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2,629,342

BRICK SLICING MECHANISM FOR ICE-CREAM SANDWICH MACHINES

Filed Aug. 19, 1949

3 Sheets-Sheet 1

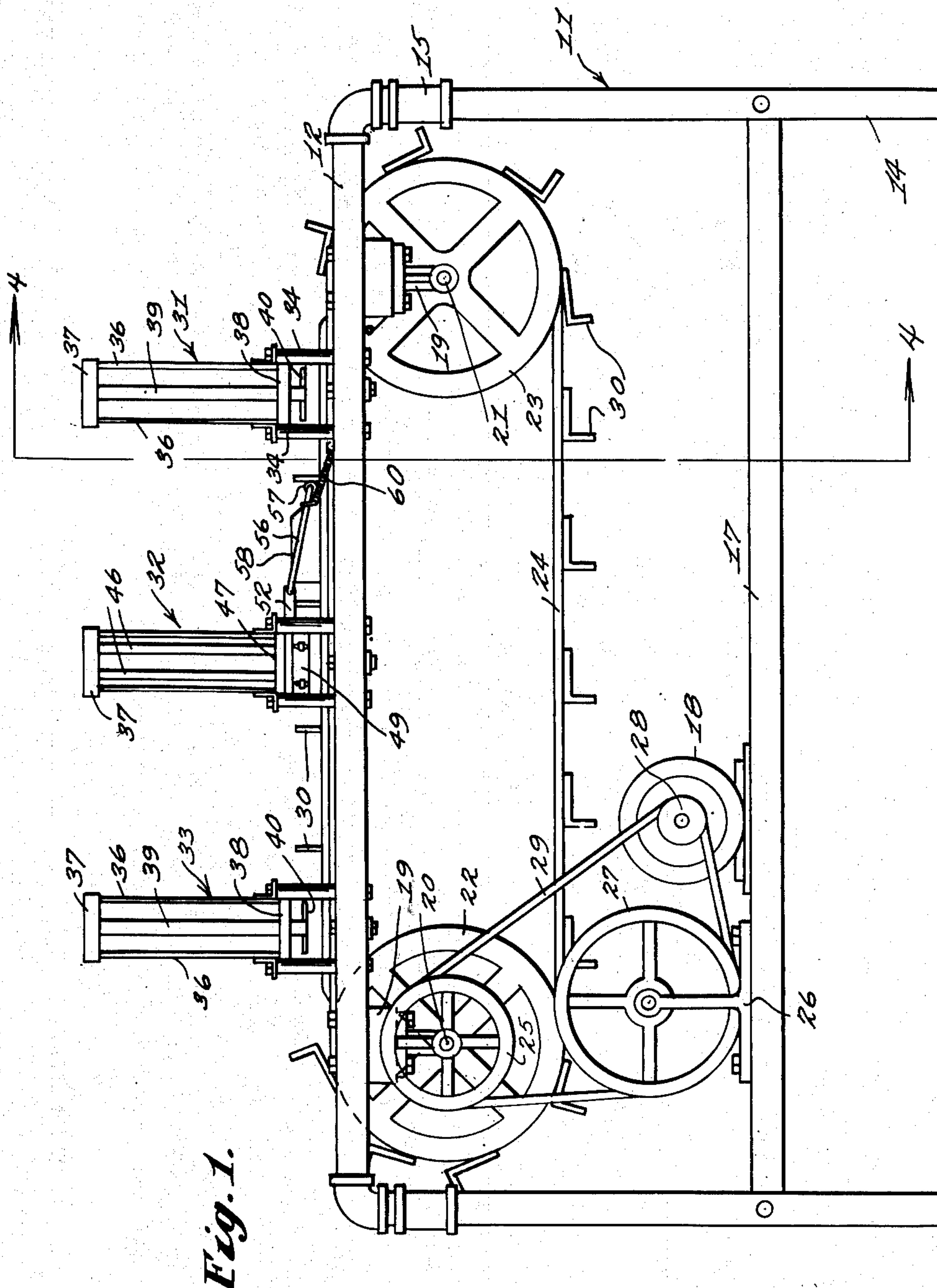


Fig. 1.

