

July 22, 1958

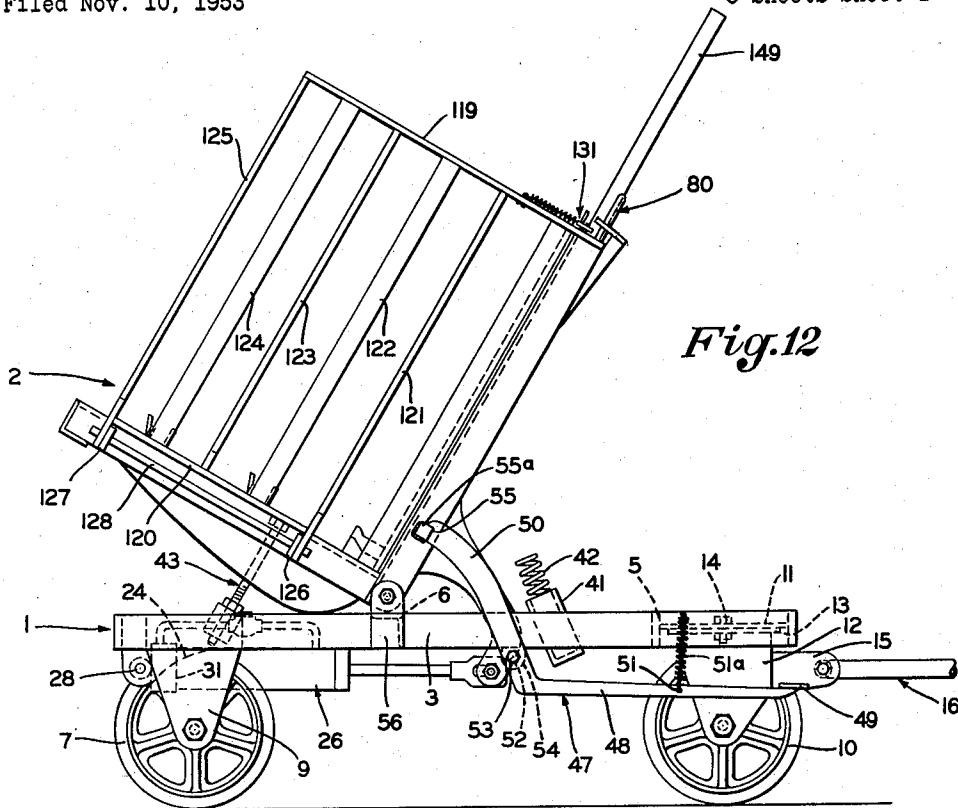
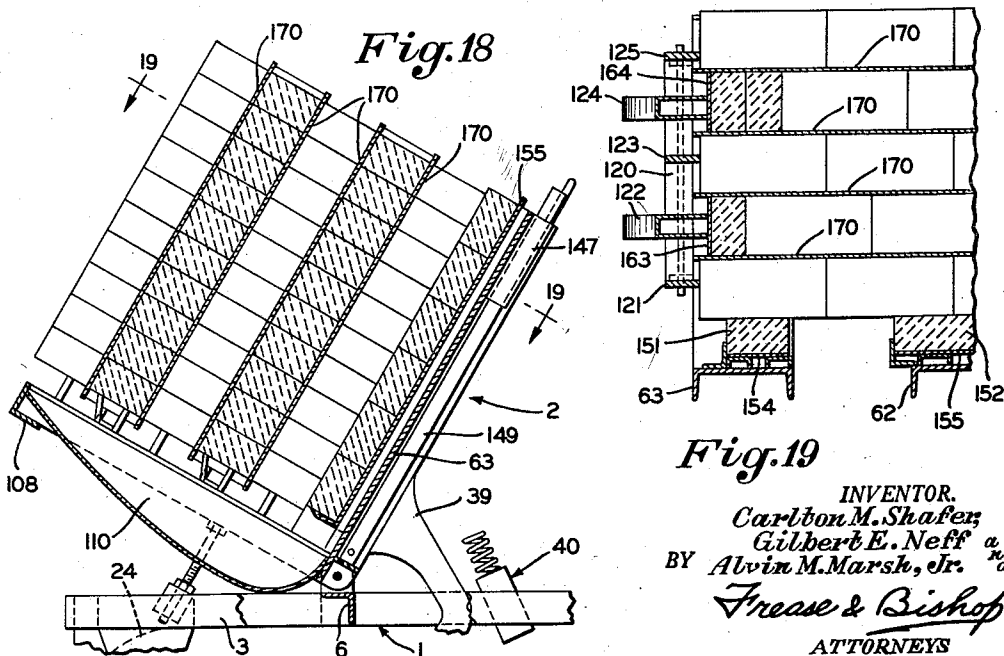
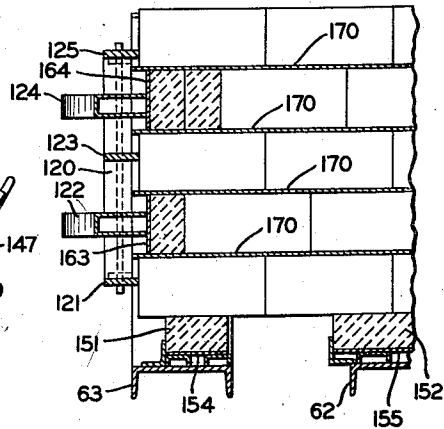
C. M. SHAFER ET AL

2,844,091

BRICK PACKAGE FORMING MACHINE CONSTRUCTION

Filed Nov. 10, 1953

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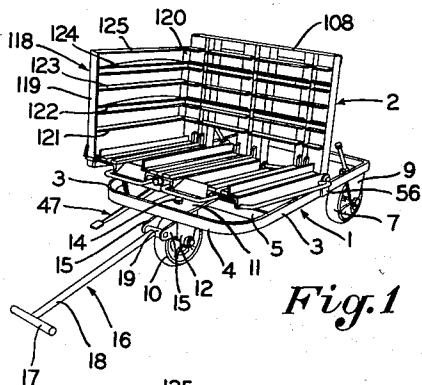
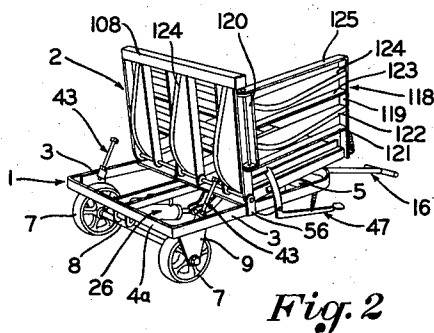
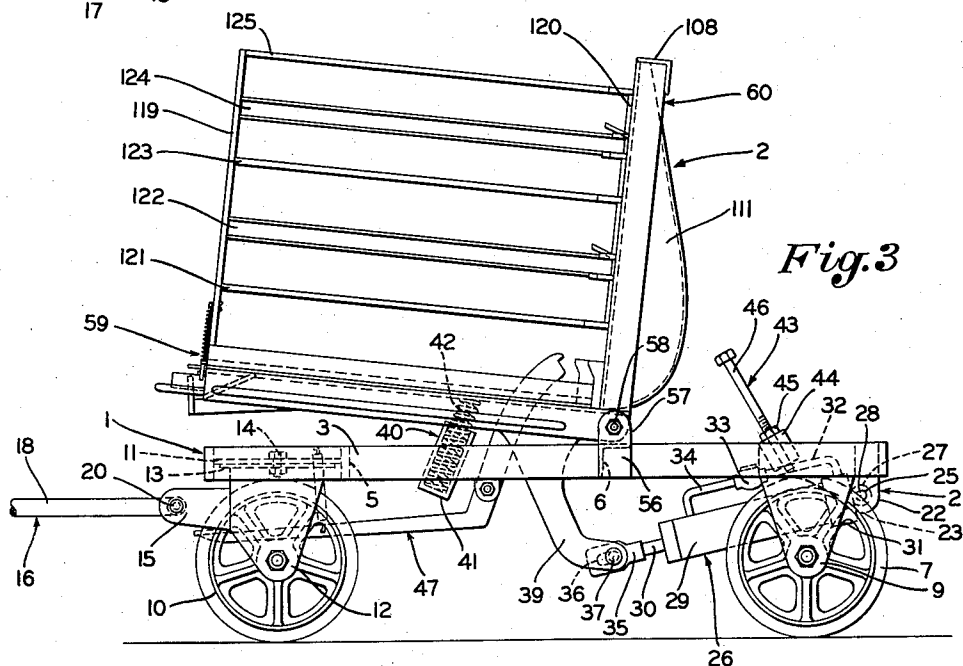
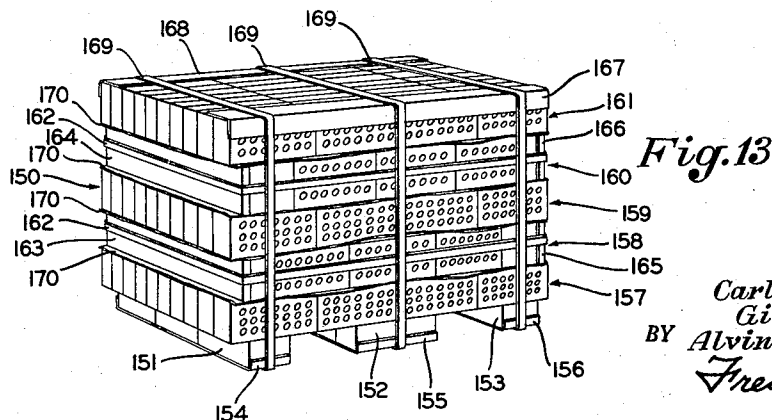


