J. A. HARD.

Meat-Choppers.

No. 137,074. Patented March 25, 1873.

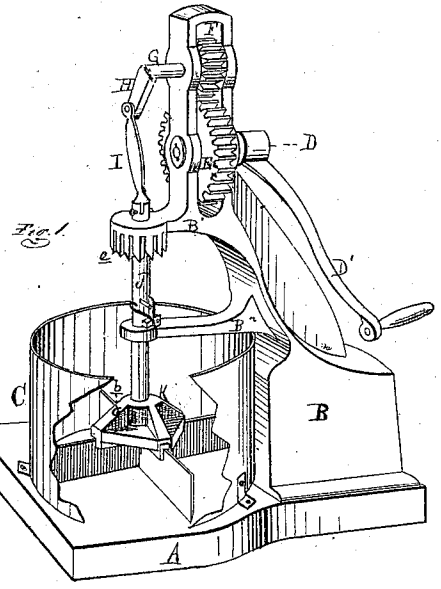

Fig. 1.

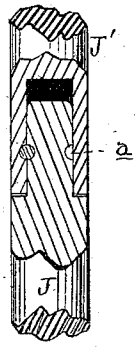

Fig. 2.

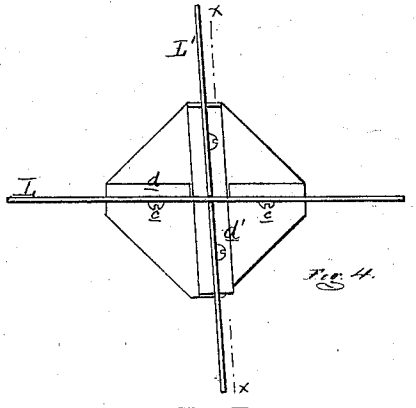

Fig. 4.

Fig. 5.

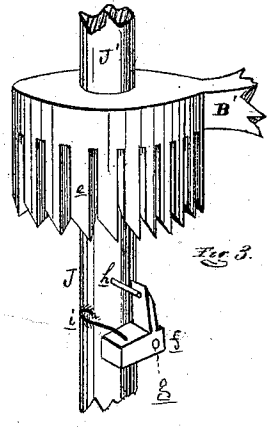

Fig. 3.

ATTEST:
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UNITED STATES PATENT OFFICE.

JOSIAH A. HARD, OF LAWRENCE, KANSAS.

IMPROVEMENT IN MEAT-CHOPPERS.

Specification forming part of Letters Patent No. **137,074**, dated March 25, 1873.

To all whom it may concern:

Be it known that I, JOSIAH A. HARD, of Lawrence, in the county of Douglas and State of Kansas, have invented a new and useful Improvement in Meat-Choppers; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon and being a part of this specification, in which—

Figure 1 is a perspective view of my improved meat-chopping machine. Fig. 2 is a partial longitudinal section of the upper end of the rotary stem. Fig. 3 is an enlarged detail of the escapement. Fig. 4 is a bottom plan of the knives and their head-piece, and Fig. 5 is a cross-section of the same on *x x*.

Like letters refer to like parts in each figure.

The nature of my invention relates to an improvement in the construction of machines for chopping and mincing meat; and has for its object to provide the reciprocating knife-spindle with a partial rotative movement at each stroke, and an improved form of knife-head with one or more detachable knives. The invention consists, first, in a peculiar form of escapement for rotating the knife-spindle during its reciprocation; second, in the peculiar construction of the knife-head; also, in the general arrangement of the various parts, as more fully hereinafter set forth.

In the drawing, A represents a wooden base or bed-plate, from which rises a cast-iron frame-bracket, B, and in front of which a meat-cylinder, C, is placed on the bed-plate. From the face of the frame two brackets, B^1 B^2, project horizontally over the meat-cylinder, and their extremities are bored to receive the reciprocating knife-spindle. The upper part of the main bracket is an open frame, in which the main shaft D, driven by a crank, D′, is journaled. This shaft carries a spur-gear, E, which meshes with and gives motion to a pinion, F, on a shaft, G, journaled in the top of the frame. The shaft G carries a crank, H, to whose wrist is pivoted the upper end of a connecting-rod, I, whose lower end is pivoted to the upper end of the knife-spindle J, which plays through the ends of the brackets B^1 B^2, being rapidly reciprocated in its bearings by the rotation of the crank D′. The upper end of the stem or spindle J is cut in two, the upper extremity J′ forming a socket to receive a reduced end of the main spindle, which has a groove turned in it. The spindle being inserted in the socket, it is retained therein by two pins, *a a*, driven through transversely-drilled holes in the socket and the groove of the spindle, connecting the two parts of the spindle together, but allowing the lower part to have a free axial rotation, which rotary movement I produce in the manner hereinafter described. To the lower end of the spindle J I attach a knife-head, K, by means of a pin, *b*, passing through its hub and the lower end of the spindle, which is inserted therein. The socket in the hub is made slightly oval, so as to allow the head to have a limited oscillation on the pin *b* as its axis, in order to avoid bringing the knife squarely down upon a bone which may be present in the meat, and thus damage the knife, which may then glance upon and move the bone aside. The head may have one or two knives attached to it, crossing each other at right angles. The stationary knife L is fastened by two bolts, *c*, to a rib, *d*, pendent from the under side of the head, the direction of this rib being at a right angle with that of the pin *b*. If a second knife, L′, be used the knife L is slotted at the center half-way down from the back, while the knife L′ is slotted at the center from the edge half-way up, so that the knives are joined together in the form of a cross. To the back of the knife L′ is bolted a stiffening-web, *d*′, which is received in a groove in the under side of the head, and thus gives this knife the requisite stiffness. The rib *d* is cut at the middle to allow the web *d*′ to enter the groove. At each stroke of the knife-spindle it is partially rotated by means of the peculiar escapement shown, which consists of a circular row of crown-teeth, *e*, pendent from the end of the bracket B^1, their lower ends being all beveled in one direction. *f* is a bell-crank pallet, pivoted on a pin, *g*, projecting from the spindle J, its upper arm being caught by a stop-stud, *h*, projecting from the spindle and supporting it in an inclined position. The weight of the horizontal arm throws it into this position; but a light spring, *i*, may be employed in addition to insure that result. The point of the vertical arm of the pallet is beveled in the opposite direction to the bevel of the teeth *e* above.

When the spindle is raised the point of the pallet strikes the slope of the tooth *e*, and passes up between it and the back of the next tooth. As soon as the thicker part of the pallet passes between the two teeth, the space between them being just wide enough to receive it necessitates its taking a vertical position, which it can only assume by rotating the spindle on its axis, which it does. As soon, in the downstroke, as the pallet clears the teeth *e*, the weight or the spring, or both, cause it to resume its inclined position, ready to enter the space between the next pair of teeth in the succeeding upstroke.

The continued rotation of the knife-head and spindle assures a uniform action of the knives upon the meat, which will be minced to uniform fineness.

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

1. The construction and arrangement, with relation to the spindle J, of the oscillating head K and knives L L′ secured thereto, in the manner and for the purpose set forth.

2. The crown-teeth *e* on the bracket B^1, and the pallet *f* and stud *h* on the spindle J, for imparting to the latter an axial rotation during its reciprocation, substantially as shown and set forth.

Witnesses: JOSIAH A. HARD.
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