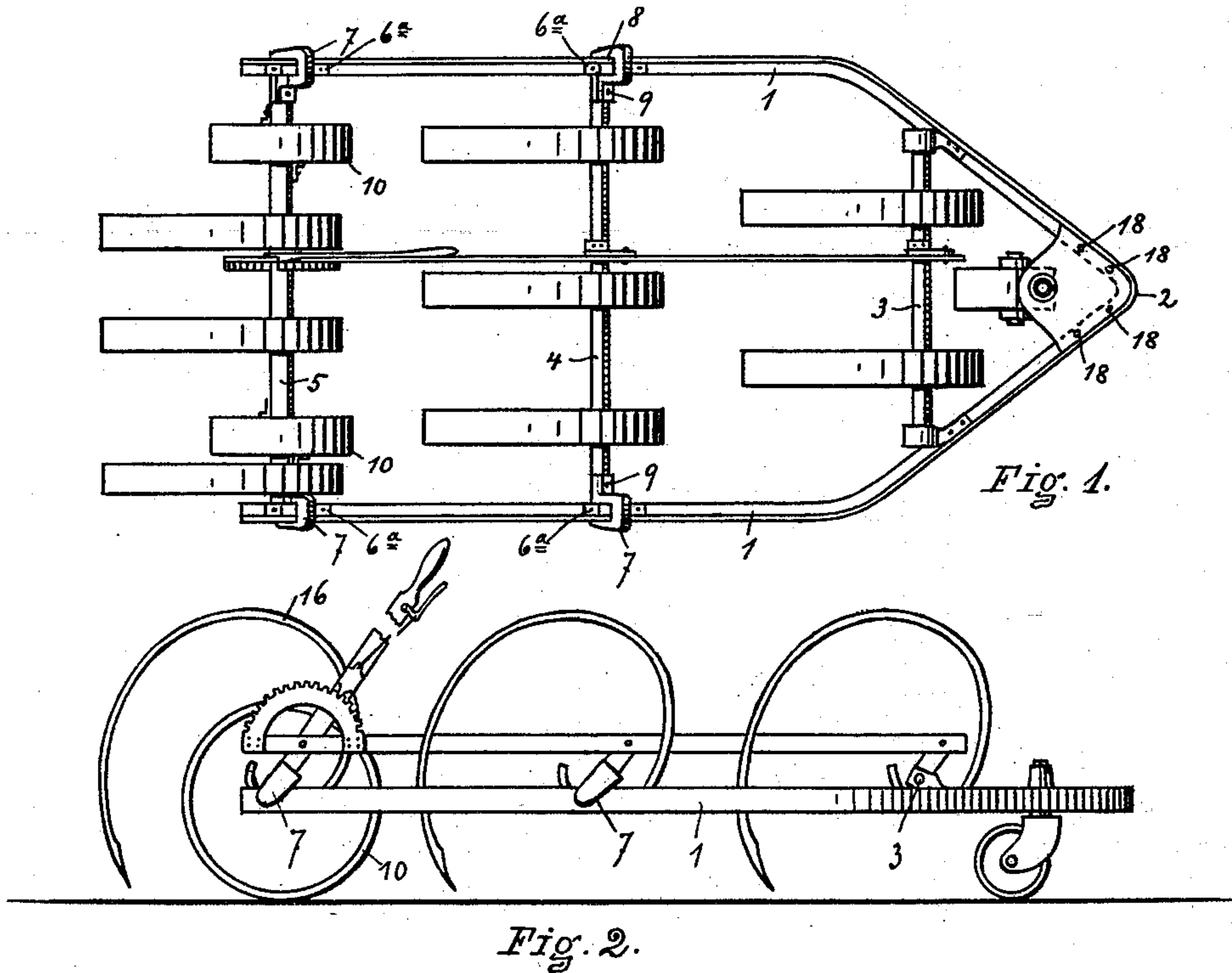


(No Model.)

H. D. BABCOCK.
HARROW.

No. 604,289.

Patented May 17, 1898.



WITNESSES.
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HARROW.

SPECIFICATION forming part of Letters Patent No. 604,289, dated May 17, 1898.

Application filed July 15, 1897. Serial No. 644,740. (No model.)

To all whom it may concern:

Be it known that I, HENRY D. BABCOCK, of the town of Leonardsville, in the county of Madison and State of New York, have invented certain new and useful Improvements in Harrows; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to an improvement in harrows; and it consists in the novelty hereinafter pointed out and claimed.

