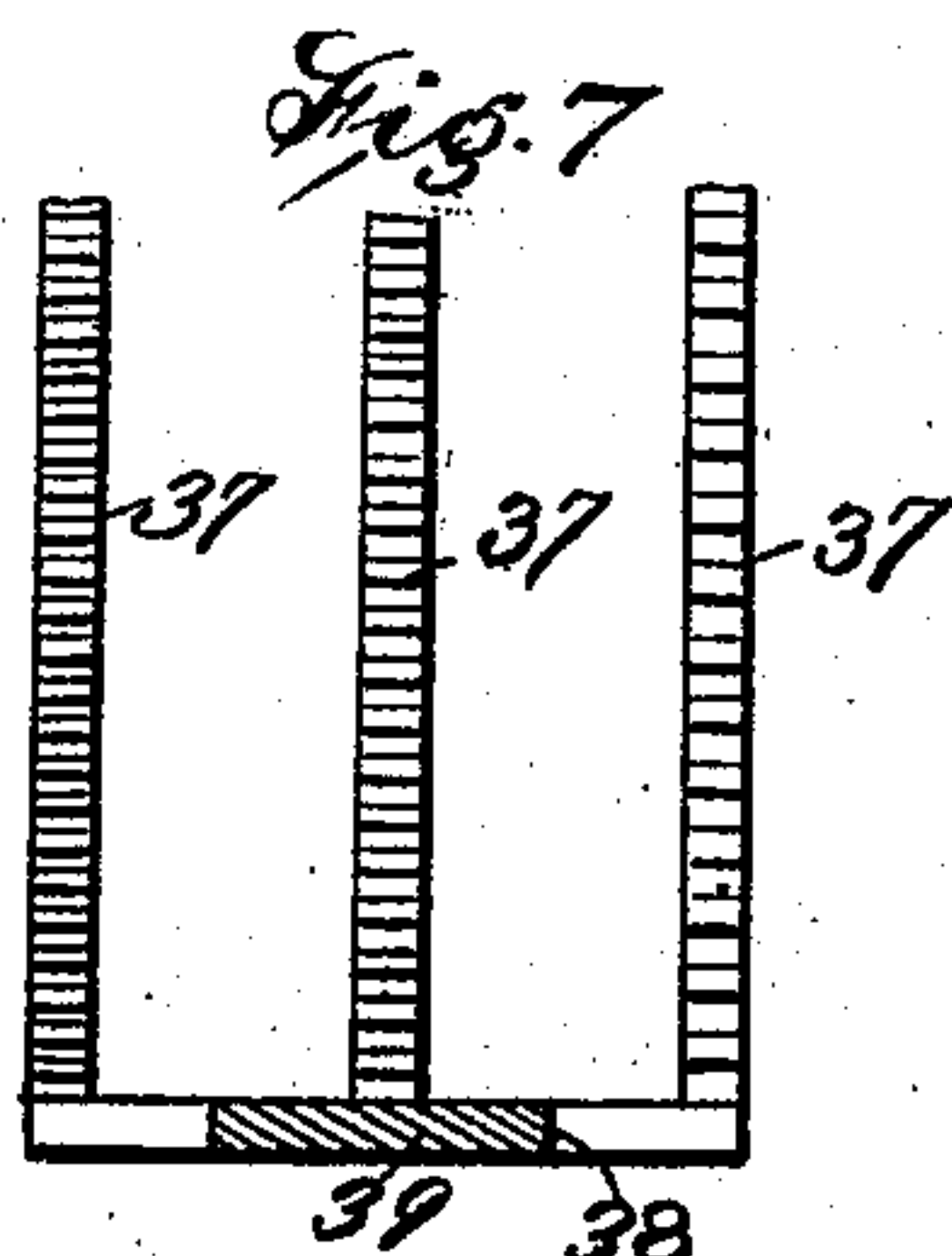
