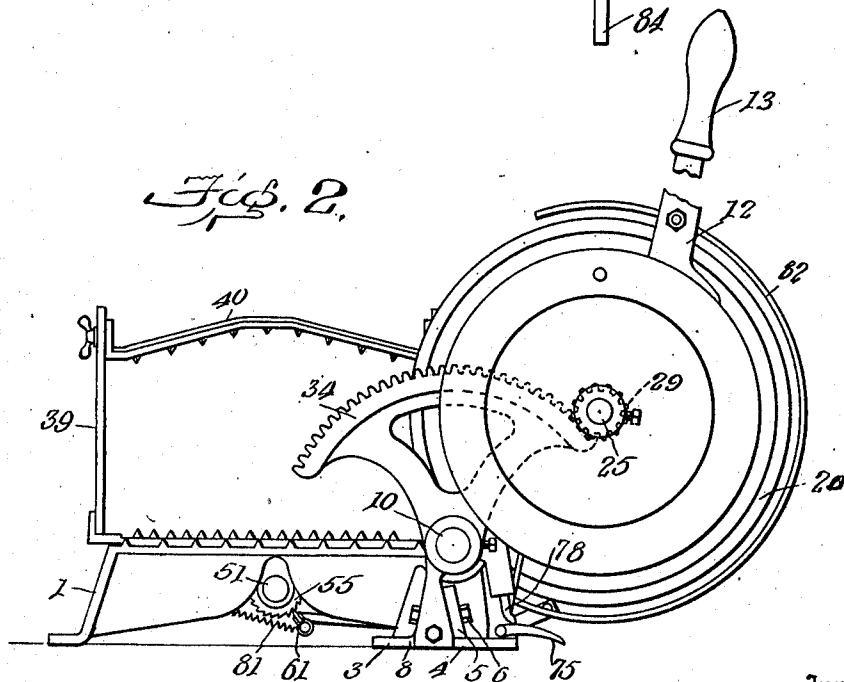
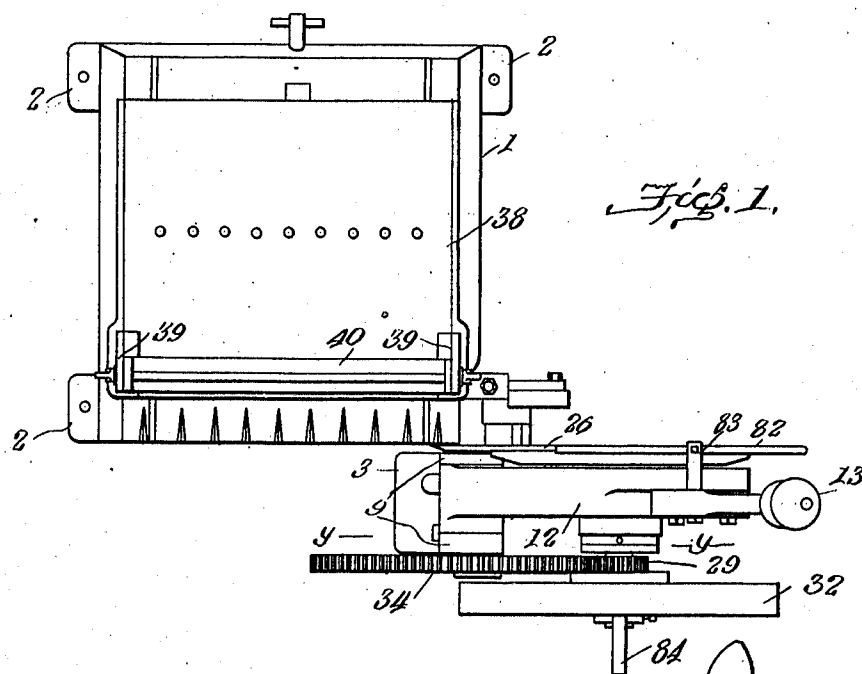


F. P. BURKHARDT.
SLICING MACHINE.
APPLICATION FILED SEPT. 28, 1908.

970,680.

Patented Sept. 20, 1910.

