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BRICK DELIVERING AND STACKING MEANS

Original Filed July 15, 1921

FIG. 1.

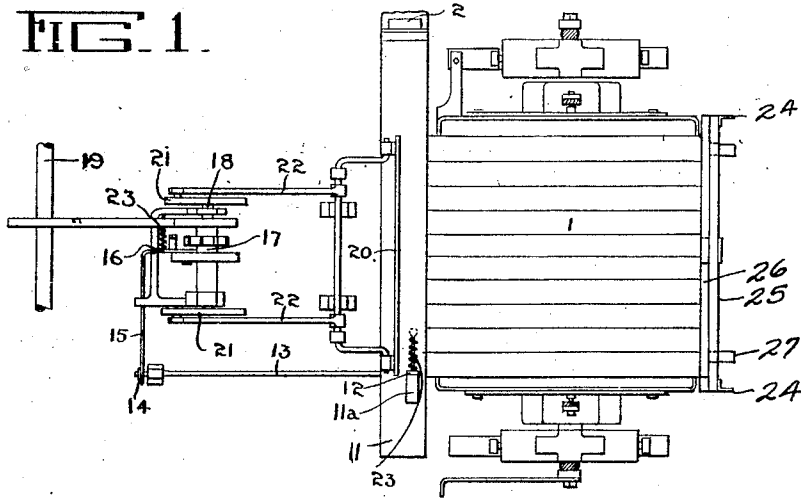


FIG. 2.

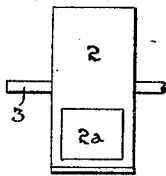
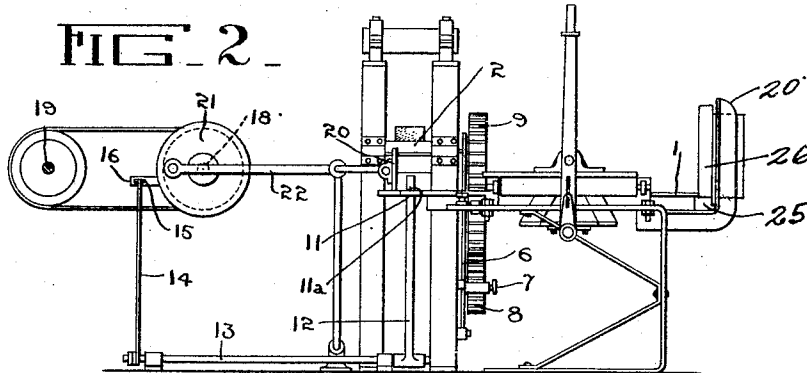


FIG. 4.

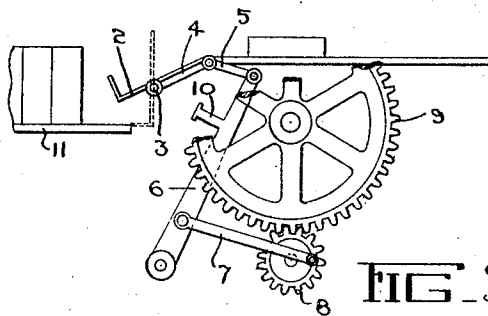


FIG. 3.

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BRICK DELIVERING AND STACKING MEANS.

Original application filed July 15, 1921, Serial No. 485,008, and in New Zealand August 5, 1920. Divided and this application filed November 8, 1924. Serial No. 748,702.

This invention relates to brick delivering and stacking means, employed for receiving and handling bricks immediately after the latter are formed, and has for its object the provision of improvements, whereby bricks issuing on the flat from brick forming apparatus are enabled to be delivered on end and in rows on to a table or other surface capable of being tipped so that all of the bricks will be arranged into vertical stacked formation.

In carrying out the invention a hinged tray or shelf is provided between the point of exit of the bricks from the brick forming apparatus, and the table or surface on to which the bricks are to be delivered in a plurality of rows, said tray or shelf being provided for the purpose of tipping each of the bricks on to their ends in order that they may be brought in rows on to the delivery table or other surface on end, and the stacking of rows of bricks on the flat be performed by tipping the aforesaid table or surface.

