

A. NIELSEN.
MEAT CHOPPING MACHINE.
APPLICATION FILED SEPT. 26, 1911.

1,029,141.

Patented June 11, 1912.

Fig. 1.

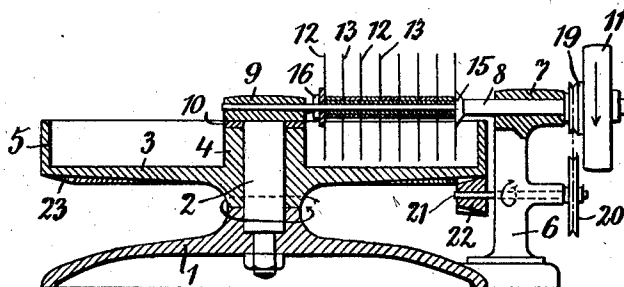


Fig. 2.

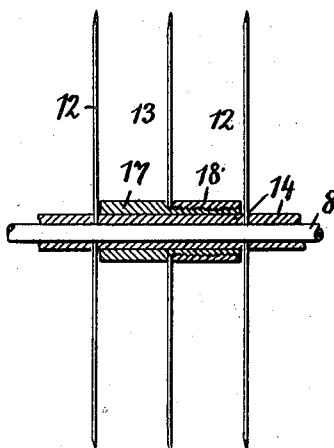
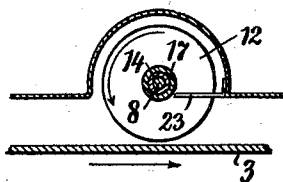


Fig. 3.



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UNITED STATES PATENT OFFICE.

ANDREAS NIELSEN, OF COPENHAGEN, DENMARK, ASSIGNOR TO HARALD FRIIS, OF
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MEAT-CHOPPING MACHINE.

1,029,141.

Specification of Letters Patent.

Patented June 11, 1912.

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To all whom it may concern:

Be it known that I, ANDREAS NIELSEN, subject of the King of Denmark, residing at Langebrogade 6, Copenhagen, Denmark, have invented new and useful Improvements in Meat-Chopping Machines, of which the following is a specification.

The invention relates to a meat chopping machine of the kind where the meat to be treated is placed on a rotary table, and is acted upon by a number of circular knives provided on a rotary shaft, placed radially or nearly radially in relation to the table and above it. Ordinarily the peripheral speed given to the knives in machines of this kind is the same as that of the point of the table top located below each particular knife. This causes the circular knives to actually roll on or in contact with the table-slab, and consequently their action on the meat will not be properly cutting, but will only consist in their impressing themselves into the meat. According to the present invention, the capacity and entire manner of action of such machines is improved by there being imparted to the rotary knives a considerable relative velocity in relation to the table-slab, *i. e.* by the edge of the circular knives rapidly advancing ahead of the table-slab. Thereby the edge of the circular knives will be caused to move in a really effective cutting manner on the meat, exactly as when a knife is drawn lengthwise through a piece of meat at rest.

On the drawing is shown, in Figure 1 in diametrical section through the table-slab, viz. in longitudinal section through the shaft of the circular knives, a manner of execution of a machine constructed according to this invention. Fig. 2 is a longitudinal section along the knife shaft in larger scale and Fig. 3 is a cross section of the shaft and part of the table with a hood over the knives.

