

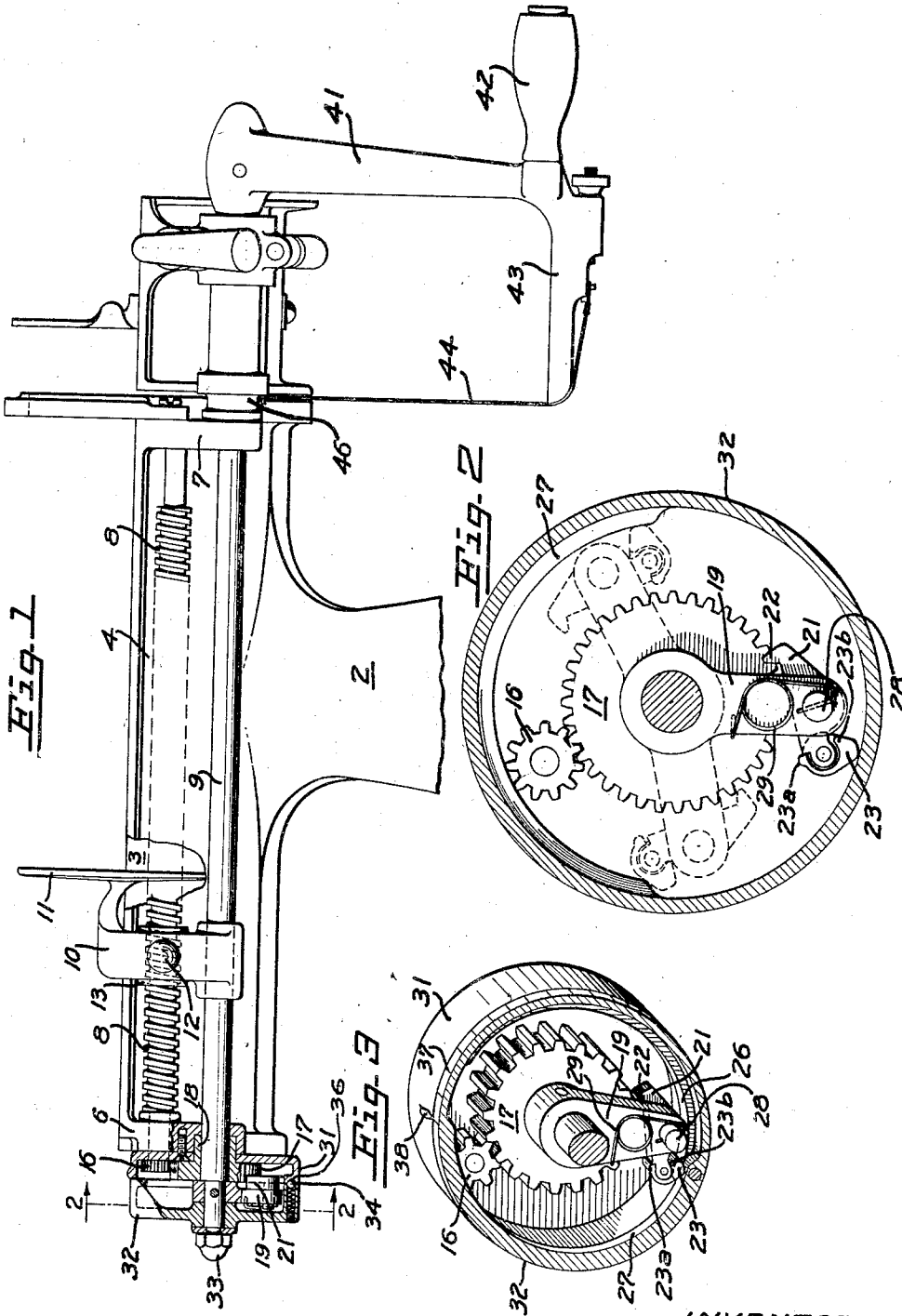
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REGULATING CAM FOR SLICING MACHINES

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REGULATING CAM FOR SLICING MACHINES

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My invention relates to a regulating cam for slicing machines and particularly to devices for cutting cheese or butter into slices.

