

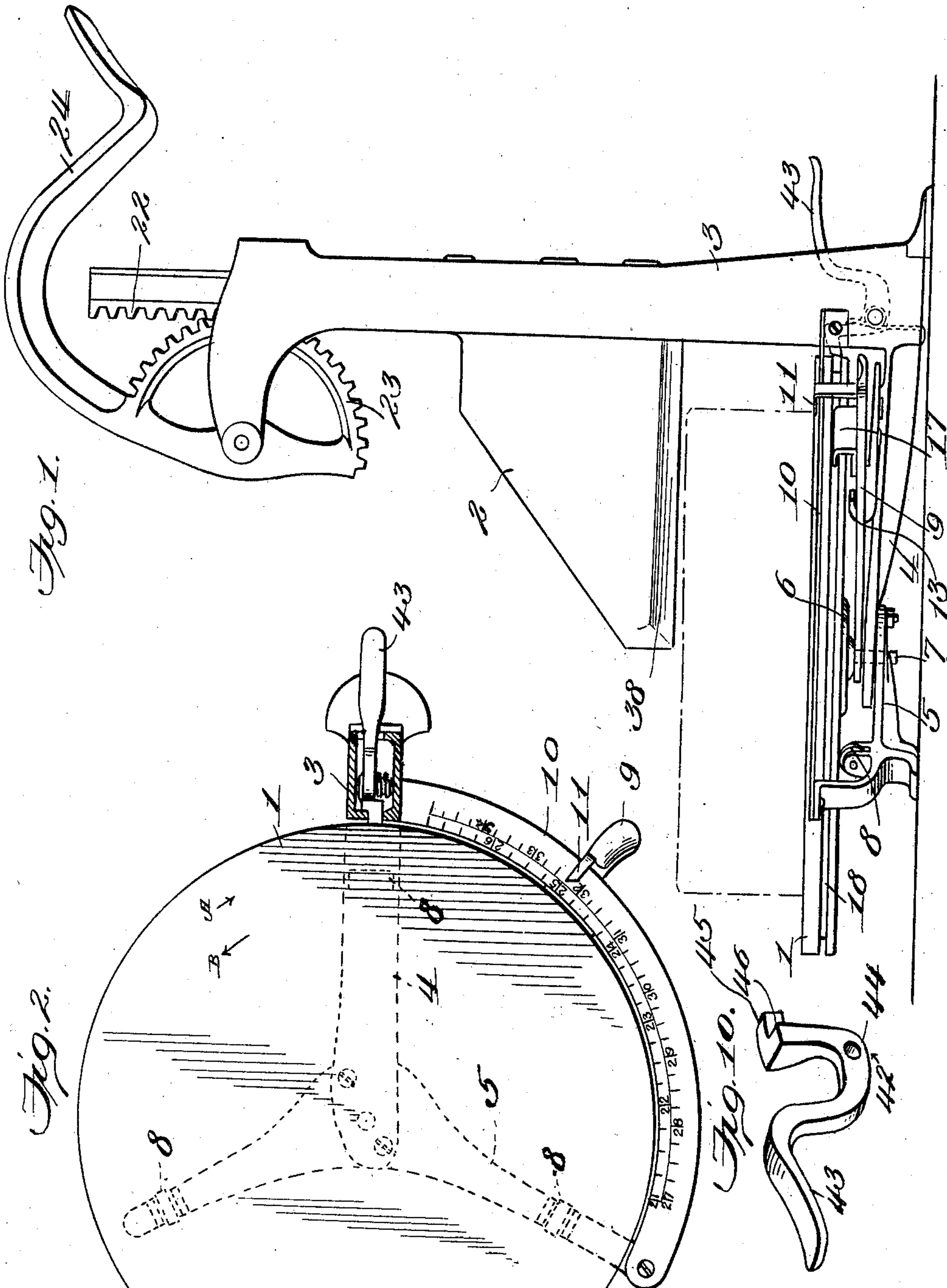
983,501.

I. E. LEE.
CHEESE CUTTER.

APPLICATION FILED MAY 26, 1910.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.



