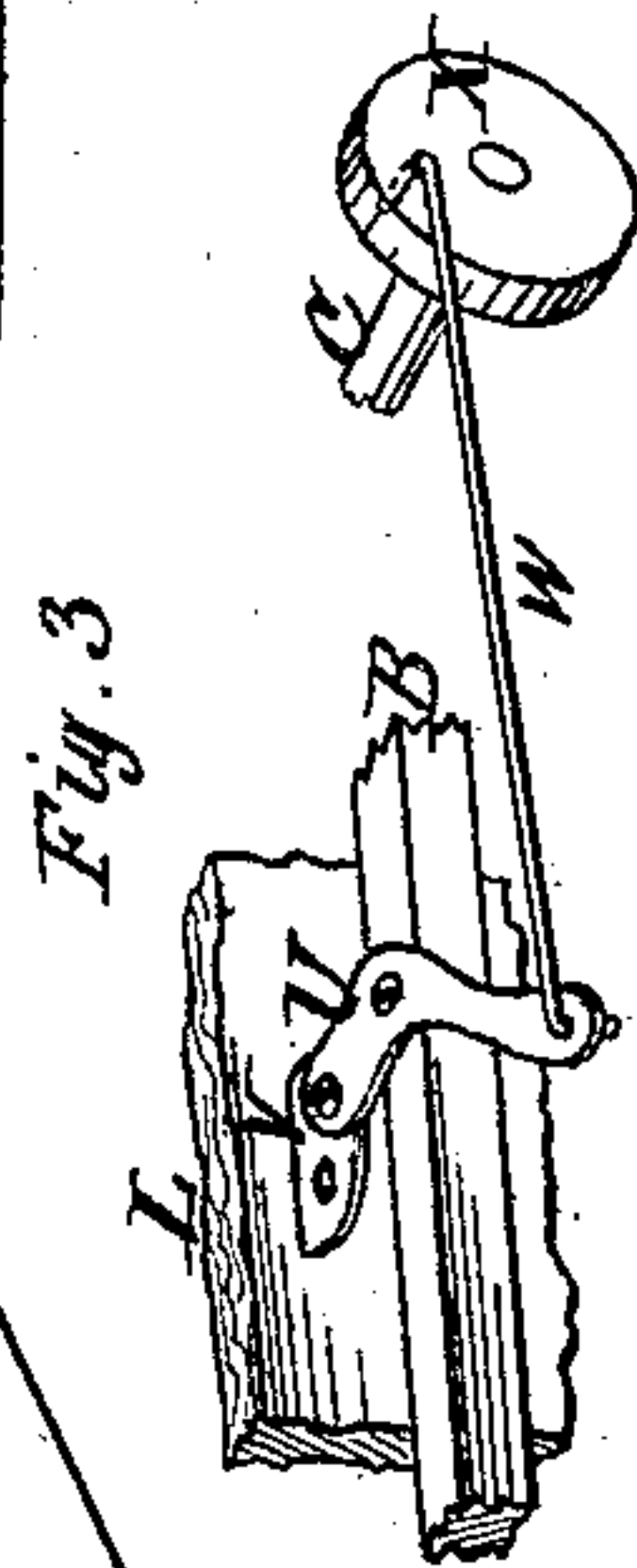