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BRICK PACKAGE FORMING MACHINE CONSTRUCTION

5 Sheets-Sheet 2



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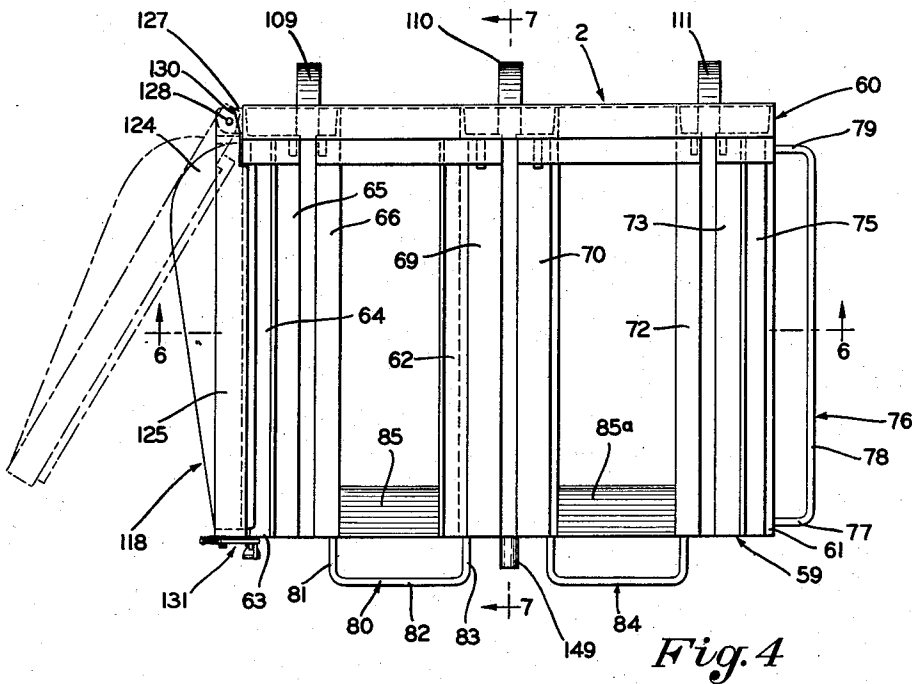
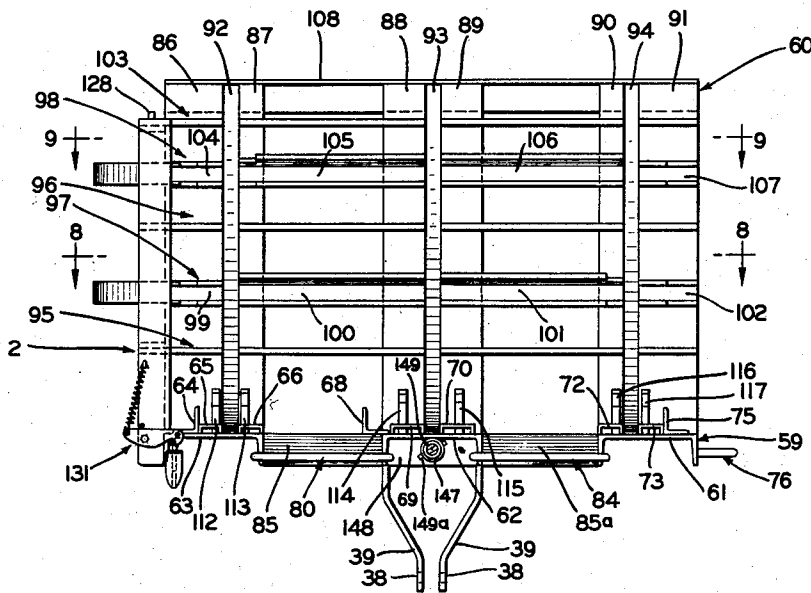
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5 Sheets-Sheet 3



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Fig. 6

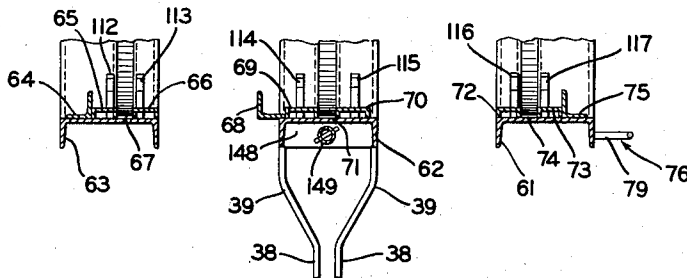


Fig. 7

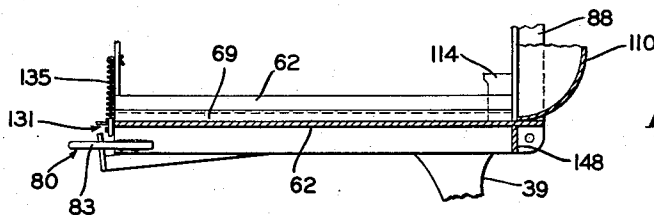
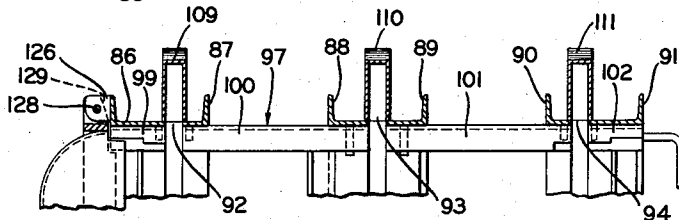


Fig. 8



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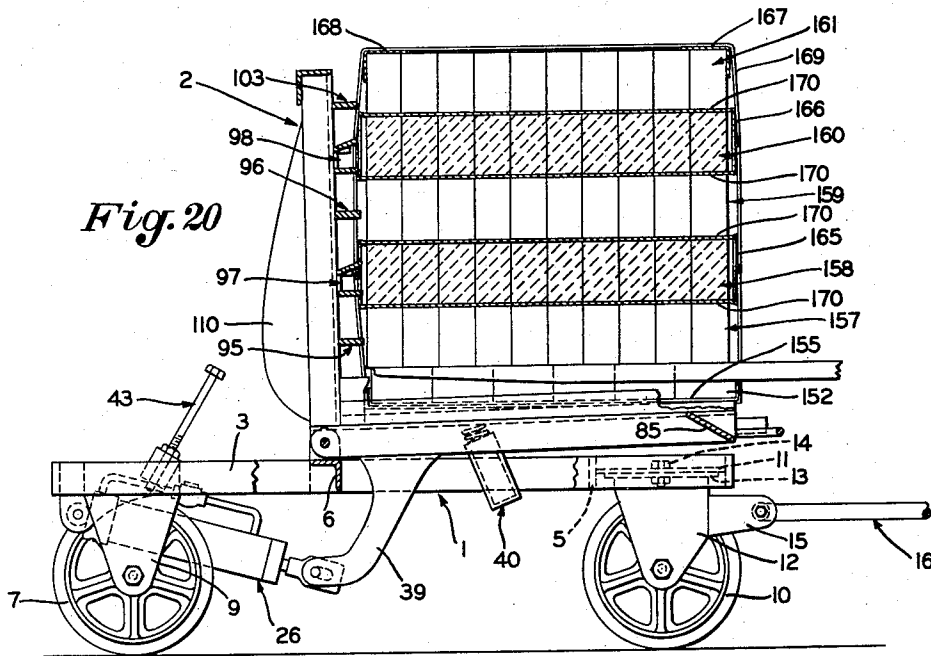
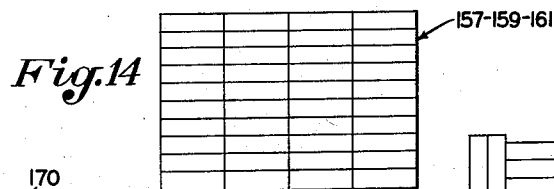


Fig. 16

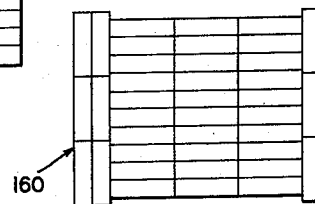
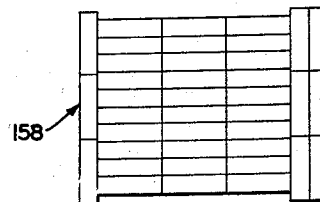


Fig. 15

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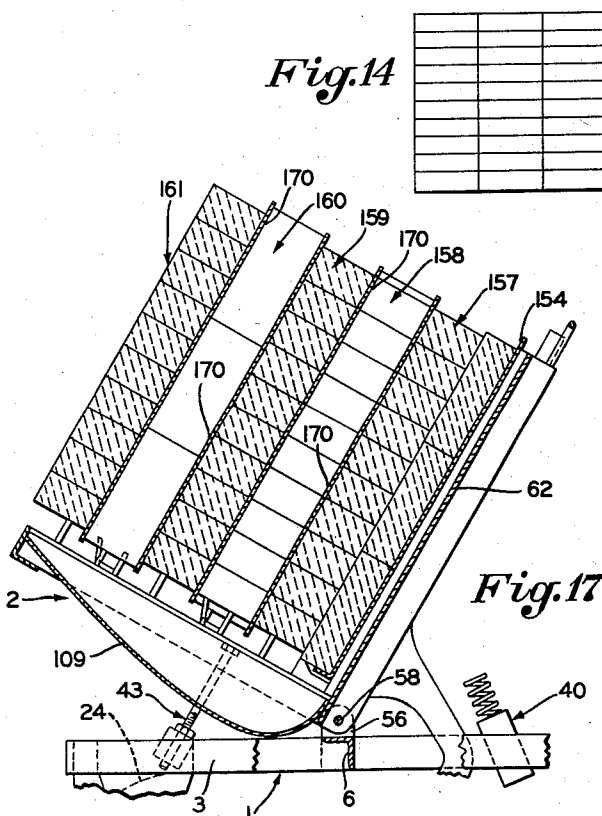
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BRICK PACKAGE FORMING MACHINE CONSTRUCTION

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Application November 10, 1953, Serial No. 391,216

13 Claims. (Cl. 100—25)

Our invention relates to improvements in the devices used in forming brick packages and more specifically to a brick package forming machine upon which brick packages can be easily and conveniently formed. And even more specifically, it relates to a brick package forming machine on which the packages are formed in a tilted position, horizontally strapped in the tilted position, then rotated to normal position for final vertical strapping and removal from the machine.

Until very recent times, the brick industry has done all brick handling by hand means. The bricks have been unloaded from the kilns onto movable pallets or wheelbarrows and thereby transported to either railroad cars or trucks. It was then necessary to load the bricks by hand onto the railroad car or truck so that they may be shipped to their destination. Once arriving at their destination, it was again necessary to unload them by hand and in the case of railroad cars reload them on trucks to be shipped to the supplier or to the construction job.

In recent years, the brick industry has become interested in shipping the bricks in small package pallet form. By this method, the bricks have been loaded, as previously, from the kiln onto movable pallets or wheelbarrows and moved to the shipping area in the brickyard. There they have been built into packages of approximately 200 to 250 bricks, bound by steel straps or some other means, and thereafter moved by fork lift trucks or other means to railroad cars or trucks for transportation.

Many problems have confronted the brick industry in the development and use of brick packages. One of the most obvious problems, of course, is that the bricks must first be removed from the kiln and later rehandled to form them into the brick packages. Another problem is that when the packages are formed, in order to produce a tight package which will withstand the rough shipping which such articles receive, particles of baked clay called crumbs, which break from the edges and the holes in the brick, must be removed.

Another problem is that bricks, having no resiliency, are very difficult to form into a tight package. Still another and very basic problem is that the packaging operation is normally very slow and expensive and requires several men to build each package.

Still another problem is that when the package has once been formed, it is very difficult to thread the metal strapping in place and, once in place, to bind it.

To this time, most of the brick packages have been built on special flat pallets of various designs from which the package, after forming and binding, can be lifted. These are some times provided with various guides and the like to aid in placing the brick into the package form as well as threading the strapping underneath the package.

It still remains a problem, however, of arranging each row of bricks in proper place and alignment, cleaning away the crumbs, and in getting a tight package properly strapped.

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It is therefore a general object of the present invention to provide a brick package forming machine which eliminates the disadvantages of the prior constructions.

It is a primary object of the present invention to provide a brick package forming machine upon which the packaging operation can be done conveniently, quickly and economically by one man.

It is a further object of the present invention to provide a brick package forming machine which can be loaded in the kiln and thereafter removed for the final strapping operation of the package so that it is only necessary to handle the bricks by hand once after they are burned.

It is still a further object of the present invention to provide a brick package forming machine upon which the brick package is formed and the particles of baked clay or crumbs are automatically removed.