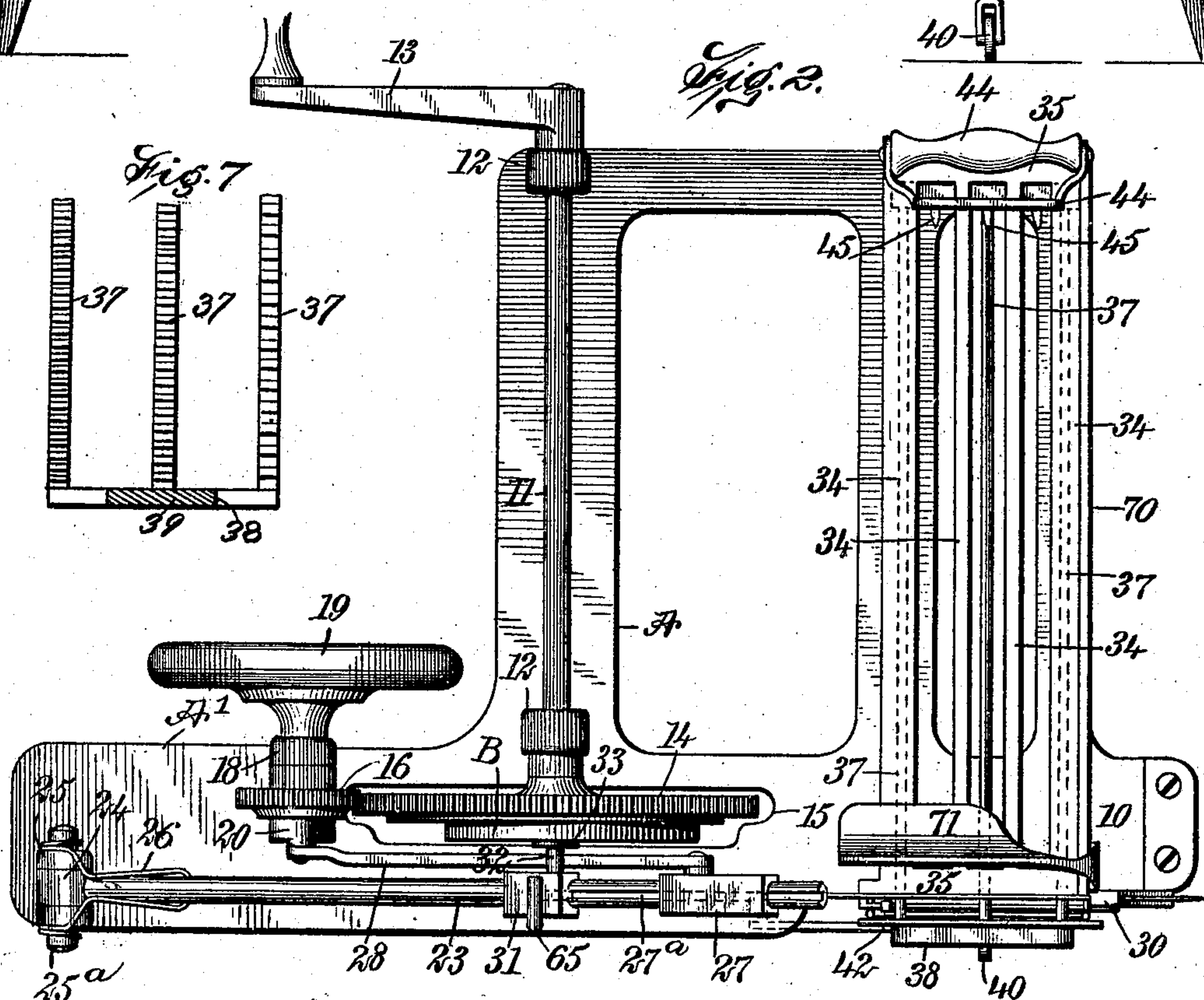
