

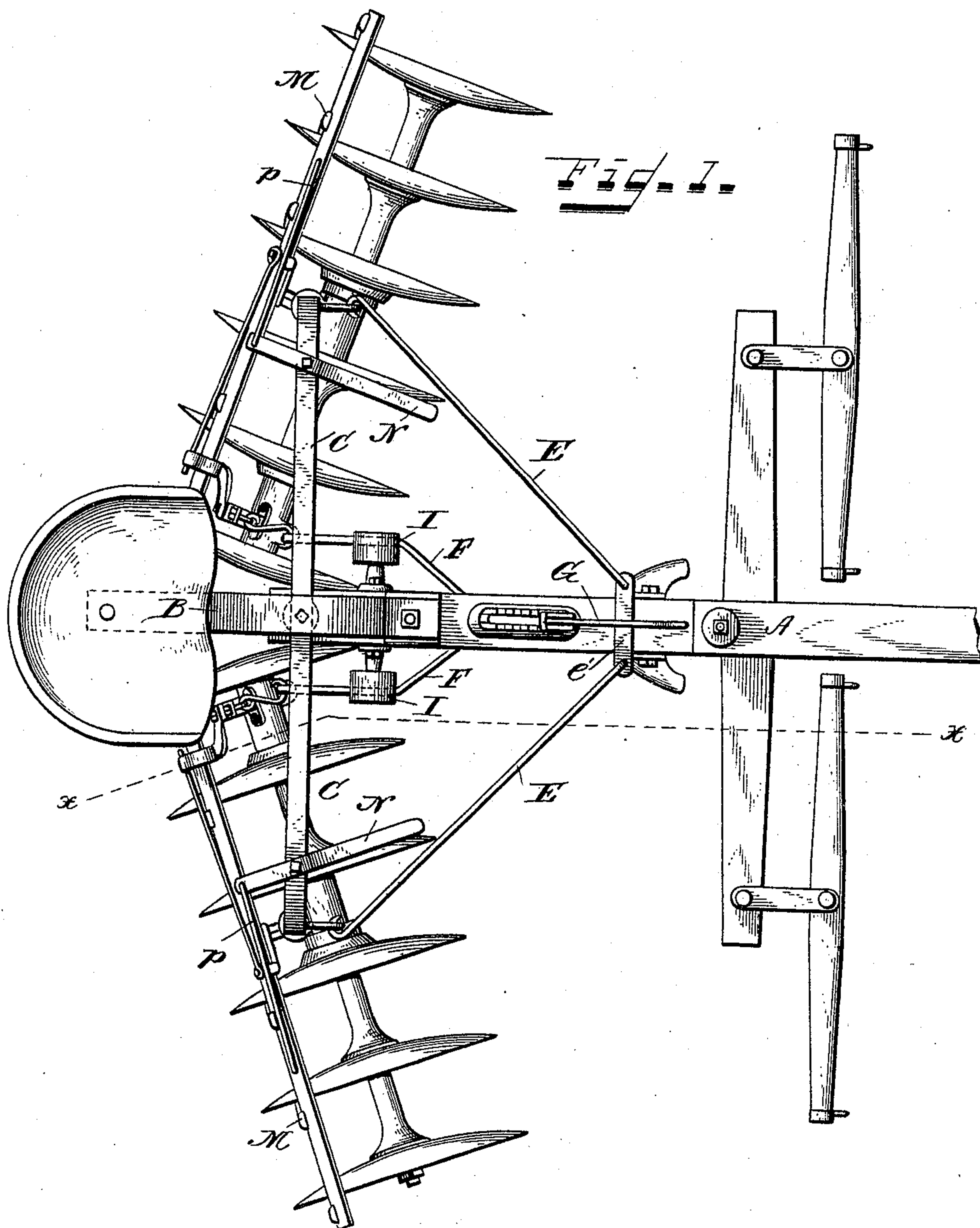
(No Model.)

4 Sheets—Sheet 1.

A. F. BROWN.
HARROW.

No. 486,207.

Patented Nov. 15, 1892.



Witnesses.
J. Thomson Cross.
E. H. Langhorne

Inventor.
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his Attorneys.

