

M. OPPENHEIM.
CUTTING MACHINE.

APPLICATION FILED SEPT. 24, 1912.

1,124,792.

Patented Jan. 12, 1915.

2 SHEETS—SHEET 1.

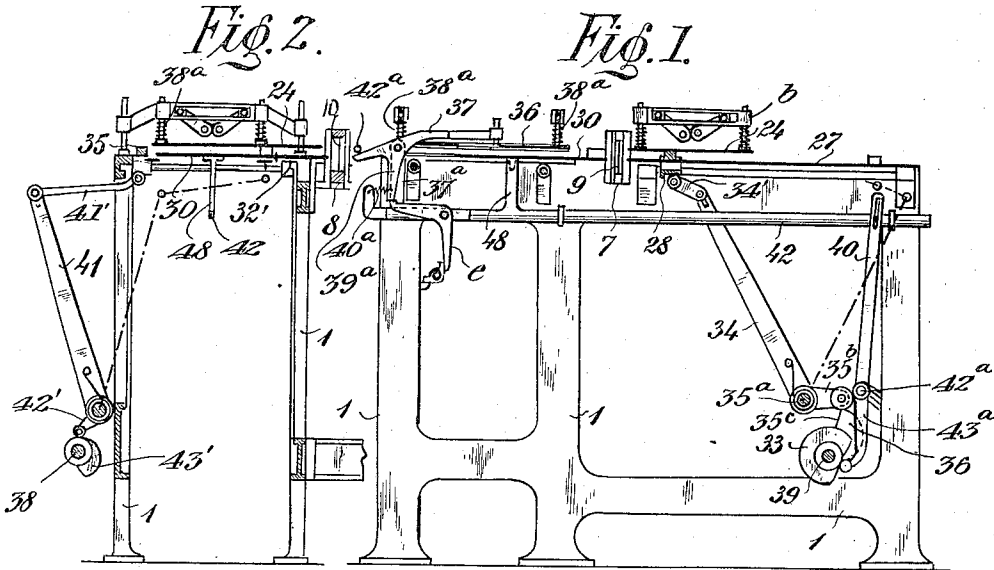
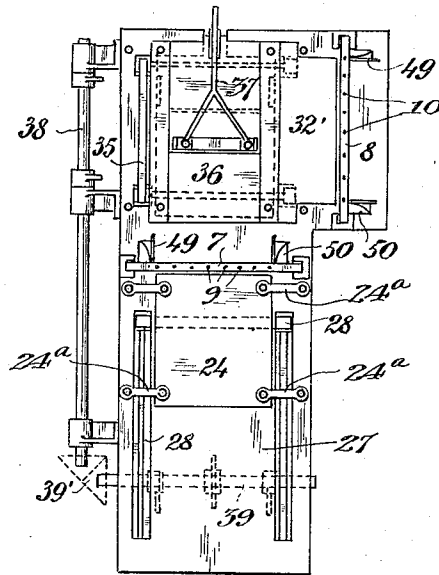


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 5.

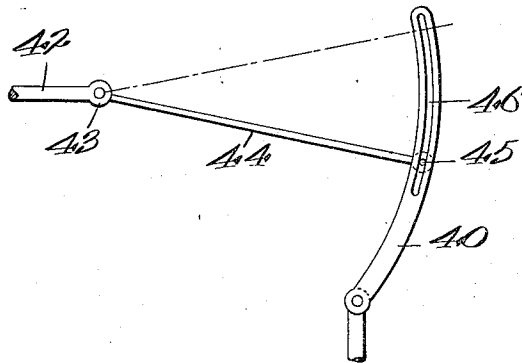


Fig. 4.

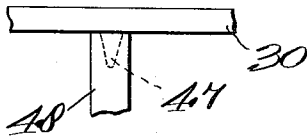


Fig. 6.

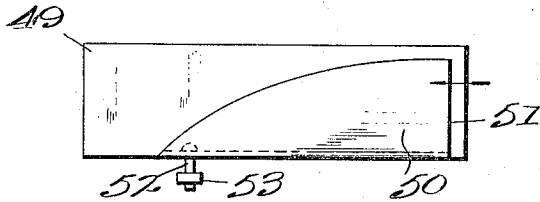
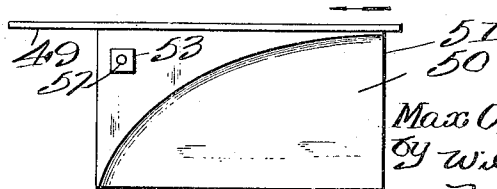


Fig. 7.



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UNITED STATES PATENT OFFICE.

MAX OPPENHEIM, OF BRÜNN, AUSTRIA-HUNGARY.

CUTTING-MACHINE.

1,124,792.

Specification of Letters Patent.

Patented Jan. 12, 1915.

