May 25, 1937. W. A. VAN BERKEL 2,081,256

SLICING MACHINE DRIVING MECHANISM

Filed Dec. 12, 1931 2 Sheets-Sheet 1

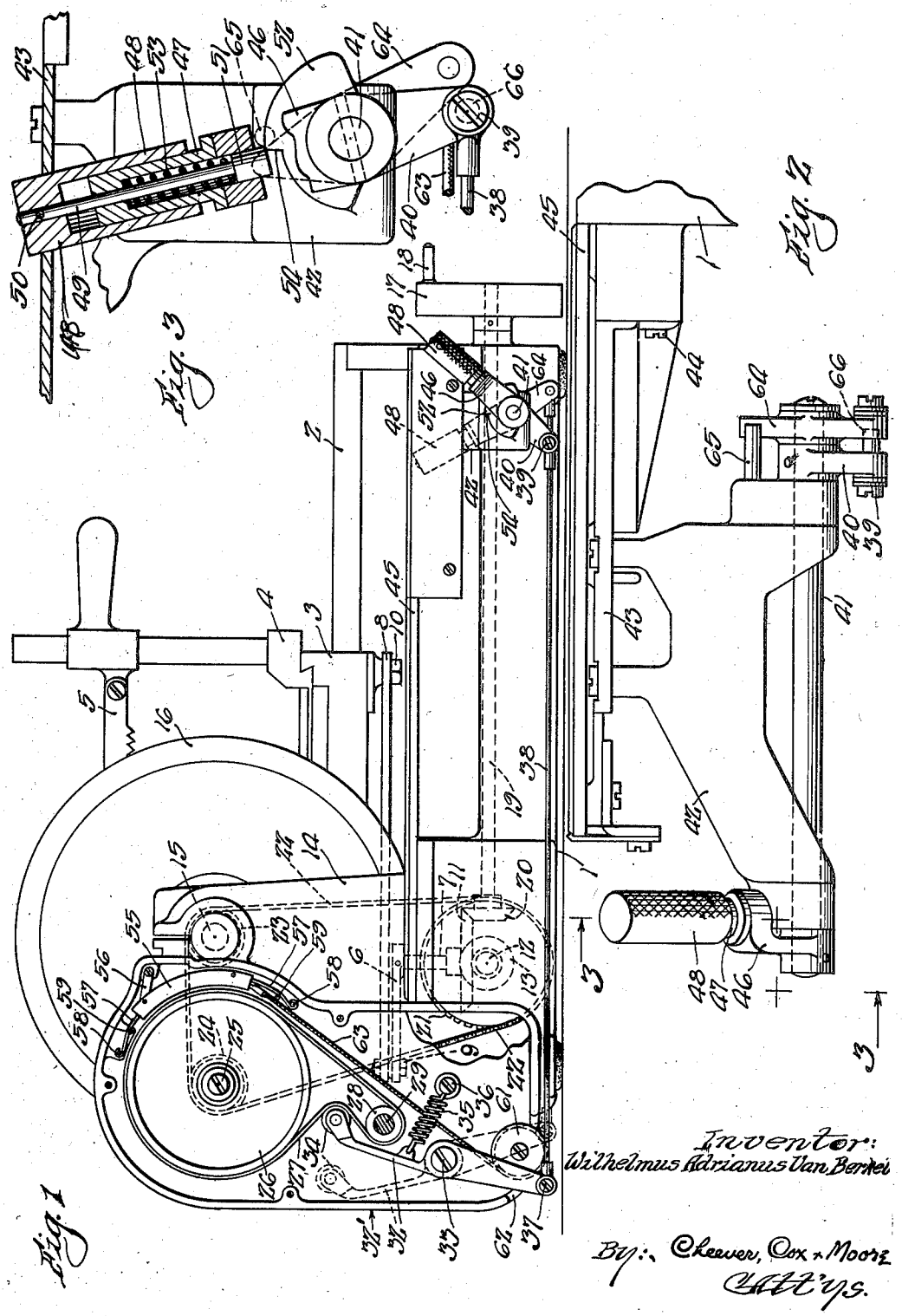

Fig. 1

Fig. 2

Fig. 3

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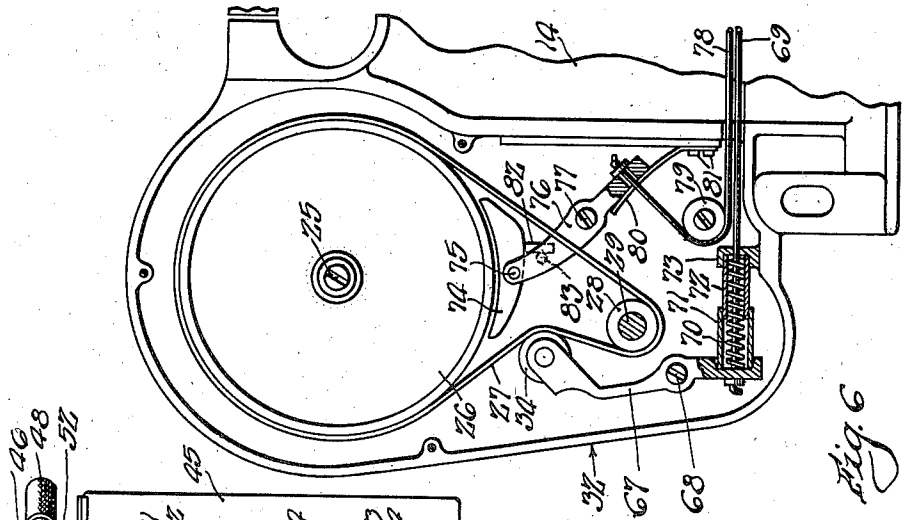