4 SHEETS-SHEET 1.



Inventor
Franklin P. Burkhardt,

Witnesses
G. Howard Walmsley
Edward L. Reed

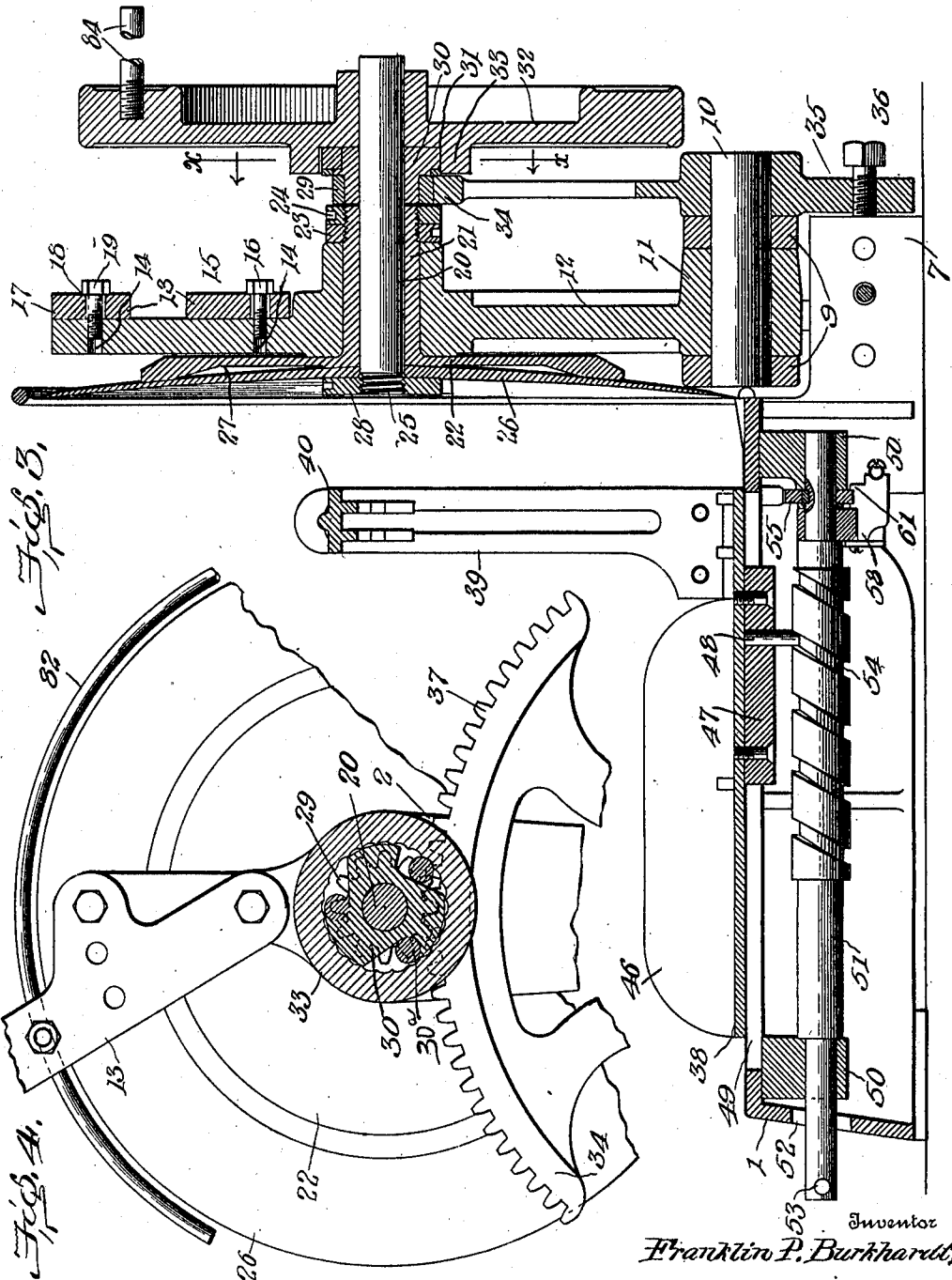
By *H. A. Toulmin,*
Attorney

F. P. BURKHARDT.
SLICING MACHINE.
APPLICATION FILED SEPT. 28, 1906.

970,680.

Patented Sept. 20, 1910.

