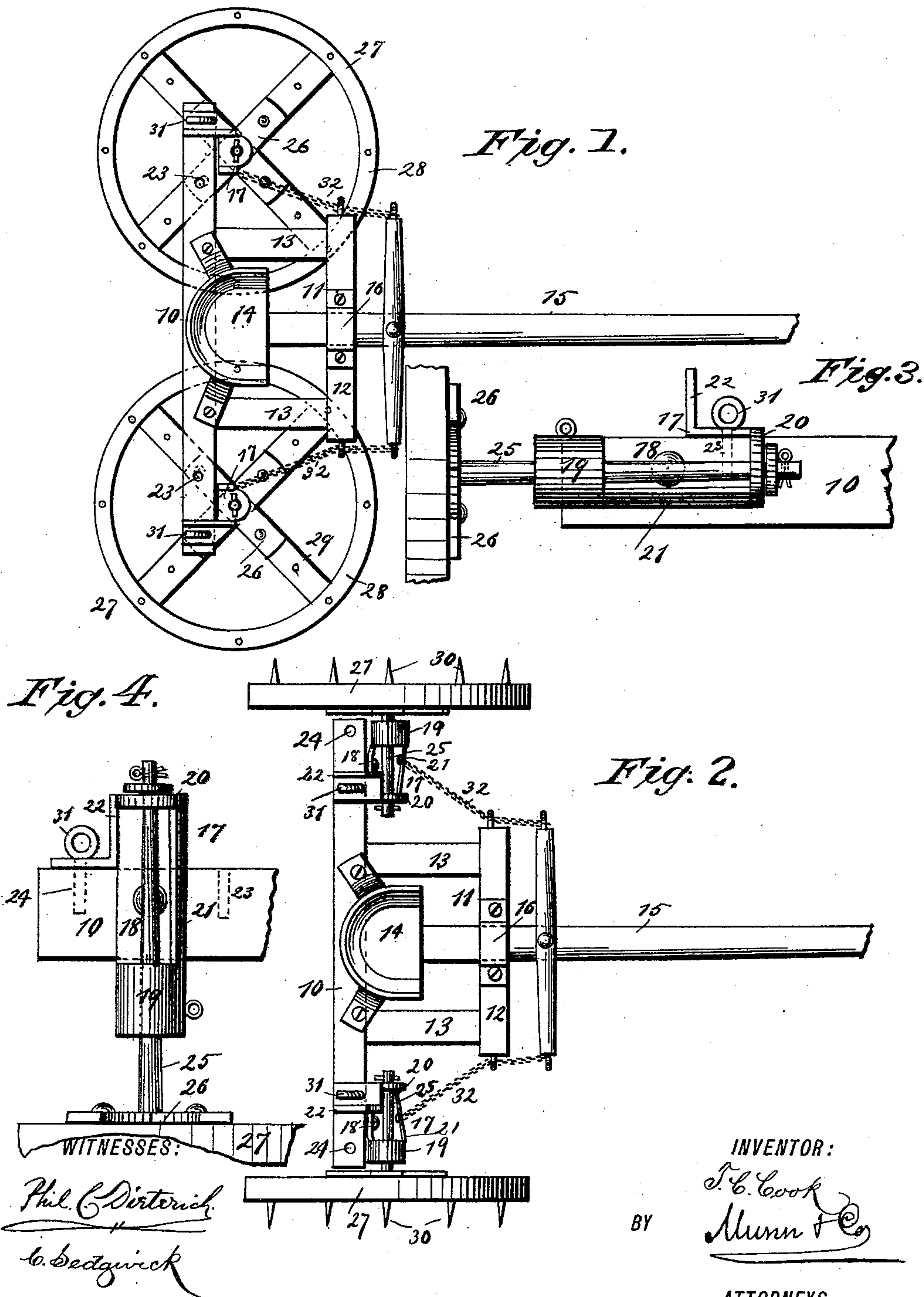


(No Model.)

T. C. COOK.
ROTARY HARROW.

No. 390,004.

Patented Sept. 25, 1888.



UNITED STATES PATENT OFFICE.

THOMAS C. COOK, OF RUSHVILLE, INDIANA.

ROTARY HARROW.

SPECIFICATION forming part of Letters Patent No. 390,004, dated September 25, 1888.

Application filed June 18, 1888. Serial No. 277,474. (No model.)

To all whom it may concern:

Be it known that I, THOMAS C. COOK, of Rushville, in the county of Rush and State of Indiana, have invented a new and Improved Rotary Harrow, of which the following is a full, clear, and exact description.

My invention relates to an improvement in rotary harrows, and has for its object to provide a harrow of simple, economical, and effective construction which may be conveniently and expeditiously converted from a harrow into a cart, or vice versa, whereby the harrow may be readily transported from place to place and carry any load to and from the field.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the implement when used as a harrow. Fig. 2 is a similar view of the implement when used in the capacity of a cart. Fig. 3 is an enlarged view of the axle and the convertible hub in position for use as a cart; and Fig. 4 is a similar view, the axle and hub being illustrated as in vertical position for use as a harrow.

