(No Model.) 2 Sheets—Sheet 1.

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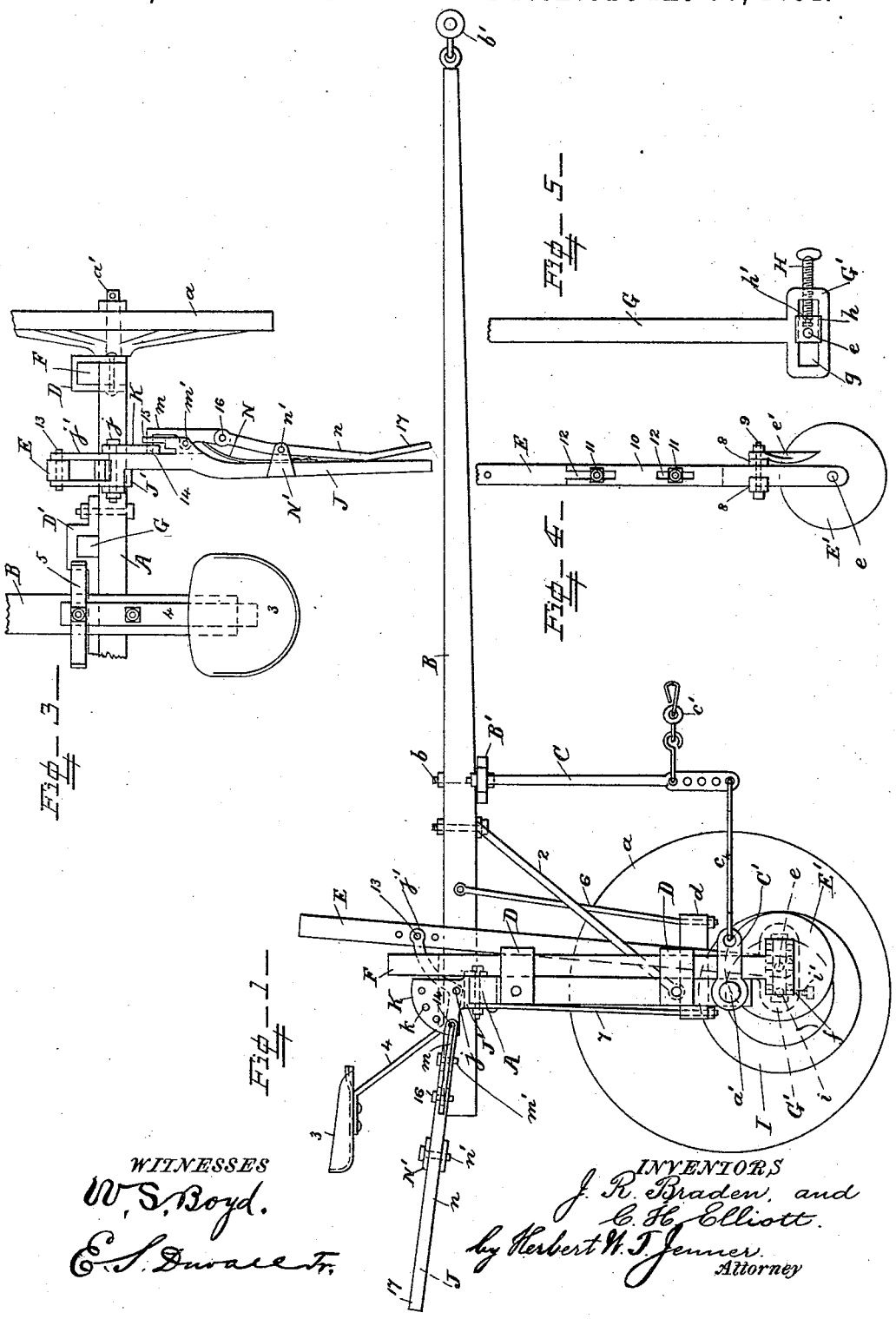
WHEEL HARROW

No. 454,843. Patented June 30, 1891.



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(No Model.) 2 Sheets—Sheet 2.

