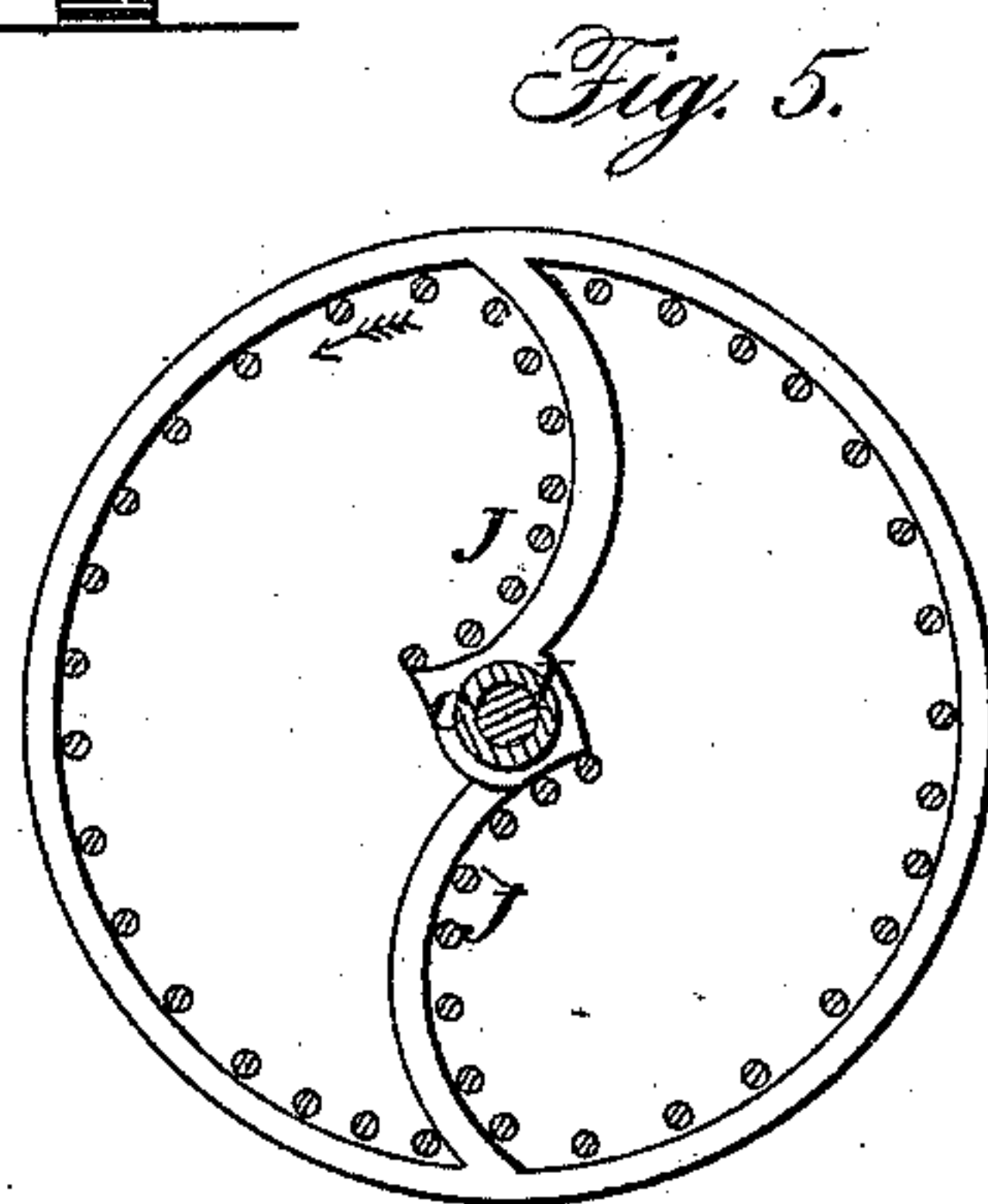
