No. 858,997. PATENTED JULY 2, 1907.

J. M. LOW.

BUTTER CUTTER.

APPLICATION FILED DEC. 12, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

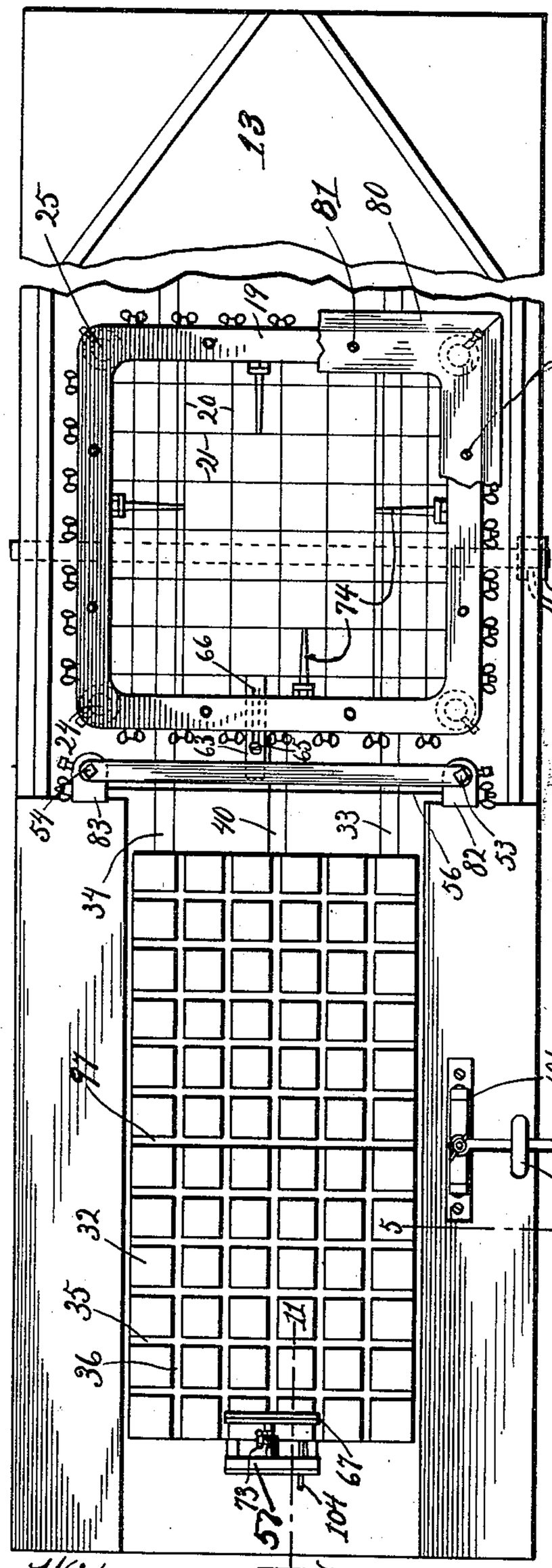
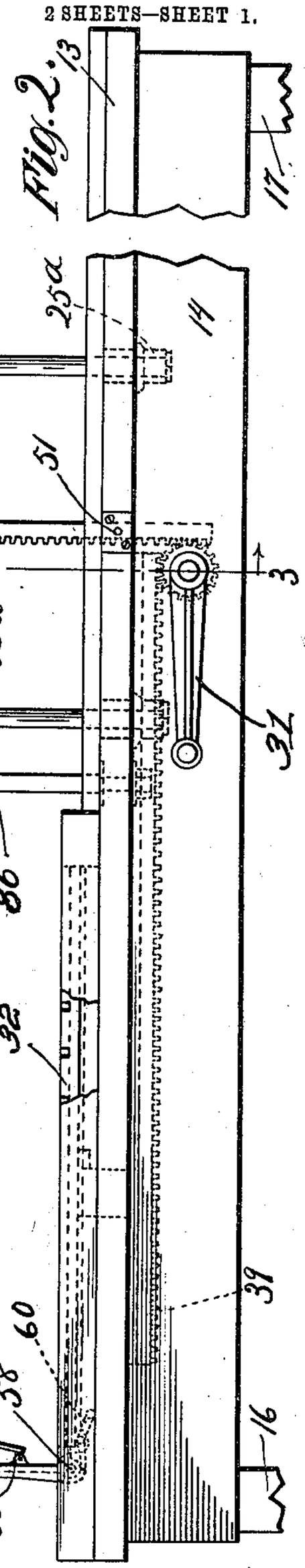


Fig. 2.



