

No. 803,197.

PATENTED OCT. 31, 1905.

J. SONERHOLM.

HARROW.

APPLICATION FILED APR. 4, 1905.

Fig. 1

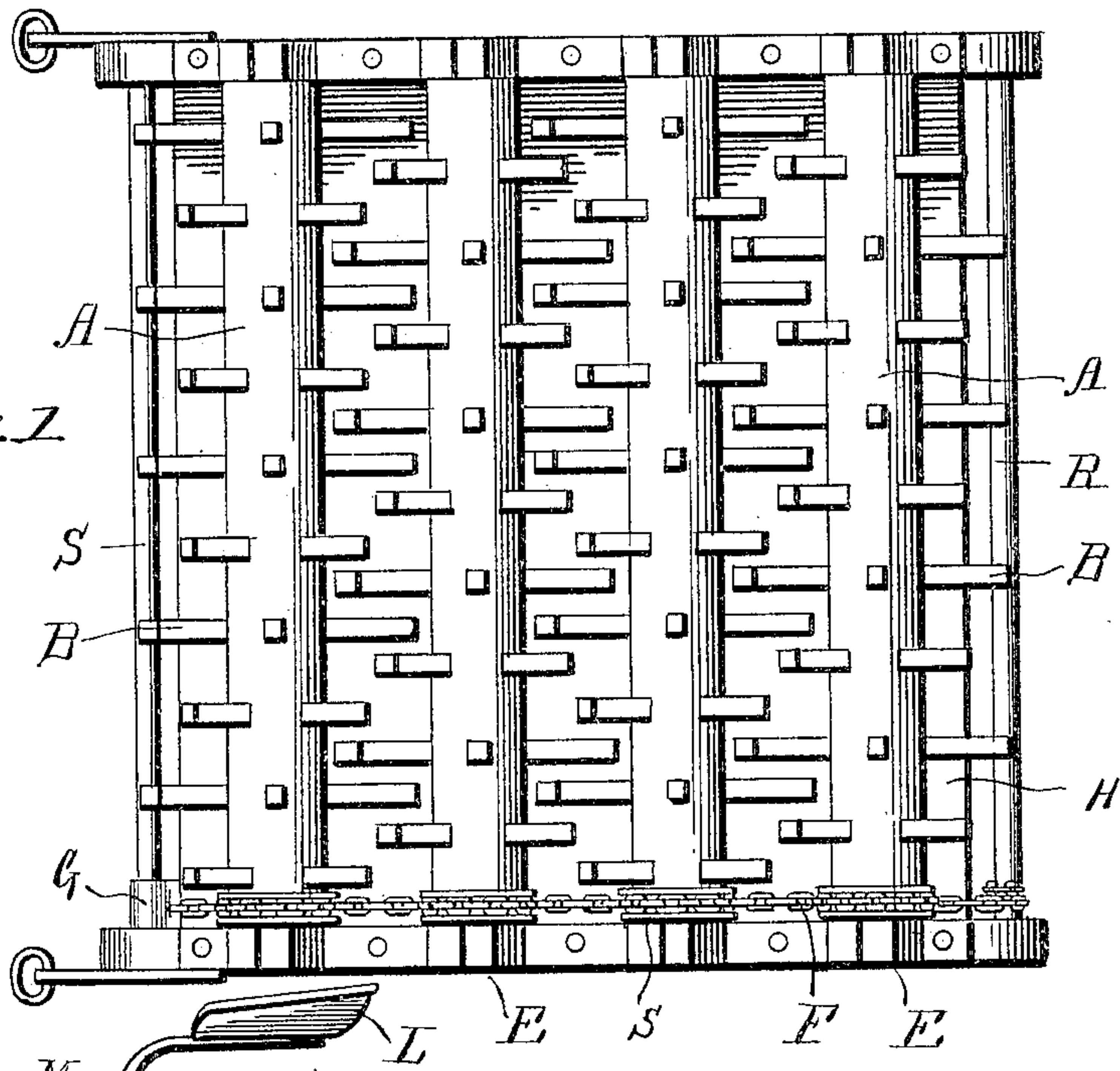