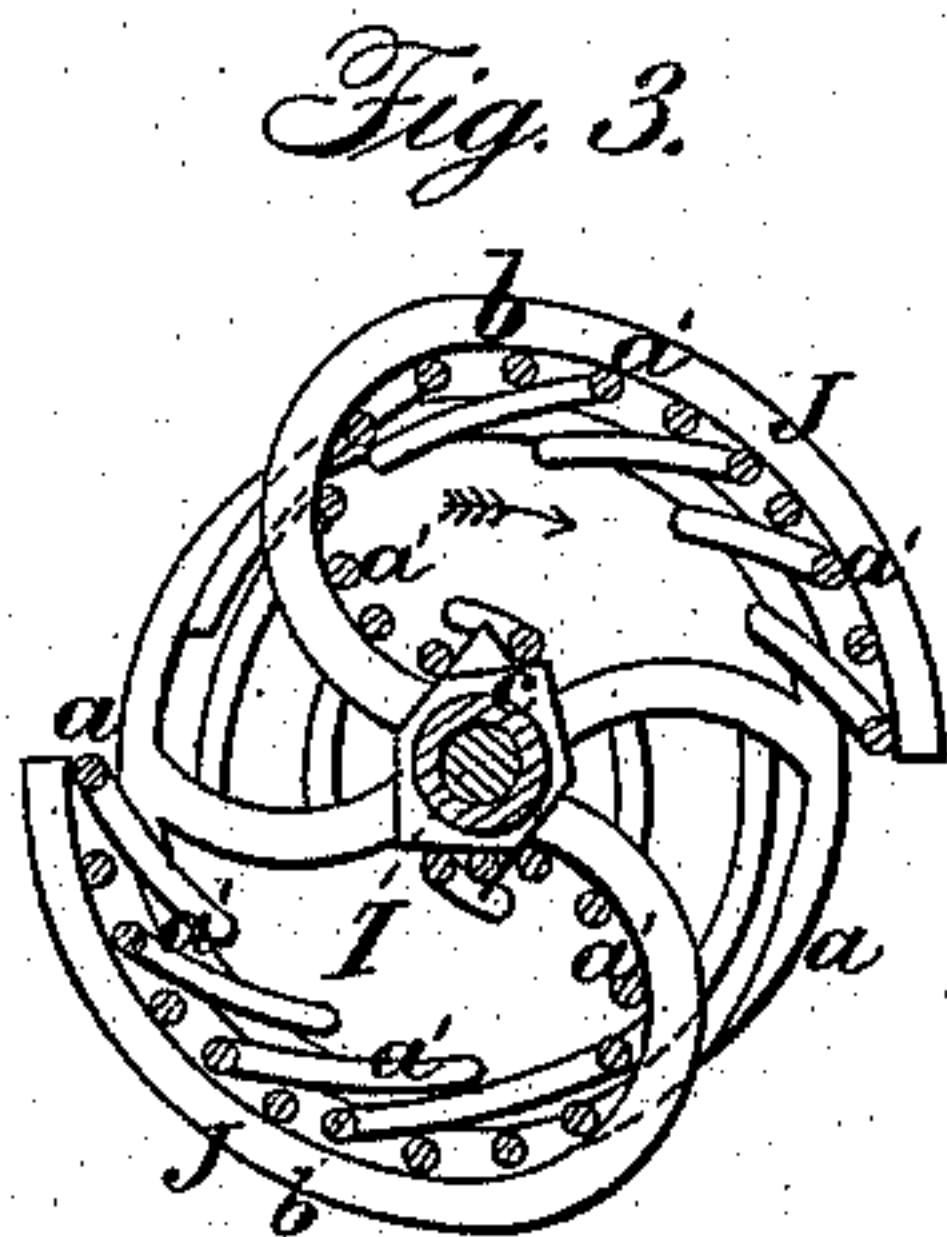
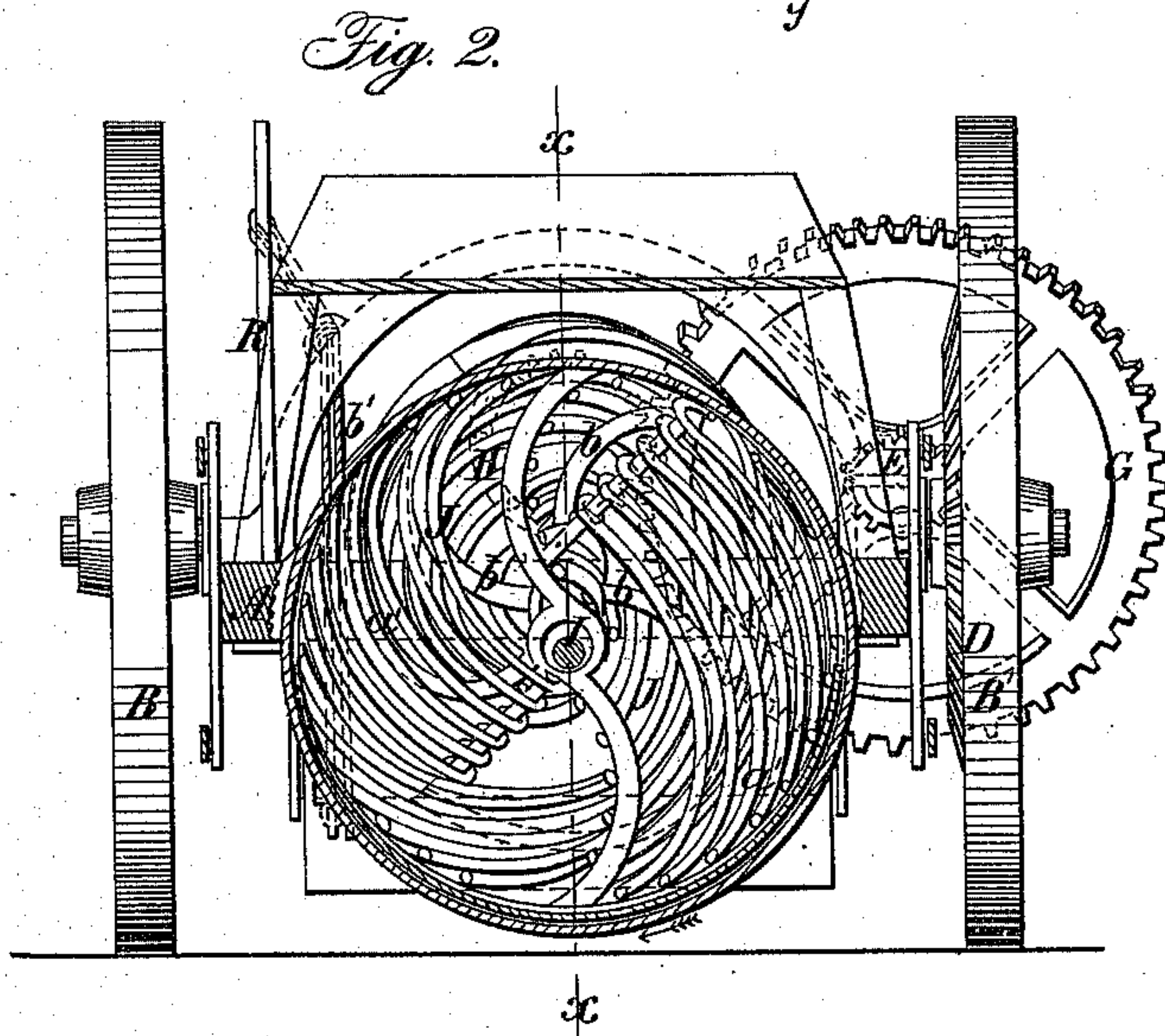