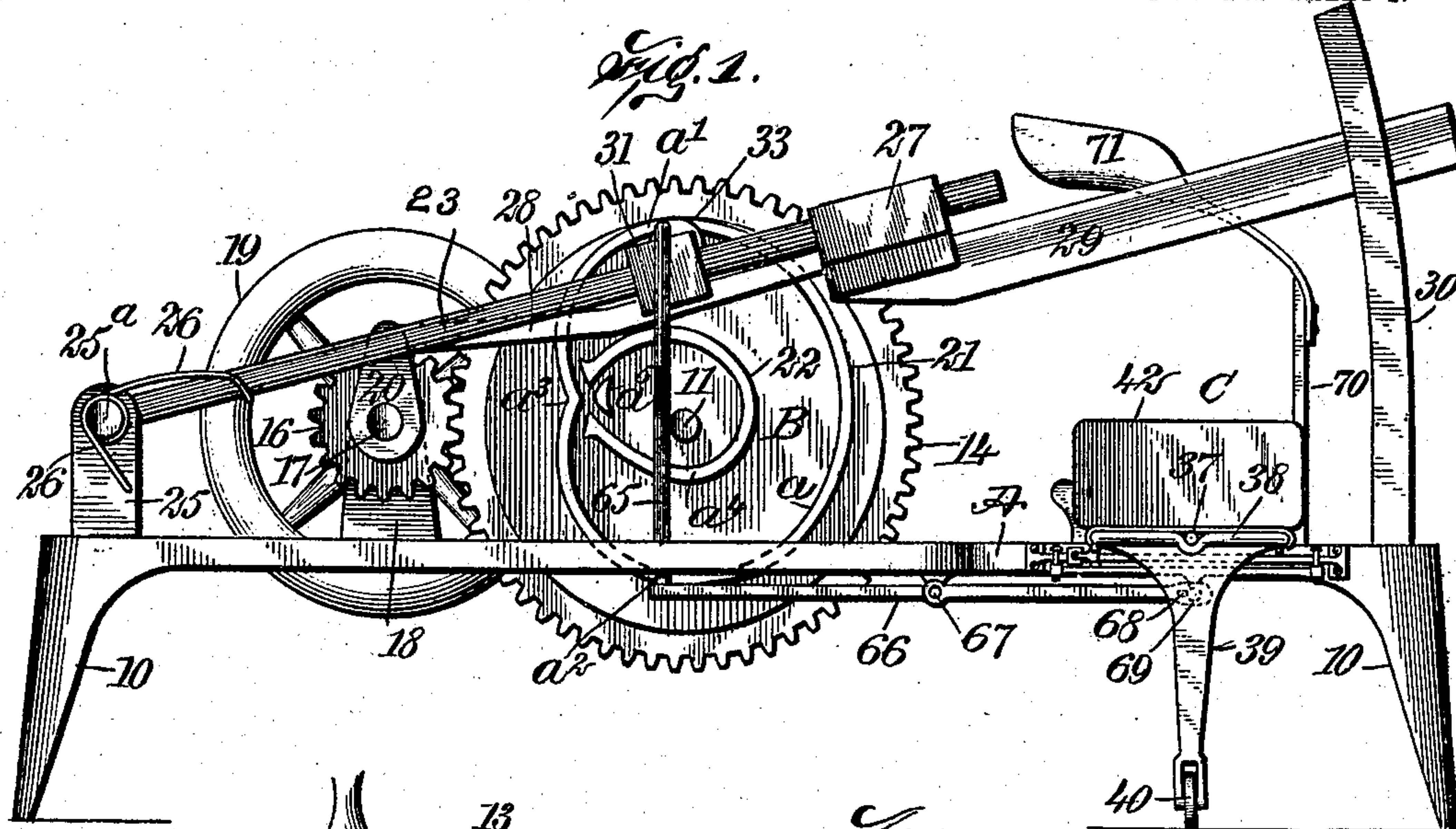


