2 Sheets-Sheet 1.

MARTIN L. EDWARDS.

Improvement in Meat Cutter.

No. 117,999. *Fig. 1.* Patented August 15, 1871.

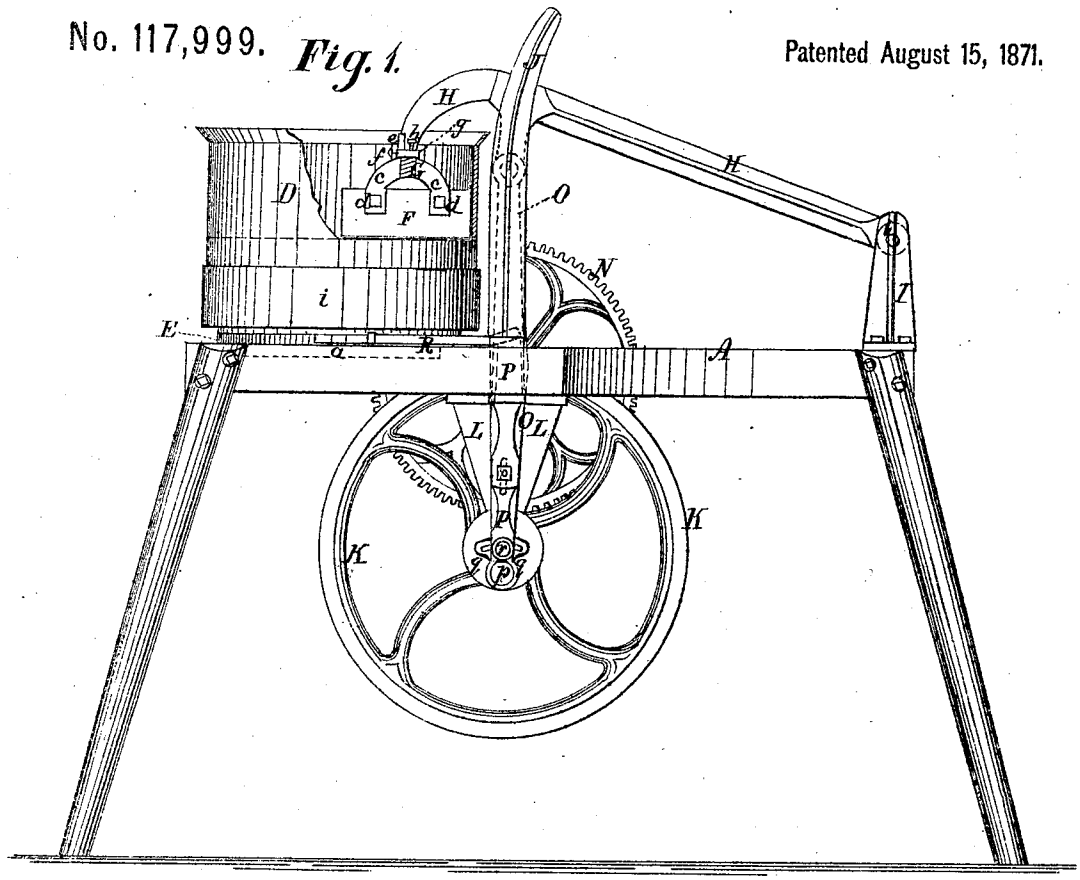
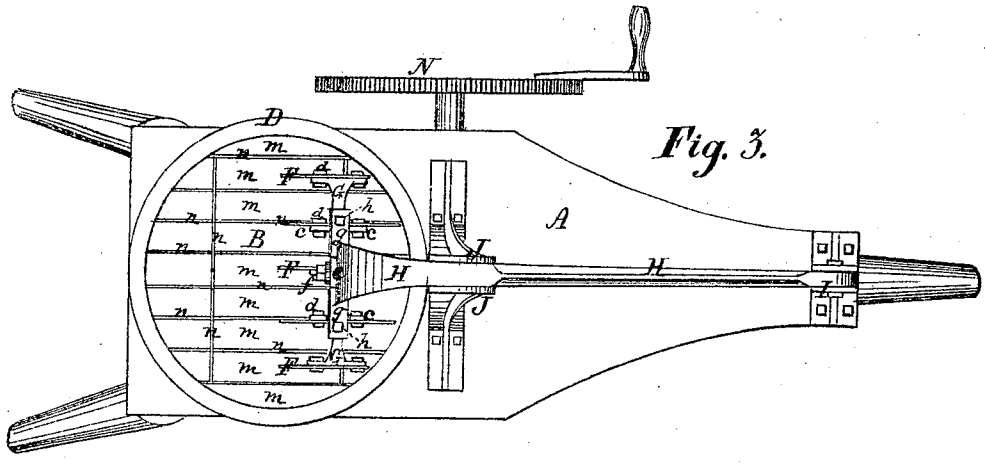


Fig. 3.