Fig. 2

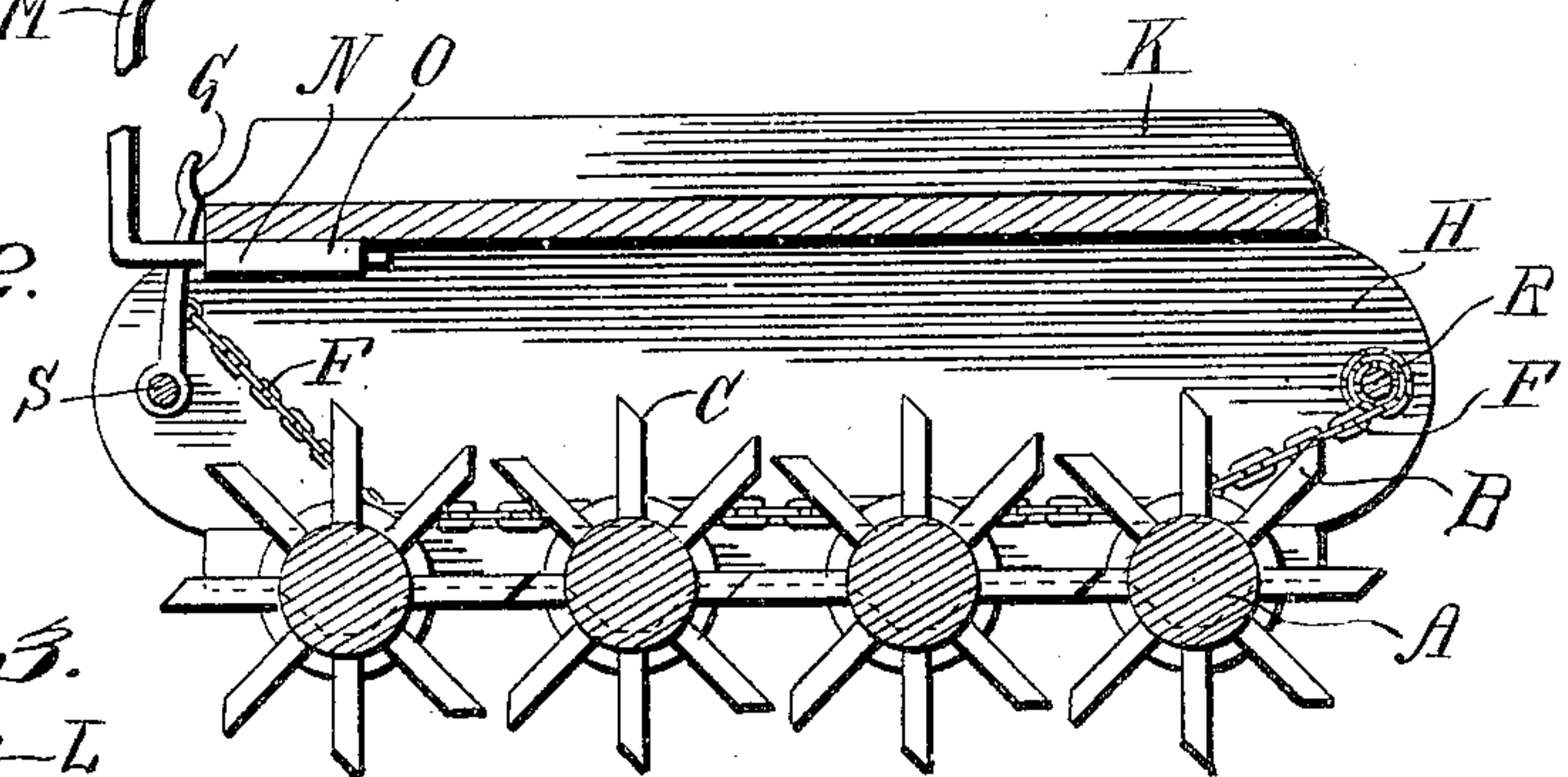


Fig. 3

