July 20, 1937. C. LISBERG 2,087,673

SAUSAGE MACHINERY

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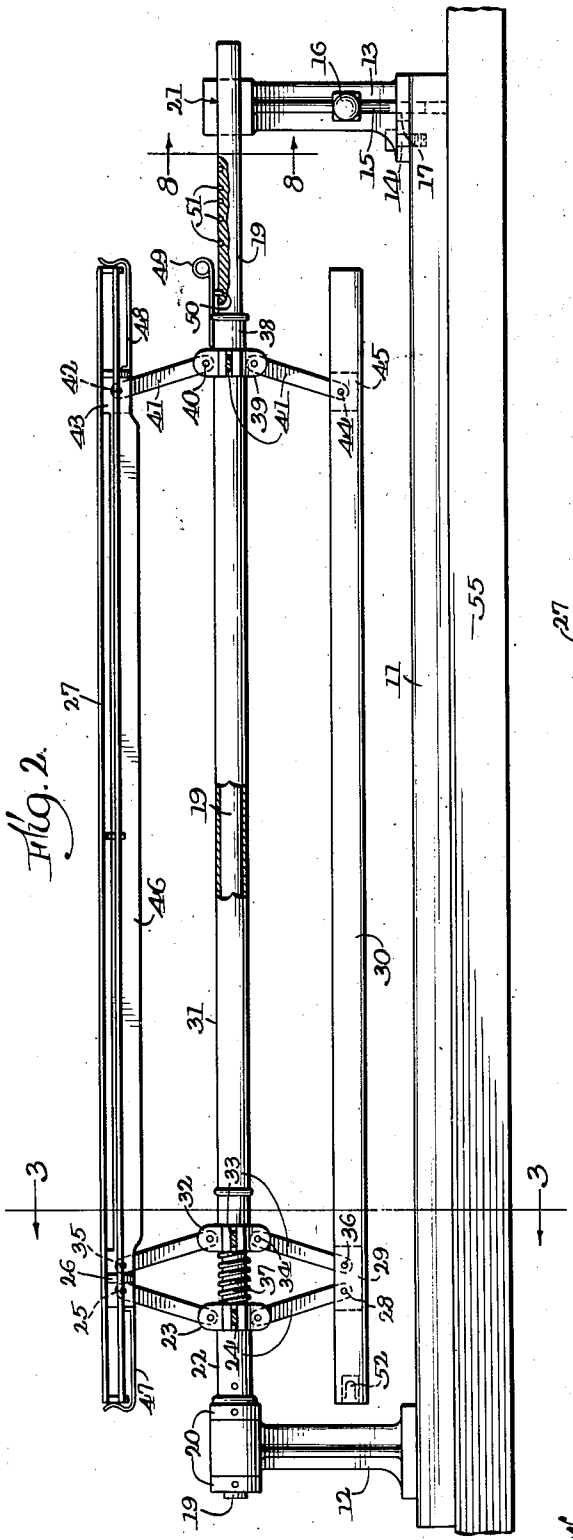


Fig. 2.

