(No Model.)

T. COLDWELL.

SLICING MACHINE.

No. 470,987. Patented Mar. 15, 1892.

Fig. 1.

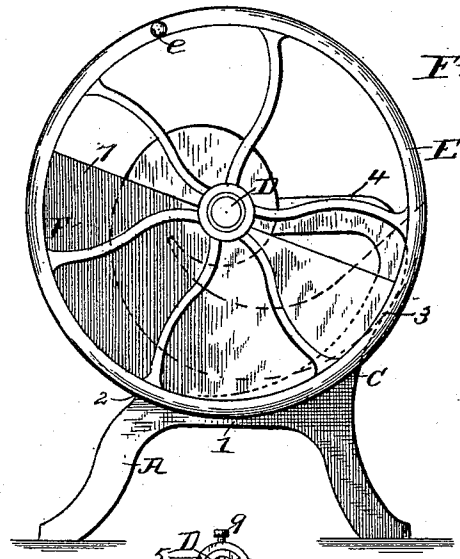


Fig. 2.

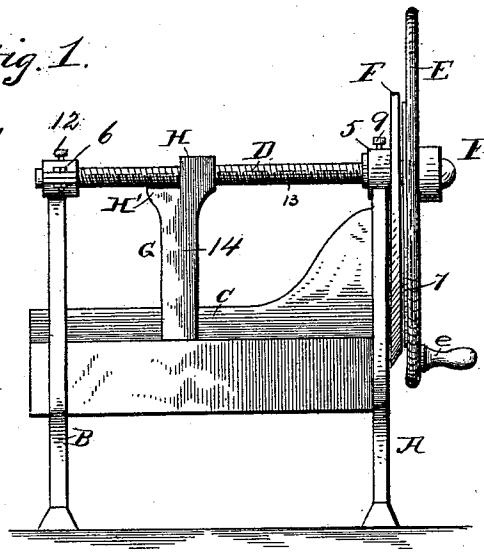


Fig. 3.

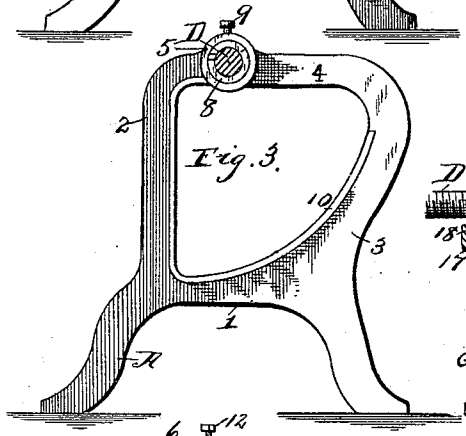


Fig. 4.

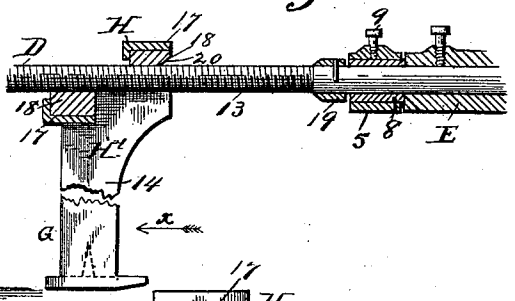


Fig. 5.

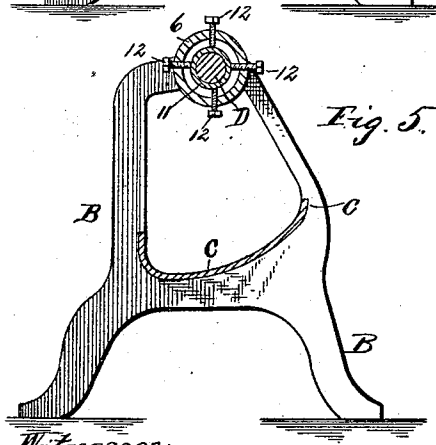
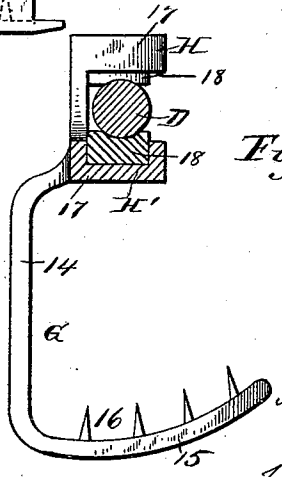


Fig. 6.



Witnesses:
J. B. McGirr.
H. N. Low

Thomas Coldwell
Inventor.
by J. S. Barker
his Atty.

UNITED STATES PATENT OFFICE.

THOMAS COLDWELL, OF NEWBURG, NEW YORK.