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3 Sheets-Sheet 2

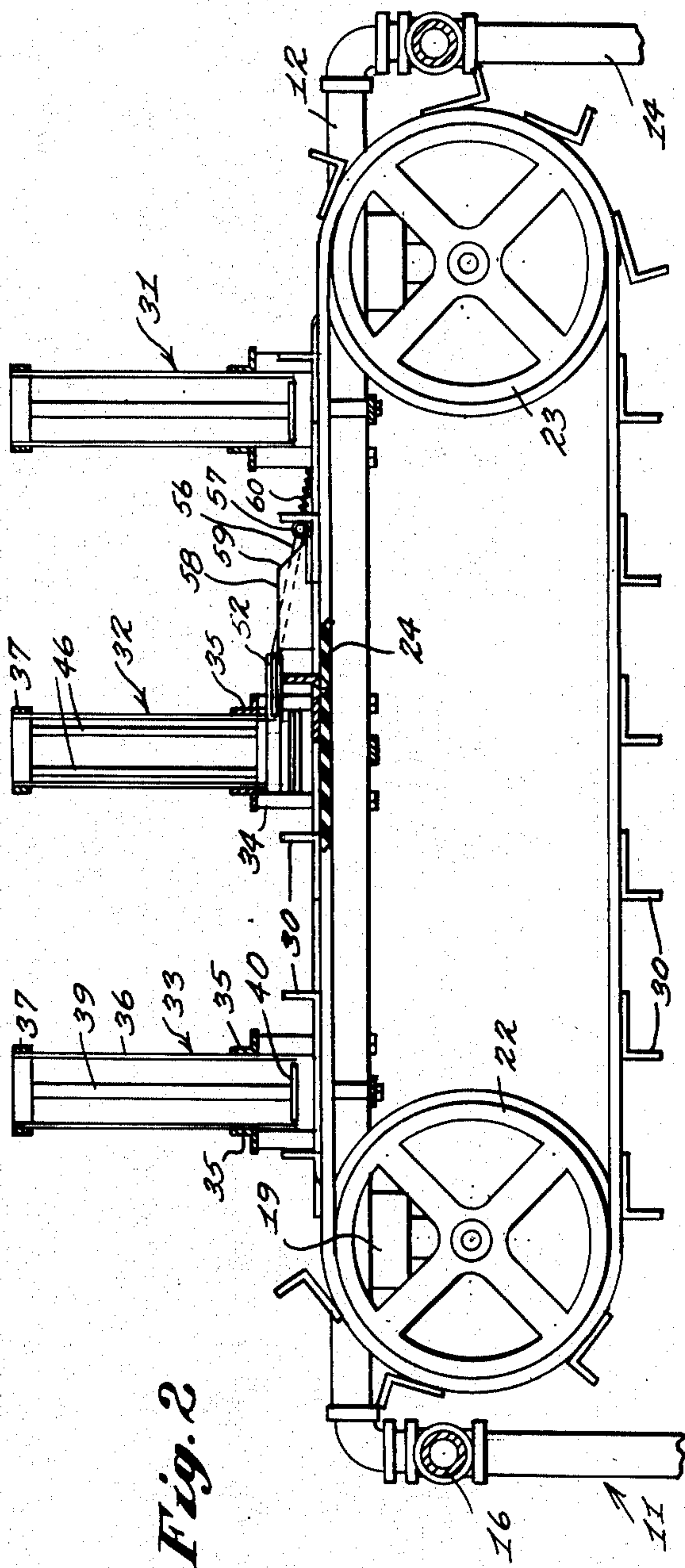


