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ARTICLE HOLDER FOR SLICING MACHINES

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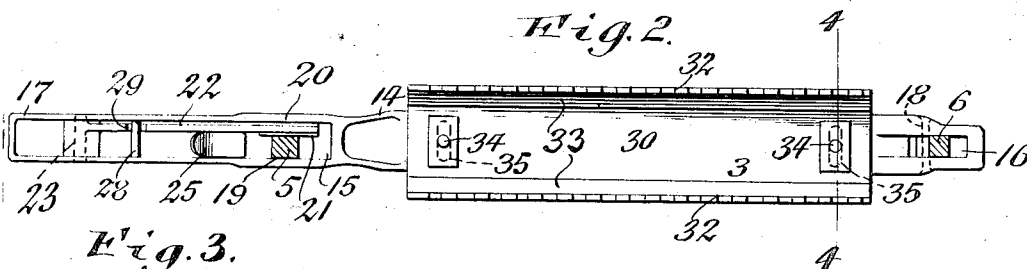
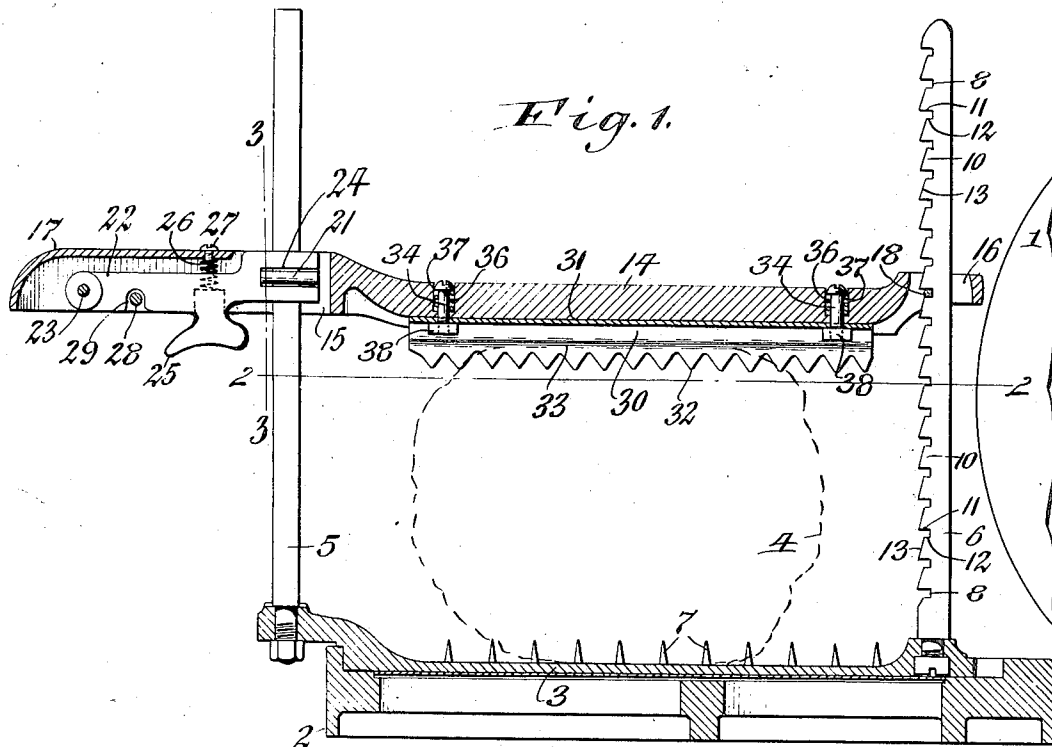


Fig. 3.

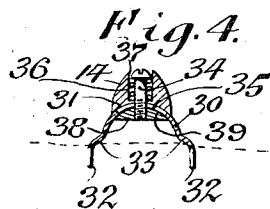
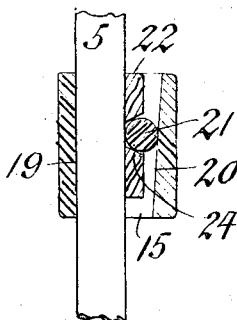
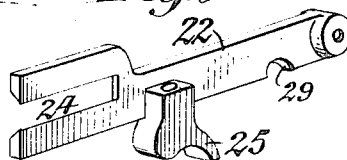


Fig. 5.



