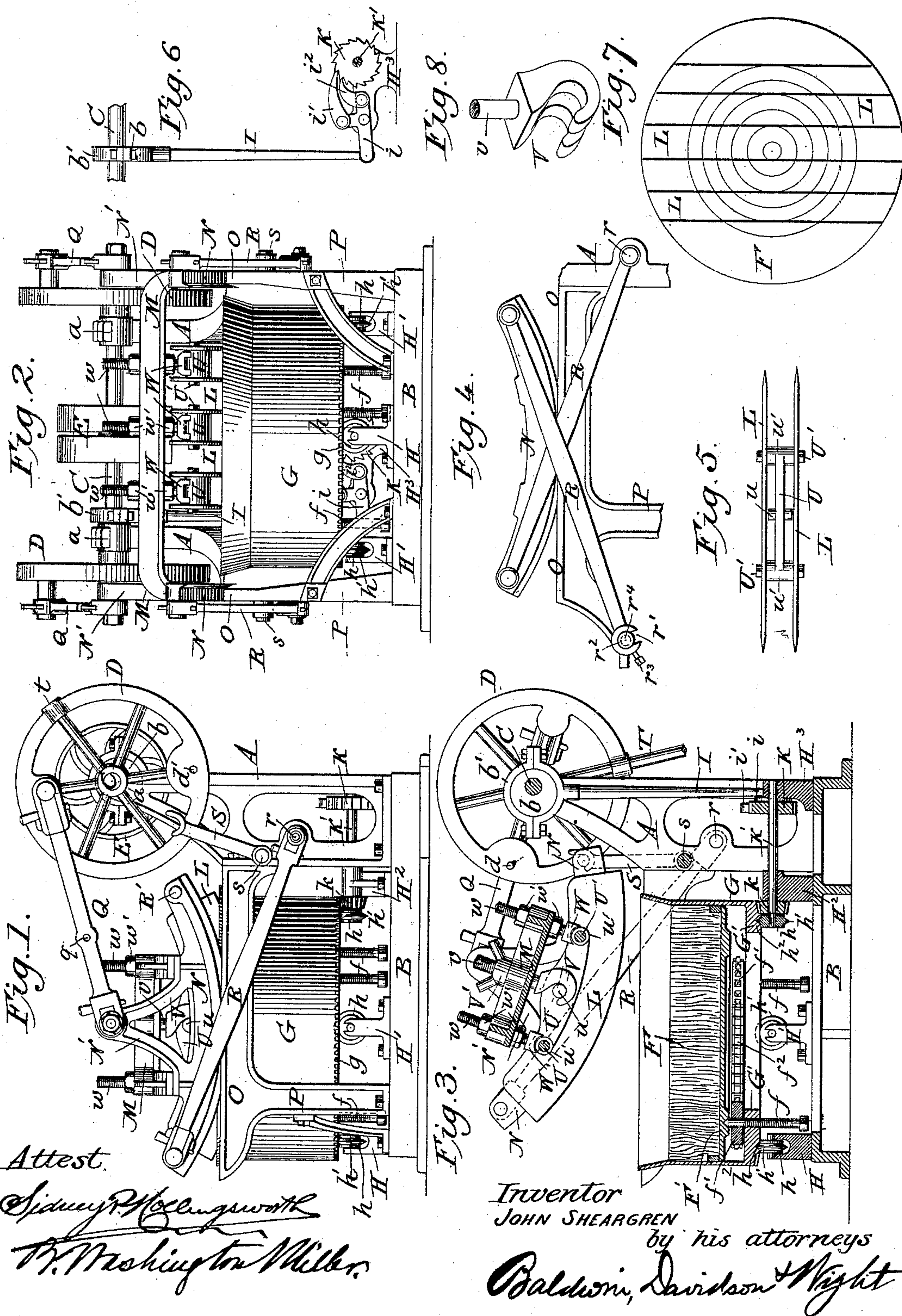


J. SHEARGREN.
MEAT CHOPPING MACHINE.

Patented Feb. 3, 1891.



UNITED STATES PATENT OFFICE.

JOHN SHEARGREN, OF BURLINGTON, IOWA.

MEAT-CHOPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 445,823, dated February 3, 1891.

Application filed August 26, 1890. Serial No. 363,157. (No model.)

To all whom it may concern:

Be it known that I, JOHN SHEARGREN, a citizen of the United States, residing at Burlington, in the county of Des Moines and State of Iowa, have invented a certain new and useful Meat-Chopping Machine, of which the following is a specification.

The most approved class of meat-chopping machines is that in which rocking knives are employed in conjunction with rotating chopping-blocks.

My invention relates to machines of this kind; and it consists in certain improvements both in the construction and operation of the chopping-block and the construction and operation of the knives.

