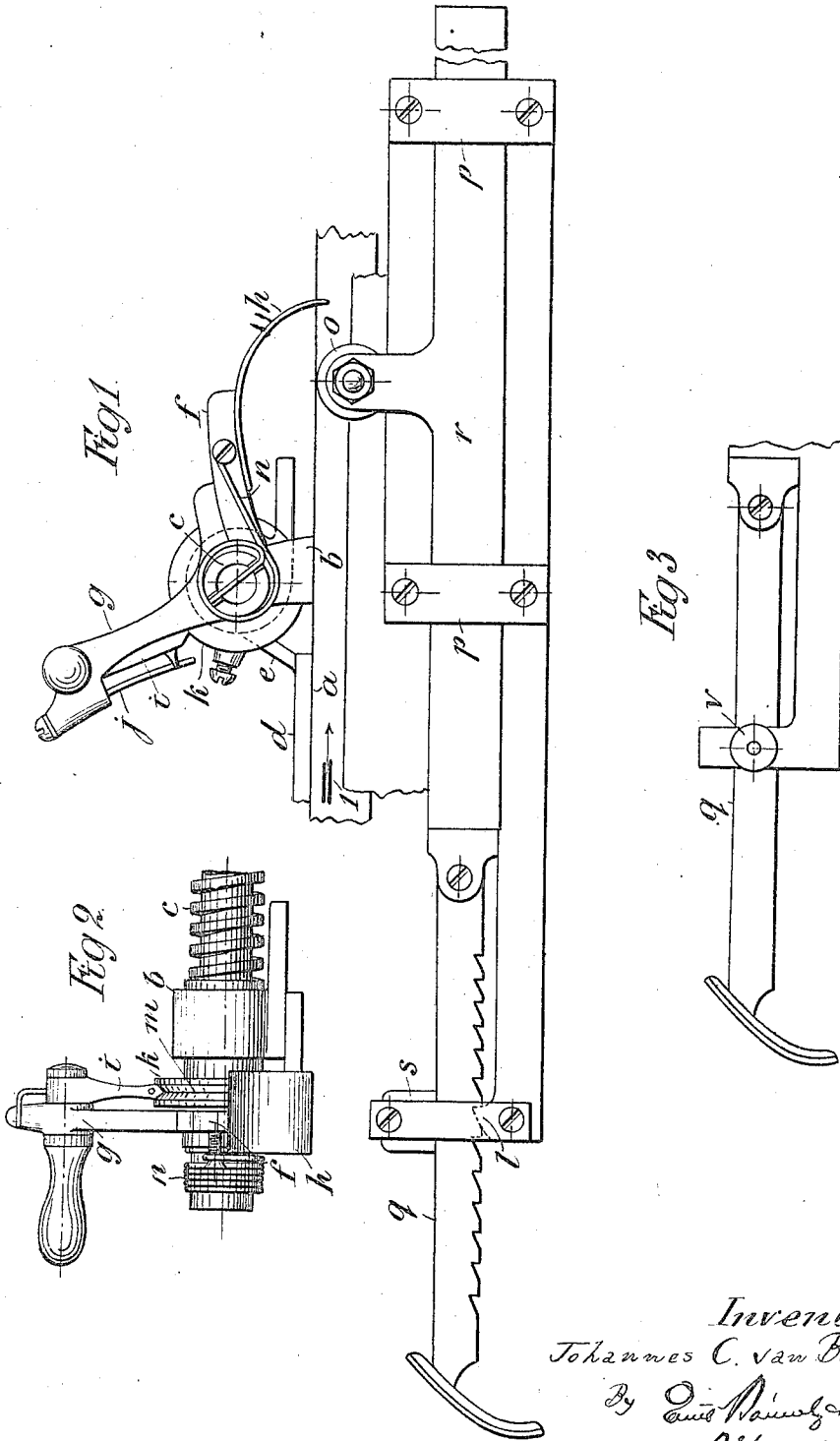


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 INTERMITTENT OPERATING MECHANISM FOR SLICING MACHINES.
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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHANNES CORNELIUS VAN BERKEL, manufacturer, subject of the Kingdom of Holland, residing at the city of Copenhagen, in Denmark, have invented certain new and useful Improvements in Intermittent Operating Mechanism for Slicing-Machines, of which the following is a specification.