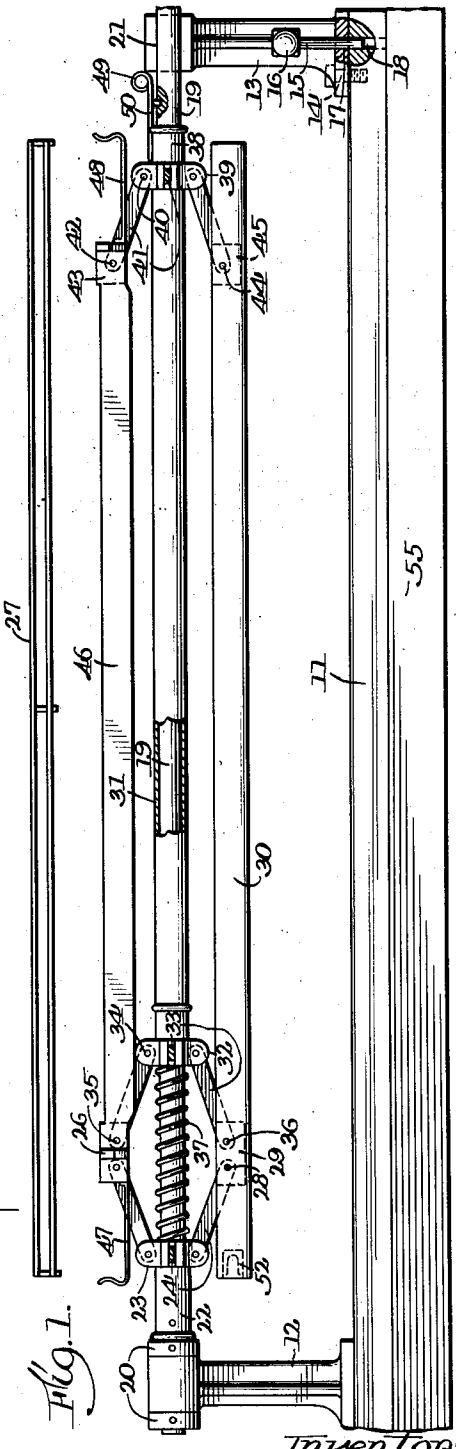


Fig. 1.

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Fig. 3.

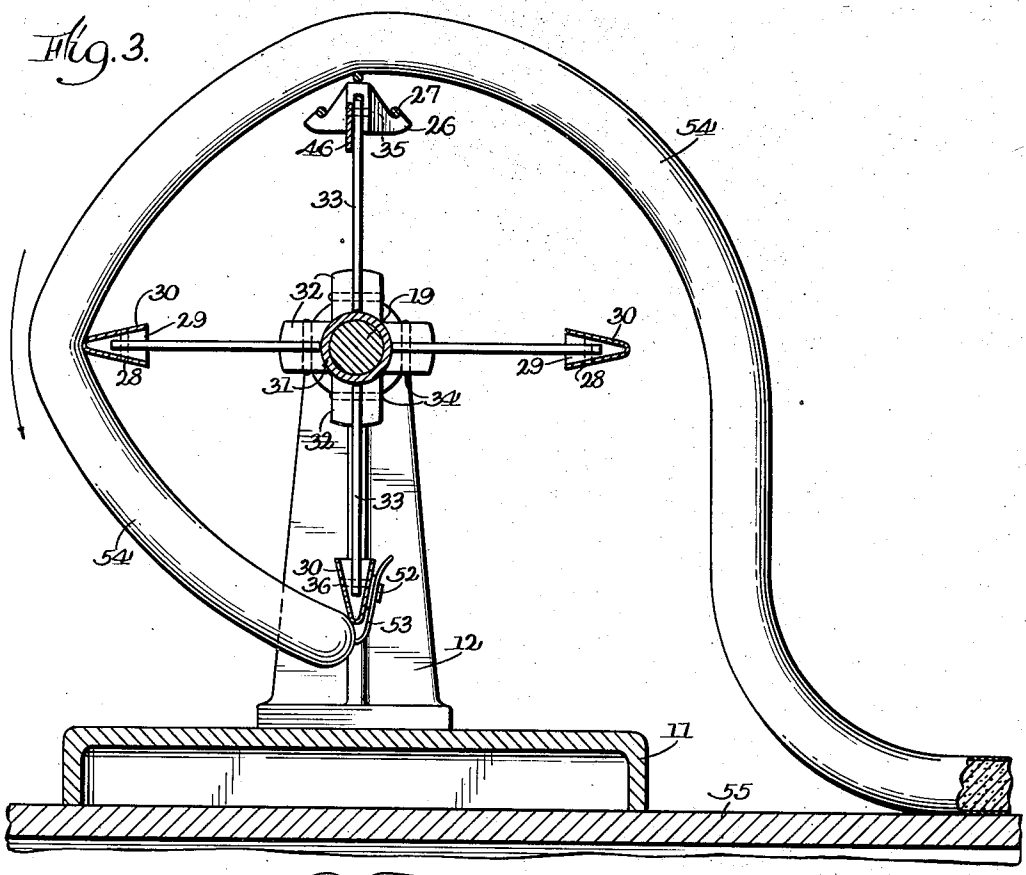
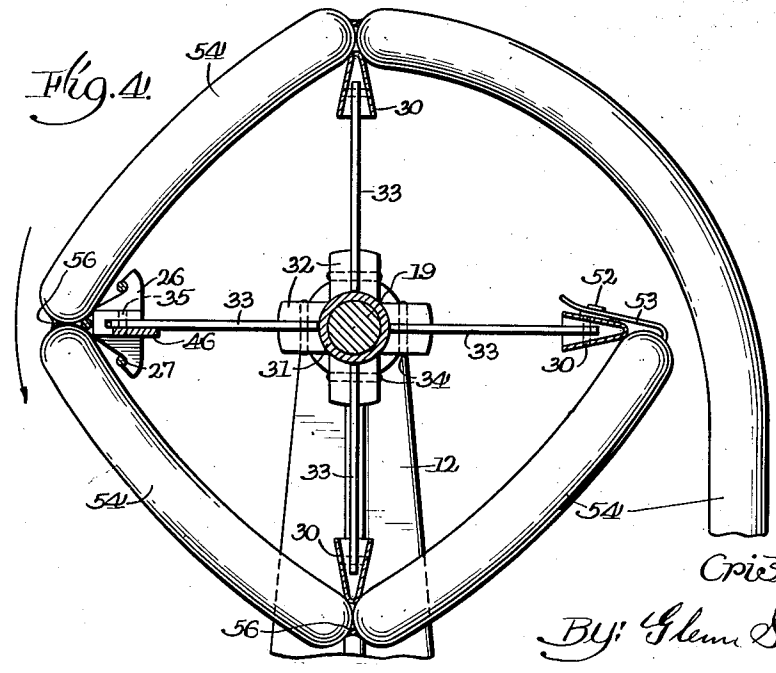


