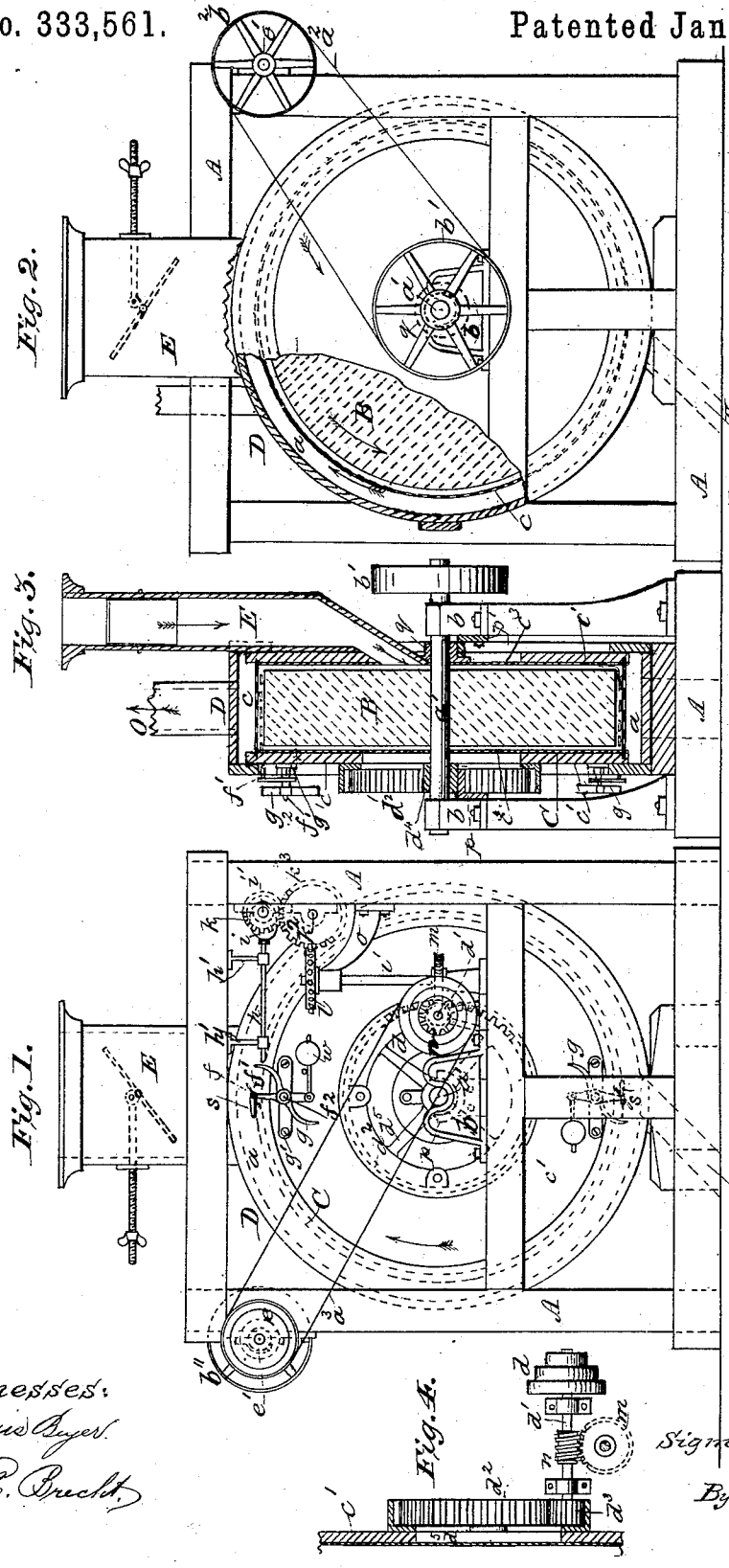
(No Model.) 2 Sheets—Sheet 1.

S. SPITZER.

BARLEY MACHINE.

No. 333,561. Patented Jan. 5, 1886.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 5.

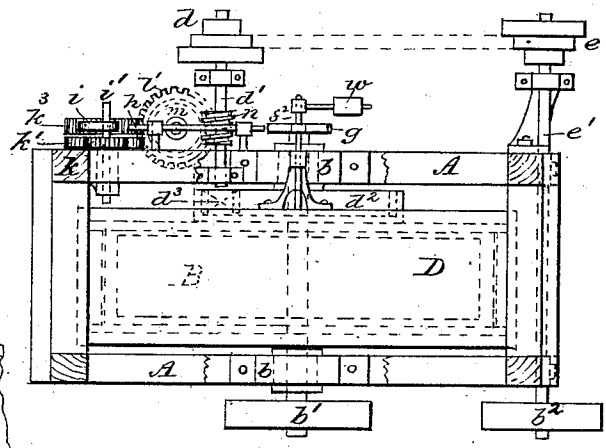


Fig. 9.