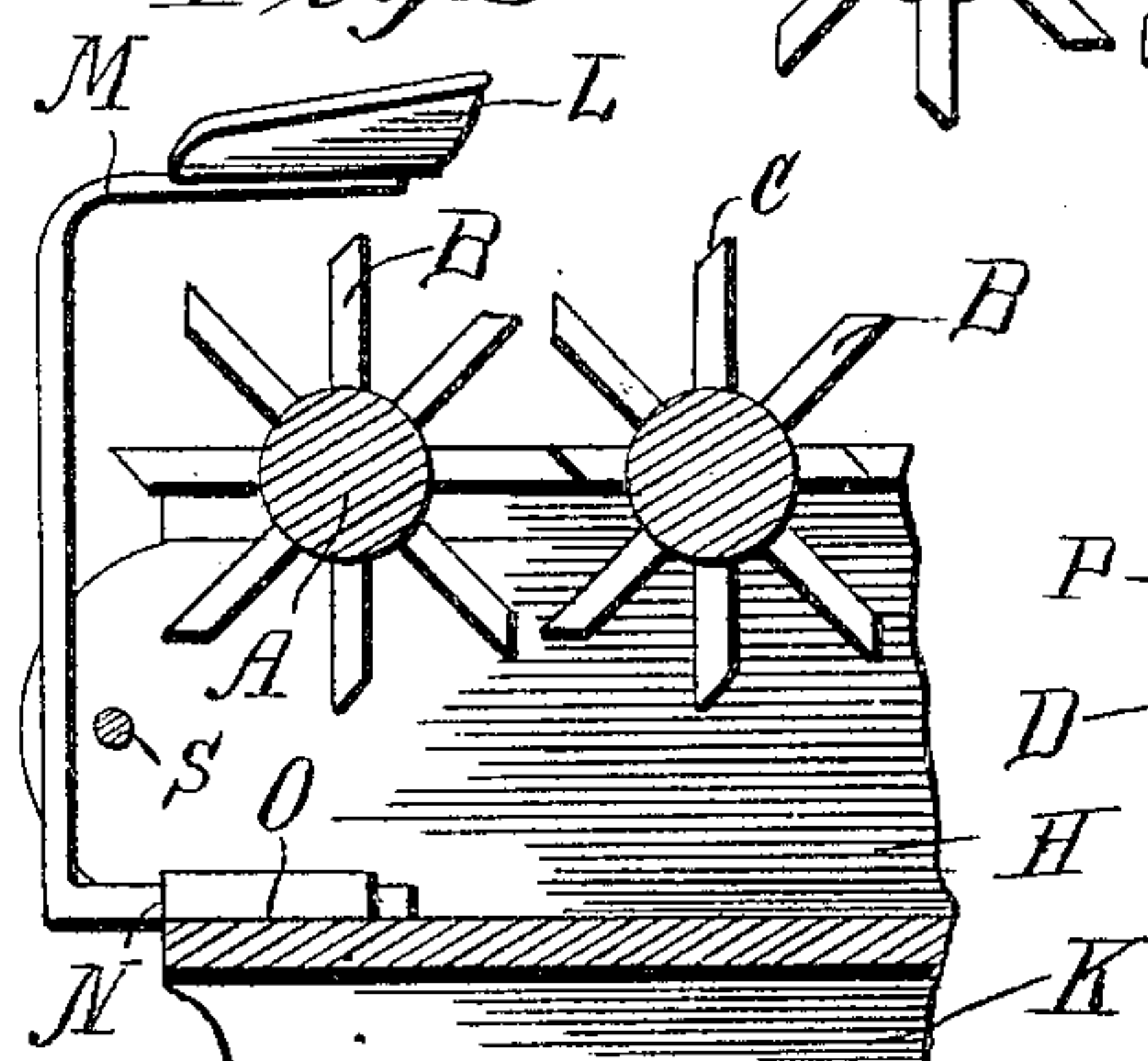


Fig. 4