SLICING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,987, dated March 15, 1892.

Application filed September 23, 1891. Serial No. 406,576. (No model.)

To all whom it may concern:

Be it known that I, THOMAS COLDWELL, a citizen of the United States, residing at Newburg, in the county of Orange and State of New York, have invented certain new and useful Improvements in Slicing-Machines, of which the following is a specification.

My invention has for its object to improve meat-cutting machines, such as are used for the slicing of dried beef; and it consists of improvements in construction of a machine of this kind, as will hereinafter be pointed out.

In the drawings, Figure 1 is a front end elevation of a machine embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is an end elevation of the front end frame, the main shaft being shown in section. Fig. 4 is a longitudinal sectional view taken through the shaft. Fig. 5 is a rear elevation, and Fig. 6 is a detailed view, of the feeding-carriage.

In the drawings, A designates the front end frame; B, the rear end frame, and C the intermediate trough-like support for the meat. The front frame is skeleton-shaped, having the lower portion 1 situated between the legs, the upright part 2, the inclined part 3, and the top piece 4, these parts surrounding an opening which in general outline is of triangular shape with one curved side, this being formed by the parts 1 and 3 of the frame. Near the junction of the two parts 2 and 4 there is formed a circular bearing 5.

In the cross-section the trough C is of substantially the shape of the opening between the parts 1, 2, 3, and 4 of the front end frame, which approximates the shape into which the pieces of beef are cut before being sliced. The side of the trough C which joins onto the part 3 of the front frame slopes downward toward the rear, as shown in Fig. 2, it not being necessary that it should be carried up so high at the rear as it is at front, where it supports and holds in place the meat against the action of the knife.

D represents a shaft, which is supported near one end in the said bearing 5 and at its opposite end in a bearing 6, carried by the rear frame-piece B. To the forward end of this shaft is secured the wheel E, which carries the blade or cutter F, such blade being set off from the wheel and adapted to shear against the curved edge 10 of the end frame formed by the parts 3 and 1. The wheel is provided with a handle *e* and is weighted on the same side of its axis as that to which the knife is secured for the purpose of assisting in slicing the meat, the gravity of such weight tending to carry the blade through the meat. This weight I prefer to arrange in the form of a web 7, of metal, situated between the rim of the wheel and the hub and of a size equal to a segment of a one-third or one-half a circle. It operates not only as a weight, but also as a shield or guard to prevent the slices of meat cut by the knife from getting into the spokes of the wheel.

I prefer to make the opening through the bearing 5 of such size that a split bushing 8 can be inserted therein, which will form the bearing proper for the shaft, and is held in place by a set-screw 9 passing through the bearing 5. This form of bearing provides means for taking up any wear of the shaft which may occur, as by the screw 9 the bushing can be made to fit the shaft. It also allows the adjustment of the knife F longitudinally toward or from the cutting-edge 10 on the end frame. In practice the end of the bushing next the hub of the wheel E extends out somewhat beyond the end of the bearing 5, so that if it be desired to move the knife F a little closer to the edge 10 than it has been it is only necessary to loosen the screw 9 and drive the shaft D and wheel toward the rear end of the machine. This will force with them the bushing 8, and when the wheel and knife have been moved to the proper position the screw 9 is tightened upon the bushing, which then holds the shaft against longitudinal movement, while allowing it to turn. It will be observed that the bushing 8 is held upon the shaft against longitudinal movement, being arranged between the hub of the wheel E and the sleeve 19, which are fixed to the shaft.

The bearing 6 in the rear frame B is of such size that there is left more or less space all round between its inner surface and the outer surface of a bushing 11, in which the rear end of the shaft D is held, this bushing being supported upon the ends of the adjusting-screws 12, which hold it away from the bearing. There are three or four of these screws 12,

and by means of them it is possible to angularly adjust the shaft and with it the wheel E, carrying the knife, so that the blade F can be made to shear close to the cutting-edge 10 throughout the whole length thereof. Without such an adjustment the blade might move close to the edge 10 in one part of its path and farther therefrom in another, so that it would cut imperfectly; but by arranging the adjusting devices described at the rear end of the shaft I am enabled to obtain a very delicate angular adjustment of the knife.

The shaft D is screw-threaded, as as 13, throughout that portion of its length situated above the trough C, this screw serving to move forward the feeder or carriage G for the meat as the shaft is turned. The carriage G is suspended from the screw-shaft D and moves above the bottom of the trough C, feeding forward the meat to the cutter. It consists of a substantially vertical arm 14, depending from the nut which engages the screw, and a curved horizontally-extending plate 15, provided with means for engaging with the meat, such as the centrally-arranged row of spikes or pins 16. The nut carried by the carriage, and which engages with the screw-threads 13, is formed in two parts H and H′, which engage, respectively, with the upper and lower sides of the screw, the upper part being arranged in advance of the lower one—that is, nearer the front end of the machine.