Witnesses:
E. Keeler
J. B. Keeler

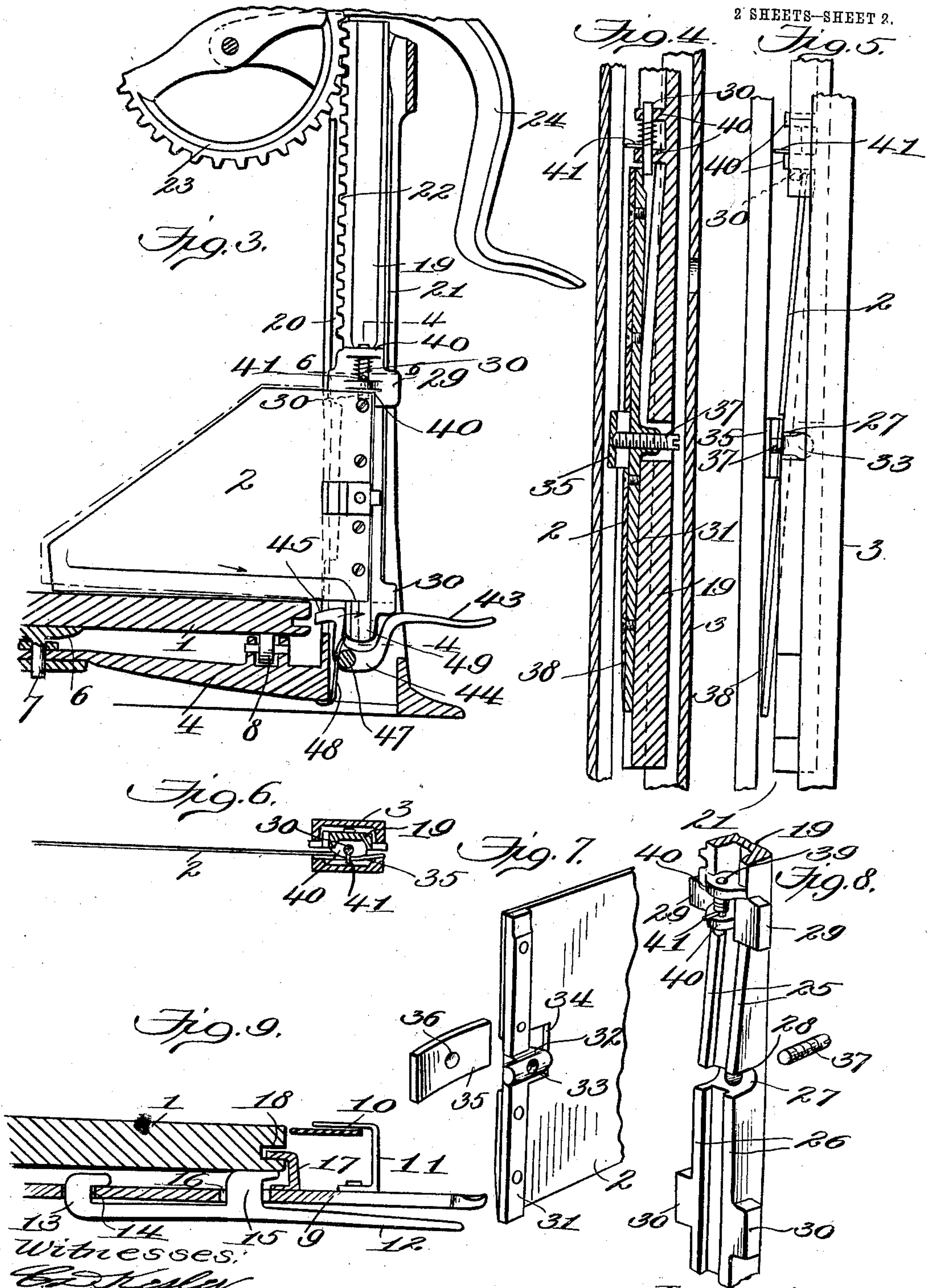
Inventor
Isaac E. Lee
By Amos L. Norris
Atty.

983,501.

I. E. LEE.
CHEESE CUTTER.
APPLICATION FILED MAY 26, 1910.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 2.



Witnesses:

Ed. Kessler

J. B. Kessler

Inventor
Isaac E. Lee
James L. Norris

UNITED STATES PATENT OFFICE.