Fig. 4.



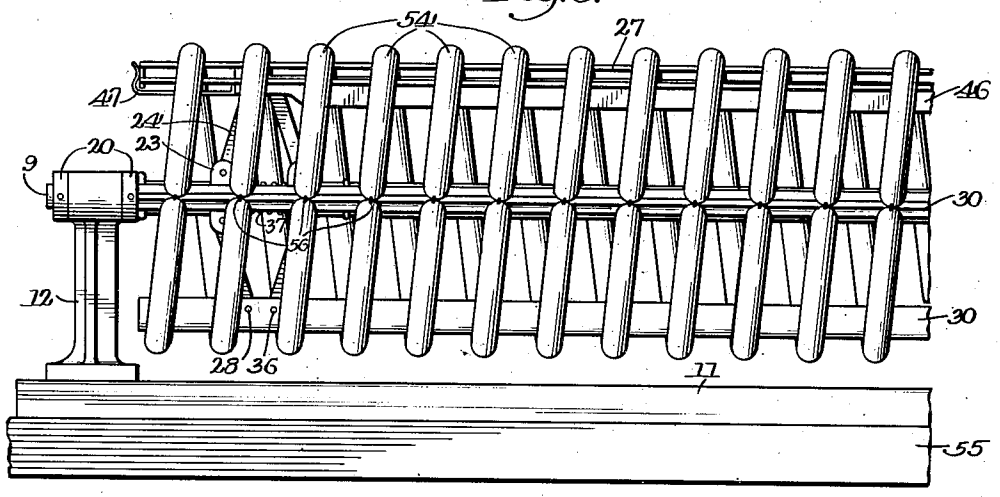
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Fig. 5.