Fig. 6

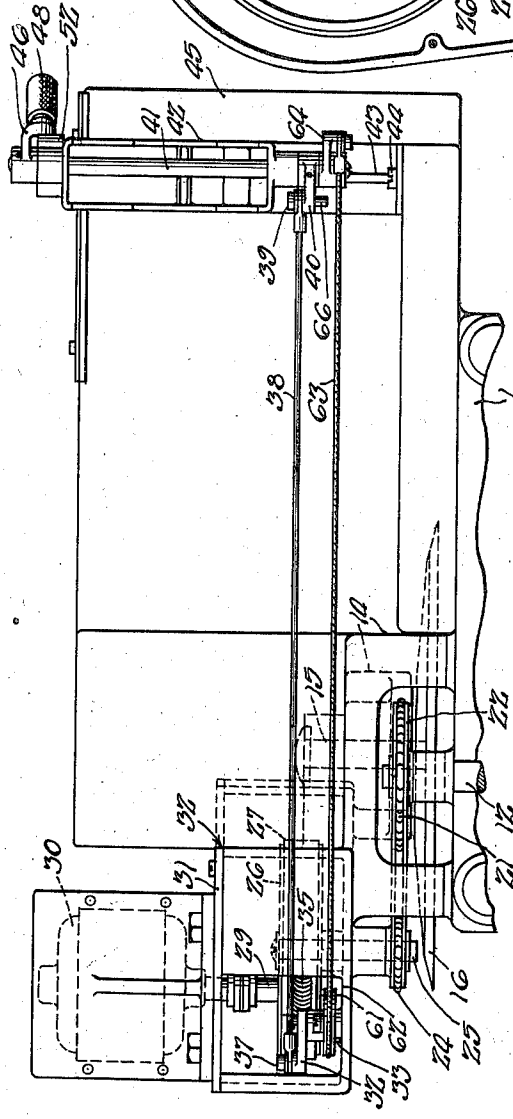

Fig. 4

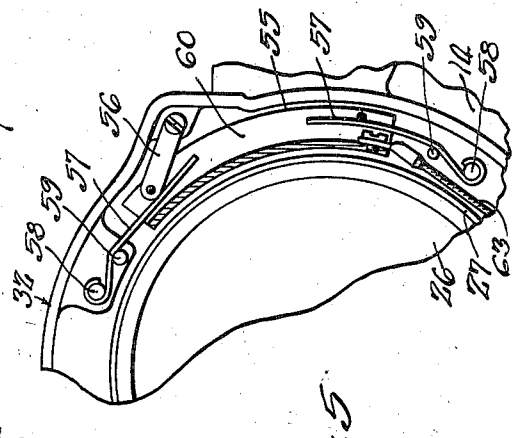

Fig. 5

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UNITED STATES PATENT OFFICE

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SLICING MACHINE DRIVING MECHANISM

