

No. 715,205.

Patented Dec. 2, 1902.

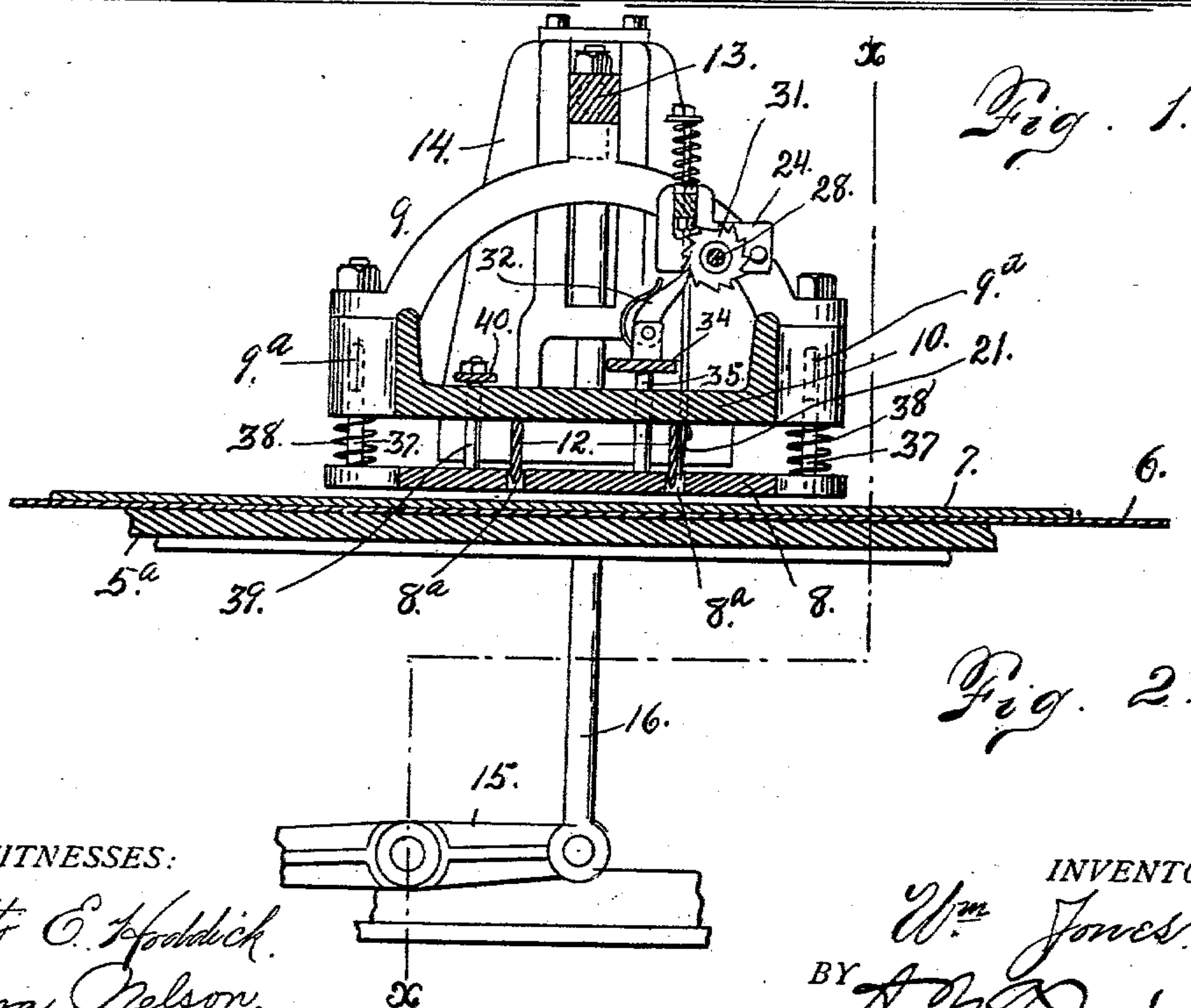