Another object of the present invention is to provide a brick package forming machine upon which the bricks nest by gravity, thus forming a tight and compact package which will withstand considerable abuse in transportation.

Still another object of the present invention is to provide a brick package forming machine which automatically guides the steel strapping, for binding the package, into its proper place, and upon which the strapping can be conveniently bound to the proper tension.

Finally it is an object of the present invention to provide a brick package forming machine on which each layer of bricks is guided into its proper place so that no problem of aligning is encountered by the workmen.

These and other objects are accomplished by the parts, constructions, arrangements, combinations and subcombinations comprising the present invention, the nature of which is set forth in the following general statement, a preferred embodiment of which—illustrative of the best mode in which applicants have contemplated applying the principles—is set forth in the following description and illustrated in the accompanying drawings and which is particularly and distinctly pointed out and set forth in the appended claims forming a part hereof.

In general terms, the improved brick package forming machine construction constituting the present invention may be stated as including a base carriage member and a cradle member hingedly attached to the base carriage member and so adapted that it may be selectively positioned in a tilting position.

More specifically, the improved brick package forming machine construction includes a horizontal base carriage member with movable means therebeneath consisting preferably of three wheels mounted beneath the base carriage member, two at the rear portion and a single swivel wheel mounted at the front portion, a handle projecting from the front of the base carriage member, a cradle member hingedly connected to the base carriage member so that it may be selectively positioned in a tilted position, adjustable stop means on the base carriage member to limit and support the cradle in tilting position, a safety means in the base carriage to positively hold the cradle in tilted position, guide means on the cradle to assist in positioning bricks for forming the brick package, a safety or aligning gate on the cradle member hingedly connected to the cradle member, latch means on the cradle member to latch the safety gate in closed position, means on the cradle member and on the safety gate through which steel straps may be threaded to encircle and bind the package both vertically and horizontally, means on the cradle connected to means on the base carriage to safely and slowly return the loaded cradle from tilting position to normal position, and cushion means on the base carriage member to automatically move the cradle member out of engagement with the

brick package when the brick package is being removed from the machine by the forks of a fork lift truck or by other means.

By way of example, an embodiment of the improved tilting construction of the present invention is illustrated in the accompanying drawings forming a part hereof wherein like numerals indicate similar parts throughout the several views and in which:

Fig. 1 is a front and side perspective view of the entire machine empty;

Fig. 2, a back and side perspective view of the entire machine empty;

Fig. 3, a side elevation of the entire machine in normal unloaded position;

Fig. 4, a plan view of the base of the cradle with the cradle and safety gate separate from the base carriage of the machine;

Fig. 5, a plan view of the back of the cradle with the cradle and safety gate separate from the base carriage of the machine;

Fig. 6, a front, fragmentary, sectional view of the base portion of the cradle looking in the direction of the arrows 6—6, Fig. 4;

Fig. 7, a side, fragmentary, sectional view of the base portion of the cradle looking in the direction of arrows 7—7, Fig. 4;

Fig. 8, a top, fragmentary, sectional view of the back of the cradle looking in the direction of the arrows 8—8, Fig. 5;

Fig. 9, a top, fragmentary, sectional view of the back of the cradle looking in the direction of the arrows 9—9, Fig. 5;

Fig. 10, a front, fragmentary view of the cradle showing the safety gate latching mechanism.

Fig. 11, a side, fragmentary, sectional view looking in the direction of the arrows 11—11, Fig. 10;

Fig. 12, a side elevation of the entire machine in loading position;

Fig. 13, a perspective view of a finished brick package showing the runner layers and the package layers above;

Fig. 14, a plan view of the first, third and fifth layers of brick as arranged in the brick package.

Fig. 15, a plan view of the second layer of brick as arranged in the brick package;

Fig. 16, a plan view of the fourth layer of brick as arranged in the brick package;

Fig. 17, a side, fragmentary, sectional view of the machine loaded with a brick package ready for the first strapping operation, the section being taken through one of the outer runners of the package looking towards the center of the package.

Fig. 18, a side, fragmentary, sectional view of the machine loaded with a brick package ready for the first strapping operation, the section being taken through the center runner of the package;

Fig. 19, a front, fragmentary, sectional view taken in the location of line 19—19, Fig. 18, and looking in the direction of arrows 19—19, but showing the left-hand side of the machine and package and the safety gate;

Fig. 20, a side view of a completed package being lifted off the machine by the forks of a fork lift truck; the package, cradle and part of the base carriage in section taken between one of the outside runners and the center runner looking toward the center runner, and the rest of the base carriage in elevation.

It should be understood from the onset that the particular brick package described herein, and for which this particular brick package forming machine is designed, is not claimed as a part of this invention. It should be further understood that this particular brick package forming machine is designed for this particular brick package merely because the applicants are now using this package, and that the guides on the machine may very easily be adapted to use the machine for building many

other design brick packages, and for other sizes of brick or other products.

The improved brick package forming machine construction shown in Figures 1, 2 and 3 includes a base carriage member generally indicated at 1, and a cradle member generally indicated at 2 hingedly connected to the base carriage member. The entire machine is made from a rigid material, preferably steel or some such metal.

The frame of the base carriage member is made up of flat strip steel with the sides and front being one continuous strip. The side members 3 of the base carriage extend from the rear of the machine the length of the machine into arcuate front corners and thence across the front to form front member 4. Side members 3 are joined at the rear of the machine by back member 4a which is parallel to front member 4. Cross member 5 is also flat strip steel and is affixed perpendicular to and between side members 3 and parallel to front member 4. Angle cross member 6 is also affixed between side members 3, parallel to front member 4, and is a measured distance to the rear of cross member 5.

Rear wheels 7 are mounted on a rear axle 8 which is fixedly mounted to the underside of the base carriage by means of triangular shaped downwardly extending wheel mounting lugs 9. The front swivel wheel 10 is mounted to the underside of plate 11, by means of downwardly extending front wheel lugs 12 and plate 13. The horizontal plate 11 is affixed between the front member 4 of the base carriage and the strip steel cross member 5 of the base carriage. Rear wheels 7 and front wheel 10 are of any standard type, preferably having a solid rubber tread.

The front wheel mounting lugs are mounted to a separate horizontal plate member 13 and it is through this plate member 13 that the front wheel mounting lugs 12 are mounted to plate 11 by means of the screw 14. It is by this mounting means that the front wheel is permitted to swivel.

On the front vertical edge portions of front wheel mounting lugs 12 are affixed the flat, horizontally extending handle lugs 15. The handle, generally indicated at 16, is preferably made from steel tubing and consists of front handle portion 17, handle extension portion 18, and handle connecting portion 19. Handle connecting portion 19 is pivotally mounted to the handle lugs 15 by connecting pin 20.

In the rear portion of base carriage member 1 are mounted two downwardly extending oil or air cylinder mounting lugs generally indicated at 21. The oil or air cylinder mounting lugs are mounted parallel to side members 3 and are parallel to each other. They are made up of a vertical side portion 22 which extends downwardly a measured distance into an arcuate bottom edge portion 23 and then extends forwardly in an inward arcuate edge portion 23. They are fastened at their rear portions on the back member 4a of the base carriage 1 and are fastened at their front portions on the angle cross member 6 of the base carriage 1.

In the lowermost portion of the mounting lugs a measured distance above the arcuate bottom portion 23 are mounting holes 25. An oil or air cylinder, preferably oil, is generally indicated at 26 and is mounted below the frame of the base carriage 1 and attached at its rear portion through rear mounting ring 27 to the downwardly extending air cylinder mounting lugs 21 by means of connecting pin 28 through holes 25.

The oil cylinder 26 is made up of a casing portion 29 and connecting rod and plunger 30. At the rear end of the oil cylinder 26 is cap 31 which has mounted on its back face the rear mounting ring 27 and on its side face is connected one end of bypass tube portion 32. The other end of by-pass tube portion 32 is connected to bypass valve 33, and to the other side of by-pass valve 33 is connected one end of by-pass tube portion 34. The

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other end of by-pass tube portion 34 connects through the side of cylinder casing 29 near the forward end.

Oil cylinder 26 is of standard type and is so designed that, when the connecting rod and plunger 30 are extended, the oil in the front portion of the cylinder flows freely through by-pass tube portion 32, by-pass valve 33 and by-pass tube portion 34 into the rear portion of the cylinder and below the connecting rod and plunger 30. Thus the connecting rod and plunger 30 can be pulled into extended position with very little resistance resulting from the oil in the cylinder. However, when the connecting rod and plunger 30 are forced inwardly, the by-pass valve 33 closes, stopping any oil passage through by-pass tube portion 32 or by-pass tube portion 34, and the oil must flow through a measured size orifice in the plunger of the air cylinder. Thus, the connecting rod and plunger 30 can only be pushed into their inward position at a predetermined speed determined by the size of the orifice in the plunger.

On the outer end of connecting rod and plunger 30 is affixed connecting portion 35 which is provided with a measured size slot 36. Through slot 36 is engaged connecting pin 37 which in turn engages the holes 38 (Fig. 5) in the two cradle connecting lugs 39. The upper ends of cradle connecting lugs 39 are affixed to the bottom portion of the cradle member 2.

On the forward portion of the base carriage member 1 are mounted two cushion members generally indicated at 40, one of which is attached to each of the side members 3.

The cushion members each consist of a spring containing member 41 and a helical spring member 42. The spring retaining member 41 is merely a piece of tube partially closed at its lower end and welded at its one side to side member 3, with its open end extending upwardly and its sides being at a slightly tilted angle. Into the open end of spring retaining member 41 is inserted the bottom end of helical spring 42 which extends into the spring retaining member 41 and above the spring retaining member a measured distance.

In the rear portion of the base carriage member 1 are affixed two cradle positioning screws, generally indicated at 43. These cradle positioning screws consist of a mounting portion 44, a nut portion 45 and a screw portion 46. They are affixed to the sides of rear wheel mounting lugs 9 in such a way that the cradle positioning screw assembly is in upwardly extending tilted position.

The mounting portion 44 has a threaded hole through its center running its entire length. Screw portion 46 is selectively engaged in the threaded hole in the mounting portion 44, and the nut portion 45 is selectively screwed down on the top end of the mounting portion 44. Thus screw portion 46 can be screwed into the mounting portion 44 so that the desired length of screwed portion 46 extends, and then by tightening nut portion 45 down on to the top of the mounting portion 44, the screw portion 46 is held rigidly in place at any desired extended length.

On the right side of the base carriage member 1, and abutting side member 3, is mounted a safety foot lever generally indicated at 47. The safety foot lever 47 consists of a horizontal forwardly extending portion 48, foot pad 49 and arcuate, upwardly extending portion 50. The foot pad 49 is mounted at the forwardmost end of horizontal portion 48 and is also mounted so that its largest face is in a horizontal position. On the horizontal forwardly extending portion 48, a measured distance from its forward end, is formed hole 51. A helical spring 51a is attached to the side member 3 at its top end and into hole 51 at its bottom end.

In the arcuate, upwardly extending portion 50 is formed hole 52 through which is placed connecting screw 53, which in turn connects through a downwardly extending lug 54 affixed to the underside of the side mem-

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ber 3. At the upper end of the arcuate, upwardly extending portion 50 is formed a notched cutout 55 which may selectively engage a small square piece of steel plate 55a, welded to the side of the cradle member 2, when the cradle member is in a tilted position.