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Application December 12, 1931, Serial No. 580,558
In Great Britain April 22, 1931

1 Claim. (Cl. 192—11)

The present invention relates to slicing machines, and particularly to the driving mechanism for driving the slicing machine knife and carriage. The invention is particularly adapted to be used with a belt drive from a motor, which belt drives the knife and table or other operative parts of the slicing machine.

One object of this invention is to provide improved means whereby the working parts can be quickly disconnected from the source of power and brought to rest, whereby it is possible to stop the slicing machine parts at any suitable time in its cycle of operations.

According to the invention, the slicing machine has a belt tension regulator and a brake which are both connected to operating devices, the regulator and brake being operated preferably in succession, although my invention is not so limited. In the embodiment shown, the movable parts of the machine are driven from a motor but may also be driven from any other source of power by a belt and there is a belt tension regulator which imparts a tension to the belt and also may be moved away from the belt to remove the tension therein. By this movement, it is obvious that there will be no further driving of the machine parts. Thereafter, the brake is applied to bring the parts to rest immediately at a desired position in spite of their momentum. Alternately, the brake may be applied simultaneously with the removal of the belt tension regulator.

Another object of this invention is to use a pulley which is positively connected to the machine parts as a drum upon which the brake may act, thereby doing away with a separate brake drum.

Another object of this invention is to provide a device in which the slicing machine table may be hand driven when the power drive is disconnected.

In the drawings:

Fig. 1 represents a side elevation of a machine embodying my invention, a part of the casing for the driving mechanism being removed for the sake of clearness.

Fig. 2 is an end elevation of the device shown in Fig. 1.

Fig. 3 is a detailed view showing the control for the belt tension regulator and brake.

Fig. 4 is a bottom plan view of the device shown in Fig. 1.

Fig. 5 is an enlarged detailed view of the brake mechanism shown in Fig. 1, and,

Fig. 6 illustrates a modified arrangement of the device shown in Figs. 1 to 5 inclusive

The slicing machine comprises the usual base member 1, carrying the guides 2, one of which is shown in the drawings and the other of which is in spaced parallel relation directly behind the one shown in the drawings in Fig. 1. The carriage 3 is slidably mounted on the guides 2 and carries the usual feed plate 4 and clamping bar 5. The table is reciprocated by means of a crank 6, secured to a stub shaft 7, rotatably mounted in the upper side of the base, and a pitman 8 is connected respectively to the crank and the under side of the table at 9 and 10 respectively. A bevel gear 11, secured to the lower end of the stub shaft 7, is driven from the shaft 12 by means of a bevel gear 13 secured to the shaft 12 and meshing with the bevel gear 11. The bracket 14, mounted on the side of the base 1, rotatably supports the spindle 15 which carries the knife 16. The parts so far described may be driven by hand by means of the fly wheel 17 provided with a handle 18, which fly wheel is securely mounted on the shaft 19. The shaft in turn has a bevel gear 20 meshing with the bevel gear 11 on the shaft 7.

The shaft 12 is also provided with a sprocket 21, and a chain 22 is trained over the sprocket 21 and sprockets 23 and 24 secured respectively to the knife spindle 15 and a shaft 25 rotatably mounted in the bracket 14. The shaft 25 also has a pulley 26 secured thereto and over this pulley there is trained a belt 27, the belt being also trained over the pulley 28 on the rotor shaft 29 of a motor 30 secured to one side of the cover 31 secured in turn to the casing 32' carried by the bracket 14, the casing and cover providing an enclosure for the belt pulleys 28 and 26 and associated mechanism.

