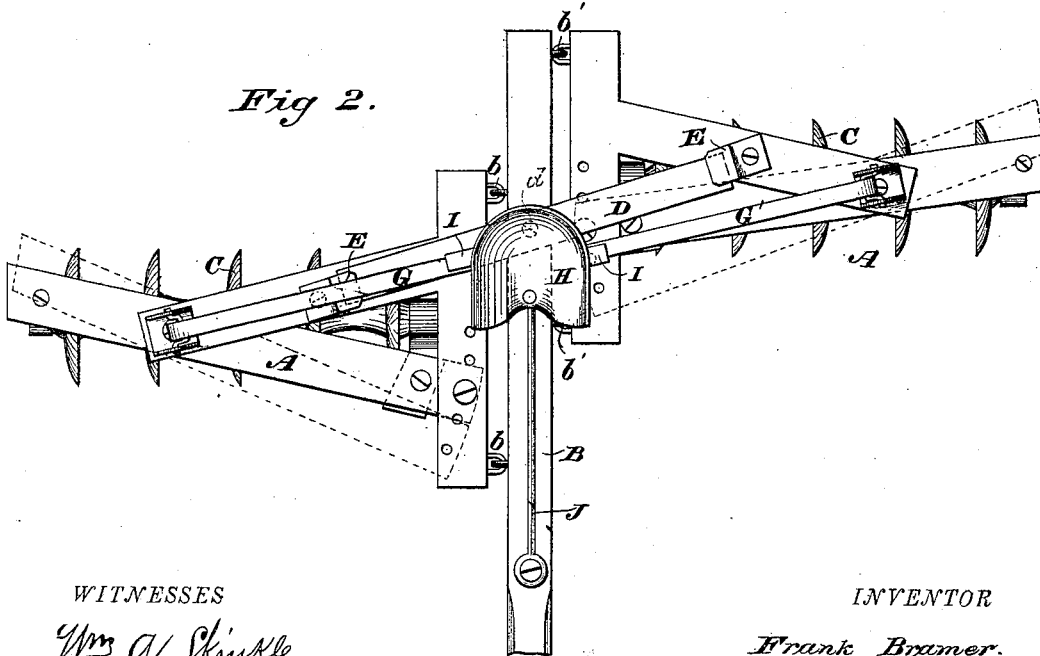
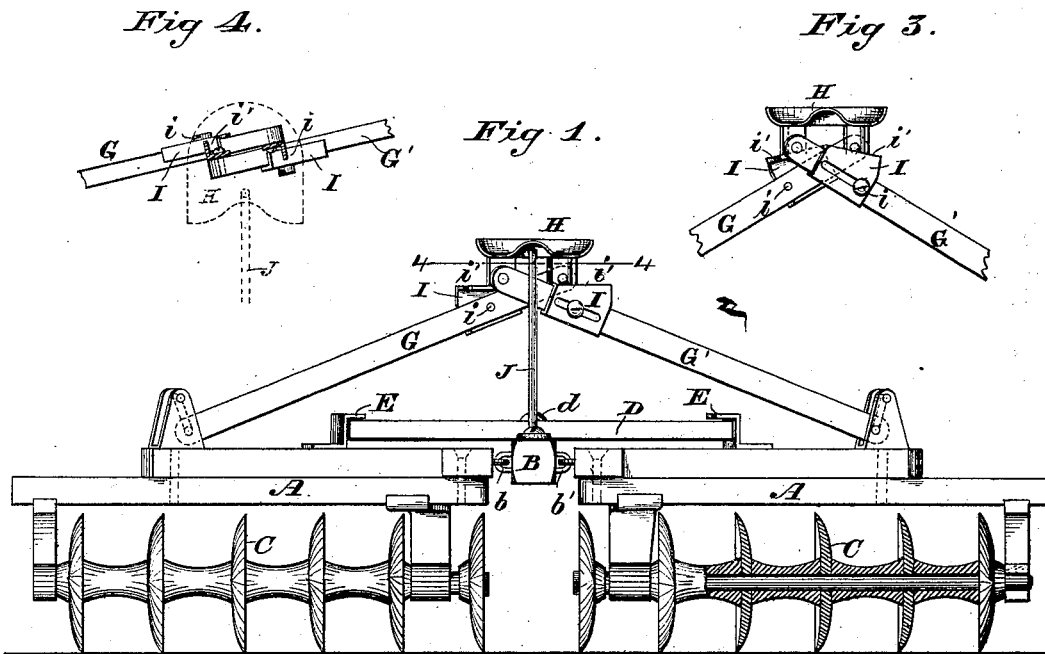


F. BRAMER.
Wheel-Harrow.

No. 205,608.