ISAAC E. LEE, OF BROADWAY, VIRGINIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
JULIUS W. WISE, OF HARRISONBURG, VIRGINIA.

CHEESE-CUTTER.

983,501.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed May 26, 1910. Serial No. 563,637.

To all whom it may concern:

Be it known that I, ISAAC EDWARD LEE, a citizen of the United States, residing at Broadway, in the county of Rockingham and State of Virginia, have invented new and useful Improvements in Cheese-Cutters, of which the following is a specification.

This invention relates to improvements in cheese cutters and more particularly to that type of construction in which a "drop" knife coöperating with a rotatable table is employed.

The construction herein proposed is generally similar to that shown in my prior U. S. Patent No. 948,422, granted February 8, 1910, and embodies improvements in the assemblage of the knife; in the friction device for holding the knife bar and therewith the knife normally against movement; and in the means for producing a radial drawing movement of the knife at the lower termination of its stroke for the purpose of cutting the cheese-cloth.

The invention also proposes an improved means for retarding the rotation of the table and for holding the same against movement during the cutting operation in order that the slices of cheese may be cut with absolute accuracy.

The invention also proposes an improved device for rotating the table, arranged to work with relation to a gage and having a pointer for coöperation with the gage to indicate the size of the slice to be cut.

An embodiment of the invention is illustrated by way of example in the accompanying drawings, wherein—

Figure 1 is a side elevation of the improved cheese cutter; Fig. 2 is a top plan view thereof partly in section; Fig. 3 is a central vertical sectional view showing in elevation the knife bar and its adjuncts; Fig. 4 is an enlarged detail section in the plane 4—4 of Fig. 3, showing in detail the improved means for assembling the knife; Fig. 5 is an enlarged detail elevational view looking in the direction of the arrow 5 (Fig. 3); Fig. 6 is a detail horizontal section on the line 6—6 of Fig. 3, the table and its supporting adjuncts being omitted; Fig. 7 is a detail perspective view showing in disassembled relation the rear portion of the knife and a spring shoe to be hereinafter referred to and which is associated with said rear portion; Fig. 8 is a perspective view

showing in disassembled relation the lower portion of the knife bar and a screw which is associated therewith and which maintains the proper assemblage of the knife and the spring shoe shown in Fig. 7; Fig. 9 is a detail fragmentary vertical sectional view showing the construction of the improved table rotating device; and Fig. 10 is a detail perspective view of the part which, in the embodiment under consideration, constitutes both a table brake or holding device, and a device for producing the radial drawing movement of the knife aforesaid.

Similar characters of reference designate corresponding parts throughout the several views.

The present cheese cutter, like others of the general type above referred to, includes a supporting table, as 1, and a drop knife, as 2, which is disposed radially of the table and moves in a vertical plane toward and away from the same.

At one side of the table 1 a standard, as 3, is arranged. This standard has projecting from its lower end an arm, as 4, the end portion of which rests upon the central portion of a substantially V-shaped member 5 which may be attached to a suitable support, *e. g.* a table or counter. The arm 4 and V-shaped member may be connected in any suitable manner and together constitute a support for the table which carries on its under face a plate, as 6, from which the journal or pivot pin 7 depends, the said journal or pivot pin passing through openings in the overlying portions of the members 4 and 5. The latter are provided with rollers, as 8, suitably positioned and preferably equidistant from the center of the table 1 and upon which the table has a tractive bearing.

The rollers 8 are so proportioned as to support the table at some distance above the members 4 and 5 and in the intervening space a table rotating lever, as 9, is assembled. The lever 9 has one end constructed to pivotally surround the pin 7 and its other end, which is shaped as a handle, projects some distance beyond the edge of the table, as shown in Figs. 2 and 9.

