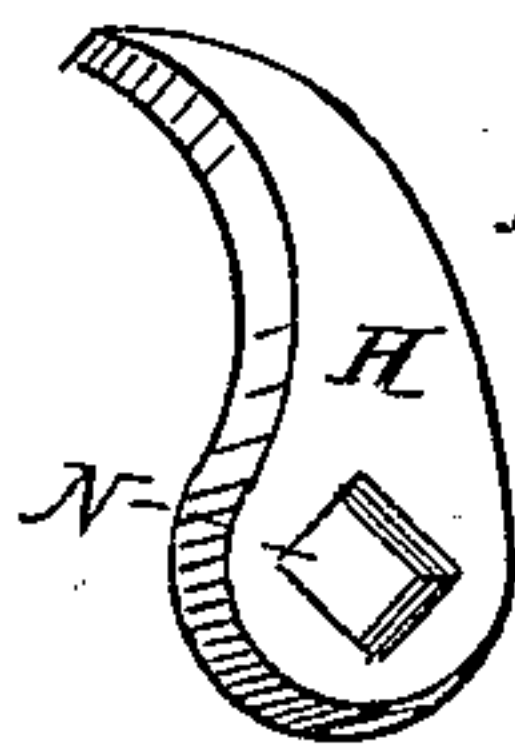
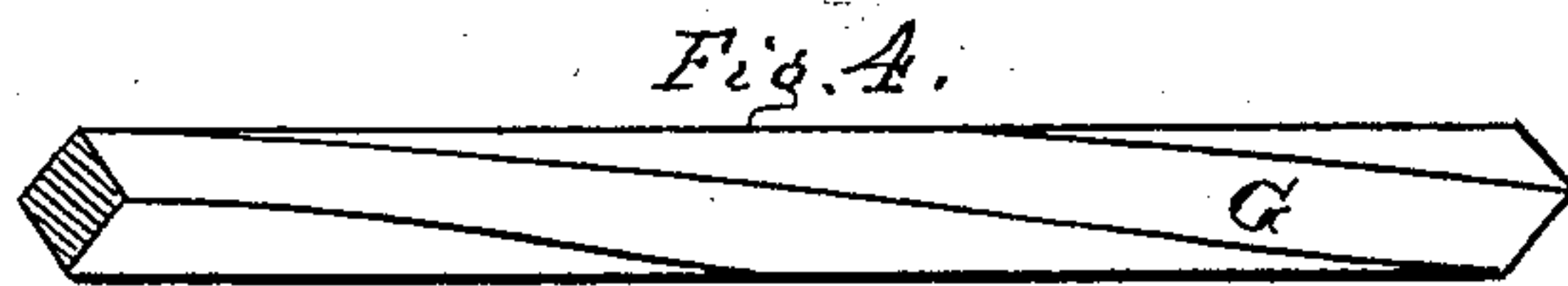