Fig. 2

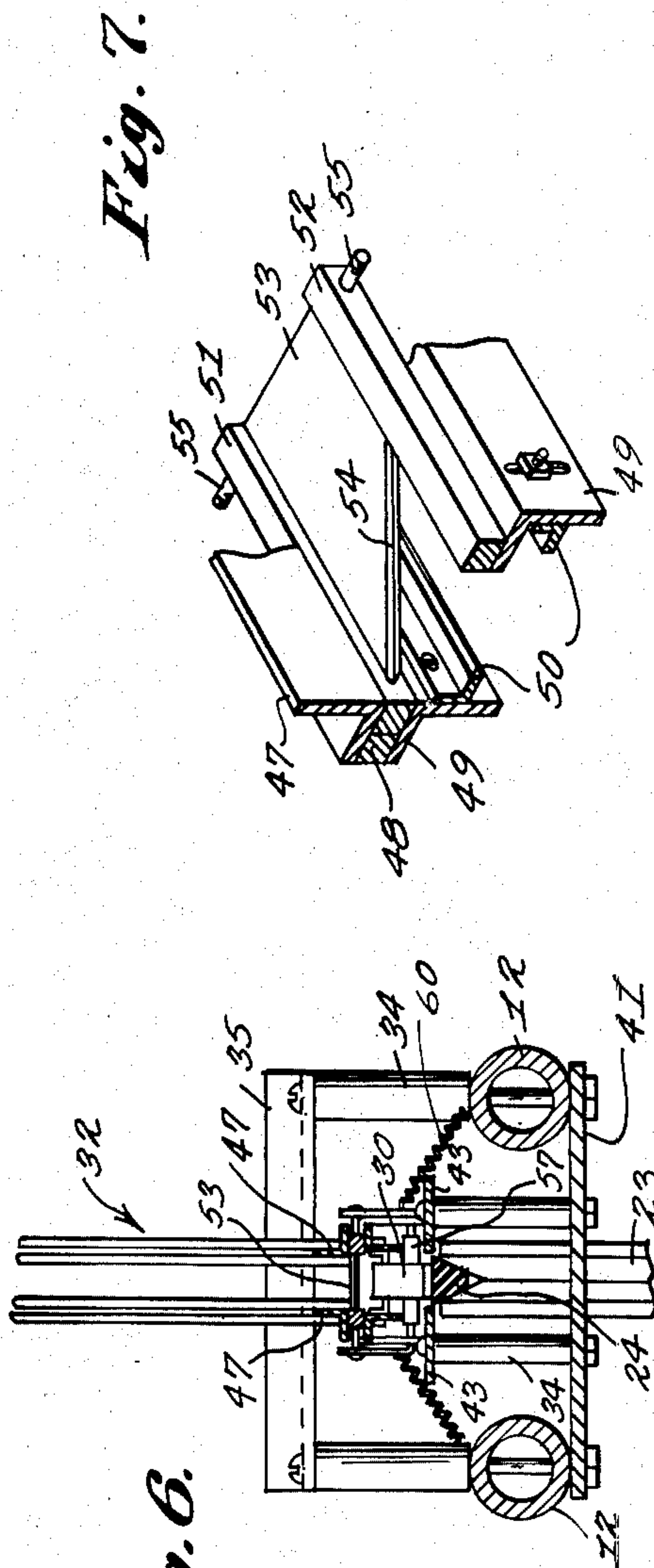


Fig. 7.

Fig. 6.

