

(No Model.)

2 Sheets—Sheet 1.

A. JOHNSON & F. SYVRND.
REVOLVING HARROW.

No. 500,253.

Patented June 27, 1893.

Fig. 1.

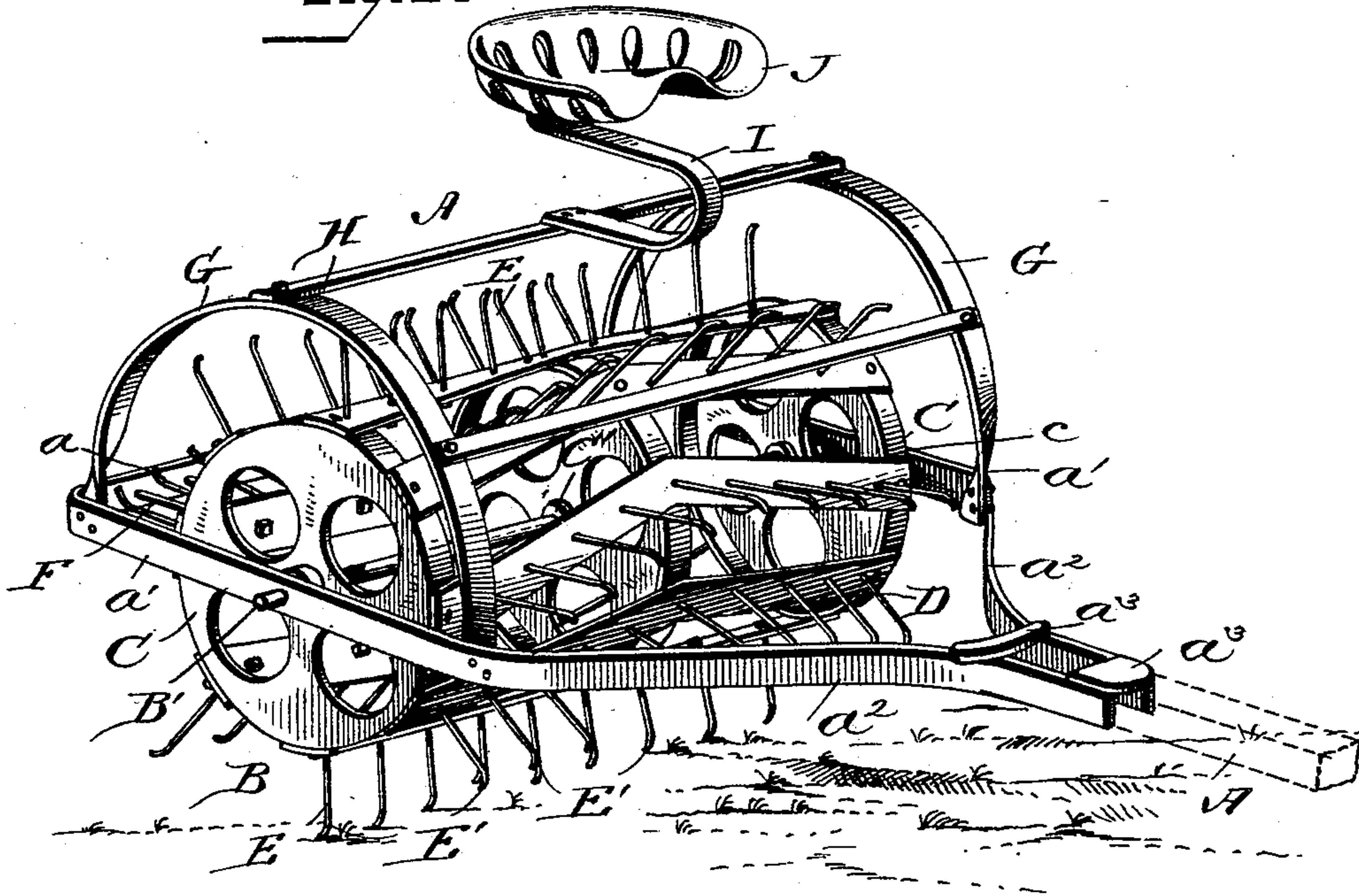
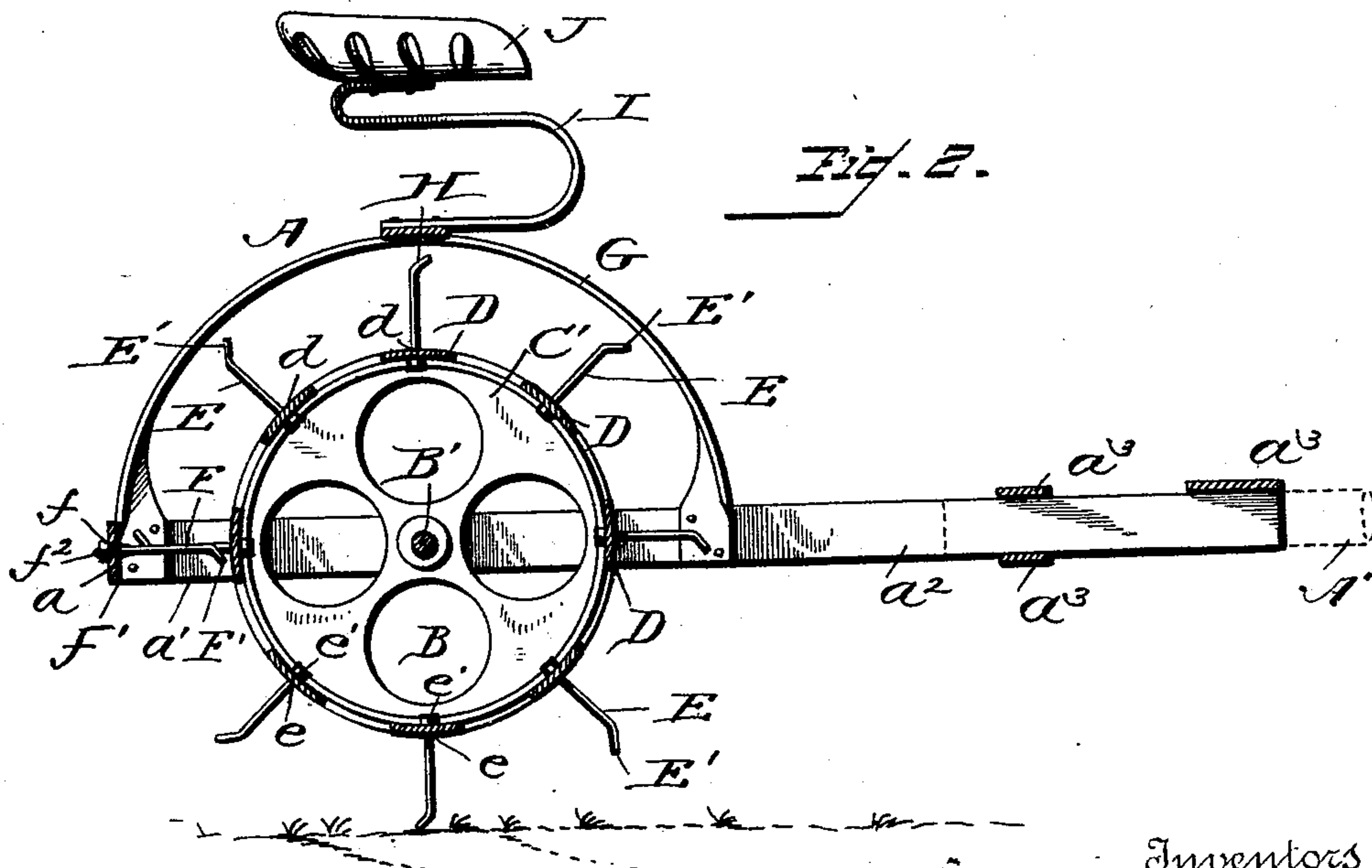