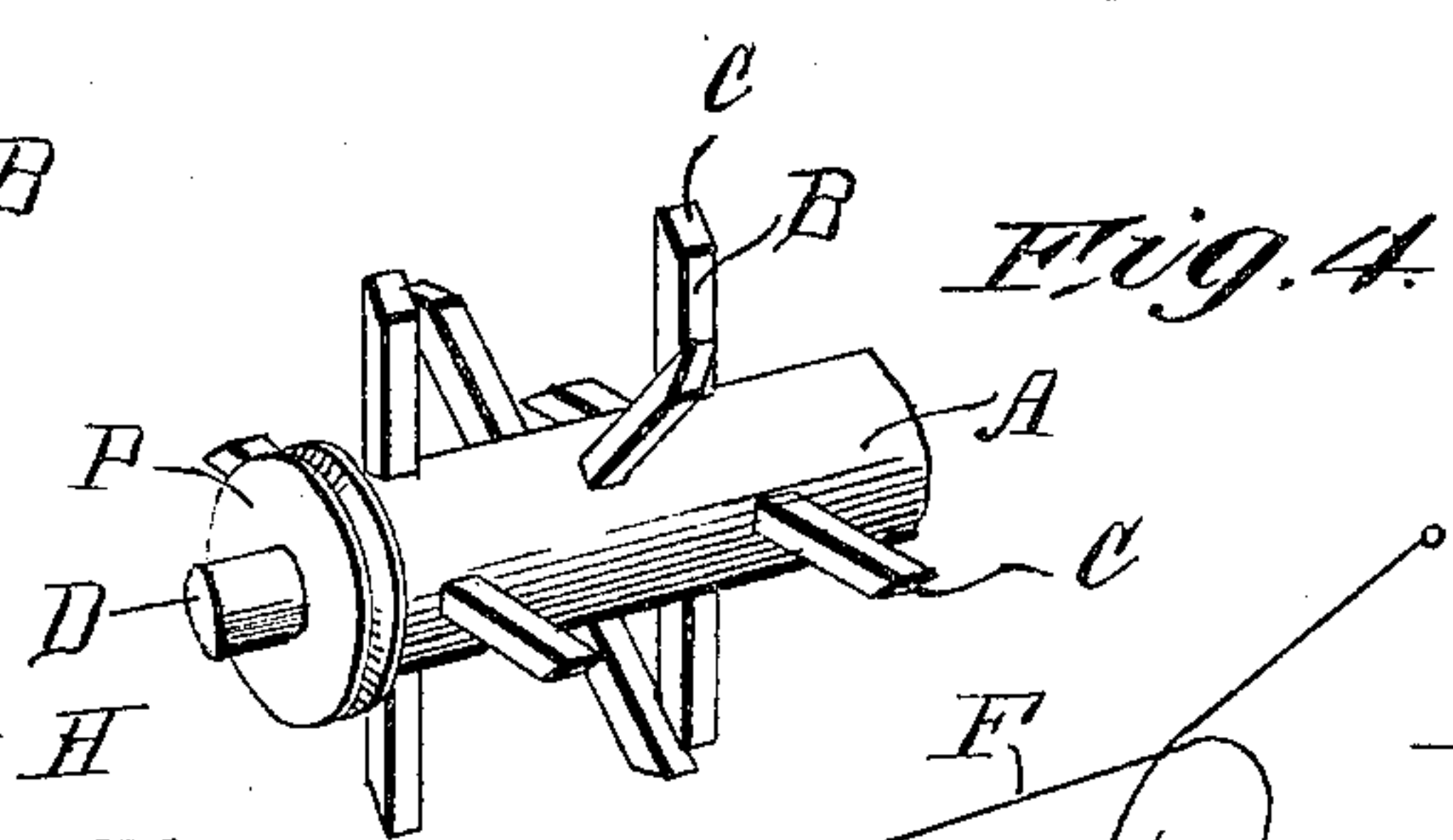
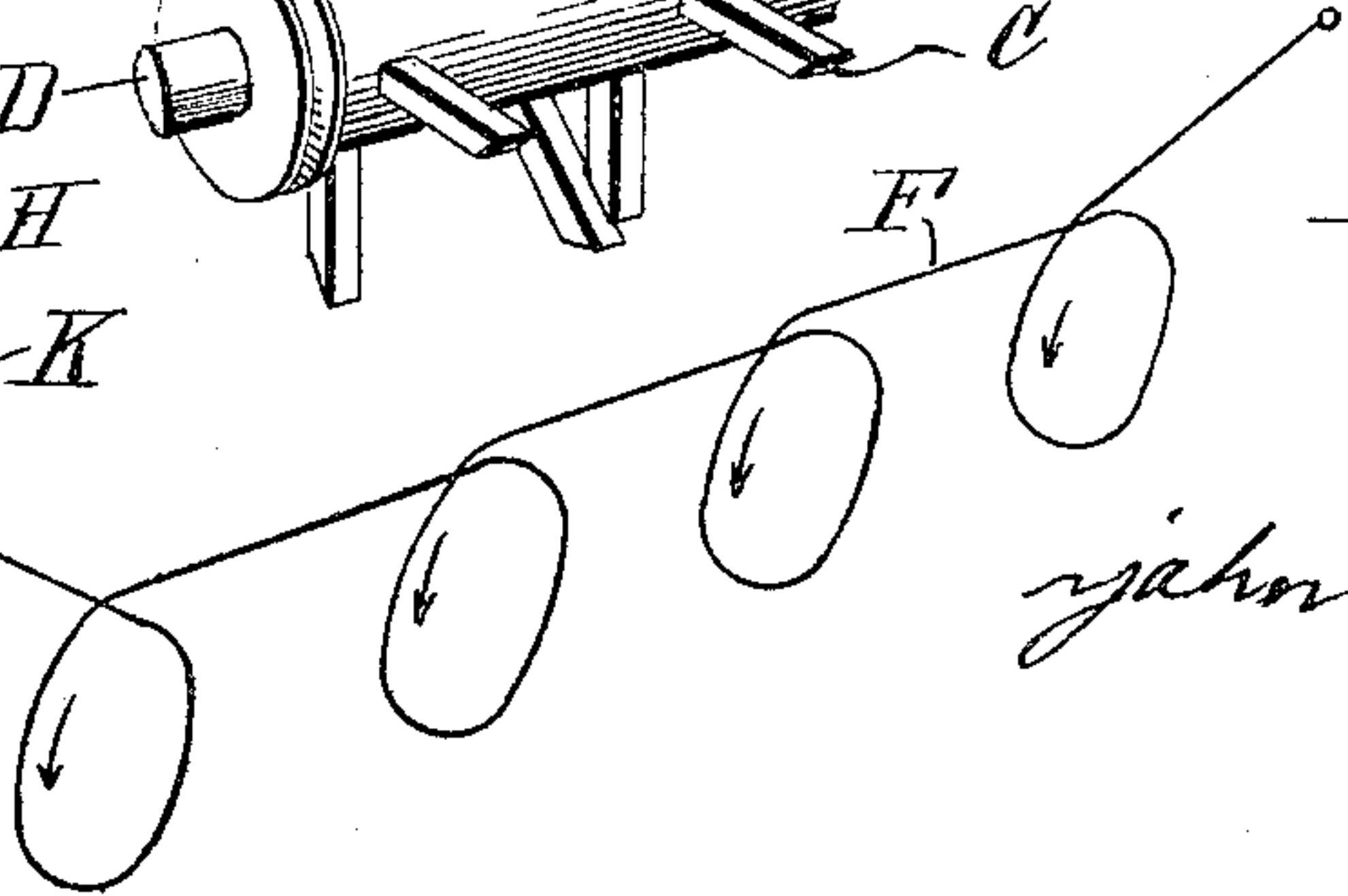


