

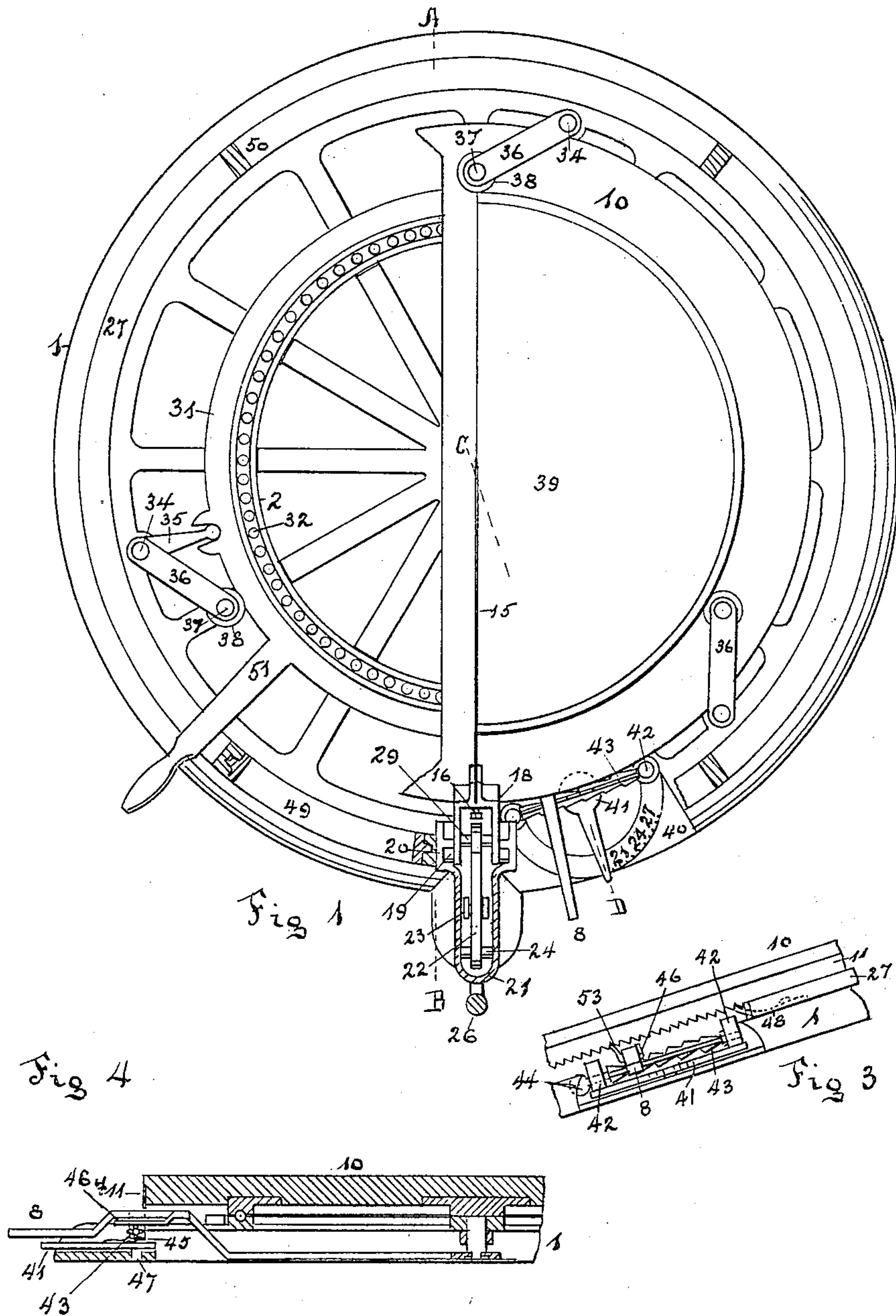
No. 816,713.

PATENTED APR. 3, 1906.