On the outside of the side members 3 of the base carriage, and in direct alignment with the angle cross member 6, are affixed side cradle mounting lugs 56, one being mounted on the outside of each of the side members 3 and extending upwardly. On the top side of angle cross member 6 are mounted two upwardly extending center cradle mounting lugs 57 a measured distance from the side members 3 and a measured distance apart. Through each of the side cradle mounting lugs and center cradle mounting lugs is formed a measured sized hole through which is extended the cradle mounting screw 58. The cradle mounting screw 58 also engages in holes through the cradle member 2.

The cradle member 2 consists of a base portion generally indicated at 59 and a back portion generally indicated at 60. The cradle base portion 59 is made up of three downturned channel members 61, 62 and 63 (Fig. 6). To the top side of channel member 63, and extending parallel to its length, is an angle member 64 running the complete length of channel member 63. The angle member 64 is mounted so that one of its legs is in a parallel plane to and abuts the top face of the channel member 63 and the other leg of the angle extends vertically upward.

Closely abutting angle 64, and parallel to it, is mounted small downturned channel member 65. The lower edges of small channel member 65 rest on and are affixed to the top face of channel member 63 and small channel member 65 extends the length of channel member 63 to within a measured distance of its rearmost end. A measured distance from small channel member 65, and in the same position and parallel to small channel member 65, is mounted small downturned channel member 66, which also is affixed to the top side of channel member 63 and extends its length to within a measured distance of its rearmost end. Thus, between the side edges of small channel member 65 and small channel member 66 is formed slot 67 which is closed at the bottom side by channel member 63 and open at its top side.

In a plane parallel to the top face of middle channel member 62, affixed to the top face but overhanging the left side of the middle channel member 62, is angle member 68. On the overhanging end of the abutting leg of angle 68 is the other leg extending vertically upward. Angle 68 runs parallel and the complete length of middle channel member 62.

Closely abutting angle member 68, and also running parallel to and the length of middle channel member 62, extending to within a measured distance of the rear end of the middle channel member 62 is downturned small channel member 69, the lower edges of which are also affixed to the top face of middle channel member 62.

Small channel member 70 is also affixed to the top face of middle channel member 62, in the same position and running parallel to small channel member 69, and also extends to within a measured distance of the rear end of middle channel member 62. Here again, between the edges of small channel member 69 and small channel member 70 is formed a slot 71, which is closed at its bottom side by the top face of middle channel member 62 and is open at its top side.

To each of the vertically downwardly extending legs of middle channel member 62, in its rear portion and extending a measured distance from its rearmost end, are affixed the two cradle connecting lugs 39. In face view (Fig. 6) they are affixed to the lower edges of middle channel member 62 and extend vertically downward a measured distance, at which point they angle inwardly as well as downwardly towards each other a

measured distance, and then extend vertically downward again, a measured distance apart. In side view the two cradle connecting lugs 39 extend downwardly and backwardly in an arcuate pattern to their lower end. It is between the bottom ends of cradle connecting lugs 39 that holes 38 are formed and through which connecting pin 37 engages the connecting portion 35 of the air cylinder 26.

To the top side of right channel member 61 and running parallel thereto is affixed small downturned channel member 72. Small channel member 72 is in a plane parallel to the top face of channel member 61 and runs the length to within a measured distance of the rearmost end of channel member 61. The left edge of small channel member 72 is in direct vertical alignment with the left edge of right channel member 61.

Running parallel to small channel member 72, but a measured distance from it, is small channel member 73, which also abuts the top face of channel member 61 and extends its length to within a measured distance of its rearmost end. Thus, between the side edges of small channel member 72 and small channel member 73, is formed another slot 74 which is closed at its bottom side by the top face of channel member 61 and is open at its top side.

Abutting the right edge of small channel member 73 with one leg extending vertically upward directly abutting the right edge thereof and the other leg in a plane parallel to the top face of channel member 61 and abutting the top face thereof is angle member 75, which runs parallel to and the complete length of channel member 61.

On the right vertical edge of channel member 61 is affixed a safety handle member generally indicated at 76, made preferably from solid steel rod, one end being affixed a measured distance from the front end of channel member 61 and the other end being affixed a measured distance from the rear end of channel member 61. Safety handle member 76 is made up of a horizontally extending member 77 which extends to the right a measured distance into an arcuate corner and thereafter into a horizontal, rearwardly extending portion 78 which extends longitudinally of channel member 61. The rearwardly extending member 78 runs to within a measured distance of the rear end of channel member 61 into an arcuate corner and thereafter extends into inwardly extending portion 79, the end of which abuts the right side of channel member 61.

At the front end of channel member 63 and channel member 62 is affixed the horizontal, forwardly extending safety handle member generally indicated at 80. The left side of safety handle member 80 is affixed to the inside face of the right hand downwardly extending portion of channel member 63, being affixed thereto a measured distance from the bottom edge of channel member 63. The horizontal forwardly extending portion 81 of safety handle member 80 extends forward from the front end of channel member 63 a measured distance, and thence through an arcuate corner into horizontal rightwardly extending portion 82. Portion 82 extends rightwardly to an arcuate corner which is in alignment with the inside edge of the left-hand downwardly extending portion of channel member 62. Extending rearwardly from the arcuate corner and into and abutting the inside edge of the left-hand, downwardly extending portion of channel member 62 is portion 83 of the safety handle 80, where it is there affixed.

Identical to safety handle member 80, but extending between the right-hand side of channel member 62 and the left-hand side of channel member 61, is safety handle member 84. Safety handle member 84 is affixed to the channel members 61 and 62 in the same manner as safety handle member 80 is affixed to channel members 62 and 63 and extends forward in the same manner and is the same size and shape.

Between the neighboring edge faces of channel mem-

bers 62 and 63 is affixed a fork deflecting plate 85. Fork deflecting plate 85 starts at the front edges and in the lowermost corner of channel members 62 and 63 and is angled backwardly and upwardly a measured distance and ends at the top edges of channel members 62 and 63. Thus the left edge of fork deflecting plate 85 abuts the right-hand edge face of channel member 63 and the right side edge of fork deflecting plate 85 abuts the left-hand edge face of channel member 62. Fork deflecting plate 85a is identical to and in the same position as fork deflecting plate 85 but is between the neighboring edge faces of channel members 61 and 62, that is, the right-hand edge face of channel member 62 and the left-hand edge face of channel member 61.

Mounted on the underside of the horizontal portion of channel member 62, of the cradle base portion 59, is horizontal, rearwardly extending tube member 147. Horizontal tube member 147 is in alignment with the front end of channel member 62 and extends rearwardly along the underside of channel member 62 a measured distance. In the rear portion of channel member 62 a measured distance from its rear end and affixed so as to span between the inside edges of the downwardly extending leg portions of channel member 62 is a plate 148.

Selectively received through tube 147 is a telescoping lifting bar 149. Telescoping lifting bar 149 may be selectively placed in telescoped position so that its rearmost end abuts the plate 148 in the rear of the channel member 62 or may be extended a measured distance forwardly beyond the front edge of channel member 62. Lifting bar 149 has a pin 149a through and a measured distance from its rearmost end. Once the lifting bar 149 is assembled through tube 147 and the pin 149a is put in place, the lifting bar 149 may never be extended so that its rearmost end is beyond the rearmost end of tube 147.

The back portion 60 of the cradle member 2 is made up of vertical angle members 86, 87, 88, 89, 90 and 91 (Figs. 8 and 9). Between the right-hand edge of vertical angle member 86 and the left-hand edge of vertical angle member 87 is formed slot 92. Between the right-hand edge of vertical angle member 88 and the left-hand edge of vertical angle member 89 is formed slot 93. And between the right-hand edge of vertical angle member 90 and the left-hand edge of vertical angle member 91 is formed slot 94.

One leg of the vertical angle member 86 extends rearwardly a measured distance and make up the left-hand edge portion of the back portion 60 of the cradle member 2. The other leg of the vertical angle member 86 extends transversely to the right a measured distance up to and forms the left-hand edge of slot 92. Making up the right-hand edge of slot 92 and extending transversely to the right a measured distance is one leg of vertical angle member 87, the other leg of which extends rearwardly a measured distance.

The transverse leg portions of vertical angle members 86 and 87 are perpendicularly affixed at their lower ends to the top face of channel member 63 of the cradle base portion 59. The rearwardly extending leg portions of vertical angle members 86 and 87 are affixed the top surface of channel member 63.

A measured distance to the right of vertical angle member 87, and in alignment therewith, is the rearwardly extending leg portion of vertical angle member 88 extending rearwardly a measured distance. The other leg portion of vertical angle member 88 extends transversely to the right to and forming the left-hand edge of slot 93. At and forming the right-hand edge of slot 93 is the transverse leg portion of vertical angle member 89, which extends transversely to the right a measured distance and there the other leg portion of vertical angle member 89 extends a measured distance rearwardly.

The transverse legs of vertical angle members 88 and 89 are affixed perpendicularly to the top face of the

channel member 62 of the cradle base portion 59. The rearwardly extending leg portions of vertical angle members 88 and 89 are affixed to the top surface of channel member 62.

A measured distance to the right of vertical angle member 89, and in alignment therewith, is the rearwardly extending leg portion of vertical angle member 90 extending a measured distance rearwardly. The other leg portion of vertical angle member 90 extends transversely to the right a measured distance up to and forming the left-hand edge of slot 94. Starting at and forming the right-hand edge of slot 94, and extending transversely to the right a measured distance, is the transverse leg portion of vertical angle member 91. The other leg portion of vertical angle member 91 extends rearwardly a measured distance and makes up the right-hand edge portion of the back portion 60 of the cradle member 2.

The transverse leg portions of vertical angle members 90 and 91 are perpendicularly affixed at their lowermost ends to the top face of channel member 61 of the cradle base portion 59. The rearwardly extending leg portions of vertical angle members 90 and 91 are affixed to the top surface of channel member 61.

On the front faces of the transverse leg portions of vertical angle members 86, 87, 88, 89, 90 and 91 are affixed horizontal transverse flat strip members generally indicated at 95, 96, and 103 and horizontal transverse channel members generally indicated at 97 and 98.

Horizontal flat strip member 95 is a measured distance from and in a plane parallel to the plane of the top faces of channel members 61, 62 and 63 and is affixed perpendicularly to the front faces of the transverse leg portions of vertical angle members 86, 87, 89, 90 and 91.

Horizontal transverse flat strip member 95 extends from the left-hand edge of the cradle back portion 60 transversely to the right to the left-hand edge of slot 92, from the right-hand edge of slot 92 transversely to the right to the left-hand edge of slot 93, from the right-hand edge of slot 93 transversely to the right to the left-hand edge of slot 94, and from the right-hand edge of slot 94 to the right-hand edge of the cradle back portion 60. The horizontal transverse flat strip member 95 is the same height and width throughout.

