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FEED MECHANISM FOR SLICING MACHINES.

APPLICATION FILED AUG. 28, 1918.

1,310,752.

Patented July 22, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

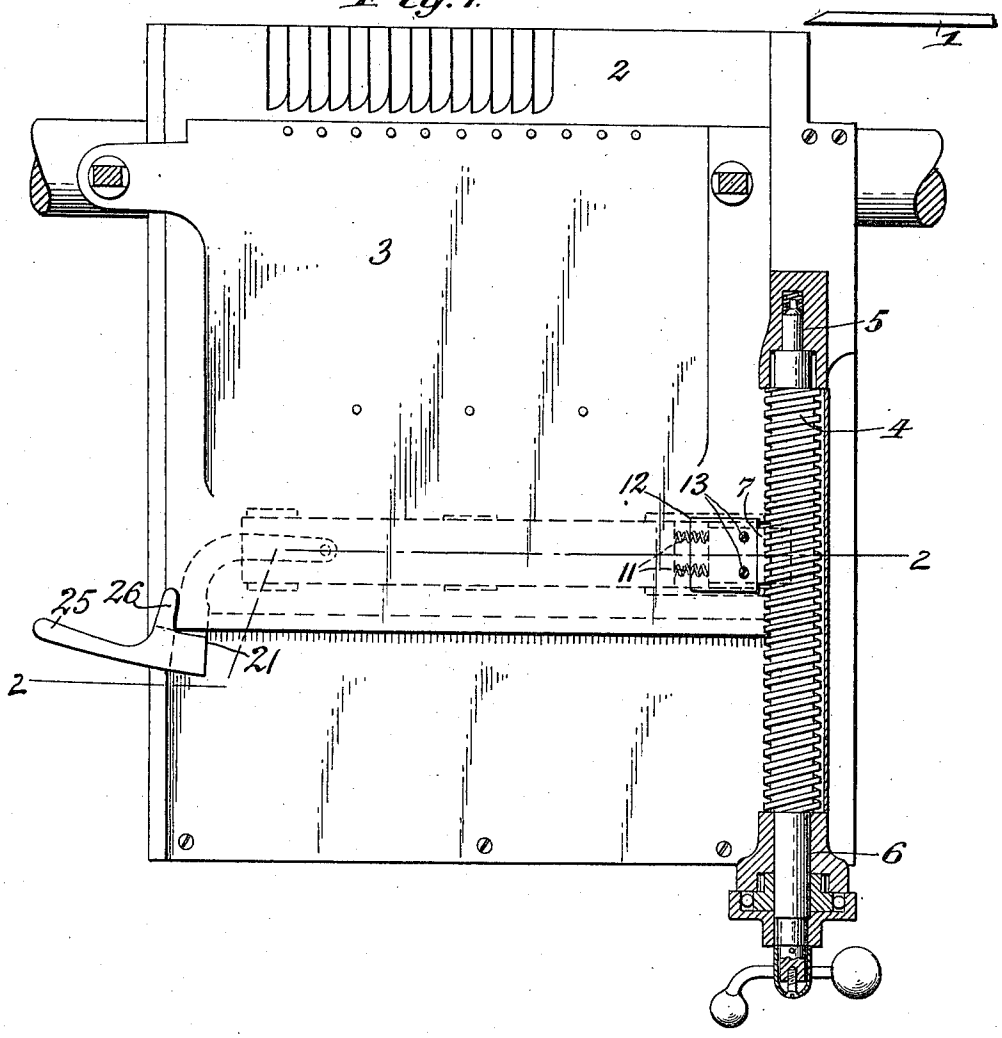
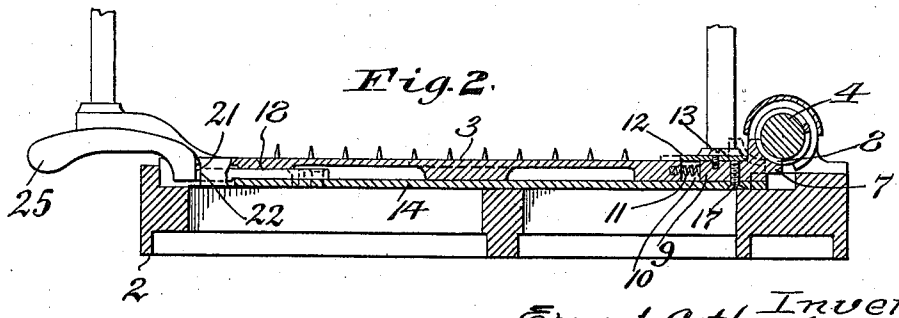