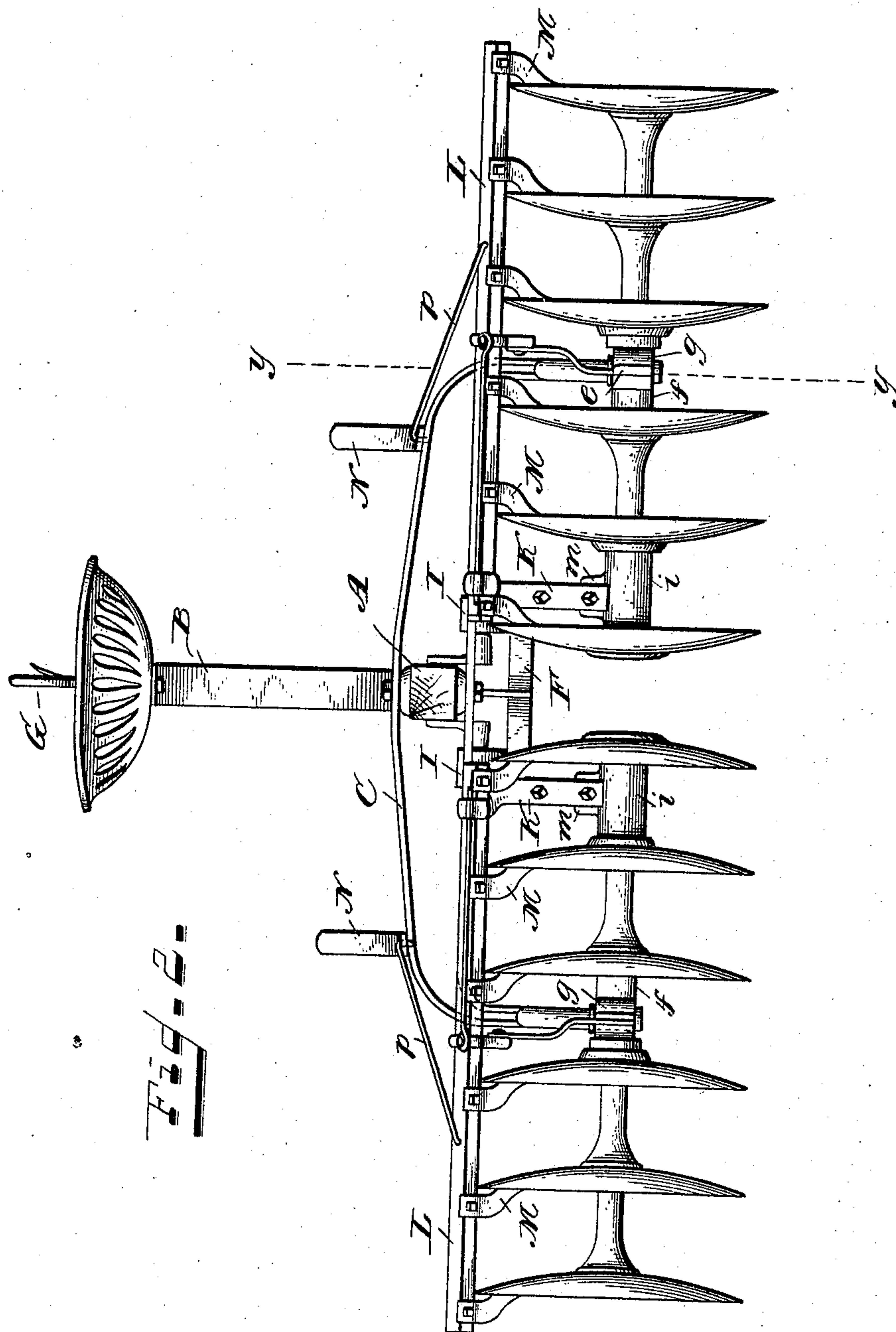
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A. F. BROWN.
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4 Sheets—Sheet 2.