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UNITED STATES PATENT OFFICE.

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ARTICLE HOLDER FOR SLICING MACHINES.

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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 Article Holders for Slicing Machines, of which the following is a specification.

This invention relates to a machine for cutting articles into slices and more particularly to a machine for slicing ham, dried beef, sausage and the like.

It is the object of this invention to provide for such machines an improved device for holding the article to be sliced on a support, the aim of these improvements being to render the holding device simple in construction, efficient in the operation and easy to clean so that the same can be readily maintained in a sanitary condition.

In the accompanying drawings:

Figure 1 is a vertical longitudinal section of that part of a slicing machine which embodies our improved article holding device.

Figure 2 is a horizontal section taken on line 2—2, Fig. 1, looking upwardly. Figure 3 is a fragmentary vertical section, on an enlarged scale, taken on line 3—3, Fig. 1.

Figure 4 is a vertical section taken on the correspondingly numbered line in Fig. 2. Figure 5 is a detached perspective view of the carrier which supports the coupling or clutch roller of the clamping device.

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

Although this improved article holding device is applicable to slicing machines which may vary so far as details of construction are concerned the same is shown in the drawings applied to a machine which in its general organization comprises a rotary disk cutter 1, a table 2 which reciprocates on a line parallel with the radius of the cutter, and a supporting plate 3 movably guided on the table so that the same can be moved thereon in a direction parallel with the axis of the cutter, whereby the article 4 supported upon the plate may be fed relatively to the cutter for cutting off suc-

cessive slices from the front end thereof.

Our improved article holding device in its preferred form is constructed as follows:

5, 6 represent front and rear pillars or posts rising from the supporting plate adjacent to opposite longitudinal edges thereof, each of these pillars being preferably rectangular in horizontal section as shown in Fig. 2. The article to be sliced, indicated by dotted lines in Fig. 1, rests on the supporting table between these pillars and is preferably prevented from sliding on the plate by providing the latter with upwardly projecting spurs or pins 7 upon which the article is held against displacement on the plate. These pillars are constructed to receive a clamp which is adapted to engage with the upper side of the article to be sliced which clamp is adjustable vertically on these pillars so as to adapt the clamp to articles of varying thickness and shape. For this purpose the rear pillar 6 is provided on its inner vertical side with an upright row of notches 8 which alternate with a corresponding row of teeth 10, each of these notches being provided with horizontal upper and lower sides 11, 12 and each tooth being provided with an inclined inner face 13 which slopes from the bottom of the notch above the same forwardly and downwardly to the upper side of the notch below the same. The front pillar is however made perfectly straight and flat on all of its four upright sides.

The clamp which is adjustably mounted on these pillars and adapted to engage with the top of the article to be sliced preferably comprises a longitudinal supporting bar 14 which is provided with front and rear openings 15, 16 which receive the pillars, and a handle 17 in front of the front opening whereby this bar may be manipulated. Mounted horizontally on the rear part of the bar and extended across the rear opening thereof is a round adjusting pin or rivet 18 which is adapted to engage with one or another of the notches in the rear pillar for adjusting the position of the rear part of this supporting bar on this pillar to suit the thickness or diameter of the article which is to be

sliced. Sufficient space is provided within the rear opening 16 between the rear end thereof and the adjusting pin so that the supporting bar may be moved forwardly sufficiently to disengage this pin from the rear pillar and permit this bar to be moved vertically thereon and then again moved rearwardly for interlocking this pin with the desired notches of said pillar.

By constructing the notches and teeth of the rear pillar in this manner it is possible to shift this clamp quickly and easily from one point to another on the rear pillar, and owing to the round form of the pin the life of this adjustable connection is materially increased, inasmuch as the round pin wears much longer and requires less frequent renewal than the means which have heretofore been employed for the purpose.