This invention relates to improvements in slicing-machines by which the meat or the like to be sliced is clamped upon a meat plate mounted upon a carriage, which is adapted to be reciprocated parallel to the front face of a rotary knife arranged beside one edge of the carriage, which knife during the forward movement of the carriage cuts a slice from the meat clamped upon the meat plate, whereupon the meat plate during the backward movement of the carriage is automatically advanced a distance corresponding to the thickness of the slice toward the knife so that said latter during the next forward movement of the carriage is able to cut off a new slice and so on.

The automatic forward movement of the meat plate is effected by a half-nut fixed to the meat plate and engaging a screw threaded shaft mounted in the carriage, which shaft during each backward movement of the carriage is turned through a certain (adjustable) angle, whereby the meat plate is advanced, while the shaft is not turned during the forward movement of the carriage.

In machines of this kind known before the device for effecting the periodical rotation of the screw threaded shaft has produced disagreeable noise both during the movement necessary for the angular movement of the shaft as also during its return to the initial position, the noise during the operation of the machine sounding like rapid knocks. This invention has for its object to remove said drawback by so constructing said device that the operation of the machine is noiseless.

In the known machines of this kind an angle-lever is loosely mounted on the end of the screw threaded shaft. One arm of this angle-lever is bent downward and carries a rubber roller while its other arm carries a pawl engaging a pinion fixed to the screw-threaded shaft. The frame of the machine is provided with a stationary butt, and during the backward movement of the carriage the rubber roller strikes said butt, which

lifts the roller and thereby turns the angle-lever so that the pawl moves the pinion with the result that the screw-threaded shaft is turned the desired angle. During the forward movement of the carriage a spring returns the angle-lever to its normal position as soon as the rubber roller leaves the butt, and during this movement the pawl slides over the teeth of the pinion without moving the latter.

During said movements the disagreeable noise above referred to is produced both by the rubber roller striking the butt and by the pawl sliding backward over the teeth of the pinion, when the roller has left the butt and the angle lever is returned by the spring.

In the improved construction which forms the object of this invention an angle lever loosely mounted on the end of the screw threaded shaft and operated by a butt carried by the frame of the machine is also used, but this is also the single similarity with the construction described above. The forward arm of the angle lever carries in the improved construction a downwardly bent blade, which during the backward movement of the carriage meets the stationary butt having the shape of a rubber roller which lifts the blade noiselessly so that the angle lever is turned. When the angle lever is turned it turns the screw threaded shaft by means of a friction coupling adapted to act only by this direction of rotation and not acting when the angle lever, during the following forward movement of the carriage, is returned to its initial position, the screw threaded shaft remaining motionless during this turn of the angle lever. None of said movements produces noise and consequently the operation of the machine is noiseless.

A constructional form of the invention is illustrated in the accompanying drawing, which shows parts of a slicing-machine.

Figure 1 shows said parts seen in the direction looking toward the rotary knife of the machine.

Fig. 2 shows the parts of the improved device carried by the screw-threaded shaft, while

Fig. 3 shows a modification of a detail. *a* is the carriage of the slicing-machine, which in a known manner is reciprocated in front of the rotary knife (not shown) in the direction indicated by the arrow 1 (Fig. 1), and which is provided with bearings *b* for the screw-threaded shaft *c*. The meat

plate *d*, upon which the meat is clamped, is mounted upon the carriage in such a manner that it can be moved to and fro in the direction toward the knife, that is perpendicularly to the plane of the meat. The movement toward the knife is stepwise and is effected by means of the screw-threaded shaft *e*, which engages a half-nut (not shown) fixed to an arm *e* of the meat-plate so that the meat plate is advanced a certain distance toward the knife during each turn of the screw threaded shaft. If it is desired to return the meat plate to initial position, the half-nut is released from the screw-threaded shaft, whereupon the meat plate can be returned by hand.