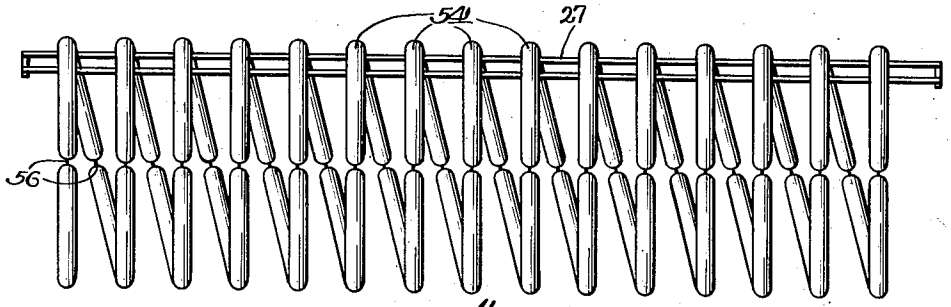


Fig. 6

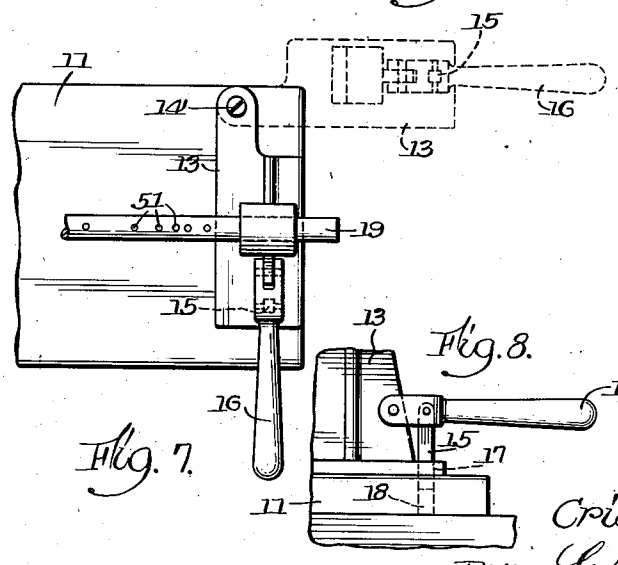


Fig. 7.

Fig. 8.

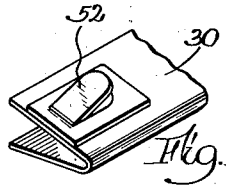


Fig. 10.

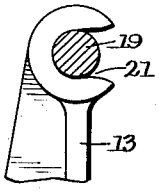


Fig. 9.

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2,087,673

UNITED STATES PATENT OFFICE

2,087,673

SAUSAGE MACHINERY

Crist Lisberg, Chicago, Ill.

Application December 23, 1935, Serial No. 55,747

6 Claims. (Cl. 17—34)

This invention relates particularly to apparatus for supporting and measuring link sausage or sausage of the type commonly known as frankfurters, during the link forming or twisting operations, and also to means whereby the completed sausages may be conveniently removed from the machine in order to carry the same to the smoke-house. Heretofore various methods have been used in connection with the forming of the links, one of the same employing rectangular reels of fixed or rigid construction upon which the sausage is mounted or wound. However, the use of such fixed or rigid reels has been found objectionable as it requires a large number of sizes for different lengths of frankfurters and these also take up considerable space in the smoke-house cage and during storage.

The objects of this invention are to provide an improved measuring and supporting reel or apparatus for use in the manufacture of link sausages; to provide a collapsible reel which is adapted to support a smoke stick for the sausages whereby the completed sausages may be readily removed from the reel and carried to the smoke-house; to provide a reel or winding apparatus which may be adjusted for measuring different lengths of link sausages; and to provide such other improvements in construction and advantages in operation as will appear more fully from the following description.

