J. J. FARQUER.

CUTTER AND SHREDDER.

APPLICATION FILED JUNE 18, 1908.

913,485.

Patented Feb. 23, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

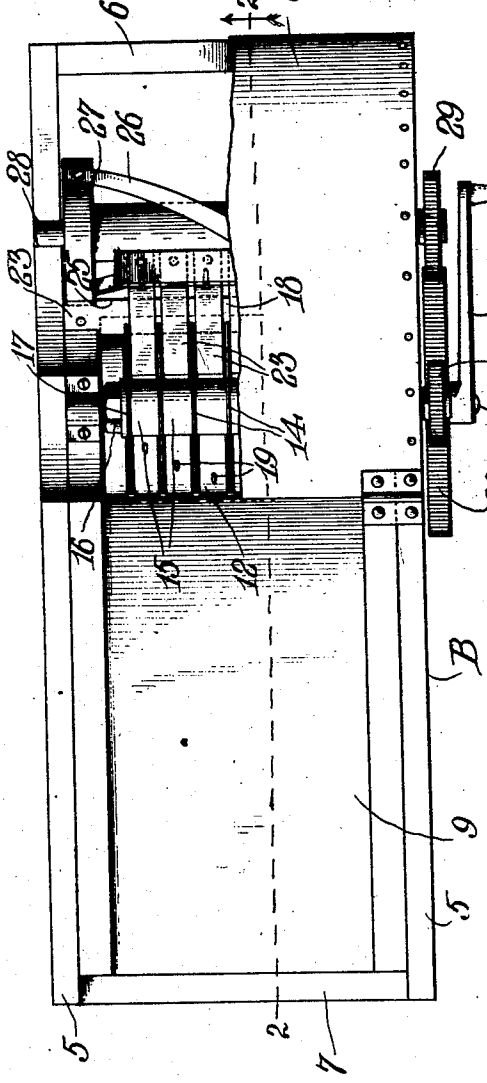
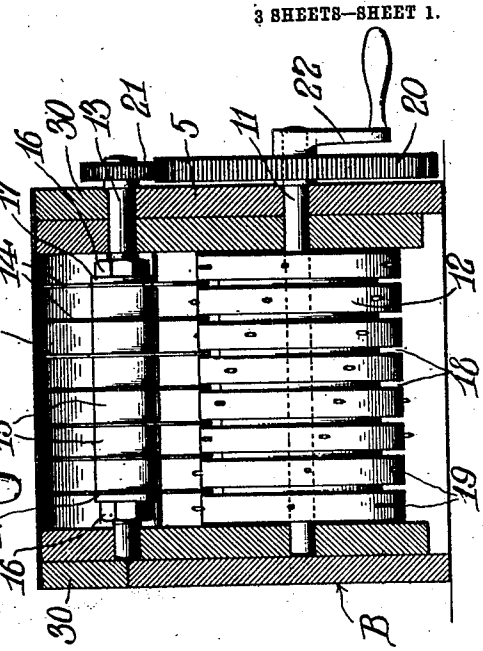


Fig. 5.



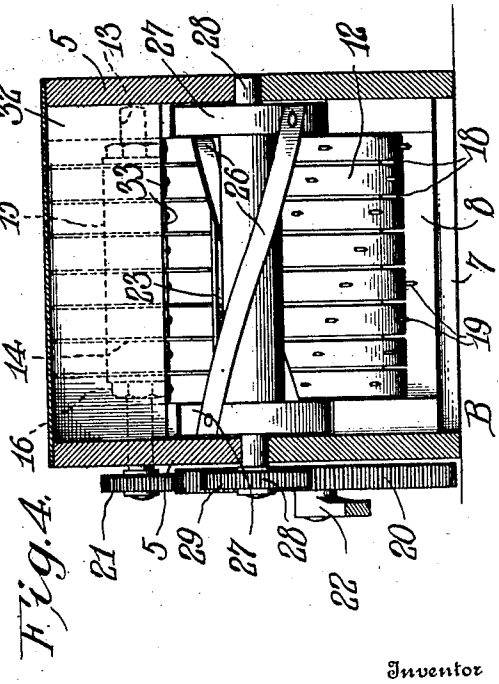


Fig. 4.