The means for adjustably connecting the front part of the supporting bar with the front pillars are constructed as follows:

One side of the front opening of the supporting bar, preferably the advancing side 19 is provided with a flat upright bearing face which engages with the advancing side of the front pillar while the trailing side 20 of this opening is spaced apart from the trailing side of the front pillar and is inclined so that the same and the companion advancing side of this opening converge downwardly, as shown in Fig. 3. Between the trailing sides of the front pillar and the front opening of the supporting bar is arranged a rotating coupling or clutch member 21 which is preferably constructed in the form of a roller having its axis arranged horizontally and lengthwise of the supporting member. Upon moving the supporting bar downwardly on the front pillar the clutch roller is loose between this bar and the front pillar owing to the upwardly enlarging space between these parts but upward movement of the supporting bar on the front pillar is prevented by reason of the clamping action which is exerted by the inclined surface 20 of the bar against this roller and holds the latter firmly against rotation on the front pillar. By this means the front part of the supporting bar is frictionally interlocked or coupled with the front pillar against upward movement on the latter.

In order to permit of readily moving the coupling or clutch roller into and out of its operative position so as to enable the supporting bar to be raised and lowered when desired a shifting device for this roller is provided which preferably comprises a vertically movable carrier 22 which is pivoted on its front end by means of a horizontal transverse pin 23 on the lower part of the handle of the supporting bar while its rear end projects into the front opening of the supporting bar between the trailing sides of

the pillar and this opening and is provided with a horizontal longitudinal slot 24 which receives the coupling or clutch roller. Upon raising the rear end of this carrier the roller will be lifted into a position in which the diametrically opposite sides thereof can not engage the trailing sides of the pillar and front bar opening so that the bar is free to be raised and lowered on the front pillar. Upon releasing the carrier so that its rear end descends and brings the clutch roller into engagement with the trailing sides of the pillar and front bar opening, then the roller again becomes effective and forms a frictional lock between the supporting bar and the front pillar and prevents raising of the bar. The lifting of the carrier is preferably effected by means of a downwardly projecting finger piece 25 arranged on one side of this carrier which finger piece may be engaged by the fingers of the same hand which rests with its palm on the upper side of the handle, whereby the supporting bar may be raised and lowered and the roller may be engaged or disengaged with the front pillar by the same hand, thereby facilitating the adjustment of the clamping device relative to the article which is to be sliced. The carrier is preferably held yieldingly in its lower position by means of a spring 26 which is arranged within the handle which is made hollow for this purpose and bears with its lower end against the top of the finger piece while its upper end bears against the underside of the handle and is retained in position thereon by means of a screw 27 which engages with a threaded opening in the handle and projects downwardly into the uppermost coil of this spring. The downward movement of the roller carrier under the action of its spring is limited by a stop device which preferably consists of a transverse pin 28 mounted horizontally on the underside of the handle and engages a notch 29 on the underside of the carrier, as shown in Figs. 1 and 2.

It will thus be noted that the rear part of this supporting bar is positively interlocked with the rear pillar so as to produce in effect a pivotal or fulcrum connection between this bar and the rear pillar while the front part of this supporting bar is frictionally engaged with any part of the front pillar. By this means it is possible to adjust the pressure of the holding device upon the article to be sliced precisely as desired instead of obtaining an insecure or slack hold upon the article as has been possible in devices as heretofore constructed in which the front and rear pillars have been notched and therefore necessitated adjusting the clamping device one full notch at a time and rendered it impossible to obtain a fine adjustment between adjacent notches.

The tension of the spring 26 is sufficient

to cause the roller to grip the front supporting pillar for holding the supporting bar in its elevated position on the pillar and thereby permit of freely and quickly shifting the article to be sliced on the supporting plate preparatory to bringing the clamp down on the upper side of the same.