4 SHEETS—SHEET 2.



Witnesses

L. Howard Walmsley
Edward L. Reed

Inventor
Franklin P. Burkhardt,

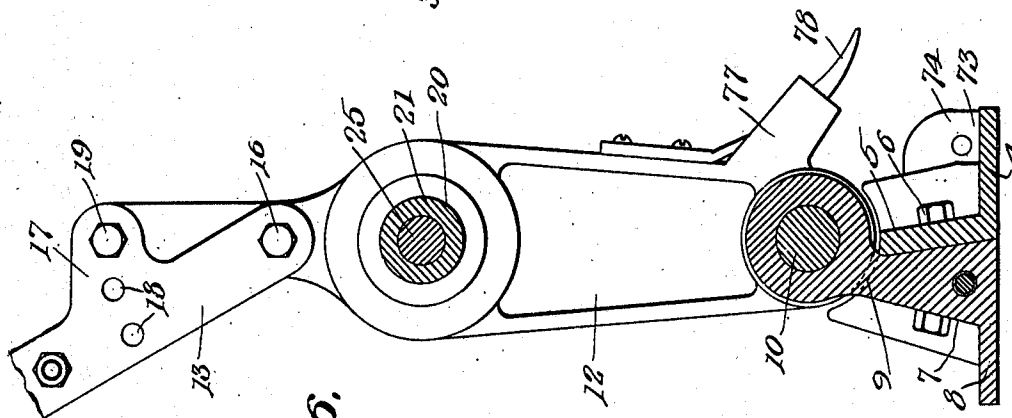
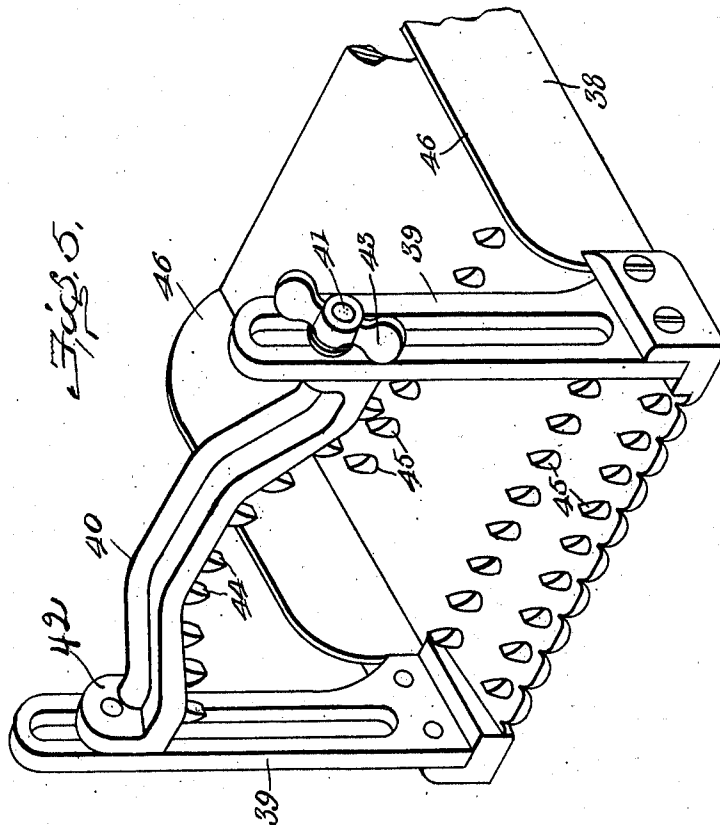
304 H. A. Tuckman,
Attorney

F. P. BURKHARDT.
SLICING MACHINE.
APPLICATION FILED SEPT. 28, 1908.

970,680.

Patented Sept. 20, 1910.