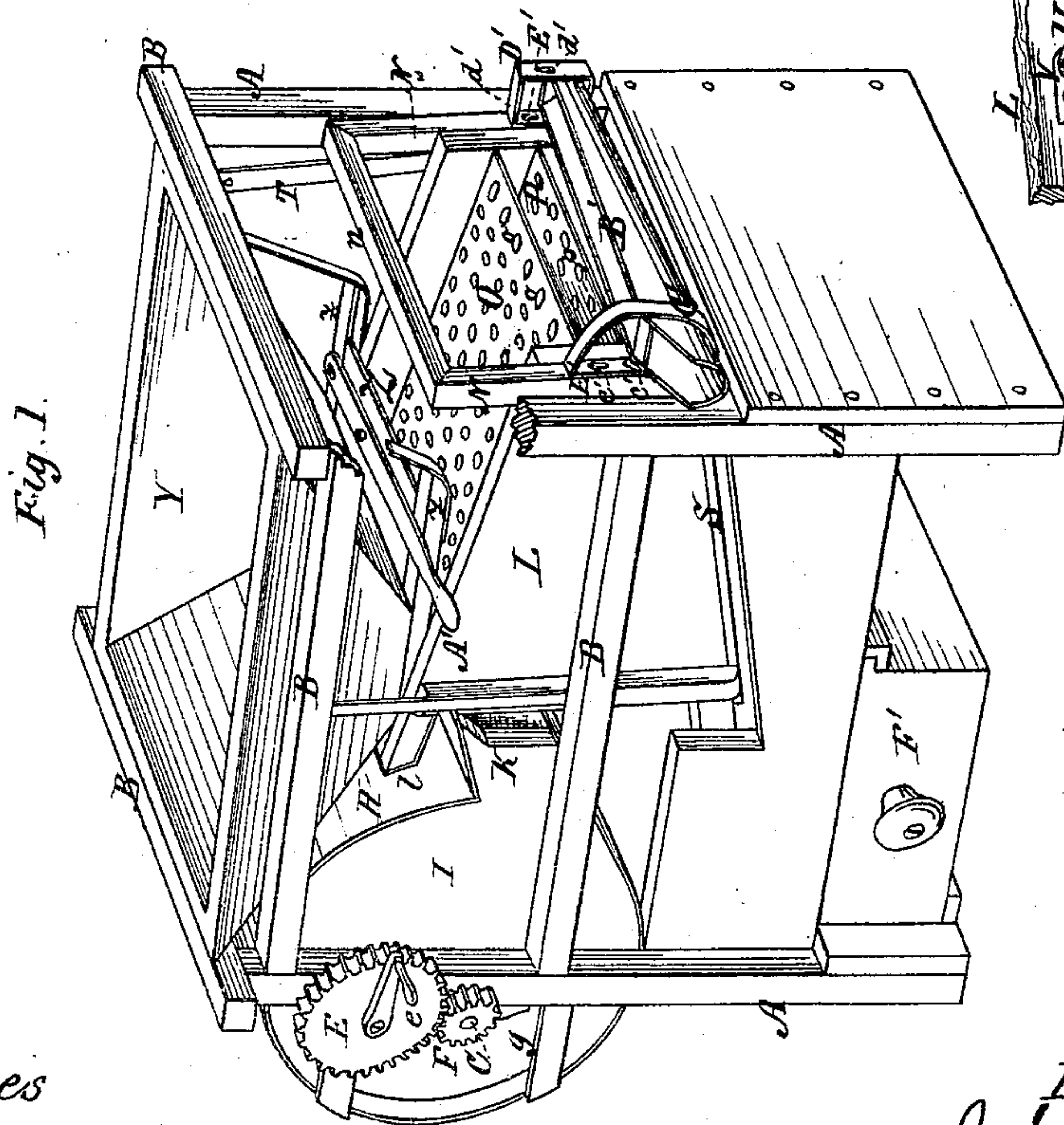