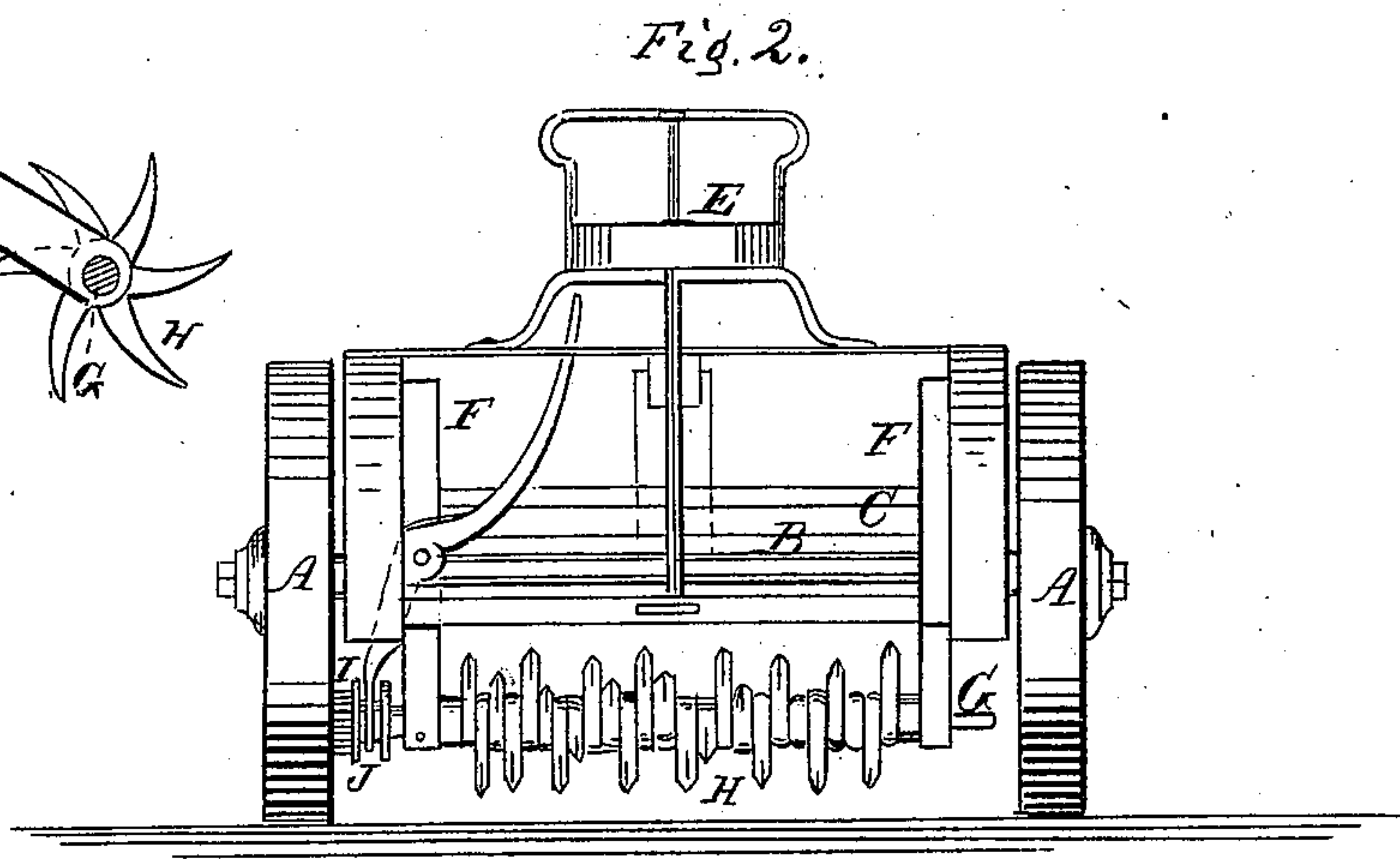