Fig. 5



WITNESSES:

Frank J. Reed
E. E. Rasm

INVENTOR

J. Sonerholm

UNITED STATES PATENT OFFICE.

JOHN SONERHOLM, OF WEBSTER CITY, IOWA.

HARROW.

No. 803,197.

Specification of Letters Patent.

Patented Oct. 31, 1905.

Application filed April 4, 1905. Serial No. 253,738.

To all whom it may concern:

Be it known that I, JOHN SONERHOLM, a citizen of the United States, residing at Webster City, in the county of Hamilton and State of Iowa, have invented a new and useful Harrow, of which the following is a specification.

This invention relates to that class of harrows in which the teeth are fitted in revolving beams or cross-bars; and it has for its object to construct a harrow of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter more fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a bottom plan view of a harrow embodying my improvements. Fig. 2 is an end view of the revolving beams or cross-bars. Fig. 3 is a sectional end view showing the skids or runners. Fig. 4 is a detail perspective view of one of the revolving cross-bars, showing the arrangement of the harrow-teeth. Fig. 5 is a diagram showing the construction of my improved brake.

Like numerals of reference indicate like parts in all the figures.

My improved harrow is composed of a series of parallel transverse bars or rollers, which may be round or polygonal in cross-section, which may be constructed of wood or metal or wood with metallic cores or gudgeons. When constructed of wood, the said rollers are bound at the ends with metallic ferrules. The bars or rollers, which are designated by A, are each provided with series of radially-extending teeth or spikes B, which are provided with chisel-pointed ends C so arranged that the flattened side of each tooth is toward the rear of the harrow at the time the tooth comes in contact with the soil in the course of the revolution of the toothed bar or roller. The ends of the rollers are provided with gudgeons D, which are journaled into the frame at the points E. The teeth are arranged spirally on each roller, and the teeth on each roller intermesh with the teeth of the roller or rollers adjacent to it.

For convenience of adjustment of my harrow to the varying degrees of hardness of different soils on which it may be used it is fur-

ther provided with a chain-brake F, which chain is securely attached to a bar at the rear of the harrow-frame and winds about each roller once in the direction of the roller's rotation and by means of which the revolution of the toothed bars may be retarded or wholly checked by the application of slight pressure from the foot-lever G. When the bars are thus brought to a standstill, the machine acts as an ordinary harrow, and in the range between its free revolution and the locked state of its rollers and teeth it becomes perfectly adaptable to every variety of soil.

The whole harrow and harrow-frame is inclosed by a box-shaped cover H, on the top of which are two skids or runners K, and the object of the skids is to provide ready means for the transportation of said harrow when not in use. For transportation in this manner the harrow is inverted, bringing the skids to the ground, upon which they run or slide.

A portable seat L with curved support M is inserted in the slot N, placed beneath the cover O. The seat is detachable, and when the harrow is inverted the seat-support is reinserted in the slot O, thus affording a seat for the driver whether the harrow is in an upright or inverted position.

Each of the transverse bars or rollers is provided with two circular metallic shields P at one end, forming a guide for the chain-brake and preventing said chain-brake from becoming entangled with the teeth. The chain is stoutly secured to a transverse bar R at the rear of the rollers, passes once around each roller in the direction of said roller's rotation, and passes about the successive rollers in turn. The front end of the chain is attached to a foot-lever G at the front of the harrow, which is fastened to and supported by a transverse bar S in the harrow-frame. Owing to the fact that the chain tightens by the rotation of the toothed bars a slight pressure of the foot on the pedal or brake-lever G greatly retards the movement of the teeth, and further pressure readily stops said movement altogether.

The ends of each revolving bar or roller are journaled into the harrow-frame, and each journal can be readily removed for necessary repairs.

Having thus described my invention, what I claim is—

1. A harrow with yielding digging elements provided with means continually under the control of the operator, for varying the resistance of said yielding elements
5 against the ground.

2. A harrow composed of a series of revolving toothed bars or rollers each element of the series provided with a brake.

3. A revolving harrow including a plural-
10 ity of toothed rollers and provided with a chain-brake encircling one end of each roller, said brake being tightened by a pedal attachment to the front supporting-bar of the

harrow-frame, and means for operating the pedal attachment.

4. In a revolving harrow, the combination of a series of revolving toothed bars, with a chain-brake encircling the bars, and means for operating the same.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature
in the presence of two witnesses.

JOHN SONERHOLM.

Witnesses:

FRANK J. LUND,
E. E. ROREM.