Fig. 2.



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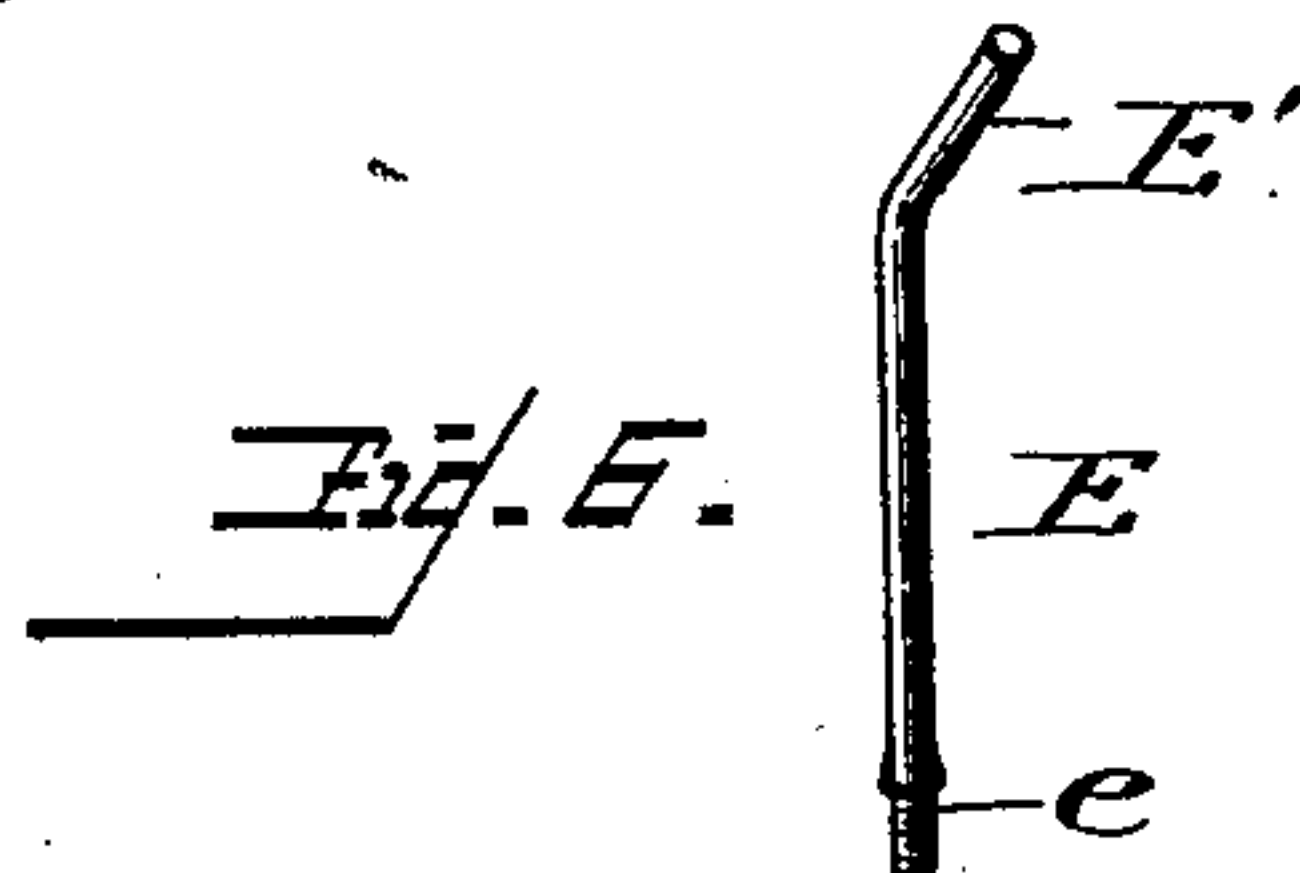