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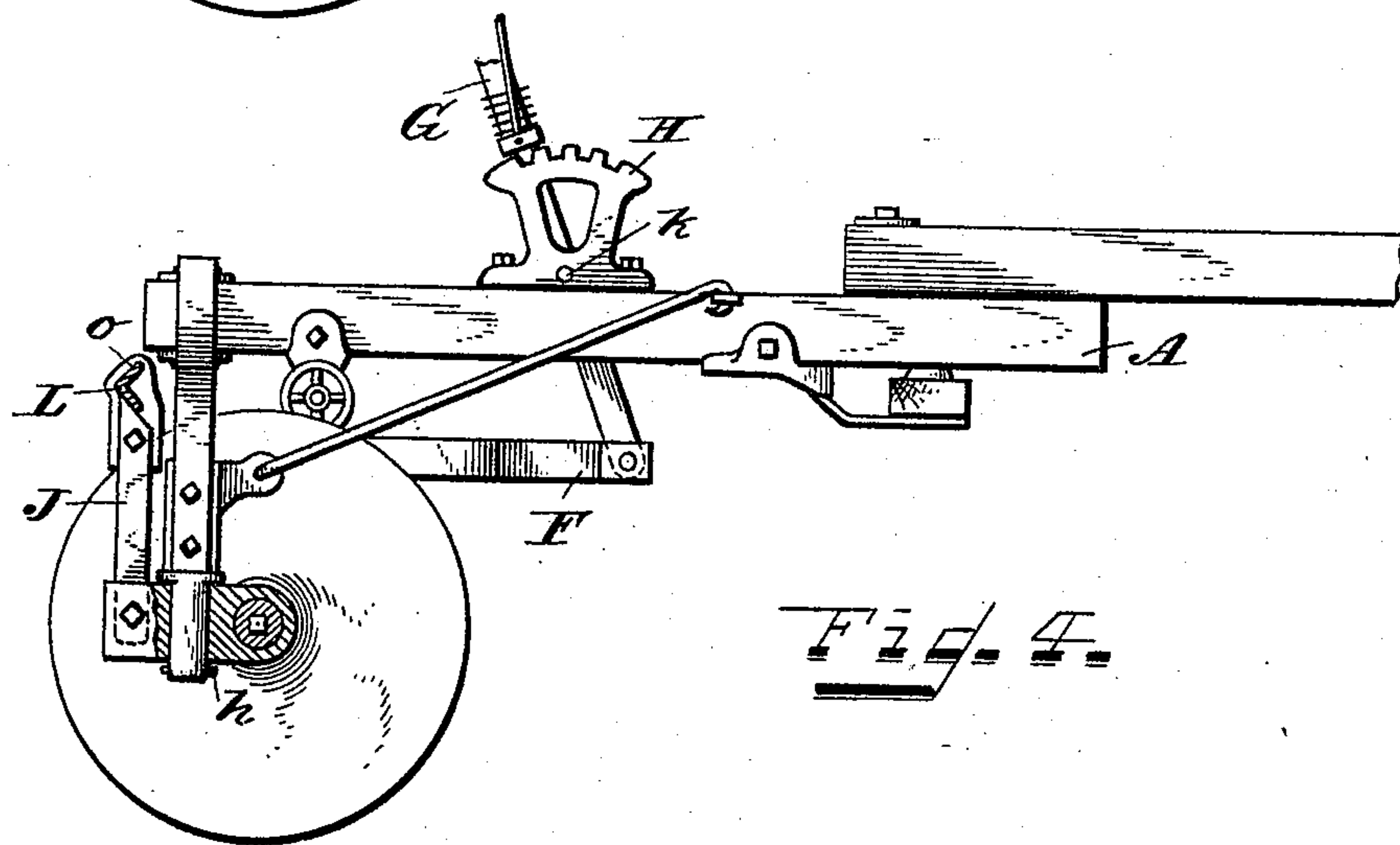
