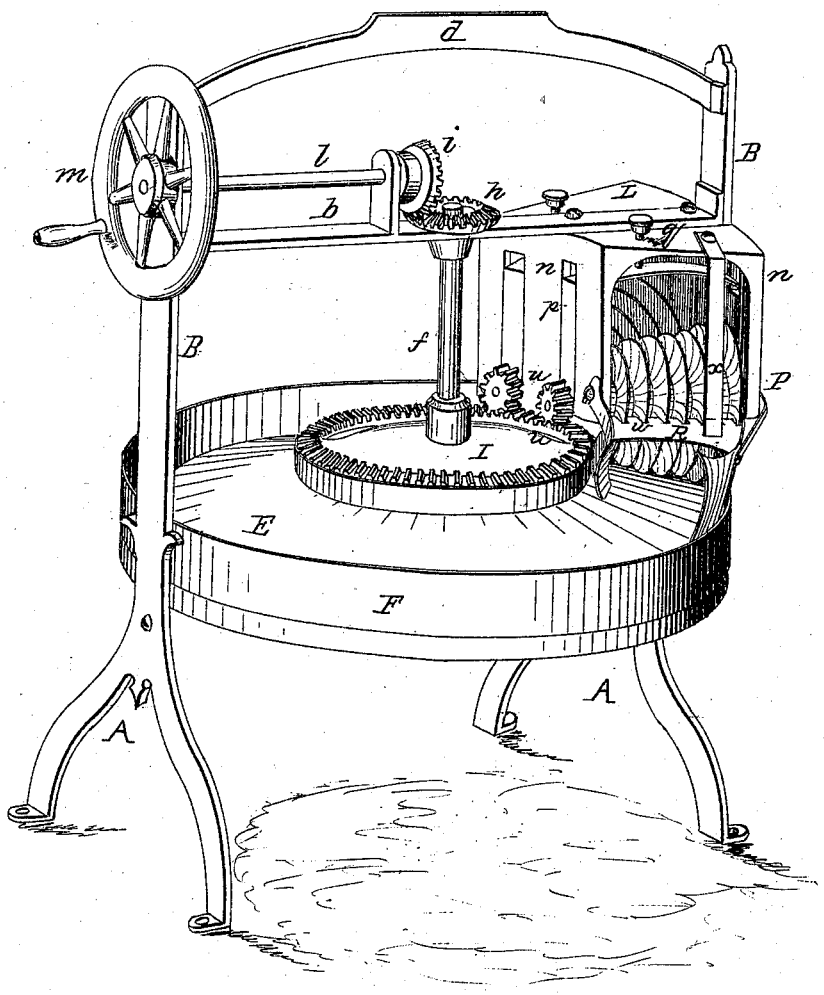
2 Sheets—Sheet 1.

# T. WILLI.

## MEAT-CUTTING MACHINE.

No. 182,730. Patented Sept. 26, 1876.

*Fig. 1.*




Witnesses:
Granville Lewis.
Chas. A. Gill

Inventor
Theodore Willi
by his Attys.
Cox & Cox

2 Sheets—Sheet 2.

# T. WILLI.

## MEAT-CUTTING MACHINE.

No. 182,730. Patented Sept. 26, 1876.

