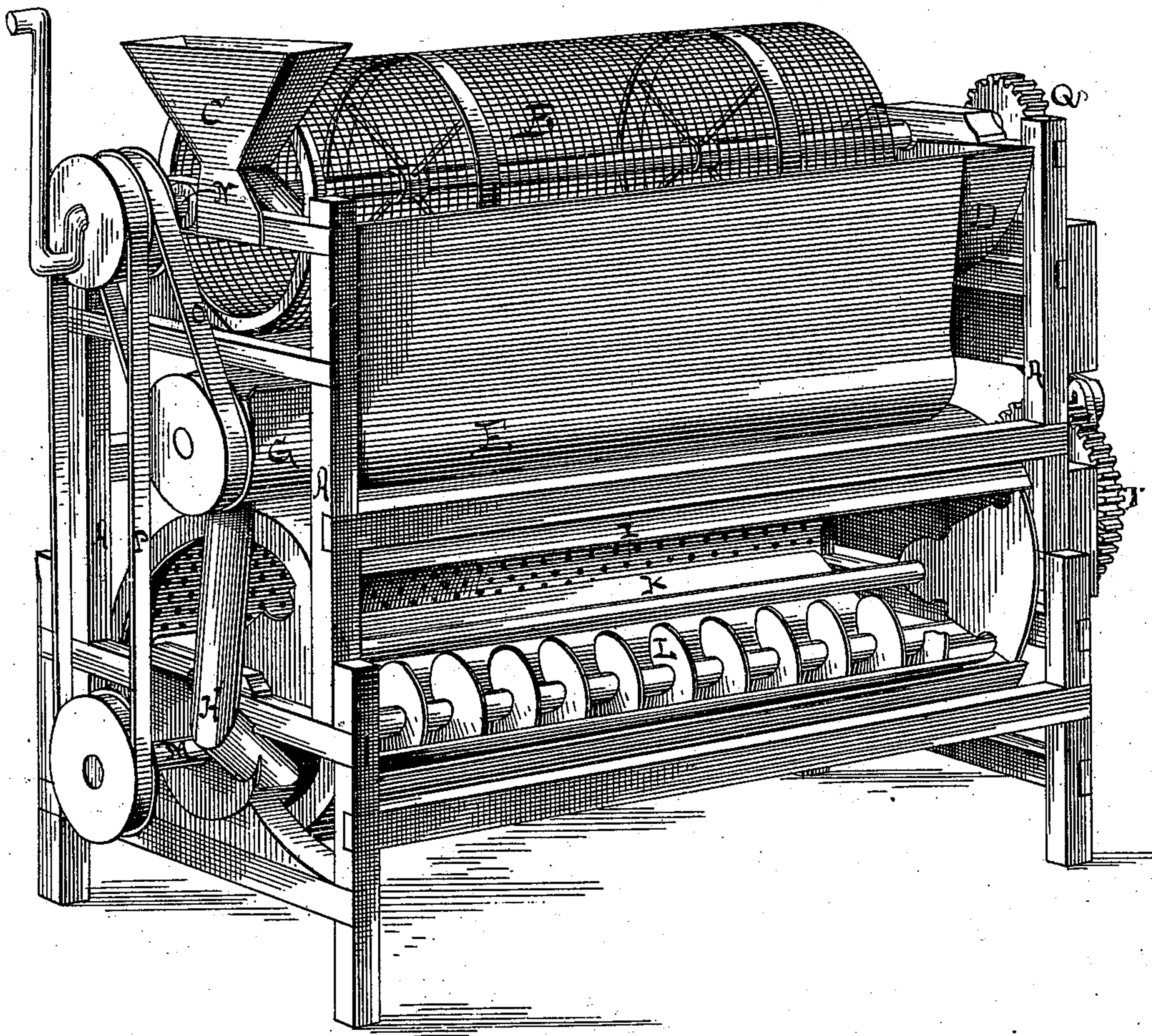


F. A. BALCH.  
Cockle-Separator.

No. 227,471.

Patented May 11, 1880.