J. W. CULMER.  
CHEESE CUTTING MACHINE.

APPLICATION FILED MAR. 19, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

*J. M. McGon.*  
*C. B. Hurlbut.*

INVENTOR

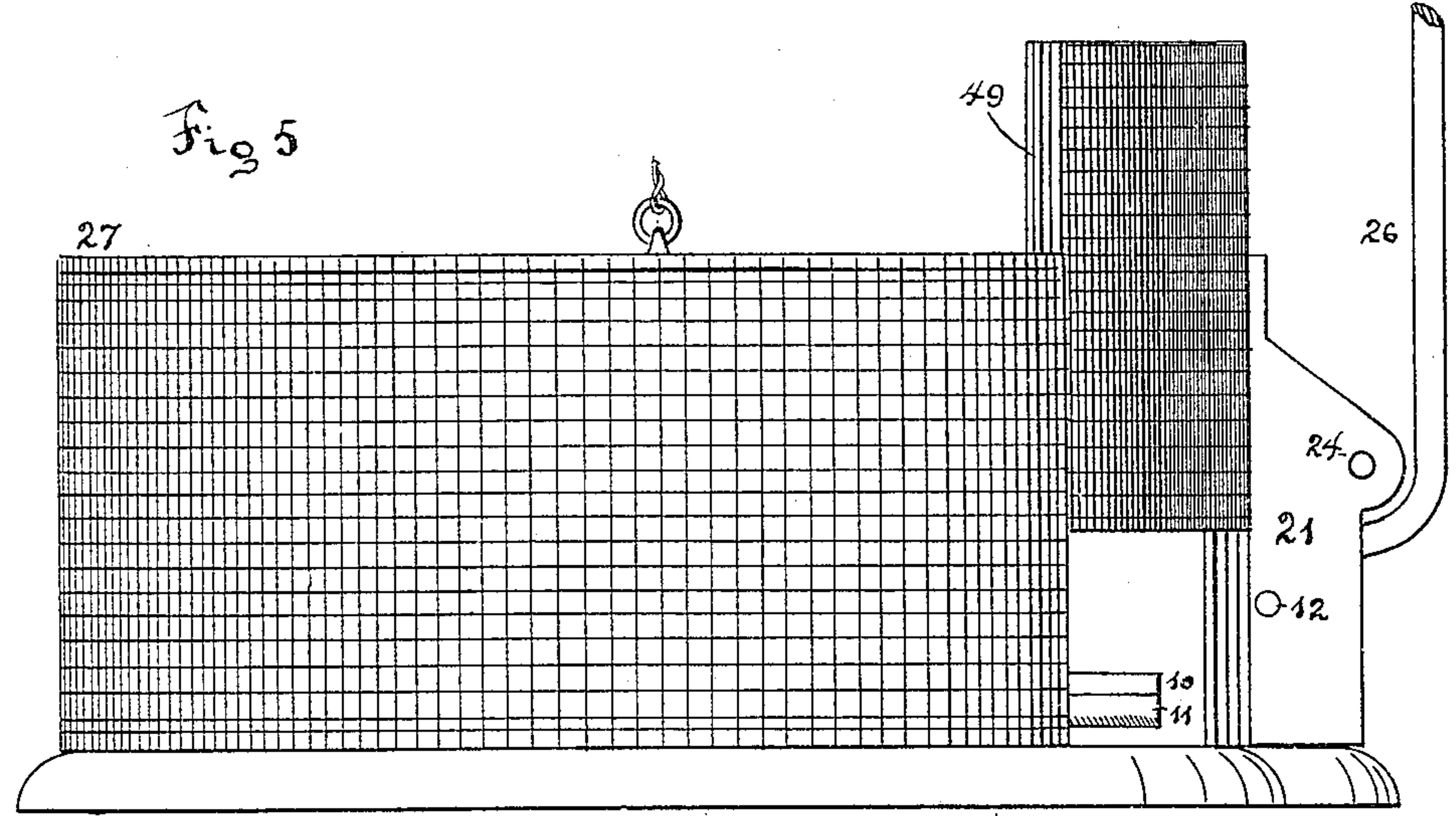
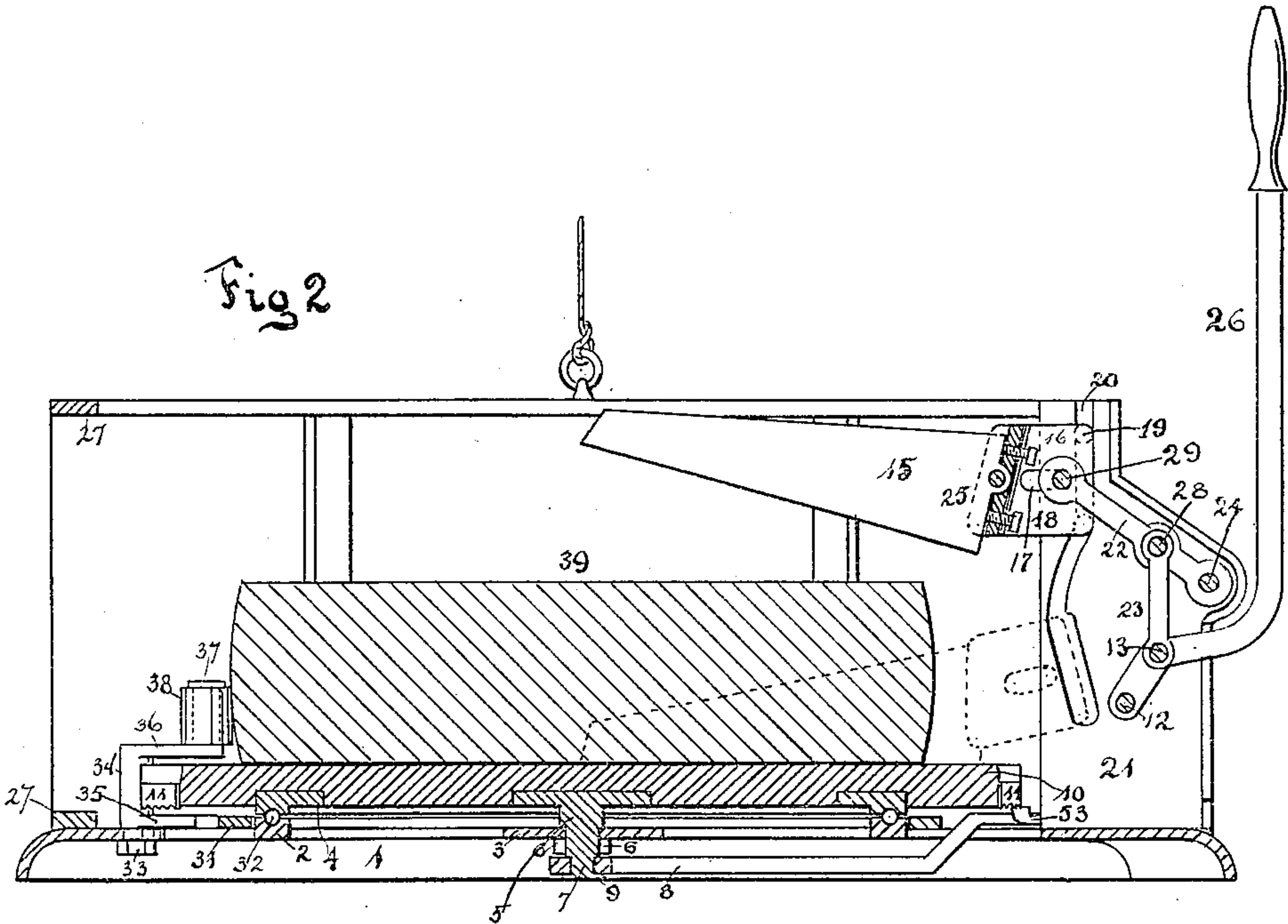
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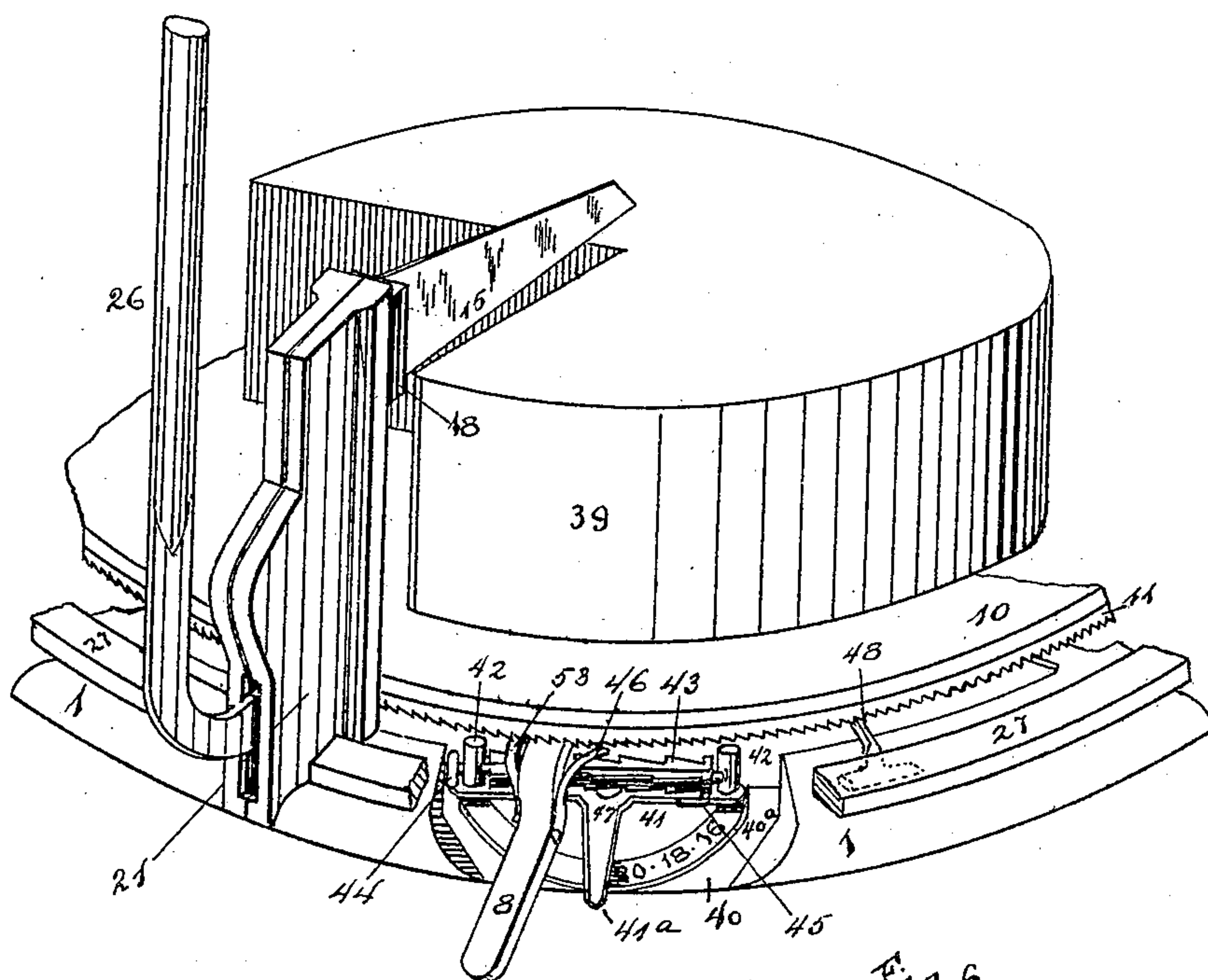