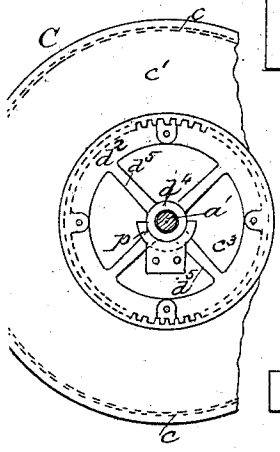


Fig. 10.

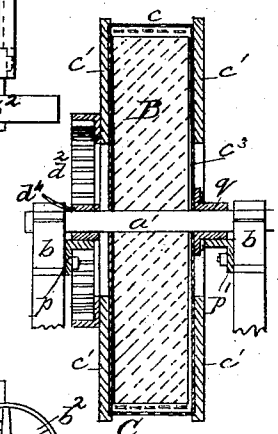
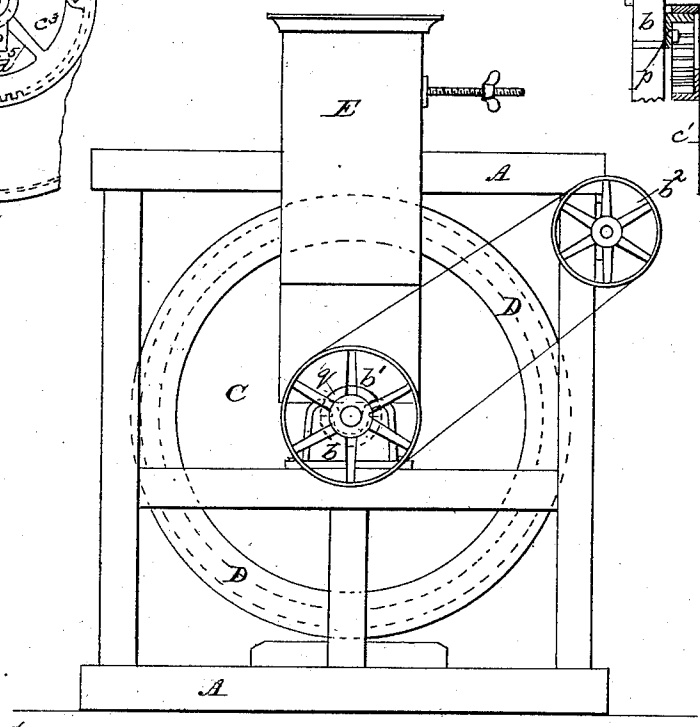


Fig. 6.



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UNITED STATES PATENT OFFICE.

SIGMUND SPITZER, OF VIENNA, AUSTRIA-HUNGARY.

BARLEY-MACHINE.

SPECIFICATION forming part of Letters Patent No. 333,561, dated January 5, 1886.

Application filed July 25, 1885. Serial No. 172,645. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND SPITZER, a subject of the Emperor of Austria-Hungary, residing at Vienna, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Barley-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in machines for the manufacture of pearl barley; and the objects are to produce a machine by which a large number of different grades or sizes of pearl barley may be produced; also, to regulate the inlet and outlet in an automatic manner; also, to perform this operation at a small expense.

The invention consists in the construction and arrangement of parts, as will be more fully described hereinafter, and specifically pointed out in the claims, reference being had to the accompanying drawings and the letters of reference marked thereon.

The same letters indicate the same parts in the different figures of the drawings, in which—

Figure 1 represents a side elevation of my improved barley-pearling machine. Fig. 2 is an elevation of my improved machine on the side opposite to that shown in Fig. 1, partly broken away and in section. Fig. 3 is a vertical cross-section of the same. Fig. 4 is a detail view of a portion of the operating mechanism. Fig. 5 is a plan view of the machine with the hopper removed. Fig. 6 is a side elevation of the machine with the hopper. Figs. 7 and 8 are enlarged detail views. Figs. 9 and 10 are detail views of the revolving casing, showing the manner of mounting the same.

In the drawings, A is a suitable frame-work, in which the mechanism for treating the barley is supported, and which consists of a revolving stone, B, surrounded by a revolving casing, C, said stone being rigidly secured on a shaft, a', mounted in bearings b on the frame A, and revolving therewith in the direction indicated by the arrow, and the said casing is so mounted on said shaft as to be revolved in the opposite direction, (also indicated by an arrow,) but with less speed than said stone, as hereinafter described. The stone B receives motion from the pulley b', secured on the end of shaft a', by means of the pulley b^2, mounted on shaft e' in bearings secured to the frame A, and connecting-belt a^2, said pulley b^2 receiving motion from any suitable power. The casing C is formed of the annular part c, made of sheet-steel, and provided with rectangular perforations, and secured to the two open heads c' placed as close as possible to the periphery and sides of the stone B. The two sides of the casing are lined with sheet metal c^3, and it is mounted, as best seen in Figs. 9 and 10, as follows: A semicircular bearing, p, is bolted to the side of the bearing b, and in it the hub d^4 of the gear-wheel d^2, having arms d^5, revolves loosely around the shaft a'. On the opposite side of the casing is secured a flanged hub, q, having its bearing in a bearing, p', similar to bearing p. The casing C is caused to revolve in a direction opposite to the revolution of the stone B by means of the cone-pulleys d and e and belt a^3, as follows: The cone-pulley d is secured to the short shaft d', Fig. 5, mounted in proper journals, and on the inner end thereof is secured a pinion, d^3, which meshes with the gear-wheel d^2, secured to one of the open heads c' of said casing by any suitable means. The cone-pulley e is secured to the shaft e', and connected to the cone-pulley d by the belt a^3, so that when motion is communicated to the pulley b^2 on the opposite end of said shaft e', the casing C will revolve in the direction hereinbefore stated. The mechanism for revolving the stone and its surrounding casing is also constructed and arranged so as to cause the same to revolve not only in opposite directions, but at different speeds, it being so proportioned as to cause the said stone to make forty revolutions while said casing makes seven revolutions.

