Sept. 13, 1938. A. TAPPARO 2,130,045

CUTTING APPARATUS

Filed Dec. 30, 1937

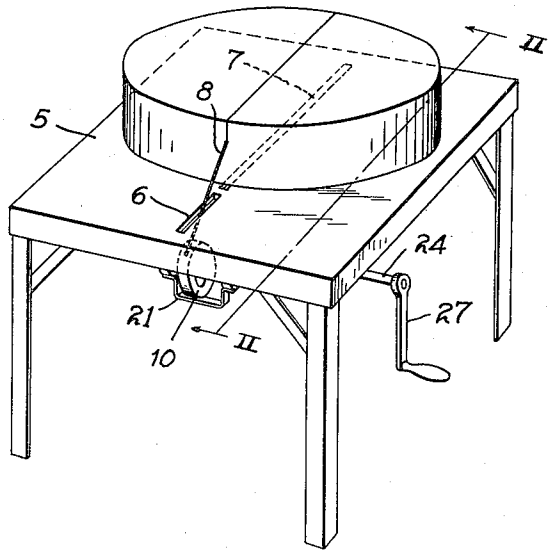


Fig. 1.

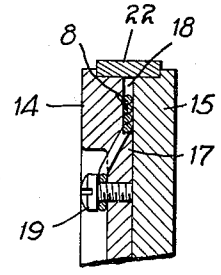


Fig. 4.

Fig. 2.

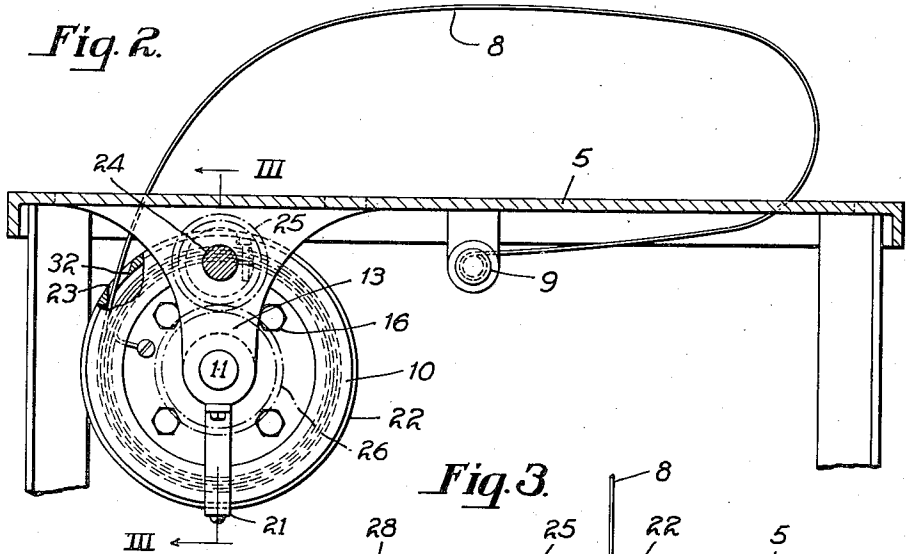
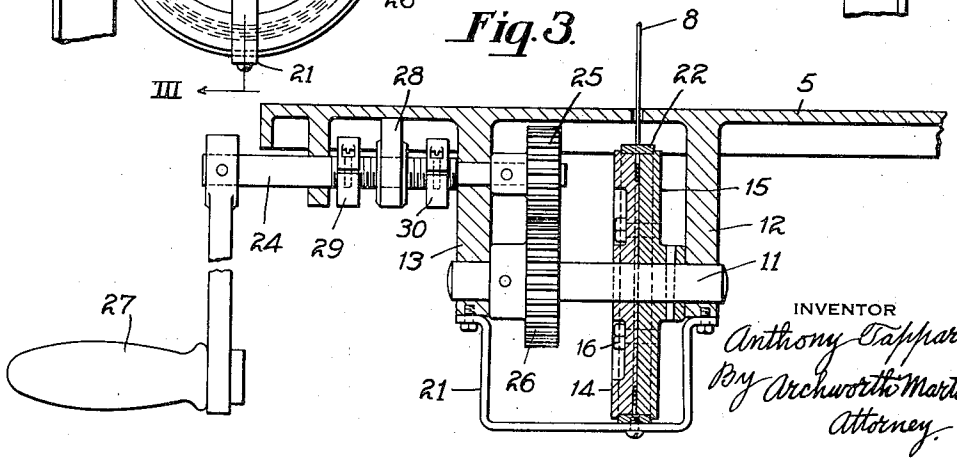


Fig. 3.



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CUTTING APPARATUS

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Application December 30, 1937, Serial No. 182,562

4 Claims. (Cl. 30—116)

My invention relates to a cutting apparatus, and more particularly to the use of a wire for cutting cheese, soap, butter and similar materials.

The invention is particularly useful in the cutting of hard cheese which is not only very difficult to cut with a knife, but tends to break and crumble, with consequent waste, when cut with a knife.

My invention has for its object the provision of an improved form of apparatus for cutting cheese and the like with a wire, in a convenient manner, with consequent saving of strength, time and labor, and with a minimum of waste and breakage.