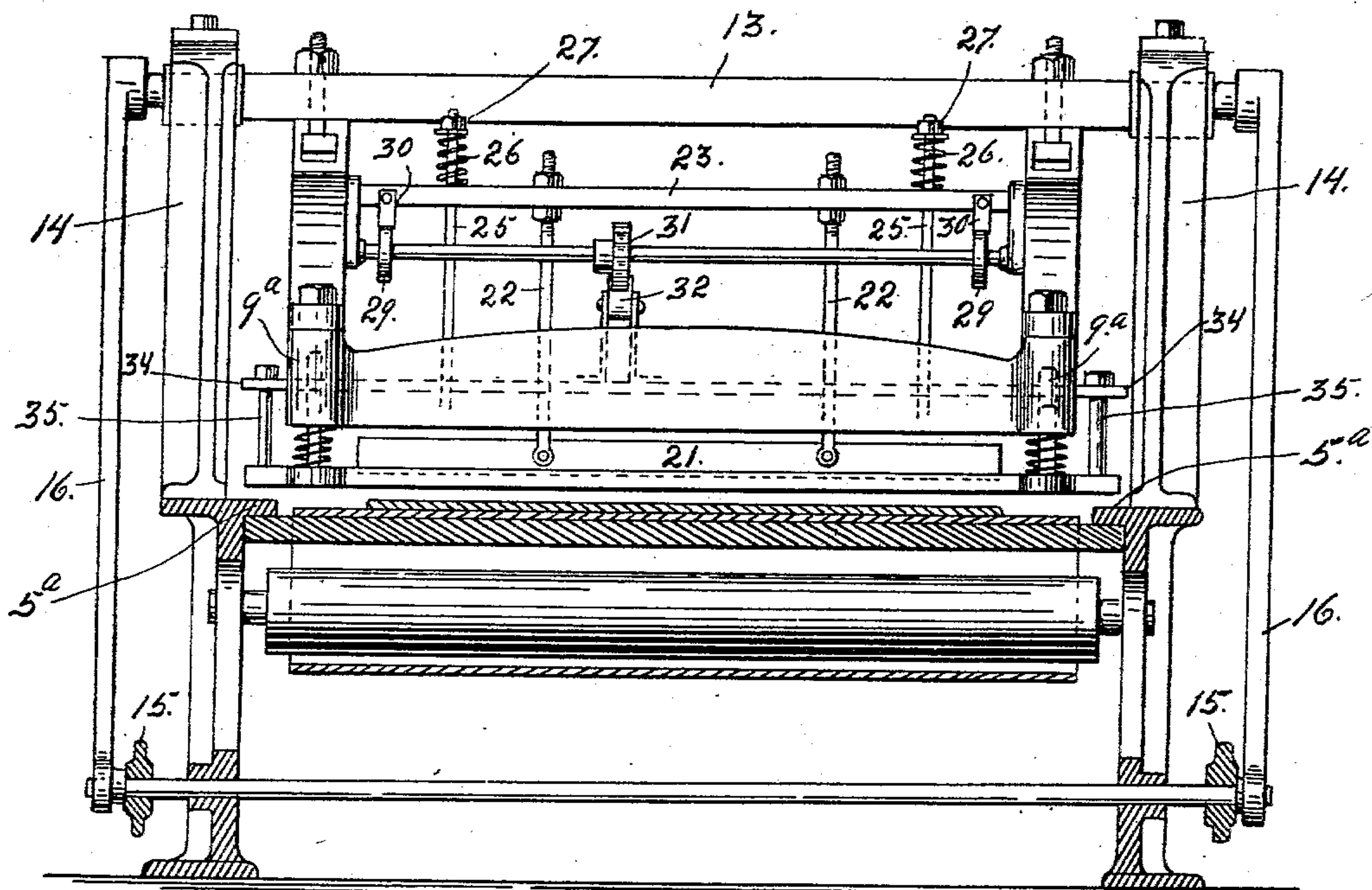
W. JONES.