The member 5 has one of its arms extended beyond the edge of the table, as shown in Fig. 2, and to this extended portion as well as to the standard 3, an arcuate metal strip, as 10, disposed in a horizontal

plane, is secured. The strip 10 has its upper face calibrated with different scales concentrically arranged and thus constitutes a composite scale by which the weight of a slice of cheese of given thickness may be accurately determined. As is well known, cheeses are made of varying diameters, and of course, slices of a particular thickness vary in weight in proportion to the difference between the diameters of the cheeses from which they are taken. Hence, in the use of the composite scale 10, one series of calibrations is used with reference to some particular standard diameter and another series of calibrations is used with reference to some other particular standard diameter. The lever 9 serves two functions, the one being to cooperate with the scale 10 in indicating the size of the slice to be cut to secure a given weight, and the other being to rotate the table 1 through the arc previously measured on said scale. Toward the accomplishment of the first function the lever is provided with an indicating finger, as 11, which overlies the scale, and toward the accomplishment of the second function, the lever is provided with a shoe, as 12, which is shown in detail in Fig. 9. The shoe 12 extends under the lever; is axially coincident therewith; is provided at its inner end with a hooked-shaped portion, as 13, which is engaged pivotally through an opening, as 14, in said lever; and is provided intermediate its ends with a table engaging portion, as 15, which projects through a second opening, as 16, in said lever and which is also of a somewhat hook shape. The hook-shaped form of the portions 13 and 15 provide against the displacement of the shoe 12 from the lever 9. The shoe is, however, sufficiently springy to provide for the ready engagement of the portions 13 and 15 through the openings provided therefor. For cooperation with the engaging portion 15 the lever 9 is provided with a finger, as 17, the engaging portion of which projects into a groove, as 18, which is formed continuously in the peripheral face of the table 1. The use of the lever 9 in its function of rotating the table 1 will be readily apparent. When it is desired to rotate said table the operator grasps the lever 9 and the shoe 12 at the same time, pressing downwardly on the lever with one finger and pulling upwardly on said shoe with another finger. This causes the portion 15 of the shoe to frictionally engage the under face of the table adjacent the edge thereof and the finger 17, at the same time, to frictionally engage the lower face of the groove 18. When the frictional engagement of the parts 15 and 17 with the table has been established in the manner explained, the table will be rotated consequent to a movement of the lever 9 on its pivot, as is obvious. In the use of the lever

9 in its function of cooperating with the scale 10, the shoe 12 is not grasped, and the lever is moved free of the table and with relation to the scale. In this case, the lever is given a slight upward movement in order that the finger 17 may be free of the lower face of the groove. For this purpose the pivot of the lever is constructed with regard to sufficient loose play and the groove 18 is made of the proper width.

The knife 2 is carried by a bar, as 19, and projects radially therefrom. The bar 19 is movable axially of the standard 3 and the latter is provided in its front and rear faces with longitudinal slots, as 20 and 21. The bar 19 is provided on its front face with a series of rack teeth 22 and the standard 3 supports at its upper end a pinion segment, as 23, which is rotated by a handle, as 24, and which is so positioned that its teeth project through the upper portion of the slot 20, through which the knife 2 travels, and engage the teeth 22 aforesaid. It will be apparent that the vertical movement of the knife 2 is consequent to a vertical movement of the bar 19 and that this is produced by turning the pinion 23 in the direction desired to effect an upward or downward movement of said bar.

The manner and means of assembling the knife 2 with relation to the bar 19 is shown in detail in Figs. 3 to 8, to which reference is now made. The bar 19, which is preferably of channel construction, has its lower portion formed with a face, as 25, which is inclined downwardly and outwardly with relation to said bar; that is to say, the face 25 is inclined downwardly and toward the wall of the standard which confronts said bar. Below the face 25 the bar 19 is provided with a face, as 26, which is perpendicular or in a plane parallel to the axis of the standard. The continuity of the faces 25 and 26 is interrupted by a transverse recess, as 27, which registers with an opening, as 28, that extends through said bar. Lugs, as 29, project laterally from each side of the bar 19 through the slots 20 and 21 of the standard at points adjacent the upper end of the face 25, and lugs, as 30 project in like manner at a point near the lower end of the face 26. To the vertical rear edge portion of the knife 2 there is secured a strip, as 31, which is provided centrally thereof with a transverse journal piece, as 32. The journal piece 32 is shaped to have rocking or pivotal engagement in the recess 27 and is provided with a threaded opening, as 33, which aligns with the opening 28. The knife 2 is provided adjacent the journal piece 32 with a recess, as 34, which is shaped to conformably receive one edge portion of a spring shoe, as 35, and to hold said shoe against turning movement. The shoe 35 is constructed with a central depression, as 36, at

which point it may be bowed outwardly to a desired extent. For this purpose a screw, as 37, is employed, this screw passing loosely through the opening 28, and having threaded engagement in the opening 33.

