No. 744,649. PATENTED NOV. 17, 1903.

W. A. VAN BERKEL.

SHARPENING ATTACHMENT FOR MEAT SLICERS.

APPLICATION FILED MAY 7, 1903.

NO MODEL.

Fig. 1.

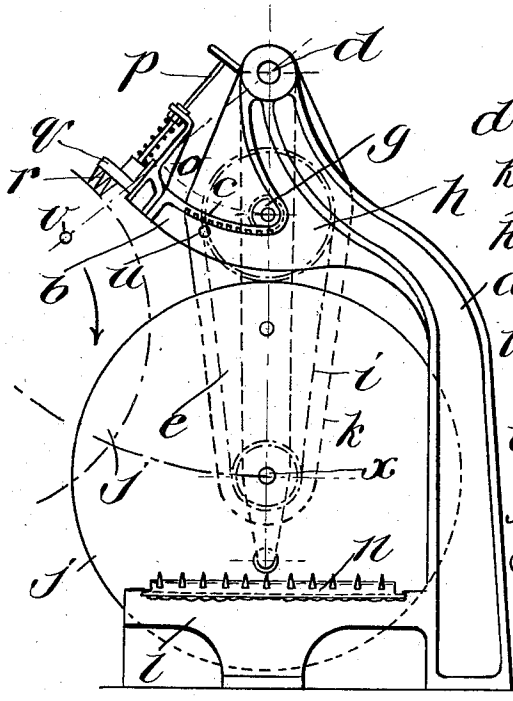


Fig. 2.

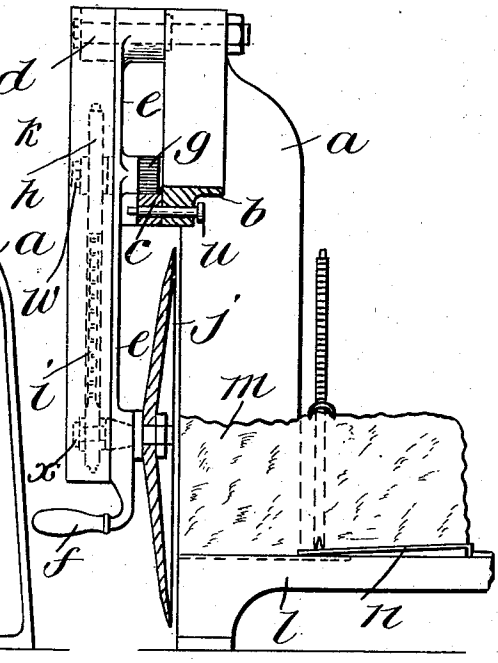


Fig. 3.

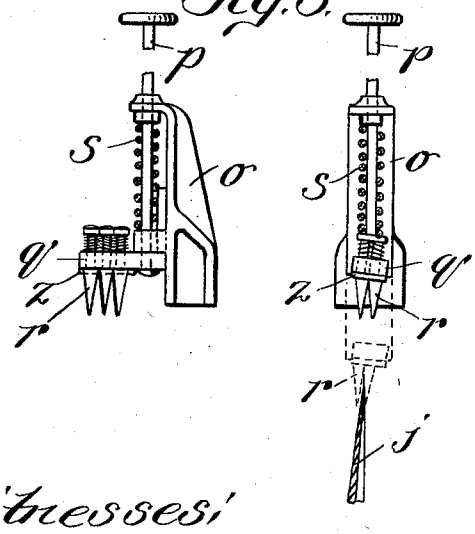


Fig. 4.

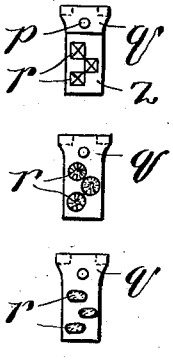
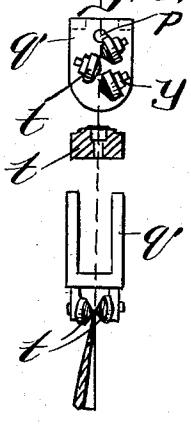


Fig. 5.