*Fig. 2.*

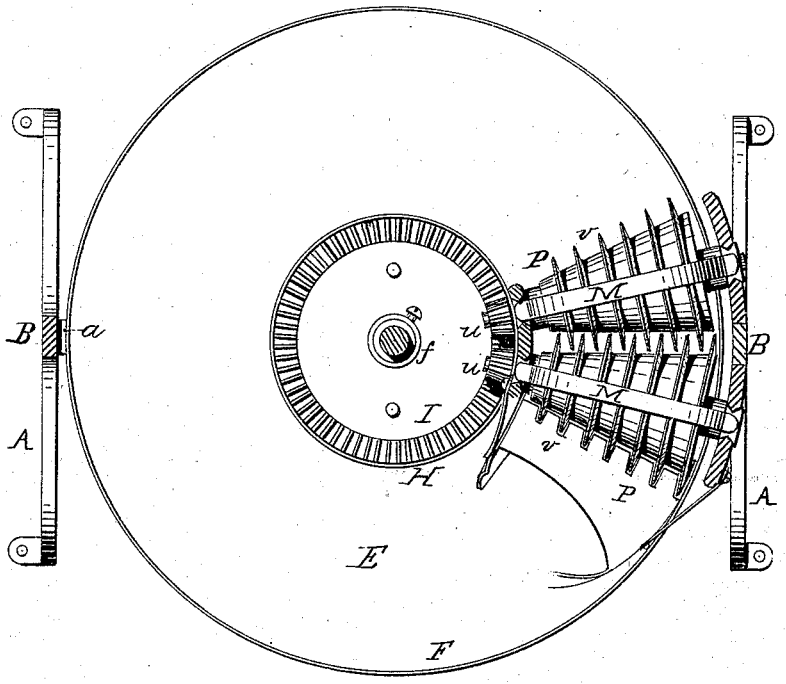



*Fig. 3*

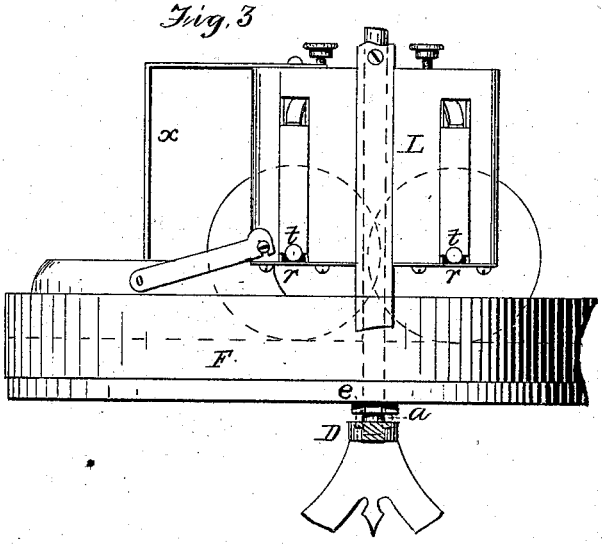



*Fig. 4.*

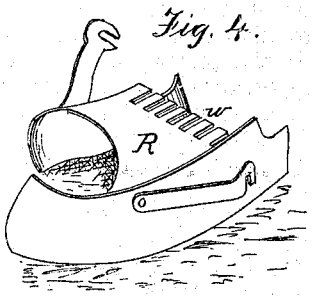



*Fig. 5.*


Witnesses;
Grenville Lewis
Chas. C. Gill

Inventor
Theodore Willi
by his attys
Cox & Cox

# UNITED STATES PATENT OFFICE.

THEODORE WILLI, OF QUINCY, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM HUNERWEDEL, OF SAME PLACE.

## IMPROVEMENT IN MEAT-CUTTING MACHINES.

Specification forming part of Letters Patent No. **182,730**, dated September 26, 1876; application filed August 5, 1876.

*To all whom it may concern:*

Be it known that I, THEODORE WILLI, of Quincy, in the county of Adams and State of Illinois, have invented a new and useful Improvement in Meat-Machines, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates to meat-machines; and consists in the devices hereinafter more fully described.

The object of the invention is to provide an efficient means for reducing the meat to as fine portions as desired by cutting it rather than macerating, crushing, or grinding it according to the methods heretofore practiced.

Figure 1 is a perspective view of a device embodying the elements of the invention. Fig. 2 is a top view of same. Fig. 3 is an end view, with the legs and other unnecessary parts broken away. Fig. 4 is a perspective view of the knife-clearer; and Fig. 5 is a side elevation of one of the knives.

