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G. H. PRESTON.
AUTOMATIC FEED DEVICE.
APPLICATION FILED MAR. 16, 1900.

NO MODEL.

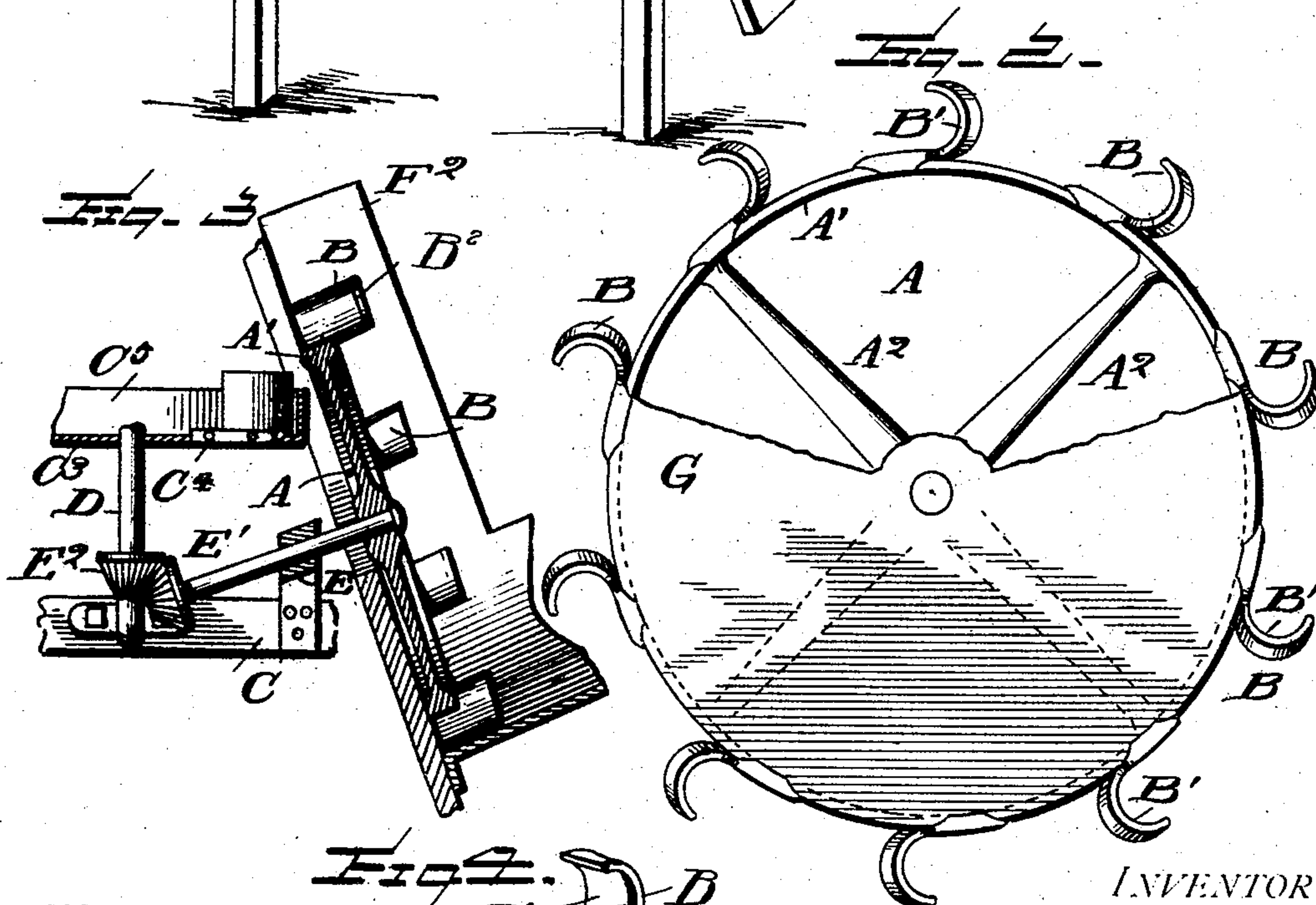
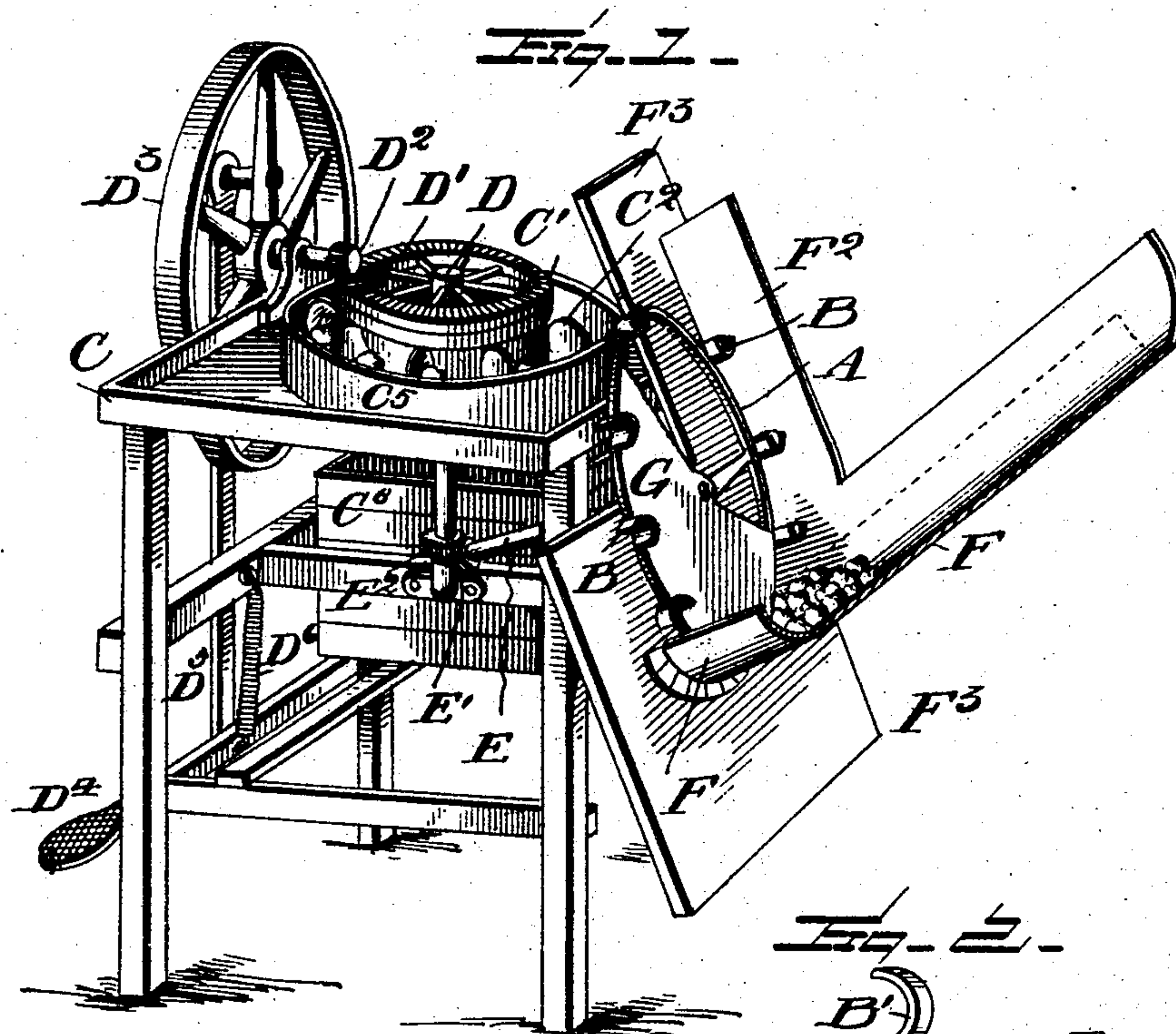