The casing C is surrounded by a covering or shell, D, secured to the frame-work A in such manner as to form a space, a, into which the fine particles or dust from the barley is carried through the perforations of the casing C. The casing C has also two openings, c^2, relatively, one at top and one at bottom, which are opened and closed at certain intervals by two pivoted valves, $f f$, one diametrically opposite the other, as shown in Fig. 1. These valves are pivoted in the heads c' of the casing

C, and each shaft or pivot of these valves extends through one head c', and has an arm, f', secured to it, which in turn is secured to a short shaft, f^2. This shaft moves in a bracket, g', attached to one of the heads of the casing C.

On the outer end of the shaft f^2 is placed a tappet, g, of S shape. The tappet is operated by a rod, h, suspended in brackets h', and which is operated by an eccentric or cam, i, on a small shaft, i', receiving motion through a pinion, k, that meshes with a gear-wheel, k', on a counter-shaft, k^2. This shaft receives motion from a gear-wheel, k^3, (shown in Fig. 5,) which meshes with a face-wheel, l, provided with suitable pins on its periphery, and secured to a vertical shaft, l', having a worm-wheel, m, on its lower end, which gears with a worm, n, on the shaft d', as best shown in Fig. 4. The shaft l' is supported in a suitable step below, and a bracket, o, above, secured to the frame-work A. The valves f f are alternately opened and closed during the revolution of the casing C. As the valve mechaniism revolves with the case C, each tappet g comes in contact with the rod h, which is moved endwise into position by the cam i, and held therein against the tappet during the time of its contact with the greatest radius thereof, and the valve f is opened and remains open until the tappet is released by its motion backward and the release of the rod h from the action of said cam, said valve being then closed by the action of the weight w on the lower end of the lever f'.

The quantity of barley required during the operation is regulated at certain intervals by opening the damper in the hopper E. The barley so admitted consists of regular kernels of barley, which are first broken in pieces of the required size, or the barley may be reduced by constant attrition to form the pearl barley of the size desired. When the valves f are opened in succession as they revolve with the casing, the finished pearl barley, which is contained in the space between the stone B and casing C, will pass out at the top of the casing through the openings c^2 into the space a between the casing C and shell D, thence falling by gravity and passing out through the spout U. Slots s are arranged in the side of the casing to permit the movement of the valves f f. After a certain number of revolutions of the stone and casing, and when the pearl barley is finished, the valves are successively opened, and the pearled barley passed through the openings c^2 by gravity out through the outlet-spout U. The chaff, hulls, dust, &c., carried through the perforations in the casing C into the space a are removed therefrom by means of an exhaust-fan communicating with the space a by an opening, O, at the upper side of the machine.

The operation is as follows: The valve in the hopper E is set by a screw and thumb-nut to form the required opening to admit the pieces of barley cut to the proper size, which descending pass between the revolving casing and the stone, where, by centrifugal force and attrition, it is reduced to the desired size, when it passes through the openings c^2 as they arrive at the top of the casing and out at the spout U into a suitable receptacle, or to an elevator. The hulls, chaff, or other impurities pass through the perforations in the casing C into the space a, from whence they will be withdrawn through the opening O by an exhaust-fan.

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

1. In a barley-machine, the combination of the revolving stone, the perforated inclosing-casing revolving in opposite direction to said stone, and the stationary casing with the shafts f^2, valves f, provided with the arms f', weights w, and the tappets g, rod h, cam i, and the gearing whereby said valves are actuated, as and for the purpose specified.

2. In a barley-machine, the combination of the revolving stone B, pulley b', the perforated revolving casing C, revolving in opposite direction to said stone, gear-wheel d^2, the pinion d^3, shaft d', and cone-pulleys d and e, as and for the purpose set forth.

3. A pearl-barley machine comprising the frame A, shell D, the revolving stone B, revolving perforated casing C, provided with the openings c^2, and forming with said shell the space a, the mechanism for actuating said stone and casing, and the shafts f^2, arms f', tappets g, valves f f, and weights w, secured on said casing and revolving therewith, rod h, cam i, and the mechanism for actuating said cam, consisting of the gearing k k' k^2, face-wheel l, the shaft l', the worm-wheel m, worm n, pinion d^3, and gear-wheel d^2, as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

SIGMUND SPITZER.

Witnesses:
T. C. BRECHT,
LOUIS BEYER.