(No Model.) 2 Sheets—Sheet 1.

T. & W. H. COLDWELL.

SLICING MACHINE.

No. 508,206. Patented Nov. 7, 1893.

Fig. 1.

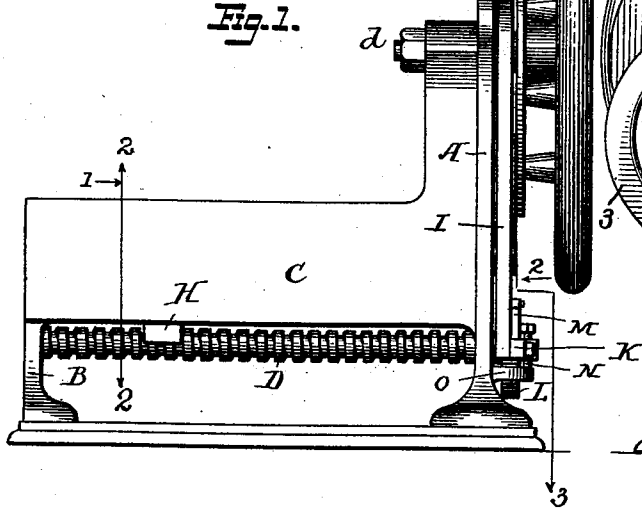


Fig. 2.

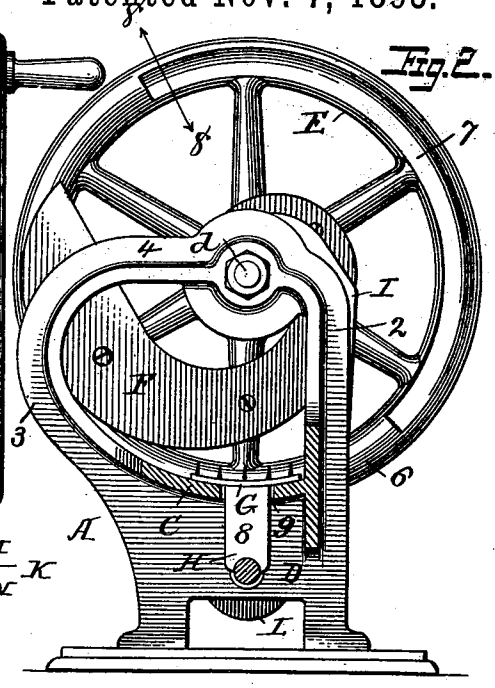


Fig. 3.

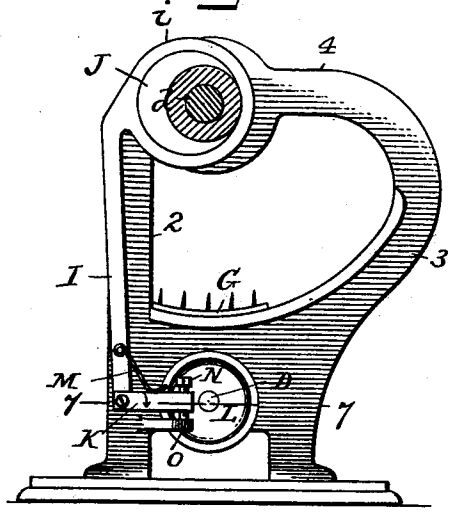


Fig. 8.

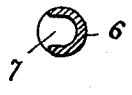


Fig. 6.

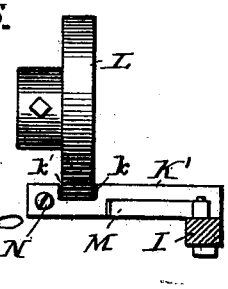
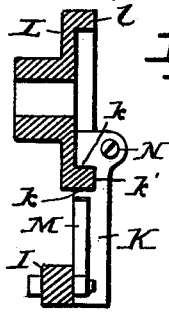


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

T. & W. H. COLDWELL.

SLICING MACHINE.

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Fig. 4.