Apparatus for practicing my invention is shown in the accompanying drawing wherein Figure 1 is a plan view thereof; Fig. 2 is an enlarged view taken on the line II—II of Fig. 1; Fig. 3 is a view taken on the line III—III of Fig. 2, and Fig. 4 shows a sectional detail of the wire-winding drum and the manner in which the wire is connected thereto and wound thereon.

The apparatus includes a table 5 having a short slot 6 and a long slot 7 through which a cutting wire 8 extends. One end of the wire is suitably connected to a lug 9 on the underside of the table, the other end of the wire being connected to a winding drum 10 which is secured to a shaft 11 that is journalled in wing-like extensions or flanges 12 and 13 at the underside of the table.

The drum includes a disc 14 and a disc 15 that are suitably secured together by bolts or screws 16. The member 14 is thickened or offset at 17 to form an annular shoulder, so that a slot-like space 18 is present between the discs 14 and 15 wherein the cutting wire 8 can be wound in superposed turns, as shown more clearly in Fig. 4. The wire is secured to the drum by a screw 19. A saddle or yoke 21 is secured to the lower ends of the bearing members 12 and 13, and has secured thereto a ring-like shield 22 that closely but somewhat loosely encircles the drum 10, and is provided with an opening 23 through which the wire moves when being wound upon or unwound from the drum. A shaft 24 is journalled in the underside of the table and carries a pinion 25 which meshes with a gear wheel 26, so that when the shaft 24 is turned by its handle 27, the drum 10 will be rotated.

The shaft 24 is screw-threaded for a portion of its length and has threaded engagement with a nut 28 that serves as a stop block. The nut is flattened at its upper end and has abutting engagement with the under surface of the table 5, so that it will not rotate with the shaft but can move longitudinally thereof. Stop collars 29 and 30 are rigidly and adjustably secured to the shaft so as to limit the range of movement of the nut 28 longitudinally of the shaft and hence limit the number of turns which may be given to the drum 10. The number of turns in either direction will be limited by the position to which the collars 29 and 30 are adjusted. The wire 8 is made of spring steel or similar material, and when the drum 10 is turned in a direction to unwind the wire therefrom, the mid portion of the wire will spring upwardly to raised position, as shown in Fig. 2, or to a somewhat higher position—depending upon the extent to which the wire is unwound.

In operation, a cheese or the like is slid under the raised loop of the wire when the wire is in a slackened condition, whereupon the handle 27 is turned to pull the wire through the cheese, as shown in Fig. 1. The cutting movement of the wire is in a true vertical plane by reason of the fact that it is wound upon the drum 10 in superposed turns instead of being spirally wound thereon. The stop collar 30 is so set that it will be engaged by the nut 28 when the wire has passed completely through the cheese, so as to avoid excessive strain on the wire such as would result from excessive taking-up thereof. Upon turning of the drum in a reverse direction to cause unreeling of the wire, the nut 28 will move into engagement with the stop collar 29, so that the inner end of the wire will not be broken or bent against the end-most edge 32 of the slot 23.

The reeling in of the wire in the form of superposed turns upon the drum has the further advantage that slackening of the wire and consequent expansion thereof against the inner wall of the drum shield or casing 22 will not result in so great frictional resistance to movement of the wire out of the drum as would be the case if the wire were wound in helical turns within a casing. In the latter event there would be a number of turns expand into frictional engagement with the casing.

I claim as my invention:

1. Cutting apparatus comprising a table, a wire having one end anchored, and a winding drum to which the other end of the wire is connected, the said anchoring and connecting points being so located that the wire will be moved through the material to be cut on the table, when the drum is turned to wind up the wire, and the wire

being of such resilience that it will expand to loop form when unwound from the drum.

2. Cutting apparatus comprising a table, a wire of spring material anchored at one end, a drum to which the other end of the wire is connected, and which is mounted in such position that the wire will be moved through material on the table when it is wound upon the drum, means for guiding and maintaining the wire in superposed turns upon the drum, the wire tending to expand to loop form when slackened on the drum and a shield device limiting expansion of the wire turns on the drum when the drum is turned in an unwinding direction.

3. Cutting apparatus comprising a table having a slot therethrough, a wire having its one end anchored and normally extending through said slot, a winding drum disposed beneath the table and having the other end of the wire connected thereto, so that upon winding of the wire on the drum it will be moved through material upon the table, the wire being of spring material so that it will expand to loop form when unwound from the drum, and means for guiding the wire from the drum upwardly through the said slot when the drum is being unwound.

4. Cutting apparatus comprising a table having a slot therethrough, a wire having its one end anchored and normally extending through said slot, a winding drum disposed beneath the table and having the other end of the wire connected thereto, so that upon winding of the wire on the drum, it will be moved through material upon the table, the wire being of spring material so that it will expand to loop form when unwound from the drum, means for guiding the wire from the drum upwardly through the said slot when the drum is being unwound, and means for positively limiting the extent of rotative movement of the drum and thereby limiting the extent to which the wire may be drawn through the said slot.

ANTHONY TAPPARO.