No. 867,844.

PATENTED OCT. 8, 1907.

E. A. SEABURG.
SLICING MACHINE.
APPLICATION FILED DEC. 28, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

Edw. A. Seaburg
W. H. Seaburg

INVENTOR

Edward A. Seaburg

BY

Munn & Co.

ATTORNEYS

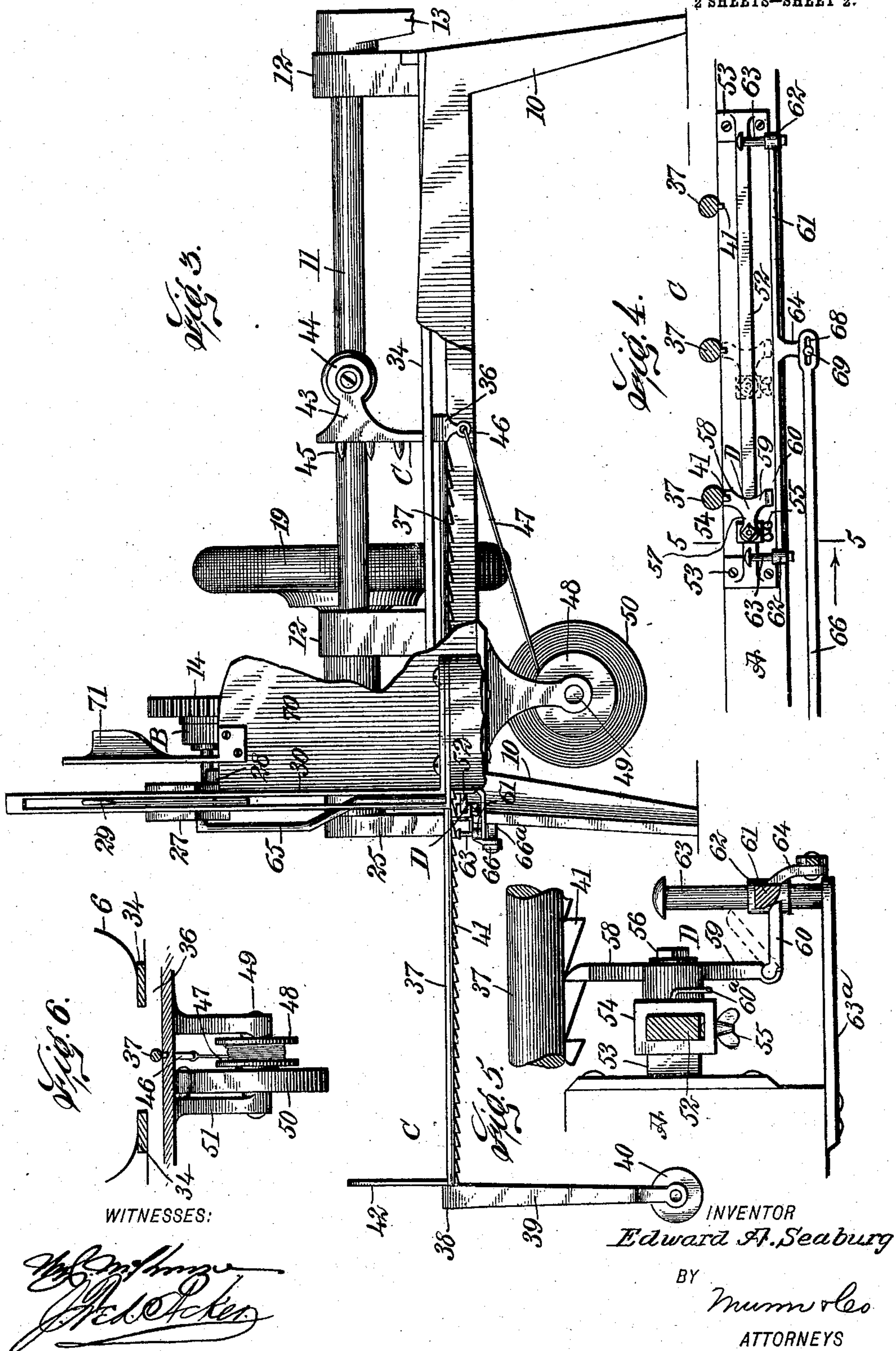
No. 867,844.

PATENTED OCT. 8, 1907.

E. A. SEABURG.
SLICING MACHINE.

APPLICATION FILED DEC. 28, 1906.

2 SHEETS-SHEET 2.



UNITED STATES PATENT OFFICE.

EDWARD A. SEABURG, OF SEATTLE, WASHINGTON.

SLICING-MACHINE.

No. 867,844.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed December 28, 1905. Serial No. 293,623.

To all whom it may concern:

Be it known that I, EDWARD A. SEABURG, a citizen of the United States, and a resident of Seattle, in the county of King and State of Washington, have invented
5 a new and Improved Slicing-Machine, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a machine which while especially adapted for slicing bread may be used with equally good results for slicing vegetables,
10 or any articles capable of being cut by a knife and of being fed to the knife, and to so construct the machine that it will be light-running, compact, simple, durable and economic in construction and capable of convenient operation by one individual.

15 Another purpose of the invention is to so construct the machine that an effective draw-cutting action will be continuously imparted to the knife while the machine is in operation, and so that the feed of the material to the knife will be automatic and capable of adjustment to cut a thick, a medium or a thin slice.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings
25 forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the machine; Fig. 2 is a plan view of the machine; Fig. 3 is a side elevation
30 of the machine, parts being broken away; Fig. 4 is a front elevation of a portion of the bed of the machine, illustrating the application of a device for regulating the feed of the carriage, a portion of the latter being shown in section; Fig. 5 is an enlarged vertical sectional view of the said feed controlling mechanism, the section being taken practically on the line 5—5 of Fig.
35 4; Fig. 6 is a detail vertical section through a portion of the bed of the machine and the carriage, and a front elevation of the feeding device for the carriage; and
40 Fig. 7 is an inverted plan view of a portion of the carrier.