The horizontal, transverse channel member 97 is made up of channel portions 99, 100, 101 and 102 and is affixed parallel to and a measured distance above horizontal flat strip member 95. Channel portion 99 is affixed so that its leg portions extend perpendicular to the transverse leg portion of vertical angle member 86. In top view (Fig. 8) the leg portions of channel portion 99 extend forwardly a measured distance from the vertical angle member 86 and are that height for a measured distance from the left-hand edge of cradle back portion 60 to within a measured distance of slot 92, and then extend a measured distance further from vertical angle member 86 and at that height to the right to the left-hand edge of slot 92.

Channel portion 100 extends from the right-hand edge of slot 92 to the left-hand edge of slot 93. The leg portions are the same height throughout their length. The bottom leg portion of channel portion 100 extends perpendicular to the transverse face portions of vertical angle members 87 and 88 a measured distance. The top leg portion of channel portion 100 extends at an upward angle a measured degree off of a line perpendicular to the transverse leg portions of vertical angle members 87 and 88 and extends at said upward angle for a measured distance.

Channel portion 101 extends from the right-hand edge of slot 93 to the left-hand edge of slot 94. It is affixed to the transverse leg portions of vertical angle members 89 and 90 so that the lower leg portion of channel portion 101 extends perpendicular to the transverse leg portions of vertical angle members 89 and 90.

The upper leg portion of channel portion 101 is angled

upwardly a measured degree from a line perpendicular to the transverse leg portions of vertical angle members 89 and 90, and extends at said upward angle for a measured distance.

In top view the leg portions of channel portion 101 extend forwardly a measured distance and are at that height from the right-hand edge of slot 93 to within a measured distance of the left-hand edge of slot 94 and then extend forwardly a lesser measured distance and are at that height to the left-hand edge of slot 94.

Channel portion 102 is affixed to the transverse leg portion of vertical angle member 91 so that its leg portions extend perpendicular to the front face of the transverse leg portion of vertical angle member 91. In top view, the leg portions of channel portion 102 extend forwardly a measured distance and are at that height from the right-hand edge of slot 94 to within a measured distance of the right-hand edge of cradle back portion 60, and then extend forwardly a lesser measured distance and are at that height to the right-hand edge of cradle back portion 60.

The horizontal flat strip member 96 is affixed parallel to and a measured distance above horizontal transverse channel member 97. It is affixed perpendicularly to the front faces of the transverse leg portions of vertical angle members 86, 87, 88, 89, 90 and 91.

Horizontal transverse flat member 96 extends from the left-hand edge of the cradle back portion 60 transversely to the right to the left-hand edge of slot 92, from the right-hand edge of slot 92 transversely to the right to the left-hand edge of slot 93, from the right-hand edge of slot 93 transversely to the right to the left-hand edge of slot 94 and from the right-hand edge of slot 94 transversely to the right to the right-hand edge of the cradle back portion 60.

The horizontal transverse flat strip member 96 is the same height and width throughout. The horizontal, transverse channel member 98 is affixed parallel to and a measured distance above horizontal flat strip member 96 and is made up of channel portions 104, 105, 106 and 107.

Channel portion 104 of horizontal transverse channel member 98 is affixed so that its leg portions extend perpendicular to the transverse leg portion of vertical angle member 86. In top view (Fig. 9) the leg portions of channel portion 104 extend forwardly a measured distance from the vertical angle member 86, and are at that height for a measured distance from the left-hand edge of cradle back portion 60 to within a measured distance of slot 92, and then extend a measured distance further from vertical angle member 86 and at that height to the right to the left-hand edge of slot 92.

Channel portion 105 extends from the right-hand edge of slot 92 to the left-hand edge of slot 93. It is affixed to the transverse leg portions of vertical angle members 87 and 88 so that the lower leg portion of channel portion 105 extends perpendicular to the transverse leg portions of vertical angle members 87 and 88. The upper leg portion of channel portion 105 is angled upwardly a measured degree from a line perpendicular to the transverse leg portions of vertical angle members 87 and 88, and extends at said upward angle for a measured distance.

In top view the leg portions of channel portion 105 extend forwardly a measured distance and are at that height from the right-hand edge of slot 92 to within a measured distance of the left-hand edge of slot 93 and then extend forwardly a greater measured distance and are that height to the left-hand edge of slot 93.

Channel portion 106 extends from the right-hand edge of slot 93 to the left-hand edge of slot 94. The leg portions are the same height throughout their length. The bottom leg portion of channel portion 106 extends perpendicular to the transverse face portions of vertical angle members 89 and 90 a measured distance. The top leg portion of channel portion 106 extends at an upward

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angle a measured degree off of a line perpendicular to the transverse leg portions of vertical angle members 89 and 90 and extends at said upward angle for a measured distance.

Channel portion 107 is affixed to the transverse leg portion of vertical angle member 91 so that its leg portions extend perpendicular to the front face of the transverse leg portion of vertical angle member 91. In top view the leg portions of channel portion 107 extend forwardly a measured distance and are at that height from the right-hand edge of slot 94 to within a measured distance of the right-hand edge of cradle back portion 60, and then extend forwardly a lesser measured distance and are at that height to the right-hand edge of cradle back portion 60.

Horizontal, flat strip member 103 is affixed parallel to and a measured distance above horizontal transverse channel member 98. It is affixed perpendicularly to the front faces of the transverse leg portions of vertical angle members 86, 87, 88, 89, 90 and 91.

Horizontal transverse flat strip member 103 extends from the left-hand edge of the cradle back portion 60 transversely to the right to the left-hand edge of slot 92, from the right-hand edge of slot 92 transversely to the right to the left-hand edge of slot 93, from the right-hand edge of slot 93 transversely to the right to the left-hand edge of slot 94 and from the right-hand edge of slot 94 transversely to the right to the right-hand edge of the cradle back portion 60. The horizontal transverse flat strip member 103 is the same height and width throughout.

Affixed to the uppermost ends of vertical angle members 86, 87, 88, 89, 90 and 91, and making up the top edge of the cradle back portion 60, is transverse angle member 108, the one leg of transverse angle member 108 abuts the upper horizontal edges of vertical angle members 86, 87, 88, 89, 90 and 91 and the other leg extends vertically downward and abuts the rearmost edges of the backwardly extending leg portions of vertical angle members 86, 87, 88, 89, 90 and 91.

Vertical strap threading guides, generally indicated at 109, 110, and 111, are affixed at their top ends to the underside of the horizontal leg portion of transverse angle member 108 and extend vertically downward and are affixed at their lowermost ends to the upper faces of the horizontal portions of channel members 61, 62, and 63 of the cradle base portion 59.

In side view (Fig. 3) the side portions of vertical strap threading guides 109, 110 and 111 are a measured width at their uppermost ends, the back edge angling backwardly and downwardly for a measured distance and then arcuately inwardly to meet the top faces of channel members 61, 62 and 63, the front edge extending directly vertically downward to meet the top faces of channel members 61, 62 and 63.

In cross section (Fig. 8) the vertical strap threading guides 109, 110 and 111 are U-shaped at any given section. The side portions are abutted at their rear edges by the back portions and also joined thereby. The front edges of the side portions abut the back faces of the transverse portions of vertical angle members 86, 87, 88, 89, 90 and 91 and meet the edges of slots 92, 93 and 94. Thus are formed box-like structures to the rear and enclosing slots 92, 93 and 94, having parallel side portions and an arcuate downwardly curved back portion.

At the lower rear corner of cradle member 2, their rear vertical sides abutting cradle back portion 60, and their lower horizontal sides abutting cradle base portion 59, are affixed runner guide plates 112, 113, 114, 115, 116 and 117.

Runner guide plate 112 is mounted with its lower horizontal edge abutting the top horizontal face of channel member 63 and its rear vertical face abutting the front face of the transverse leg portion of vertical angle member 86. Its right edge is in direct alignment with the

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left edge of slot 92. Its front vertical edge abuts the rear vertical edge of small channel member 65.

Runner guide plate 113 is mounted with its lower horizontal edge abutting the top horizontal face of channel member 63 and its rear vertical face abutting the front face of the transverse leg portion of vertical angle member 87. Its left edge is in direct alignment with the right edge of slot 92. Its front vertical edge abuts the rear vertical edge of small channel member 66.

Runner guide plate 114 is mounted with its lower horizontal edge abutting the top horizontal face of channel member 62 and its rear vertical face abutting the front face of the transverse leg portion of vertical angle member 88. Its right edge is a measured distance from the left edge of slot 93. Its front vertical edge abuts the rear vertical edge of small channel member 69.

Runner guide plate 115 is mounted with its lower horizontal edge abutting the top horizontal face of channel member 62, and its rear vertical face abutting the front face of the transverse leg portion of vertical angle member 89. Its left edge is a measured distance from the right edge of slot 93. Its front vertical edge abuts the rear vertical edge of small channel member 70.

Runner guide plate 116 is mounted with its lower horizontal edge abutting the top horizontal face of channel member 61 and its rear vertical face abutting the front face of the transverse leg portion of vertical angle member 90. Its right edge is in direct alignment with the left edge of slot 94. Its front vertical edge abuts the rear vertical edge of small channel member 72.

Runner guide plate 117 is mounted with its lower horizontal edge abutting the top horizontal face of channel member 61 and its rear vertical face abutting the front face of the transverse leg portion of vertical angle member 91. Its left edge is in direct alignment with the right edge of slot 94. Its front vertical edge abuts the rear vertical edge of small channel member 73.

In side view (Figs. 3 and 7) runner guide plates 112, 113, 114, 115, 116 and 117 are a measured width at their bottom portion; the back edges extending directly vertically upward to the tops, the front edges extending directly vertically upward for a measured distance and then angled a measured degree upwardly and forwardly for a measured distance and then extending directly vertically upward for a measured distance to their tops. In side view, runner guide plates 112, 113, 116, 117 are of equal measured width and runner guide plates 114 and 115 are of greater equal measured widths.

In the back, lower corner of cradle member 2, through the side leg portions of channel members 61, 62 and 63 of the cradle base portion 59, a measured distance from their rearmost ends, and through the backwardly extending leg portions of vertical angle members 86, 87, 88, 89, 90 and 91 of the cradle back portion 60, a measured distance from their lowermost ends, are formed measured size holes to receive cradle mounting screw 58 which also is engaged through holes in the side cradle mounting lugs 56 and the center cradle mounting lugs 57. This forms a hinged connection between cradle member 2 and base carriage member 1, which permits the cradle member 2 to be selectively placed in a tilted position.

Hingedly connected to the left vertical side of the cradle back portion 60, and when in a closed position abutting cradle back portion 60 and cradle base portion 59, is a safety gate generally indicated at 118. The safety gate 118 is made up of a front vertical side member 119, a rear vertical side member 120, a bottom horizontal strip member 121, a bottom horizontal threading strap guide 122, a middle horizontal strip member 123, a top horizontal threading guide 124 and a top horizontal strip member 125.

The front vertical side member 119 is mounted with its widest face forward and extends from the top front corner of the safety gate 118 directly vertically downward to

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the lowermost edge of the left downwardly extending leg portion of channel member 63 of the cradle base portion 59. At the lower end of front vertical side member 119, on its right-hand side, is a notched cut-out a measured distance horizontally in from the right edge of front vertical side member 119 and then extending directly vertically downward to the bottom edge of front vertical side member 119. The cut-out is such that when the safety gate 118 is in a closed position, the front vertical side member 119 will receive the left side and a portion of the top of channel member 63, of the cradle base portion 59.