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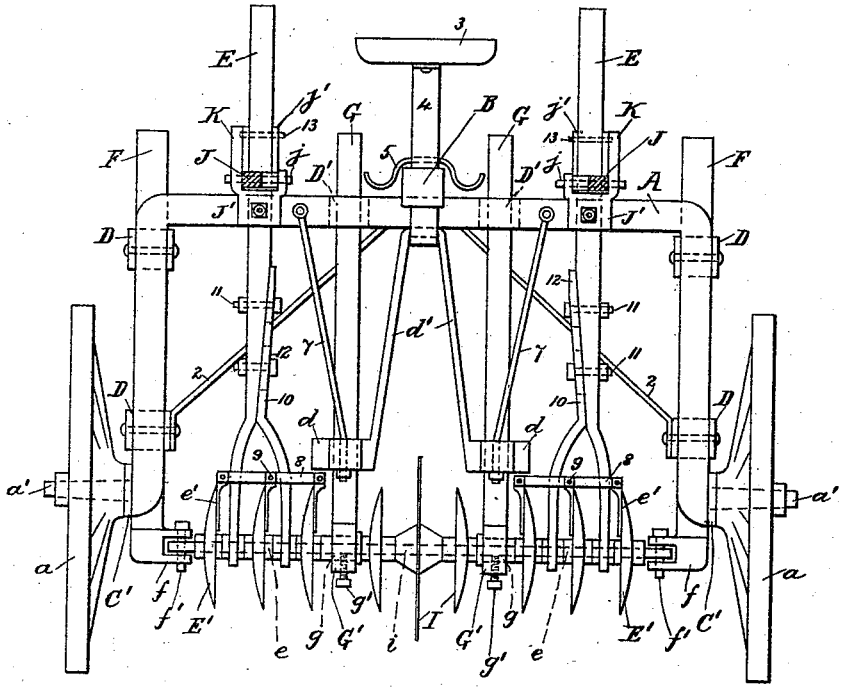
Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN R. BRADEN AND CHARLES H. ELLIOTT, OF BELMOND, IOWA.

WHEEL-HARROW.

SPECIFICATION forming part of Letters Patent No. 454,843, dated June 30, 1891.

Application filed December 5, 1890. Serial No. 373,663. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. BRADEN and CHARLES H. ELLIOTT, citizens of the United States, residing at Belmond, in the county of Wright and State of Iowa, have invented certain new and useful Improvements in Wheel-Harrows; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to wheel-harrows; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the machine with one of the wheels removed. Fig. 2 is a rear view of the machine, showing the hand-levers in section. Fig. 3 is a plan view from above of one of the hand-levers, showing also a portion of the machine. Fig. 4 is a detail side view of one of the lifting-bars. Fig. 5 is a detail side view showing a modification in the construction of one of the guide-bars.

A is the frame consisting of an arched bar, and *a* are the ground-wheels journaled on the axles *a'* on the ends of the frame.

B is the pole secured to the frame A, and B' is the doubletree pivoted to the pole by the pin *b*. A singletree *b'* is attached to the front end of the pole in the usual manner.

C are vertical bars depending from the ends of the doubletree B', and *c* are links pivoted to the lower ends of the bars C and to the ends of the arms C', which are journaled on the axles *a'*.

Singletrees *c'* are attached to the lower part of the bars C, and the animals are harnessed to the singletrees *b'* and *c'* in the usual manner. The strains are distributed over the whole of the frame by this arrangement, and the singletrees *c'* may be attached to the bars C at any height above the ground found to be most convenient. The pole is further secured to the frame by the diagonal brace-rods 2.

The seat 3 for the driver is secured to the rear end of the pole by the bar 4, and 5 is the foot-rest for the feet of the driver.

D are guides secured to the vertical ends of the frame A. D' are guides secured to the middle portion of the said frame, and *d* are guide-blocks secured to the frame A under the guides D' by means of the arc-shaped central bracket *d'* and the brace-rods 6 and 7.

A lifting-bar E is provided at each side of the machine, and *e* is a shaft carried by the forked lower end of the said lifting-bar.

E' are the concavo-convex harrow-disks journaled upon the shaft *e*, and *e'* are the scrapers adjustably secured to the lifting-bar by the clamp-plates 8 and the bolt 9. In order that the angularity of the shaft may be varied in a vertical plane, the forked end of the bar E is made in two parts, and one part 10 is adjustably secured to the other part by the bolts 11, which pass through the vertical slots 12 in the part 10.

