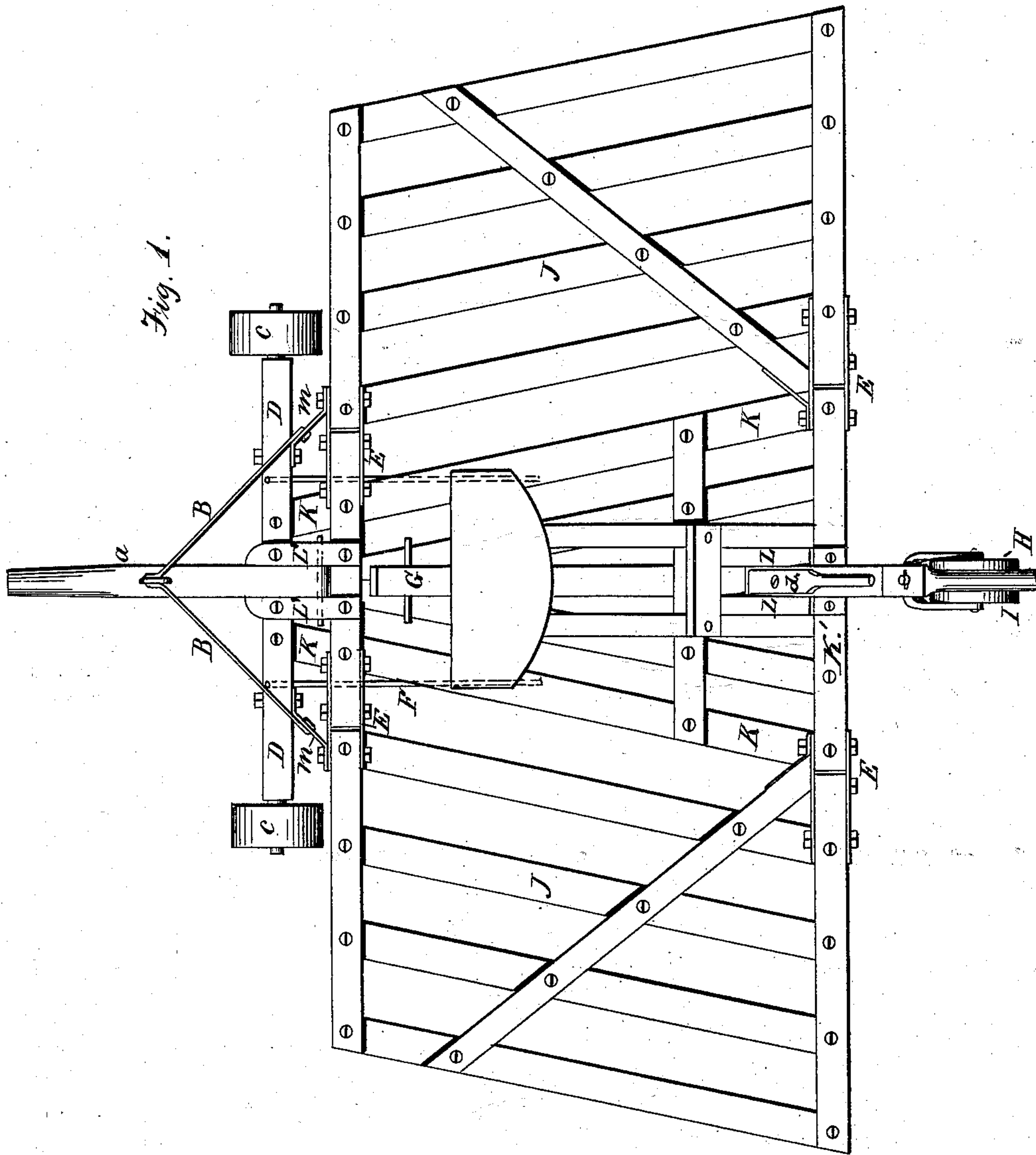


E. VANDAWATER.
HARROWS.

No. 194,196.

Patented Aug. 14, 1877.