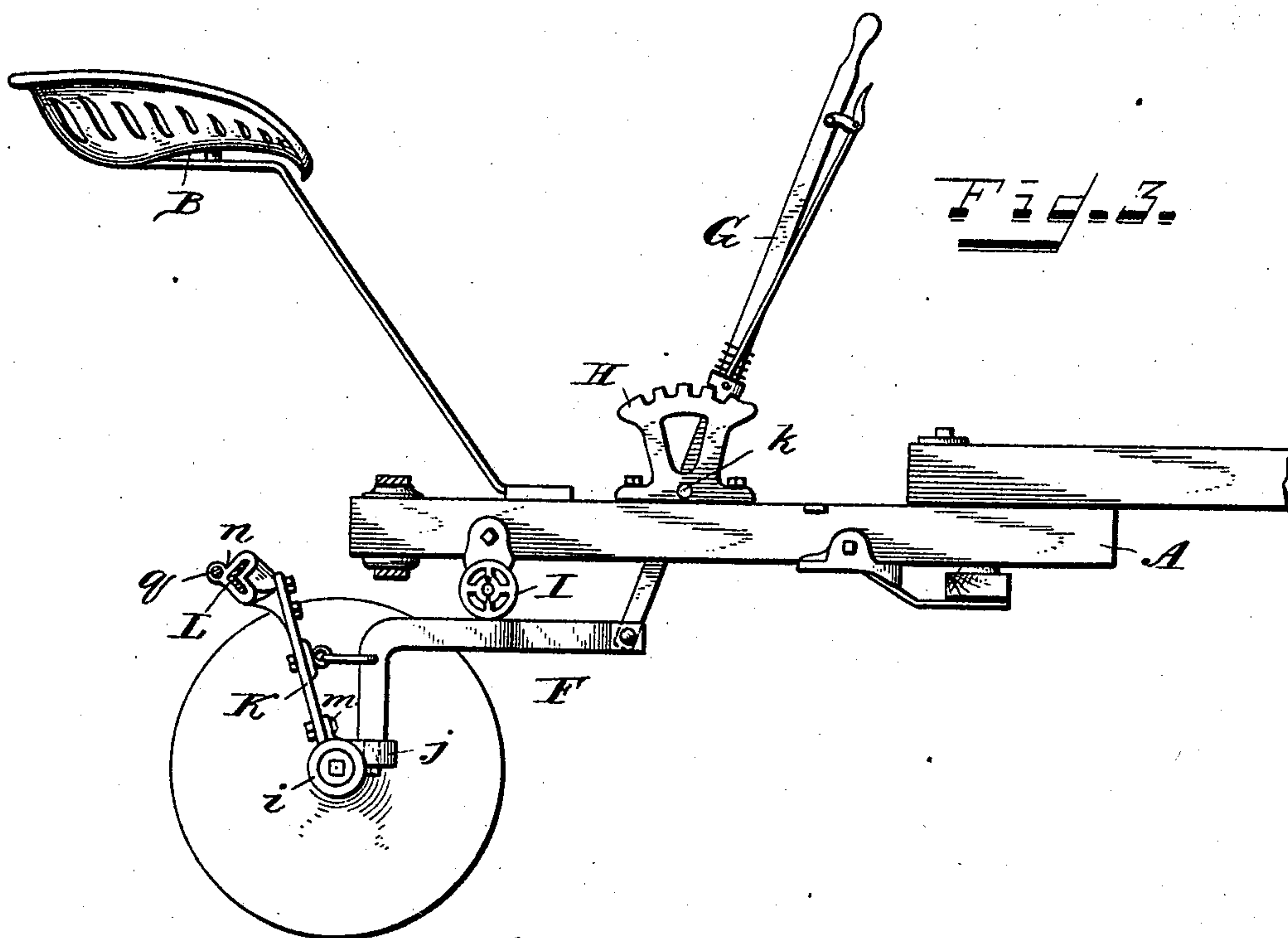
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(No Model.)