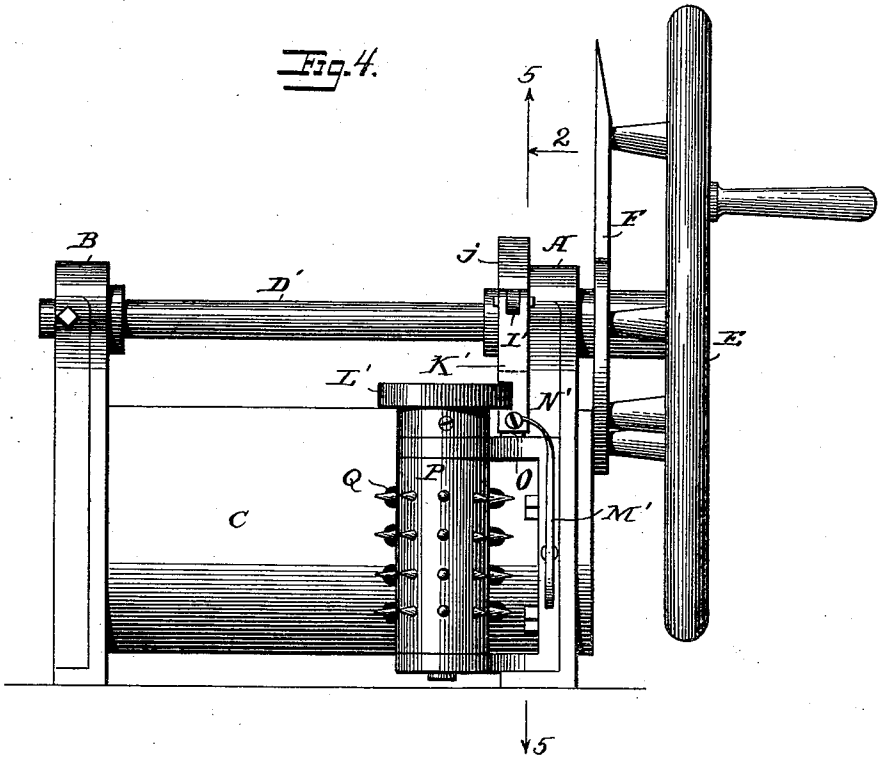
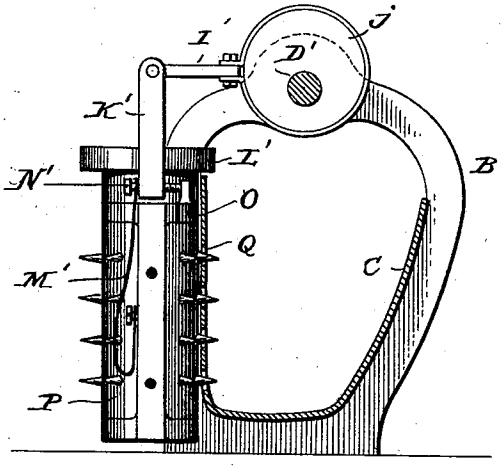


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS COLDWELL AND WILLIAM H. COLDWELL, OF NEWBURG, NEW YORK.

SLICING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 508,206, dated November 7, 1893.

Application filed June 25, 1892. Serial No. 437,963. (No model.)

To all whom it may concern:

Be it known that we, THOMAS COLDWELL and WILLIAM H. COLDWELL, citizens 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.

Our invention has for its object to improve machines adapted for the slicing of various materials, but more particularly intended for the slicing of dried beef; and it consists of an improved adjustable intermittent feeding device, which we use in connection with the slicing machine,—but which is also adapted to be used upon machines of various kinds,—and also in improvements in the slicing machine itself.