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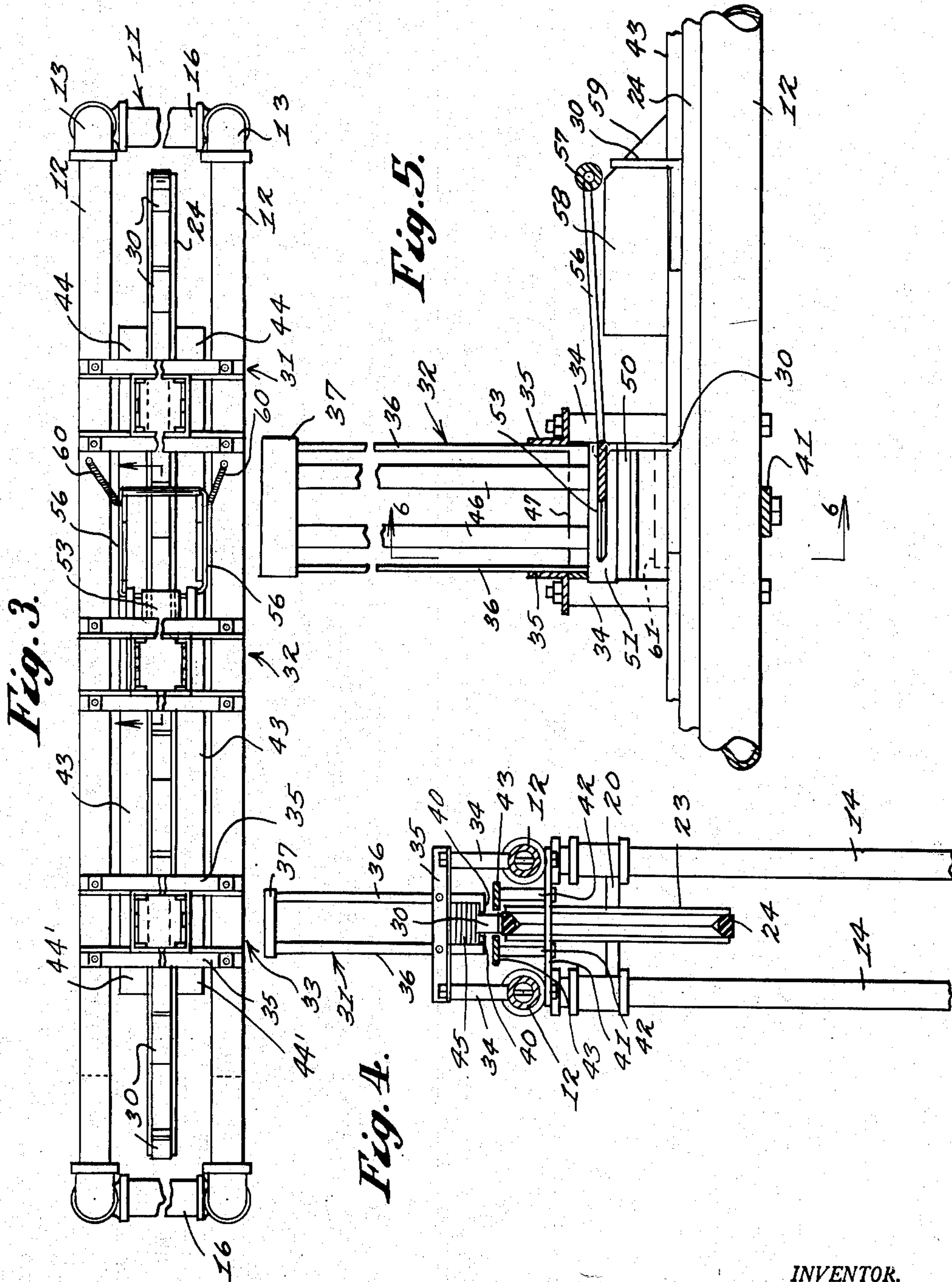
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BRICK SLICING MECHANISM FOR ICE- CREAM SANDWICH MACHINES

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4 Claims. (Cl. 107—21)

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This invention relates to ice cream cutting machines, and more particularly to an ice-cream-sandwich-making machine.

A main object of the invention is to provide a novel and improved automatic machine for making ice cream sandwiches, said machine being very simple in construction, reliable in operation, and requiring only a minimum amount of human supervision.

A further object of the invention is to provide an improved ice-cream-sandwich making machine which involves relatively few parts, which is sturdy in construction, which is very sanitary, and which greatly speeds up the process of manufacturing ice cream sandwiches.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a side elevational view of an ice-cream-sandwich-making machine constructed in accordance with the present invention;

Figure 2 is a fragmentary longitudinal vertical cross-sectional view taken through the ice-cream-sandwich making machine constructed in accordance with the present invention;

Figure 2 is a fragmentary longitudinal vertical cross-sectional view taken through the ice-cream-sandwich-making machine of Figure 1;

Figure 3 is a top plan view of the machine of Figure 1;

Figure 4 is a transverse vertical cross-sectional view taken on line 4—4 of Figure 1;

Figure 5 is an enlarged cross-sectional detail view taken on line 5—5 of Figure 3;

Figure 6 is a cross-sectional view taken on line 6—6 of Figure 5;

Figure 7 is an enlarged perspective fragmentary detail view of the ice cream cutting blade and its support means, as employed in the machine of Figure 1.

Referring to the drawings, 11 designates the frame of the machine, said frame comprising the parallel longitudinal top rails 12, 12, preferably tubular as shown, said rails having elbows 13 attached to their ends, the vertical legs, shown at 14, being attached to said elbows through T-fittings 15, and the T-fittings being connected by transverse tubular cross-bars 16. Secured to the lower portions of the legs 14 is a horizontal shelf 17 on which is mounted an electric motor 18.