Patented July 2, 1878.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK BRAMER, OF LITTLE FALLS, NEW YORK.

IMPROVEMENT IN WHEEL-HARROWS.

Specification forming part of Letters Patent No. **205,608**, dated July 2, 1878; application filed May 23, 1878.

To all whom it may concern:

Be it known that I, FRANK BRAMER, of Little Falls, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Wheel-Harrows, of which the following is a specification:

My invention relates to that class of wheel-harrows having gangs of disks hinged or adjustably connected to an intermediate tongue, draft-frame, or connection, whereby the wheel or disk gangs are free to conform to the undulations of the surface over which they travel.

In some instances it is desirable that such disk-frames and tongue or draft connection should be rigidly connected together, or, in other words, that the harrow be converted from one in which the wheel-gangs have freedom of movement relatively to each other and to the tongue or draft connection into a machine in which the freedom of movement of the wheel-gangs relatively to the tongue or draft connection, and consequently their capacity of independently conforming to the undulations of the surface over which they travel when in use, will be prevented.

The object of the first part of my invention is so to organize the parts of a wheel-harrow as to render it capable of being readily converted as above set forth, which ends I attain by providing a stiffening-bar or brace running across the hinges, joints, or points of connection or of vibration of the gang-frames or braces with the intermediate tongue or draft connections.

The next part of my invention relates to the organization of the gang-frames relatively to the tongue or draft frame; its object being to obtain a compact arrangement of parts, a strong support for the gang-frames against transverse strain, and a better arrangement of the respective gang-frames relatively to each other and to the draft-frame, which ends I attain by hinging or connecting the gang-frames of a wheel-harrow, one in advance of the other, to an intermediate tongue or draft frame.

The next part of my invention relates to the straddling seat-support of a wheel-harrow, or to one in which the weight of the driver is thrown upon the gangs to hold them down to their work. Its object is to improve

this support, render it capable of varying inclination, and provide means for adjusting the seat, which ends I attain in the manner hereinafter specifically set forth.

The subject-matter claimed is hereinafter specifically stated.

In the accompanying drawings, Figure 1 is a front elevation of a wheel-harrow embodying my improvements in the best way now known to me; Fig. 2, a plan or top view thereof; Fig. 3, a view, in elevation, of the seat-adjusting devices and inner ends of the straddling support or bars in a different position from that shown in Fig. 2; and Fig. 4, a section thereof on the line 4 4 of Fig. 1.

The harrow represented in the accompanying drawings resembles in some respects that shown in Letters Patent of the United States granted to myself and Orrin W. Badger, jointly, as No. 174,767, March 14, 1876, reissued February 12, 1878, as No. 8,080, upon which my present invention is based and constitutes an improvement; consequently the details of the machine will not be specifically described herein, except where they differ from the construction shown in that patent. My improvements, however, are also applicable to other forms of harrows having wheel-gangs so connected as to be free to conform to the undulations of the surface over which they travel.

The gang-frames A A' are shown as of symmetrical shape, and are connected with an intermediate tongue or draft frame, B, by hinges, pivots, or joints *b b'*, of any suitable form to permit the gangs to vibrate freely to conform to undulations in the ground over which they are moving, each irrespective of the other.

The gang-frames are each hinged, jointed, or connected at two points to the intermediate frame, whereby the gangs are strongly braced against transverse strains, without interfering with their freedom of movement; but instead of hinging the gangs directly opposite each other, or in the same transverse line, as heretofore, they are hinged or jointed one preferably half-way in advance of the other, as shown in Fig. 2, the rear pivot or hinge of the leading gang coming about opposite the center of the opposite gang-frame, whereby I obtain a better arrangement of the gangs, and experience has demonstrated a

better harrow, than when the gangs are pivoted opposite each other, or connected in the same transverse line, or substantially so.