The nut-sections are formed of boxes 17, in which are secured wooden blocks or linings 18, the wooden blocks being so arranged that they only shall engage with the screw. I have found that it is not necessary to cut threads in the wooden blocks before the nuts are made to engage with the screw, as the threads of the screw cut into the wood and form the screw-threads of themselves.

By making the nut in two sections H and H′, arranged as described, I insure a positive feed, which holds the beef up against the knife during the cutting operation. When the knife engages with the meat, its tendency is to force it backward, and thus to rock the feeder G in the direction of the arrow *x* in Fig. 4. The result of this, however, is that instead of rocking the feeder-carriage the nut-sections are caused to grip the shaft more tightly, the section H′ being forced upward against the under face of the screw and the section H drawn downward upon the top thereof, thus insuring a firm engagement with the shaft and a positive feed even when there is a tendency to retard or force backward the meat. By making the nut in sections, as described, it is also possible, when desired, to easily disengage them from the screw-shaft. This is done by tipping the feeder-carriage in the direction the reverse of that indicated by the arrow *x*, and as a result the feeder is free to be moved to any part of the trough desired. The nut-sections can be made to again engage with the screw-shaft by merely allowing the carriage G to assume its natural position, its weight serving to hold the nut in operative engagement with the shaft.

In order to automatically throw off or disengage the nut from the screw-shaft when it has moved the carriage forward as far as it is desirable it should go, I secure to the shaft D, near its forward end, a sleeve 19, having a tapering rear end. The upper nut-section H is cut away at 20 at its front edge next to the screw-shaft. When the carriage is fed forward to its limit of movement, the nut-section H comes in contact with sleeve 19, the tapering end of which, entering the recessed or cut-away portion 20 of the nut-section H, lifts it from engagement with the shaft, tipping the carriage in the direction the reverse of that indicated by the arrow *x*, and by thus disengaging the nut from the screw stops the feeding of the carriage. It will thus be seen that it is impossible to feed the carriage so far forward that the knife will strike it.

The machine which I have described is very simple in construction and operation, is not liable to get out of repair, and is almost noiseless in its work.

It is evident that various parts of the machine may be variously modified without departing from the essential features of my invention, and that certain parts of the invention are applicable to machines different from the one herein described, and illustrated in the drawings.

What I claim is—

1. In a slicing-machine, a wheel carrying a knife and having a web arranged between its rim and hub opposite the knife, substantially as set forth.

2. The combination of the end frame-piece provided with the bearing 5, a shaft on which is supported a cutter, a split bushing mounted in the said bearing, means for holding the bushing upon the shaft against longitudinal movement, and a set-screw for holding the bushing in the bearing, substantially as set forth.

3. In a slicing-machine, the combination of the stationary cutting-edge, a rotary cutter which shears against such edge, a shaft from which the cutter is supported, and means for angularly adjusting the shaft in order to cause the revolving cutter to properly shear against the stationary cutter, substantially as set forth.

4. In a slicing-machine, the combination of the stationary cutting-edge, the rotary cutter, the shaft by which the cutter is supported, the bushing in which the rear end of the shaft is mounted, the bearing 6, in which the bushing is mounted, and the adjusting-screws 12, mounted in the said bearing and bearing against the bushing, substantially as set forth.

5. In a slicing-machine, the combination of a screw-shaft, a feeding-carriage, and the nut connected with the carriage and made in sec-

tions which engage the screw-shaft, one section being arranged in advance of the other and upon opposite sides of the screw-shaft, substantially as set forth.

6. A feeding-carriage for a slicing-machine, consisting of the nut-sections H and H′, formed of the metallic boxes with wooden linings, the vertical arm depending from the said nut-sections, and the horizontally-extending plate, substantially as set forth.

7. In a slicing-machine, the combination of the cutter, the feeding-screw, the carriage provided with the nut made in two sections, one arranged in advance of the other, and a throw-off arranged in the path of one of the said nut-sections, whereby the nut is disengaged from the shaft when it is fed to a certain position, substantially as set forth.

8. In a slicing-machine, the combination of the cutter, the feeding-screw, the feeder-carriage suspended from the said shaft, the nut-sections H and H′, the one H being arranged above the screw and in front of the other section H′, which is arranged below the screw, and the collar 19 upon the screw, substantially as set forth.

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

THOMAS COLDWELL.

Witnesses:

WM. H. COLDWELL,

HOWARD THORNTON.