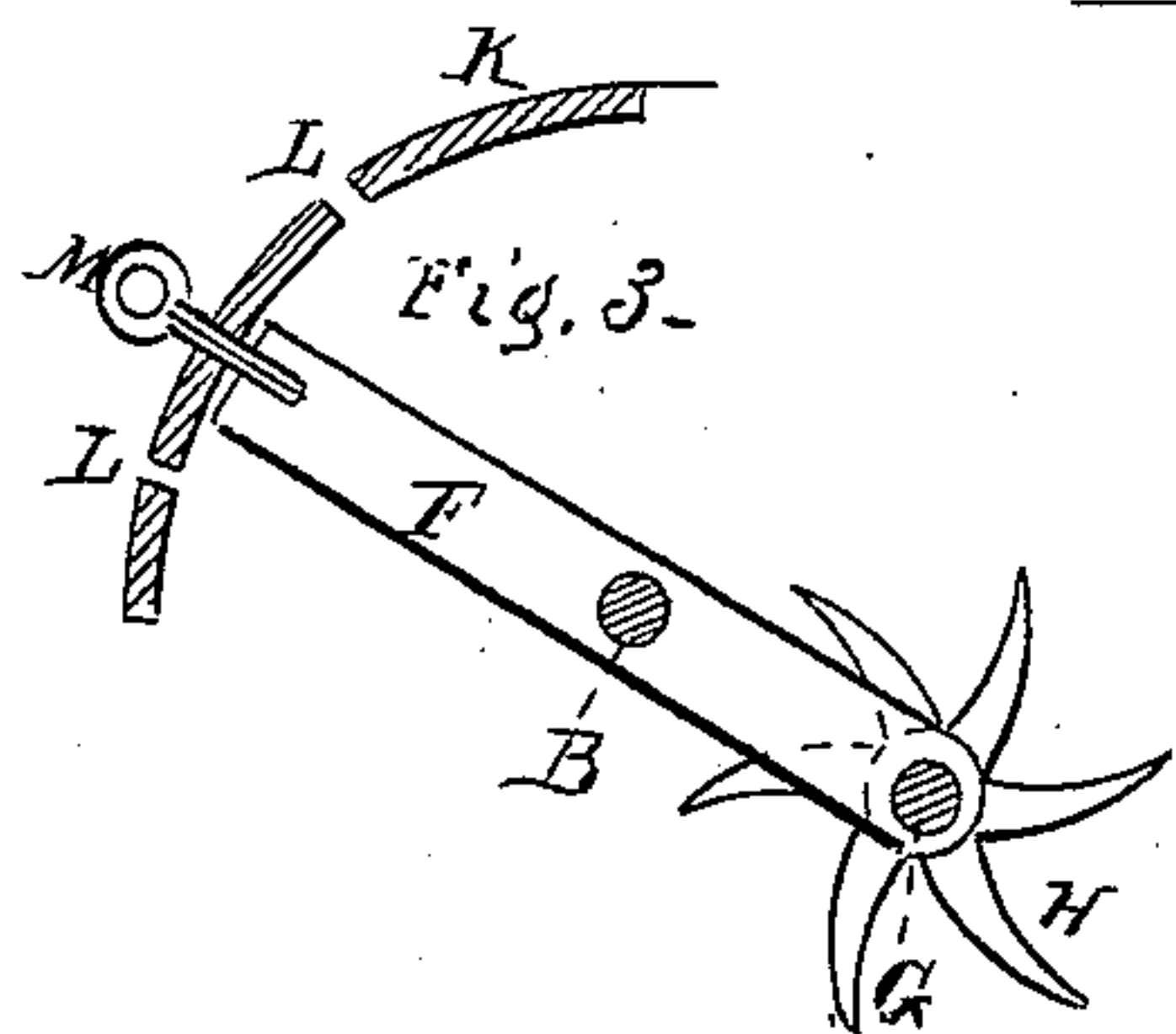
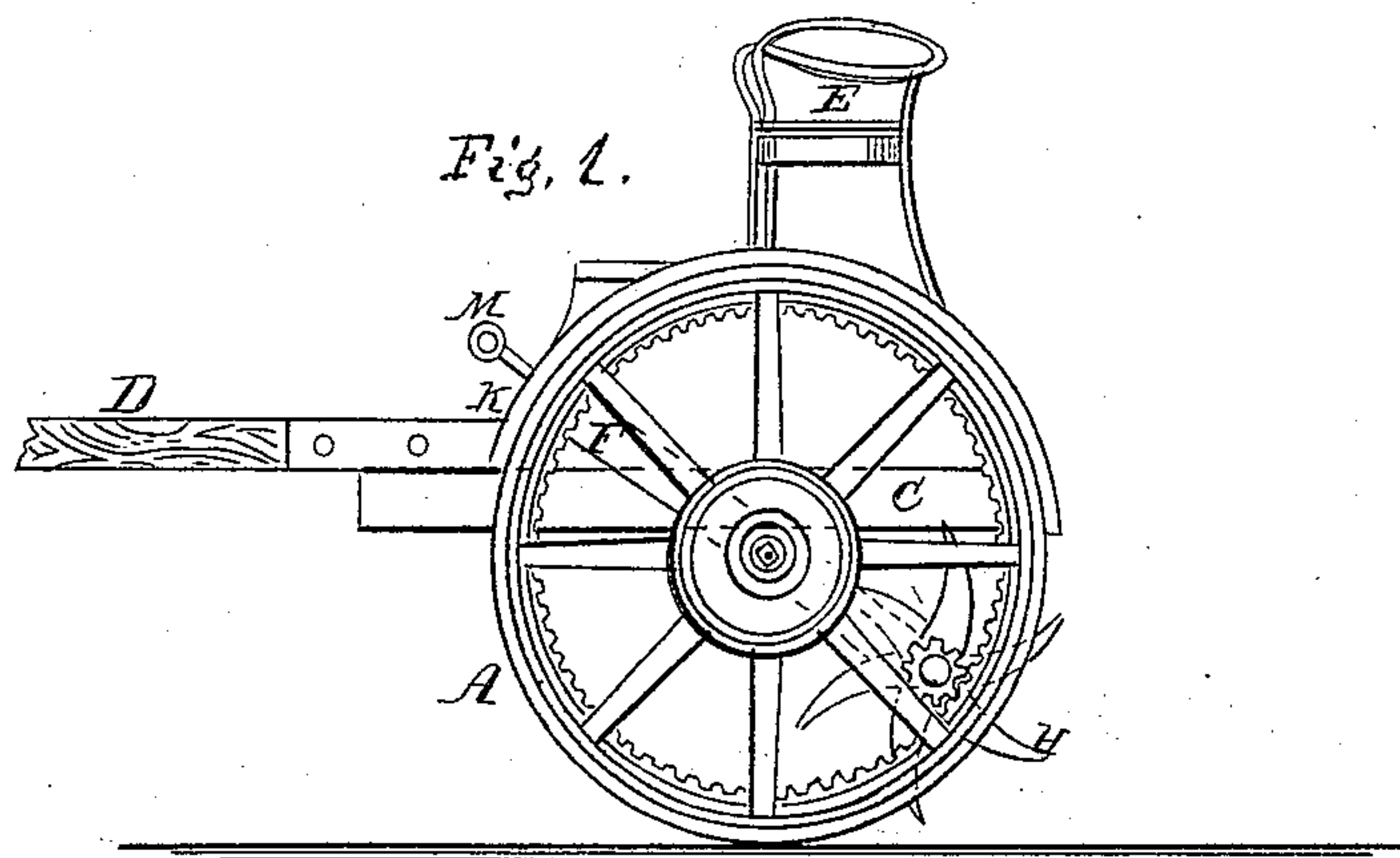