Witnesses

C. E. Smith.

L. L. Bucket.

Inventor

James J. Farquer,

By Wm. Bagger & Co.

Attorneys

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3 SHEETS—SHEET 2.

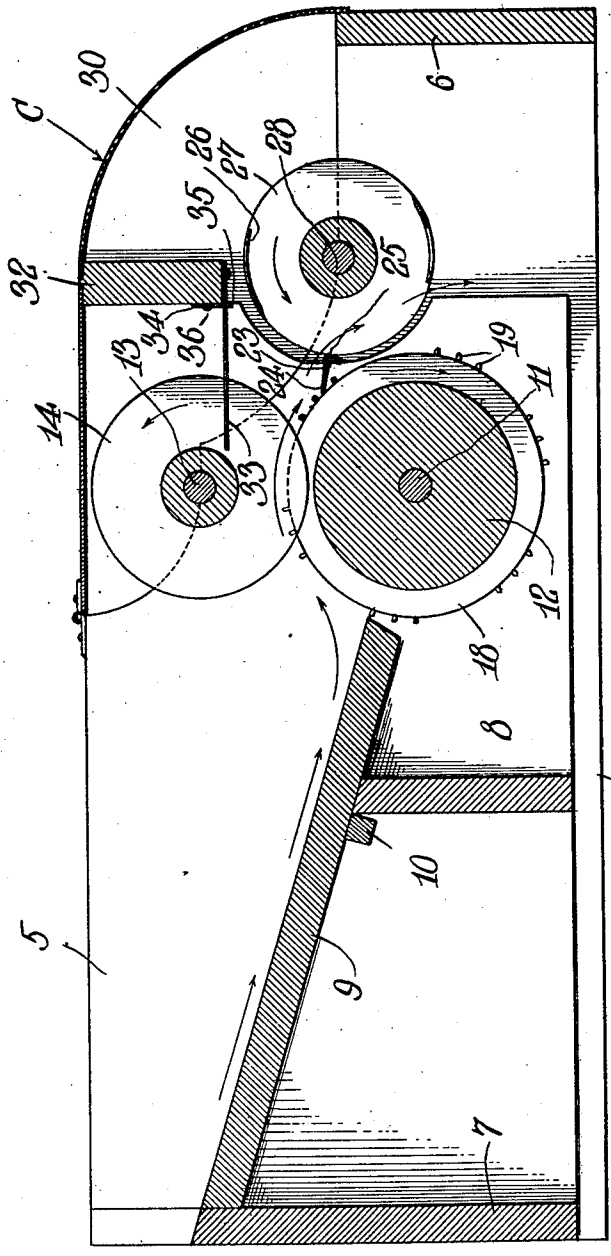


Fig. 2.

Witnesses

C. E. Smith.

L. L. Bucket.

Inventor

James J. Farquer,

By Wm. Baggers & Co.