My improvements are hereinafter specifically designated, and are illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of a meat-chopping machine embodying my improvements; Fig. 2, a front view; Fig. 3, a sectional side view; Fig. 4, a detail view showing one of the rockers and the rods for regulating its movement in side elevation. Fig. 5 is a top view of a pair of knives; Fig. 6, a detail view of part of the mechanism rotating the chopping-block; Fig. 7, a diagram illustrating the position of the knives relatively to the center of the chopping-block; and Fig. 8 is a detail view in perspective of the bifurcated hook for connecting a pair of knives to the knife-carrying frame.

Standards A, secured to the bed-plate B, support in journaled boxes a the main driving-shaft C, carrying at each end a crank-wheel D and between the crank-wheels pulleys E. An eccentric b is also secured to the driving-shaft, and is employed to operate the mechanism which imparts a rotating motion to the chopping-block, and will be hereinafter described. The chopping-block F is arranged within a tank or metallic casing G, circular in horizontal cross-section, and having a continuous series of teeth g on the bottom around its edge.

Rollers h, mounted in uprights H H' H², secured to the bed-plate, support the tank, and preferably, as shown, the rollers have tapered flanges h' on their peripheries, which enter a correspondingly-shaped circular

groove h², extending around the bottom of the tank. By this arrangement the tank is held in position against lateral movement relatively to its axis; but it is free to revolve around it. The block F may be adjusted vertically within the tank G by the set-screws f, which extend through the annular bottom G' of the tank and enter recesses in the metallic disk F' on the bottom of the block. Preferably the adjusting-screws are connected so that when one screw is adjusted the others will be correspondingly moved. This is done by securing a small sprocket-wheel f' to each screw between the bottom of the chopping-block and the bottom G' of the tank and connecting them, so as to move coincidently, by a chain f². By this arrangement the block may be raised and lowered within the tank quickly and uniformly, so as to always maintain its surface in a true horizontal plane.

The tank is rotated step by step in the following manner: A pitman I, secured to an eccentric-strap b', surrounding the eccentric b, extends downwardly therefrom, and at its lower end is pivotally connected to a short rocking lever i, pivoted to an upright H³ on the bed-plate. This lever carries two pawls i' i², which engage with a ratchet-wheel K, secured to a shaft K', journaled in the uprights H² H³ and carrying a pinion k, meshing with the teeth g on the bottom of the tank. As the driving-shaft C is revolved the ratchet-wheel K is intermittently actuated and the tank is caused to rotate on the rollers h. The mechanism is so arranged that the tank is advanced a step each time the rocking knives reach the limit of their movement in one direction. The chopping-knives L are of the well-known arc shape or rocker variety, and are secured to a knife-carrying frame M, located above them. The frame M is secured at its opposite ends to a pair of rockers N, having an arc shape corresponding approximately with the knives and resting on straight horizontal rails O, having standards P, and secured to the uprights A on opposite sides of the tank. The rockers have upwardly-projecting arms N', connected on each side by a pitman Q to the corresponding crank-wheel D. As the driving-shaft and crank-wheels are revolved the rockers are oscillated and a correspond-

ing movement is given to the knives secured to the knife-carrying frame M, which in turn is secured to the rockers.

In order to give a slight longitudinal movement to the knives, or a "draw" over the frame of the block, a rod R on each side of the machine is pivotally connected at one end to one end of the corresponding rocker, and the opposite end of the rod is pivotally connected at *r* to the standard A. The length of the rod R is somewhat greater than that of the radius of the arc of the rockers and the knives, and consequently as the rockers are oscillated they are caused to move longitudinally on the rails O, so that the knives are caused to work more effectively in mincing the meat in the tank.

Instead of using two rods, one on each side of the machine, I may employ two rods on each side crossed and connected, as shown in Fig. 4, and the rods connected to the rear ends of the rockers may be made detachable at their lower ends, so that the knives may be raised away from the chopping-block, as shown in Fig. 3. Any suitable detachable fastening may be employed. As shown, the lower end of the rod is slotted at *r'* and fits over a sleeve *r''*, to which it is secured by a set-screw *r'''*, the sleeve being free to revolve on the pin *r''''*, secured to the main frame. The rods R not only cause the longitudinal movement of the knives, but also hold them down to their work in a most efficient manner.

The knives may be raised away from the block and out of the tank by inserting a pin *d* through an aperture *d'* in the rim of the crank-wheel D and a corresponding aperture *q* in the pitman Q, thus locking the wheel and the pitman together. By then turning the wheel to the right, as viewed in the drawings, the knives may be elevated to the position shown in Fig. 3, and may be held elevated by rods S, pivoted at *s* on opposite sides of the standards A and adapted to engage with the rockers, preferably with the pivots *R'*, which connect the rockers with the arms R.