The belt is appreciably longer than necessary to just pass over the pulleys 28 and 26, and a lever 32 pivoted at 33 has a roller 34 on the end thereof adapted to engage the belt and is normally urged into engagement with the belt by a spring 35 secured at one end to the lever 32, and at the other to a fixed pin 36. The other end of the lever 32 is connected at 37 to a rod 38 which extends to the operator's end of the machine at the right as viewed in Fig. 1 or 4 and is there pivotally connected at 39 to an arm 40 secured to a pivot 41 rotatably mounted in the bearing bracket 42 secured to the under side of the bracket 43 secured to the side of the base 1 as by means of screws 44. The bracket 43 supports the slice receiving plate 45,

of a well known construction. Since the arm **40** is located beneath the slice receiving plate **45**, the shaft **41** is extended to one side of the slice receiving plate **45** as best illustrated in Fig. 2 and is there provided with an arm **46** which is used for rocking the shaft **41**.

The arm **46** has an upwardly extending portion in the shape of a hollow sleeve **47** on which there is slidable an outer operating handle **48**. The operating handle has a rod **49** secured thereto at **50** and extending through the sleeve **47**. The end of the rod is provided with a detent **51** adapted to be normally urged toward the member **52** formed on the bracket **42** by means of a spring **53** abutting against the detent **51** and the end of the opening in the sleeve **47**. Manual pressure on the handle **48** is used to move the detent **51** against the action of the spring.

The member **52** is provided with an abutment surface **54** so that after the operating handle **48** has been used to rock the arm **46** slightly to the left past the position shown in Fig. 3, the detent member **51** will be projected into such a position that if the operator releases his grip on the handle **48**, clockwise movement of the arm **46** is prevented by the engagement of the detent **51** with the abutment surface **54**.

With the handle in the position shown by full lines in Fig. 3, the lever **32** occupies a position between the dotted and full line positions shown in Fig. 1, and the tension on the belt **27** is relieved, thereby permitting the rotor shaft **29** to rotate without driving the pulley **26**. Therefore, the knife and the table are no longer driven by the motor.

It is, however, desirable to stop the table in a predetermined position such as at the operator's position where the next substance to be sliced may be readily positioned on the slicing machine table. If the table and knife are permitted to come to rest in the positions in which they would naturally come to rest after the drive to the same has been interrupted, the table would not stop at the proper position, and therefore I provide a brake **55** which is mounted to be moved into engagement with the periphery of the pulley or into engagement with a portion of the belt which is trained over the pulley to thereby stop the rotation of the pulley with the table in the desired position. This brake is shown pivotally connected by a link **56** to the bracket **14** and is normally urged away from the belt or pulley by means of springs **57** mounted on pins **58** and given an initial tension away from the belt by means of the pins **59**. The springs **57** extend into recesses **60** in the outer periphery of the brake as indicated in Fig. 1.

There is a pulley **61** rotatably mounted near the bottom of the casing **32'** and partly projecting through an opening **62** therein, and over this pulley there is trained a cable **63** connected at one end to the brake **55** and at the other to a rocking arm **64**, pivotally mounted on the shaft **41**. As is best illustrated in Figs. 2 and 3, the movement of the rocking arm **64** is limited by the stationary pin **65** on the bracket **42** and pin **66** securely mounted on the arm **46**. Normally the springs **57** tend to draw the lower run of the cable **63** to the left and thereby rock the arm **64** in a clockwise direction as viewed in Fig. 1, and against the stationary pin **65**. In this position, the pin **66** on the arm **46** is out of engagement with the arm **64** as will be clear from an inspection of Fig. 1 in which the pin **46** is concentric with the pivot **39**. The rotation of the handle into the position shown in Fig. 3 brings the pin **66** almost into engagement with the arm **64**, but the pin **66** will not engage the arm **64** until after the detent **51** has been projected into a position to engage the abutment surface **54**. Continued movement of the handle in a clockwise direction will cause the pin **66** to engage the arm **64** and rock the arm **64** about the shaft **41**. This movement causes the brake to be applied due to the cable which connects the arm **64** and the brake **55**.