Upon a brick being tipped by the hinged tray or shelf, the pressure or continued delivery of the following bricks as they are upended and forced on to the table or other surface causes the previously upended bricks to be worked over to form a row across said table or surface.

Upon a row of upended bricks being completed across the table or surface the first brick of the row comes in contact with and operates a trip lever, movement of which causes a clutch to be brought into use and a plunger to be moved forward for the purpose of pushing said row of upended bricks forward on the table or other surface in a line at right angles to the line of delivery of bricks on to the table or surface.

When the table or surface is loaded, the upended bricks thereon can be spread or opened out as desired, and brought into stacked formation on a bearing board on the table, by tipping the table or surface.

In the accompanying drawing in conjunction with which the invention will be further described:—

Figure 1 is a plan view and

Figure 2 an elevation showing a tipping delivery table and mechanism adapted for use with brick forming apparatus from which bricks issue on the flat.

Figure 3 is a detail view of the mechanism for operating the hinged tray or shelf and

Figure 4 is a detail view of the hinged tray or shelf.

In the drawing 1 represents a tipping delivery table constructed and operated in a similar manner, to the delivery table, described in my co-pending application for Letters Patent, Serial No. 485,008, and in adapting same to brick forming apparatus which delivers bricks on the flat, a hinged or pivoted tray or shelf 2, is mounted in suitable supports at a point between the exit of bricks from the brick forming apparatus, and the receiving or delivery table 1.

The object in providing said tray 2 is to provide for the tilting or tipping of the bricks from the flat on to their ends either before they reach the table 1 or to tilt or tip them directly on to the latter.

The means for effecting the upending of the bricks comprise the before mentioned hinged or pivoted tray 2 mounted on a horizontal spindle 3, and an arm 4 which is connected by a link 5 with the upper end of a rocking arm 6 actuated through a push rod 7 from a pinion 8 meshing with a suitably driven gear wheel 9.

This gearing is arranged to cause the tray or shelf 2 to tip after it has received a brick on the flat, and closely following the tipping or tilting of said tray 2 comes the operation of a pusher 10 carried on the arm 6, for the purpose of pushing the upended bricks clear of the tray or shelf 2. To enable the pusher 10 to act the tray 2 is formed with a gap or opening 2^a therein, to permit the brick being pushed off the tray. As a further brick or bricks are upended and pushed clear of the tray 2, the previously upended brick or bricks is or are gradually worked across a fixed platform 11 level with the table 1.

When a row of upended bricks is completed across the platform 11 the first brick comes in contact with the upper end of a trip lever 12 projecting upwards through a slot 11^a in the platform 11. Movement of the upper end of this trip lever 12 by the row of bricks, causes partial movement to be given to the rod 13, which in turn transmits movement through a vertical lever 14 and a horizontal rod 15 to a sliding bar 16, the latter being withdrawn from below the leg of a rocking pawl of a clutch 17 on a shaft 18 adapted to be driven from a shaft 19.

The shafts 18 and 19 and clutch 17 are

similar in construction and operation to the clutch and gearing used in my co-pending application Serial No. 485,008, for pushing the severed length of clay bar through the cutting wires and are designed to make one revolution for the purpose of causing a plunger 20 actuated from discs 21 on the shaft 18 through rods 22 to move once forwards and push the completed row of bricks off the platform 11 and the required distance on to the table 1 and then return to its starting position and become inoperative until another row of bricks requires pushing forward.

In order that the pusher 20 when in operation will avoid an advancing row of bricks it is to be noticed that the pusher 20 and tilting tray 2 both have reciprocal movements and are adapted to receive and deliver each brick and in this connection it is desired that the shaft 19 to which the shaft 18 and the pusher 20 are attached rotate by a speed a little greater than twice as fast as the tilting tray so that the pusher 20 after it gets into action can effect a clearance of bricks from the table 11 and return in the time that it takes the tilting tray 2 to rock back and receive another brick. For example, bricks are made at the rate of 1200 per hour (the usual speed rate of these machines) 20 per minute and one brick every second of time and the shaft 19 must rotate at the rate of 3,000 per hour, 50 per minute or a forward clearance movement of pusher 20 and return something more than once in every second of time thereby avoiding all danger of collision of the pusher 20 and the advancing row of bricks.

