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E. DEAR

2,494,037

TILE HANDLING AND CUTOFF MECHANISM

2 Sheets-Sheet 1

Filed May 11, 1948

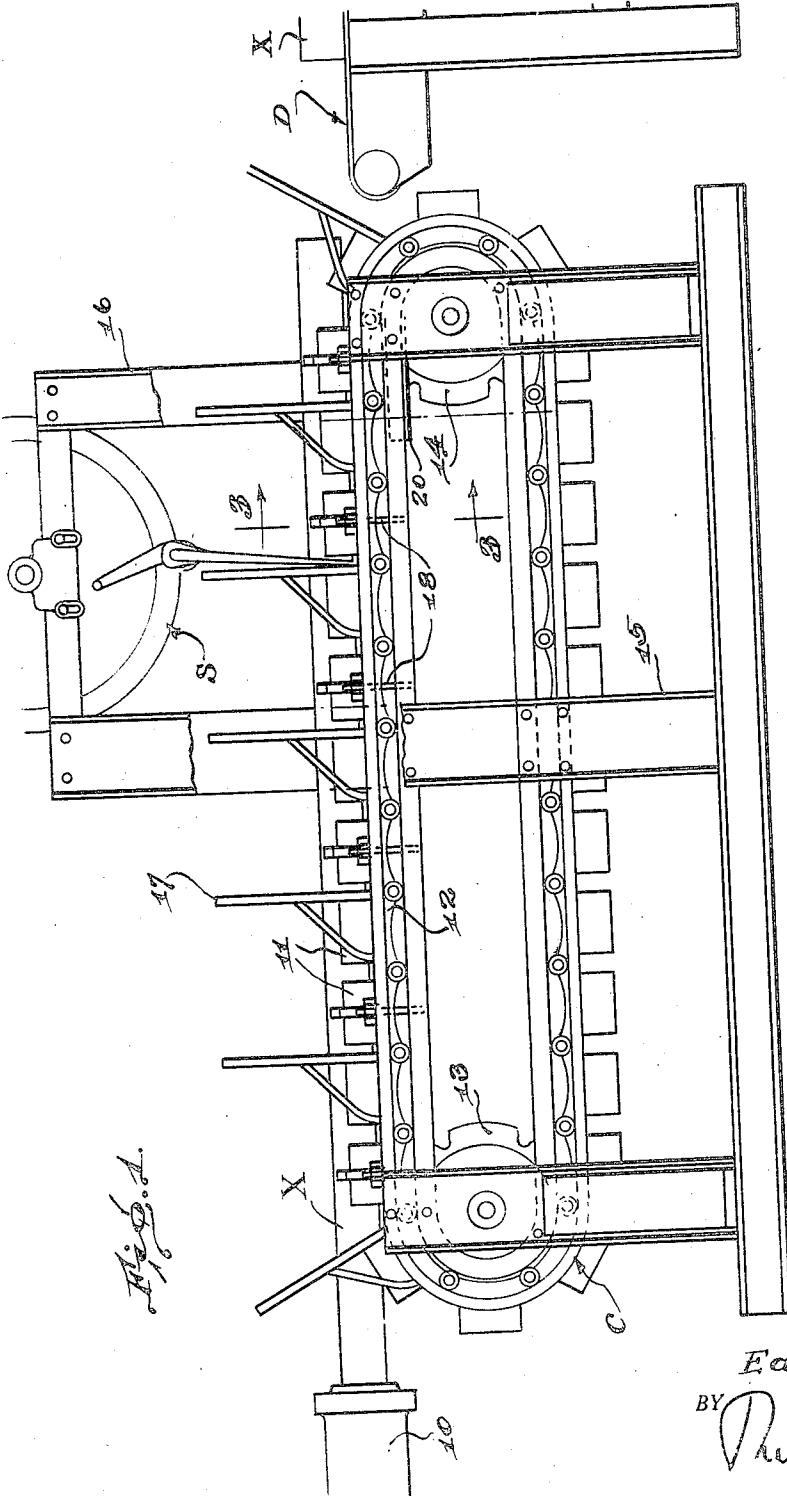


Fig. 1.