The tendency of the spring shoe 35 is to assume a flatwise disposition and the bowing of this spring to the desired extent is effected by a proper adjustment of the screw 37, the end of which engages in the recess 36. The adjacent walls of the slots 20 and 21 cooperate with the screw 37 in this function, the end portions of the shoe 35 bearing against the said walls and being held by the latter while the central portion of said shoe is bowed or forced outwardly to the desired extent by the screw 37. The shoe 35 thus constitutes a friction brake means, in which function its edge portions bear against the walls of the slots 20 and 21 aforesaid and it also causes the lugs 29 and 30 to have a similar frictional engagement with the opposite walls of the slots 20 and 21, this effect being incident to the pressure exerted by the edge portions of said shoe against the adjacent walls of said slots.

From the description contained in the preceding paragraph, it will be apparent that the knife 2 is associated with the bar 19 to have a rocking movement about the journal piece 32 as a center. The purpose of this movement is as follows. The knife 2 like all cheese cutting knives, has a beveled face, as 38, to provide for the requisite sharpness of its cutting edge. The opposite face of the knife 2 is disposed in a true plane and is the face which bears against the body of the cheese, the beveled face bearing against the slice which is being cut. It will be apparent that if the knife were so disposed that its beveled face bore against the body of the cheese while its plane face bore against the slice to be cut, the effect of the bevel would be to produce a slight shifting of the body of the cheese and to thereby prevent the kerf from being true. For this reason the table always has to be turned in the same direction in order that the faces of the cutting knife may always have the relation above expressed. By mounting the knife for rocking movement in the manner above explained, it will be apparent that the relation of the faces of the knife may be reversed and consequently that the table may be rotated in either direction and the cut may thus be made at either side of the kerf, as may be desired. By reference to Fig. 4 it will be observed that the knife 2 is disposed in a true vertical plane and its beveled edge portion 38 has the ordinary disposition. By reference to Fig. 5 it will be observed that the knife is positioned in an inclined plane and that the beveled edge portion 38 is disposed in a true vertical plane while the opposite face of the knife

which was disposed in a true vertical plane when the knife was arranged as in Fig. 4, now is disposed in an inclined plane. Hence, when the knife is disposed as in Fig. 4, a slice may be cut adjacent one side of a kerf and when the knife is disposed as in Fig. 5, a slice may be cut adjacent the opposite side of a kerf. That is to say, when the knife is disposed as in Fig. 4, its plane face travels adjacent the body of the cheese while its beveled face 38 travels adjacent the slice being cut, while when the knife is disposed as in Fig. 5, the beveled face 38 (which then occupies a true vertical plane) travels adjacent the body of the cheese while its plane face (which then occupies an inclined plane) travels adjacent the slice being cut. For the purpose of holding the knife 2 in either of the positions shown in Figs. 4 and 5, any desired means may be employed. As shown, a spring-pressed pin, as 39, is provided for this purpose, the pin 39 being movable through apertured lugs 40 provided on the bar 19 and having a projecting finger, as 41, by which its movement may be effected. As shown in Fig. 4, the pin 39 in its operative position, has its lower end disposed against the upper end of the strip 31 and holds the knife 2 in a true vertical plane while in Fig. 5 the pin 39 engages the upper portion of the knife at the side opposite that to which the strip 31 is attached, and holds the knife in an inclined plane.