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2 SHEETS—SHEET 2.

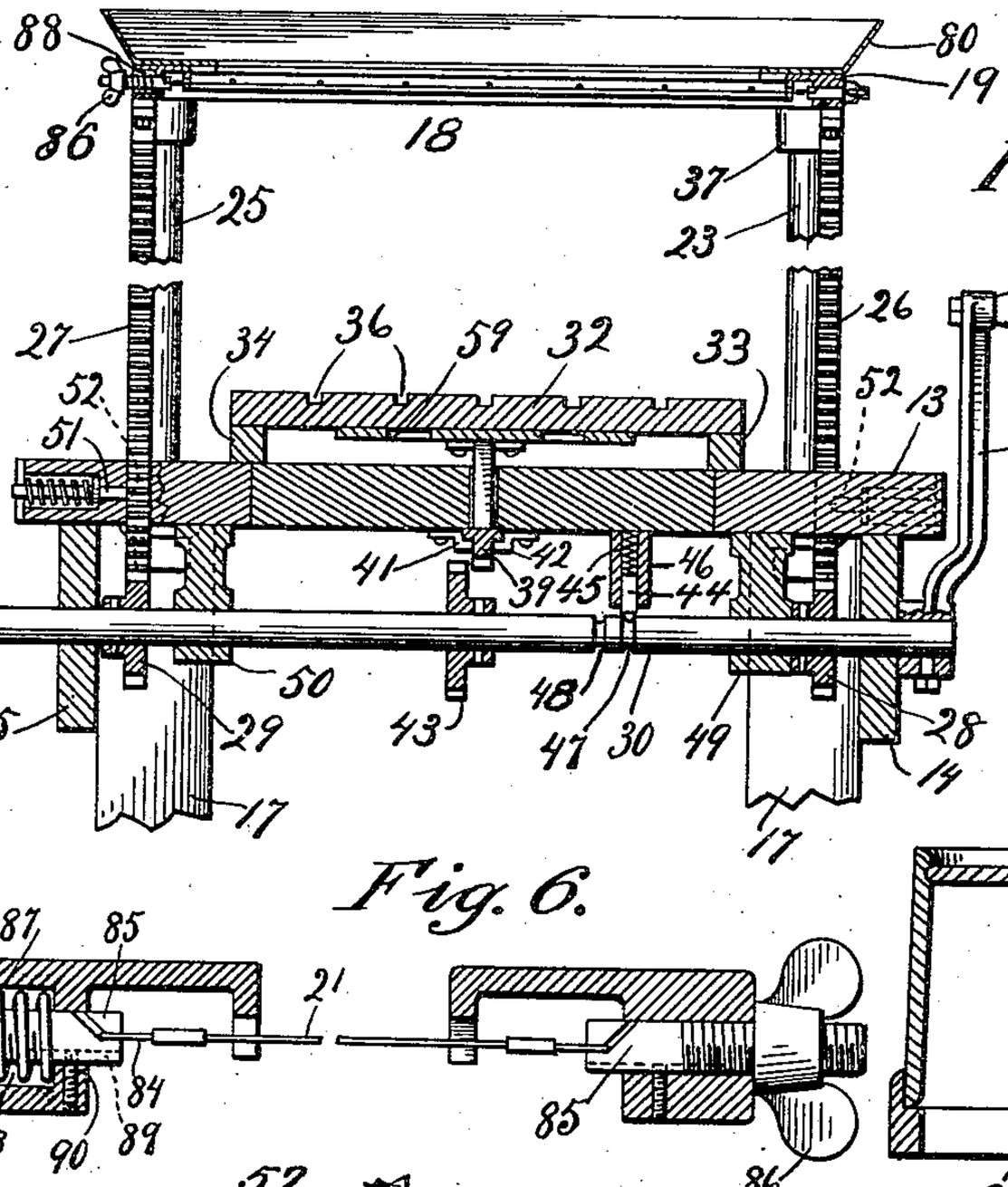

Fig. 3.