In carrying out the invention a horizontal reach, 10, is provided, consisting, preferably, of a suitable piece of timber, to which reach a frame, 11, is secured, which frame consists of a front bar, 12, and parallel side bars, 13, the said side bars being attached in any suitable or approved manner to the forward edge of the reach, at each side of the center thereof, as best illustrated in Figs. 1 and 2. Upon the upper face of the reach 10 a seat, 14, is supported, which seat is adapted to extend partially over the frame 11.

A shaft, 15, is made to pass through a yoke, 16, secured at or about the center upon the upper face of the front bar, 12, of the said frame 11, which shaft at its rear end is attached in any desired or suitable manner to the front face of the reach 10. The shaft 15 is ordinarily secured to the reach 10 through the medium of a horizontal essentially U-shaped plate, the extremity of the shaft being entered

between the members of the plate and secured by a bolt passing transversely through said plate and shaft. The hub 17 is ordinarily constructed of malleable or cast iron, consisting of a plate, 18, preferably rectangular, provided at one end with an integral or attached cylindrical projection, 19, extending outward from the plate at right angles, as best shown in Figs. 3 and 4. The said cylindrical projection 19 is provided with a central bore, in which the axle is journaled. At the opposite end of the plate a second cylindrical projection, 20, is produced, aligning the projection 19 at the opposite end, which latter projection 20 is also provided with a central bore to accommodate the inner end of the axle.

The back of the plate 18 is flat, and the lower edge of the said plate is provided with a flange, 21, which flange ordinarily is made to taper inward from the outer projection, 19, in direction of the opposite projection, 20. The plate 18 is further provided at the inner end and top with an L-shaped or right-angular stop-plate, 22, in the several members of which plate aligning apertures are formed, which apertures are adapted, when the hub is manipulated, to register, respectively, with apertures 23 and 24, produced in the reach 10, as best illustrated in Figs. 1 and 2.

The hubs 17 are pivoted in any suitable manner to the front face of the reach—one hub at each end—in such manner as that when the hub is held in a horizontal position or parallel with the reach the cylindrical projections 19 will be located at the extremity of the said reach or projected slightly beyond the same, as best illustrated in Figs. 2 and 3. The axle 25, as aforesaid, is journaled in the cylindrical projections 19 and 20, being provided upon the inner end with a suitable washer and linchpin. On the outer extremity of the axle 25 a spider, 26, is secured, having arms, preferably four in number, which arms extend outward at right angles to the axle, as best illustrated in Figs. 3 and 4. The harrows 27 consist of a ring, 28, braced by two diametrical bars, 29, which, crossing one another centrally, are rabbeted to form a mortise connection with the spider, and are secured in any approved manner at their extremities to the inner face of the ring. From the ring, and also from the bars, a series of

teeth are projected downward, which teeth may be secured to the harrow-frame in any suitable or approved manner.

5 The harrows are attached to the axle through the medium of the bars 29, which are bolted to the spider 26, which is secured to the axle.

10 In operation, when the implement is to be driven to or from the field, the harrows are brought to a vertical position, whereupon the aperture in one member of the angle stop-plate 22 will register with the inner aperture, 23, of the reach, as illustrated in Figs. 2 and 3, and the axle is held in a horizontal position by a pin, 31, passed through the aperture in the said angle stop plate and through the said aperture 15 23 of the reach. The teeth now project outward from the harrow-frame and in no manner interfere with the perfect revolution thereof.

20 When the harrows are located as above described, the frame may be loaded with any desirable material to be conveyed to the field or from the same. Arriving at the field, to place the harrows in position to act as such the pin 31 is withdrawn and the harrows carried down to a horizontal position, the teeth in contact 25 with the ground. The stop-plate 22 is thus reversed and the axle made to assume a vertical position, and the pin 31 is passed through the aperture in the angle stop-plate and through the aperture 24 of the reach located 30 at the extremity. This position of the axle and harrows is best illustrated in Figs. 1 and

4. To equalize the draft, a chain, 32, is preferably secured to the flange 21 of the hub 17, at one end, and to the whiffletree at the opposite end. 35

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

1. The combination, with a harrow-frame 40 having a cross-bar or reach provided at its ends with an inner and an outer vertical aperture, of the hubs pivoted to the ends of the said cross-bar or reach to swing vertically thereon, and having an angular stop-plate at 45 its inner end, the arms of which are apertured and adapted to rest against the cross-piece or reach, respectively, when the hub is vertical or horizontal, pins or bolts to pass through the apertures in the stop-plate into the reach-ap- 50 ertures and secure the said flanges in position, and the short axles journaled in said hubs and carrying circular harrows, substantially as set forth.

2. In a rotary harrow, the apertured plate 55 18, provided with projections 19 20, having aligned axle-bores, and the L-shaped stop-plate 22, having an aperture in each arm, substantially as set forth.

THOMAS C. COOK.

Witnesses:

ALFRED B. FLINN,
CYRUS F. MULLIN.