4 Sheets—Sheet 4.

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Fig. 5.

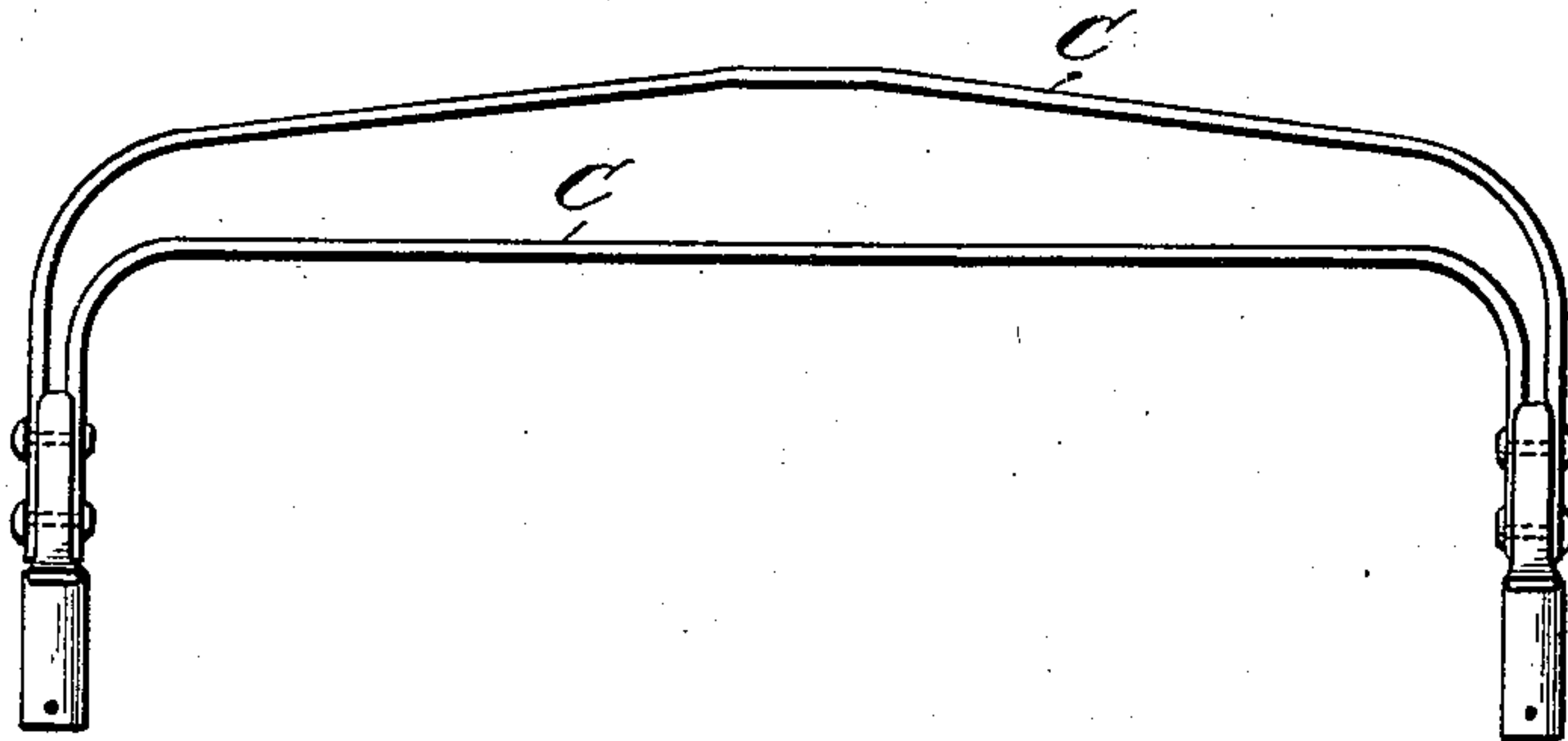


Fig. 6.