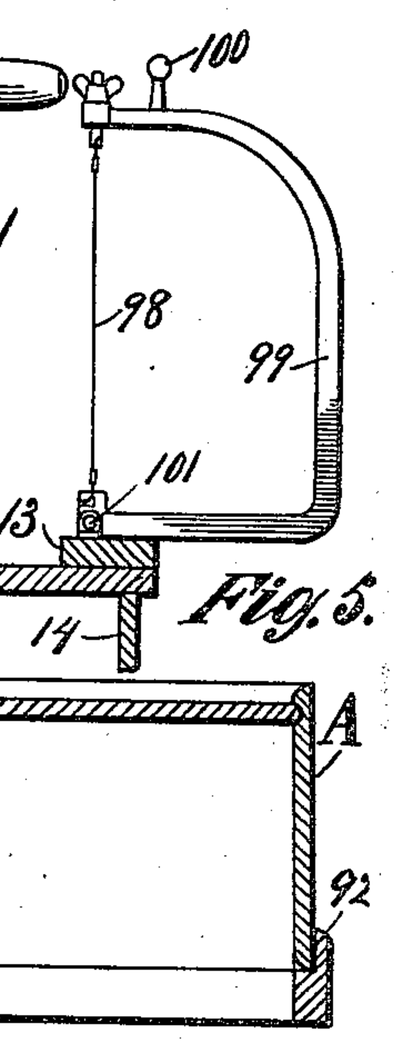

Fig. 5.

Fig. 6.

Fig. 9.

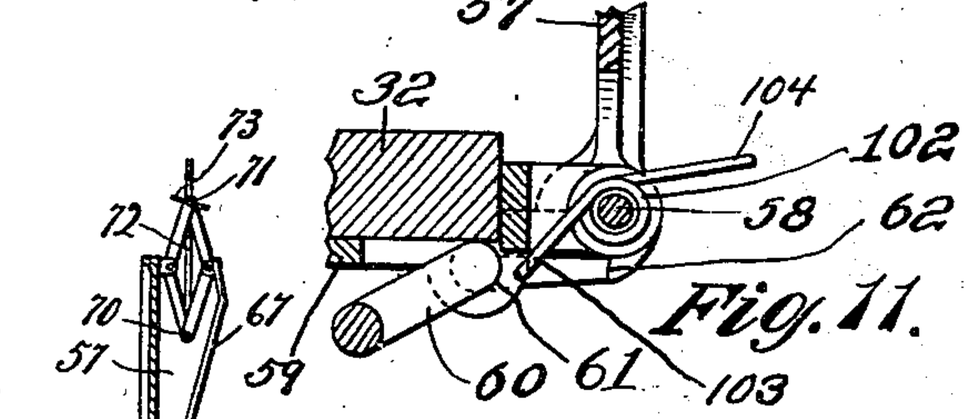

Fig. 11.

Fig. 4.

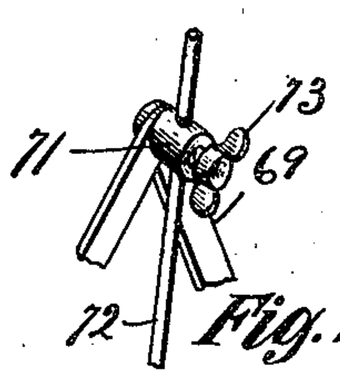

Fig. 7.

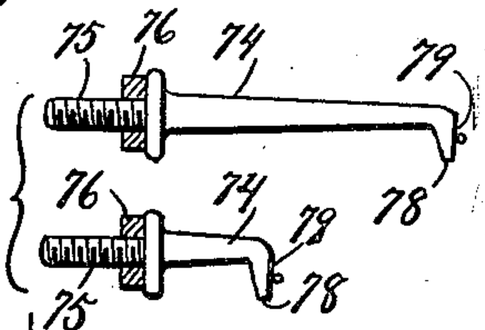

Fig. 8.

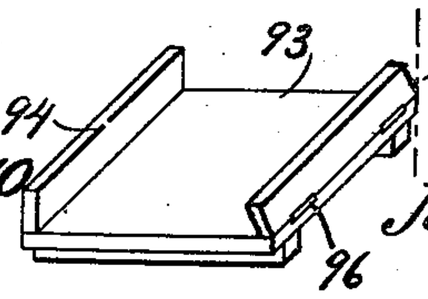

Fig. 10.

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UNITED STATES PATENT OFFICE.

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BUTTER-CUTTER.

No. 858,997. Specification of Letters Patent. Patented July 2, 1907.

Application filed December 12, 1906. Serial No. 347,534.

To all whom it may concern:

Be it known that I, JOHN M. LOW, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Butter-Cutters, of which the following is a specification.