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To all whom it may concern:

Be it known that I, MAX OPPENHEIM, a subject of the Emperor of Austria-Hungary, residing at Brünn, Moravia, Empire of Austria-Hungary, have invented certain new and useful Improvements in Cutting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has for its object to provide an improved cutting machine for dividing into uniform pieces material which can be cut, such as confectionery, wafers, sweetmeats, soap, loam, clay, graphite, and the like.

The improved machine is particularly adapted for cutting large plates of the particular material into uniform prismatic pieces by successive cuts made in directions at right angles to each other. If required, however, the successive cuts may be made in the material in such directions as to form any required angles with each other. The whole cutting process is completed in one machine and in one operation, the result being that the material is cut up ready for use.

In the accompanying drawings:—Figure 1 is a side elevation of the machine; Fig. 2 is an end elevational view thereof; and Fig. 3 is a top plan view of the machine. Figs. 4 and 5 show details of the receiver disk or plate and of the operating mechanism for the same, illustrating particularly the mode and manner of attachment of the various parts. Figs. 6 and 7 show a form of a scraping member as seen in side elevation as well as from below.

Referring to the construction in further detail, the machine consists of a frame 1 providing a table, or other supporting surface, 27 which is adapted to have placed thereon the material to be cut, and which material is in the form of a substantially flat cake. At one end of the supporting surface 27 is mounted a frame 7 carrying a plurality of cutting members 9 through which the material is forced by the carrier 28. Said pusher consists of a bar extending across the table 27 and is connected to a pair of levers 34 by the links 34'; and said levers are mounted on a shaft 35^a that has an extension 35^b adapted to be engaged by the cam 35^c on the shaft 39. The pusher 28 is

reciprocated through the medium of the lever and cam mechanism (34 and 35^c), and on its forward stroke (*i. e.* to the left of Fig. 1) the material is forced through the row of cutters 9 and thus formed into strips. A plate 24 is resiliently mounted on a frame *b* above the supporting surface 27 and just in advance of the cutters 9, and has for its purpose to press against the material while the same is being cut into strip form. The plate supporting frame *b* is mounted on the frame 1 through the medium of the links 24^a, as clearly shown in Fig. 3. When the material has been cut into strip form, it is transferred to the plate 30 and from said plate the strips are caused to be moved in a path at right angles to that previously taken, to the end of cutting said strips transversely and thereby obtaining the cubes or other design of blocks accordingly as the second path of movement is 90°, more or less. The plate 30 is mounted upon the frame 48 by a laterally-shiftable bar 42 on the frame 1, and said bar is actuated through the medium of a lever 40 with which it connects, which lever is fulcrumed to the frame 1, as at 42^a. The lever extension 43^a is in engagement with the cam 33 and through the rotation of which said bar 42 is moved, as above stated. The levers 34 and 40 are timed to be operated so that the transfer plate 30 will be brought into position to receive the cut strips as the same issue from between the cutters 9, and when all of the strips have been delivered to the plate 30, said plate is moved in the reverse position when the strips are ready to be carried across the plate 32 and into engagement with the row of cutters 10 mounted in the frame 8.

The means for moving the strips through the second row of cutters 10 consists of a bar 35 mounted to slide across the surface 32 and having connection with the pair of levers 41 by the links 41'. Said levers 41 have extensions 42' that are actuated by cams 43' mounted on the shaft 38. Said shaft 38 is connected to drive the shaft 39 through the medium of a suitable miter gearing 39' (see Fig. 3).

The material delivered to the transfer plate 30 is adapted to be positively held on said plate to prevent possible adherence to the next following cake of material, and to this end the presser plate 36 is mounted above and actuates with the plate 30. Said

presser plate 36 is mounted on one end of an arm 37, that is fulcrumed on an extension 37^a of the bar 42, and a plurality of springs 38^a engage with said plate 36 and normally tend to hold the same under downward tension. The arm 37 is adapted to be automatically actuated to move the plate 36 into and out of engaging position by the following mechanism:—A lever *e* is pivotally mounted on the bar 42, and has one arm *g* thereof adapted to engage with the arm extension 39^a and hold the arm 37 in a raised position against the tension of a retraction spring 40^a. Said spring 40^a connects the arm extension 39^a with the end of the bar 42 as shown clearly in Fig. 1. A pawl 41^a mounted on the frame 1 is adapted to engage with the other arm of the lever *e* and turn the latter to release the arm 37 when the bar 42 moves to the left of the position shown in Fig. 1. This movement of the arm 42 carries the transfer plate 30, that has just received the strips, to the proper position for forcing the same through the row of cutters 10. When the transfer plate is moved to its extreme position, *i. e.* to place the strips for transverse cutting, the presser plate 36 is automatically lifted from engagement with the strips through the medium of a stop 42^a that engages with the extension of the arm 37, as shown in Fig. 1.