In the embodiment under consideration a single element is employed to serve the dual function of holding the table against movement during the cutting operation and of producing a radial drawing movement of the knife 2. This element, designated by the numeral 42, comprises a lever having a handle portion 43 and a U-shaped portion 44 from which the handle portion 43 projects, the portion 44 terminating at its end in a brake shoe 45 and having a shoulder, as 46, adjacent the brake shoe (Figs. 3 and 10). The element 42 is pivoted in the standard 3 upon a horizontal pin, as 47, which extends transversely of said standard, and is normally held in a position wherein its shoe 45 engages the peripheral face of the table 1 by means of a torsion spring, as 48. The handle 43 projects rearwardly from the standard 3 through the slot 21. The knife bar 19 is provided below the knife 2 with an axial extension, as 49. The operation of producing the radial drawing movement of the knife 2 is effected automatically at the lower termination of the movement of said knife. At such time the extension 49 projects into the depression of the U-shaped portion 44, as is clearly shown in Fig. 3, and the lug 30 adjacent the handle portion 43 engages said handle portion just before the downward movement of the knife is completed, and as the downward move-

ment of the bar 19 is continued, moves the handle portion 43 downwardly. This rocks the element 42 on its pivot 47 with the result that the forward heel of the U-shaped portion 44 engages the extension 49, and moves the lower end portion of the knife bar and therewith of the knife rearwardly, as shown by the arrows C in Fig. 3. It will, of course, be understood that in assembling the knife bar, regard is had to the degree of loose play necessary for this operation. When the knife bar is raised, its lug 30 moving away from the handle portion 43, the spring 48 resets the element 42, so that its shoe 45 engages frictionally with the peripheral face of the table. The movement of the element 42 by the spring 48 is limited by the shoulder 46 which engages as a stop against the adjacent wall of the standard 30, as shown more particularly in Fig. 2.

The manner of use will be readily apparent from the foregoing description. Prior to the cutting operation and while the knife 2 is in its uppermost position, the operator determines the size of the slice to be cut to secure a given weight by manipulating the lever 9. It will be observed by reference to Fig. 2, that the readings on the scales are so arranged as to permit of the accurate determination of the size of the slice by the movement of the lever 9 either to the right or to the left. It will be assumed that prior to the cutting operation the table is to be rotated in the direction of the arrow A (Fig. 2). The operator thereupon moves the lever 9 to the right and frictionally engages the table with the shoe 12 and with the finger 17 in the manner previously explained. Thereupon the lever is moved to the left through the arc necessary to produce a slice of proper size in accordance with the weight determined upon. When the reading on the scale which indicates the desired size or weight, is reached by the indicating finger 11, the movement of the lever 9 and the table is stopped, and the knife is moved downwardly to effect the cutting operation, which takes place in the usual manner. Assuming, however, that it is desired to cut the slice from the side of the kerf opposite to that from which the slice was cut in the operation just described: In this case, the table is rotated in the direction of the arrow B (Fig. 2) and prior to this rotation, the operator moves the lever 9 toward the left until the arc indicative of the size and weight of the slice to be cut intervenes between the finger 11 and the exposed face of the cheese, which will also be a face of the slice that is cut. When this point has been reached, the shoe 12 is again manipulated to frictionally engage the table and the lever 9 is turned to the right. The table is thereupon moved to the right with said lever and this movement is continued until the

finger 11 reaches the end of the scale adjacent the standard 3. The cutting operation is then repeated in the manner explained.

The advantage of being able to cut a slice of cheese from either side of the kerf is found in the fact that a too long exposure of the cheese at either face of the kerf, such as would produce a drying or hardening thereof, may be obviated. It will, of course, be understood that when the table is reversed, that is to say, in changing from the direction A of rotation to the direction B of rotation, the knife 2 is adjusted from the position of Fig. 4 to the position of Fig. 5 in the manner and for the purpose above set forth.

During the time that the table is being rotated, the element 42 may be manipulated to wholly relieve the table of braking pressure or to have a light braking pressure thereon, as may be desired, and when the rotation of the table is completed, the element 42 is released and its shoe 45 engages the table and holds the same in the position to which it has been moved. During the knife drawing operation, in which period the shoe 45 is disengaged from the table, the latter is held against movement by the pressure of the knife.

Having fully described my invention, I claim:

1. In a cheese cutter, a table, a knife movable toward and away from the table and means for supporting the knife in either one of two angularly disposed planes, having their line of intersection parallel to the longitudinal axis of the knife.

2. In a cheese cutter, a table, a knife movable toward and away from the table and having an edge portion of one face beveled and its other face plane and means for supporting the knife in a true vertical plane or in an inclined plane with its beveled edge portion in a vertical plane.