Between the front and rear pillars the supporting bar is provided with a gripping element which is adapted to engage with the top of the article to be sliced and retain the same positively against displacement. In its preferred form this gripping device comprises a channel shaped jaw or body 30 which is preferably curved transversely and engages with its upper convex side lengthwise with a longitudinal groove or seat 31 arranged on the underside of the supporting bar and curved transversely to conform with the convex side of the gripping member, as best shown in Figs. 1 and 4. At its opposite longitudinal edges the body or jaw of this gripping member is provided with two rows 32, 32 of downwardly projecting teeth which are arranged horizontally and lengthwise of the supporting bar. Adjacent to the inner sides of these two rows of teeth the gripper body is provided on its underside with two downwardly facing stop shoulders 33 which are adapted to engage with the top of the article to be sliced after the teeth have penetrated to the intended extent sufficient to hold this article. The two rows of teeth of the gripping member are arranged a considerable distance apart and the body on which the same are formed is mounted on the supporting bar by means of a swiveling connection so that the gripper body can rock or tilt transversely and thereby enable these two rows of teeth to always adapt themselves to the contour of the article which is being sliced and obtain a secure hold thereon. This is particularly important in such articles as dried beef or ham which is wide at one end and tapers toward the opposite small end and therefore requires the gripping member to be tilted on its support in order to enable both rows of teeth to properly engage the inclined surface of the article.

Although various means may be employed for effecting the swiveling connection between the gripping member and the supporting bar, those shown in Figs. 1, 2 and 4 of the drawings are suitable and preferred and comprise two coupling bolts each of which has its upright body or shank 34 passing through a vertical opening in the supporting bar and a transverse slot 35 in the adjacent part of the gripper body, and a spring 36 surrounding the upper part of the body of this bolt within a pocket 37 on the supporting bar and bearing at its lower end against the bottom of the pocket while its upper end bears against the head of this bolt. The

nut 38 of this bolt is preferably provided with a convex upper side 39, as shown in Fig. 4, so as to fit the concave underside of the body or jaw of the gripping member, thereby forming, together with the curved seat on the supporting bar, a curved guideway in which the body of the gripping member is free to slide or rock transversely and produce the swiveling connection between the same and the bar which enables the teeth of this gripping member to readily adapt themselves to the variations in the surface of the article which is being sliced.

This improved holding device for slicing machines permits various articles to be firmly gripped regardless of the thickness or the shape of the same, this being principally due to the fact that no slack is possible between the gripping member and the article and for the further reason that the toothed member or jaw is able to readily adapt itself to the shape of the article.

Furthermore, the article to be sliced is not liable to be lacerated or torn by the teeth of the gripping jaw inasmuch as these teeth are prevented from entering too deeply into the surface of the article by the stop shoulders which engage with the surface of the article after the teeth have penetrated the article a sufficient extent to properly hold the same. This is particularly important when cutting ham while the same is warm or under summer conditions and it is therefore desirable not to permit the gripping teeth to sink deeply into such meat.

Moreover all the parts of this holding device are comparatively large and freely accessible so that they can be thoroughly cleaned at frequent intervals for maintaining the apparatus in a sanitary condition. By providing the springs on the gripping jaw the latter is not only held yieldingly in its adjusted position and permitted to move freely so that the same can adapt itself to the surface of the article which is being sliced but it also prevents any looseness between these parts which might cause noise or rattling while being handled.

We claim as our invention:

1. A slicing machine comprising a table adapted to support the article to be sliced, a pillar rising from said table and having its opposite transverse sides made flat and parallel, a clamping bar arranged transversely over the table and provided with an opening which receives said pillar and which has a flat transverse face on one side which engages with one of the flat sides of said pillar, and an inclined face on its opposite side, a gripping roller arranged between the opposite flat side of the pillar and the inclined face of the bar opening, and a carrier movably mounted on said bar and provided with a slot which receives said roller and which is adapted to shift said

roller vertically relatively to the companion faces of the pillar and bar.

2. A slicing machine comprising a table adapted to support the article to be sliced, a pillar rising from said table and having flat upright bearing faces on opposite sides thereof, and a clamp for holding the article on said support comprising a bar adapted to extend over said article and provided with a flat friction surface engaging with one of the bearing faces of said pillar and provided with a flat inclined face arranged opposite the other bearing face of said pillar, a cylindrical clutch roller arranged between said inclined face and the last mentioned bearing face of said pillar, a carrier pivoted on said bar to swing vertically and provided with a slot which receives said roller, and a spring interposed between said carrier and bar and moving said carrier in the direction for causing said roller to move from the low to the high part of said inclined face.