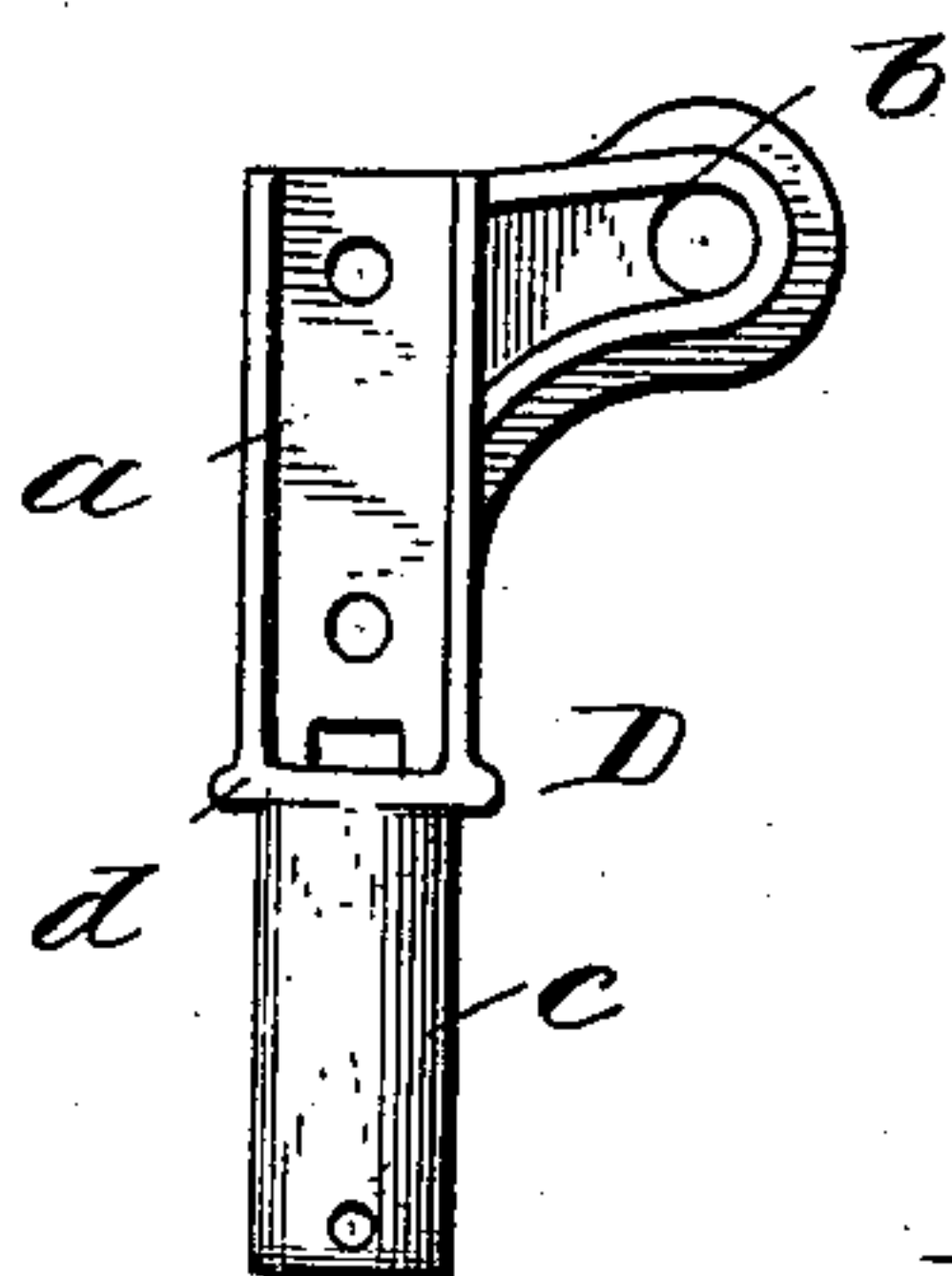


Fig. 7.