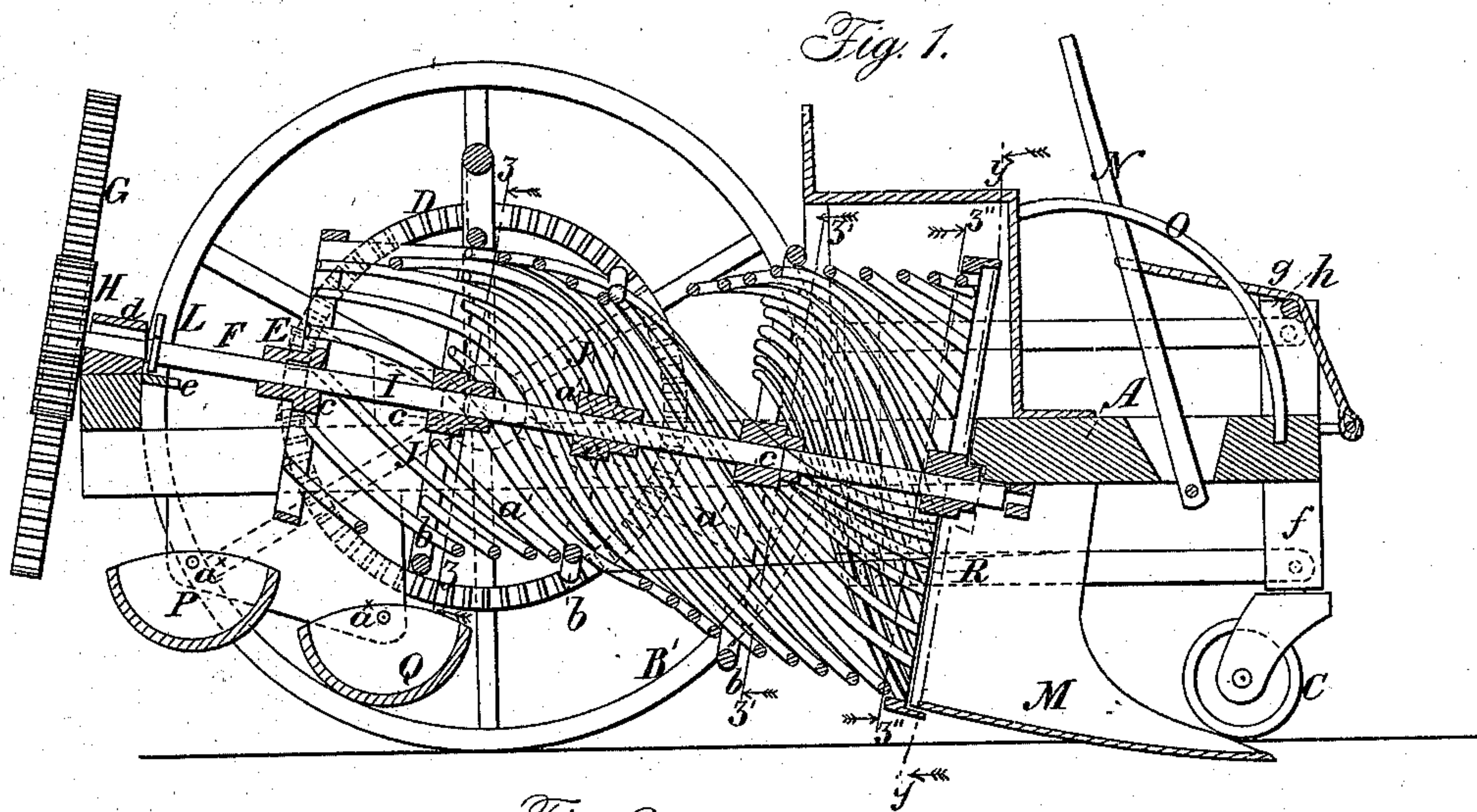