Rear vertical side member 120 is affixed parallel to front vertical side member 119 and is also positioned so that its widest face is forward. It extends at its top end to and abutting the underside of top horizontal strip member 125 and at its bottom to and abutting the top side of bottom horizontal strip member 121.

Bottom horizontal strip member 121 is in a horizontal plane a measured distance above the horizontal plane of the top side of channel member 63 of the cradle base portion 59. It is affixed so that it is abutting and perpendicular to the rear face of front vertical side member 119 and extends rearwardly a measured distance beyond the lower edge of rear vertical side member 120.

The bottom horizontal strap threading guide 122 is in a plane parallel to and a measured distance above the plane of the bottom horizontal strip member 121. Bottom horizontal strap threading guide 122 abuts and is affixed to front vertical side member 119 at its front end and abuts and is affixed to the rear vertical side member 120 at its back end.

Middle horizontal strip member 123 is in a plane parallel to, and a measured distance above, the plane of the bottom horizontal strap threading guide 122. It abuts, and is affixed to, the front vertical side member 119 at its front end and abuts, and is affixed to, the rear vertical side member 120 at its back end.

Top horizontal strap threading guide 124 is in a plane parallel to, and a measured distance above, the plane of the middle horizontal strip member 123. It abuts, and is affixed to, the front vertical side member 119 at its front end and abuts, and is affixed to, the rear vertical side member 120 at its back end.

Top horizontal strip member 125 is in a plane parallel to, and a measured distance above, the plane of the top horizontal strap threading guide 124. It abuts and is affixed to the top edge of front vertical side member 119 and extends horizontally rearwardly a measured distance beyond the top edge of rear vertical side member 120.

Bottom horizontal strip member 121, bottom horizontal strap threading guide 122, middle horizontal strip member 123, top horizontal strap threading guide 124 and top horizontal strip member 125 all have a notched cut-out extending from their rearmost ends a measured distance forwardly on their right-hand edges so that when the safety gate 118 is in a closed position, the notched cut-outs will receive the sides and a portion of the front edges of the left-hand ends of horizontal transverse flat strip member 95, horizontal transverse flat strip member 96, horizontal transverse channel member 97, horizontal transverse channel member 98 and horizontal transverse flat strip member 103 of the cradle back portion 60.

In top view, the horizontal strap threading guides 122 and 124 are similar to the vertical strip threading guides 109, 110 and 111 of the cradle back portion 60. That is, their top and bottom side portions are a measured width at their forwardmost ends with the left-hand edge angling to the left and rearwardly for a measured distance and then arcuately to the right to meet the inside edge of rear vertical side member 120, and the right-hand edge extending directly horizontally rearwardly.

In cross section, the horizontal strap threading guides 122 and 124 are also U-shaped at any given section. The top and bottom portions are abutted at their left-hand

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edges by the vertical side portions and also joined thereby. Thus, there are formed box-like structures closed at their left-hand side and opened to their right-hand side.

Mounted on the left-hand outside surface of the backwardly extending leg portion of vertical angle member 86, of the cradle back portion 60, are safety gate connecting lugs 126 and 127. Safety gate connecting lugs 126 and 127 are affixed to the vertical angle member 86 and extend horizontally to the left a measured distance. Safety gate connecting lug 126 is affixed a measured distance above and in a plane parallel to the plane of the top surface of the cradle base portion 59. Safety gate connecting lug 127 is affixed in a plane parallel to the safety gate connecting lug 126 and a measured distance below the uppermost edge of cradle back portion 60. In top view (Figs. 8 and 9) the safety gate connecting lugs 126 and 127 have straight back and right side edges with the left side edges extending forwardly into an arcuate left front corner and then into a straight front edge.

Formed through the central portion of safety gate connecting lugs 126 and 127 and through the rearmost extending portions of bottom horizontal strip member 121 and top horizontal strip member 125 of the safety gate 118, are vertical holes to receive the vertical connecting pin 128. The rearwardly extending portion of top horizontal strip member 125 of the safety gate 118 extends above with its lower horizontal surface abutting the upper horizontal surface of safety gate connecting lug 127 and the rearwardly extending portion of bottom horizontal strip member 121 of the safety gate 118 extends below and its upper horizontal surface abuts the lower horizontal surface of safety gate connecting lug 126. Thus is formed a hinged connection between safety gate 118 and the cradle back portion 60.

The rearmost extending portions of bottom horizontal strip member 121 and top horizontal strip member 125 of the safety gate 118 are cut at an angle starting at a point a measured distance from their rearmost ends and angled to the left and rearwardly to their rearmost ends to form angle surfaces 129 and 130 (Figs. 4, 8 and 9). These angled surfaces 129 and 130 are formed in such a way that when safety gate 118 is opened to the left it can only be opened a measured amount until angled surfaces 129 and 130 engage the left-hand outside surface of the rearwardly extending leg portion of vertical angle member 86 of the cradle back portion 60. Thus, this permits the safety gate 118 only to be opened a predetermined distance.

On the front vertical surface of front vertical side member 119 of the safety gate 118 and in its lower portion a measured distance from its lowermost edge and a measured distance in from its left-hand edge is mounted a safety gate latch generally indicated at 131 (Figs. 10 and 11). In front view safety gate latch 131 has a horizontal top edge with arcuate left and right-hand edges. Its lower edge downward and to the right a measured degree into an arcuate portion and then angles upwardly a measured degree into hook portion 132. It is mounted on the front vertical side member 119 of the safety gate 118 by a connecting screw 133 which extends through a hole a measured distance to the right of the left-hand edge and above the lower edge of safety gate latch 131.

In the left-hand side of safety gate latch 131 a measured distance from the left-hand side and a measured distance from the top and bottom sides is formed a hole 134. Through hole 134 is connected the lower end of a helical spring 135. The other end of the helical spring 135 is received through a cotter key 136 which in turn is received through a hole 137 in the front vertical side member 119 of the safety gate 118. Hole 137 is a measured distance above the lowermost end and a measured distance in from the left-hand side of front vertical side member 119 of the safety gate 118.

Affixed to the right-hand surface of the left-hand down-

wardly extending leg portion of channel member 63 of the cradle base portion 59 and abutting the underside of the horizontal portion of channel member 63 of the cradle base portion 59 is a horizontal forwardly extending latching pin 138. Latching pin 138 extends forward a measured distance beyond the forwardmost end of channel member 63 and is received by the hook portion 132 of the safety gate latch 131 when the safety gate 118 is in the closed position.

This reception of the latching pin 138 in the hook portion 132 of the safety gate latch 131 is permitted by the right arcuate side portion of the safety gate latch 131 riding up on latching pin 138 causing the safety gate latch to pivot in a counter-clockwise direction around connecting screw 133 and the helical spring 135 to extend. When the latching pin 138 is in alignment with the hook portion 132 of the safety gate latch 131, the helical spring 135 forces the hook portion 132 of the safety gate latch 131 to receive the latching pin 138 by pulling upwardly and forcing the safety gate latch 131 to pivot around the connecting screw 133 in a clockwise direction.

Also on the front vertical face of front vertical side member 119 of the safety gate 118 and extending forwardly a measured distance is stop pin 139. Stop pin 139 is affixed a measured distance above the lowermost end of front vertical side member 119 and a measured distance in from its left-hand side so that it abuts the horizontal top edge of safety gate latch 131 when the latch 131 is in a horizontal position. This limits the distance that the helical spring 135 can pivot the safety gate latch 131 around the connecting screw 133 and makes it so that the right-hand arcuate edge of safety gate latch 131 is always in a position to ride on the latching pin 138, and also so that safety gate latch 131 can never pivot far enough in the clockwise direction so that latching pin 138 would be above the top horizontal edge of safety gate latch 131.

In the right-hand portion, a measured distance from the top horizontal edge and a measured distance in from the right-hand arcuate edge of safety gate latch 131, is unlatching pin 140. Unlatching pin 140 is received through a hole in the safety gate latch 131 and extends horizontally forwardly a measured distance.

Mounted on the right-hand surface of the left-hand downwardly extending leg portion of channel member 63 of the cradle base portion 59 is an automatic safety gate unlatching bar generally indicated at 141. Unlatching bar 141 is pivotally affixed by means of a mounting screw 142 which is received in a hole formed in mounting plate 143. Mounting plate 143 is in turn affixed to the right-hand surface of the downwardly extending leg portion of channel member 63. The mounting screw 142 is received through a hole in the unlatching bar 141 a measured distance from its rearmost end. Mounting plate 143 is mounted a measured distance from the front end of channel member 63 and its lower edge is in alignment with the lowermost edge of channel member 63.

In side view (Fig. 11) the unlatching bar 141 has a straight forwardly and rearwardly extending portion 144 which terminates at its rearmost end in an upwardly extending portion 145, and at its forwardmost end in an unlatching portion 146. The forwardly extending rear portion 145 normally abuts the underside of the horizontal portion of the channel member 63 at its top edge and thus limits the downward movement of the unlatching portion 146 by limiting the amount the unlatching bar 141 can pivot in a counter-clockwise direction around mounting screw 142.

When the cradle member 2 is selectively tilted so that the cradle base portion 59 is in a horizontal position, the underside of the straight portion 144 of the unlatching bar 141 strikes against the front member 4 of the base carriage member 1, and forces the unlatching bar 141 to be pivoted around mounting screw 142 in a clockwise direction (Fig. 11). As the unlatching bar 141 pivots in a clockwise direction, the unlatching portion 146

strikes the unlatching pin 140 in the safety gate latch 131, forcing the safety gate latch 131 to pivot in a counter-clockwise direction around connecting screw 133 (Fig. 10). The latching pin 138 is then disengaged from the hook portion 132 of the safety gate latch 131 so that the safety gate 118 can be selectively moved in a left-hand direction.

It will now be necessary to describe the construction of the brick package, a perspective view of which is shown in Fig. 13, which, as was before stated, is not claimed as a part of this invention but is merely shown to more clearly describe the workings of the various parts of the brick package forming machine comprising the present invention.

Referring to Figure 13, the brick package, generally indicated at 150, is made up of three brick runner strips 151, 152, and 153 underneath which are three corrugated cardboard strips 154, 155 and 156 and over which are five layers of bricks generally indicated at 157, 158, 159, 160 and 161 which layers are separated by sheets of chipboard 170. The brick package 150 may be held together by horizontal straps 162 which extend horizontally around layers 158 and 160 of the package and cover side corrugated cardboard strips 163, 164, 165 and 166. On the upper front and rear corners of the fifth layer 161 of bricks are front and rear corrugated cardboard strips 167 and 168. Over these are vertical straps 169 which go under the brick runner strips 151, 152 and 153 and around the brick package 150. Between the first and second layers of bricks, the second and third layers of bricks, the third and fourth layers of bricks, and the fourth and fifth layers of bricks are sheets of chipboard indicated at 170.

The entire brick package 150 is made up of bricks standing on their narrowest, longest faces with the exception that the runner strips 151, 152 and 153 are made up of bricks laying on their widest, longest faces. The left side brick runner strip 151 extends from front to rear and is made up of three bricks laid end to end. Runner strip 151 is a measured distance to the right of the left-hand edge of the first layer of bricks 157.