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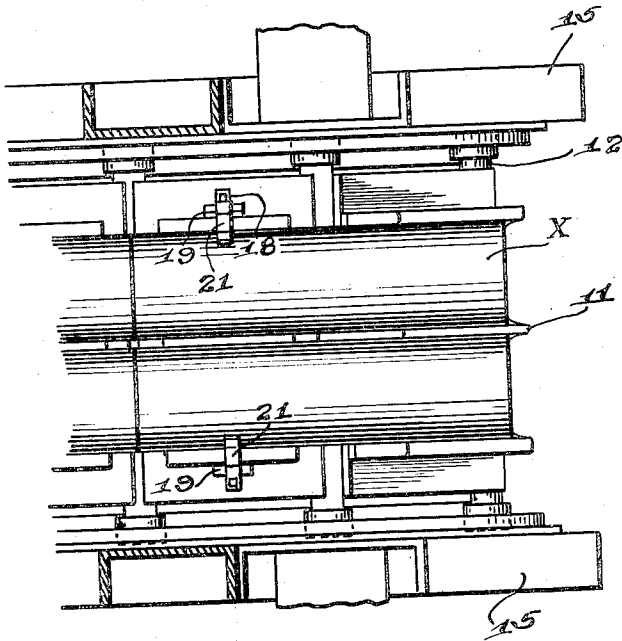
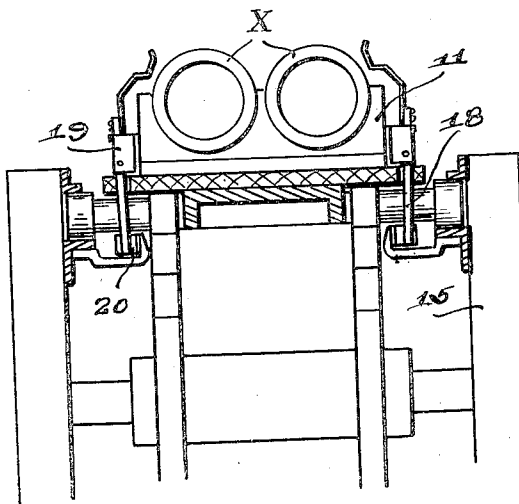
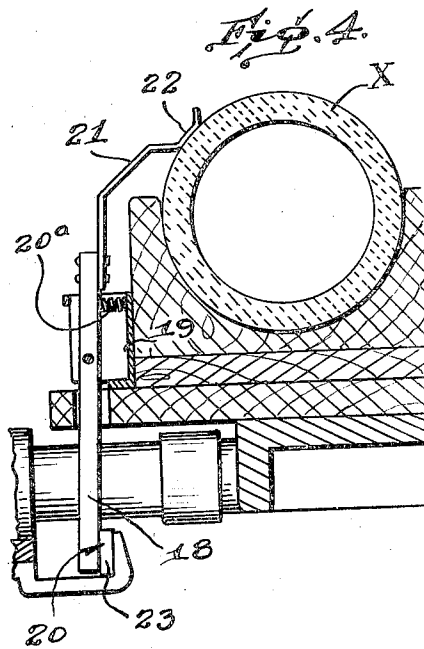


Fig. 3.

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TILE HANDLING AND CUTOFF MECHANISM

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9 Claims. (Cl. 25-113)

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This invention relates to tile machines, but more particularly to tile feeding and cutting mechanism adapted for association with a twin tile forming machine by which two endless lengths of clay tubing are simultaneously formed.

An object is to produce a tile feeding mechanism adapted to receive the two rows of tile lengths from an auger machine, for example, and to stabilize the advancing movement of the lengths, thereby to militate against one tile length moving ahead of or faster than the other.

Another object is to produce a tile machine by which the clay tubing is cut to predetermined lengths and is conveniently discharged onto another conveyor, for example, without requiring manual labor as has heretofore been required.