A represents the frame of the machine, which at its front left-hand portion is shown as provided with an extension A', and the said frame is also shown as upheld by suitable legs 10. At the left-hand side portion
45 of the machine a drive shaft 11 is journaled in suitable bearings 12, and at the rear end of the shaft 11 a crank 13 is secured, although the shaft may be turned by power if so desired. At the opposite or front end of the drive shaft 11 a gear wheel 14 is secured, which gear
50 wheel is shown as extending down below the under face of the bed of the machine through a suitable opening 15. The gear 14 is adapted to mesh with a pinion 16, and this pinion 16 is secured upon a short shaft 17 mounted in a suitable bearing 18 at the rear portion of
55 the extension A' of the frame; and at the rear end of

said shaft a fly wheel 19 is secured, while at the opposite or front end of the shaft a crank arm 20 is fastened.

A cam race B is formed upon the front face of the wheel 14. This cam race is clearly shown in Fig. 1, and is eccentric to the shaft 11. Said cam race consists of two rib sections 21 and 22, produced upon the
60 aforesaid gear wheel 14. The rib section 21 is eccentric to the periphery of the gear and likewise eccentric to the shaft 11, and comprises a regularly curved side section a and also a regularly curved opposing end sections a' and a'' , but the curvature of the opposite side section is taken by carrying the rib inward to form a point located about midway between the end sections
65 a' and a'' . The inner rib section 22 of the said cam race B is C-shaped, and a point a^4 at one of its limbs is the least distant from the drive shaft 11. The opening in the C-shaped rib 22 is opposite the point a^3 on the outer rib section 21; and furthermore in the construction of this cam a switch point a^5 is located within the
70 rib 22 just opposite the opening in the said rib and likewise opposite the point a^3 .

An arm 23 in the form of a bar circular in cross section, is pivoted at its left-hand end 24 on a suitable post 25, and around the pivot pin 25^a a spring 26 is coiled, having bearing against the under face of the
80 said arm 23. The tendency of the spring is to elevate the right-hand or free end of the said arm as is shown in Fig. 1.

A slide 27 in the form of a block has movement longitudinally of the arm 23, and the said slide is provided
85 with a key which enters a key-way 27^a produced longitudinally in the right-hand end of the said arm 23, and this slide 27 is connected by a link 28 with the crank arm 20 on the driven shaft 17, as is shown in Figs. 1 and 2.
90

The heel portion of a knife 29 is attached in any suitable or approved manner to the slide 27, and the said knife 29 at its outer end portion is made to pass through and to have reciprocating motion in a guide
95 loop 30, located at the front right-hand end of the frame, being provided preferably with a slight curvature in direction of the left-hand end thereof.

As the shaft 11 revolves through the medium of the slide 27, the link 28 and the crank arm 20, the knife is given a very rapid reciprocating movement, and the
100 knife is carried down for cutting action and is carried up out of engagement with the material by the cam B in the following manner: A block 31 is securely fastened to the arm 23 between its center and its free end, and this arm carries a pin 32 upon which a friction
105 roller 33 is mounted, the said friction roller being adapted to travel in engagement with the inner faces of the rib sections 21 and 22 of the cam. When the friction roller is in the position shown in Fig. 1, the knife is at the height of its upward stroke, and as the
110

drive shaft 11 is revolved the said roller will travel down to the point a^3 , and will then enter the inner rib section 22; and when the roller has reached about the point a^4 on the said rib section the knife will have been
 5 carried down as far as necessary to have completely severed a slice from the object presented to it; and then as the friction roller 33 continues to travel along the rib 22 and down along the end a^2 and the side a , the knife will ascend until it will be again in its elevated
 10 position when the roller reaches the point a' on the outer rib 21.