3. In a cheese cutter, a table, a vertically reciprocatory knife bar, a knife carried by the knife bar and mounted thereon for rocking movement about a horizontal axis, and means for holding the knife in either one of two planes having their line of intersection coincident with the horizontal axis.

4. In a cheese cutter, a table, a vertically reciprocatory knife bar having its lower portion formed with a downwardly and outwardly inclined face, with a perpendicular face below the inclined face and with a transverse recess interrupting the faces, and a knife having a journal piece for rocking engagement in the recess, the knife being arranged to be held against either of the faces aforesaid.

5. In a cheese cutter, a table, a vertically reciprocatory knife bar having its lower portion formed with a downwardly and outwardly inclined face, with a perpendicular

face below the inclined face and with a transverse recess interrupting the faces, a knife having a journal piece for rocking engagement in the recess, and a latch pin for holding the knife against either of the faces aforesaid.

6. In a cheese cutter, a table, a hollow standard arranged at one side thereof, a knife bar movable axially of the standard within the same, the standard having a slotted face, a knife projecting through the slot, and means for associating the knife with the knife bar, the means including a friction shoe which engages an interior face of the standard and brakes the movement of the knife bar.

7. In a cheese cutter, a table, a hollow standard arranged at one side thereof and having vertical slots in its front and rear walls, a knife bar movable axially of the standard and provided with upper and lower pairs of lugs which project through the slots, a knife carried by the bar and a spring shoe associated with the bar within the standard and intermediate the lugs, the shoe having its vertical edge portions projecting into the slots, frictionally engaging the adjacent walls thereof, and producing the frictional engagement of the lugs with the other walls thereof.

8. In a cheese cutter, a table, a hollow standard arranged at one side thereof, a knife bar movable axially of the standard within the same, the standard having a slotted face, a spring shoe arranged within the standard for frictional engagement with an interior face thereof, the shoe being associated with the knife, and means engaged and acted upon by the shoe for holding the knife in relation to the knife bar for movement therewith.

9. In a cheese cutter, a table, a hollow standard arranged at one side thereof and having vertical slots in its front and rear walls, a knife bar movable axially of the standard and provided with upper and lower pairs of lugs which project through the slots, a knife carried by the bar, a screw extending through the rear edge portion of the knife at a point central thereof, and a spring brake shoe having its central portion engaged and bowed outwardly by the screw, and having its vertical edge portions projecting into the slots, frictionally engaging the adjacent walls thereof and producing the frictional engagement of the lugs with the other walls thereof.

10. In a cheese cutter, a table, a hollow standard arranged at one side thereof and having vertical slots in its front and rear walls, a knife bar movable axially of the standard and provided with upper and lower pairs of lugs which project through the slots, a knife carried by the bar, a spring brake shoe associated with the knife bar and

having its vertical edge portions projecting into the slots, frictionally engaging the adjacent walls thereof and producing the frictional engagement of the lugs with the other walls thereof, and a device for bowing outwardly the central portion of the shoe.

11. In a cheese cutter, a table, a hollow standard arranged at one side thereof and having vertical slots in its front and rear walls, a knife bar movable axially of the standard and having its lower end portion provided with a downwardly and outwardly inclined face, with a perpendicular face below the inclined face, with a transverse recess interrupting the faces, with an opening extending from the recess, with an upper pair of lugs projecting into the slots at a point adjacent the upper end of the inclined face and with a lower pair of lugs projecting into the slots at a point adjacent the lower end of the perpendicular face, a knife projecting through the slot in the front wall of the standard and having its rear edge portion disposed in the standard and provided with a horizontal journal piece for rocking engagement in the recess, with a threaded opening in the journal piece, and with a recess adjacent the journal piece, a spring shoe having one of its vertical edge portions fitted in the recess of the knife and having both of its vertical edge portions projecting into the slots, frictionally engaging the adjacent walls thereof and producing the frictional engagement of the lugs with the other walls thereof and a screw stem passed through the opening and the recess of the standard, threaded through the opening in the journal piece and having its end engaged with the central portion of the spring shoe to bow the latter outwardly.

12. In a cheese cutter, a table, a knife movable vertically toward and away from the table and means for automatically producing a radial drawing movement of the knife at the lower termination of its vertical movement.