4 SHEETS—SHEET 3.



Witnesses
G. Howard Walmsley,
Edward F. Reed

Inventor
Franklin P. Burkhardt,

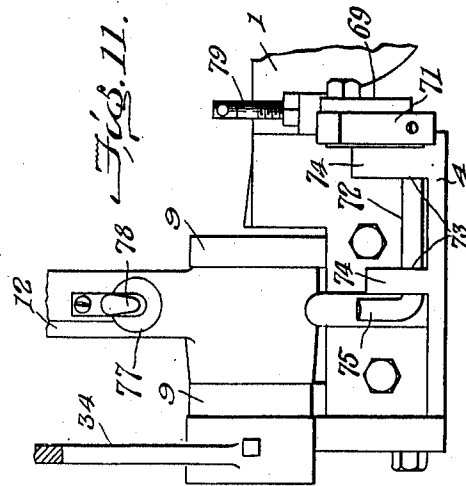
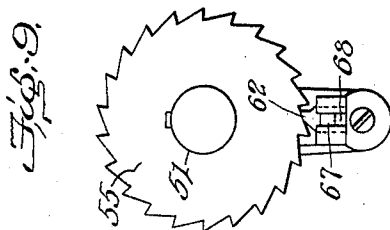
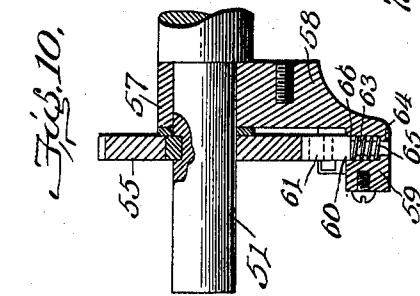
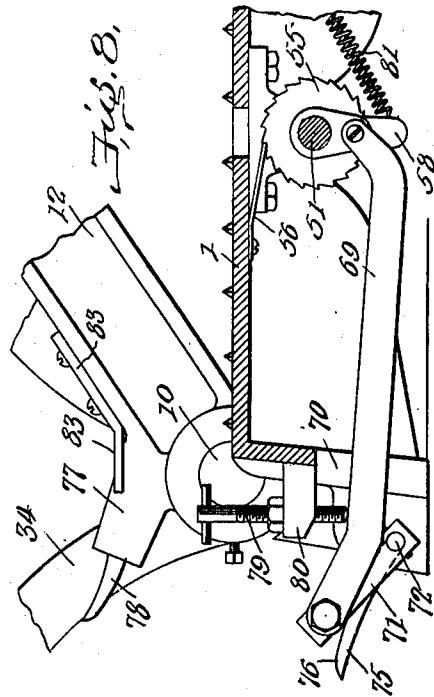
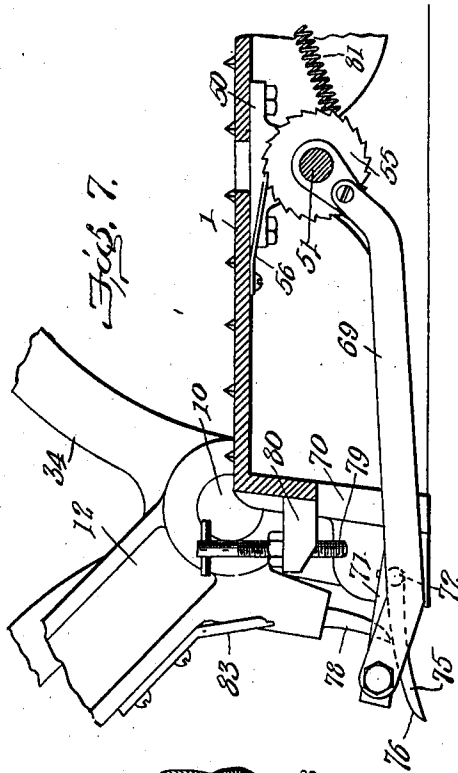
By H. A. Faulstich,
Attorney

F. P. BURKHARDT.
SLICING MACHINE.
APPLICATION FILED SEPT. 28, 1906.

970,680.

Patented Sept. 20, 1910.

4 SHEETS—SHEET 4.



Inventor
Franklin P. Burkhardt,

Witnesses

G. Howard Walmsley.
Edward L. Reed

By *H. A. Paulsen.*

Attorney

UNITED STATES PATENT OFFICE.

FRANKLIN P. BURKHARDT, OF SPRINGFIELD, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ANDERSON TOOL COMPANY, OF ANDERSON, INDIANA, A CORPORATION OF INDIANA.

SLICING-MACHINE.

970,680.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed September 28, 1906. Serial No. 336,630.

To all whom it may concern:

Be it known that I, FRANKLIN P. BURKHARDT, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Slicing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to slicing machines, and more particularly to manually operated machines of the character ordinarily employed for slicing cured meats and similar substances.

The object of the invention is to provide a machine of this character in which the cutter will have a rotary cutting action, as well as a draw cut, and to provide such a machine which will be compact in construction so that it will occupy but little counter space and will be strong and durable.

A further object is to provide a machine of this character which will have a positive feed actuated from the cutting mechanism.

With these objects in view my invention consists in the construction hereinafter to be described and then more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of a machine embodying my invention, with the cutter in its raised position; Fig. 2 is an end elevation of the same; Fig. 3 is a longitudinal sectional view, taken centrally through the supporting table and centrally through the cutter and its supporting arm; Fig. 4 is a detail sectional view, taken on the line *xx* of Fig. 3 and looking in the direction of the arrows;—Fig. 5 is a detail view of the carriage; Fig. 6 is a sectional view, taken on the line *yy* of Fig. 1; Fig. 7 is a sectional view of a portion of the supporting base, showing the feed ratchet and its cooperating mechanism with the cutter in elevated position; Fig. 8 is a similar view with the cutter in its lower position; Fig. 9 is a detail view of the feed ratchet; Fig. 10 is a longitudinal sectional view of the same; and Fig. 11 is a side elevation of a portion of the machine, showing the mechanism for operating the feed ratchet.