Attorneys

J. J. FARQUER.

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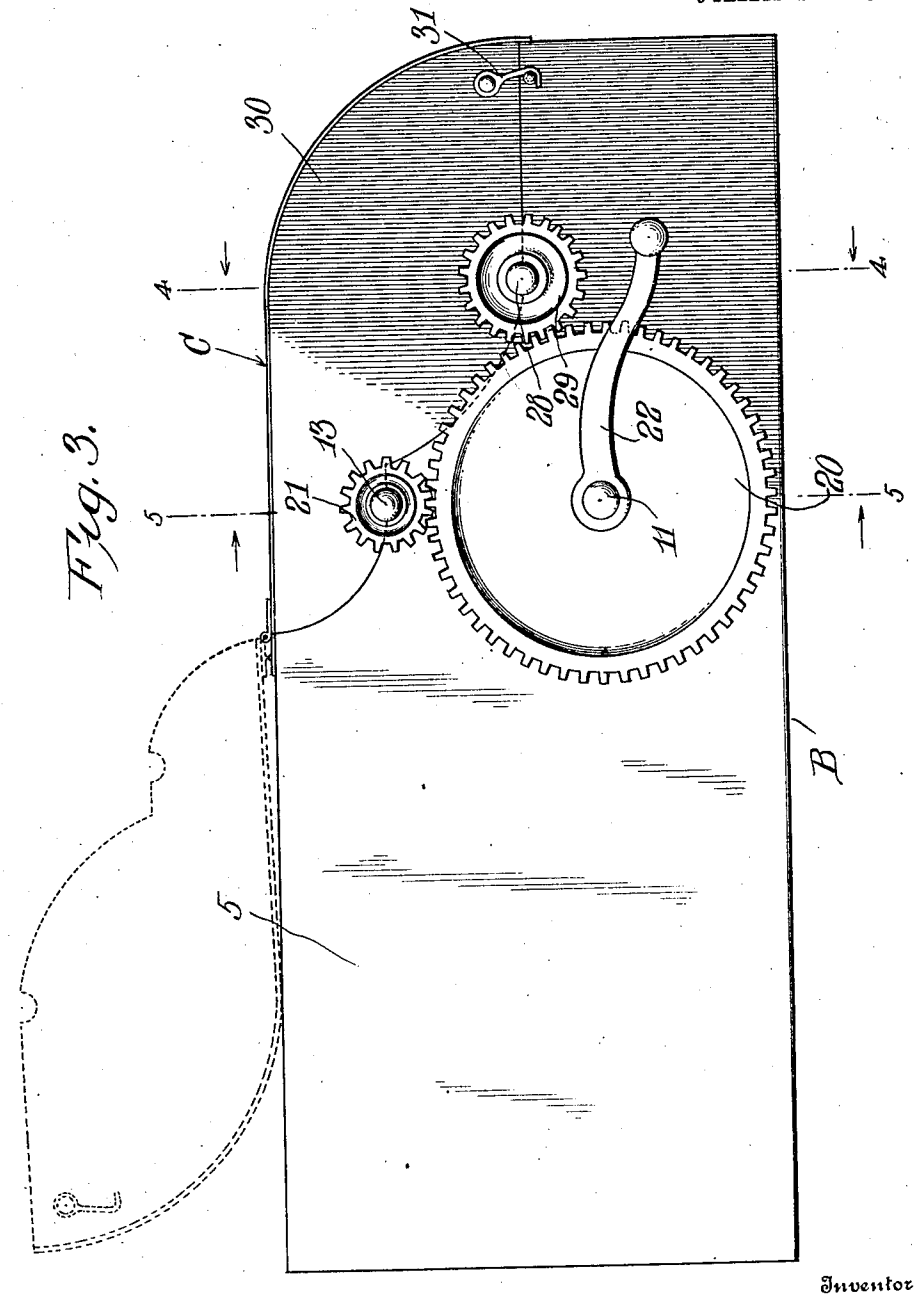
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3 SHEETS—SHEET 3.

Fig. 3.



Inventor

James J. Farquer,

By Wm. Baggett Co.

Attorneys

Witnesses

C. E. Smith.

L. L. Bucket.

UNITED STATES PATENT OFFICE.

JAMES J. FARQUER, OF DANVILLE, INDIANA.

CUTTER AND SHREDDER.

No. 913,485. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed June 18, 1908. Serial No. 439,179.

To all whom it may concern:

Be it known that I, JAMES J. FARQUER, a citizen of the United States, residing at Danville, in the county of Hendricks and State of Indiana, have invented certain new and useful Improvements in Cutters and Shredders, of which the following is a specification.

This invention relates to machines for chopping, slicing, shredding, cutting and reducing various materials, such as roots and vegetables, meat, and lard preparatory to rendering and other materials that are to be reduced or comminuted.

The invention has for its object to provide a simple and improved machine by means of which the materials operated upon shall be subjected to several cutting operations at various angles.

A further object of the invention is to provide an improved feed mechanism whereby the material operated upon shall be presented to the cutting apparatus positively and with perfect regularity.

A further object of the invention is to improve the cutting mechanism, and to provide means for preventing the material that is to be operated upon from adhering to the knives or cutters.