Secured to the respective longitudinal rails 12, 12 at their end portions are depending hanger brackets 19, and transversely journaled in said brackets are the respective shafts 20 and 21.

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Mounted on said shafts are the respective large pulleys 22 and 23, and extending around said large pulleys is the flexible conveyor belt 24. Shaft 20 also carries a pulley 25. Mounted on shelf 17 is a bracket 26 having rotatively journaled thereto an idler pulley 27. The shaft of motor 18 carries a drive pulley 28. Pulley 28 is coupled to pulley 25 by a belt 29 which passes around idler pulley 27.

Secured on belt 24 are the spaced angle members 30.

Designated respectively at 31, 32 and 33 are three feeding structures spaced along the top of frame 11 and overlying the top of belt 24. Each feeding structure comprises four upstanding vertical post elements 34 secured to the frame rails 12, 12, opposing pairs of post elements being connected at their top ends by transverse angle bars 35. The vertical flanges of the angle bars 35, 35 are in inwardly-opposing relationship and secured thereto over the belt 24 are the vertical corner angle bars 36, defining a vertical rectangular chute. The top ends of the bars 35 are secured to a rectangular top band 37, defining the top opening of the chute. The lower ends of the longitudinally-aligned bars 36 of the structures 31 and 33 are connected by straps 38. Secured to the straps 38 and bands 37 of the feeding structures 31 and 33 are vertical side bars 39 which extend below the straps 38 and are formed with inwardly-extending horizontal flanges 40 which define a passageway therebetween through which the top portions of the upstanding arms of the angle members 30 may pass.

Secured to the under sides of the rails 12, 12 beneath each feeding structure is a transverse bar 41. Secured to the transverse bars 41 on opposite sides of the conveyor belt 24 are upstanding post elements 42 and secured to the top ends of said post elements are the respective longitudinal ramp bars 43, 43 disposed adjacent the conveyor belt on opposite sides thereof. The ramp bars terminate in inclined portions 44 and 44', the inclined ramp portions 44 being rearwardly adjacent the feeding structure 31 and the inclined portions 44' being forwardly adjacent the feeding structure 33.

A stack of sandwich cakes 45 may be disposed in each of the vertical chutes defined in the feeding structures 31 and 33. The lowermost cake is supported on the flanges 40, 40. As the belt 24 moves, the top portions of the angle members 30 successively engage the lowermost cakes and push said cakes forwardly from beneath the stack.

Referring now to Figures 5 and 6, it will be seen that the intermediate feeding structure 32 has the spaced vertical side bars 46, to the lower ends of which are secured longitudinal angle bars 47. Secured to the outer marginal portions of bars 47 are bars 48 and secured to the bars 48 are the parallel angle bars 49, as shown in Figure 7. Secured to the depending vertical flanges of the bars 49 are the smaller angle bars 50 defining therebetween a longitudinal passageway through which the top portions of the angle members 24 may pass. The respective sets of bars 47, 48 and 49 also define horizontal longitudinal guideways in which are slidably positioned respective bar members 51 and 52 having secured therebetween a horizontal cutting blade 53 formed with an inclined cutting edge 54. The rear end portions of bars 51 and 52 are provided with laterally-projecting pins 55 and pivoted to said pins are rearwardly extending rods 56. Rotatably mounted between the rear ends of rods 56 is a transverse roller 57. Secured on the ramp bars 43 are trapezoidal cam blocks 58, said blocks having inclined rear edges 59. Respective springs 60, 60 connect the rear portions of rods 56 rearwardly to the rails 12, biasing the blade 53 to a retracted position, as shown in Figure 3, wherein roller 57 is disposed rearwardly adjacent the lower portion of the inclined cam edges 59. As shown in Figure 5, when one of the angle members 30 moves into engagement with the roller 57, it pushes the roller upwardly along the inclined cam edges, causing the blade 53 to be moved forwardly through a cutting stroke. As the roller 57 reaches the top edges of the cam blocks 58, it is disengaged from the member 30, allowing the springs 60, 60 to retract the blade 53 to its starting position.