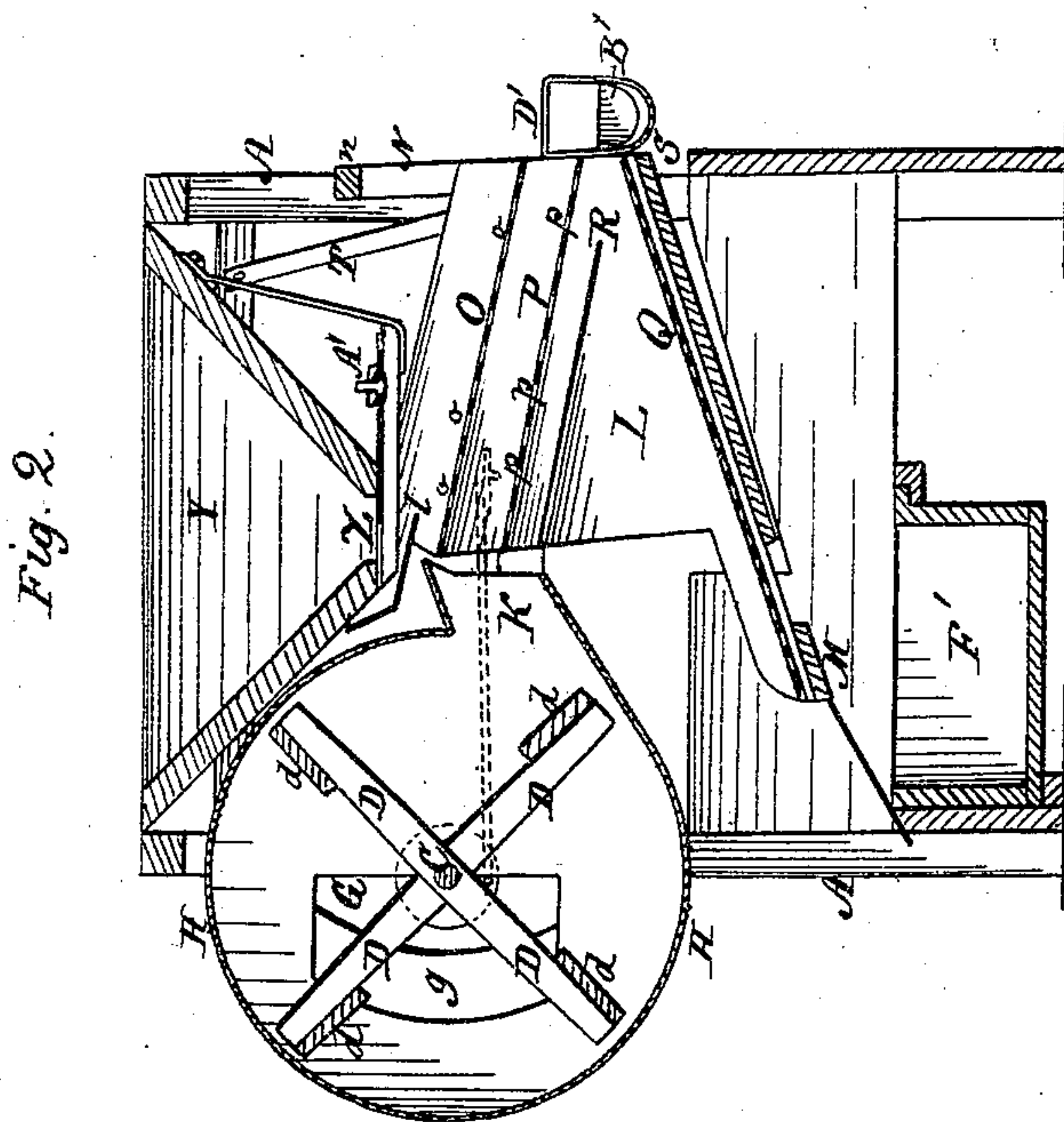