Fig 6

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INVENTOR

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# UNITED STATES PATENT OFFICE.

JOHN W. CULMER, OF CLEVELAND, OHIO, ASSIGNOR TO THE ARITHMETICAL SCALE CO., OF CHATTANOOGA, TENNESSEE.

## CHEESE-CUTTING MACHINE.

No. 816,713.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed March 19, 1904. Serial No. 198,926.

*To all whom it may concern:*

Be it known that I, JOHN W. CULMER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Cheese-Cutting Machine, of which the following is a specification.

My invention relates to improvements in cheese-cutting machines in which a known fraction of a previously-weighed cheese is cut at one mechanical operation; and the improvements I have made therein consist, first, in the construction of a base having a central boss for the connection of the superposed stage, a concentric ball-race, a sunken scale-arc, and a series of concentric lugs for the connection of rotatable forked arms; second, in a revoluble stage adapted to be mounted on said base and having a central boss, a concentric ball-race counterpart to that on the base, and a peripheral saw-tooth or ratchet surrounding and extending below the lower surface of said stage; third, in the pivotally mounting concentrically upon said base of a series of forked levers, whereof one arm of each extends below the stage into engagement with a ring revoluble about the ball-race of the stage and the other arm extends above the stage and is provided with a roller adapted to be brought into contact with a cheese placed thereon and an arm or lever integral with or attached to said ring and extending beyond the periphery of the base; fourth, in the provision of a centrally-connected lever having its end extending outside of the base and fitted with a pawl engaging with the ratchet surrounding the stage and with a scaling or dividing device upon the lower portion of the base; fifth, in the combination with the said lever of a rotatable stop normally at right angles therewith and adapted to be shifted to lengthen or shorten its "throw" or travel; sixth, in the mounting upon the base of a vertical casing containing an approximately vertically guided cross-head fitted with projections and guideways in the casing for the reception of said projections, a normally vertical lever, elements for the connection of said lever and cross-head, and a blade pivoted within said cross-head horizontally adjustable therein and extending to the center of the machine; seventh, in a removable screen-casing having a normally closed door or opening