In the accompanying drawings illustrating this invention,

Figure 1 is a side view showing the reel in collapsed position and showing a smoke stick in position to be mounted thereon, parts being broken away for convenience in illustration;

Figure 2 is a similar view showing the reel extended or adjusted for the longest links and with the smoke stick in position;

Figure 3 is an enlarged sectional view taken on line 3—3 of Figure 2 and showing the first steps in the use of the same;

Figure 4 is a view similar to Figure 3 showing a number of completed links;

Figure 5 is a side view showing a portion of the reel with the sausages wound thereon;

Figure 6 is a side view showing the smoke stick and sausages removed from the reel;

Figures 7 and 8 and 9 are details of the movable bearing and locking means; and

Figure 10 is a perspective detail showing the sausage holding clip.

My improved machine has a base 11 with a fixed bearing 12 at one end and a movable bearing 13 at the opposite end. The movable bearing is pivoted at 14 on the base 11 and is adapted to be swung out to open position as shown in Figure 7. It is held in operative position by a lock bolt 15 which is carried on a handle 16 and projects through a hole 17 in the bottom of the bearing and engages with a hole 18 in the base.

A shaft 19 is rotatably mounted in the bearing 12 and is held against longitudinal movement by means of collars 20 which are affixed thereto. The opposite end of the shaft engages with an open recess 21 in the bearing 13 as shown in Figure 9, which permits the swinging of such bearing.

A sleeve 22 is secured to the shaft 19 adjacent to the bearing 12 and is provided with a spider having a plurality of lugs or projections 23 which are pivotally connected with toggle arms 24. The opposite or free end of one of these levers is pivoted at 25 to a block or support 26 which may be of any suitable shape but is preferably made substantially triangular as shown in Figure 3, for holding one end of the smoke stick 27. The free ends of the other toggle arms 24 are pivoted at 28 to V-shaped blocks or bearings 29 which are secured to the adjacent ends of the reel or winding bars 30. These bars are preferably formed of sheet metal and are also V-shaped in cross section as shown particularly in Figure 3.

Another sleeve or tube 31 is slidably mounted on the shaft 19 and has a spider at one end with lugs or projections 32 similar to the spider on the collar 22. Toggle arms 33 are pivotally connected at 34 to the lugs 32 and one of these arms is connected at 35 with the support 26, the other arms being pivoted at 36 to the blocks 29. A spring 37 is interposed between the spiders and tends to move the toggles to collapsed position as shown in Figure 1.

The sleeve 31 also has another spider 28 at its outer or free end with lugs or projections 39 which are pivotally connected at 40 with arms 41. The outer end of one of these arms is pivoted at 42 to a block or support 43 which is similar to the block 26 and serves to carry the opposite end of the smoke stick 27. The other arms 41 are pivoted at 44 to V-shaped blocks 45 which are connected with the adjacent ends of the V-shaped reel members 30.

The blocks 26 and 43 are connected by a longitudinal bar 46. The blocks 26 and 43 are provided respectively with spring clips or holders 47 and 48 for engagement with the ends of the smoke stick 27 to hold it in position on the blocks, as shown in Figure 2.

The sleeve or tube 31 may be adjusted longi-

tudinally of the shaft 19 and held in adjusted position by means of a spring finger 49 having a pin 50 for engagement with holes 51 in the shaft as shown in Figures 1 and 2. One of the bars 30 is provided with a clip or fastener 52, as shown in Figures 4 and 10, for holding one end 53 of the sausage casing 54 or a string which may be tied around such end.

The standard lengths of sausage or frankfurter links are 4, 4½, 5, 5½ and 6 inches. In the commercial form of my machine the holes 51 are spaced so that when the catch or detent 50 engages with the respective holes the distances between the outer edges or apexes of the reel bars and between the smoke stick and adjacent reel bars will correspond to these lengths, and Figures 2, 3 and 4 may be considered as showing the reel adjusted for measuring links six inches long.