S. B. CONOVER.

Potato-Digger.

No. 35,435.

Patented June 3, 1862.



Witnesses:

*James A. Land*  
*Edw. H. Holgren*

Inventor:

*Stephen B. Conover*



# UNITED STATES PATENT OFFICE.

S. B. CONOVER, OF NEW YORK, N. Y.

## IMPROVEMENT IN POTATO-DIGGERS.

Specification forming part of Letters Patent No. 35,435, dated June 3, 1862.

*To all whom it may concern:*

Be it known that I, S. B. CONOVER, of the city, county, and State of New York, have invented a new and Improved Machine for Digging Potatoes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line  $x x$ , Fig. 2; Fig. 2, a transverse section of the same, taken in the line  $y y$ , Fig. 1; Figs. 3, 4, and 5, transverse sections of the same, taken respectively through the lines  $z z$ ,  $z' z'$ ,  $z'' z''$ , Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improved machine for digging potatoes of that class in which a rotary screen is employed to separate the potatoes from the earth and deposit the former in suitable receptacles.

The object of the invention is to simplify and render more efficient than hitherto the class of potato-diggers specified by dispensing with all special means for separating weeds and trash from the potatoes; and to this end the invention consists in constructing the rotary screen of two spiral conveyers placed on a common axis or shaft and open at one side, the screen having a suitable shake motion, and all arranged as hereinafter fully shown and described, whereby the weeds, trash, and earth are separated from the potatoes as the latter are conveyed by the screen into the receptacles designed for them.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a rectangular frame, the back part of which is supported by two wheels, B B', and the front part by two small caster-wheels, C. The wheel B' has a toothed wheel, D, attached concentrically to it, and into this wheel a pinion, E, gears, said pinion being at the front end of a shaft, F, which is placed longitudinally on the back part of the frame A, and has a spur-wheel, G, on its back end, which gears into a pinion, H, on the back end of the screen-shaft I, which is placed longitudinally in the frame A in an inclined position, as shown in Fig. 1.