The harrow wheels or disks C are of the usual or of any preferred construction, and are mounted in gangs upon their respective shafts or axles, as usual.

In order to convert the harrow into a machine in which the wheel-gangs and tongue or draft frame will have no freedom of movement independently or irrespective of each other when in use, I employ a stiffening bar or brace, D, in this instance turning on an intermediate pivot or bolt, *d*, on the tongue or draft-frame, and adapt the said brace to be placed across the joints or points of connection of the gang-frames with the tongue or draft connection, and have its ends secured to loops, catches, or brackets E on said gang-frames, or rest or be secured thereon in any other well-known convenient way, whereby the intermediate tongue or draft connection and the gangs or gang-frames will be so connected together and firmly braced as to prevent the gangs conforming to the undulations in the surface of the ground.

Through-pins may be passed down through the ends of the stiffening bar or brace and gang-frames, if desired, to prevent accidental movement or displacement of the brace; or other well-known equivalent locking devices may be employed to attain the same end.

When it is desired that the gangs should be free to move or vibrate independently, the ends of the brace or stiffening-bar are disengaged from the gangs, and the bar turned upon its pivot from its transverse position across the joints of the gangs to a position in line with the tongue or draft frame, upon the upper surface of which it lies, without encumbering or interfering in any way with the perfect action of the machine.

Thus it will be seen that I am enabled to convert the machine at pleasure from a yielding to a stiff jointed one, or vice versa, the advantages of which are obvious.

The driver's seat H is mounted upon an arched, raised, or straddling support, composed of two bars, G G', jointed at their inner ends, which cross each other to opposite sides of the seat, or an extension thereof. The bars are jointed at their outer ends to swinging stirrups mounted on the gang-frames in a well-known way, or otherwise jointed to the gang-frames.

The supporting-bars beneath the seat are provided with endwise-adjustable wedge-shaped slotted plates I I, fixed in position by suitable set-bolts *i i*, the plates having inclined surfaces *i'*, which act on the under surface of the seat, or extension thereof, as clearly shown in the drawings, whereby the height of the seat and the angle of the supporting-bars may be varied for obvious purposes, the swing-

ing stirrups at the opposite ends of the bars compensating such adjustment.

A bar or rod, J, bolted to the tongue or frame, and extending backward, is connected with the front of the seat, to brace it and the supporting-bars upon which it is pivoted against lateral strains, and thus preserve their proper relation to each other and to the machine.

I do not broadly claim a harrow or cultivator having two frames, carrying soil-working devices, connected together by a cross brace or braces, as such machines are common; but I am not aware that prior to my invention a wheel-harrow had been constructed or suggested in which the disk-gangs are pivoted to intermediate draft-connections, so as to be capable of vibrating freely independently of each other, but adapted to be firmly connected together, and with the draft-connections, by means of a stiffening-bar or brace, so as to convert the machine into a stiff or unyielding one.

I claim as of my own invention—

1. The combination, substantially as hereinbefore set forth, of the tongue, the wheel-gangs pivoted on opposite sides thereof, and capable of vibrating relatively thereto to conform to undulations in the surface over which they pass, and the stiffening-bar adapted to engage with the wheel-gangs and tongue to render the machine rigid, and capable of being disengaged to render the machine flexible.

2. The combination, substantially as hereinbefore set forth, of the tongue and the gang-frames, hinged on opposite sides thereof, one gang-frame being hinged in advance of the other.

3. The combination, substantially as hereinbefore set forth, of pivoted gang-frames, arched or inclined supports for the driver's seat, pivoted at their outer ends to the gang-frames and at their inner ends to the seat, and adjusting devices by which the inclination of the bars and the height of the seat may be varied.

4. The combination, substantially as hereinbefore set forth, of the tongue or intermediate frame, gang-frames pivoted thereto, an arched or straddling seat-support pivoted upon the gang-frames and to the seat, beneath which the inner ends of the supporting-bars cross each other, and slotted plates provided with inclined surfaces, mounted on the supporting-bars, and acting upon the under surface of the seat, or an extension thereof.

In testimony whereof I have hereunto subscribed my name.

FRANK BRAMER.

Witnesses:

G. G. CROWLEY,
SIDNEY A. LOOMIS.