Referring to the drawing, 1 is a base where to is fixed a pin 2, serving as a journal for a plane table 3. The table-slab has, at its center, a guiding bush 4, encircling said pin and, at its periphery, a vertically projecting rim 5. In connection with the base 1, a bracket 6 is provided forming, at top, a bearing 7 for the radially directed knife shaft 8, parallel to the table-slab. The second bearing 9 for this shaft is placed above the journal bush 4, and is fastened to the

stationary pin 2. Between the hub 4 and the bearing 9, a loose ring 10 is inserted. Beyond the bearing 7, the knife shaft 8 carries a pulley 11 fastened thereto, and at a thinner portion of the shaft, between the bearings 7 and 9, the circular knives are located. Every other one of these 12, 12 is fastened to the shaft, and every other one 13, 13 is loose thereon. The detailed arrangement of this appears from Fig. 2 where 12, 12 are two of the fixed disks and 13 one of the loose ones. The fixed disks 12 reach clear in to the shaft 8, and between these, sleeves 14 are inserted, fitting around the shaft and all being pressed together between a shoulder 15 thereon (Fig. 1) and a tightening device 16. Between every two disks 12, and outside of the sleeve 14, is placed another sleeve 17, one end of which forms a shoulder, while the other end thereof is worked down to a smaller diameter and is threaded and fitted with a nut 18, the knife 13 being held tightly between this nut and the shoulder 17. This disk may thus freely rotate around the shaft, there being a little play between the knives 12, 12 and the bushing 17—18. The driving pulley 11 supports, at its left-hand side, a cord pulley 19 driving, by means of a crossed cord, or other transmission, a cord pulley 20, provided below and fastened on a shaft 21, journaled in the bracket 6. Onto this shaft, and within the bracket, is fastened a conical friction roller 22 or pinion or the like, engaging a correspondingly provided face 23 on the underside of the table.

The manner of action of the machine is the following. When the shaft 8 is revolved in the direction indicated by means of an arrow, it will drive the cord pulley 20 and thereby the roller 22 in the opposite direction, and the table will then move in a direction, opposite to that of the hands of a clock, when the table slab is viewed from above, in other words, the table-slab below the knives will move in the same direction as the lower edges thereof. The loose knives will then be rolling against the meat placed on the table-slab, thereby naturally impressing themselves therein, but the actual cutting action will be due to the fixed knives 12, these receiving, by means of a suitable dimensioning of the transmissions, a considerably greater circumferential speed than that possessed by the corresponding points of the

table. The proportions may, for instance, be such that the table-slab makes about 40 revolutions, while the knives make about 1000 revolutions per minute. Hereby the fixed
 5 knives, as previously mentioned, will be caused to exert an extremely powerful cutting action, and the loose knives will increase this action by holding the meat onto the table, as it were, during the cutting.
 10 Besides, the entire arrangement will cause an extremely powerful mixing to take place, the meat being flung from the knives toward the table-edge 5. Even without the roller 22 which is driven from the shaft 8 the table-slab will naturally come into rotation, as
 15 soon as meat is fed on, as the motion of the driving shaft 8 will then be transmitted through the knives and the meat to the slab. Therefore the roller 22, rather than to drive
 20 the table-slab, serves to absorb the downward pressure exerted by the knives against the table-slab whereby it regulates its rotation, so that it may not exceed the speed desired. In order to effect this, it is necessary
 25 for the roller to be placed below the shaft of the knives.

Above the entire system of knives a curved guard may suitably be placed, with plane
 30 extensions reaching out to the vertical rim 5 of the table slab and being, of course, arranged in a manner allowing it to be easily

removed. This guard, as shown in Fig. 3, may carry a kind of comb whose teeth 23 project in between the individual knives, in order to prevent the meat from being lodged
 35 between these. As the knives fastened onto the shaft possess a very considerable speed of rotation, they will, on account of the centrifugal force alone, be able to keep themselves clean, and the teeth of the comb will
 40 therefore only need to act against the sides of the loose knives.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

In a meat chopping machine the combination of a rotary table with a shaft located above the table, means for rotating said shaft at a considerable speed relatively to
 50 the peripheral speed of the corresponding points of the table, and a plurality of circular knives rigidly secured on said shaft and a plurality of circular knives mounted to run loose on the shaft.

The foregoing specification signed at Copenhagen this fourteenth day of August, 1911.

ANDREAS NIELSEN.

In presence of—

JULIUS LEHMANN,
 OVE GJERSING.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."