3. A slicing machine comprising a table adapted to support the article to be sliced, a pillar rising from said table and having flat upright bearing faces on opposite sides thereof, and a clamp for holding the article on said support comprising a bar adapted to extend over said article and provided with a flat friction surface engaging with one of the bearing faces of said pillar, and provided with a flat inclined face arranged opposite the other bearing face of said pillar, a cylindrical clutch roller arranged between said inclined face and the last mentioned bearing face of said pillar, a carrier pivoted on said bar to swing vertically and provided with a slot which receives said roller, a spring interposed between said carrier and bar and moving said carrier in the direction for causing said roller to move from the low to the high part of said inclined face, and a stop arranged on said bar for limiting the movement of said carrier under the action of said spring.

4. A slicing machine comprising a table for supporting the article to be sliced, a pillar rising from said table and provided on one side with a vertical row of notches, a clamping bar having an opening which receives said pillar, and a pin mounted on said bar and extending horizontally across said opening between opposite ends of the same and adapted to engage one or another of the notches of said pillar.

5. A slicing machine comprising a table for supporting the article to be sliced, a pillar rising from said table and provided on one side with a vertical row of notches and alternating teeth, each notch having horizontal upper and lower sides and each tooth having its outer end inclined from

the bottom of the notch above the same to the top of the notch below the same, and a clamp for holding said article upon the table comprising a bar having an opening which receives said pillar, and a pin arranged transversely on said bar within the opening thereof and engaging one or another of said notches.

6. A slicing machine comprising a table for supporting the article to be sliced, two rigid pillars rising from said table one of which is provided with a vertical row of notches while the other is provided with a flat upright plain surface, and a clamp for holding said article on said plate comprising a bar, positive coupling means for connecting one end of said bar with one or another of the notches of the notched pillar, and frictional coupling means for connecting the other end of said bar with the plain surface pillar including a cylindrical roller movably mounted on said bar and engaging with said plain face.

7. A slicing machine comprising a plate for supporting the article to be sliced, and a clamp for holding said article on said plate comprising a bar, and a gripping member having a swiveling connection with said bar which permits said gripping member to rock transversely relatively to said bar and provided with two longitudinal rows of downwardly projecting teeth arranged side by side and adapted to engage with said article.

8. A slicing machine comprising a plate for supporting the article to be sliced, and a clamp for holding said article on said plate comprising a bar, provided on its underside with a longitudinal seat which is of concave form in cross section, and a gripping member having a longitudinal body which is curved transversely and engages movably with said seat, and two rows of depending teeth arranged on opposite longitudinal edges of said body and adapted to engage said article.

9. A slicing machine comprising a plate for supporting the article to be sliced, and a clamp for holding said article on said plate comprising a bar, provided on its underside with a longitudinal seat which is of concave form in cross section, and a gripping member having a longitudinal body which is curved transversely and engages movably with said seat, two rows of depending teeth arranged on opposite longitudinal edges of said body and adapted to engage said article, and two downwardly facing shoulders arranged on the underside of said body adjacent to said rows of teeth.

10. A slicing machine comprising a plate for supporting the article to be sliced, and a clamp for holding said article on said plate comprising a bar, a gripping member

arranged on the underside of said bar, and a yielding connection between said bar and gripping member.

11. A slicing machine comprising a plate 5 for supporting the article to be sliced, and a clamp for holding said article on said plate comprising a bar, a gripping member movable transversely on the underside of said bar, and a swiveling connection between said bar and said gripping member 10 comprising bolts passing through corresponding openings in said bar and gripping member.

12. A slicing machine comprising a plate

for supporting the article to be sliced, and 15 a clamp for holding said article on said plate comprising a bar, a gripping member having a rocking sliding engagement with said bar and provided with transverse slots and longitudinal rows of teeth for engag- 20 ing said article, bolts passing through said slots and the adjacent parts of said bar, and springs exerting an upward pull on said bolts and holding said gripping member frictionally in engagement with said bar. 25

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