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By Edwin L. Stanton

his attorney

2 Sheets. Sheet 2

MARTIN L. EDWARDS.

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Fig. 2.

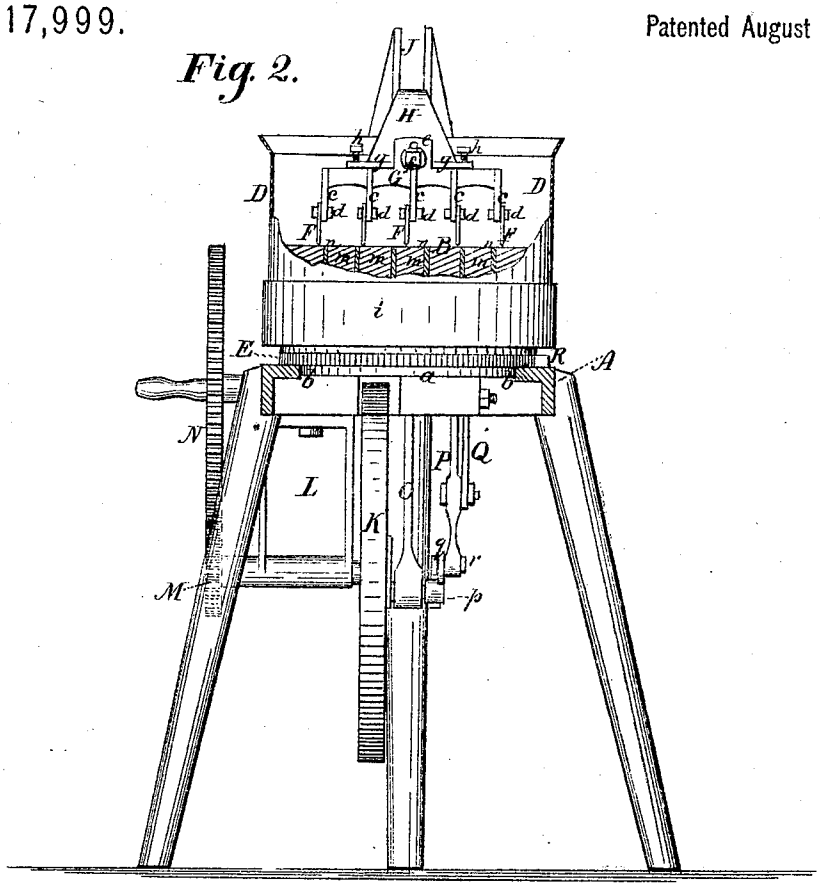


Fig. 4.

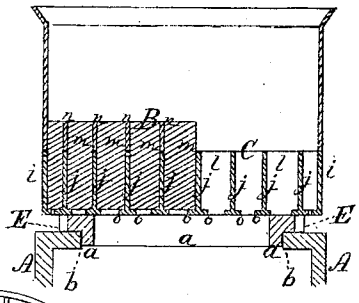


Fig. 5.

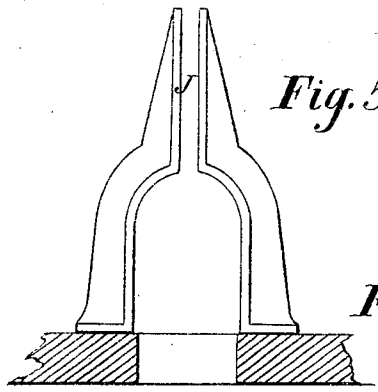
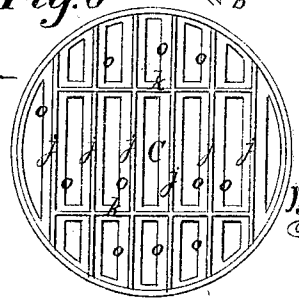


Fig. 6



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UNITED STATES PATENT OFFICE.

MARTIN L. EDWARDS, OF SALEM, OHIO.

IMPROVEMENT IN MEAT-CHOPPERS.

Specification forming part of Letters Patent No. 117,999, dated August 15, 1871.