near the lever-casing and adapted to be wholly removed from the mechanism for the placing of a cheese upon the stage, and in such other improvements as are shown and described and specifically claimed.

In the accompanying drawings, Figure 1 is a top plan view of a machine embodying my invention, with the top of the screen removed and the stage partially cut away to show the base. Fig. 2 is a vertical transverse section of Fig. 1 on the line A B. Fig. 3 is an elevation of the regulating device. Fig. 4 is a vertical transverse section of the same on the line C D, Fig. 1. Fig. 5 is an elevation of the machine with its screen in place and its door partially raised. Fig. 6 is a partial perspective view showing the dividing and subdividing mechanism.

A base 1 is made, preferably, of cast-iron, having its center raised to form a seat for a superposed stage and radial arms projecting therefrom to a horizontal web near the outer edge, which is curved downwardly to afford space below the radial arms and to seat solidly upon a counter or table. At one point the rim or edge is extended radially to form a seat for the casing 21, and at one side of said projection, preferably the right side, the rim and web of the base 1 are depressed, as at 40, Fig. 1, and upon said depression the semicircular arc 40<sup>a</sup> is made either integrally or made fast thereon. At points equidistant about the web of the base 1 and concentric therewith are made fast the pivot-studs 34, upon which the sleeve of the forked arms 35 36 are fitted to rotate. The lower arm 35 extends radially inwardly below the level of the stage 10, and its inner extremity is of disk form and engaged by a radial slot in the ring 31, surrounding the ball-race 2 upon the radial arms of the base. The upper arm 36 has its outer end fitted with a stud 37, upon which a roller 38 revolves, and an arm 51, by which the ring 31 may be rotated about its center, projects beyond the base 1. A concentric ball-race 2 is cast integral with the base and is turned out for the reception of the balls 32.

A circular rotatable stage 10, of wood or other suitable material, is fitted on its lower side, with the ball-race 4 counterpart of and coincident with the race 2 on the base, a central hub 5, shouldered onto the boss 3 of the base 1 and projecting through said boss to form a journal upon which it rotates, a nut 6



holding it in place thereon and preventing the displacement of the balls 32 from the ball-race 2, and a tooth or ratcheted strip of metal 11 surrounding the lower edge of the stage 10 and made fast thereto. Below the nut 6 on the hub 5 the diameter of said hub is decreased and against the shoulder thus formed a lever 8 is retained in place by the cap or plate 9, which may be made fast to the smaller hub 7 by any approved means. The lever 8 extends beyond the rim of the base 1 at a point to the right of the casing 21 and coinciding with the scale-arc 40. It is bent upwardly below the stage 10 and extends horizontally from that point to a point beyond the divisional gage, Figs. 3 and 4, and is then bent downwardly in front of said gage and extends outwardly beyond the base. Upon the upper horizontal portion there is affixed on the left side a spring-pawl 53, engaging with the ratchet-teeth 11, and upon the opposite side a spring 46 presses against the teeth of the divisional gage 43. A spring-detent 48, made fast upon the base 1 and engaging the ratchet 11, prevents motion in the undesired direction. Upon the horizontal depressed portion of the base 1 to the right of the casing 21 a pivot 47 is fitted concentric with the arc 40. A plate 41, made fast upon the pivot 47, has two arms extending horizontally at a right angle normally with the central axis of the lever 8 when midway of its normal movement and a finger extending radially across the arc 40. At the ends of the arms of the plate 41 vertical cylindrical pieces 42 project upwardly and limit the movement of the lever 8 between them. In the position described the lever 8 has its greatest range, and when the plate 41 is rotated upon the pivot 47 by means of the finger the range of the lever 8 is reduced as the cylindrical strike-pieces 42 are brought nearer to it on each side. Journaled in the vertical pieces 42 is a winged rotatable divisional gage, the object of which is the dividing of the ordinary unit of the cutting mechanism (say one pound) into smaller fractions. To this end one of the wings will be divided into, say, three equal parts, one into four parts, a third into five parts, and so on, as far as required. As shown, the gage has four wings, and by moving the finger to the right the desired divisional wing may be set by the knob 44, Fig. 3, and is retained in place by the spring 45, Fig. 4.