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No. 744,649. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

WILHELMUS ADRIANUS VAN BERKEL, OF ROTTERDAM, NETHERLANDS.

SHARPENING ATTACHMENT FOR MEAT-SLICERS.

SPECIFICATION forming part of Letters Patent No. 744,649, dated November 17, 1903.

Application filed May 7, 1903. Serial No. 156,100. (No model.)

To all whom it may concern:

Be it known that I, WILHELMUS ADRIANUS VAN BERKEL, manufacturer, a subject of the Queen of the Netherlands, residing at 56 Boezemsingel, Rotterdam, in the Kingdom of the Netherlands, have invented certain new and useful Improvements in Sharpening Attachments for Meat-Slicers, of which the following is a specification.

This invention relates to an improvement in slicing-machines having circular rotary knives.

Hitherto in order to grind or sharpen the knife it has been necessary to practically dismount the machine or take it to pieces or such sharpening could only be done in an incomplete manner.

Now this invention has for its object to create a device which enables the knife to be ground and sharpened on the machine itself—that is to say, without its being taken apart.

This grinding device for sharpening the circular knife comprises three hardened grinding-abraders, which may consist of pins or rollers, between which the circular knife revolves. The mechanism is such that these abraders are movably arranged, so that they can be moved toward or away from the rotary knife. If the slicing-machine be of the kind in which the rotary knife is moved across the piece of meat to be sliced, the knife is mounted in a movably-suspended knife-arm and the knife-shaft operated from the driving-shaft by means of chains and chain-gear. The chain-wheel gear arranged on the driving-shaft is carried to and fro with the knife-arm over a rack-bar bent in a semicircular shape, the chain-wheel mounted on the driving-shaft being mounted as a free wheel, and thus in moving forward no driving action on the knife-shaft is exerted.

The grinding device is screwed to the frame of the machine in such a way that the knife-disk or circular knife when the knife-arm is elevated lies with its cutting-surface between the abraders or grinding-pins. The arm is secured in this position by the insertion of a pin. The circular knife is then rotated by one hand, while the abraders or grinding-pins are depressed with the other hand and brought in contact with the cutting-surface, or, rather, the cutting edge of the circular knife.

The arrangement is shown in the accompanying drawings, Figure 1 being a front view, Fig. 2 a portion of a side view of a slicing-machine fitted with this grinding device, while Fig. 3 shows on an enlarged scale the grinding device, and Figs. 4 and 5 are detail views of various forms of construction of the abraders or grinding pins and rollers.

In contrast to previous arrangements in the slicing-machine here shown the frame *a* is formed entirely at one side, so that the support-table and other parts are made much more accessible. The curved rack-bar *c* is firmly screwed to an arm *b*.

The pin *d*, on which the knife-arm pivots, is firmly mounted in the frame *a*, and on this pin *d* the knife-arm *e* may be rocked to and fro in the ordinary manner by a hand-crank *f*, the gearing *g* traveling over the rack-bar *c* and causing the driving-shaft *w* to rotate. A chain-wheel *h*, which is arranged as a free wheel, only partially shares in the ordinary manner in the rotations in one direction and conveys this movement with a chain *i* to the knife-shaft *x*, which is also mounted in the arm *e* and carries at its ends the knife-disks or circular knife *j*. The chain-wheels and chain are inclosed in a sheet-metal casing *k*.

The piece of meat *m* is firmly clamped on a ribbed table *l* on a movable plate *n*, which has in the ordinary manner at its front edge sharp edges adapted to be pressed into the piece of meat. In order that the meat may rest firmly in front where it is to be cut, the plate *n* is pressed obliquely, or, in other words, the rear edge is a little bent up.