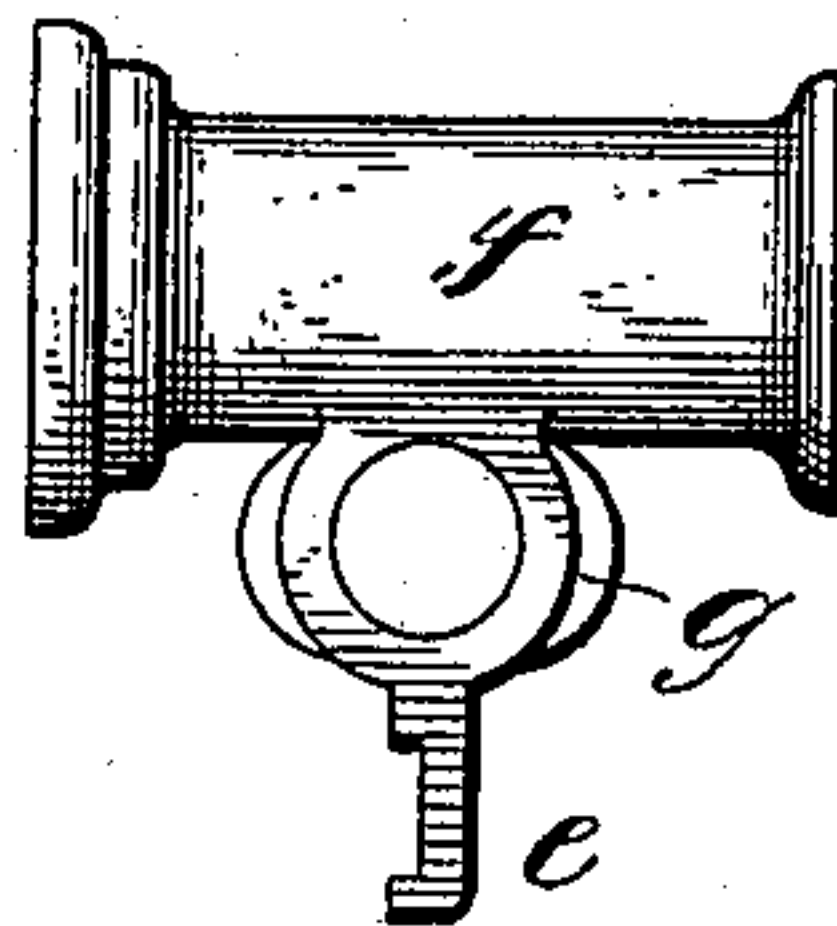
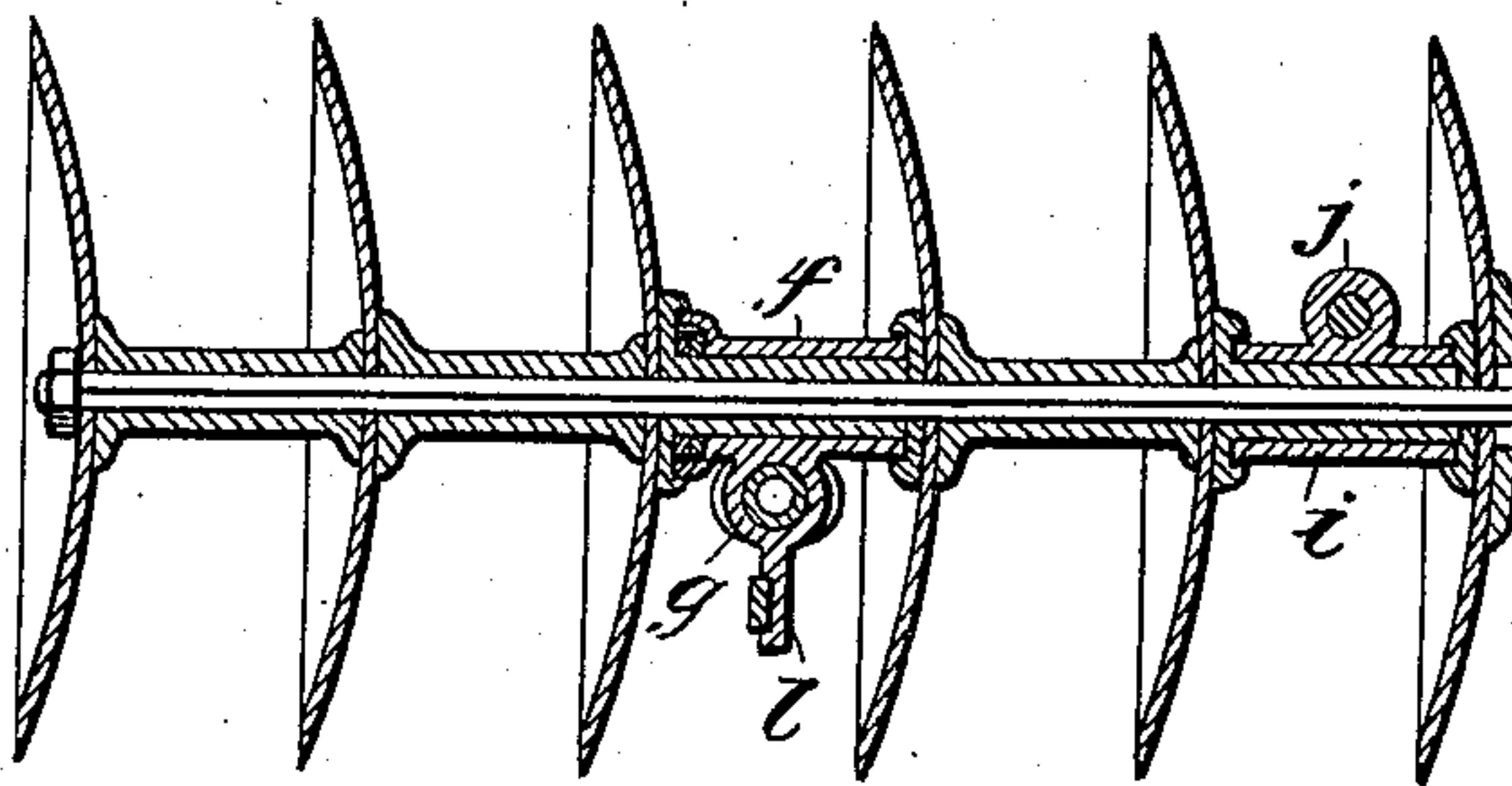