To turn the wheel D in raising the knives, I may employ a rod or handle T, which fits in an aperture *t* in the rim of the wheel. The knives L are preferably arranged in pairs. They are all equidistant from each other; but no two of them are the same distance from the center of the chopping-block. This arrangement is shown in the diagram Fig. 7, in which I illustrate the knives and F the chopping-block. The center of the block is shown by the smallest circle, and larger circles with the same center, equally distant apart, serve to show at a glance the position of the knives relatively to the center of the block. By this arrangement of the knives a more perfect mincing of the meat is effected. Each pair of knives is secured to an intermediate connecting-plate U. The connecting-plate U is made of metal of somewhat the same general form as the knives, but much smaller. It is

perforated transversely at opposite ends, and midway between the ends is provided with studs *u*, projecting in opposite directions. Hollow studs *u'*, registering with the perforations in the ends of the plate, also project in opposite directions from each end of the connecting-plate. Bolts *U'* extend through the hollow studs at each end of the plate and through the knives on opposite sides of the plates. By means of clamping-nuts the pair of knives is firmly connected to the intermediate connecting-plate U, and the hollow studs at each end of the plate serve to hold the knives at a proper distance apart. Each pair of knives is connected to the knife-carrying frame M by a bifurcated hook V, engaging with the studs *u*. The hook has a screw-threaded shank *v* extending through the bottom of the frame M, and by means of an adjusting-nut *V'* the knives may be drawn toward the frame. The upward movement of the knives is, however, limited by bifurcated abutment-blocks W, which bear on the hollow studs *u'* at the ends of the plate U. The under sides of the abutment-blocks are curved and neatly fit the studs *u'*. The screw-threaded shanks *w* of the abutment-blocks extend through the bottom of the frame M and carry nuts *w'* both above and below the frame, by which means the blocks may be adjusted toward and from the frame to any desired extent. By this arrangement a strong and secure connection may be made between the knives and the frame.

Any pair of knives may be readily detached from the knife-carrying frame by simply unscrewing the nut *V'* until the blocks W are separated from the hollow studs *u'*, when the studs *u* may be lifted out from the bifurcated hook V.

The apparatus herein described is simple and efficient; but changes in the details of construction may be made without departing from the novel features of my invention.

Some parts of the apparatus may be embodied in machines differing in construction as to other features.

I claim as my own invention—

1. The combination, substantially as hereinbefore set forth, of the chopping-block, the stationary rails or supports, the arc-shaped rockers, the knives, the knife-carrying frame secured directly to the upper faces of the rockers, and means, substantially as described, for imparting oscillation to the rockers and knives.

2. The combination, substantially as hereinbefore set forth, of the chopping-block, the rockers, the knife-carrying frame, and the rods longer than the radius of the rockers and pivoted to the frame and the rockers, whereby a draw or longitudinal movement is given to the knives.

3. The combination, substantially as hereinbefore set forth, of the chopping-block, the rockers, the knives, the knife-carrying frame connected with the rockers, and the crossed

rods pivoted to the rockers and the main frame, whereby the knives are held down to their work and given a longitudinal movement or draw relatively to the chopping-block.

5 4. The combination, substantially as here-
inbefore set forth, of the rotating chopping-
block, the knife-carrying frames, and the
knives, each of which is at a different distance
10 from the center of the chopping-block, means
for rotating the block, and mechanism for op-
erating the knives.

15 5. The combination, substantially as here-
inbefore set forth, of the chopping-block, the
knives, their connecting-frame, the main driv-
ing-shaft, the crank-wheels, the pitman con-
necting the crank-wheels with the knife-car-
rying-frame, devices for connecting the pit-
man with the rim of a crank-wheel, and the
pivoted rods which hold the knives elevated.

20 6. The combination, substantially as here-
inbefore set forth, of the chopping-block, the
knife-carrying frame, the knives arranged in

pairs, the intermediate connecting-plate be-
tween each pair of knives, and the bifurcated
hook engaging with the connecting-plate. 25

7. The combination, substantially as here-
inbefore set forth, of the knife-carrying frame,
the knives arranged in pairs, the intermedi-
ate connecting-plate arranged between each
pair of knives and formed with hollow studs 30
on opposite sides of each end and with inter-
mediate oppositely-projecting studs, a bifur-
cated hook adapted to engage with the inter-
mediate studs and having a screw-threaded
shank extending through the knife-connect- 35
ing frame, the abutment-blocks adapted to
engage with the studs at opposite ends of the
connecting-plate, and the adjusting-nuts for
the shank of the hook and the shanks of the
abutment-blocks.

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Witnesses:

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