Figure 1 of the drawings is a side view of a slicing machine embodying our invention. Fig. 2 is a cross section on the line 2, 2, of Fig. 1, looking in the direction indicated by the arrow, 1. Fig. 3 is a sectional view on the line 3—3 of Fig. 1, looking toward the rear of the machine. Fig. 4 is a side view of a slicing machine embodying other features and forms of our invention. Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4 looking in the direction indicated by the arrow 2. Fig. 6 is a plan view partly in section indicating a different form of the intermittent clutch feeding device from that shown in the figures already described. Fig. 7 is a sectional view taken on the line 7—7 of Fig. 3. Fig. 8 is a cross sectional view of the rim of the weighted wheel, taken on the line 8—8 of Fig. 2.

The frame-work of the machine consists of the front piece A and the trough-like portion C in which the article being sliced is placed, this being supported at its rear end by the standard or foot-piece B. In making this frame we prefer to cast the front piece A and the trough-like support in one piece thereby effecting a saving in the cost of construction. The front piece is formed with the standard 2 rising from one side of the base thereof, and with a cross piece 4 extending from the top of the standard to the other side 3 of the end piece. These portions, 2, 3, and 4, of the front piece inclose a space above the meat support C, through which meat is fed to be acted upon by the knife.

d is a shaft projecting outward from the cross piece 4, near its junction with the standard 2, upon which the wheel E that carries the cutting blade F is mounted. The wheel is weighted upon the same side of its axis as that upon which the knife is situated, for the purpose of assisting in slicing the meat, as the gravity of the wheel thus weighted acts, as the knife is passing through the meat, to overcome the resistance offered thereby. This weighting of the wheel we effect by making that portion of the rim, 6, which is on the side of its axis opposite the knife, hollow or shell-shaped, as at 7,—Figs. 2 and 8,—while the other portion thereof is solid.

D Figs. 1, 2, and 3 is a feeding screw,—preferably arranged below the support C,—and G is a sliding feeder for the meat or other article being sliced. The feeder may be of any desired kind, and, when made as shown in Fig. 2,—has a shank or stem 8 which projects through a slot 9 in the support C and carries a nut H that engages with the screw.

The screw shaft is turned, so as to move the feeder, by means of our improved intermittent clutch feeding device, which in turn is actuated by connections between it and the wheel.

We will first describe the form of feeding device shown in Figs. 1, 2 and 7. L is a disk on the end of the screw shaft, and with a flange *l* projecting from the edge of the disk a clutch or gripping piece K is arranged to engage. This gripping piece is pivotally secured to a reciprocating rod I, and has two opposed gripping or clutch faces, *k*, which are preferably formed by making a comparatively deep and narrow, angular recess K′ in one side of the clutch piece, the opposite walls of the recess constituting the gripping or clutch faces. The reciprocating rod I has at its upper end a strap *i* which surrounds an eccentric J formed with or secured to the hub of the wheel E, and which operates to give motions to the rod. M is a spring bearing upon the clutch or gripping piece K and tending to rock it on its pivot in the direction of the arrow in Fig. 3. The space between the gripping faces *k* is such that when they are

parallel with the side faces of the flange of the disk L they are free to move independently of each other; but when the gripping piece is rocked on its pivot so that the faces *k* are at an angle at the edge faces of the disk, then the latter are gripped by the faces *k* of the gripper;—and so long as they continue in this position, one of the parts cannot move without the other. From this it follows that the spring M, by rocking the gripping or clutch piece, causes the latter to engage the disk L. It will now be understood that when the rod I is moved upward it carries the gripping piece with it, and this in turn moves the disk L a partial revolution, being held in engagement therewith by the spring M. On the other hand when the rod I moves in the reverse direction, it travels in the same direction as the spring M tends to carry the free end of the gripping piece, and therefore the latter slides upon the disk without moving it. Under some circumstances gravity might be depended upon to keep the piece K in proper engagement with the disk, but ordinarily we prefer to use the spring.