A gridiron is located upon the bed of the machine at its right-hand side, extending from front to rear; and this gridiron consists of longitudinal bars 34 held above
 15 the said bed by connecting end pieces 35, offset from yet attached to the bed. Between the said gridiron and the bed, a carrier C has guided movement. The article to be sliced is made to rest on the gridiron and is fed to the knife by the said carrier. The carrier
 20 usually consists of a series of longitudinal rods 37, connected at their rear ends by a cross bar 36, the cross bar and the rods being between the gridiron 34 and the bed; and the said rods are adapted to pass out freely at the front of the frame.

The rods 37 are connected at the front by a cross bar 38, which when the carrier is well back on the frame rests substantially against the front portion of the frame, as is shown in Fig. 1; and a leg 39 is carried
 25 down from the forward cross bar 38, being provided with a friction roller 40 at its lower end, whereby to support the carrier when its forward end is carried out from the frame of the machine, as is shown in Fig. 3. Each bar or rod 37 of the carrier is provided with
 30 ratchet teeth 41 upon its under face, and the ratchet teeth of the various bars are of different lengths, so that in connection with a controlling mechanism to be hereinafter described, the carrier may be made to
 35 move forward or toward the knife a greater or a less distance at each operation of the carrier, so as to control the thickness of the slice to be cut; and at the forward
 40 end of the carrier a fender 42 is provided, which serves to support the cut slices.

A head plate 43 is carried up from the rear of the carrier as is shown in Figs. 2 and 3, and this head plate 43
 45 is provided with an attached handle 44, whereby to draw the carrier back, and the said head plate is provided with teeth 45 on its forward face, adapted to engage with the end of a loaf of bread for example, or an article to be cut. The carrier is fed forward by means
 50 of a cord 47, attached to an eye 46 extending down from the rear bar 36, and this cord is passed around a pulley 48 secured to a shaft 49, which shaft is controlled by a spring 50, as is shown in Fig. 6. The shaft 49 is
 55 journaled in arms 51, which extend down from the bed frame at its forward portion as is shown in Figs. 3 and 6. The spring 50 tends to normally draw the carrier outward, and the said spring is placed under tension as the carrier is drawn back.

The outward movement of the carrier C is regulated
 60 by a controlling mechanism, shown best in Figs. 4 and 5. This mechanism is as follows: A bar 52 is placed longitudinally at the front of the frame of the machine, below the forward end of the carrier C; and the said bar 52 is offset from the said frame by means of brackets 53,
 65 utilized to secure the bar to the frame. This bar 52 is

adapted as a supporting bar for a block 54, which has sliding movement on the said bar 52; and this block 54 is provided with a set screw 55, so that the block may be secured wherever desired on its supporting bar 52. A
 70 post 56 extends out from the forward portion of the block 54, and on said post a pawl D is loosely mounted. The said pawl consists of a horizontal body section 57, which is parallel with the supporting bar 52, and an upwardly-extending contact arm 58, adapted for en-
 75 gagement with the teeth 41 on any one of the rods 37 of the said carrier as is best shown in Fig. 5. That portion of the contact arm 58 which faces the straight portion of a tooth is straight while the opposing face is more or less curved. In the further construction of a pawl D
 80 a finger 59 extends down from the body below the pivot arm 58, and the said finger 59 at its lower end is provided with an extension 60, which in one position is at right angles to the said finger 59. The extension 60 is
 85 hinged to the finger 59 in such manner that while the extension may be carried upward to assume more or less of a vertical position, it cannot be carried downward below a horizontal position as is clearly shown in Fig. 5. The contact arm 58 is normally held in position to en-
 90 gage with the ratchet teeth of a rod or bar 37 by means of a spring 60^a, which spring is best shown in Fig. 5, and is attached to a block 54 and has bearing on the body
 95 portion of the pawl D. A trip bar 61 is located below and in front of the supporting bar 52, and the rear face of the said trip bar 61 is more or less rounded as is shown in Fig. 5, and is adapted for engagement with the upper
 100 rounded end portion of the extension 60 from the finger 59. This rod 61 is provided with an eye 62 at each end, and these eyes 62 loosely receive uprights 63, which uprights 63 are attached to the frame by means of suitable brackets 63^a, as is shown in Figs. 3 and 5. Thus
 105 the trip bar 61 has free vertical movement on the uprights 63. At the central portion of the trip bar 61 a downwardly-extending lip 64 is formed, and the trip bar 61 is lowered in the following manner: A rod 65 is provided at its upper end with a crank section, which
 110 crank section extends over the fixed block 33 on the arm 23, as is shown in Fig. 2; and the said rod 65 is carried downward to a point below the frame as is shown in Fig. 1, where said rod is attached to the end of a lever
 115 arm 66, which lever arm about centrally between its ends is pivoted to the bottom portion of the frame A by means of a suitable pivot pin or stud 67; and at the opposite or right-hand end of the said lever arm 66 an elongated slot 68 is made. This elongated slot 68 receives a pin 69, extending out from the lip 64 of the
 120 trip bar 61. The lever arm 66 is not altogether straight, as one portion is offset from the other at its pivot point as is shown at 66^a in Fig. 3.