Figure 1 represents a top view of one section of my improved harrow. Fig. 2 represents a side elevation of the same. Fig. 3 represents a vertical section of a portion of a wheel and the axletree upon which the same is mounted. Fig. 4 represents a perspective view of the portion of a bearing which constitutes a part of the bearing of the wheel. Fig. 5 represents a side elevation of the wheel and the bearing of the wheel shown in cross-section, the broken lines indicating a portion of the wheel removed. Fig. 6 represents a top view of the caster-wheel support. Fig. 7 represents a side elevation of the caster-wheel. Fig. 8 is a perspective view of Fig. 6, the wheel being omitted.

My invention relates to the application of wheels to a curved-spring-tooth harrow; and it consists in the combination of mechanical elements hereinafter described and pointed out, in which similar figures of reference refer to corresponding parts.

I construct my harrow-frame preferably of angle-steel in cross-section with parallel bars 1 1 converging to point 2 at the front. Between these side bars and at right angles from the center line I provide, preferably, three cross-bars 3, 4, and 5, respectively. These bars are preferably made of I-beam steel, as shown at 6 in Fig. 5. These bars are rounded at their ends and fit into sockets secured to the side bars. The I-beam tooth-bars 4 and 5 are held in position by slotted malleable hooks 7, which are provided with a slotted opening 8 for fitting the upper flange of the

angle-iron side bars and are held to the cross-bar by bolts 9, which permit the cross-bars to be partially rotated for gaging the depth of the teeth. This is accomplished by the well-known lever and connecting mechanism. (Not necessary to be shown.) On the rear tooth or cross-bar 5, composed of I-beam steel 6, I mount the wheels 10 10 in such manner that the wheels can rotate on bearings 11 11, one of which is shown in Fig. 4. The outer edges of each section of the bearing are provided with a concave face 12 12, which engages the convex sides of the I-beam, as shown at 13 13, Fig. 5, preventing their vertical movement. On the outer convex side of the bearing I provide rib 14, which bears against the opposite ends of the hubs to keep the wheel from end movement on the bearing. The sectional portions of the bearing are held on the tooth-bar from end thrust by bolts passing through bolt-holes 15 15, this forming compact mechanical appliances for holding the wheels on the rear beam, so that they will run parallel to the side bars and support the rear of the harrow-frame from contact with the ground.

In the construction illustrated I have shown what is commonly known as a "spring-tooth" harrow, the teeth 16 being made of spring-steel, secured to the turnable bar, operated by the common device of lever well known and therefore not thought necessary to describe, by means of which the working points of the teeth can be elevated and depressed and at the same time carry the rear of the harrow-frame from the ground by means of wheels mounted on the rear bar, running substantially at right angles to the tooth-bar. At the front angle of each section of the harrow-frame I provide a caster-wheel support consisting of a plate and socket formed in one piece, as shown in Fig. 8, the plate being provided with bolt-holes 17. The plate fitting into the angle in the front of the harrow-frame is held thereto by bolts and nuts 18 18. The socket 19, projecting upward, receives the stem 20 on caster 7, (shown in the drawings,) provided with shoulders 21, which rest on the under side of the plate, forming a caster-support, so that when the harrow is moved from side to side at its front the caster-wheel is free

to be moved into line with the draft. By means of the wheels the frame of the harrow is always kept out of frictional contact with the ground.

5 By mounting the wheels on the rear tooth-bar the rear of the harrow is always carried in the same relative plane.

What I claim as new, and desire to secure by Letters Patent, is—

10 1. In a spring-tooth harrow having side or draft bars with tooth-bars running substantially at right angles to the line of draft, and wheels mounted on the rear bar of the harrow and running parallel with the teeth,
15 whereby the rear of the harrow is carried in a given horizontal plane, substantially as set forth.

2. The combination with the rear bar of a spring-tooth harrow and the wheel mounted
20 thereon, by means of which the rear of the harrow is always carried in a given horizontal plane for the purposes stated, substantially as set forth.

3. In a lever spring-tooth harrow, the combination with the rear tooth-bar located substantially at right angles to the line of draft, a wheel-bearing box mounted on the rear tooth-bar and a wheel running thereon, substantially in the direction of the line of draft, whereby the rear of the harrow is carried
25 30 in a given horizontal plane for the purposes stated.

4. In a lever spring-tooth harrow, the combination therewith of the rear tooth-bar of I-beam steel located substantially at right angles to the line of draft, a wheel-bearing box having a shoulder surrounding the rear tooth-bar and a wheel mounted thereon to run in the direction of the line of draft for the purposes stated.
35 40

In witness whereof I have affixed my signature in presence of two witnesses.

HENRY D. BABCOCK.

Witnesses:

PHEBE A. TANNER,
E. N. JONES.