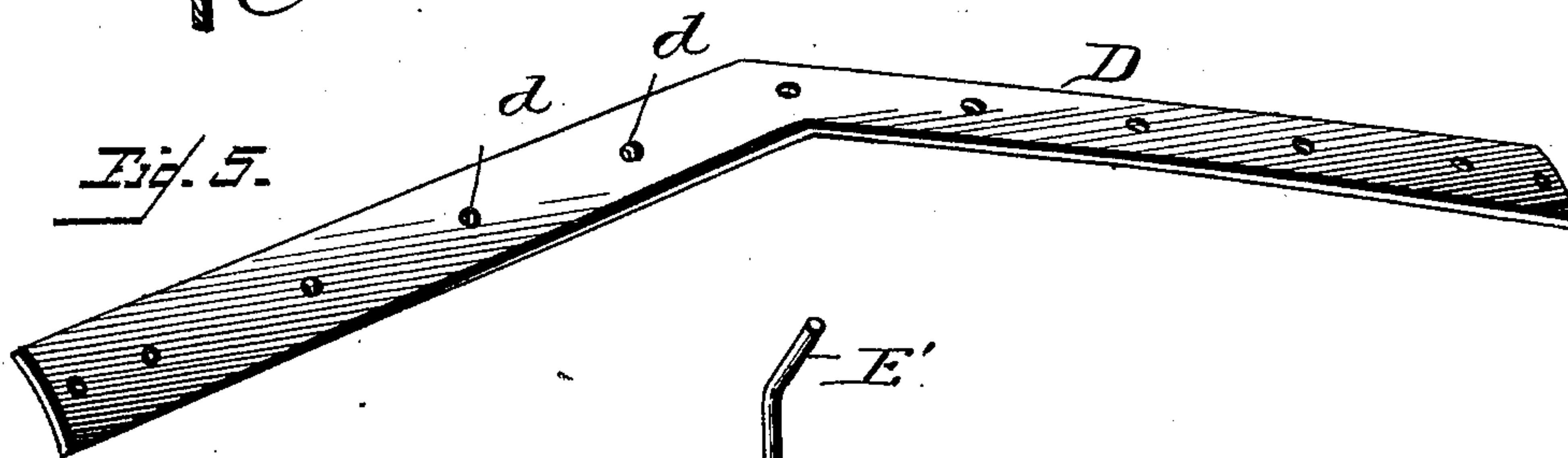
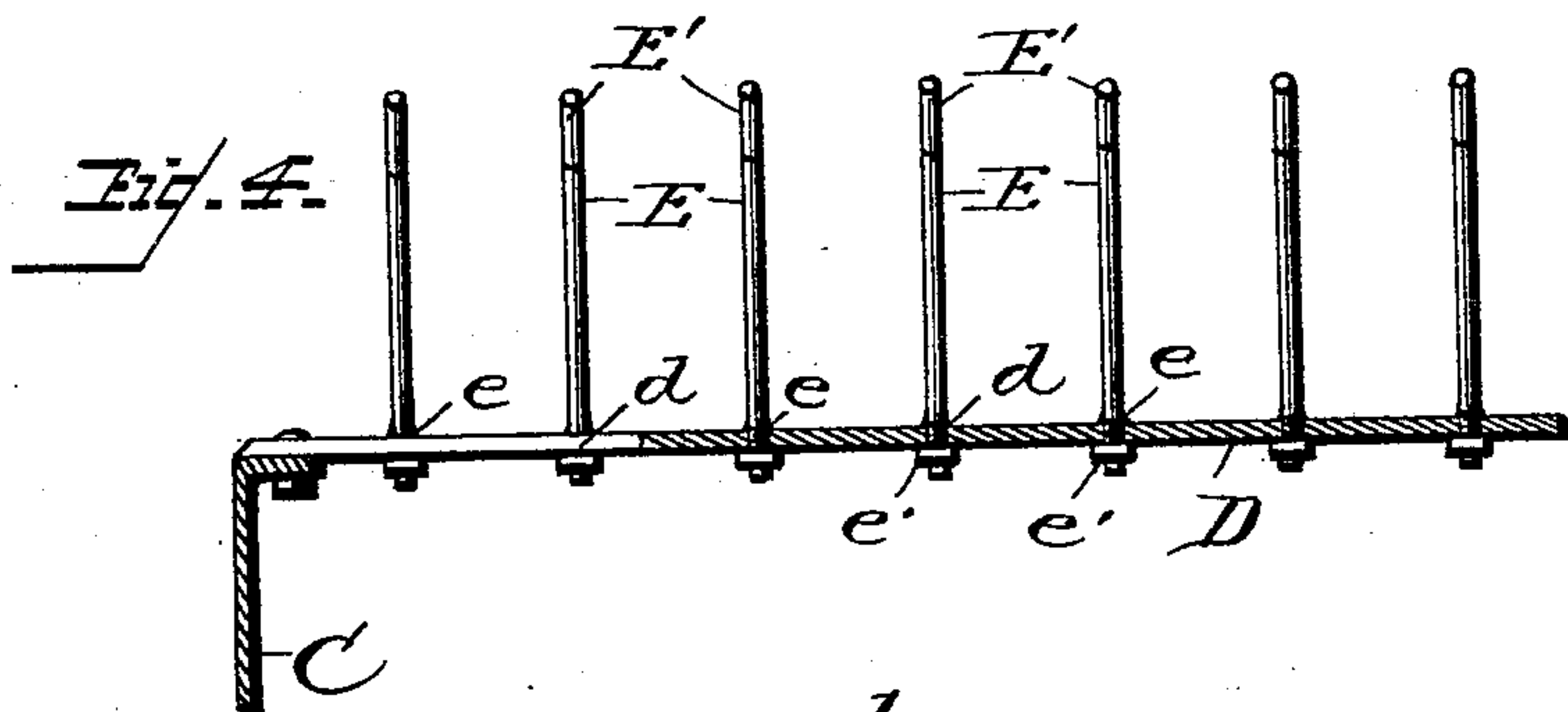