In order to adapt the stroke of the disk 30 to the size of the particular plate of material to be cut, the fulcrum of the lever 40 on the frame of the machine is made preferably adjustable, so that the rocking movement of the end of the lever connected to the rod 42 is varied, or an arrangement such as is shown for instance in Fig. 5, may be selected, in which the rod or bar 42 which is connected to the disk 30 is so connected to the lever 40 at 45 through the intermediary of a rod 44 pivoted at 43, so as to be adjustable in the slot 46 provided in the lever 40. This slot 46 preferably takes the form of an arc, the radius of which is equal to the length of the rod 44, so that on movement of this rod in the slot 46 the disk 30 in its front position does not alter its close position next to the knives 9, on the contrary only the other end position and consequently the length of the stroke of the disk 30 is varied. If shorter plates of material are to be cut, the stroke of the disk 30 is increased so that the material on the disk is again moved into the correct position in relation to the second row of knives. In order to be able to adapt the disk 30 also to the breadth of the material to be cut, the same is provided on its underside with pins 47 or the like through the intermediary of which it is interchangeably connected to its carrier 48 as shown in detail in Fig. 4 of the drawings. This carrier or support

48 is fixed to the driving rod 42 which is moved from the cam 33 through the intermediary of the lever 40.

Owing to the interchangeability of the case 9 and the possibility of varying the length of the stroke the cutting machine may be used for cutting plates of material of different sizes.

Behind the rows of knives there are preferably arranged at both sides of the same and adjoining the outermost knives scrapers or strippers which are illustrated in detail in Figs. 6 and 7 and which consist of a guide plate 49 for the material to be conveyed farther through the machine and of a guide 50 serving for removing the waste material detached from the outermost or end knives. The guide 50 is preferably bowl or cup-shaped as shown in the drawings, and is open at the bottom, so that the waste material entering at 51 is removed or deflected in a lateral and downward direction. This deflection is particularly evident from Fig. 7 of the drawings. The cut material which is to be conveyed farther through the machine slides along the guide plate 49 in the direction indicated by the arrow. In order to preserve this guiding action even when the width of the plate of the material varies, the scrapers or strippers are so arranged in the frame as to be adjustable in a direction at right angles to the direction in which the material is fed through the machine. For this purpose transverse slits for screw bolts 52 are for instance provided in the frame of the machine, which screw bolts are connected to the scrapers. The scrapers are fixed in position in a manner known *per se* by means of clamping nuts 53.

I have illustrated and described preferred and satisfactory constructions, but changes could obviously be made in the herein described apparatus.

I claim:—

1. In a cutting machine, the combination of a frame providing a supporting surface; a plurality of cutting members; a pusher mounted on the frame and adapted to force the material through said cutting members; a bar movably mounted on the frame; a transfer plate mounted on said bar and adapted to receive the cut material from said cutters; an arm pivotally mounted on said movable bar; a presser plate mounted on said arm and adapted to engage with and hold the material on said transfer plate; automatically actuated means for moving the presser plate to and from operative position through the movements of said bar; a plurality of cutters mounted on the frame and disposed in relative angular relation to said first-named cutters; a pusher adapted to move the material from said transfer plate through said second cutters; and

means for actuating said pushers and the movable bar, substantially as described.

2. In a cutting machine, the combination of a frame providing a supporting surface; a plurality of cutting members; a pusher mounted on the frame and adapted to force the material through said cutting members; a bar movably mounted on the frame; a transfer plate mounted on said bar and adapted to receive the cut material from said cutters; an arm pivotally mounted on said movable bar; a presser plate mounted on said arm and adapted to engage with and hold the material on said transfer plate; automatically actuated means for moving the presser plate to and from operative position through the movements of said bar; a presser plate mounted over the supporting surface in advance of the first-named cutters and adapted to press against the material while the same is forced through said cutters; a plurality of cutters mounted on the frame and disposed in relative angular relation to said first-named cutters; a pusher adapted to move the material from said transfer plate through said second cutters; and means for actuating said pushers and the movable bar, substantially as described.

3. In a cutting machine, the combination of a frame providing a supporting surface; a plurality of cutting members; a pusher mounted on the frame and adapted to force

the material through said cutting members; a bar movably mounted on the frame; a transfer plate mounted on said bar and adapted to receive the cut material from said cutters; an arm pivotally mounted on said movable bar; a presser plate mounted on said arm and adapted to engage with and hold the material on said transfer plate; a lever pivotally mounted on said bar and adapted to engage with said arm and hold the presser plate in raised position to receive the material thereunder; a pawl mounted on the frame and adapted to engage with and trip said lever to release the arm whereby the presser plate will engage with the material; a stop for engaging with said arm to raise the presser plate to release the material, and position said arm to be engaged by the holding lever; a plurality of cutters mounted on the frame and disposed in relative angular relation to said first named cutters; a pusher adapted to move the material from said transfer plate through said second cutters; and means for actuating said pushers and the movable bar, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

MAX OPPENHEIM.

Witnesses:

ARTHUR BAUMANN,
AUGUST FUGGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."