One of the objects of the present invention is to provide a slicing machine in which is incorporated improved means for adjusting the thickness of the slice.

Another object of the invention is to provide means whereby a latch for engaging an object may be disengaged by a cam movable in a plurality of directions.

Other objects of the invention, together with the foregoing, will be set forth in the following description of the preferred embodiment of means for practicing the invention and which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by said description and drawings, as I may adopt variations of my preferred form within the scope of my invention as set forth in the claims.

Referring to the drawings:

Fig. 1 is a side elevation of my slicing machine, portions being shown in section to disclose the construction.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1. The dotted lines show various positions of the latch.

Fig. 3 is an isometric view showing the interior of the cam construction.

This application is an improvement of the assignee's co-pending application, Serial No. 138,146, filed September 28, 1926.

In the application referred to, the device comprises a feed screw for feeding the material to be sliced, and means are provided for connecting the feed screw for rotation with a driving shaft thru a portion of a complete revolution of the shaft; so that with every complete revolution of the shaft, the feed screw is connected for rotation therewith part of the time, and the rest of the time is

at rest. The rest period is that during which the slice is being cut.

The means for performing this function comprises a latch which is fixed for rotation with the driving shaft and which can be connected and disconnected to the feed screw or driven shaft, by means of a cam having a fixed portion and an adjustable portion adjacent thereto. When the latch strikes the cam, it rides onto the cam and is hence disengaged, causing the driven shaft to remain stationary.

By adjusting the length of the cam, it is obvious that the period of disengagement may be adjusted at the option of the operator. However, in the device of the application referred to, when one desires to adjust the cam, he can only turn the movable portion in one direction, for the latch will not ride onto the cam at both ends thereof. This proves inconvenient at times, and hence it is the object of the present invention to provide means on the latch for permitting it to ride onto the cam at either end; so that the adjustable portion can be turned in either direction.

In terms of broad inclusion, the present invention comprises mounting a movable trigger on the latch of the previously described means for connecting the driving and driven shafts. This permits the cam to be turned in either direction.

In greater detail, the slicing machine of my invention comprises a base or pedestal 2 of any desired shape adapted to provide a secure support, and preferably integrally formed with an upwardly opening trough comprising the two sides 3 and 4 disposed at slightly less than a right angle to each other, and long enough to receive the largest loaf or bar which it is desired to slice. At each end of the trough the side 4 is provided with heavy flanges 6 and 7, in which are journaled the feed screw 8, and the drive shaft 9.

Slidably and pivotally mounted on the shaft 9, is an arm 10, on the end of which is formed a pusher or plate 11, adapted to lie in the trough, as best shown in Figure 1, or to be swung backwardly out of the trough by the handle 12. The arm 10 is also provided with a fractional nut 13, adapted to engage the feed screw 8 when the pusher is in the trough, and to be disengaged from the feed screw, when the pusher is swung out of the trough. When the nut 13 is disengaged from the feed screw, the pusher may be moved back and forth on the shaft to position it against the end of the loaf or bar which is to be sliced.

Means are provided for connecting the feed screw for rotation with the shaft during the desired arc of movement of the latter. During such connection, the pusher is of course being moved by the feed screw. When not so connected the pusher is at rest. The parts are so arranged that the period of rest corresponds to that period during which the slicing means is passing thru the material.

Fixed on the feed screw is a gear 16, in mesh with the wider gear 17, journaled on the shaft 9. Preferably also, the gear 17 is provided with a hub 18 bearing in the flange 6, and in which hub the shaft 9 is also journaled.