Witnesses:

C. E. Labrie
Anatole Labrie

Inventor

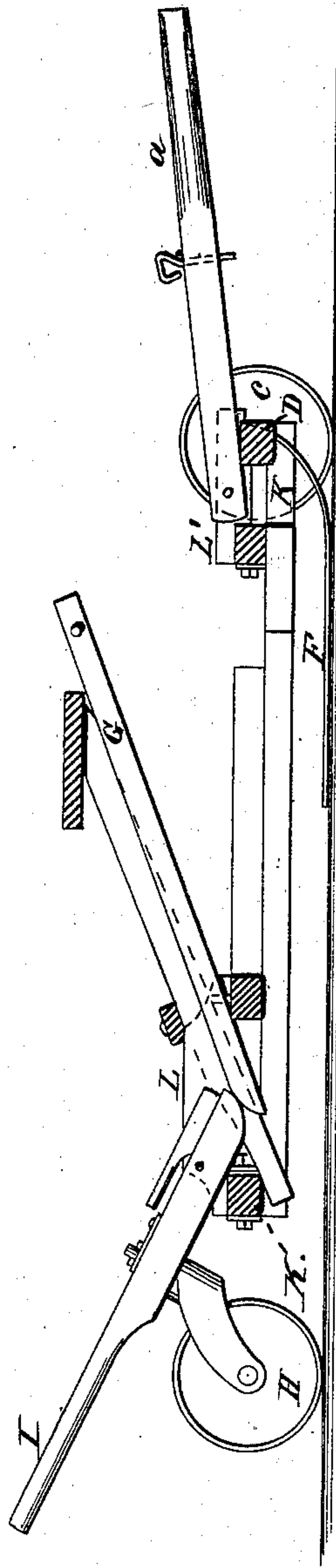
Elias Vandewater.

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Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

ELIAS VANDAWATER, OF ROCKVILLE, ILLINOIS.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **194,196**, dated August 14, 1877; application filed February 5, 1877.

To all whom it may concern :

Be it known that I, ELIAS VANDAWATER, of Rockville, in the county of Kankakee and State of Illinois, have invented certain new and useful Improvements in Flexible Harrows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 represents a top-plan view of my invention, and Fig. 2 a side elevation thereof.

Similar letters of reference occurring on the several figures indicate like parts.

My invention relates to improvements in flexible harrows having two or more sections hinged together, capable of being elevated to clear them of clogging matter, and provided with suitable wheels for conveniently transporting the same from one place to another; and it consists in the details of construction and general arrangement of parts, all as will be hereinafter more fully described, and pointed out in the claim.

Referring to the drawings, K represents the beams forming the central or main section of the harrow, secured at the front to the axle D, and at the rear to the beam K'. J represents the outer wings or sections hinged to the main section K, as shown at E. L represents the hounds attached to the beam K', and between the rear ends of which is pivoted the hand-lever I, having a pivoted wheel, H, attached thereto, as shown in the drawings. Between the front ends of the hounds L is pivoted the foot-lever G, the rear end of which passes under the front end of the pivoted hand-lever I, as fully shown in Fig. 2. F represents metallic arms or springs attached to the axle D, and projecting back un-

der the central harrow, to clean the teeth of the same of rubbish. To the ends of the axle D are attached suitable wheels c, and hounds L' are provided at the center for attaching the tongue a.

B represents the draft-rods secured to the braces m and to the tongue a, as fully shown in Fig. 1.

In the operation of my invention, it will be observed that the harrows can be raised or lowered, so as to harrow deep or shallow, by operating the hand-lever I, if the operator is walking, or by operating the foot-lever G, if riding, the elevation of the outer ends of either lever tending to drop the teeth of the harrow into the ground, and the depression of the ends of the same levers serving to elevate the harrows.

It will also be observed that the harrows may be raised and held in that position by turning the catch d on the lever I over upon the hounds L, thereby enabling the easy transportation of the harrows from one place to another. By turning the wings or sections J up at a right angle to the central section K, the teeth of the harrows are brought in a convenient position for cleaning the same of clogging matter.

Having thus described my invention, what I claim as new and useful is—

In a harrow, the combination of the foot-lever G, hand-lever I, provided with wheel H, and pawl d, with the sections J J and K and axle D, having wheels c, the several parts being arranged to operate substantially as and for the purpose described.

ELIAS VANDAWATER.

Witnesses:

J. E. LABRIE,
ANATOLE LABRIE.