AUTOMATIC CUT-OFF FOR BISCUIT CUTTING MACHINES.

(Application filed June 6, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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Dena Nelson,

INVENTOR.

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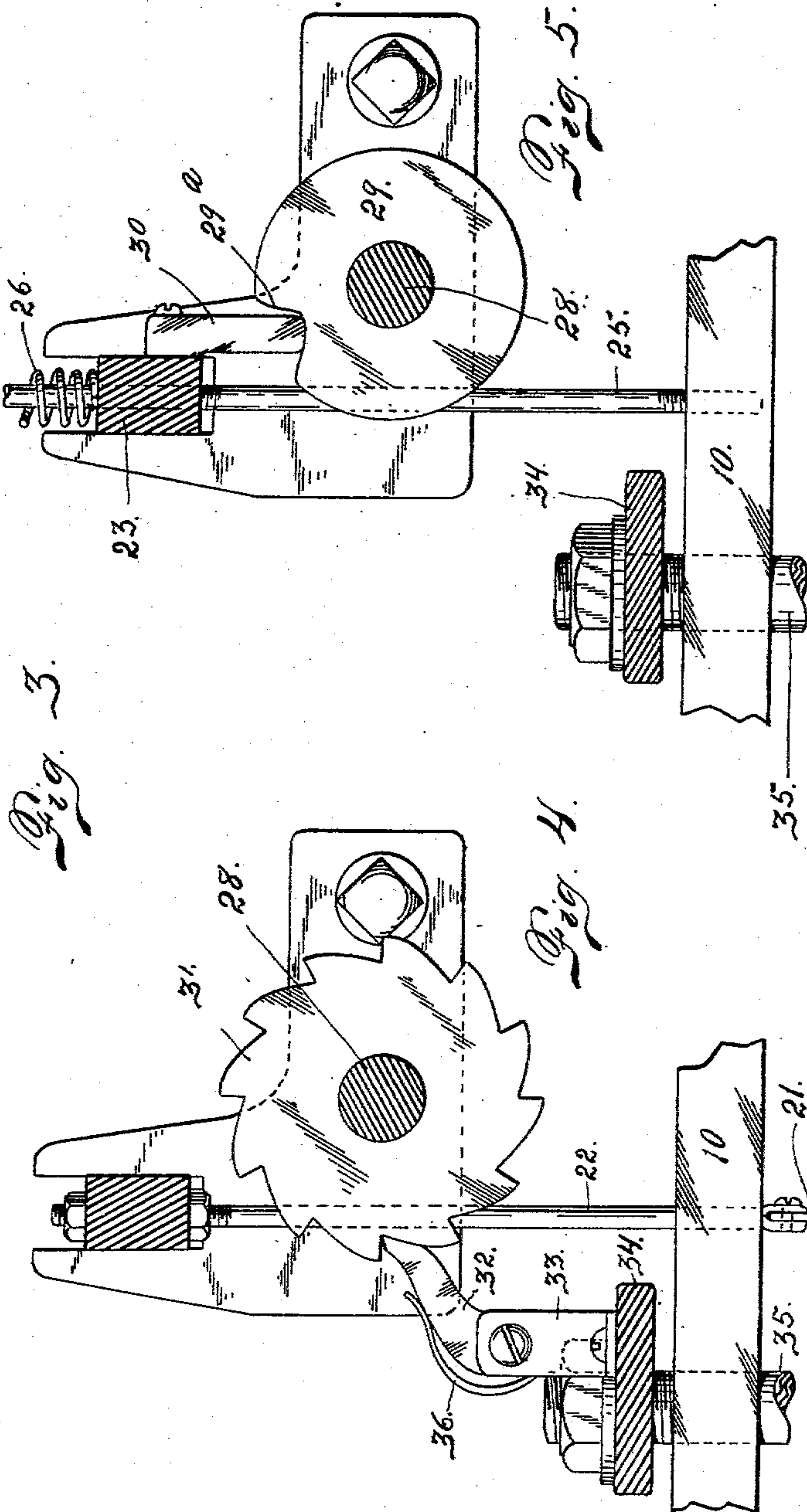
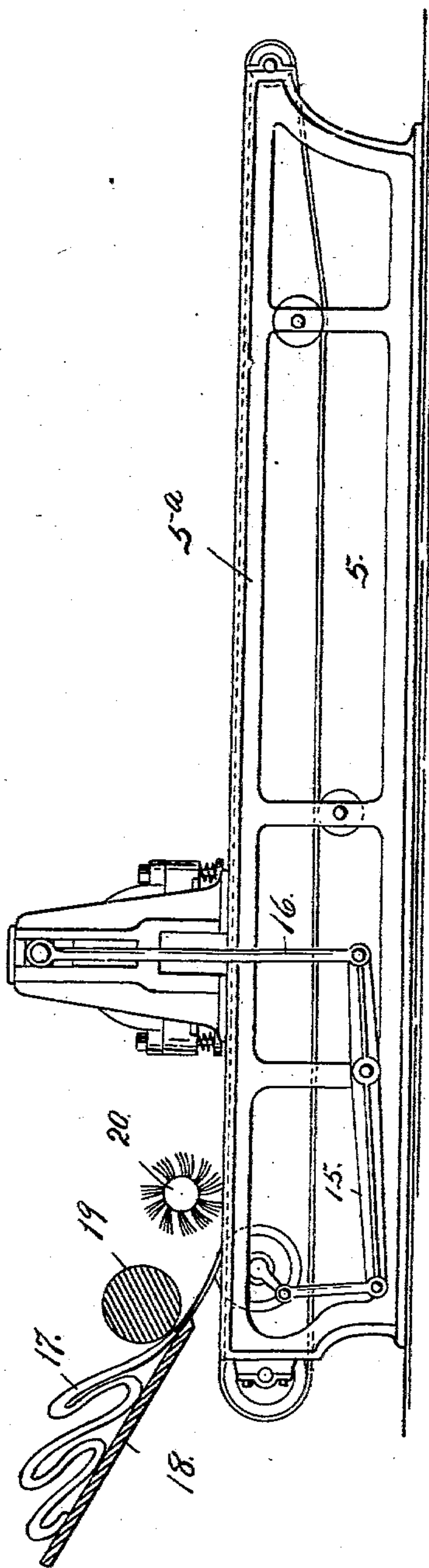
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(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