Fixed on the end of the shaft is a latch comprising the arm 19, carrying the pivotally mounted dog 21, having at one end a tooth 22 adapted to engage in the teeth of the gear 17; and at the other end is pivotally mounted a trigger 23 having sides sloping toward one end and at the other end is a stop 23^a adapted to limit its movement in one direction, while movement in the opposite direction is limited by stop 23^b. The trigger is adapted to ride onto and engage the cams 26 and 27. The dog is fixed rigidly on the pivot pin 28, journaled in the arm 19; and a spring 29 interposed between the arm and the pin presses the dog resiliently against the cams. The cam 26 is formed as a flange on the casing 31, fixed by any suitable means on the flange 6, and surrounding the gears 16 and 17. The cam 27 is formed as a flange on the movable casing 32, journaled on the end of the shaft 9, and retained thereon by the nut 33. It will be observed from Figure 3 that cams 26 and 27 are each slightly less than 180 degrees in extent; and that the two cams lie side by side. When the trigger is riding upon either of the cams, the tooth 22 is out of engagement with the gear 17 and the feed screw and pusher are at rest. One end of the fixed cam is so positioned that the dog engages it just prior to the entrance of the cutting device into the material in the trough. This lifts the tooth 22 out of the gear 17, and insures the fixed position of the pusher and material during the cutting operation. The other end of the fixed cam is so positioned

that the feeding of the pusher, by reason of the engagement of the tooth 22 with the gear 17, cannot begin until after the slicing operation has been completed.

The casing carrying the cam 27 is rotatable about the axis of the shaft, to position the cam 27 relative to the cam 26. When the cams are side by side over their whole length, the trigger engages and disengages both cams at the same time. In this adjustment the maximum amount of feed for the pusher is secured, since the tooth 22 is then in engagement with the gear 17, while the trigger is traveling in the arc between the cams.

By rotating the casing 32 in either direction, the end of the adjustable cam may be positioned at any point between the ends of the fixed cam; so that after leaving the fixed cam, the dog continues in raised position on the adjustable cam, and the tooth 22 is not permitted to engage the gear 17 until the dog leaves the adjustable cam. In the position of the two cams shown in Figure 3, the maximum extension of the cam is shown; the trigger being out of engagement with the cam and the tooth 22 in engagement with the gear 17 for only a short arc of movement of the shaft. This represents the shortest possible feed for the pusher. I have found it desirable to so proportion the parts that this minimum is about one fiftieth of an inch; that is to say, with this setting, a slice one fiftieth of an inch thick will be cut.

Due to the fact that the trigger is movable, it will ride onto the adjustable cam, in either direction of its movement, hence upon hitting either end of the cam, the trigger will be lifted and the latch will become disengaged.

A spring pressed ball 34 is interposed between the movable casing 32 and the fixed casing 31, and recesses 36 in the fixed casing 31 provide the seat in which the ball is resiliently caught when the casing 32 is rotated. Graduations 37 on the casing 32 are arranged in correspondence with the seats 36, so that the particular seat in which the ball is lodged, corresponding to the setting of the ends of the movable cam, is evaluated by the graduation. These graduations are numbered consecutively, beginning at "1": and are registered as desired with a fixed mark or point 38 on the fixed housing 31. The increment represented by the graduations is preferably about 1/50 of an inch; and in the substantially 180 degrees of movement of the cam, I find it quite possible to provide for cutting slices varying by this small amount from the thinnest up to nearly one-half inch.

Inasmuch as the trigger can ride onto the cam at either end thereof, it is obvious that if the trigger, in a position of rest, lies between the ends of the fixed and adjustable cam, the adjustment of the cam length, and consequently that of the slice thickness, can

be made by turning the adjustable cam in any direction of its movement; since the trigger will be raised thereby and the latch will become disengaged.

5 The remaining structure of the slicing machine is the same as that described in the application referred to. Briefly, it comprises an arm 41 fixed to the driving shaft and a handle 42 for turning the arm and therefore
10 the driving shaft. Fixed to one end on the arm 43, which is a part of arm 41, is the cutting wire 44 which is fixed to the hub 46. The hub 46 is journaled on the driving shaft; so that the cutting wire may turn about the
15 shaft as an axis.

Although I have shown the connecting means, means for disengaging the connection, and adjusting means, as adapted for use in a slicing machine, it is obvious that the device
20 of the present invention can be used for transmitting intermittent motion from any driving shaft to a driven shaft.