O. J. EVERSON.  
Grain-Separators.

No. 141,130.

Patented July 22, 1873.



Witnesses  
Edmund Masson.  
John R. Young

Inventor.  
O. J. Everson, by  
Prindle and Co., his  
Attys



# UNITED STATES PATENT OFFICE.

OSCAR J. EVERSON, OF LAKE CITY, MINNESOTA.

## IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **141,130**, dated July 22, 1873; application filed October 22, 1872.

*To all whom it may concern:*

Be it known that I, OSCAR J. EVERSON, of Lake City, in the county of Wabashaw and in the State of Minnesota, have invented certain new and useful Improvements in Grain-Separators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view of my device. Fig. 2 is a vertical central section of the same on a line extending from front to rear, and Fig. 3 is a partial perspective view and elevation of the opposite side of said device.

Letters of like name and kind refer to like parts in each of the figures.

My invention is an improvement upon a class of machines used for winnowing grain; and it consists, principally, in the means employed for controlling the passage of grain from the hopper, substantially as and for the purpose hereinafter specified. It consists, further, in the peculiar construction of the drum and screen-shoe, by means of which the chaff is separated from the grain before the latter strikes the screens, substantially as and for the purpose hereinafter shown. It consists, further, in the construction and relative arrangement of the double screens and tailings spout or trough, substantially as and for the purpose hereinafter set forth. It consists, further, in the combination of the upper and lower screens with the intermediate chess-board, substantially as and for the purpose hereinafter shown and described. It consists, further, in the means employed for securing the tailings-trough to, and rendering it adjustable upon, the frame, substantially as and for the purpose hereinafter specified.

In the annexed drawing, A and A represent four posts, secured together in vertical position by means of a number of horizontal bars, B, the whole forming the frame of the machine. Journaled within suitable bearings upon the front side of the forward posts A is a shaft, C, which, between said posts, is pro-

vided with a number of radial arms, D, that are connected together at their outer ends by means of thin strips of wood or metal *d*, so as to form a wind-wheel of usual construction for creating a blast of air. A gear-wheel, E, provided with a crank, *e*, is pivoted to or upon the outer side of one of the posts A above the projecting end of the shaft C, and meshes with a pinion, F, which is secured upon said shaft end, so that, by turning said crank and gear, a rapid rotary motion will be imparted to said shaft and the wind-wheel. Each end of the wind-wheel is inclosed, except at one point, where an opening, G, is left for the admission of air, said opening being provided with slides *g*, by means of which its size may be varied at will. The periphery of the wheel is inclosed within a metal casing, H, that is secured to or upon the end casings I, and with the same forms a drum, which is provided at its rear side with a narrow chute or passage, K, that extends upward and rearward at an angle of about forty-five degrees. Within the rear part of the frame is placed a screen-shoe, which is composed of two side pieces, L, that have the form shown in Fig. 2, and are connected together by means of a metal plate, *l*, extending between their upper forward ends, a wooden cross-bar, M, extending between their lower front ends, and two vertical bars, N, attached to their rear ends, and provided with a connecting cross-bar, *n*, which is fastened to and extends between the upper ends of said vertical bars. Within the shoe thus constructed are placed three screens, two of which, O and P, are constructed of sheet metal, provided with a series of comparatively large openings, *o* and *p*, respectively, and placed near the upper side of said shoe, and which incline downward and rearward, while the third screen, Q, constructed from wire-cloth, is placed just above and parallel with the lower side of said shoe, all of said screens being contained within suitable grooves cut in the sides L, and are capable of removal at will. At a point just below the screen P is placed an imperforate metal plate or chess-board, R, which has a depth



from front to rear somewhat less than the corresponding features of the shoe sides, and is capable of adjustment in a like direction and in a line with said screen. A plate, S, inclosing the lower side of the shoe from its rear end forward about three-fourths the length of the same, completes said part, which is suspended from the upper inner side of the frame by means of four metal straps, T, that allow a lateral swinging movement to be had. A laterally vibratory motion is imparted to the shoe by means of an angle-arm, U, that is pivoted to or upon one of the frame-bars B, and has one end connected to or with said shoe by a pivoted link, V, and its opposite end connected by means of a pivoted bar, W, to or with a disk, X, which is secured to and revolves with the shaft C, all in the usual manner. Within the upper side of the frame is placed a hopper, Y, of usual construction, which at its lower end is inclosed by means of a sheet-metal slide, Z, that rests upon or within suitable horizontal supports, z, that are secured upon and extend rearward from said hopper. A lever, A', is pivoted at one end to or upon one of the supports z, and from thence extends across and is pivoted to or near the center of the slide, the outer or free end of said lever being within convenient reach of the operator's hand.