Fig. 3

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AUTOMATIC FEED DEVICE.

SPECIFICATION forming part of Letters Patent No. 765,993, dated July 26, 1904.

Application filed March 16, 1900. Serial No. 8,937. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PRESTON, a citizen of the United States, residing at Shortsville, in the county of Ontario, State of New York, have invented certain new and useful Improvements in Automatic Feed Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an automatic feed device, and particularly to an apparatus of that character adapted for use in connection with slicing-machines.

The invention has for its object to provide a device for use in many different classes of such machines by means of which a regular and continuous feeding of material from a hopper may be effected and the material deposited in a predetermined separated quantity and position in the machine. Further, by controlling the time of the operation of feeding of separated parts of the material the operation of the machine on said material will be performed successively on said separated parts and a uniform load or amount of work put upon the machine as well as a more satisfactory result obtained in the product. The separated parts of the material are by my invention presented successively, but not in a continuous stream—that is to say, a predetermined quantity. A separated part is deposited in a particular position in the machine, to be then operated upon without interference with the previous or the following separated part. The feeding of the material while continuous is in successive separated parts, each of which is separately operated upon by the machine to which it is fed. An interim occurs between the successive deposits of parts of the material, and hence a feeding device conforming to the requirements of the case has its pockets or selective members spaced from each other instead of adjacently continuous.