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WILLIAM JONES, OF DENVER, COLORADO.

AUTOMATIC CUT-OFF FOR BISCUIT-CUTTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 715,205, dated December 2, 1902.

Application filed June 6, 1902. Serial No. 110,476. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JONES, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Automatic Cut-Offs for Biscuit-Cutting Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in biscuit-cutting machines, my object being to provide an automatically-operated cut-off attachment for machines of this class which shall be simple in construction, economical in cost, reliable and durable in use, and positive in operation; and to these ends the invention consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a section taken through a biscuit-cutting machine on the line $x x$, Fig. 2, viewed in the direction of the arrow and equipped with my improved cutting devices. Fig. 2 is a section taken through the machine at right angles to Fig. 1. Fig. 3 is a side elevation of a biscuit-cutting machine shown on a smaller scale. Figs. 4 and 5 are sections showing my improvements on an enlarged scale.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the longitudinal framework of a biscuit-cutting machine, which framework supports a bed-plate 5^a for a traveling apron 6, upon which the biscuit-dough, rolled into a thin sheet 7, is carried toward the clearing-plate 8 of a vertically-reciprocating plunger 9, provided with a cutter-head 10, having knives 12, which work in slots 8^a, formed in the clearing-plate. The plunger 9 is connected with a cross-head 13, which has a vertically-reciprocating movement in an upright stationary frame 14 through the instrumentality of rocker-arms 15 and connecting-rods 16, one being located on

each side of the machine. The biscuit-dough 17 is placed upon a chute 18 and carried by a roller 19 to the apron 6 and thence beneath a rotary brush 20, located between the roller and the cutting mechanism. The machine as thus far described is not of my present invention, and therefore need not be set forth more in detail.

In the operation of the machine every time the plunger moves downwardly the clearing-plate 8 engages the upper part of the frame at the points 5^a, stopping its downward movement. The knives 12 then pass through the clearing-plate and pass part way through the layer of dough 7, making transverse indentations therein of such depth that the biscuit material will be readily broken apart on these lines when baked. At intervals it is necessary that the traveling layer of dough should be completely severed or divided in order to be conveniently removed from the apron preparatory to baking. My improvement is devised to accomplish this purpose or perform this function and consists of a knife 21, made fast to the lower extremities of two rods 22, whose upper extremities are secured to a horizontal vertically-reciprocating bar 23, whose extremities engage vertical slots formed in angular brackets 24, made fast to the plunger 9. Rods 25 pass through openings in the bar 23, their lower extremities being made fast to the cutter-head 10, while their upper extremities project above the bar 23 and are surrounded by coil-springs 26, whose lower extremities engage the upper surface of the bar, while their upper extremities bear against stop-nuts 27, screwed upon the upper extremities of the rods. The tension of these springs is so regulated that they have a normal tendency to force the bar 23 downward. Mounted on a shaft 28, journaled in the plunger, are two cam-wheels 29. In the periphery of each of these wheels is formed a notch or recess 29^a, adapted to be engaged by a depending projection 30, made fast to the bar 23. Every time these cam-wheels make a revolution the projections 30 enter the recesses of the peripheries of the cams and the springs 26 force the bar 23 downwardly until the parts 30 reach the bottom of the said cam-recesses. This downward movement carries the knife 21 downwardly through a slot 8^a in the clear-

ing-plate far enough to sever the layer of dough 7, carried by the apron 6, as aforesaid. This operation is performed at predetermined intervals, which may be regulated as desired.