The center runner strip 152 is made up of six bricks with their longest, narrowest faces abutting each other and their ends extending to the right and to the left center runner strip 152 is centrally located between the left and right-hand edges of the first layer of bricks 157.

Right-hand runner strip 153 is identical to the left-hand runner strip 151 and is set in a measured distance from the right-hand edge of the first layer of bricks 157.

The first layer of bricks 157 is made up of four rows of ten bricks as shown in Fig. 14. Each row is assembled so that the bricks are abutting each other on their widest, longest faces, and the bricks of each row abut the bricks of the next row at their ends.

The second layer of bricks 158 is made up of three rows of ten bricks each sitting in the same position as in row 1 (Fig. 15). On the left-hand side of these three rows of bricks is one row of three bricks set end to end, with this row extending a measured distance in front of and behind the other three rows. On the right-hand side are two rows of three bricks each laid end to end. These also extend a measured distance beyond the other three rows at the front and at the rear.

The third layer of bricks 159 is identical to the first layer of bricks 157 (Fig. 14).

The fourth layer of bricks 160 is identical to the second layer of bricks 158 with the exception that the single row of three bricks laid end to end is on the right-hand side and the double row of three bricks laid end to end is on the left-hand side (Fig. 16).

The top or fifth layer of bricks 161 is identical to the first layer of bricks 157 and the third layer of bricks 159 (Fig. 14).

Chipboard is used between each of the layers of bricks 157, 158, 159, 160 and 161 so that there is something

compressible between the layers of brick to allow the steel straps 162 and 169 to tightly fasten and securely bind the package. It also serves to take up any unevenness of the bricks and helps prevent them from sliding on or damaging each other during transportation.

It is also frequently desirable to place a sheet of corrugated cardboard over the brick runner strips 151, 152 and 153 before assembling the first layer of bricks 157 thereabove. This may serve to better tie the package together.

Operation of the improved brick package forming machine can best be shown by describing step by step the actual procedure followed in the building of a brick package. In the beginning the cradle member 2 is in a slightly tilted position as shown in Fig. 3, held there by the helical springs 42 which are retained in the spring retaining members 41 of the base carriage member 1.

Firstly, the telescoping lifting bar 149 is placed in its extended position and, using this as a lever arm, the cradle member 2 is placed in a tilted position slightly beyond center to the rear, so that the tops of the cradle positioning screws 43 are resting against back sides of the rearwardly extending leg portions of the vertical angle members 86 and 91 of the cradle back portion 60. Since the cradle member 2 is beyond center to the rear, the force of gravity holds it in the tilted position against the cradle positioning screws 43. The safety gate 118 is in a closed position so that the hook portion 132 of the safety gate latch 131 is engaged over the latching pin 138. The telescoping lifting bar 149 is then placed in its retracted position.

As the cradle member 2 is raised to a tilted position, the cradle connecting lugs 39, which are attached to the channel member 62 of the cradle base portion 59, force the connecting rod and plunger 30 of the oil cylinder 26 toward its extended position. As the connecting rod and plunger 30 is forced into extended position, the oil in the front part of the cylinder 26 is forced through by-pass tube portion 34, by-pass valve 33 and by-pass tube portion 32, into the back part of the cylinder 26 and below the connecting rod and plunger 30.

Also, as the connecting rod and plunger 30 are extended, the connecting pin 37 is forced to the front part of the slot 36 in the connecting portion 35 of the connecting rod, and the oil cylinder 26 pivots around the connecting pin 28 in the mounting holes 25 connecting the rear mounting ring 27 of the oil cylinder 26 to the oil cylinder mounting lugs 21 on the base carriage member 1. Because the by-pass valve 33 is open for oil to freely pass in this direction, the cylinder 26 offers very little resistance to the cradle member 2 being placed in a tilted position.

When the cradle member 2 is in tilted position as shown in Fig. 12, the helical spring 51a forces the safety foot lever 47 to rotate slightly in a counter-clockwise direction (Fig. 12) around connecting screw 53. This causes the notched cut-out 55 in the arcuate upwardly extending portion 50 of the foot lever 47 to be received over the square piece of steel plate 55a which is affixed to the side of the cradle member 2. Thus the cradle member 2 is safely held in a tilted position.

The workman then places the corrugated cardboard strips 154, 155 and 156 in place. These strips extend from a measured distance beyond the front edge of cradle base portion 59, the length of cradle base portion 59, to the lower front edges of the runner guide plates 112, 113, 114, 115, 116 and 117. They then extend a measured distance up the front vertical faces of the runner guide plates as can best be seen in Figs. 17 and 18. The corrugated cardboard strips 154, 155 and 156 lay flat against the top horizontal portions of small channel members 65, 66, 69, 70, 72 and 73 of the channel members 63, 62 and 61 of the cradle base portion 59.

In width, the corrugated cardboard strip 154 extends from the right-hand side of the vertically extending leg

of the angle 64 on the channel member 63 to the right to the right-hand edge of small channel member 66 on the channel member 63. In width, the corrugated cardboard strip 155 extends from the righthand side of the forwardly extending leg portion of the angle member 68 on the channel member 62 and extends to the right a measured distance to the right of the right-hand edge of channel member 62. The corrugated cardboard strip 156, in width, extends from the left-hand edge of the vertically extending leg portion of angle member 75 on the channel member 61 to the left to the left-hand edge of small channel member 72 on the channel member 61.

The three bricks of brick runner strip 151 are placed so that their left edges abut the vertically extending leg portion of angle 64 of the channel member 63 and so that their bottom faces are laying on the corrugated cardboard strip 154 which in turn lays on small channel members 65 and 66. The rear edge of the rearmost brick abuts the forwardmost edge of the runner guide plates 112 and 113 (Fig. 17).

The center brick runner strip 152 is placed so that the left-hand ends of its six bricks abut the right-hand edge of the vertically extending leg portion of angle 68. The bottom faces of the bricks of brick runner strip 152 lay on top of the corrugated cardboard strip 155 which in turn lays on top of the small channel members 69 and 70 on the channel member 62. The rearmost edge of the rearmost brick abuts the forwardmost vertical edge of the runner guide plates 114 and 115 (Fig. 18).

The right-hand brick runner strip 153 is placed so that the right-hand edges of the three bricks abut the vertically extending leg portion of angle 75. The bottom faces of the brick lay on the corrugated cardboard strip 156 which in turn lays on the top of the small channel members 72 and 73 of the channel member 61. The rearmost edge of the rearmost brick abuts the frontmost vertical edge of the runner guide plates 116 and 117 (Fig. 17).

On top of the brick runner strips 151, 152 and 153 is built the first layer of bricks 157, as shown in Fig. 14. As can be seen in Fig. 14 the first layer of bricks 157 consists of four rows of ten bricks each with the bricks sitting on their longest, narrowest faces and with their widest, longest faces towards the front.

The back faces of the rearmost bricks of each of the four rows abuts the forwardmost edge of horizontal transverse flat strip member 95 of the cradle back portion 60 (Fig. 17) and the left-hand edge of the left-hand row of bricks abuts the right-hand edge of the bottom horizontal strip member 121 of the safety gate 118 (Fig. 19.) It can be seen that, by starting to build the first layer of bricks 157 from the left-hand rear corner and using the bottom horizontal strip member 121 of the safety gate 118 and the horizontal transverse flat strip member 95 of the cradle back portion 60 as guides, the first layer of bricks 157 can be very speedily and accurately assembled.

Next, one of the sheets of chipboard 170 is placed on top of the first layer of bricks 157 as can be seen in Figs. 17, 18 and 19. Side corrugated cardboard strip 163 is also put in place, with its left-hand side abutting the right-hand edge of bottom horizontal strap threading guide 122 and with its rearmost end extending rearwardly to the front left-hand edge of channel portion 99 of the horizontal transverse channel member 97 and then to the right a measured distance in the notched cut-out that is there formed. (Figs. 8, 13 and 19.) On the top of the sheet of chipboard and abutting the right-hand face of side corrugated cardboard strip 163 is built the second layer of bricks 158 as shown in Fig. 15.

As can be seen in Fig. 15, the second layer of bricks 158 is made up of a left-hand row of three bricks laid so that their longest, narrowest faces are to the top and bottom, and shortest, narrowest faces to the front and

rear and their longest, widest faces to the sides. To the right of the left-hand row of three bricks are three rows of ten bricks each with the bricks sitting on their longest, narrowest faces and their longest, widest faces to the front and rear. On the right-hand side of the second layer of bricks 158 are two rows of three bricks each in the same position as the row of three bricks on the left-hand side.

The second layer of bricks 158 is also built starting with the left-hand row of three bricks. The first brick put in place is the brick in the left rear corner, and it is placed so that its rearmost end abuts the forwardmost extending edges of channel portion 99 of the horizontal transverse channel member 97 of the cradle back portion 60 and so that its left-hand edge abuts the right-hand edge of side corrugated cardboard strip 163 which abuts the bottom horizontal strap threading guide 122 of the safety gate 118. The front two bricks of the left-hand row of the second layer of bricks 158 are placed in front and abutting the first brick and so that their left-hand edges also abut the right-hand edge of side corrugated cardboard strip 163 which abuts the bottom horizontal strap threading guide 122 of the safety gate 118 (Fig. 19).

The three rows of ten bricks each are then placed tightly against the left-hand row of three bricks so that the rearmost bricks of these three rows abut the forwardmost edges of channel portions 100 and 101 of the horizontal transverse channel member 97 of the cradle back portion 60. The two right-hand rows of three bricks each are then placed tightly against the right-hand edge of the right-hand row of ten bricks with the back edges of the rearmost bricks abutting the cut-out in the right end of channel portion 101 of the horizontal transverse channel member 97 and the forwardmost extending edges of channel portion 102 of the horizontal transverse channel member 97 (Figs. 17 and 18).

On top of the completed second layer of bricks 158 is placed another sheet of chipboard 170 (Figs. 17, 18 and 19). On top of the sheet of chipboard is built the third layer of bricks 159, the third layer of bricks 159 being identical to the first layer of bricks 167, as shown in Fig. 14. It is built, as the first two layers were built, starting with the rearmost brick in the left-hand row. The left-hand edges of the bricks in the third layer abut the right-hand edge of the middle horizontal strip member 123 of the safety gate 118, and the rearmost bricks abut the forwardmost strip member 96 of the cradle back portion 60 (Figs. 17 and 18).

On top of the third layer of bricks 159 is placed another sheet of chipboard 170. Also, side corrugated cardboard strip 164 is put in place with its left-hand side abutting the right-hand edge of top horizontal strap threading guide 124, and with its rearmost end extending rearwardly to the front left-hand edge of channel portion 104 of the horizontal transverse channel member 98 and then to the right a measured distance into the notched cut-out that is there formed in the left end of channel portion 104 (Figs. 8, 13 and 19). On top of the sheet of chipboard and abutting the right-hand face of side corrugated cardboard strip 164 is built the fourth layer of bricks 160 as shown in Fig. 16.

As can be seen in Fig. 16 the fourth layer of bricks 160 is just the reverse of the second layer of bricks 158. That is, the fourth layer of bricks 160 consists of two rows of three bricks on its right-hand side. The fourth layer is built up, as the other layers were, starting with the rearmost brick in the left-hand row.