A further object of the invention is to provide a feeding device having a series of spaced pockets, said device or pockets, or both, being disposed at such an angle to the machine into

which the device delivers that the material contained within the pockets will be delivered by gravity into the machine in separated parts.

The preferred form of feeding device for attaining the advantages mentioned and others consists of a rotating member provided with pockets designed to pick up and carry separated or individual parts, such as apples, from a hopper containing them in bulk and deliver the same separated one by one into the machine and into separate moving parts of the machine. The rotation of the device serves to pick up and carry, while the delivery into the machine is accomplished by an inclination of the rotary device itself or of the pockets or of both said device and pockets. The pockets are preferably proportioned to hold but a single apple, but may hold temporarily more than one, but should deliver but one.

Other and further objects of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 represents a perspective of a slicing-machine with the invention applied thereto. Fig. 2 is a plan of the feed device and pockets thereon. Fig. 3 is a vertical section through the feed device and a portion of the slicing-machine, and Fig. 4 shows the feed device arranged vertically with the pockets inclined.

Like letters of reference indicate like parts throughout the several figures of the drawings.

The letter A designates a rotating feeding device—for instance, a wheel having a peripheral band A', supported from a hub by means of a series of spokes A². Upon the face of this band a series of pockets or conveyers B, which may have curved faces B' and may or may not have outer end walls B², is arranged and secured by any suitable means, and these pockets may be disposed diagonally or otherwise with relation to the face of the band A'. The inclination of these pockets B is from the receiving toward the delivery side of the feed-

ing device and may be produced by a diagonal arrangement of the pockets or by an inclination of the wheel, rim, or disk A.

The rotary feeding device hereinbefore described may be applied to any class of machine desired; but for the purpose of particularly illustrating and describing its more advantageous operation the same has been shown in connection with a slicing-machine.

The slicing-machine is supported in any suitable framework C and consists of a hub C', having secured thereto a series of sweeps or blades C². These operate over the base C³ of the table and cause the fruit or other material to be sliced to pass over suitable knives C⁴, carried by the base C³. The hubs and sweeps are located within a circular rim C⁵, as shown. For the purpose of driving this slicing device and rotating the sweeps C² the shaft D thereof is provided at its upper end with a gear D', adapted to mesh with a gear D², carried upon the shaft of a balance or fly wheel D³. This wheel is rotated by means of a treadle D⁴ and pitman connection D⁵, the treadle being returned to its elevated position by means of a tension-spring D⁶. The sliced material after falling through the apertures in the base C³ provided therefor are received in a suitable box or casing C⁶ beneath the base.

For the purpose of driving the feeding device A (which in Figs. 1 and 3 is disposed at an angle to the axis of the drum C') so that the pockets thereof are inclined and will register with the spaces between the sweeps C², thus depositing the material in proper position for the slicing operation, the shaft E of the feed-wheel is mounted in suitable bearings and provided at its inner end with a beveled gear E', meshing with a similar gear E², carried by the shaft D. It will be obvious that by proper relative arrangement of these gears the desired timing of the parts may be controlled and that other forms of gearing may be employed.

For the purpose of feeding the fruit or other material to the wheel or feeding device a trough F of any suitable configuration may be provided and is preferably of concave form, as at F', corresponding to the curvature of the feed-wheel. This hopper is provided with a guard-strip F² to direct the surplus material falling from the pockets B back into the hopper, and at the back of the wheel a suitable plate F³ is provided to prevent the desired material (single fruit) from rolling from the pockets until the same reaches the position to deposit the fruit into the machine. The pockets are each designed to carry and deliver a single apple or other fruit or vegetable. The preferred structure permits only a single line of fruit to lie beneath the periphery of the feed-wheel, and it will then be taken up by the pockets in their rotation, and as these pockets register with the spaces between the sweeps C² the fruit or material is

deposited therein singly. The feed-wheel A may be provided with any suitable form of covering to prevent material entering between the spokes thereof, as shown broken away at G in Figs. 1 and 2, or the covering may serve as a continuous web in place of the spokes.