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

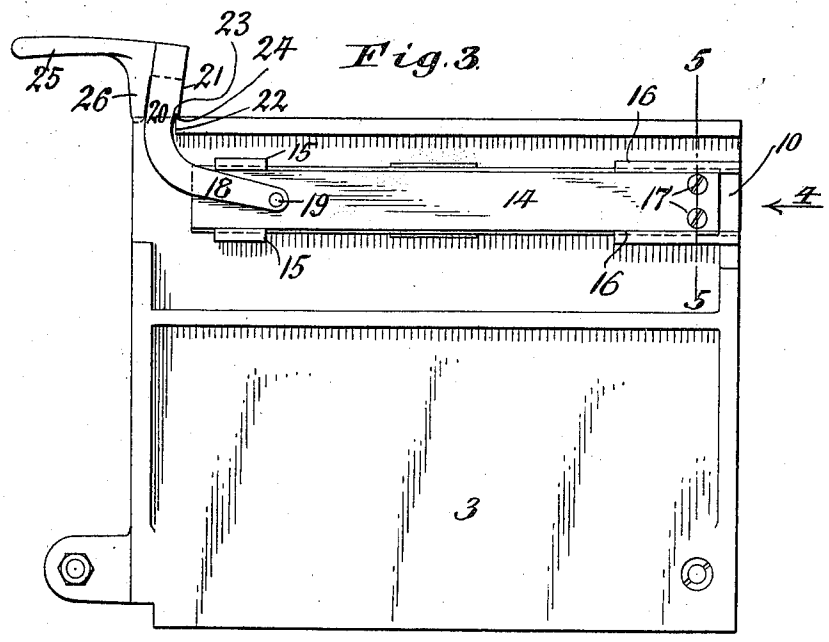


Fig. 4.

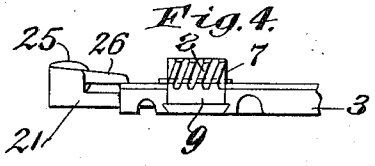
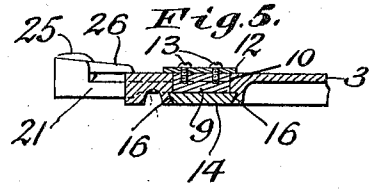


Fig. 5.



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UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR SLICING-MACHINES.

1,310,752. Specification of Letters Patent. Patented July 22, 1919.

Application filed August 28, 1918. Serial No. 251,744.

To all whom it may concern:

Be it known that we, ERNEST A. HAND, a subject of the King of England, and FREDERICK A. WYGANT, a citizen of the United States, residing in Hornell, in the county of Steuben and State of New York, have invented new and useful Improvements in Feed Mechanism for Slicing-Machines, of which the following is a specification.

This invention relates to a feed mechanism for slicing machines whereby the article to be sliced is gradually fed toward the cutting position so that successive slices may be cut therefrom by a blade or knife and more particularly to a feed mechanism for this purpose in which the article supporting slide or feed plate is moved perpendicular to the cutting position by means of a rotary feed screw shaft and a screw nut adapted to be engaged with and disengaged from the screw shaft.

It is one of the objects of this invention to provide improved means for shifting the screw nut into and out of its operative position relative to the screw shaft, these means being so organized that one action of the hand will operate not only to release the screw nut from the screw shaft but also draw the article-supporting slide or plate backwardly.

Another object of this invention is to so organize this screw nut actuating mechanism that the same may be locked and permit the article supporting plate to be moved freely forwardly and backwardly independently of the feed screw.