In these drawings, I have illustrated one embodiment of my machine, in which the base or supporting table for the article to be

sliced is indicated by the reference numeral 55. 1. This base I prefer to construct in the form of a substantially rectangular hollow shell of cast metal or similar material and provided at its corners with lugs or lips 2 for attaching the same to the counter or 60 other supporting medium. One of these lips is enlarged to form a supporting base 3 for the cutting mechanism. The supporting base comprises a flat base portion 4 and an upwardly extending rib 5, to which is 65 firmly secured, by means of bolts 6 or any suitable medium, a plate 7 provided with a base portion 8 and having apertured lugs 9 in which is secured a shaft 10, extending a short distance beyond the outer lug. Upon 70 this shaft is mounted a bearing sleeve or collar 11, having rigidly secured thereto an arm or bracket 12 which is provided at its outer end with a handle 13 adjustably secured thereto. The outer end of this arm 75 is provided with two bolt holes 14, arranged longitudinally of the arm, and the handle 13 is provided at its inner end with a bolt hole 15 adapted to register with the inner hole 14 of the arm and be secured thereto 80 by a bolt 16. That portion of the handle adjacent to the outer hole 14 of the arm 12 is provided with a segment 17, having formed therein a series of holes 18 adapted to register successively with the outer hole 14 of 85 the arm 12, when the handle is moved around the pivot formed by the bolt 16 in the inner bolt hole of the arm 12, thereby allowing the bolt 19 to be passed through any one of the series of holes in the handle, 90 thus securing the handle to the arm in any desired position.

Intermediate the handle 13 and the bearing sleeve 11 the arm member 12 is provided with a bearing aperture 20, in which is ro- 95 tatably mounted a bearing sleeve 21, having at one end an annular flange 22 engaging the adjacent face of the bearing, and provided at the opposite end with a nut 23 for adjusting the same in said bearing, and a 100 jam-nut 24 for locking said adjusting nut in position. A shaft 25 is mounted in said bearing sleeve and projects beyond the same at each end thereof. Upon that end of said shaft adjacent to the flange 22 is mounted a 105 rotary disk cutter 26 which has its convex portion resting in the support formed by the flange 22, which is formed concave, as

shown at 27, to receive said disk. A nut 28 engages the screw-threaded end of the shaft 25 and locks the cutter disk thereon. At the opposite end of the bearing sleeve 21, and preferably immediately adjacent thereto, the shaft 25 has mounted thereon a pinion 29 which has at its outer end and rigidly secured thereto a clutch member 30 which is mounted in a recess 31, formed in the balance wheel 32 which is rigidly secured to the shaft 25 at a point beyond the pinion 29. The recess 31 is preferably formed by means of an annular flange 33, the inner walls of which form the second member of said clutch and cooperate with the member 30 which is secured to the pinion 29. The clutch member 30 is preferably provided with a series of tapered recesses formed in the periphery thereof and adapted to receive the rollers 30^a which operate to grip the members 31 when the member 30 is rotated in one direction and to release the same when the member 30 is rotated in the opposite direction. A segment 34 is mounted upon the end of the shaft 10 projecting beyond the outer bearing lug 9 and is rigidly secured thereon by means of a downwardly projecting arm 35, having a set screw 36, adapted to engage the plate 7 of the supporting lugs 9. This segment is provided with a rack 37 which meshes with the teeth of the pinion 29 and rotates the same as the arm 12 is rotated about its pivotal axis 10. The clutch members 30 and 33 are preferably so arranged that as the cutter is moved to its elevated position, the pinion will revolve freely on the shaft 25, but as the cutter is moved forward into engagement with the substance to be sliced the clutch members lock, thereby rotating the balance wheel 32, the shaft 25 to which it is rigidly secured, and the cutter disk 26 which is secured to said shaft.

On the base or supporting table 1 is mounted a sliding carriage 38 which may be of any suitable construction and may be fed forward in any suitable manner, but I prefer to provide means whereby the carriage may be fed forward step by step as the cutter is operated, or may be fed continuously either when the cutter is idle or when the cutter is in operation. I have herein shown one form of carriage and feed mechanism which is adapted to accomplish this result. The carriage here shown is provided with upwardly extending slotted arms 39, between which is secured a cross bar 40 adapted to move vertically of said arms and to be secured thereto in its adjusted position by means of the bolts 41, which extend through the lugs 42 on the cross bar and through the vertical slots in the arm 39, and which are provided on their outer ends with thumb-nuts 43. The bar 40 is provided on its lower face with downwardly projecting

teeth 44 which cooperate with the teeth 45 on the carriage 38 to secure the meat or substance to be cut firmly in position thereon. The carriage is further provided with upwardly extending side portions 46, which cooperate with the cross bar 40 and teeth 45 to retain the meat securely in position. A rib or projection 47, secured on the under side of the carriage 38 and provided with a pin or lug 48, extends through a slot 49 formed in the base or supporting plate 1 and extending longitudinally thereof, that is, in a direction transverse to the direction of movement of the cutter disk. This slot may be of any desired length, but in the drawings I have shown the same extending substantially the full length of the supporting plate as this gives a greater range of adjustment.