F is the outer guide-bar, which slides in the guides D, and G is the inner guide-bar, which slides in the guide D' and guide-block *d*. One end of the shaft *e* is pivotally secured to the lower slotted end *f* of the guide-bar F by means of the pin *f'*, and the other end of the shaft *e* is secured in the slot *g* of the lower end G' of the guide-bar G by means of the pin *g'*. The horizontal slots in the ends of the bars F and G permit the angularity of the shaft to be adjusted in a horizontal plane, and a series of holes is provided in each end *f* and G' for the pins to be dropped into. The angularity of the shaft *e* may also be adjusted, as shown in Fig. 5, by means of a screw H, engaging with the end G' and having its end inside the slot *g* connected to a sliding block *h*, in which the shaft *e* is loosely journaled. The screw H is connected to the block by means of the pin *h'*, which engages a circumferential groove in the end of the screw inside the block.

When used in the cultivation of corn, the harrow-disks E' alone are used, and the central space between them and under the arch-shaped bracket *d'* enables the machine to operate upon both sides of a row of corn. When used as a general harrow, the disks E' are moved forward, and a central shaft *i* is secured in the ends of the slots *g* by the pins *i'*. I are disks which are journaled upon the said shaft *i*.

Each lifting-bar E is raised or lowered by means of a hand-lever J. This hand-lever is pivoted on the pin *j*, which passes through the bracket J', which is secured to the frame

A. The hand-lever is provided with a forked end j', which is pivoted to the bar E by the pin 13.

K is a quadrant-plate secured to the bracket J′ and provided with a series of holes k.

A catch m is pivoted to the hand-lever J by means of the pin m', and 14 is a pin on the end of the catch, which passes through a hole in the guide-lug 15 on the hand-lever and engages with the holes in the quadrant-plate.

N is the spring secured to the hand-lever and normally holding the catch in gear with the lever. A disengaging-lever n is pivoted to the lugs N′ on the hand-lever by means of the pin n' and to the end of the catch by the pin 16. The end of the disengaging-lever is provided with an inclined portion 17, and the catch is disengaged from the plate by forcing the said portion 17 away from the hand-lever, which may then be operated to raise or lower the disks to any desired position.

A series of holes is provided in the lifting-bar E for the pin 13 to engage with, so that a considerable range of adjustment is provided.

What we claim is—

1. In a wheel-harrow, the combination, with the disks and the shaft supporting the disks, of a vertically-adjustable lifting-bar provided with a forked lower end for supporting the said shaft, said forked end being formed of two separate parts bolted together and one of the said parts being provided with vertical slots, whereby the angularity of the said shaft may be adjusted in a vertical plane, substantially as set forth.

2. In a wheel-harrow, the combination, with the arch-shaped frame, of the guides D, the guides D′, the guide-blocks d, the central bracket and the brace-rods for securing the said blocks to the frame, the guide-bars F, the guide-bars G, provided with slots g, the vertically-adjustable lifting-bars, the shafts supported by the said lifting-bars and having their ends secured to the said guide-bars F and G, the disks on the said shafts, and the removable central shaft i, provided with disks and supported in the said slots g of the guide-bars G, substantially as and for the purpose set forth.

3. In a wheel-harrow, the combination, with a vertically-adjustable lifting-bar, of a shaft supported by the lifting-bar, the disks journaled on the said shaft, the guide-bars F and G, sliding in guides secured to the frame and provided with slotted lower ends for supporting the ends of the said shaft, and means, such as pins, for holding the ends of the shaft in the slots, whereby the angularity of the said shaft may be adjusted in a horizontal direction, substantially as set forth.

4. In a wheel-harrow, the combination, with the guide-bar F, of the disk-shaft pivoted at one end to the said guide-bar, the guide-bar G, provided with the horizontal slot g, the block supporting the other end of the said shaft and sliding in the said slot, and the adjusting-screw engaging with one end of the guide-bar G and operatively connected with the said block for moving the block in said slot, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN R. BRADEN.
CHARLES H. ELLIOTT.

Witnesses:
W. M. KAENE,
L. J. DALRYMPLE.