A further object of this invention is to provide simple and efficient spring means which yieldingly hold the screw nut yieldingly in engagement with the screw shaft and thereby automatically take up any slack which may develop between these parts due to wear.

In the accompanying drawings: Figure 1 is a sectional top plan view of the feed mechanism and adjacent parts of a slicing machine embodying our improvements. Fig. 2 is a vertical cross section thereof, taken on line 2—2, Fig. 1. Fig. 3 is a bottom plan view of the feed plate or slide which carries the article to be sliced and which is provided with our improved feed screw nut operating mechanism. Fig. 4 is a fragmentary side elevation of the same viewed from a position indicated by the arrow 4 in Fig. 3. Fig. 5 is a fragmentary vertical longitudinal section taken on the correspondingly numbered line in Fig. 3.

Similar characters of reference refer to like parts throughout the several views.

1 represents the cutter, knife or blade of the slicing machine which may be of any suitable construction, and 2 the supporting carriage or table which reciprocates in a direction parallel with the cutting blade for the purpose of carrying the article to be sliced past the cutter. On this reciprocating table is mounted an article supporting feed plate or slide 3 which is guided on this table so as to be capable of sliding lengthwise thereon in a direction perpendicular to the plane of this cutter, so that upon progressively advancing this plate toward the cutting line, successive slices may be cut from the front end of the article. Our improved feed mechanism whereby this feed plate is moved perpendicular to the cutter, is constructed as follows:

4 represents a feed screw shaft arranged horizontally and lengthwise adjacent to the rear longitudinal edge of the feed plate and journaled at its opposite ends in bearings 5, 6 arranged on the adjacent side of the carriage or table, so that this screw shaft is free to turn but is incapable of lengthwise motion. 7 represents a screw nut which is provided with a sectional screw thread 8 on its outer or rear side and which is so mounted that the same is compelled to move with the feed plate in a direction lengthwise of the screw shaft but is capable of moving in a direction at right angles to the axis of this shaft for the purpose of engaging and disengaging its screw thread section with the thread of the screw shaft and thereby either coupling the feed plate with this shaft or uncoupling the same therefrom. For this purpose this screw nut is provided on its inner side with a guide block 9 which is movable crosswise in a transverse slot 10 formed in the rear longitudinal edge of the feed plate. This feed screw nut is yieldingly held in engagement with the thread of the screw shaft by spring means which preferably comprise two springs 11, 11, arranged in the slot 10 and each bearing at one end against the inner end of the screw nut block while its opposite end bears against

the inner end of the slot 10 in the feed plate. The top of this block is preferably covered in all positions of the feed nut by means of a cover plate 12 extending over this slot and secured to the upper side of the feed nut block by means of screws 13 as shown in Figs. 1, 2 and 5, or by any other suitable means.

14 represents a shifting bar which is arranged transversely underneath the rear part of the feed plate and guided in ways 15, 16 thereon, so as to be capable of a reciprocating motion in a direction transversely of the sliding movement of the feed plate on the table. At that end of this shifting bar next to the feed screw the same is secured to the underside of the feed nut block by means of screws 17, as shown in Figs. 2 and 3, so as to cause this shifting bar and the feed nut to move in unison. Adjacent to the front longitudinal edge of the feed plate is arranged a hand operated shifting lever which is of angular form and has its inner part 18 arranged between the underside of the feed plate and the top of the shifting bar and pivotally connected at its inner end with the shifting bar by a pin 19 so as to be capable of swinging in a horizontal plane. The intermediate part 20 of this hand lever is turned rearwardly relatively to the axis thereof and is provided with an upright longitudinal fulcrum-face 21 which is adapted to engage slidingly with a bearing face 22 on the adjacent rear part of the feed plate so that upon swinging the outer or free end of this operating lever backwardly, the same will turn by means of its sliding fulcrum face 21 on the bearing face 22 of the feed plate and thereby cause the shifting bar to be moved for disengaging the feed nut from the feed screw. Upon releasing the hand pressure on this operating lever, the springs 11, 11 will again move the shifting bar in the opposite direction for engaging the feed nut with the feed screw and return the operating lever into its normal or inoperative position. It is therefore possible upon drawing the hand lever backwardly to simultaneously release the feed nut from the feed screw and then move the feed plate backwardly independently of the feed screw when it is desired to move the feed plate backwardly quickly to its initial position preparatory to beginning the slicing of a new piece of meat or other article. Adjacent to the inner end of the fulcrum face of the hand lever the same is provided with a locking shoulder 23 which upon turning this lever into its rearmost position may be engaged with a locking shoulder 24 formed on the rear side of the feed plate adjacent to the rear end of its bearing face 22, as shown in Fig. 3, and thereby hold the feed nut in its retracted position out of engagement from the feed screw.