A further object is to produce a tile feeding and cutting mechanism having the new and improved features of construction, arrangement and operation hereinafter described.

For purposes of illustration but not of limitation, an embodiment of the invention is shown on the accompanying drawings, in which:

Figure 1 is a side elevation of the tile feeding and severing mechanism;

Figure 2 is a sectional view looking down at the front end portion of the carrier, showing the presser members engaging the rear end portion of the severed tile section;

Figure 3 is a vertical sectional view substantially on the line 3-3 of Figure 1, showing the tiles in the tile trays and relation of the pressure arms to the tile; and

Figure 4 is an enlarged vertical sectional view showing a pressure arm after it has been moved into engagement with the tile.

The illustrated embodiment of the invention comprises a tile forming machine 10, such, for example, as the auger type for forming from plastic clay twin tile tubes in laterally spaced parallel horizontal rows. Machines of this character are well-known to those skilled in the art, and further illustration and description is not considered necessary.

The machine 10 delivers the two rows of tile lengths to a carrier C, the two rows of tubing X resting upon suitable trays 11 which are suitably supported by endless chains 12 trained about sprocket wheels 13 and 14 at opposite ends of a framework 15. The advancing movement of the tile X imparts the movement to the carrier. Mounted upon a structure 16 is a suitable severing device S for recurrently cutting the rows of tubing X into predetermined pile lengths. The severing mechanism forms no part of the present invention so that detail description and illustration thereof is not considered necessary.

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Suffice it to say that the cutting mechanism ordinarily consists of a plurality of radially disposed arms carrying cutting wires which successively engage between bars of upright guide posts 17 which are connected to and move along with the endless chain 12. Cutting mechanism of this character, known as type 2BT are sold by the Fate-Root-Heath Company, of Plymouth, Ohio, and an example of a machine of this character is illustrated in the Mills et al. Patent 537,808, dated April 16, 1895.

Although every effort is made in the forming machines 10 to advance the two rows of tile lengths X at a uniform rate of speed, difficulty is experienced in having one row move ahead of the other row. In order to obviate this difficulty and to stabilize the advancing movement of the two rows, a series of vertically disposed arms 18 are pivoted adjacent their upper ends to brackets 19 suitably secured to the outer side of each tray 11. It will be understood that there are series of longitudinally spaced trays 11 for supporting the tile, a pair of trays supporting each severed section. The lower ends of the arms 18 engage in a cam track 20 which is so designed to impart outward swinging movement to the lower end of the arm at predetermined periods in the advancing movement of the carrier, as will hereinafter be described.

A helical coil spring 20a is disposed between the upper end portion of each arm 18 and the bracket 19 to urge the lower end of the arm into engagement with the cam surface on the cam track 20. Fixed to the upper end of each arm 18 is a spring finger 21 which inclines upwardly and inwardly and is formed with a flat tile engaging surface at the upper end in order resiliently to engage the adjacent tile X. It will be observed on Figure 1 that the arms 18 are arranged alternatively with respect to the tile supporting trays 11, the purpose for which will hereinafter appear.

Associated with the cam track 20 at a point intermediate the receiving end of the carrier and the region where the cutters operate is a cam surface 22 with which the lower ends of the arms 18 successively engage, thereby causing the flat end portion 22 of the spring finger 21 to engage each of the rows of tile X. This clamping pressure is sufficient to stabilize the advancing movement of the tile tube from the machine 10. If one length of tubing is moving ahead of the other, the clamping pressure against the sides of the tubing slightly retards the movement and effects the desired stabilization. The clamping pres-

sure imposed by the spring fingers 21 is exerted for a very short interval of time, whereupon the respective arms 18 are released and the spring 20a abruptly rocks the spring finger away from the adjacent tubing. The arrangement is such that each of the lengths of tubing is simultaneously engaged by the spring fingers and also is released at the same time.