In bearing lugs 50, secured to the under side of the supporting plate 1, is journaled a shaft 51, extending beyond the bearing lug and through an aperture 52 in that end of the base farthest from the cutting apparatus, and is provided with a cross bar 53 or other suitable means for manually rotating the same in the bearings 50. This shaft 51 is provided with a spirally arranged groove or thread 54 which may extend through all or a portion of its length, as may be desired, and is adapted to engage the lug or pin 48, mounted on the carriage 38, to move the same forward as the shaft is rotated in its bearing. On that end of this shaft 51 nearest the cutting apparatus is rigidly mounted a ratchet wheel 55, provided with a suitable pawl for engaging the teeth thereof and preventing the same from moving in a reverse direction. This pawl may be of any suitable construction, that in the drawings being merely a strip of spring metal 56, secured to the base 1 and having its free end bent downward to engage the teeth of the ratchet 55. Loosely mounted on the shaft 51, and preferably immediately adjacent to the ratchet wheel 55, is a sleeve or collar 57 having an arm or projection 58 and provided with a pawl adapted to engage the teeth of the ratchet 55 and rotate the same and the shaft to which it is secured when the arm 58 and the collar 57 are oscillated on said shaft. This pawl may be of any suitable character, but I prefer that shown in the drawings, in which I provide the arm 58 with a projection or lug 59 extending beneath the ratchet wheel 55 and having a recess 60 formed therein, in which is mounted a pawl 61, having a beveled tooth 62 adapted to engage the teeth of the ratchet wheel 55. The lower end of the pawl 61 is provided with a shank or spindle 63 extending through an aperture 64 in the bottom of the recess. The spring 65 is coiled about the spindle 63 and bears at one end against the shoulder 66 on the pawl 61

and at the other end against the base of the recess 60, thereby holding the pawl 61 normally in engagement with the teeth of said ratchet wheel. A lug 67 is provided on one side of said pawl and extends through a slot 68 in the wall of the recess 60 to guide the pawl in its reciprocating movement and prevent the same from turning in the recess. An arm or lever 69 is pivoted at one end to the arm 58, and, passing through a slot 70 in the frame 1, extends some distance beyond the same and has its outer end pivoted to an arm or link 71 which is rigidly mounted on a rockshaft 72. The rockshaft 72 is rotatably mounted in bearings 73, formed in lugs 74 mounted on the supporting bracket or base 4, and is provided with an arm 75 extending at substantially right angles thereto. This arm is preferably formed by bending the end of the rockshaft 72 at right angles to said shaft and providing the same with a flat upper surface 76 which is slightly curved longitudinally of said arm. The arm or bracket 12 is provided with a lug 77, in which is secured a finger or pin 78, arranged in the same vertical plane with the arm 76, and having its end beveled or rounded to cooperate therewith and adapted to engage the same when the cutter approaches its elevated position.

As the cutter is raised the arm 78 comes into engagement with the arm 75, depressing the same and rocking the shaft 72, thereby transmitting through the link 71 a longitudinal movement to the arm 69, which, in turn, rocks the arm 58 about the shaft 51, causing the pawl 61, which is in engagement with the teeth of the ratchet wheel 55, to rotate said ratchet wheel and the shaft to which it is secured, thereby causing the wall of the spiral groove 54 on said shaft to engage the pin 48 on the carriage 38 and move the same forward a distance corresponding to the amount of rotation of the ratchet wheel 55. The amount of this rotation is regulated by the number of teeth over which the pawl 61 rides in its return movement. To regulate the number of teeth over which the pawl rides, I provide a set screw 79, mounted in a lug 80, carried by the base 1 and adapted to engage the arm 69 as the same moves with the link 71 on the rockshaft 72 and limit the movement of the same about said shaft, thereby limiting the return movement of the arm 58. A spring 81 is secured at one end to the arm 58 and at its opposite end to the base 1 and serves to return the arm 58 to its normal position when the arm 75 of the rockshaft 72 has been released. A guard 82 extends around the periphery of the cutting disk and is mounted in brackets 83 which are secured to the arm 12.