5 As shown in the drawings, the teeth of a ratchet-wheel 31 on the shaft 28 are engaged by a dog or pawl 32, pivotally mounted between a pair of lugs 33, fast on a plate 34, mounted on the upper extremities of pins 35, whose lower extremities are secured to the clearing-plate 8. The dog 32 is held in operative relation with the ratchet 31 by a spring 36. From the foregoing description it will now be evident that every time the plunger descends the clearing-plate will engage the stationary frame at the points 5^a and stop the downward movement of the plate. Then as the plunger descends by virtue of its connection with the clearing-plate the ratchet-wheel 31, and consequently the shaft 28 and the cams 29, will be given a partial rotation. It is intended to turn the ratchet-wheel one tooth every time the plunger descends. If, as shown in the drawings, the ratchet-wheel has twelve teeth, the projections 30 of the bar 23 will engage the recesses of the cams 29, allowing the bar 23 to be forced downwardly by the springs 26 every time the plunger 9 makes twelve reciprocations, whereby the knife 21 will completely sever or divide the layer of dough 7 on the traveling apron 6.

The clearing-plate 8 is provided with pins which enter openings 9^a, formed in the plunger and indicated by dotted lines in Figs. 1 and 2. Surrounding these pins are coil-springs 37, interposed between the clearing-plate and the plunger. The openings 9^a are of sufficient depth to permit the further downward movement of the plunger after the clearing-plate has reached its limit of downward movement. The plunger is otherwise connected with the clearing-plate by pins 39, (only one being shown,) whose lower extremities are made fast to the clearing-plate. These pins pass through openings formed in the cutter-head, in which the pins move freely. The upper extremities of these pins are attached to a narrow plate 40, whereby as the plunger moves upwardly the clearing-plate is also lifted as soon as the cutter comes in contact with the plate 40.

Having thus described my invention, what I claim is—

1. The combination with the reciprocating plunger of a biscuit-cutting machine, of a knife movably mounted on the plunger, and means controlled by the plunger for operating the knife.

2. The combination with the plunger and slotted clearing-plate, of a knife in line with the slot in the clearing-plate, rods passing through the cutter-head of the plunger, a bar connected with the upper extremities of said rods, a spring having a normal tendency to

force the bar downwardly, a shaft journaled in the plunger, a ratchet-wheel fast on the shaft, a projection on the bar engaging the periphery of the cam-wheel, and a dog or pawl supported from the clearing-plate and engaging the ratchet-wheel to rotate the shaft and cam, substantially as described.

3. The combination with the plunger and slotted clearing-plate having a limited independent movement, of a spring-actuated bar mounted on the plunger, a knife connected with the bar in line with the slot in the clearing-plate, a shaft journaled in the plunger, a cam mounted on the shaft, a projection on the knife-bar engaging the cam, a ratchet-wheel fast on the shaft, and a dog mounted on the clearing-plate for actuating the ratchet-wheel as the plunger descends, whereby the knife is forced through the clearing-plate slot at predetermined intervals.

4. The combination with the plunger and slotted clearing-plate of a biscuit-cutting machine, of a spring-pressed knife movably mounted on the plunger in line with the slot of the clearing-plate, means for normally holding the knife inactive, and means actuated from the plunger for releasing the knife at predetermined intervals.

5. The combination with the plunger of a biscuit-cutting machine, of a spring-actuated knife mounted on the plunger, means for holding the knife normally inactive, and means actuated from the plunger for releasing the knife at predetermined intervals.

6. The combination with the plunger of a biscuit-cutting machine, of a vertically-movable spring-actuated knife mounted on the plunger, means also mounted on the plunger for holding the knife normally inactive, and means operated from the plunger for releasing the knife at predetermined intervals.

7. The combination with the plunger and slotted clearing-plate of a biscuit-cutting machine, of a knife in line with the slotted clearing-plate, of a bar movably mounted on the plunger, rods connecting the bar with the knife and passing through the plunger, springs having a tendency to force the bar downwardly, a shaft journaled in the plunger, cams fast on the shaft and having recesses in their peripheries, projections on the bar engaging the cams, a ratchet-wheel on the cam-shaft, a spring-actuated dog mounted on the clearing-plate and engaging the ratchet-wheel to actuate the latter, as soon as the vertical movement of the clearing-plate ceases, during the downward movement of the plunger, substantially as described.

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

WILLIAM JONES.

Witnesses:

A. J. O'BRIEN,
DENA NELSON.