*Fig. 1.*



*Witnesses:*

*C. Clarence Poole*  
*L. H. Marshall*

*Inventor:*

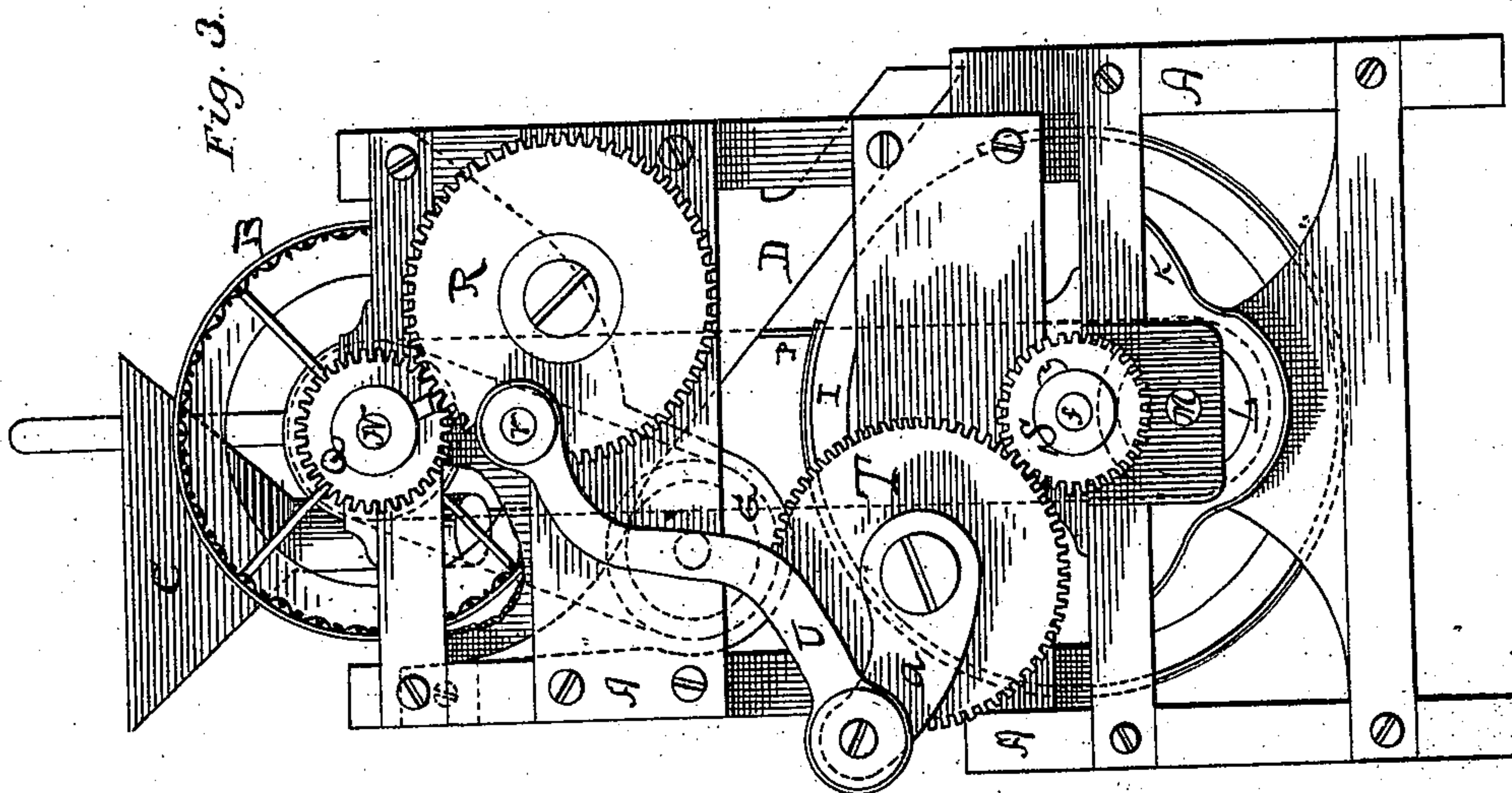