On the end of the screw-threaded shaft an angle lever *f, g* is loosely mounted. The arm *f* of said lever pointing in the direction of the forward movement of the carriage carries a bent blade *h*, while the upwardly pointing arm *g* of said lever carries a rocking arm *i* having a wedge shaped lower end and actuated by a spring *j*, said spring forcing the wedge into a wedge shaped circular groove *m* provided in the edge of a disk *k* fixed to the screw-threaded shaft *c*. A spring *n* normally retains the angle lever in the position shown in Fig. 1, in which position the blade *h* during the backward movement of the carriage will meet a rubber roller *o* carried by a bar *r*, slidably mounted in a guide *p* fixed to the frame of the machine. The bar *r* is hinged to a handle *q* provided with teeth, which handle is pressed down toward a tooth *t* by a spring lock *s*, so that said tooth *t* will engage one or another of the notches between the teeth of the handle and thereby lock said handle and consequently the roller *o*. By lifting the handle *q* so much that the tooth *t* is released from the notches of the handle, the roller *o* can be adjusted at will.

Fig. 3 shows a modification of the handle *q*, which in this form is not provided with teeth but is fixed in the desired position by means of a set-screw *v*, which permits a very fine adjustment of the roller *o*, as in this case the adjustment is not dependent of the distance between the teeth of the handle *q*.

The operation of the improved device is as follows:

When the carriage *a* is moved backward the blade *h* meets the roller *o* and slides noiseless up on it. During this sliding movement the blade is lifted and of course the angle lever is turned. During this movement, the wedge-shaped lower end of the arm *i* will be jammed in the groove *m* of the disk *k* and will turn said disk and consequently the shaft *c*, so that the meat-plate is advanced a distance corresponding to said turn toward the knife.

When the blade *h* during the following forward movement of the carriage again slides down over the roller *o*, the spring *n* successively returns the angle-lever *g, f* to its normal position, but during this movement the arm *i* will not be jammed in the groove of the disk *k* and of course the disk is not rotated and the position of the meat-plate is not varied during the slicing.

The displacement of the meat-plate for each backward movement of the carriage depends upon the position of the roller *o*. The earlier the blade *h* meets the roller the greater is the displacement of the meat-plate and the greater is the thickness of the slices cut off.

When the roller adjusting means shown in Fig. 3 are used the thickness of the slices may be finely adjusted, as the connection between the angle lever and the screw-threaded shaft is not effected by a pawl and pinion device, as in the machines hitherto used, but by means of a friction coupling, so that the fineness of the adjustment does not depend upon the distance between the teeth of a pinion.

The described friction-coupling may of course be replaced by some other device acting in the same manner, that is, a device which acts only during the backward movement of the carriage, and which is noiselessly released during the forward movement of the carriage.

Claim:

In a slicing machine of the type in which a meat plate is moved stepwise on a reciprocating carriage by means of a threaded shaft engaged with said plate, the combination with the said shaft; of a bell-crank lever loosely mounted thereon and having a curved blade secured to one arm; a roller of yielding material carried by the frame of the machine and disposed in the path of said blade, so as to engage and lift the latter and thereby rock said lever in one direction during the forward movement of the carriage and in the opposite direction during the return movement of said carriage; and a one-way, frictional clutch connection between the other arm of the lever and said shaft operating to bind when said lever is rocked in one direction by said roller and thereby turn said shaft, but to open when said lever is rocked in the other direction by the roller.

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

JOHANNES CORNELIUS VAN BERKEL.

Witnesses:

ALANCIUS COLLEE,
VALDEMAR MELSE.