The operation of the machine will be readily understood from the foregoing de-

scription. In brief it is as follows: The material to be sliced is placed upon the carriage 38 and firmly secured in position by the adjustment of the bar 40 on the arms 39 of said carriage. The carriage is then placed in position on the base 1 with the pin 48 in engagement with the spiral groove 42 and the shaft 51 rotated by hand through the medium of the cross bar 53 to quickly bring the carriage, and the substance carried thereby, into position adjacent to the cutting tool. The cutter is then raised by means of the handle 13 to its uppermost position, and, as it approaches this position, the arm 78, carried by the bracket 12, comes into engagement with the arm 75 on the rockshaft 72 and depresses the same, thereby rocking the shaft 72 in the bearings 73 and imparting movement to the arm or lever 69 and the arm 58, thereby causing the pawl 61 to engage the teeth of the ratchet wheel 55 and rotate said ratchet wheel and its shaft to advance the carriage 38 the desired distance under the cutter 26. The cutter is then moved forward into engagement with the substance to be sliced, and, as it moves forward, the pinion 29 engages with the teeth of the rack 34 and is rotated, the clutch member engaging positively with the balance wheel 32 which is rigidly secured to the shaft, thereby rotating the shaft and the cutter as the same move forwardly and downwardly as the arm 12 turns about its shaft 10. As soon as this forward movement begins the arm 78 passes out of engagement with the arm 75, thereby releasing the rockshaft and allowing the spring 81 to return the arm 58 and the pawl 61 to normal position, in which they are ready to again engage the ratchet wheel 55 upon the cutter being again elevated, the pawl 61 engaging the teeth of the ratchet and preventing the same from turning with the arm 58 as the same is moved into normal position. The balance wheel 32 may be provided with a handle 84, whereby the same can be turned in that direction in which the pinion moves freely, thereby rotating the cutter disk independently of its operating mechanism in order that the same may be cleaned or ground.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

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

1. In an apparatus of the character described, the combination, with a supporting table, and a cutter cooperating therewith, of a shaft supporting said cutter, a pinion loosely mounted on said shaft, a balance wheel rigidly secured to said shaft, a clutch

interposed between said pinion and said balance wheel, a stationary rack adapted to engage said pinion and means for moving said shaft and said balance wheel relatively to said rack, substantially as described.

2. In an apparatus of the character described, the combination, with a supporting table, and a cutter cooperating therewith, of a shaft supporting said cutter, a pinion loosely mounted on said shaft, a clutch member secured to said pinion, a balance wheel mounted on said shaft, a clutch member carried by said balance wheel and adapted to engage the clutch member carried by said pinion when said balance wheel is turned in one direction and to disengage the same when said wheel is turned in the opposite direction, and a rack adapted to engage said pinion to rotate the same when said cutter is operated, substantially as described.

3. In an apparatus of the character described, the combination, with a supporting table, and a cutter cooperating therewith, of a shaft supporting said cutter, a pinion loosely mounted on said shaft, a balance wheel rigidly mounted on said shaft, a clutch interposed between said pinion and said balance wheel, a rack adapted to engage said pinion to rotate said cutter, and means for rotating said cutter independently of said rack and pinion, substantially as described.

4. In an apparatus of the character described, the combination, with a supporting table, of an arm adapted to move transversely of said table, a shaft journaled in said arm, a cutter secured to said shaft, a pinion carried by said shaft, a fixed rack adapted to engage said pinion to rotate said cutter when said arm is moved transversely of said table and means for rotating said shaft independently of said rack, substantially as described.

5. In an apparatus of the character described, the combination, with a supporting table, of an arm adapted to move transversely thereof, a shaft journaled in said arm, a cutter carried by said shaft, a pinion loosely mounted on said shaft, a balance wheel rigidly mounted thereon, a clutch interposed between said pinion and said balance wheel, and a fixed rack adapted to engage said pinion to rotate said cutter when said arm is moved transversely of said table, substantially as described.

6. In an apparatus of the character described, the combination, with a supporting table, of an arm pivotally supported near the base of said table, a shaft journaled in said arm, a cutter carried thereby, a pinion loosely mounted on said shaft, a balance wheel rigidly mounted thereon, a clutch interposed between said pinion and said balance wheel, a fixed rack adapted to engage said pinion and rotate said cutter as said

arm is moved in one direction about its pivotal axis and to retain said cutter against rotation in the opposite direction as said arm is moved in the opposite direction about said pivotal axis, substantially as described.

7. In an apparatus of the character described, the combination, with a supporting table having a laterally extending projection from one side thereof, of an upwardly extending arm pivotally mounted on said projection near the level of said table and near one edge thereof, a cutter carried by said arm, and means for rotating said cutter when said arm is moved about its pivotal axis.