By thus enabling the hand lever to be locked in its rearmost position in which the feed nut is held out of engagement with the feed screw, it is possible to move the feed plate and the article to be sliced freely forwardly or backwardly independently of the feed screw and to employ both hands without paying any attention to the feed mechanism of this plate thereby enabling the machine to be adjusted quickly and the slicing operation to be effected expeditiously.

In order to prevent the hand lever from being displaced in the event that the operator exerts a downward pressure against the same, a retaining lug 26 is provided which projects from the upper side of the outer part 25 of this lever inwardly over the top of the feed plate, as shown in Figs. 1, 3, 4 and 5, thereby holding this lever against downward movement and retaining these parts against vertical displacement relatively to each other.

This feed mechanism is very simple and inexpensive in construction, the same has no delicate parts which are liable to get out of order and it permits of readily shifting the feed plate into the desired position relatively to the cutter and to quickly return the feed plate to its initial position preparatory to cutting an article.

We claim as our invention:

1. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar guided transversely on said slide and carrying said nut, and a spring operating to hold said nut yieldingly in engagement with said screw shaft.

2. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, said slide being provided on that side next to the screw shaft with a transverse slot which receives said screw nut, and means for operating said nut comprising a transversely movable shifting bar arranged underneath the slide and connected at one end with the lower side of said screw nut, and a spring interposed between said screw nut and the bottom of said slot.

3. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, said slide

being provided on that side next to the screw shaft with a transverse slot, which receives said screw nut, and means for operating said nut comprising a transversely movable shifting bar arranged underneath the slide and connected at one end with the lower side of said screw nut, a spring interposed between said screw nut and the bottom of said slot, and a cover plate secured to the top of said screw nut and extending over said slot in the slide.

4. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar guided transversely on said slide and carrying said nut, a spring operating to hold said nut yieldingly in engagement with said screw shaft, and a hand lever pivotally connected with said shifting bar and fulcrumed on said slide.

5. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar guided transversely on said slide and carrying said nut, a spring operating to hold said nut yieldingly in engagement with said screw shaft, and a hand lever pivotally connected with said shifting bar and fulcrumed slidingly on said slide.

6. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar guided transversely on said slide and carrying said nut, a spring operating to hold said nut yieldingly in engagement with said screw shaft, and an angular hand lever pivotally connected at its inner end with said shifting bar and provided intermediate of its ends with a fulcrum face which bears slidingly against a bearing face on the adjacent part of said slide and a locking shoulder arranged at the outer end of said fulcrum face and adapted to engage a locking shoulder on said slide adjacent to said bearing face.

7. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar guided transversely on said slide and carrying said nuts, a spring operating to hold said nut yieldingly in engagement with said screw shaft, and a hand lever pivotally connected with said shifting bar and fulcrumed on said slide and having parts arranged above and below said slide.

8. A slicing machine comprising a table, an article carrier slidable on said table, a feed screw shaft mounted on said table and capable of turning but held against lengthwise motion, a screw feed nut mounted on said slide and movable into and out of engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar guided transversely on said slide and carrying said nut, a spring opening to hold said nut yieldingly in engagement with said screw shaft, and means for operating said screw nut comprising a shifting bar slidable transversely underneath said slide and connected with said screw nut, and a hand lever pivotally connected with said shifting bar and fulcrumed on said slide and having a retaining lug which engages with the upper side of said slide.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."