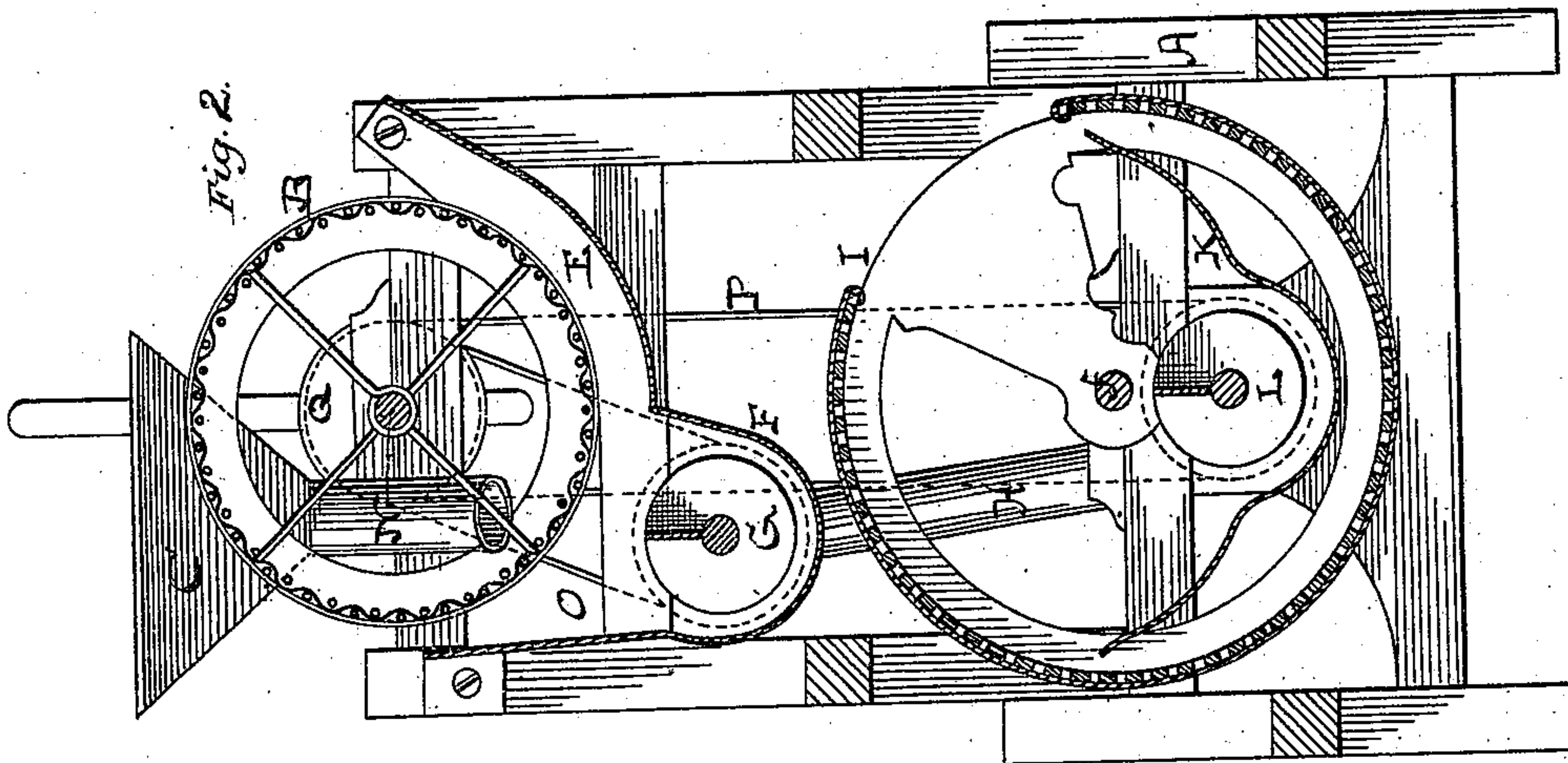
*F. A. Balch*  
*By his atty R. D. Smith*