8. In an apparatus of the character described, the combination, with a supporting table having a laterally extending projection from one side thereof, and apertured lugs carried by said projection and located near one edge of said table, of a shaft mounted in said apertured lugs near the level of said table, an upwardly extending arm mounted on said shaft, a cutter carried by said arm, and means for rotating said cutter when said arm is rocked about said shaft.

9. In an apparatus of the character described, the combination, with a supporting table having a laterally extending projection from one side thereof, and apertured lugs carried by said projection and located near one edge of said table, of a shaft rigidly mounted in said apertured lugs near the level of said table, a collar journaled on said shaft, an upwardly extending arm carried by said collar, a cutter carried by said arm, and means for rotating said cutter as said arm is rocked about said shaft.

10. In an apparatus of the character described, the combination, with a supporting table having a laterally extending projection from one side thereof, a plate secured to said projection and having a base portion, and apertured lugs carried by said plate and located near one edge of said table, of a shaft rigidly mounted in said lugs near the level of said table, a collar journaled on said shaft, an arm carried by said collar, a cutter rotatably mounted on said arm, and means for rotating said cutter as said arm is rocked about said shaft.

11. In an apparatus of the character described, the combination, with a supporting table, of an arm mounted to move transversely thereof and having a bearing aperture therein, a sleeve journaled in said bearing aperture, a shaft mounted in said sleeve and extending beyond the ends of the same, a cutter disk mounted on said shaft at one end of said sleeve, a pinion loosely mounted on said shaft at the opposite end of said sleeve, a clutch member interposed between said pinion and said shaft, and a fixed rack engaging said pinion and adapted to rotate

the same when said arm is moved transversely of said table, substantially as described.

12. In an apparatus of the character described, the combination, with a supporting table, of an arm mounted to move transversely thereof and having a bearing aperture therein, a sleeve mounted in said bearing aperture and having one end thereof screw-threaded, an annular flange secured to the opposite end of said sleeve and engaging the adjacent end of said bearing, a nut on the screw-threaded end of said sleeve engaging the opposite end of said bearing, a shaft mounted in said sleeve and extending beyond the ends of the same, a cutter disk mounted on one end of said shaft and engaging said annular flange, a pinion loosely mounted on said shaft, a clutch member carried by said pinion, a balance wheel rigidly mounted on said shaft, a clutch member carried by said balance wheel and cooperating with the clutch member carried by said pinion, and a rack meshing with said pinion and adapted to rotate the same when said arm is moved transversely of said table, substantially as described.

13. In an apparatus of the character described, the combination, with a support, an arm pivotally mounted thereon, and a cutter carried by said arm, of a carriage movably mounted on said support, a screw-shaft extending longitudinally thereof, and means for connecting said shaft to said carriage, a ratchet carried by said shaft, an arm loosely mounted on said shaft, a pawl carried by said arm and adapted to engage the teeth of said ratchet, a rockshaft, means for connecting said arm to said rockshaft, an arm on said rockshaft, and a finger carried by said pivot arm adapted to engage the arm on said rockshaft when said cutter is moved to its elevated position, substantially as described.

14. In an apparatus of the character described, the combination, with a support, an arm pivotally mounted thereon, and a cutter

carried by said arm, of a carriage movably mounted on said support, a screw-shaft extending longitudinally thereof, means for connecting said screw-shaft to said carriage, a ratchet mounted on said shaft, an arm loosely mounted on said shaft, a pawl carried by said arm and adapted to engage the teeth of said ratchet, apertured lugs on said support, a rockshaft mounted in said lugs, means for connecting said rockshaft with said arm, an arm carried by said rockshaft, a finger carried by said pivoted arm and adapted to engage the arm on said rockshaft when said pivoted arm is moved to elevate the cutter, substantially as described.

15. In an apparatus of the character described, the combination, with a support, and a cutter cooperating therewith, of feed mechanism, and a plurality of means for operating the same one of said means being actuated by the operation of the cutter and the other of said means being adapted to be manually actuated.

16. In an apparatus of the character described, the combination, with a support, and a cutter cooperating therewith, of feed mechanism, means for intermittently operating said feed mechanism to feed the material forward step by step, and other means for continuously operating said feed mechanism to feed the material forward continuously.

17. In an apparatus of the character described, the combination, with a movable carriage and a cutter cooperating therewith, of a screw shaft adapted to be connected to said movable carriage, and a plurality of means for operating said screw shaft, whereby the material may be fed forward either step by step or continuously.

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

FRANKLIN P. BURKHARDT.

Witnesses:

HARRIET L. HAMMAKER,
F. W. SCHAEFER.