A brick of ice cream may be vertically supported in the feeding structure 32, resting on the bottom angle bars 50, 50. As shown in Figure 5, the blade 53 shears off a slice of the brick at the bottom thereof. At the completion of the shearing stroke of the blade, the severed slice is engaged by the top portion of an angle member 30 and is moved forwardly off of the supporting angle bars 50, 50.

In operation of the machine, the feeding structures 31 and 33 are each provided with a vertical stack of sandwich cakes and a vertical ice cream brick is disposed in the feeding structure 32. In forming sandwiches, the angle members 30 first move cakes from beneath the stack in feeding structure 31 onto the respective angle members. As a cake, shown for example in dotted view at 61 in Figure 5, comes beneath the feeding structure 32, a severed slice of ice cream is deposited thereon. As the slice of ice cream comes beneath the feeding structure 33, the angle member 30 on which the slice is carried moves another cake from beneath the stack of cakes in feeding structure 33 onto the ice cream slice, thereby completing the sandwich.

The completed sandwiches may be wrapped or packaged in any suitable manner subsequent to their movement from beneath the feeding structure 33.

Although a specific embodiment of an ice-cream-sandwich-making machine has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In an ice cream sandwich making machine having a horizontally disposed endless belt including spaced projections thereon for feeding cakes, an ice cream feeding structure above said conveyor, said structure comprising a vertical chute to receive an ice cream brick, a longitudinal passage at the lower end of said chute through which the projections may pass, a horizontally disposed cutting blade slidably carried by said chute and spaced above the top plane of said projections, and means for oscillating said blade, whereby the lower portion of the ice cream brick is severed in timed relation to movement of the conveyor.

2. In an ice cream sandwich making machine having means to feed a cake, an endless belt conveyor, spaced projections carried on said conveyor for moving said cake with said conveyor, ice cream feeding structure mounted above said conveyor and positioned for depositing ice cream on the cake, said means comprising a chute having means at the lower end thereof for supporting a brick of ice cream, said means being arranged to allow movement of said projections therethrough to engage the bottom of the brick, a horizontal cutting blade slidably carried by the chute in spaced relation to and located above said supporting means, and means for reciprocating said cutting blade in timed relation to the movement of said conveyor.

3. An ice cream sandwich making machine comprising a frame, a horizontally disposed endless belt conveyor including spaced elements mounted on said frame for movement about spaced horizontal axes, spaced projections carried on said conveyor, an ice cream feeding structure supported in overlying relation with respect to said conveyor, means for supporting an ice cream brick in said ice cream feeding structure, there being a longitudinal passageway provided at the lower end of said ice cream feeding structure for the passage therethrough of said projections, said projections being selectively engageable with the lowermost portion of the ice cream brick in response to the movement of said belt conveyor, a horizontally disposed cutting blade slidably carried by the lower portion of said ice cream feeding structure spaced above the top plane of said projections and movable through said ice cream feeding structure, spring means biasing said cutting blade outwardly of said ice cream feeding structure, and means carried by said cutting blade and engageable by said projections for moving said cutting blade inwardly of said ice cream feeding structure in response to the movement of said projections.

4. An ice cream sandwich making machine comprising a frame, a horizontally disposed endless belt conveyor including spaced elements mounted on said frame for movement about spaced horizontal axes, spaced projections carried on said conveyor, an ice cream feeding structure supported in overlying relation with respect to said belt conveyor, means for supporting an ice cream brick in said ice cream feeding structure, there being a longitudinal passageway provided at the lower end of said ice cream feeding structure for the passage therethrough of said projections, said projections being selectively engageable with the lowermost portion of the ice cream brick in response to the movement of said belt conveyor, a horizontally disposed cutting blade slidably carried by the lower portion of said ice cream feeding structure spaced above

the top plane of said projections and movable through said ice cream feeding structure, spring means biasing said cutting blade outwardly of said ice cream feeding structure, inclined cam means carried by said frame rearwardly of said ice cream feeding structure, a transverse roller member on said cam means successively engageable by said projections, and link means pivotally connecting said roller member to said blade, said cam means being formed and arranged to release said roller member when said cutting blade has been moved a substantial distance inwardly of said ice cream feeding structure.

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