This invention relates to means for cutting into cakes, of a convenient size for use or sale, soft material such as is usually produced or received by the dealer in large masses having the form of a containing vessel.

More particularly, the invention relates to devices for cutting soft material in which there are provided a plurality of cutting strands adapted to be passed through a mass of the material along different planes; and the principal object of the invention is to provide improved means for dividing a large mass of material at a single operation into as many cakes or prints of a definite size as may be formed therefrom without molding.

Other objects of the invention will be developed during the course of the following specification.

In the accompanying drawings,—Figure 1 is a plan view of a device constructed according to the invention, some of the parts being broken away; Fig. 2 is a side elevation of the same, some of the parts being shown in vertical longitudinal section; Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2; Fig. 4 is a detail central vertical section of the device; Figs. 5, 6 and 7 relate to details of construction; Figs. 8, 9 and 10 show certain accessories employed for handling the material during the operation of the device, and Fig. 11 a detail section taken on the line 11—11 of Fig. 1.

The particular form of the device illustrated in the drawings is incorporated with a table 13 having side rails 14—15 and supporting legs 16—17. A vertically-movable cutting-head 18 is supported over the table, and preferably comprises a rectangular open frame 19 carrying a plurality of cutters arranged at right angles, and which, as shown, take the form of wire strands 20—21 stretched across the opening of the frame.

The cutting head 18 is mounted at the top of a plurality of columns 22—23—24—25, which are vertically movable with the head, and, as shown, each has a sliding engagement with a bushing 25^a fitted into an aperture in the top board of the table. Crank and gear mechanism is provided for raising and lowering the cutting head, and preferably includes a pair of gear racks 26—27 extending downwardly through the table from the frame 19, one at each side of the median line of the table. A crank shaft 30 is journaled in brackets 49—50 secured to the under face of the top board of the table, and carries a gear pinion, as 28—29, for engaging each of the racks 26—27. Each end of the crank shaft extends through the side rail, as at 14—15, of the table, and at one end, as shown in Fig. 3, there is provided a hand crank 31.

A platen 32, movable over the top of the table, is provided for supporting the material to be cut. As shown, it has a longitudinal sliding engagement with rails 33—34 secured to the top board of the table 13 and extending beneath the cutting head 18, and has its surface grooved, as indicated at 35—36, to provide a recess for receiving each of the cutting strands 20—21. A shoulder 37 is formed on each of the columns 22—23—24—25, to engage the surface of the table to limit the downward movement of the cutting head and prevent the cutting strands engaging the bottom of the grooves 35—36. As shown, these shoulders 37 are formed integral with the frame 19, and each provides a socket for receiving the head of one of the supporting columns, which is secured within the socket by means of a set screw 38.

For moving the platen 32 on the supporting rails 33—34, a gear rack 39 is provided, and preferably extends through a slot 40 to the under face of the table, where it is engaged by cleats 41—42 to guide the movement of the platen on the rails. As shown, a gear pinion 43 is mounted on the crank shaft 30 for engaging the gear rack 39, and is so positioned on the crank shaft that it is out of register with the gear rack when the pinions 28—29 are engaged with the gear racks 26—27, and the crank shaft is longitudinally shiftable in its bearings to permit the interengagement of the pinion 43 and gear rack 39 and the disengagement of the pinions 28—29 and gear racks 26—27. For maintaining the crank shaft in its adjusted positions, a pawl 44 is yieldingly advanced upon the shaft by a spring 45 coiled about its stem and housed within a bracket 46 secured to the under face of the table 13, and grooves 47—48 are formed in the shaft for receiving the point of the pawl. For supporting the cutting head 18 in its raised position, particularly when the gear pinions 28—29 are out of engagement with the gear racks 26—27, a spring pawl 51, having a tapered point, engages a correspondingly shaped recess 52 formed in the side face of each of the gear racks 26—27, adjacent its lower end.