Fig. 8.



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UNITED STATES PATENT OFFICE.

ARTHUR F. BROWN, OF DAYTON, OHIO, ASSIGNOR TO THE STODDARD MANUFACTURING COMPANY, OF SAME PLACE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 486,207, dated November 15, 1892.

Application filed January 25, 1892. Serial No. 419,157. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR F. BROWN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Harrows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of harrows known as "disk harrows," and it has for its object the improved construction of such harrows.

The novelty of my invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, is a plan view of a harrow embodying my invention and with the gangs angled. Fig. 2, Sheet 2, is a rear elevation of the same with the gangs straight. Fig. 3, Sheet 3, is a sectional side elevation through the dotted line *x* of Fig. 1. Fig. 4, Sheet 3, is a sectional side elevation through the dotted line *y y* of Fig. 2, looking to the left. Fig. 5, Sheet 4, is a rear elevation of the metal gang-supports. Fig. 6, Sheet 4, is an enlarged side elevation of one of the gang-pivots. Fig. 7, Sheet 4, is an enlarged plan view of one of the draft-thimbles. Fig. 8, Sheet 4, is an axial plan view through one of the gangs.

The same letters of reference are used to indicate identical parts in all the figures.

The draft-frame of the harrow is composed of the pole A, supporting the driver's seat B and having secured to its rear end at their middle two flat metal bars C, the one upon the top and the other upon the under side of the pole. These bars are at right angles to the pole and have their outer ends bent downward with a curve, as seen in Fig. 5. Between the bent-down ends of the bars C are bolted two vertical pivot-castings D, one on each side of the pole. As seen in Fig. 6, these castings consist of a flat upper part *a* in the shape of an I-beam in cross-section and with a forwardly-projecting perforated lug *b* and a lower tubular spindle *c*, at whose upper end is a shoulder *d*. The ends of the bars C are bolted between the flanges of the flat portion *a* on each side

thereof, and brace-rods E extend from a casting or plate *e'* on the pole to the perforated lugs *b*, Figs. 1 and 4, thus forming with the pole and bars C a rigid structure. Upon each gang of disks constructed in the usual or any suitable manner is fitted between two of the disks at the middle, a sleeve *f*, Figs. 2, 4, 7, and 8, having upon its rear side a vertically-perforated lug *g*, in which is fitted the spindle *c* of the casting D to form the hinging joint of each gang. The perforations in the lug *g* are enlarged at the bottom in a direction parallel with the axis of the gang to permit of limited vertical tilting to follow inequalities of the ground, and pins *h*, passed through the lower projecting ends of the spindles, lock them to the gangs, as will be readily understood.

Fitted between the two inner disks of each gang is a sleeve *i*, Figs. 1, 2, 3, and 8, having a forwardly-projecting vertically-perforated lug *j*, in which is pivoted the lower end of a right-angular draw-bar F, Figs. 1, 3, and 4, whose forward bent ends are pivoted to the lower end of a lock hand-lever G, pivoted, as at *k*, and extending through a slot in the pole. The latch of the lock-lever G engages a segment-rack H, secured upon the pole in the usual or any suitable manner.

Journaled upon spindles projecting from the sides of the pole are two broad flat-faced rollers I, Figs. 1, 2, and 3, against the under sides of which the upper edges of the draw-bars F bear, and by means of which the inner ends of the gangs are held down properly in the earth.

It will be understood from the above description that the gangs are angled or brought to a straight position and locked by means of the lever G, operated by the driver from his seat.

The scraper mechanism for each gang is as follows: Bolted to a projection *l* of the lug *g* and to a lug *m*, Fig. 3, on the sleeve *i* are two upwardly-extending bars J K, Figs. 2, 3, and 4, having secured to their upper ends slotted guides *n o*, in which are secured and guided the angular metal scraper-bar L, just above the edges of the disks in rear of their axes. To this bar are adjustably secured the scraper-blades M, of the usual or any suitable con-

struction, and to slide the bars to cause the scrapers to bear against the disks I employ the levers N, pivoted to the upper bar C and having their rear ends connected by rods *p* to the scraper-bars L. A brace-rod *q* connects the upper ends of the guides *n o* to form, with the bars J K, a frame, which frame in addition to its supports on the lugs *j l* is further supported by links *r*, uniting the bars K to the draw-bars F, as seen in Fig. 3.

By the above-described construction the harrow is rendered very strong and efficient. All the parts excepting the pole are of metal. The gang-beams are dispensed with and the gangs are hinged directly upon the bars C, which take the place of the former wooden beam.

Having thus fully described my invention, I claim—

1. In a harrow, the combination, with the gangs of disks and the pole, of flat metal bars secured to the pole on its upper and lower sides, extending therefrom at right angles and having their ends bent down and secured to vertical spindles pivoted to sleeves upon the gangs, and draft-rods for the gangs, substantially as described.

2. In a harrow, the combination of the gangs

of disks and the pole, of flat metal bars secured to the pole on its upper and undersides, extending therefrom at right angles and having secured between their bent lower ends vertical spindles pivoted to sleeves upon the gangs, a lock-lever upon the pole for shifting and locking the gangs, and draw-bars connecting said lever and gangs, substantially as described.

3. In a harrow, the combination, with the gangs having socketed sleeves thereon, of the pole having secured to its upper and lower sides the laterally-extending and downwardly-bent flat metal bars C, to the lower ends of which are secured the spindle-pieces D, engaging the sockets of the sleeves on the gangs, brace-rods E for the bars C, draw-bars F, and lock-lever G, substantially as described.

4. In a harrow, the combination, with the swinging gangs, of the upwardly and forwardly extending draw-bars F, the rollers I, journaled upon the sides of the pole and bearing upon the draw-bars, and the lock-lever G, substantially as described.

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