In order that the extent of the movement imparted to the shaft by the intermitting feed device just described may be regulated, we make use of an adjustable stop, whereby the effective movement of the clutch or gripping piece may be varied. This stop consists, by preference, of a screw N having a bearing in the clutch piece K, and arranged so that its end comes in contact with a stop or abutment O projecting from the frame of the machine, and thereby arrests the backward motion of the free end of the gripping piece to a greater or less extent. It will be seen that when the end of the screw N,—upon the downward movement of the rod I,—comes in contact with the stop O, the free end of the piece K is stopped while the end connected with the rod continues to move forward,—thus resulting in rocking the piece backward against the action of the spring until its grip upon the disk L is released. On the return or upward movement of the rod the clutch or gripping piece remains inactive and does not grip the disk to move it until the screw leaves the abutment. The sooner,—in the downward movement of the rod I,—the screw comes in contact with the stop or abutment, the greater will be the extent of the inactive movement of the gripping piece, and the shorter will be the movement imparted to the screw shaft.

It will be evident that the screw might be mounted in the abutment, and be arranged to bear against the end of the piece K.

In Figs. 4 and 5 we have shown our improved intermittent adjustable feeding device applied to a slicing machine having a feeder for the meat different from that heretofore described. In this figure D′ represents the shaft upon which the wheel E is secured. It extends over the meat support C, and is mounted in bearings in the front and rear end pieces, A and B respectively. The meat or other article to be sliced is fed forward by a vertically arranged feeder P having teeth which project through an opening or openings Q in the side wall of the support C. L′ is the disk arranged at the upper end of the shaft of the feeder P, and K′ is the clutch or gripping piece which engages with the edge thereof. This piece is pivotally secured to the rod I′, which is provided with a strap *j* that surrounds an eccentric upon the shaft D′. M′ is the spring which tends to move the free end of the piece K′ inward or backward, and N′ is the adjusting screw by which the effective movement of the gripping piece is regulated. This intermittent clutch feeding device operates substantially as does the one shown in Figs. 1, 2, and 7, and need not therefore be described in detail.

In Fig. 6 the disk L which is adapted to be applied to the feed screw shaft D is shown without the flange *l*, the clutch or gripping piece K engaging with the edge of the disk itself. This construction permits the disk and the piece K to be mounted at right angles to each other instead of their being in substantially the same plane, which under certain circumstances may be desirable. The clutch disk L′ shown in Figs. 4 and 5 is similarly arranged, relatively to the shaft to which it is applied, and to the intermittent gripping device which engages therewith, to the clutch disk L shown in Fig. 6.

It will be evident that the intermittent clutch or gripping feeding device which we have invented and herein described, may be used upon other kinds of machines than slicing machines where a variable feed is desired.

Without limiting ourselves to the precise construction and arrangement of parts shown, what we claim is—

1. In a slicing machine, the combination of the knife, the feeder which advances the article to be sliced toward the knife, and the hereindescribed intermittent clutch feeding device, connected with the feeder, and consisting of the disk, a clutch piece which engages with the disk, the reciprocating arm to which the clutch piece is pivoted, an adjustable stop with which the clutch piece engages directly, at each of its movements, and a driving connection for the reciprocating arm by which it is moved an invariable distance at each reciprocation, substantially as set forth.

2. In a slicing machine, the combination of the revolving knife, the feeder which advances the article to be sliced toward the knife, an eccentric mounted upon the shaft which carries the knife, a reciprocating rod provided with a strap which closely surrounds the said eccentric, a clutch or gripping piece pivoted to the rod, a disk connected with the said feeding device and with which the gripping piece engages, and an adjustable stop carried by some stationary part of the machine with which the said gripping or clutch piece engages as it is moved, substantially as set forth.

3. In a slicing machine, a wheel to which

the revolving knife is secured, having that portion of its rim which is on the side of its axis opposite to that on which the knife is arranged hollow or shell-shaped and the other portion solid, whereby the wheel is weighted, substantially as set forth.

4. In a slicing machine, the combination of the trough-like support for the article to be sliced having an opening in the side thereof, a substantially vertically arranged feeder for the article arranged opposite to the said opening and having feeding projections which extend through the same to engage with the article, and means for revolving the feeder, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

THOMAS COLDWELL.
WILLIAM H. COLDWELL.

Witnesses:
ALBERT W. MAPES,
S. GEROW JOHNSTON.