In the operation of this portion of the machine, when the arm 23 is carried to an upper position as shown in
 125 Fig. 1 it lifts the rod 65, and at such time the slotted end of the lever arm 66 is carried downward, taking with it the trip bar 61, which normally occupies a higher position than that shown in Figs. 4 and 5, namely, a position nearly at the upper end of its guide
 130 uprights 63; and as the said trip bar is carried down it engages with the extension 60 from the finger of the pawl D, and when the said finger has assumed the horizontal position shown by full lines in Fig. 5, the said bar 61 in its further downward movement will cause the

pawl D to rock on its pivot and carry the contact arm 58 thereof away from the tooth of the carrier with which it was in engagement, permitting the spring 50 to pull the carrier forward the distance of one tooth, 5 as by the time such a distance has been traversed the trip bar will have passed the extension 60 from the pawl D, and the spring 60^a of the pawl will immediately act to bring the contact arm thereof in position to engage with the next tooth, and at such time the 10 arm 23 will have commenced to descend, and the rod 65 will drop by gravity, and the weight on the rod and the connected end of the lever will cause the trip bar 61 to be again carried to its normal position and act again as a trip for the pawl on the next up-stroke of the 15 said arm 23. The pawl D by means of the block 54 can be moved for action in connection with the teeth of any one of the bars or rods 37.

While the feed mechanism that is shown is preferred, I desire it to be understood that I do not confine myself to the details thereof, as such details may be 20 changed without departing from the spirit of the invention.

A fender 70 is located at the right-hand side of the machine, extending from front to rear of the same, 25 against which the outer end or surface of the material to be sliced has bearing; and preferably in order that more or less pressure may be exerted on the article while being cut if so desired, and without bringing the fingers of the hand in contact with the article, I provide a finger piece 71 of spring material, located at the 30 forward end of the fender 70, which finger piece extends over the gridiron beneath which the carrier C travels. Thus while the operator is turning the shaft 11 with one hand the fingers of the other hand may be 35 employed to press the plate 71 downward more or less forcibly upon the object being acted upon by the knife.

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

1. In a slicing machine, a support, an arm pivoted for 40 movement at its free end to and from the support, a knife having sliding connection with said arm, a driving mechanism for imparting reciprocating motion to the knife, and connections between the said driving mechanism and said arm for imparting simultaneous vertical movement to the 45 arm and therefore to the knife.

2. In a slicing machine, a support, a pivoted arm, a block having sliding and guided movement on the arm, a knife carried by said block, a driven shaft, means for reciprocating the block from the shaft, and means for imparting an up and down movement to the arm from said 50 shaft.

3. In a slicing machine, a support, a pivoted arm, a block having sliding and guided movement on the arm, a knife carried by said block, a driven shaft, means for reciprocating the block from the shaft, and a cam operated 55 by the said shaft and operating the arm to impart an up and down movement to the same.

4. In a slicing machine, a support, a tension-controlled arm pivoted for movement at its free end to and from the support, a knife mounted to slide upon the said arm, a drive shaft, a driven shaft, a gear connection between the two shafts, the gear on the driven shaft being the 60 smaller, a crank arm connected with the driven shaft, a link connection between said drive shaft and the knife whereby to impart rapid reciprocating motion to the knife, a cam carried by the gear of the drive shaft, and an extension from said arm, engaging said cam, whereby to give a slow vertical movement to the said arm simultaneously with the rapid reciprocating motion of the knife. 65

5. In a slicing machine, a support, an arm pivoted for 70 movement at its free end to and from the support, a knife

having sliding connections with the said arm, a driving mechanism, connections between the knife and the driving mechanism for imparting reciprocating motion to the knife, connections between said driving mechanism and said arm for imparting simultaneous vertical movement to the arm, a reticulated support for the article to be sliced, a carrier adapted to move the said article toward the knife, and means for controlling the outward movement of the said carrier by the movement of the said knife-carrying arm. 75 80