As soon as the row of upended bricks on the platform 11 is clear of the upper end of the trip lever 12, the latter is returned to its normal position, and the sliding bar 16 to its position in readiness for re-engaging the leg of the pawl of the clutch 17, so as to cause the shaft 18 to be again rendered inoperative at the completion of a full revolution, by the action of springs 23.

In order that the bricks on the table 1 may be arranged in stacked formation after the table has been tilted, a bearing board or stop is provided at the bottom edge of the table or that edge of the table farthest from the cutting table. Two vertical arms 24 one at each side of the said edge of the table 1 are connected by a cross bar 25 which supports the offbearing board 26 on edge ready to receive the load of bricks from the table. The offbearing board or stop 26 is slightly greater in length than a cutting of the bricks to allow for the opening out of the latter and is equalled to a brick length in width or height. Two cross-battens 27 are nailed on the back of the board 26 which when pressed on the delivery table is positioned with these battens facing and between the vertical arms 24.

When the table 1 is fully loaded with

bricks on end the full load is tipped or tilted so that all of the bricks on the table will now rest in vertical stacked formation on the bearing board 26, the bricks being arranged either in parallel rows at right angles to the line of delivery of bricks on to the platform 11 or with the joints between the bricks of the rows crossed, the latter arrangement being brought about by the backward and forward movements of the table 1 and the spreading plates thereon.

If desired the bricks can be caused to be delivered upended on to the table 1 from each side of the latter simultaneously, and in some cases the delivery at each side of the table can be duplicated to provide for a minimum of four rows of upended bricks being formed on the table 1 at the same time as described in my prior application 485,008, filed July 15, 1921, now Patent No. 1,518,641, of which the present application is a divisional.

The rows are all commenced and finished together and immediately they are completed the plunger before described is brought into use and pushes them up the table.

What I do claim and desire to obtain by Letters Patent of the United States of America is:—

1. Apparatus for dealing with bricks including in combination a hinged tray receiving bricks on the flat; a tiltable surface; means for tipping said tray and means for delivering the bricks on end and in rows on to said surface; a stop on said tiltable surface opposite the means delivering bricks in rows thereonto; and means for tilting said surface to bring the rows of bricks thereon into stacked formation on said stop, substantially as described.

2. Apparatus for dealing with bricks including in combination a hinged tray receiving bricks on the flat; means for tipping said tray, a fixed platform receiving the bricks on end from said tray; a pusher for moving the bricks on end along said platform, a tiltable table; a plunger operating to push the bricks on end and in rows off said platform on to said table; a stop on the latter opposite the plunger pushing bricks thereonto; and means for tilting said table to bring the rows of bricks thereon into stacked formation on said stop, substantially as described.

3. Apparatus for dealing with bricks including in combination a fixed platform, a hinged tray receiving bricks on the flat; and delivering same on end to form a row of upended bricks on said platform; a pusher for moving the upended bricks along the latter; a tiltable table; a plunger operating across the fixed platform to force rows of bricks onto the table; means whereby said plunger is brought into operation at the completion of a row on the platform; arms on the table opposite the plunger; a board supported by

said arms and means for tilting the table to bring the rows of bricks thereon into stacked formation on said board, substantially as described.

5 4. Apparatus for dealing with bricks including in combination a fixed platform; a hinged tray mounted between the point of delivery of bricks issuing on the flat from brick forming apparatus, and said fixed
10 platform; a table tiltable at right angles to the line of delivery of said bricks on to said platform; a pusher operating through said tray to form a row of bricks on end along

said platform; a plunger for forcing said row of bricks on end "off" said platform on
15 to said table in a line at right angles to the line of delivery of bricks on to said platform; arms on the table opposite the plunger; a board supported by said arms; and means
20 for tilting said table to bring the bricks in rows thereon into stacked formation on said board, substantially as described.

In testimony whereof I have affixed my signature.

LAURITZ NEILSEN DYHRBERG.