13. In a cheese cutter, a table, a standard arranged at one side thereof, a knife bar movable axially of the standard, a knife carried by the knife bar, the latter having an axial extension below the knife and a laterally projecting lug adjacent the extension, and a spring held U-shaped element pivotally associated with the lower portion of the standard and operable by the lug to move pivotally against the tension of the spring and in its pivotal movement to engage the extension and produce a movement of the knife bar and therewith a radial drawing movement of the knife.

14. In a cheese cutter, a table, a standard arranged at one side thereof, a knife bar movable axially of the standard, a knife carried by the knife bar, the latter having an axial extension below the knife, and a

U-shaped element pivotally associated with the lower portion of the standard, and operable to engage the extension and to produce a movement of the knife bar and therewith
5 a radial drawing movement of the knife.

15. In a cheese cutter, a table, a standard arranged at one side thereof, a knife bar movable axially of the standard, a knife carried by the knife bar, the latter having an
10 axial extension below the knife, a U-shaped element pivotally associated with the lower portion of the standard and operable to engage the extension and to produce a movement of the knife bar and therewith a radial
15 drawing movement of the knife, the said element having one end formed as a brake shoe for frictional engagement with the periphery of the table and having its other end formed as a handle portion, and a spring for
20 holding the element normally in position to engage its brake shoe with the periphery of the table.

16. In a cheese cutter, a table, a knife movable toward and away from the same
25 and a pivoted spring held member having a brake shoe for frictional engagement with the table and having also a handle portion.

17. In a cheese cutter, a table, a standard arranged at one side thereof, a knife bar
30 movable axially of the standard, a knife carried by the knife bar, and a retractable spring-held device arranged at the lower portion of the standard for frictional braking engagement with the peripheral surface
35 of the table.

18. In a cheese cutter, a table having a central pivot pin, a knife movable toward and away from the table, a directly and manually operable lever pivotally associated
40 with the pivot pin and having a handle portion projecting beyond the table and a shoe associated with the projecting handle portion of the lever and movable into and out of frictional engagement with the surface of
45 the table.

19. In a cheese cutter, a table having a central pivot pin, a knife movable toward and away from the table, a lever pivotally associated with the pivot pin and having an
50 end portion projecting beyond the table, and a shoe movably associated with the under face of the lever and having means to frictionally engage the under face of the table.

20. In a cheese cutter, a table having a
55 central pivot pin, a knife movable toward and away from the table, an arcuate gage

concentric with the table, a lever pivotally associated with the pivot pin and having an end portion projecting beyond the table, an indicator finger on the end portion and
60 overlying the scale, and a shoe movably associated with the under face of the lever and having means to frictionally engage the under face of the table.

21. In a cheese cutter, a table having a
65 central pivot pin, a knife movable toward and away from the table, a lever pivotally associated with the pivot pin and having an end portion projecting beyond the table, the lever having means operable by an up-
70 ward pull to frictionally engage the surface of the table and couple the latter to the lever for rotation therewith.

22. In a cheese cutter, a table, having a central pivot pin, a knife movable toward
75 and away from the table, a lever pivotally associated with the pivot pin and having an end portion projecting beyond the table, the lever having means operable by downward pressure to frictionally engage the surface
80 of the table and couple the latter to the lever for rotation therewith.

23. In a cheese cutter, a table having a central pivot pin, a knife movable toward and away from the table, a lever pivotally
85 associated with the pivot pin and having an end portion projecting beyond the table, the lever having means operable by an upward pull and having also means operable by downward pressure to frictionally engage
90 the surface of the table and couple the latter to the lever for rotation therewith.

24. In a cheese cutter, a table having a central pivot pin and a continuous peripheral groove, a knife movable toward and
95 away from the table, a lever pivotally associated with the pivot pin and having an end portion projecting beyond the table and provided with a finger which projects into the groove and may be frictionally engaged
100 with the lower wall thereof, and a shoe movably associated with the under face of the lever and having means for frictional engagement with the under face of the table.

In testimony whereof I have hereunto set
105 my hand in presence of two subscribing witnesses.

ISAAC E. LEE.

Witnesses:

CHAS. S. HYER,

JAMES L. NORRIS, Jr.