To all whom it may concern:

Be it known that I, MARTIN L. EDWARDS, of Salem, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Meat and Vegetable Cutters, of which the following is a specification:

My invention relates to machines for chopping meat and vegetables for domestic use or for butchers' manufacturing purposes; and the said invention has for its object the production of a simple and durable machine, with certain new features of construction and arrangement, among which is the manner of holding, centering, and rendering the cutting-block removable—without interfering with the cutter-stock—at pleasure; in devices for producing a variable feed of the cutting-block; and in the construction of the cutter-block and its supporting cellular metallic web, so as to avoid warping or unevenness of the cutting surface thereof.

In the accompanying drawing, Figure 1 represents a side elevation of a machine embracing my invention. Fig. 2 represents a front elevation of the same. Fig. 3 represents a top view of the same. Fig. 4 represents a cross-section of the cutting-block and its supporting cellular metallic web. Fig. 5 represents the guide for the cutter-arm, and Fig. 6 a top view of the cast-iron web or grating of the hopper-block with the blocks removed.

Upon one end of a table, A, I arrange a cutting-block, B, on which the material to be chopped is placed. This block is constructed in sections and secured to a metallic web, C, in a manner and for a purpose to be presently described. It is surrounded by a cylindrical case, D, which forms the hopper for the article to be cut. It is supported upon the table by a horizontal ratchet feed-wheel, E, and centered and held in position by an annular rim or flange, *a*, formed upon the bottom of said ratchet-wheel, made to fit and project within an annular opening, *b*, thus constituting a fixed axis for the hopper in the table, as more clearly shown in Figs. 1, 2, and 4 of the drawing, a portion of the table being shown in section for this purpose in Fig. 4. This method of centering and securing the hopper within a circular opening, allows it to be easily removed therefrom to empty the hopper, by simply lifting the front side of the hopper so as to clear the annular rim *a* from the guide or axis-opening *b* in the table, and this tilting also serves to clear the hopper from the nest of cutters when the latter is elevated to its highest point. In this way the hopper can be removed from beneath the cutters and replaced within its central guide-opening in the table with facility. The cutters F are carried by a stock consisting of a cross-head, G, and a series of semi-circular arms, *c*, to the ends of which the cutters F are secured by screw-bolts *d*, while the stock G is secured to the curved end of an arm, H, which is pivoted to a standard, I, at the rear end of the table, so as to impart, when vibrated, a vertically reciprocating motion to the knives within the hopper and upon the feeding-block. The knives may extend entirely across the feeding-block, but it is believed more economical and satisfactory to have them extend from the diameter line to the circumference of the feed-block, as shown in Figs. 1 and 3, as the article being cut tends together at the circumference of the hopper. The cutter-stock has a short vertical arm, *e*, having a slot, through which a screw-bolt, *f*, passes to secure it to the end of the operating-arm H, and also to adjust it to allow the cutters always to touch the surface of the block. The end of the operating-arm H is also provided with a flat branch, *g*, through the ends of which set-screws *h h* pass and bear against the cutter-stock G on either side of the clamp-screw *f*, for the purpose of adjusting the ends of the cutter-stock horizontally to the surface of the cutting-block. This vertical adjustment is of great advantage in keeping the level of the cutters true with the block. The knives F, or their arms, *c*, may be slotted to also admit of being adjusted. In Fig. 4 the knife-block is shown partly finished. It consists of a cast-iron web or grating, C, with an annular outer rim, *i*, and having its interior divided in one direction by vertical ribs *j*, and also divided transversely by similar ribs, *k*, Fig. 6, a greater distance apart than the first ones, so as to form a series of cells, *l*, to receive wooden blocks, *m*, of suitable width, and which project above the ribs *j* to form the cutting-surface. In the figure a portion of the cells is shown without the blocks. The spaces made by the ribs *j* between the blocks above the casting are filled with tightly-fitting wooden wedges *n*, so as to render the whole tight and firm and produce a solid surface. The lower ends of the blocks are supported by projections or lugs *o* at the bottom of the ribs *j* and the rim *i*, and when the casting is filled with these wooden blocks *m* and the wedges *n* are tightly inserted the top is faced off so as to present a smooth and even tiled surface for the