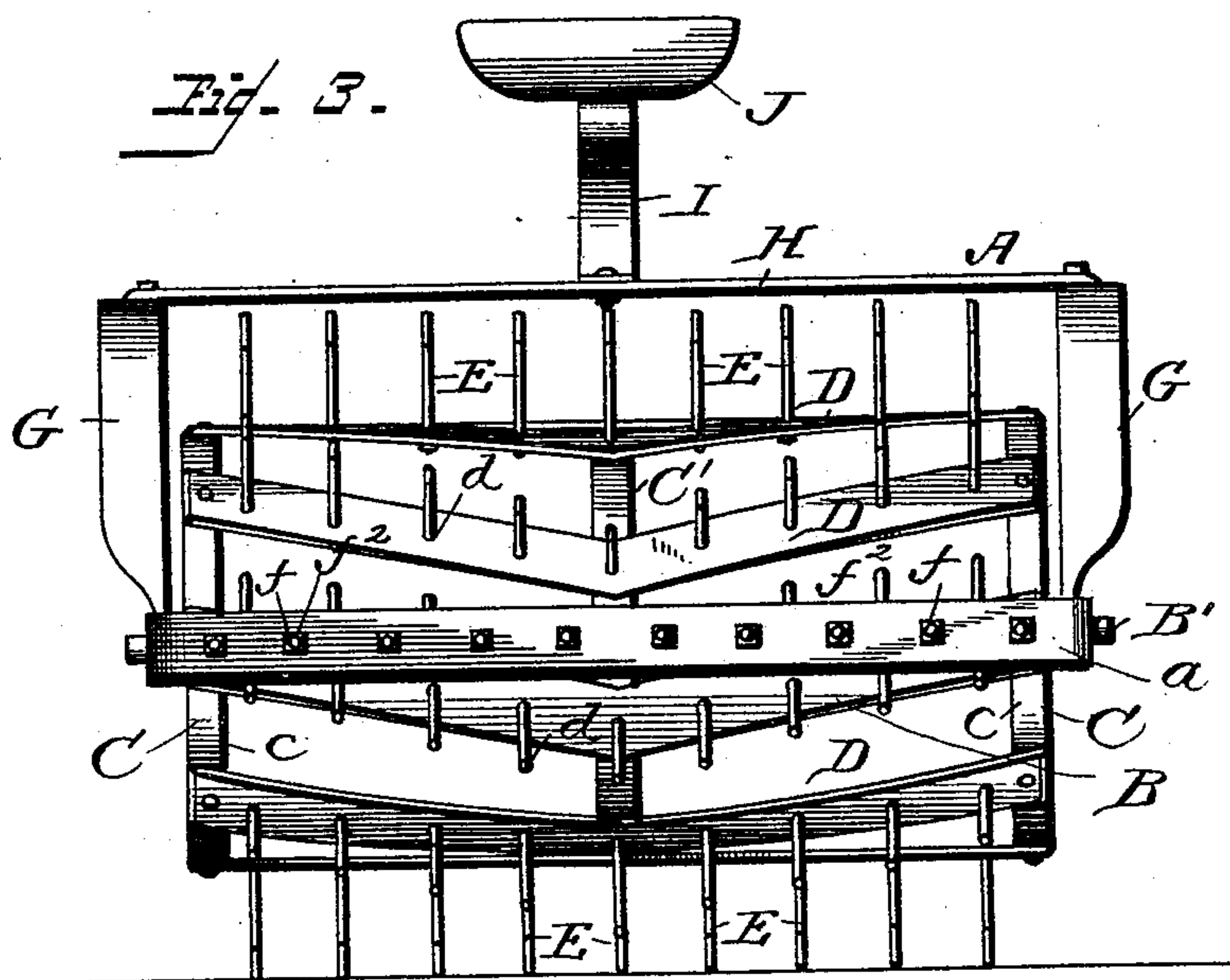
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2 Sheets—Sheet 2.

