I. SHUPE.

HARROW.

No. 187,919. Patented Feb. 27, 1877.

Fig. 1.

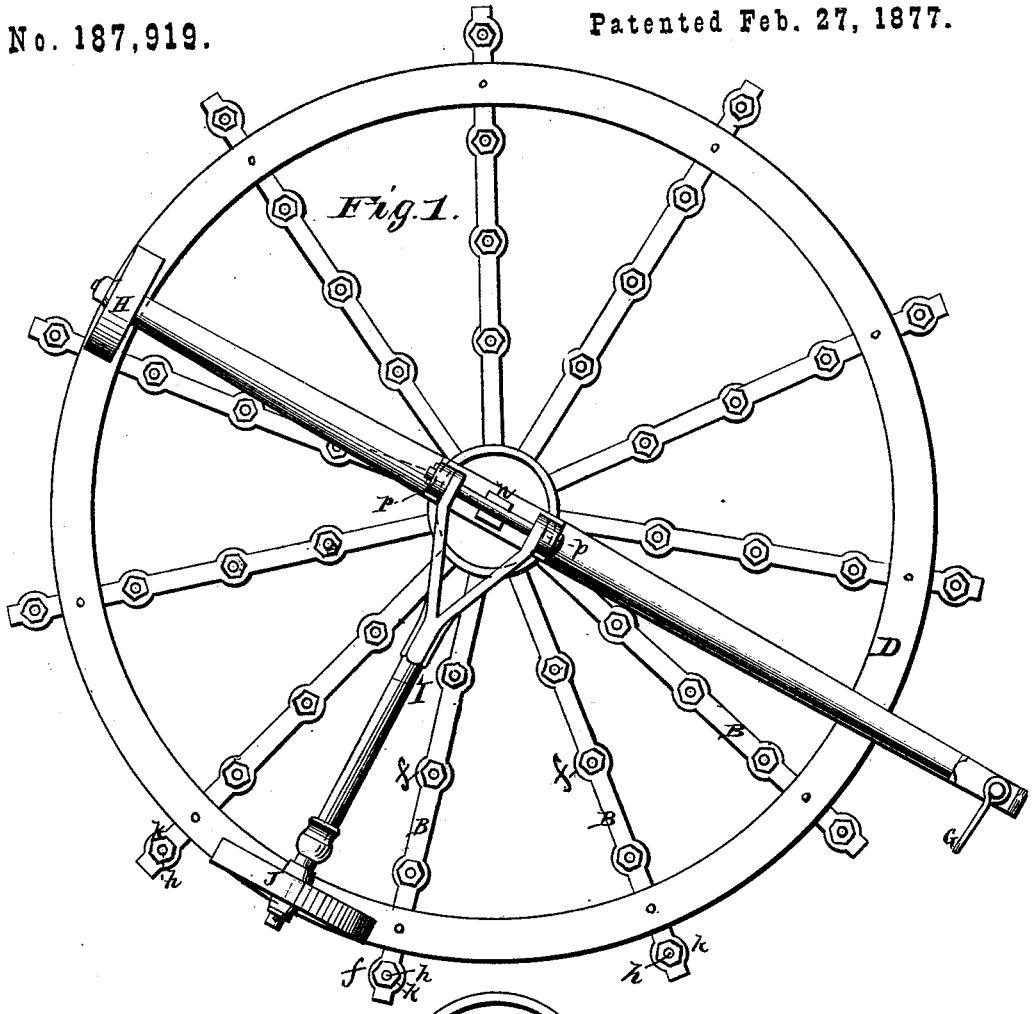


Fig. 2.