The grinding device is screwed in front on the arm *b* and secured to a pin *p*, capable of moving up and down in the frame *o*, which pin is always held up by a spiral spring *s*. The pin *p* has beneath a slide-piece *q*, in which grinding-pins *r* are fixed. These grinding-pins, which taper downward to a point, Fig. 3, may be made of round, oval, or rectangular section, Fig. 4. They are, corresponding to the form of the knife, placed somewhat

obliquely. When being ground, the cutting edge of the knife comes between the pins, Fig. 3, and in order that the pins *r* may be alternately utilized on all four sides the mounting is made by means of a slide-piece *q* in the following manner: A plate *z* is provided below against the slide-piece *q*, which plate has rectangular slots in which the pins *r* exactly fit. The pins *r* are prolonged upward through the slide-piece *q* and rounded. A stud or knob is formed on these projections and a small spiral spring, Fig. 3, placed between the knob and the upper edge of the slide-piece. It is evident that by depressing the pin at this knob the rectangular part of a pin is released from the slot in the plate *z*, and the pin may then be turned ninety degrees. Small steel rollers or rolls *t*, Fig. 5, may also be employed instead of grinding-pins *r*, which rollers are mounted in the slide-piece *q* and rotate on blocks *y*, their grinding-faces being milled or grooved.

The grinding device is worked in the following manner: When the pin *u* has been drawn back, the knife-arm *e* is elevated until the gear *g* is released from the rack-bar *c*, and the knife-arm is held in this position by the insertion of a pin *u*. The knife then comes under the grinding device into the position shown in dotted lines in Fig. 1. A small crank is inserted in the hole *v* and the knife is turned thereon, while at the same time the pin *p* is pressed down. The cutting edge of the knife passes between the pins *r* or rollers *t* and is sharpened on both sides. As soon as the pressure ceases on the pin *p* the spring *s* again raises the latter. The pin *p* is made very long in order that the device may still be used even if the diameter of the knife has been considerably reduced by repeated grinding.

The device may be equally well employed in slicing-machines with a fixed knife and a movable support-table for the piece of meat. In such case the knife instead of being moved by hand is moved by the machine itself.

The grinding device hereinbefore described for sharpening the circular knife forms an improvement in slicing-machines which is of very great value for these machines and considerably increases the effectiveness and commercial value of the same. The advantages thereby obtained are, first, the grinding and sharpening of the knife take place on the machine itself without a single screw needing to be released; second, the losses of time incurred in grinding knives are reduced to a minimum in slicing-machines fitted with this improved grinding device; third, the worn-out grinding pins and rollers may be very easily replaced by fresh ones.

I declare that what I claim is—

1. A device of the character described, comprising a frame, a rotary cutter mounted on a swinging arm journaled on said frame, gearing for rotating the cutter, a grinding device arranged on one side of said frame, said arm and cutter being adapted to be swung out of normal position into position to be engaged by the grinding device, and means for moving the grinding device into engagement with the cutter, substantially as described.

2. A device of the character described, comprising a frame, a rotary cutter mounted on a swinging arm journaled on said frame, gearing for rotating the cutter, a grinding device arranged on one side of said frame, said arm and cutter being adapted to be swung out of normal position into position to be engaged by the grinding device, means for normally holding the grinding device out of operative position, and means for moving the grinding device into engagement with the cutter, substantially as described.

3. A device of the character described, comprising a frame, a rotary cutter mounted on a swinging arm journaled on said frame, gearing for rotating the cutter, a grinding device arranged on one side of said frame, said arm and cutter being adapted to be swung out of normal position to be engaged by the grinding device, means for normally holding the grinding device out of operative position, means for moving the grinding device into engagement with the cutter, and means for holding the cutter in engagement with the grinding device, substantially as described.

4. In a device of the character described, the combination with a frame, an oscillating arm mounted on said frame, and a rotary cutter carried by said arm, of a grinding device comprising a vertically-movable perforated head mounted on one side of the frame, a plate arranged beneath the head and provided with rectangular apertures, abrading implements having rectangular shanks passing through said apertures and round portions passing through the perforations in the head, and springs arranged to normally hold the rectangular portions of the shanks in the said apertures, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILHELMUS ADRIANUS VAN BERKEL.

Witnesses:

ADOLF ARIS KLEIN,

JEAN HENRI CHARLES HUBERT RASSAERTS.