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Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT JOHNSON AND FREDERICK SYVRND, OF SHELTON, WASHINGTON.

REVOLVING HARROW.

SPECIFICATION forming part of Letters Patent No. 500,253, dated June 27, 1893.

Application filed June 7, 1892. Serial No. 435,848. (No model.)

To all whom it may concern:

Be it known that we, ALBERT JOHNSON and FREDERICK SYVRND, citizens of the United States, residing at Shelton, in the county of Mason and State of Washington, have invented certain new and useful Improvements in Rotary Harrows; and we do hereby declare that the following is 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 harrows of that class known as rotary harrows, and it has for its object to provide an improved harrow of this character which will possess advantages in point of simplicity and inexpensiveness in construction, durability and general efficiency.

A further object of the invention is to provide a harrow in which the friction and weight are reduced to a minimum.

In the drawings—Figure 1 is a perspective view of a harrow embodying my invention. Fig. 2 is a vertical longitudinal sectional view thereof. Fig. 3 is a rear end elevation. Fig. 4 is a detail sectional view taken longitudinally through one of the cross-beams of the roller. Fig. 5 is a detail perspective view of one of the cross-beams, with the teeth removed. Fig. 6 is a similar view of one of the teeth.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the frame of the harrow, which consists of a rear beam, a , side beams, a' a' , intersecting the latter at its ends, and forwardly-convergent beams, a^2 a^2 , located at the forward termination of the side beams a' . In practice, the frame may be constructed of metal with all the parts integral, or of metal or wood beams bolted or otherwise secured together. The forward ends of the beams a^2 are connected together by cross-pieces, a^3 , and between the latter and the beams a^2 is secured a tongue, A' .

B designates the roller, which is mounted and journaled between the side beams a' . The roller comprises two heads, C C, preferably cast from metal, and each with an inwardly-projecting annular flange c . The heads C are connected by a series of cross-beams, D, of peculiar shape, the ends of which are bolted securely to the flanges c . For the

purpose of strengthening the roller, a centrally-disposed disk, C' , is provided which is similar in construction and shape to the heads C, and to which are also bolted the cross-beams D. An axle, B' , is secured centrally in the heads C and disk C' , the ends of said axle bearing loosely in apertures provided in the side beams a' of the frame. In lieu of this construction, however, the heads C may be cast with outwardly-projecting, central studs which serve as the journals for the roller.

The cross-beams D are of an approximate V-shape, preferably formed of metal, and are provided throughout their length with longitudinally-located, equi-distant apertures, d . Within the latter are secured teeth, E. These teeth are provided with threaded shanks, e , which are passed through the apertures d , and upon said shanks are disposed securing nuts, e' . When secured in place the teeth project radially from the roller, but the free ends are bent to form fingers, E' , located at an angle to the body of the teeth. In practice, the fingers E' all project in a corresponding direction and when located at the top of the roller project forwardly with relation to the harrow.

The rear beam a of the frame A is provided with a horizontal series of apertures, f . Within the latter are secured cleaning or crushing teeth, F, of similar construction to the teeth E. The teeth F likewise have threaded shanks, f' , which are passed through the apertures f and secured therein by nuts, f^2 . These teeth project forwardly and close to the roller, and have their free ends provided with downwardly and forwardly projecting fingers, F' . The teeth E and F are arranged in different vertical alignment, so that as the roller rotates the teeth E pass through the interstices between the teeth F.

G G designate two arch beams which are bolted or otherwise secured one to each of the side beams a' of the frame. A cross-beam, H, is attached at its ends to said beams G, and upon the beam H is mounted a spring standard, I, carrying a seat, J. It will be observed that the seat is located directly over the roller, and the weight of the occupant is thus thrown upon the latter in lieu of upon the tongue.

If desired, carrying wheels may be provided for transporting the harrow when not in use.

To this end the axle may be extended at its ends beyond the frame, and said carrying wheels loosely mounted on said extensions.

We claim as our invention—

- 5 1. In a rotary harrow, the combination, with the frame, of a roller journaled therein and comprising a series of approximately V-shaped cross-beams, and removable teeth located lon-
10 titudinally with relation to said beams and projecting outwardly therefrom; substantially as and for the purpose set forth.
2. In a rotary harrow, the combination, with the frame comprising a stationary rear beam provided with inwardly-projecting teeth hav-
15 ing forwardly and downwardly projecting fin- gers at their ends, of a roller journaled within the frame and comprising approximately V-shaped cross-beams, and teeth located longi-
20 tudinally with relation thereto and projecting outwardly and radially therefrom, said teeth

being provided at their free ends with fingers bent abruptly at an angle thereto; substantially as and for the purpose set forth.

3. The combination, with the skeleton ro-
tary drum or roller having webbed heads with 25 inwardly projecting circumferential flanges, of the V-shaped cross-bars transversely se- cured on the flanges of said roller, angularly bent teeth removably secured by nuts on said bars, and a stationary rear beam carrying 30 cleaning teeth projecting horizontally be- tween the roller teeth and in operative rela- tion to the same; substantially as set forth.

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

ALBERT JOHNSON.
FRED. SYVRND.

Witnesses:

L. K. MUNSON,
FERDN. SEABENFELDT.