knives to act upon. A very great advantage derived from this tiled surface is its durability, and it is less liable to be cut in ridges than when formed of a single block, and, moreover, avoids warping or unevenness of surface, and swelling or lateral expansion. The annular rim *i* of this cellular casting forms a support for the hopper D outside of the blocks, around which it is fitted. The operating-arm H moves between a fixed guide, J, consisting of two standards secured upon the table so as to embrace the arm H and prevent any lateral motion or twist thereof, or of the cutter-stock, which might otherwise be produced by a resistance on the knife-block greater at one end than the other, thereby insuring a cutting through the material regardless of any unequal resistance at either end of the knife-stock. The devices for imparting a reciprocating motion to the knife-stock arm H, and the intermittently-rotary motion to the knife-block and hopper, consist of a balance or fly-wheel, K, the shaft of which is secured in a hanger, L, on the under side of the table, and which shaft carries a pinion, M, on its outer end, matching with hand-crank cog-wheel N, secured by suitable bearing to the side of the table. The hub of the balance-wheel has an eccentric wrist-pin, *p*, to which a pitman-rod, O, is attached, whose upper end is pivoted to the under side of the arm H of the cutter-stock, and thus the motion of the fly-wheel imparts to the former a vibratory motion. The wrist-pin *p* of the fly-wheel also carries a slotted crank, *q*, shown in Figs. 1 and 2. To this slotted crank *q* a feed-rod, P, is attached by a pin and nut, *r*, exactly in line with the axis of the fly-wheel, said rod being pivoted to or moving in the lower end of a hanger, Q, beneath the table. The upper end of this feed-rod P is attached to the rear end of a ratchet-pawl, R, shown by dotted lines in Fig. 1, whose front end extends round the side of and takes into the ratchet-wheel E, and in this way the vibrations of the feed-rod P are communicated to the knife-block and hopper. This slotted crank *q* forms a variable feed to the ratchet-pawl and knife-block, so that the distance which the knife-block moves at intervals can be regulated as may be desired.

Now, it will be seen that as the slot of crank *q* coincides with the axis of the fly-wheel K, when, therefore, the middle of the length of the slot of the crank *q* is set so as to be in line with the axis of the fly-wheel, and the feed-rod P is attached in the center of the length of said slot, as shown in Fig. 1, no feed motion whatever will be communicated to the ratchet-pawl by the revolutions of the crank *q;* but upon adjusting the feed-rod P to either side of the center of the length of said slot a vibratory motion will be communicated to the feed-rod P in proportion to the distance which the point of attachment of the feed-rod will be out of line with the axis of the fly-wheel, and thus feed the knife-block within its circular bearing a distance equal to the length of the stroke of the ratchet-pawl, which, in the example shown, is arranged to feed upon its back stroke at every revolution of the fly-wheel. An adjustable or variable feed may be thus obtained to suit the fineness of the substance being cut by simply increasing or diminishing the connection of the feed-rod toward either end of the slot of the crank *q*. The feed-rod P, when so adjusted, will necessarily have a slight vertical movement, and to accommodate this it is provided with a slot, or may move within the forked end of its hanger Q. A variable feed can be produced in the same manner as above described by simply adjusting the crank *q* of the feed-rod P on its shaft so that the connecting-pin of said rod will be on either side of the axis of the fly-wheel. The ratchet-pawl E may be provided with a keep or guide on its outer side to hold it in close contact with the ratchet-wheel. The table has an opening to accommodate the action of the pitman O and feed-rod, and the elevation of the knives by the action of the pitman must be sufficient to allow them to clear the material when the block is turned. For this purpose the several parts are adjusted so that half a revolution of the fly-wheel will carry the knives to their greatest point of elevation, while a completion of the revolution will carry the knives to their lowest point of descent and in contact with the surface of the block, at which point of contact the block must be at rest.

It is obvious that the intermittent feed of the cutting-block may be produced by extending the arm of the ratchet-pawl further back and attaching it to a connecting-rod, whose other end may be secured directly to the wrist-pin *p* of the fly-wheel. An intermittent and adjustable feed can also be obtained by slotting the pitman, connection being made to feed-rod P at a bearing on the table with the ratchet-pawl.

Having described my invention, I claim—

1. The intermittently-rotating cutting-block B, centered and held within an annular opening, *b*, in the table by means of an annular rim, *a*, and by which the cutting-block and hopper are also rendered removable at pleasure, as described.

2. The metallic cellular web C, constructed with interior division-ribs *j* and an inclosing confining-rim, *i*, for holding and confining a sectional cutting-block for meat and vegetable-cutters, as described.

3. A cutting-block for meat and vegetable cutters, made in sections *m*, secured in separate cells *l*, and locked in position by wooden wedges *n*, as and for the purpose described.

4. The slotted or adjustable crank *q*, in combination with the feed-rod P, the ratchet-pawl R, and the ratchet-wheel E, for producing an adjustable or variable feed to the cutting-block, as described.

5. In a meat-and-vegetable cutting apparatus, the combination of the cutting-block B, constructed as described, the metallic cellular web C, the annular centering-rim *a*, the cutter-stock G *c*, the vibrating carrying-arm H, and the variable feed devices, the several parts being constructed, arranged, and operating as described.

MARTIN L. EDWARDS.

Witnesses:

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