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L. H. Marshall.

Inventor:

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By his atty R. D. Smith



# UNITED STATES PATENT OFFICE.

FREDERICK A. BALCH, OF HINGHAM, WISCONSIN.

## COCKLE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 227,471, dated May 11, 1880.

Application filed February 19, 1880.

*To all whom it may concern:*

Be it known that I, FREDERICK A. BALCH, of Hingham, in the county of Sheboygan, in the State of Wisconsin, have invented a new and useful Improvement in Cockle-Separators; and I do hereby declare that the following is a full and exact description of the same.

This invention relates to that class of cockle-separators wherein the separation is effected within a cylinder the interior surface whereof is provided with cockle-cells, to receive the cockle-grains and elevate and discharge them into a cockle-trough, which extends centrally through the said cylinder; and it consists, essentially, in a vibrating segment and a cylinder provided with cockle-cells in its interior surface in contradistinction to a continuously-rotating cylinder.

The points of advantage are, first, the pause at the termination of each vibration affords opportunity for cockle-grains to settle in the cells, which would pass over if the rotary movement were continued, and, therefore, during a given time the vibrating cylinder-segment will have a larger separating power than the revolving cylinder; second, the alternating motion has a tendency to bring the wheat to the top and permit the cockle-grains to gather on the surface of the cylinder.

That others may fully understand my invention, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a perspective view of my machine. Fig. 2 is a transverse sectional elevation of the same. Fig. 3 is a rear-end elevation of the same.

A is the supporting frame-work, constructed usually of wood and in the ordinary manner. At the top of the frame A, I mount a grading-screen, B, composed of a cylinder of reticulated wire. The grain intermingled with cockle enters the interior of said cylinder by the spout C, and as the cylinder revolves it is tumbled over and over, and all of the smaller grain and the cockle-seed find their way through the meshes of said cylinder, while the large grains, which cannot escape through the screen, are finally voided over the tail end and carried to the proper receptacle by the spout

D. The cockle and smaller grains fall into the trough E, and thence down into the worm-trough F, where a revolving worm or screw carrier, G, conveys them to the spout H, whereby they are conducted to the separator L, which consists of a cylindric segment mounted upon the shaft.

The interior surface of the segment I is provided with cockle-cells in the usual way. Within the segment I there is a trough, K, the central portion of the bottom of which is a semi-cylinder occupied by the worm-conveyer L, which is driven by the shaft M. The trough K is permanently fixed at its ends to the frame A, and its edges extend laterally almost to the inner surface of the segment I at points on a level with the axis J, or thereabout.

The driving-power is applied to the shaft N, upon which the grading-screen B is mounted, and from said shaft the conveyers G and H are driven by means of belts O P, or other equivalent and suitable means.

The vibratory movement of the separator I is effected by a train of gearing mounted upon the rear end of the frame A, and takes motion from the shaft N by means of a pinion, Q, which meshes with and drives a larger wheel, R, thus giving to R a less speed.

The shaft J is provided with a pinion, S, which is driven by a larger wheel, T, and said wheel T is provided with an arm, a, which, by means of a connecting-rod, is coupled with a crank-pin, r, on the wheel R. By these means the separator is moved through about one-half of a whole revolution during the time when the grader is moving through one whole revolution, and that without encountering any dead-point in the vibrating rotation of the separator.

The surface-speed of this vibratory separator may be considerably higher than that of the revolving separator heretofore in use, and therefore the quantity of work performed may be proportionately higher.

The grader is frequently constructed as a separate machine and placed upon another floor.

It is evident the grader may be omitted from the machine without in any way altering the operation of the separator, which constitutes the essential part of the invention.

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

5 1. In a cockle-separator, a cylindric segment furnished on its inner surface with cockle-cells and actuated with a rotary reciprocation, combined with a fixed interior cockle trough and conveyer, as set forth.

10 2. A cylindric segment, I, provided interiorly with cockle-cells, combined with an actuating-train composed of pinions Q S, wheels R and T, and connecting-rod U, for the purpose set forth.

15 3. The combination, in a single machine for separating cockles, of a grading-screen, B, at the top of the machine, mounted upon and car-

ried by the main shaft N, and a vibrating cylindric segment, I, provided interiorly with cockle-cells, and the conveyer G and L, and the actuating connections, substantially as described.

20 4. The cylindrical segment I, provided interiorly with cockle-cells, mounted upon the shaft J by means of an arm or arms upon one side only, so as to leave a clear open space for the entrance of the spout H, as set forth.

FREDERICK A. BALCH.

Witnesses:

LOREN A. BALCH,  
HENRY MULVEY.