Provision is made for cutting the material supported by the platen 32 into slabs as it is advanced into position beneath the cutting head 18. To this end, standards 53—54 rise from the table 13 at either side of the path of the platen and in front of the cutting head, and a plurality of horizontally-disposed cutting strands 56 are supported by the standards. An abutment 57 rises from the rear end of the platen to prevent the displacement of the material thereon as it is advanced upon the cutting strands 56. As shown, this abutment is hinged to the platen at 58 through a frame 59 which extends beneath the platen in the form of a cleat to guard against warping of the platen in use, and the abutment is adapted to be automatically overturned upon its hinge as the platen ad-

vances to permit it to pass beneath the cutting strands 56. As shown, a stop 60, pivotally attached to the frame 59 at 61, normally engages a shoulder 62 formed on the abutment to support it in a vertical position, and a trip 63 having a forwardly-inclined face 64 is secured to the face of the table in the path of the stop 60, preferably by means of a set screw 65, which extends through a slotted aperture 66, formed in the body of the trip. A buffer is provided for arresting the fall of the abutment when the stop 60 is engaged by the trip 63, and most conveniently takes the form of a spring 102 coiled about the pin of the hinge 58, and having one of its ends, as 103, reacting against the platen, and its other end 104 extending into the path of the abutment.

As the sides of the mass of material to be cut usually have the inclined form of a containing vessel, the contacting face of the abutment 57 is preferably forwardly inclined, and in order that its pitch may be adjusted, a plate 67 is hinged to the abutment at 68, and forms its contacting face. The free end of the plate 67 is adjustably secured to the abutment by means of a plurality of links 69 arranged in the form of a lazy tongs having pivotal connections 70 and 71, which are connected by a threaded rod 72, most clearly shown in Fig. 7, and rendered adjustable in length by means of a wing nut 73.

To prevent lateral displacement of those cutting strands 20—21 of the cutting head 18 which are engaged with the material to be cut near the margins of its mass, a prop 74 is preferably provided for engaging the strand intermediate its ends. As shown in Fig. 8, these props are provided for the device in sets of different lengths, in order that either one or two or more strands adjacent each of the margins of the frame 19 may be supported thereby, it being desirable to support only those strands which in cutting are next adjacent the side walls of the mass of material. As shown, each of the props 74 is provided with a threaded shank 75, by means of which it may be removably secured in an aperture 77 formed for that purpose in the frame 19, and a set nut 76 determines the effective length of the prop. At the outer end, each prop is provided with a downwardly-turned knife edge 78, in order that it may pass without obstruction through the material to be cut by the strand which it supports, and the end of the prop for engaging the strand is widened, as indicated at 79, to prevent the displacement of the strand as it flexes in cutting. A pan 80 having an open center is mounted on the cutting head 18 to retain the material trimmed from the mass by the outer cutting strands 20—21 and the props 74 as the head descends. As shown, it is provided with pegs 81, which fit into apertures in the frame 19 to prevent its displacement.

The size of the prints or cakes which are cut from the mass of material is preferably determined by the position of the cutting strands 56 on the supporting standards 53—54, and in order that these strands may be vertically adjustable thereon, each has its ends secured in collars 82—83 surrounding the standards and clamped thereto by set screws 83ª. The method of securing the cutting strands 20—21 and 56 in the frame 19 of the cutting head 18 and into the collars 82—83 of the standards 53—54 is most clearly shown in Fig. 6 of the drawings. Each of the strands, as 21, has a loop 84 formed upon its ends, and these loops are engaged by the hooked end of a screw bolt 85 extending through an aperture in the support and carrying a wing nut 86. Preferably, a stout spring 87 is coiled about one of the screw bolts 85 and reacts between the inner face of the wing nut 86 and the wall of a socket 88 formed in the support. To prevent the turning of the screw bolts 85 with the wing nut 86 when the latter is rotated to tighten the cutting strand, a spline 89 is formed in the screw bolt and is engaged by a key 90, preferably taking the form of a set screw.

In order that the device may be employed for cutting a mass of material which is of greater length than the diameter of the frame 19 of the cutting head 18, the platen 32 is made sectional, being divided about midway of its length, as indicated at 97, Fig. 4, and means are provided for cutting the material on the platen in line with the division 97. As shown, a cutting strand 98 is mounted in a bowed frame 99 pivotally attached to the table 13 at 101 to swing over the platen in a transverse position. At the outer end of the bowed frame 99, an operating handle 100 is provided.