A casing 21 is made fast upon the base 1. Near its inner open edges there are guideways recessed, 20, within which are slidably fitted the guides 19 of a knife-head 18. At the opposite or inner end of the head 18 a scarf is cut, into which is fitted a blade 15, which is held in place by the pin 25. Set-screws 16 above and below the pin 25 abut against the shoulders of the blade and afford a means of adjustment after grinding or

when required. In the rear of the screw-seats 16 the head is recessed, and upon each side a slot 17 is made for the reception of a pin 29, which is a part of the lever 22, which has its opposite end adapted to rotate upon the shaft 24, journaled in the casing 21. A hand-lever 26 extends vertically outside the casing 21 and is curved in to enter said casing below the lever 22 and is journaled within the casing 21 by the shaft 12. A link 23 connects the lever 22 with the hand-lever 26 by means of the pins 13 and 28, and when the lever 26 is drawn downward around its journal 12 the knife-head 18 is drawn downward through the lever 22 and its pins 29 in the slots 17, and the blade follows the course positively given it by the guides 19 in the guideway 20 until the bottom of the stroke is reached, at which point the width of the guideways 20 is increased and the blade 15, as shown in the dotted lines in Fig. 2, is drawn slightly toward the hand-lever 26 and the cut is complete. The lever 26 is pushed back to its vertical position and the other elements assume their original places. Upon the outer edge of the base 1 is fitted a screen-casing having a frame 27, which is made to fit snugly over the casing 21, part of which extends outside the screen. To the left of said casing 21 a sliding door 49 may be raised to permit access to the interior; but all operations after the cheese is placed upon the stage may be performed without moving or opening the screen.

In operation, a cheese of a known weight—say twenty pounds—having been obtained, the screen 27 will be raised, the cheese 39 placed on the stage 10, and the handle 51 pushed away from the operator by his left hand as he stands before the lever 26. The arms 36 are swung inward together, the rollers 38 impinge against the cheese 39 and cause it to move to the center of the stage 10, and the casing 27 is replaced upon the base 1, covering the mechanism from flies. The finger of the gage 41 is placed at "20" on the arc 40, that being the position at which the lever 8 is permitted to make twenty full strokes to one complete revolution of the stage 10, the hand-lever 26 is drawn downwardly, and the blade 15 is caused to strike the cheese first upon its periphery, cutting toward the center, and as the downward stroke continues the point is gradually brought down until at the conclusion of the stroke the edge of the blade 15 is horizontal and near or quite through the cheese, the final cut of the blade being a slight drawing cut away from the center, whereby the rind or fabric on the surface is severed. The lever 26 is returned to its vertical position, and the knife-head is restored to its place at the top of the guideways. If it is desired to serve a pound of cheese to a customer, the lever 8 is pressed to the right against the vertical stop 42 and then drawn toward



the left until in contact with the opposite stop 42, which will complete one-twentieth of a revolution of the stage 10, the spring-pawl 53 in the ratchet-teeth 11 causing said stage 10 to rotate with the lever 8 and the detent 48 retaining said stage in place until again moved by the lever 8. The cutting operation is now performed by the drawing down of the lever 26, the door 40 in the casing 27 is lifted and the pound of cheese is removed, the door 49 restored to its normal position, and the operation is completed by returning the lever 26 to its vertical position. When it is desired to cut more or less than one pound, or in the event of a trade demand for cheese in five cents' worths, or other fractional amounts, the divisional gage 43 has its required wing set uppermost, so that the spring 46 on the lever 8 is in contact with the notches thereon. Thus if five cents is the price of one-fourth pound of cheese, the wing having four notches would be placed upward, and the click of the spring 46 in the notches of 43 indicates the number of quarter-pounds, and in a similar manner with any other number of subdivisions upon the other wings of 46.