The slicing-machine hereinbefore described is one which is constructed to receive separated apples or other fruit or vegetables and operate upon each one in such a manner as to roll and move the same to cause it to rest upon one or the other end thereof before it is brought upon or against the slicing-knives, and thus to insure cutting slices upon lines transverse to the core. By this means a desirable uniformity in shape and thickness and a central core-hole in each slice are secured. In other words, my feeding device is so constructed and arranged with relation to a slicing-machine of the class described as to automatically deliver a single apple into each successive division between the sweeps of the machine.

In the operation of the feeding device in connection with the apple-slicing machine illustrated each pocket is adapted to lift a number of apples to insure the feed of but to deliver only a single apple by each pocket at each revolution of the feed device or wheel. This apple when it reaches any desired point for delivering, such as the top of the feed-wheel, is deposited by gravity into the space between two of the sweeps in the slicing-machine and there is caused to assume a position with the core-hole vertical to the plane of the table. This position is insured by the approximately-spherical shape of the apple, whereby it slides and rolls easily between the sweeps until it rests upon one of its ends or in a position of stable equilibrium and this before it is acted upon by the slicer-knives, which when reached begin to operate and continue their cutting action until the material is completely disposed of. This is usually effected before a pocket of the feed-wheel again comes into alinement with the same space in the next rotation thereof, and thus the machine is rendered continuous in operation, while the feeding action is automatically performed in the more desirable manner of separated parts or apples, as contradistinguished from a continuous stream.

It is understood that the apples are usually pared and cored before they are sliced, so that the removal of the core produces the equivalent of flatness at the core ends of each apple, and when it is being carried around by the sweeps the natural tendency is first to roll on the side and then to settle and slide upon the end, whereupon the slices are cut transversely to the core-line. It is possible, especially with small apples, to successfully operate upon two apple at once in each division between successive sweeps; but a greater number, especially of large apples, frequently produces irregularity in the thickness of the slices, some being

wedge-shaped, which is objectionable. This unsatisfactory work is caused by contact of one apple with another to roll or tilt it as a slice is being formed. If but one apple, or at most two side by side, be present in a division, regularity in thickness of the slices is secured. Hence the pockets of the feeding device should be spaced at least a distance equal to or greater than the width of each pocket, and said device should have a movement in harmony with that of the sweeps of any particular machine with which the device is associated for conjoint operation.

It will be obvious that the details of construction of the several parts may be altered, as well as the number of pockets carried by the feed device, that the feeding devices may be used in connection with any other style of slicing-machine than that herein shown and described, that the pockets need be open only at their delivery ends, and that other variation within mechanical skill may be made without departing from the spirit of the invention as defined by the appended claims.

Having described my invention, what I claim is—

1. The combination with a slicing-machine embodying a table, knives and sweeps operating over the table, of a feeding mechanism embodying a hopper or fruit-receptacle having its bottom and one end inclined relatively toward each other and with relation to a vertical plane, a rotary feed-wheel operating in and over the end of the hopper having the outwardly-opening pockets at its periphery and timing connections between the slicer-sweeps and feed-wheel for operating them together to carry fruit from the bottom of the hopper and deliver the pieces separately in front of the sweeps of the slicer.

2. In an automatic feeding device, the combination with a hopper, of an inclined rotary feed-wheel arranged at the end thereof and having a continuous flat surface and the separate fruit holding and lifting pockets at the periphery thereof opening outwardly.

3. The combination with a slicing-machine embodying a table, knives and a wheel operating over the table having sweeps thereon and the shaft to which the wheel is connected, of a feeding device embodying a hopper or receptacle, an inclined feed-wheel arranged at one end thereof having pockets at its periphery, the inclined shaft connected to the feed-wheel and bevel-gearing between the shaft and the shaft of the slicer; the sweeps and feed-wheel being timed so that single pieces of fruit lifted by the pockets in the latter will be deposited in front of the sweeps.

4. The combination with a machine embodying a rotating drum mounted on a shaft and having sweeps operating over a horizontal base provided with slicing-knives, means for rotating said drum, a hopper, a feed-wheel provided with a shaft geared to the shaft of said drum, open-sided pockets carried upon the periphery of said feed-wheel and adapted to pass through said hopper at the lower portion thereof, means for covering the spokes of said wheel upon the side next to said hopper, and means for preventing the delivery of material from said pockets until the same reach a position to deliver between said sweeps; substantially as specified.

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

GEO. H. PRESTON.

Witnesses:

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