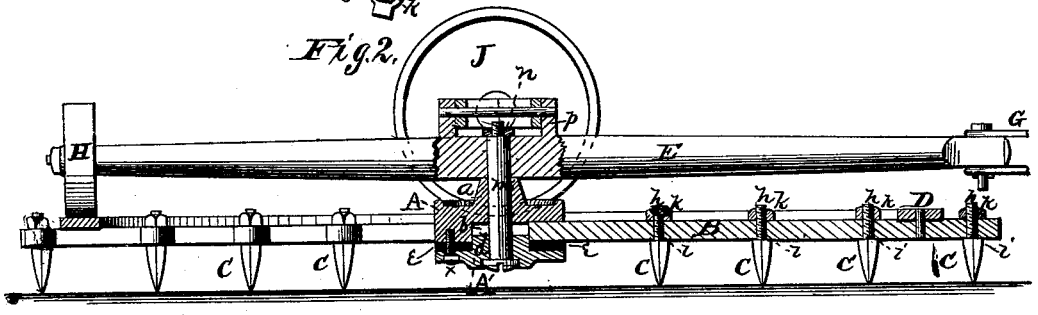
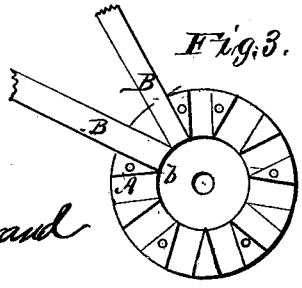


Fig. 3.



WITNESSES

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IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **187,919**, dated February 27, 1877; application filed February 1, 1877.

To all whom it may concern:

Be it known that I, ISAAC SHUPE, of New Market, in the county of York, and in the Province of Ontario, Canada, have invented certain new and useful Improvements in Harrows; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a revolving harrow, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, refering to the annexed drawing, in which—

Figure 1 is a plan view of my harrow. Fig. 2 is a central vertical section of the same. Fig. 3 is a detached view of a part of the hub.

The harrow proper is composed of a central hub with a series of radial arms, in which the teeth are fastened, and upon which an annular track is secured, all the parts being made of iron, or other suitable metal. The hub is made of two parts, A and A′, the upper part, A, having a hollow central projection, *a*, extending upward for a suitable distance, and in the under side of said part A is made a circular recess, *b*, concentric with the hole in the hub. In the metal between this recess and the outer circumference of this part A are made a number of equidistant radial grooves, to receive the inner ends of the radial arms B B, placed therein. The part A′ of the hub consists simply of a metal disk of the same diameter as the part A, and is provided on its upper side with a central circular projection, *d*, to fit in the recess *b*, and to have the inner ends of the arms B abut against the same. Suitable packing *e* is placed on top of the disk A′ around the projection *d*, and the disk fastened to the main part A of the hub by a series of screws or bolts, *x x*.

The radial arms B B are each at suitable intervals formed with swells or enlargements *f f*, in each of which a tooth, C, is fastened. These teeth are made of suitable form and size, and have each a screw, *h*, formed at its upper end, and at the base of this screw the tooth forms a surrounding shoulder, *i*. When the screw *h* is passed upward through the swell *f* of the arm, the shoulder *i* bears against the under side of the arm, and a nut, *k*, being screwed down tightly upon the upper end, the tooth becomes firmly and rigidly fastened to the arm, and can yet be easily and quickly removed in case of breakage, and another substituted. On top of the radial arms B is secured an annular metal track, D, arranged concentric with the hub, which track holds the arms firmly in their proper places.

Through the center of the hub A A′, from the bottom upward, is passed a bolt, *m*, forming the pivot around which the harrow revolves. The upper end of this bolt passes through the draft-bar E, and is fastened by a nut, *n*, as shown. At the front end of the draft-bar E is attached the clevis G, to which the team is to be hitched, and on the rear end of said bar is mounted a wheel, H, to run upon the track D. On top of the draft-bar E, at equal distances from the center-pivot *m*, are two ears, *p p*, to which is pivoted a forked arm, I, having upon its outer end a wheel, J, to run upon the track D. The arm I, with its wheel J, may be thrown to either side of the draft-bar for the purpose of making the harrow rotate either to the right or left, as may be desired.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a revolving harrow, the hub composed of the main part A, having bottom recess *b*, and radial grooves, as described, and the disk A′, having top projection *d* to fit in said recess, substantially as and for the purposes herein set forth.

2. The combination, in a revolving harrow, of the metallic hub A A′, the metallic radial arms B, having swells *f*, the teeth C, and the annular metallic track D, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of February, 1877.

ISAAC SHUPE.

Witnesses:
FRANK GALT,
J. R. SPRING.