I claim:

1. In a device for transmitting motion from
25 a driving shaft to a driven shaft, means including a dog for connecting the driving and driven shafts, a trigger movably mounted on said dog, and an adjustable cam engageable with said trigger for simultaneously raising
30 said trigger and dog to disengage said connecting means.

2. In a device for transmitting motion from a driving shaft to a driven shaft, means including a dog for connecting the driving and
35 driven shafts, a trigger movably mounted on said dog, and a cam adjustable in a plurality of directions and engageable with said trigger for simultaneously raising said trigger and dog in any direction of its movement for dis-
40 engaging said connecting means.

3. In a device for transmitting motion from a driving shaft to a driven shaft, a toothed disk arranged for rotation with said driven shaft, and a latch mounted for rota-
45 tion with said driving shaft and engageable with said disk to fix the driven shaft for rotation with the driving shaft, a cam for disengaging the latch during a selected portion of each revolution of the driving shaft,
50 said latch having a movable trigger adapted to ride on said cam.

4. In a device for transmitting motion from a driving shaft to a driven shaft, a toothed disk arranged for rotation with said
55 driven shaft, and a latch mounted for rotation with said driving shaft and engageable with said disk to fix the driven shaft for rotation with the driving shaft, a cam for disengaging the latch during a selected portion of each revolution of the driving shaft,
60 said latch having a pivotally mounted trigger adapted to ride on said cam.

5. In a device for transmitting motion from a driving shaft to a driven shaft, a
65 toothed disk arranged for rotation with said

driven shaft, and a latch mounted for rotation with said driving shaft and engageable with said disk to fix the driven shaft for rotation with the driving shaft, a cam for dis-
70 engaging the latch during a selected portion of each revolution of the driving shaft, said latch having a movable trigger with sides sloping toward one end adapted to ride on said cam.

6. In a device for transmitting motion
75 from a driving shaft to a driven shaft, a toothed disk arranged for rotation with said driven shaft, and a latch mounted for rotation with said driving shaft and engageable with said disk to fix the driven shaft for ro-
80 tation with the driving shaft, a cam for disengaging the latch during a selected portion of each revolution of the driving shaft and having a movable portion to vary the length thereof, said latch having a movable trig-
85 ger adapted to ride on said cam.

7. In a device for transmitting motion from a driving shaft to a driven shaft, a toothed disk arranged for rotation with said driven shaft, and a latch mounted for rota-
90 tion with said driving shaft and engageable with said disk to fix the driven shaft for rotation with the driving shaft, a cam for disengaging the latch during a selected portion of each revolution of the driving shaft
95 and having a portion movable in a plurality of directions to vary the length thereof, said latch having a movable trigger adapted to ride on said cam.

8. In a device for transmitting motion
100 from a driving shaft to a driven shaft, a toothed disk arranged for rotation with said driven shaft, and a latch mounted for rotation with said driving shaft and engageable with said disk to fix the driven shaft for ro-
105 tation with the driving shaft, a cam for disengaging the latch and having a portion movable in a plurality of directions to vary the length thereof, said latch having a movable trigger adapted to slide onto said movable
110 portion in any direction of its movement.

9. In combination, a dog for engaging an object, a cam for disengaging said dog, and a trigger mounted on said dog and movable
115 by said cam to a position enabling it to slide thereon.

10. In combination, a dog for engaging an object, an adjustable cam for disengaging said dog, and a trigger mounted on said dog and movable by said cam to a position en-
120 abling it to slide thereon.

11. In combination, a dog for engaging an object, a cam adjustable in a plurality of di-
125 rections for disengaging said dog, and a trigger mounted on said dog and movable by said cam to a position enabling it to slide onto said cam in any direction of its movement.

12. In combination, a dog for engaging an object, a cam for disengaging said dog, and
130 a trigger pivotally mounted on said dog and

movable by said cam to a position enabling it to slide onto the cam.

13. In a device for transmitting motion from a driving shaft to a driven shaft, means including a dog for connecting the driving and driven shafts, a trigger movably mounted on said dog, and a cam engageable with said trigger for simultaneously raising said trigger and dog to disengage said connecting means.

In testimony whereof, I have hereunto set my hand.

JOHN R. SKOVERSKI.

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