Further objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings—Figure 1 is a top plan view of a machine constructed in accordance with the invention, portions having been broken away for the purpose of exposing the adjacent parts. Fig. 2 is a longitudinal vertical sectional view taken on the plane indicated by the line 2—2, in Fig. 1. Fig. 3 is a side elevation. Fig. 4 is a transverse sectional view taken on the plane indicated by the line 4—4, in Fig. 3. Fig. 5 is a transverse sectional view taken on the plane indicated by the line 5—5, in Fig. 3.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame of casing of the improved machine consists of an oblong box B, of suitable dimensions, said box being composed of side pieces 5, 5, front and rear end pieces 6, 7, and a transverse partition 8. The latter serves to support an inclined feed-board or table 9, having upon its underside a transverse cleat 10, abutting upon the cross-piece or partition 8, adjacent to the upper edge of the latter; the forward end of the feed-board being disposed in contact with the inner face of the front cross-bar 6 of the casing. Said feed-board will thus be supported in a suitable inclined position in such a manner that it may be very readily removed for the purpose of washing and cleansing the same.

The side members 5 of the casing are provided with bearings for the transverse shaft 11, carrying the feed roller 12; another shaft 13 is supported for rotation above and adjacent to the feed roller 12 carrying a plurality of circular knives or cutting disks 14, which are spaced apart by the collars or washers 15. The shaft 13 is screw-threaded adjacent to its ends, and is provided with nuts 16, and washers 17 whereby the cutters 14 and the collars 15 are firmly secured upon said shaft. The feed-roller 12 is provided with a plurality of annular grooves 18 that are engaged by the peripheral edges of the disks or cutters 14, which latter are of such dimensions that the edges will project into the annular grooves of the feed roller. The latter, which is arranged in such a position that the inclined feed-table will be nearly tangential thereto, and which is accordingly adapted to receive the material passing over the feed table, is provided with radial extending teeth or spurs 19, said teeth or spurs being disposed in annular series intermediate the grooves 18; these teeth or spurs are for the purpose of engaging the material that is to be sliced or shredded, and positively conveying such material in engagement with the cutting mechanism.

The shaft 11, carries a spur-wheel 20 meshing with a pinion 21 upon the cutter carrying shaft 13, which latter will thus be rotated at a speed exceeding that of the shaft 11; the speed being regulated by the relative dimensions of the gear wheels 20 and 21. The shaft 11 has been illustrated

as being equipped with a crank 22, by means of which it may be rotated; it is obvious, however, that said shaft may be provided with a band-wheel or other means for receiving motion from any suitable source of power, such as an electric or mechanical motor of any well-known construction.

The side members 5 of the frame are provided with seats supporting the ends of a transversely disposed cutter bar 23, which is arranged directly in the rear of the feed-roller 12, and as closely adjacent to said feed roller as possible without interfering with the operation, the front edge of the cross-bar 23 is preferably provided with notches 24 for the passage of the teeth or spurs 19, thus enabling the front edge of said cross-bar to be placed practically in contact with the surface of the feed roller; the rear edge of the bar 23 presents a cutting edge 25 which co-acts with spiral knives or cutters 26, supported by the disks 27, upon a shaft 28 that is mounted for rotation in the side members of the frame directly in rear of and adjacent to the feed-roller. The shaft 28 carries a pinion 29 meshing with the spur wheel 20 upon the shaft 11, whereby motion is transmitted to the shaft 28 carrying the spiral knives or cutters.