With this arrangement, the movement of the handle **48** first moves the lever **32** into such a position that there is not sufficient driving tension on the belt **27** to drive the pulley **26**, and accordingly the knife and table of the slicing machine are not positively driven. A continued movement of the handle **48** in the same direction applies the brake **55** to the belt which extends about the periphery of the pulley **26**. This stops the rotation of the pulley and consequently the reciprocation of the table. As a result, the table may be stopped at practically any desired position along its path of travel.

Fig. 6 shows a modified arrangement in which the cable is used to relieve the pressure of the belt tensioning element upon the belt and in which the brake is of a modified construction. In this form of the invention, similar reference characters refer to the corresponding parts in Figs. 1 to 5 inclusive. The belt tension regulator **67** is pivoted at **68** and is connected by means of the cable **69** to an arm such as **40** shown in Fig. 1. A compression spring **70**, mounted within telescoping numbers **71** and **72**, abuts respectively against the members **73** fixed to the bracket **14** and the lower end of the belt tension regulator **67** to normally urge the belt tension regulator in a clockwise direction. The belt tension regulator is released in the same manner as in Figs. 1 to 5 inclusive.

The brake comprises a brake shoe **74** pivoted at **75** to a lever **76** which in turn is pivoted at **77** to the bracket **14**. A cable **78**, connected to the end of the lever opposite that end of the lever to which the brake is attached, is trained over a pulley **79** and is connected to an arm similar to **64** shown in the first embodiment of this invention. A flat spring **80**, secured at **81** to the bracket **14**, normally urges the brake shoe away from the pulley **26**. It will be noted that the brake shoe is weighted at the right hand end thereof and carries a pin **82** which engages a limit stop **83** on the lever **76**, thus limiting the clockwise movement of the brake and preventing engagement of the brake with the periphery of the pulley. It will be noted that in this form of the invention, the brake engages the pulley directly instead of acting through the belt which drives the pulley as in the first embodiment described.

It will thus be seen that when the power is disconnected, the brake may be applied or ordinarily if it is not desired to use the brake, the table may be reciprocated by hand merely by rotating the fly wheel **17**.

If desired, the levers **46** and **64** need not be made separate but may be made as a single lever positively connected to both the brake and the belt tension regulator so that as the belt tension regulator is released, the brake is simultaneously applied, although it is preferable that the brake be applied after the release of the belt tension regulator.

Obviously, other changes can be made in the particular construction and arrangement of parts

without departing from the spirit of this invention, and therefore, I do not wish to be limited except in the manner hereinafter specified in the claim.

Having thus fully described my invention, what I claim as new and desire to obtain by Letters Patent is:

In a slicing machine, a power driven member, a drivable member adapted to set in motion the slicing machine, a loose belt capable of forming a driving connection between the power driven member and the drivable member, a spring actuated roller member engageable with said belt adapted to be springingly held against said belt to take up the slack therein and enforce the driving connection formed thereby between the power driven member and the drivable member, brake means engageable with said drivable member, said brake means being springingly held out of engagement therewith, control means operatively connected to said roller means whereby to move said roller means out of engagement with the belt whereby to loosen said belt and cause the driving action thereof to cease, said control means comprising a shaft pivotally mounted in the frame of the slicing machine, handle means rigidly mounted to said shaft, said means so operating that the roller means will be moved out of engagement with the belt during a predetermined movement of the handle through a portion of its arcuate travel, brake control means freely mounted on said shaft, abutment means rigidly mounted on said shaft and adapted to engage the freely mounted brake control means during a portion of its arcuate travel when the shaft is rotated, said abutment means being so mounted on the shaft in juxtaposition to the handle means that it will only engage the brake control means after the handle has completely traversed that portion of its arcuate travel which produces releasing of the roller means, detent means located in juxtaposition to the handle means, and spring actuated means on the handle means adapted to selectively engage the detent means, being so placed with reference to the handle that it will cooperate with the spring operated means on the handle to hold the handle means at that point of its arcuate travel at which the roller means is completely disengaged from the belt and is in a position at which the abutment means has not yet engaged the brake control means.

WILHELMUS ADRIANUS VAN BERKEL.