B. E. Siverlsen,

Plow.

No 93,238.

Patented Aug 3. 1869



Witnesses—
Josiah W. Ellis
J. B. Whaley

Inventor—
B. E. Siverlsen

UNITED STATES PATENT OFFICE.

B. E. SIVERTSEN, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN ROTARY SPADES.

Specification forming part of Letters Patent No. 93,238, dated August 3, 1869.

To all whom it may concern:

Be it known that I, BREDE E. SIVERTSEN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Rotary Spaders; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, and to the letters of reference marked thereon.

My invention relates to a new and improved method of constructing rotary digging or spading machines; and it consists in attaching and pivoting the frame supporting the rotary diggers to the axle of the driving-wheels, so that the diggers may be raised or depressed without throwing them out of gear; also, in providing the rotating shaft carrying the long curved teeth or diggers with a sliding pinion so constructed as to mesh into the internal gear or spur wheel on one of the driving-wheels, and so operated by means of a lever extending up to the driver's seat as that the rotation may be stopped or started without regard to the travel of the machine; also, in arranging the long curved teeth constituting the diggers spirally upon a square shaft, in the manner hereinafter described.

To enable others to understand, make, and put in operation my improved rotary digger, I will proceed to describe its construction by reference to the annexed drawings, in which—

Figure 1 represents a side elevation of my apparatus. Fig. 2 represents a rear view of the same. Fig. 3 exhibits the method of adjusting the diggers; Fig. 4, perspective view of a portion of rotating shaft upon which the diggers are secured; Fig. 5, perspective view of one of the diggers.

All the drawings are lettered, and similar letters denote like parts in the several views.

I construct my apparatus by providing a couple of large driving-wheels, A, and place one on each end of a common axle, B, which passes through the center of a rectangular frame, C, large enough to fill the space between the driving-wheels. To the forward end of this frame a tongue, D, is attached for drawing the apparatus, while above the driving-wheels, and supported by this frame, are placed a seat, E, and foot-rest, for the accommodation of the operator. Inside of this frame C, and pivoted to the axle B so as to turn freely thereon, are two long arms, F, the rear extremities of which support, in a line parallel with said axle, a revolving shaft, G, carrying

a series of curved teeth or diggers, H. One end of this shaft G extends some distance outside of its bearing or support, and is provided with a toothed wheel or pinion, I, so attached to the shaft as to rotate it, and yet admit of a sliding movement endwise, to engage or disengage itself with an internal gearing on the driving-wheel next it. On this pinion I is a groove and collar, in which the clutch on the lower end of a long lever, J, rests. The other end of this lever is placed in the immediate vicinity of the driver's seat, so that by moving this end backward or forward the pinion I may be thrown in or out of gear thus stopping or starting the diggers, as occasion may require.

It will be seen by reference to Fig. 3 that the arms F, supporting the digger-shaft, are so pivoted at their middle to the axle B that by a like depression or elevation of their forward ends a like movement will be imparted to the diggers H; and for the purpose of holding them in such position with relation to the ground over which they pass as to produce the proper effect, or to hold them above the ground while going to the place of operation, I have attached to the frame C a curved plate, K, and through a number of holes, L, in which a pin or bolt, M, is introduced into the forward ends of the arms, and by which the arms may be adjusted to the position required.

Each curved tooth H, forming the diggers, is made with a square hole, N, through it at its largest end, as shown at Fig. 5, and is so placed on a tightly-fitting square or bar, g, as that each succeeding tooth will be one-quarter turn in advance of the other, and for the purpose of arranging them spirally upon this shaft I twist it before applying the teeth in the manner indicated at Fig. 4.

The operation of this class of machines is so well understood that no further description is herein deemed necessary.

I do not claim any of the specified parts in severalty; but

I do claim—

An improved rotary spader consisting of the several parts specified, all combined, constructed, and arranged as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

Witnesses: B. E. SIVERTSEN.
JOSIAH W. ELLS,
J. B. WHALEY.