6. In a slicing machine, a support, an arm pivoted for movement at its free end to and from the support, a knife having sliding connection with said arm, a driving mechanism, connections between the knife and the driving mechanism for imparting reciprocating motion to the knife, and connections between said driving mechanism and said arm for imparting simultaneous vertical movement to the arm, a carrier having sliding movement on the support beneath the knife, the said carrier being spring-controlled in an outward direction, ratchet teeth located on the carrier, a spring-controlled pawl for engagement with the said ratchet teeth, and a trip for the said pawl, automatically and periodically operated by the movement of the said arm. 85 90 95

7. In a slicing machine, a support, an arm pivoted for movement at its free end to and from the support, a knife having sliding connection with said arm, a driving mechanism, connections between the knife and the driving mechanism for imparting reciprocating motion to the knife, and connections between said driving mechanism and said arm for imparting simultaneous vertical movement to the arm, a gridiron located upon the said support, extending beneath the said knife, a carrier mounted to slide between the said support and the gridiron, an upwardly-extending toothed plate located at the rear end of the carrier, ratchet teeth formed upon the carrier, a tension device carried by the support and connected with the rear of the carrier, tending to force the same outward, a spring-controlled pawl arranged for engagement with the said ratchet teeth to stop or limit the movement of the carrier, and a trip mechanism for the pawl, being timedly operated by the knife-carrying arm. 100 105 110

8. In a slicing machine, a support, an arm pivoted for movement at its free end to and from the support, a knife having sliding connection with said arm, a driving mechanism, connections between the knife and the driving mechanism for imparting reciprocating motion to the knife, and connections between said driving mechanism and said arm for imparting simultaneous vertical movement to the arm, a gridiron located on said support beneath the said knife, a carrier mounted to slide between the said support and the knife, having a plate at its rear end for engagement with an article to be sliced, series of ratchet teeth secured to the said carrier, a slice support located at the forward end of the carrier, an adjustable spring-controlled pawl adapted for engagement with either set of ratchet teeth on the carrier to stop or limit the outward movement of the carrier, a trip member for the said pawl, and means for operating the trip member to disengage the pawl from the ratchet teeth at the upward movement of the knife-carrying arm, a tension device located beneath the said support, and a collapsible connection between the tension device and the rear end of the carrier, to automatically move the carrier outward when it is disengaged from the said pawl. 115 120 125 130 135

9. In a slicing machine, a support, a knife, a means for operating the knife, a carrier, a spring actuated device for feeding the carrier forward, a pawl and ratchet mechanism for holding the carrier stationary, and means for periodically disengaging the pawl from the ratchet. 140

10. In a slicing machine, a support, a knife, means for operating the knife, a carrier, a spring actuated device for feeding the carrier forward, a pawl and ratchet mechanism for holding the carrier stationary, and means controlled by the movement of the knife for periodically disengaging the pawl from the ratchet. 145

11. In a slicing machine, a support, a knife carrying arm, means for operating the said arm, a carrier, a spring actuated device for feeding the carrier forward, a pawl and ratchet mechanism for holding the carrier stationary, 150

a trip mechanism for the pawl, and means for actuating the trip mechanism periodically from a knife carrying arm.

12. In a slicing machine, a support, a knife, means for operating the knife, a carrier provided with a plurality of rows of ratchet teeth, means for feeding the carrier forward, an adjustable pawl for engaging either row of ratchet teeth, and means for disengaging the pawl from the ratchet teeth periodically.

13. In a slicing machine, a support, a knife, means for operating the knife, a carrier provided with ratchet teeth, means for feeding the carrier forward, a pawl for engaging the ratchet teeth, a trip bar for engaging the pawl to disengage it from the ratchet teeth, and means for operating the trip bar periodically.

14. In a slicing machine, a support, a knife carrying arm, means for operating said arm, a carrier provided with ratchet teeth, means for feeding the carrier forward, a pawl for engaging the ratchet teeth of the carrier and provided with an extension, a trip bar for engaging the extension of the pawl to disengage it from the ratchet teeth, and means for operating the trip bar from the knife carrying arm.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD A. SEABURG.

Witnesses:

L. G. MCGUIRE,
L. C. SMITH.