In the operation of the device an elongated filled casing 54 is arranged on the table 55 on which the machine is mounted and one end of the casing or the string 53 for tying the same is caught in the clip 52. The reel is then revolved until the casing engages with the next succeeding bar 30, which thus measures the proper length of the link, and the operator then makes a twist, or preferably two complete twists, in the casing in the usual manner as indicated at 56, and then again moves the reel forward another length to measure another link, again twists the casing and proceeds with such operation until the reel is filled substantially as shown in Figure 5, with the smoke stick in the uppermost position. He then holds the smoke stick in one hand and releases the catch or detent 49, which permits the spring 37 to collapse the toggles and move the longitudinal bars inwardly so that the completed string of sausage is freed from the reel but remains suspended on the smoke stick as shown in Figure 6. The bracket or bearing 13 is then swung around to open position as shown in dotted lines in Figure 7, and the smoke stick with the sausage supported thereon is removed from the reel and may be carried to the smoke-house or placed wherever desired.

From this description it will be seen that my improved machine provides convenient means for the manufacture of link sausages and the links are measured with sufficient accuracy to insure a uniform product such as desired in the manufacture of articles of this character. While I have shown a commercial form of my invention, changes may be made in order to adapt the same for different kinds of sausage or for different conditions, and therefore I do not wish to be limited to the particular form shown and described except as specified in the following claims, in which I claim:

1. In an apparatus of the character described, the combination of a base, bearings on said base, a shaft carried by said bearings, longitudinally movable supports on the shaft, a plurality of bars pivotally connected with said supports and movable toward and away from the shaft when the supports are moved longitudinally of the shaft, a smoke stick detachably secured to one of said bars, and means for holding said supports in predetermined positions on the shaft.

2. In a sausage measuring and supporting apparatus, the combination of a bearing, a shaft rotatably mounted in the bearing, collars for holding the shaft against longitudinal movement in the bearing, a spider secured to the shaft adjacent to the bearing, a plurality of arms pivotally connected with the spider, longitudinal bars pivotally connected with said arms, a tube slidably mounted on the shaft, spiders on the ends of said tube, arms pivotally connecting said bars with said spiders, a spring interposed between the first named spider and one end of the tube and tending to move the tube to bring the bars into collapsed position, a detent yieldingly mounted on the outer end of the tube and coacting with recesses in the shaft to hold the tube in adjusted position, and a movable bearing for supporting the opposite end of the shaft.

3. In a machine for use in making link sausages, the combination of a base, a bearing secured to the base, a shaft mounted in said bearing, collars for holding the shaft against longitudinal movement, a sleeve secured to the shaft adjacent to the bearing, a plurality of projections on said sleeve, a plurality of sausage supporting bars arranged longitudinally of the shaft, toggle links pivotally connected to said bars and to said projections, a tube slidably mounted on the shaft, projections at one end of the tube, toggle links pivotally connected with said projections and with said bars and coacting with the first named links for supporting the inner ends of the bars, a spring on said shaft interposed between the collar and the tube for moving the tube outwardly on the shaft, projections at the opposite end of the tube, links pivotally connecting said projections with said bars, a spring secured to said tube, a pin on said spring which engages with recesses in the shaft for holding the tube in adjusted position, a movable bearing for the adjacent end of the shaft, clips on one of said bars for holding a smoke stick, and a clip on another bar for holding one end of the casing which is to be applied thereto.

4. A device as per claim 3 in which the bars are of substantially V-shape in cross section, and the pivotal connections to the links include V-shaped bearing blocks.

5. A device as per claim 3 in which one of the bars is provided with triangular supports at the ends for engagement with the smoke sticks and said supports have springs which engage with the ends of the sticks for detachably holding the same in position.

6. An apparatus for use in connection with measuring and linking sausages, comprising a collapsible reel having longitudinal bars, means for supporting the reel, means for adjustably positioning the reel bars in predetermined radial positions, a smoke stick, and means for detachably securing said stick to one of the reel bars, the arrangement being such that the casing may be wound around the reel and the links formed thereon while the reel is in extended position, and the reel may then be collapsed and the casing removed on the smoke stick, as described.

CRIST LISBERG.