The screen which is on the shaft I is formed of two spiral parts, J J, each of which is the section of an oval or ellipse in its transverse section, as shown clearly in Figs. 3 and 4, each part having an open space,  $a$ , extending its whole length, with the exception of a short distance at their front ends, where the two parts meet, as shown at K in Fig. 1. The parts J J are constructed of wires  $a'$ , placed at a suitable distance apart and connected to ribs  $b$ , which are attached at their inner ends to hubs or collars  $c$  on the shaft I, said ribs being curved or bent to give the desired form of the transverse section of the parts. The wires  $a'$ , at the back ends of the parts J J, are rather wider apart than at their front ends, as shown in Fig. 1. The object of this will be presently explained. The diameter of the parts J also gradually decreases from their front to their back parts.

The back part of the shaft I is fitted in a bearing,  $d$ , which admits of its working vertically therein to a certain extent, said bearing being sufficiently high to effect such result, (see Fig. 1,) and on the shaft I, adjoining the bearing  $d$ , there is placed a cam, L, which, as the shaft I rotates, works against a plate,  $e$ , on the frame A, and gives a shake motion to shaft I, and consequently to the screen.

To the inner side of the frame A, at its front part, there is attached a scoop or share, M, which is in line with the front end of the screen, as shown in Fig. 1.

I would remark that the front part of the frame A is fitted loosely on uprights  $f$ , to which the caster-wheels C C are attached, and a cord or chain,  $g$ , which is attached to the front end of the frame A, passes over a horizontal bar,  $h$ , which connects the upper ends of the uprights  $f$ , said cord or chain being attached to a lever, N, which is secured to the frame A, and is retained in proper position by a stop, O, in order to sustain the front part of the frame when the scoop or share is out of the ground. This device for raising the front part of the frame is common to various agricultural implements.

The operation is as follows: When the machine is drawn along and is at work the lever N is free from its stop O, and the scoop or share M digs up the potatoes from the hills or drills, the potatoes and earth, with weeds or vines, passing into the front end of the screen,



which is rotated through the medium of the gearing previously described. As the screen rotates, the earth passes between the wires  $a'$  of the parts J J of the screen, while the weeds, vines, and trash are discharged through the spaces or openings  $a$   $a$  of said parts. The weeds and vines cannot be conveyed to the back part of the screen, as they will not pass freely through it, and if the screen were inclosed like those of previous machines they would choke or clog it. The spaces  $a$  admit of a free discharge of the weeds and vines, while the potatoes pass freely to the back ends of the parts J J, the small potatoes being discharged through the wide spaces at the back part of the screen, and the large potatoes being discharged from the back end thereof. The superior gravity of the potatoes and the centrifugal force generated by the rotation of the screen cause the potatoes to remain in the parts J, and admit of their being carried by the spiral form of said parts to the back ends of the same. The shake motion of the screen, previously described, aids in separating the dirt, weeds, &c., from the potatoes, and in discharging the same from the screen.

I employ two receptacles, P Q, to receive the potatoes. One, Q, being underneath the back part of the screen to receive the small potatoes, and the other, P, just back of the screen to receive the large ones. These receptacles are hung on pivots  $a^x$   $a^x$ , and are connected by a cord or chain,  $b'$ , to a lever, R, by operating which at any time the receptacles may be tilt-

ed and the potatoes discharged. These receptacles are, however, not new separately or in themselves considered. They may be seen in a machine formerly patented by me and Marshall Spring, the Letters Patent bearing date April 30, 1861.

By forming the screen of two spiral parts, J J, as shown and described, I avoid all special devices for separating the weeds, vines, &c., from the potatoes, which devices render the machine complicated, and I obtain a conveyer, weed-separator, and screen combined in one device.

I do not claim broadly a rotary screw, for they have been previously used, nor do I claim separately the potato-receivers P Q; but,

Having thus described my invention, what I do claim as new, and desire to secure by Letters Patent, is—

1. The combined rotary screen, conveyer, and weed-separator, formed of two spiral parts, J J, connected to a common axis or shaft, I, and provided with openings  $a$   $a$ , substantially as and for the purpose set forth.

2. The scoop or share M and rotary screen, conveyer, and weed-separator, having a shake motion, as described, in combination with the tilting receivers P Q, all arranged for joint operation, as and for the purpose specified.

STEPHEN B. CONOVER.

Witnesses:

EDW. W. HODGSON,  
JAMES LAIRD.