In the accompanying drawings, the frame supporting the device consists of the forked legs A A, which are connected near their fork by the tie-brace *a*, above which the forks unite into the single vertical standards B B, which are connected by the tie-braces *b d*. The center of the brace *a* is provided with a step or seat to receive the lower end of the threaded pivot D, the upper end of which is fixed in the center of the block E, below which, and about the pivot, is placed a nut, *e*, which, being turned, suffices to elevate or depress the block. The block E is composed of any suitable material, and is circular in outline, its upper surface being beveled downward toward its outer edge, whereon there is provided a rim, F, recessed into the block, and serving to prevent the escape of the material being operated upon, another rim, H, being provided for a like purpose near the center of the block. Within the rim H there is firmly secured to the center of the block E the crown gear-wheel I, which is driven by a vertical shaft, *f*, extending upward and passing through the brace *b*, above which it is provided with the bevel-gear wheel *h*, which engages a bevel-gear-wheel, *i*, upon one end of the shaft *l*, which works on bearings in the standards on the brace, and has one end extending beyond the standard B, whereat it is provided with the crank or crank-wheel *m* to give it motion. Thus the revolution of the crank *m* will rotate the block E. To the brace *b*, between the standard B and the crown-gear I, are secured the frames L, which extend toward the face of the block E a suitable distance, and are provided on each side with the vertical slots *n*, wherein work the sliding bearings *p*, the upper parts whereof are in contact with the arched spring M, the tension of which is controlled by the set-screw *q*, which is arranged so that the pressure of the spring shall be greater upon the inner than the outer bearing, as more is there required in the operation of the device. At the base of the frames L, mounted loosely upon the bars *r*, are provided the axles *t*, the inner ends of which are furnished with beveled pinions *u*, that engage the crown gear-wheel I. Thus the axles *t* stand on the line of radii, having a center at the center of the block E. Between the inner walls of the frames L the axle *t* is provided with a conical enlargement, *v*, having its apex toward the center and its base toward the circumference of the block E. Upon the cone *v* are arranged the concavo-convex knives P, which are arranged in graduated order, those less in diameter being near the center of the block. Thus the plane of the cutting-edges of the knives corresponds with the level of the block.

The knives are made concavo-convex for several reasons, among which may be numerated the following, so that when they are arranged in groups the knives of one group may pass between the spaces, separating the knives of the other group, and thereby operate as strippers, or, being advanced more closely, may act upon the cone of the opposite knives as upon a chopping-block to further reduce the material. The concavo-convex construction presents an arch between the axle and edge of the knife, giving it an elastic action, so that it can bend inward when passing over an indurate piece of material. The said construction of the knives greatly facilitates their operation when the annular strips are employed, since the edges of the knives will pass

smoothly between them, closely following the line of the curvature of the channel between the strips. The axles *t* are arranged in relation to each other, so that the knives upon one cone may pass between the spaces separating the knives on the other cone; hence one set of knives operate as a stripper to the other. This they readily can do, owing to their peculiar shape, which also gives them a spring-bearing from circumference to center. The edges of the knives come just above the upper surface of the block, the intention being not to have them impinge the same any more than is necessary to effect their object. The block may, if desired, be provided with annular metallic channels, wherein the knives can travel, but the block answers all ordinary purposes.

To collect and turn the material, and also to clear the knife, there is secured to the frame L the stripper R, the rear end of which is provided with the slots *w*, through which the knives P pass, being thereby cleared of any adhering material. The other portion of the stripper extends forward its lateral curves, gradually increasing to its mouth, which stands at or about midway between the rims F and H on the block E, the angle-spring *x* being provided, as shown, to hold the stripper in contact with the block. It is plain that as the block is rotated all the material placed thereon will be brought directly under the knives, and by them cut upon a surface having a movement contrary to their own. Thus every particle of material is subjected to a rotary draw-cut, and the injurious process of mashing or grinding is wholly avoided.

The relative movement of the knives and block is about as six to one, though this may be reduced or quickened according to the number of teeth employed on the crown-gear.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The concavo-convex knives, arranged in groups and revolving in one direction, in combination with a revolving cutting-block rotating in a contrary direction, substantially as specified.

2. The combination, with a group of circular knives, having an elastic tension, of an adjustable rotating chopping or cutting surface which conforms to the line of the edges of the knives, substantially as set forth.

3. The combination of two or more groups of concavo-convex knives, the edges of which pass between the spaces separating the knives of the other group, substantially as and for the purpose set forth.

4. The cone *v*, provided with the concavo-convex knives P, in combination with the spring M, substantially as set forth.

5. The stripper R, in combination with the spring *x*, for the purposes specified.

In testimony that I claim the foregoing improvement in meat-machines, as above described, I have hereunto set my hand this 24th day of July, 1876.

THEODORE WILLI.

Witnesses:
H. K. RODOLF,
W. B. BUSHNELL.