In using the device, a quantity of material to be cut is commonly delivered to the machine by overturning a mold or cask A containing the material onto the platen 32 when the latter occupies the retracted position illustrated in Figs. 1 and 2 of the drawings. As the loosening of the material from the walls of the container is sometimes effected with difficulty, a frame 91 having a rabbeted inner edge 92 is preferably fitted over the mouth of the container in order that its contents may fall by gravity onto the platen. If the mass of material is of greater length than one of the sections of the platen 32, it is now divided by means of the cutting strand 98, the position of the platen being shifted by operating the crank handle 31 to bring the division 97 into line with the cutting strand. After swinging the abutment 57 to a vertical position, in which it is supported by the stop 60, and adjusting the pitch of the contacting member 67 to accord with that of the side walls of the mass of material, the platen and the material to be cut are advanced into position beneath the cutting head 18 by rotating the crank handle 31 and crank shaft 30. The crank shaft is then shifted by bearing longitudinally on the crank handle to disengage the gear pinion 43 from the gear rack 39 of the platen and to bring the gear pinions 28—29 into engagement with the gear racks 26—27 of the cutting head 18. By a further rotation of the crank shaft in the same direction, the cutting head is lowered through the material, dividing it vertically into squares of a size determined by the position of the strands 20—21 in the frame 19, while the strands 56 carried by the standards 53—54 have divided the mass horizontally into slabs during the advance of the platen, and cubical prints or cakes of a predetermined size are thus produced. That part of the material which is cut from the edges of the mass by the cutting strands 20—21 which is nearest its margins falls into the pan 80, and the remainder is conveniently accessible for removal and wrapping by reason of the fact that all of the accessories of the cutting head 18 descend to the level of the platen 32 during the operation of cutting. For removing the material from the platen, a tray 93 of the

form shown in Fig. 10 of the drawing, is conveniently employed, the floor of the tray being applied to the face of the mass, and its flanges 94—95, one of which is hinged as indicated at 96, and adapted to swing to the inwardly inclined position shown, serve to compress the mass as it is removed.

That which I claim as my invention and desire to secure by Letters Patent of the United States is,—

1. In a butter cutter, in combination, a cutting strand, a platen movable beneath the cutting strand, an abutment shiftably mounted at the rear of the platen, and a movable stop normally engaging the abutment.

2. In a butter cutter, in combination, a cutting strand, a platen movable beneath the cutting strand, an abutment shiftably mounted at the rear of the platen, a movable stop normally engaging the abutment, and a trip mounted in the path of the stop.

3. In a butter cutter, in combination, a cutting strand, a platen movable beneath the cutting strand, an abutment mounted at the rear of the platen, and an angularly adjustable contact piece carried by the abutment.

4. In a butter cutter, in combination, a table, a platen mounted thereon, a plurality of guide posts arranged about the periphery of the platen and having a vertical sliding engagement with the table, a cutting frame rigidly secured to the posts adjacent the upper ends thereof, and means independent of the posts for vertically moving the cutting frame.

5. In a butter cutter, in combination, a platen, a vertically movable cutting head supported over the platen and comprising an open frame and a plurality of cutting strands crossing the frame, and a pan having an open center fitting over the frame of the cutting head.

6. In a butter cutter, in combination, a horizontally disposed cutting strand, a platen movable beneath the strand, a vertically movable cutting head supported over the path of the platen at one side of the cutting strand, and a crank shaft journaled in a fixed support and having alternately, a gear connection with the platen and a gear connection with the cutting head.

7. In a butter cutter, in combination, a horizontally disposed cutting strand, a platen movable beneath the strand, a vertically movable cutting head supported over the path of the platen at one side of the cutting strand, a gear rack formed on the platen, a gear rack formed on the frame, a crank shaft shiftably journaled in a fixed support, and pinions mounted on the crank shaft for meshing with each of such gear racks, one of the pinions being engaged with and the other pinion being disengaged from the corresponding gear rack by the shifting of the crank shaft in each direction.

8. In a butter cutter, in combination, a platen, a cutting strand, and crank and gear mechanism for effecting successively relative horizontal and relative vertical movement between the platen and the cutting strand.

9. In a butter cutter, in combination, a platen, a vertically movable cutting head co-operating therewith and comprising an open frame and a cutting strand crossing the frame, and a prop having a downwardly directed cutting edge, and a vertically extended contact face carried by the frame of the cutting head and bearing laterally on the strand.

10. In a butter cutter, the combination of an open frame, and cutting wires extending across the same, the sides of the frame being provided with inwardly extending projections bearing against the outer wires.

11. In a butter cutter, the combination of an open frame, cutting wires extending across the same, and means on the frame to prevent bending of the outer wires.

12. In a butter cutter, in combination, a platen, a cutting frame vertically movable over the platen, a plurality of guide posts secured to the margins of the frame and depending therefrom, guides for the posts below the platen, and means independent of the posts for moving the frame.

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