Near the discharge end of the carrier C, the cam tracks 20 are similarly provided with cam surfaces 23 to effect similar rocking movement to exert pressure against the rear end of each severed tile section just prior to its discharge from the carrier. By clamping the rear end of each tile section, the front end of such section is held in its horizontal position so that it will engage a conveyor D. It will be manifest that without exerting such clamping pressure upon each tile section, the front end of the tile would tend to incline downwardly as the forward tray moves downwardly from its horizontal position. Heretofore, it has been necessary manually to remove the tile sections from the carrier and place them on the conveyor D. Such manual labor is eliminated since the tile sections move readily from the carrier to the conveyor D. As soon as the tile section is delivered to the conveyor D, the clamping pressure is released from the rear end portion of the tile section.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

1. The method of forming clay tiles consisting in horizontally advancing two endless tubes in parallel side by side relation upon an endless carrier, applying pressure to each tube during advance to equalize the movement thereof, recurrently severing the tubes into predetermined sections, and applying pressure to the rear end portion of each section at the time of discharge from the carrier to cause same to maintain its horizontal position thereof.

2. Tile feeding and severing mechanism comprising mechanism for advancing a length of tile, cutters operating in timed relation to the advancing movement of the tile for severing same into sections, pressure arms for imposing pressure on the tile during advancing movement, and means for automatically rendering said arms effective at a predetermined point in the advancing movement of the tile.

3. Tile feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, a horizontally movable carrier receiving said rows, members engageable respectively with the tile lengths of said rows for imposing slight clamping pressure thereon to stabilize the movement of the two rows, and a cutter for severing said tile lengths into sections.

4. Tile feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, a horizontally movable carrier receiving said rows, members engageable respectively with the tile lengths of said rows for imposing slight clamping pressure thereon to stabilize the movement of the two rows, actuating means for said members responsive to movement of said carrier, and a cutter for severing said tile lengths into sections.

5. Tile feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, a horizontally movable carrier receiving said rows, spring arms engageable respectively with the tile lengths of said rows for imposing slight clamping pressure thereon to stabilize the movement of the two rows, and a cutter for severing said tile lengths into sections.

6. Tile feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, a horizontally movable carrier receiving said rows, clamping members engageable respectively with the tile lengths of said rows, cams for recurrently rendering said clamping members effective, and a cutter for severing said tile lengths into sections.

7. Tile feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, a horizontally movable carrier receiving said rows, clamping members engageable respectively with the tile lengths of said rows, cams for recurrently rendering said clamping members effective, one set of said cams causing said clamping members to press against the sides of the tile lengths respectively to stabilize the movement of the rows and another set of said cams causing said clamping members to engage a rear end portion of each severed tile section prior to discharge from the carrier to militate against the front end of the section tilting downward, and a cutter for severing said tile lengths into sections.

8. Tile feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, a horizontally movable carrier receiving said rows, transversely rockable lever arms engageable respectively with the tile lengths of said rows, cams for recurrently rendering said transversely rockable lever arms effective, one set of said cams causing said transversely rockable lever arms to press against the sides of the tile lengths respectively to stabilize the movement of the rows and another set of said cams causing said transversely rockable lever arms to engage a rear end portion of each severed tile section prior to discharge from the carrier to militate against the front end of the section tilting downward, and a cutter for severing said tile lengths into sections.

9. Tube feeding and severing mechanism comprising mechanism for advancing endless lengths of tile in laterally spaced, parallel, horizontally disposed rows, an endless carrier for receiving said rows and advancing same horizontally, a series of spring clamping arms carried by said carrier and mounted for rocking movement toward and away from the outer side of said tile rows respectively, stationary cam tracks engageable by said clamping arms respectively to cause same to impose clamping pressure on said rows to stabilize the movement of said rows at one point in the movement thereof, cutter mechanism to sever said tile rows into predetermined sections, and other cam tracks to cause said clamping arms to engage the rear end portion of each severed section substantially at the point of discharge from said carrier.

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No references cited.