I claim—

1. In a cheese-cutter, a base fitted at its periphery with a divisional mechanism comprising a horizontally-rotatable plate having vertical stop-pieces at its opposite ends and a revoluble winged gage extending between and journaled in said stop-pieces, a peripherally-ratcheted revoluble stage superposed on and concentric with said base, a lever journaled concentric with said base and extending between said stops and beyond the base and having a spring-pawl engaging said ratcheted stage and a second spring bearing upon the upper face of the aforesaid winged gage as shown and described.

2. In a cheese-cutter, a base having a depressed recess in its periphery, fitted with a rotatable plate having stops at its ends, and an arc-scale concentric with said plate, said base adapted to support concentrically a peripherally ratcheted revoluble stage, and a centrally-journaled lever extending over and beyond the rotatable plate and between the stops thereon, a finger extending from the body of said rotatable plate and adapted to indicate upon said arc-scale the amount of limitation of movement of said lever, a pawl upon said lever engaging with said ratcheted stage, and a detent upon said base also engaging the ratchet of said stage, as shown and described.

3. In a cheese-cutter as described, an outwardly-closed interiorly-open vertical casing, a base supporting said casing upon its periphery, counterpart guide-channels oppositely situated within the inner open face of said casing and having a vertical upper portion, a rearwardly-inclined and wider lower portion and a curved central portion

forming a continuous channel, a knife-head having an open rear with outside guides within the aforesaid channels and horizontal slots on each side, a blade held within a scarf in the front of said knife-head by a central pin, two set-screws passing from the open rear of said knife-head and abutting against said blade for its adjustment relatively to said head, a lever having transverse projecting studs within the horizontal slots of the knife-head and its opposite end journaled at a lower point in said vertical casing, an operating-lever journaled within said casing and having its inner end extending upwardly within and its longer end extending without said casing and upwardly to a normal vertical position, a link connecting the transverse stud-lever with the operating-lever within the vertical casing, whereby when said operating-lever is drawn downwardly the knife-head is caused to follow the guide-channels, the blade cutting, first, at an angle toward the center, then becoming horizontal, and finally being drawn slightly toward the rear, a revoluble stage within and upon the base and means for centering a cheese thereon, and mechanism for revolving and for limiting the revolution thereof substantially as described.

4. In a cheese-cutter having a base, a controllably-revoluble stage supported on the base and mechanism for proportionally regulating its revolution; a vertical casing made fast upon the outer rim of said base and having inner open edges fitted with counterpart guide-channels having an upper portion vertical, a lower portion inclined rearwardly and a curved central portion uniting said upper and lower portions; a rearwardly-recessed knife-head, having guides entering said channels and horizontal slots on either side, a lever having a cross-bar within said slots and its opposite end journaled into said casing, a hand-lever journaled within and extending outside said casing, and a link connecting said lever with the lever of the knife-head, whereby the movement of said hand-lever operates said knife-head within its approximately vertical channel, and a blade fitted into the forward portion of said knife-head and adapted to have its edge parallel with the stage at the lower portion of its stroke and to strike the outer and upper surface of the cheese at the beginning of its stroke as shown and described.

5. In a cheese-cutter as described, a vertical casing upon the periphery of the base having its outer surface closed and its inner face open, counterpart guide-channels oppositely situated within the inner open face, said channels having a vertical upper portion a rearwardly-inclined and wider lower portion and a curved central portion forming a continuous channel, a knife-head having an open rear with outside guides, within the



aforesaid channels, and horizontal slots on each side; a blade held within a scarf in the front of said knife-head by a central pin, two set-screws passing from the open rear of said  
5 knife-head and abutting against the shoulders of said blade whereby it may be adjusted relatively to said head, a lever having a cross-head within the horizontal slots of the knife-head and its opposite end journaled in  
10 the vertical casing and connected by a link with an operating-lever journaled at a lower point in said casing and having its inner end extended upwardly and outwardly to connect with said link, thence outside said casing  
15 where it is curved upward so that its

long arm is normally vertical; whereby when said lever is drawn downwardly the knife-head is caused to follow the guide-channels the blade cutting, first, at an angle toward the center, then becoming horizontal and finally being drawn slightly to the rear as described.

In testimony whereof I have hereunto set my hand, this 16th of March, 1904, before two subscribing witnesses.

JOHN W. CULMER.

Witnesses:

J. F. MCGREGOR,  
C. B. HURLBUT.