Hingedly connected with the side members 5, of the frame or casing is a hood C, the side members 30 of which coöperate with the side members 5 of the casing to form boxes or bearings for the cutter-carrying shafts 13 and 28; keepers 31 have been shown for the purpose of assisting in securing the shaft 13 in position for operation, but it will be observed that by raising or lifting the hood C, both of the shafts 13 and 28 are conveniently accessible, and capable of being removed from their respective bearings, thus enabling the knives or cutters to be conveniently cleansed and sharpened when necessary. The cross-bar 23 is likewise very conveniently accessible, and capable of being removed from its seats, and the feed roller may thus be completely exposed for convenience in cleansing the machine which, as will be readily understood, is a matter of considerable importance. The hood is provided with a cross-bar 32, to the under side of which are attached a plurality of flat leaf-springs 33 normally occupying an approximately horizontal position and extending forwardly from the cross-bar 32 in the direction of the circular knives or cutters 14, and between the latter; the leaves or springs 33 being of a width equal to the width of the spaces between the knives or cutters; the leaves or springs 33 may thus be regarded as constituting scrapers that engage the knives or cutters for the purpose of keeping the latter clean and free from adhering material of any kind. For the purpose of preventing accidental displacement of the springs 33, there may be secured upon the front side of the cross-bar 32 a plate or comb 34, having teeth 35 that extend into the spaces between the springs 33; the latter, which are preferably secured upon the cross-bar 32 by fastening means such as ordinary stud-screws 36, are thus prevented from twisting or turning upon said screws so as to overlap one another or otherwise become misplaced in such a manner as to make it inconvenient to place them in proper relation to the cutting disks 14.

From the foregoing description taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood.

As previously stated, the improved device may be utilized for the purpose of cutting, chopping, slicing or shredding materials of all kinds. Materials placed upon the inclined feed-board will be seized by the teeth or prongs of the feed-roller and will be carried by the latter in engagement with the circular knives or cutters, whereby the material is divided into narrow strips or slices; these strips or slices will be delivered by the feed roller onto the cross-bar 23, and the spiral knives or cutters 26 co-acting with said cross-bar will cut or chop the strips or slices at approximately right-angles to the previous cut, thus chopping the strips into fragments of the requisite size. It will also be readily seen that the strips or slices while being operated upon by the spiral cutters, are still positively fed by the feed roller, the radially projecting teeth or spurs of which retain hold of said strips or slices as long as the latter extends between the circular knives 14.

The general construction of the improved machine is simple and inexpensive, and it will be found thoroughly useful and efficient for the purposes for which it is provided.

Having thus described the invention, what is claimed is:

1. In a machine of the character described, a casing, a feed roller having annular grooves and radially projecting spurs, a feed board inclined in the direction of the feed roller, a shaft supported for rotation adjacent to the feed roller and circular cutters upon the shaft engaging the grooves of the roller.

2. In a machine of the character described, a casing, a feed roller supported for rotation and having annular grooves and radially projecting spurs arranged in series intermediate the grooves, a cutter-bar supported adjacent to the feed roller and having a notched edge adjacent to the latter, and a cutting edge distant from the roller, a shaft supported for rotation adjacent to the feed roller and having disks, and spiral cutters supported upon said disks and coöperating with the cutting edge of the cross-bar.

3. In a machine of the character described,

a casing, an annularly grooved feed roller having radially extending spurs arranged in series intermediate the grooves, a cross bar supported adjacent to the feed roller and having a notched edge exposed to the toothed face of the roller, countershafts supported for rotation adjacent to the feed roller and driven from the latter, circular cutters upon one of the counter shafts engaging the grooves in the feed roller, and spiral cutters supported upon the other countershaft and coöperating with the cross-bar.

4. In a machine of the character described, a casing, an annularly grooved feed roller supported for rotation in the side members of the casing, countershafts supported for rotation upon the upper edges of the side members of the casing, circular cutters upon one of the countershafts engaging the annular grooves in the feed roller, spiral cutters upon the second countershaft a hood hinged upon the side members of the casing and coöperating with the latter to form bearings for the countershafts, a cross-bar upon said hood and leaf springs secured upon said cross-bar and extending in the direction of and intermediate the circular cutters.

5. In a machine of the character described, a casing an annularly grooved feed-roller, a cutter-carrying shaft having circular cutters engaging the grooves of the feed roller, a hood having a cross-bar, leaf springs secured upon said cross bar and extending in the direction of and intermediate of the circular cutters, and a comb secured upon the cross-bar and having teeth projecting between the leaf-springs.

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

JAMES J. FARQUER.

Witnesses:
SANFORD E. GIVAN,
THOMAS H. MITCHELL.