As thus arranged, by moving the outer end of said lever forward or back a corresponding movement, but in a less degree, will be communicated to said slide, and the opening in the lower side of the hopper closed or opened.

The tailings-spout B' has the general form shown in Fig. 1, and is suspended upon or from the rear end of the screen-shoe by means of two sheet-metal loops, C' and D', which are provided upon or within their vertical sides with openings c' and d', that have suitable sizes to enable them to be passed over the heads of screws E' that project outward from said shoe. The loop or stirrup D' is preferably secured to or upon the spout; but as each of its sides is provided with openings d' for receiving the screw-heads, it will be seen that the spout may be removed, the stirrup C' placed upon the opposite side of the shoe, and said spout replaced in a reversed position.

A drawer, F', for receiving the fine screenings, placed within the lower front side of the frame, completes the device, the operation of which is as follows: Grain being supplied to the hopper, and the slide adjusted so as to permit a stream of the same to pass downward upon the screen O, the fan or wind-wheel is caused to revolve with its lower side moving toward and its upper side from the shoe, by which means an air-blast is produced, which, striking the descending stream of grain, removes from the same the straw

and chaff before said grain strikes the screens. The grain, oats, and other heavy foreign substances strike the upper screen, where, by the vibratory motion, said grain is caused to pass through to or upon the next lower screen P, and through the same to the chess-board R, from whence it passes rearward and downward, and falls upon the rear upper end of the lower screen or sieve Q, and along the same to the floor. The oats and heavy screenings pass from the rear end of the machine to the floor, while any grain that may pass off from the ends of the screens is caught by the tailings-spout and conveyed into any suitable receptacle placed at its lower end.

By adjusting the chess-board toward or from the rear end of the shoe, the descending current of grain will be caused to strike the lower sieve at a greater or less distance from its forward end, and, consequently, increase or diminish the distance which said grain is compelled to travel along said screen before reaching the floor. This arrangement of parts enables such an adjustment to be made as will remove any desired quantity of screenings from the grain.

The especial advantages obtained by such construction and arrangement of parts are, first, the gate for controlling the passage of grain from the hopper moves in a horizontal plane, so that the pressure of said grain, being vertical, cannot in any manner change the adjustment of said gate, while, as ordinarily constructed, the gates are inclined, and the pressure of grain and the vibration of the machinery have a tendency to move them unless locked in position; second, the relative arrangement of the discharge-opening of the hopper, the blast-chute, and the screens, renders the machine more compact and less expensive, and increases the efficiency of its operation; third, by the construction and combination of the screen-shoe, screens, and tailings-spout, a material improvement is effected in the operation of the machine; fourth, the means employed for connecting the tailings-spout to or with the screen-shoe renders easy the attachment to or removal of the latter from the former, and also enables said spout to be reversed at will, so as to discharge the tailings upon either side of the machine.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The combination and relative arrangement of the gate Z, guides z, pivoted lever A', and hopper Y, constructed as and for the purpose specified.

2. The combination of the hopper Y with its discharge-opening, arranged relatively as shown, the blast-chute K, and the screens O and P, substantially as and for the purpose shown.



3. In combination with each other and with the screen-shoe L, the screens O and P and tailings-spout B', substantially as and for the purpose set forth.

4. The means employed for securing the tailings-trough to or upon the screen-shoe, consisting of the metal loops or stirrups C' and D', provided with the openings *c'* and *d'*, respectively, and fitted to or over the

screws E', substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of September, 1872.

O. J. EVERSON.

Witnesses:

WESLEY KINNEY,  
F. M. WILSON.