The first brick is placed so that its rearmost end abuts the forwardmost extending edges of channel portion 104 of the horizontal transverse channel member 98 of the cradle portion 60, and so that its left-hand edge abuts the right-hand edge of side corrugated cardboard strip 164 which abuts the top horizontal strap threading guide 124 of the safety gate 118. The front two bricks of the

left-hand row of the fourth layer of bricks 160 are placed in front and abutting the first brick so that their left-hand edges also abut the right-hand edge of side corrugated cardboard strip 164 which abuts the top horizontal strap threading guide 124 of the safety gate 118 (Fig. 19).

The second row of three bricks is placed tightly up against the first row of three bricks so that the rearmost end of its rearmost brick abuts the notched cut out in the left end of channel portion 105. Three rows of ten bricks each are then placed tightly against the first two left-hand rows of three bricks each so that their back faces of their rearmost bricks abut the forward extending edges of channel portions 105 and 106 of channel member 98 of the cradle back portion 60. The right-hand row of three bricks is then placed tightly against the three rows of ten bricks each so that the rearmost end of the rearmost brick abuts the forwardmost extending edges of channel portion 107 of the channel member 98.

Another sheet of chipboard 170 is placed on top of the fourth layer of bricks 160. On top of the sheet of chipboard is placed the fifth layer of bricks 161. The fifth layer of bricks 161 is identical to the third layer of bricks 159 and the first layer of bricks 157. That is, it consists of four rows of ten bricks each as shown in Fig. 14.

This layer of bricks is again built from the left rear corner with the back face of the rearmost brick of the left-hand row abutting the forwardmost edge of horizontal transverse flat strip member 103 of the cradle back portion 60, and with the left-hand edges of the left-hand row of bricks abutting the right-hand edge of the top horizontal strip member 125 of the safety gate 118. The other three rows of bricks are placed tightly up against the left-hand row of bricks so that the back faces of the rearmost bricks abut the forwardmost edges of horizontal transverse flat strip member 103 of the cradle back portion 60.

Next, the side corrugated cardboard strip 165 is placed so that its rearmost end is inserted between the back edge of the rearmost brick in the right-hand row of the second layer of bricks 158 and the back edge of the notched cut-out formed in the channel portion 102 of the channel member 97 of the cradle back portion 60. The side corrugated cardboard strip 165 is then bent so that it extends forwardly and abuts the right-hand edge of the second layer of bricks 158. Side corrugated cardboard strip 166 is similarly placed around the right-hand edge of the fourth layer of bricks 160, so that its rearmost edge extends between the back face of the rearmost brick in the right-hand row and the back edge of the notched cut-out in channel portion 107 of the channel member 98 in the cradle back portion 60, and so that it extends forwardly and abuts the right-hand edge of the fourth layer of bricks 160.

Next, the horizontal straps 162 are put in place. This is done by starting the end of the strap down through the upper forwardmost end of the strap threading guides 122 and 124 of the safety gate 118. The box-like structure and the arcuate left-hand edges of strap threading guides 122 and 124 causes the straps to go around the left-hand sides of the second layer of bricks 158 and the fourth layer of bricks 160, and pass between the forwardly extending leg portions of channel members 97 and 98 of the cradle back portion 60. The ends of the strap ultimately end up, after having circled the left sides and the rear sides of the second and fourth layers of bricks 158 and 160, protruding from the rear right-hand corner of the brick packaging machine.

The workman then grasps these protruding ends of the straps and continues to circle them around the right-hand sides and the front sides of the second layer of bricks 158 of the fourth layer of bricks 160 and on the front face of the second and fourth layers of bricks joins the

ends of the straps and secures them tightly by use of a standard steel strap fastening mechanism. This causes the front ends of the side corrugated cardboard strips 163, 164, 165 and 166 to be bent a measured distance around the front corners of the second layer of bricks 158 and fourth layer of bricks 160 (Fig. 13).

After the horizontal straps 162 are secured in place, the cradle member 2 is returned to normal position so that the cradle base portion 59 is in a horizontal plane. This is accomplished by the workman placing his foot on the foot pad 49 of the safety foot lever 47 and causing the safety foot lever 47 to rotate in a clockwise direction (Fig. 12), thereby extending helical spring 51a and causing the notched cut-out 55 in the arcuate upwardly extending portion 50 of the safety foot lever 47 to be disengaged from the steel plate 55a on the cradle base portion 59. He then grasps the safety handle members 76, 80 or 84 or the telescoping lifting bar 149 and forces the cradle member 2 to rotate in a clockwise direction (Fig. 12). As the loaded cradle member 2 rotates past center the weight of the bricks forces the cradle base portion 59 downwardly.

This downward motion is resisted by the oil cylinder 29 which allows the cradle member 2 to slowly move to normal position. Only slow downward motion of the cradle member 2 is allowed since by-pass valve 33 of the oil cylinder 29 is closed for oil moving to the front of the cylinder and no oil passes through by-pass tube portion 32 or by-pass tube portion 34, but rather all oil moving to the front part of air cylinder 29 must pass through a small orifice in the plunger of the cylinder.

As the cradle member 2 approaches normal position, the cradle base portion 59 engages the top ends of helical springs 42, which are held in the spring retaining members 41 of the base carriage member 1, and causes these helical springs 42 to compress. Also, as the cradle member 2 approaches normal position, the bottom edge of the unlatching bar 141 strikes the top edge of the front member 4 of the base carriage 1 and forces the unlatching bar 141 to rotate in a clockwise direction (Fig. 11).

This causes the unlatching portion 146 of the unlatching bar 141 to strike the unlatching pin 140 in the safety gate latch 131 and thereby forces the safety gate latch 131 to rotate in a counter-clockwise direction (Fig. 10) extending helical spring 135 and causing the hooked portion 132 to disengage the latching pin 138. Once the cradle 2 is completely returned to normal position, so that the cradle base member 59 is horizontal, the safety gate 118 can be swung to the left away from the brick package.

Next, the workman places the front corner corrugated cardboard strip 167 over the top front edge of the fifth layer of bricks 161 and the rear corner corrugated cardboard strip 168 over the top rear corner of the fifth layer of bricks 161, as seen in Fig. 13. He then is ready to place vertical straps 169 vertically around the brick package.

The three vertical straps 169 are started at the top back corner of the brick package and fed into the top of slots 92, 93 and 94 of the cradle back portion 60. As vertical straps 169 are fed into these slots 92, 93 and 94, they protrude into vertical strap threading guides 109, 110 and 111.

Because of the box-like arcuate back edge structure of the vertical strap threading guides 109, 110 and 111, as the vertical straps 169 are fed into them, the straps are forced downwardly around the back of the brick package and thence forwardly at the bottom of the brick package into slots 67, 71 and 74 formed on the channel members 63, 62 and 61 between the small channel members 65, 66, 69, 70, 72 and 73 of the cradle base portion 59. The vertical straps 169 proceed forwardly through the slots 67, 71 and 74 and end up protruding from the front bottom edge of the brick package.

The workman then grasps these protruding ends and

continues to circle the vertical straps 169 around the front and upwardly and back to the top of the brick package. At the top of the brick package, by use of a standard steel strap fastening mechanism, the ends of the steel straps 169 are joined and securely fastened.

Thus are formed three vertical straps completely circling the brick package and binding it securely together, as shown in Fig. 13. This tightening and fastening of the steel straps 169 causes the ends of the corrugated cardboard strips 154, 155 and 156, under the brick runner strips 151, 152 and 153, to be bent upwardly around the front and rear corners of brick runner strips 151, 152 and 153.

The brick package is now ready for removal from the brick package forming machine by means of a fork lift truck or the like. The forks of a fork lift truck are inserted between the brick runner strips 151 and 152 and between the brick runner strips 152 and 153. As the forks of the lift truck are inserted at these points under the brick package, they will be between channel members 61 and 62 and between channel members 62 and 63 of the cradle base portion 59, and the ends of the forks will strike the top surface of the fork deflecting plates 85 and 85a. Because of the angled position of the fork deflecting plates 85 and 85a the forks of the fork lift truck will be forced upwardly into their proper position under the first layer of bricks 157 and between the channel members 61 and 62 and 63.

The purpose of this procedure is so that the fork lift truck operator may always keep the forks low enough to strike the fork deflecting plates 85 and 85a rather than trying to accurately gauge the fork height in the spaces between the brick runner strips. By following this procedure there is no danger of the forks striking the front bottom corner of the first layer of bricks 157 and thereby seriously damaging the package.

Once the forks of the fork lift truck have been inserted into place, the package may be lifted directly vertically upward, as can be seen in Fig. 20. As the package is lifted vertically upward and part of the weight of the brick package is lifted from the cradle member 23, the helical springs 42 in the spring retaining members 41 of the base carriage member 1, which have been in a compressed position, force the cradle member 2 to again begin to tilt.

This tilting action of cradle member 2 and also the upwardly angled position of the top forwardly extending leg portions of channel members 97 and 98 of the cradle back portion 60 allows the back of the brick package to clear the cradle back portion 60 so that none of the bricks or the horizontal straps 162 are damaged. Also, because of the configuration of runner guide plates 112, 113, 114, 115, 116 and 117, the back upwardly extending ends of the corrugated cardboard strips 154, 155, and 156 under the brick runner strips 151, 152 and 153 are able to slide past the front surface of the runner guide plates 112, 113, 114, 115, 116 and 117 and therefore are not torn or damaged. Since the safety gate 118 has been swung to the left away from the brick package from the time the cradle member 2 had been returned to normal position, the safety gate 118 does not in any way hinder the removal of the brick package from the brick package forming machine.

After the brick package has been removed from the brick package forming machine it may be moved either into storage or on to transportation means. Also, after the brick package has been removed from the brick package forming machine, the brick package forming machine is ready for another package to be formed thereon. The safety gate 118 is swung to the right until its bottom portion abuts the channel member 63 of the cradle base portion 59 and the safety gate latch 131 automatically latches over latching pin 138, holding the safety gate 118 in proper position for building of a new brick package. Unlatching bar 141 does not hinder this latching of

safety gate 118 because after the brick package was removed from the brick package forming machine and the cradle member 2 returned to its slightly tilted position, the unlatching portion 146 was no longer in contact with unlatching pin 140.

It can be seen from the above description that the brick package forming machine herein disclosed is one upon which the brick packaging operation can be done conveniently, quickly and economically by one man due to the unique guides for placing the bricks in their proper place in the brick package and also for guiding the various steel straps around the brick package. It is also apparent that by use of this brick package forming machine with the tilted cradle position for loading, the bricks nest against each other and in place by their own force of gravity and thereby form a tight brick package.

Further, here is presented a brick package forming machine having movable means so that the machine can be taken directly into the brick kiln and there loaded to eliminate double handling of the bricks. And as the bricks are loaded on the brick package forming machine, because of the unique tilted position of the cradle, the bricks are essentially clean of any particles of baked clay or crumbs which are laying loosely on top of them. This again allows a tight, strong, brick package which will not separate during transportation.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiment of the improved construction, illustrated and described herein is by way of example and the scope of the present invention is not limited to the exact details of the construction shown.

Having now described the invention, the construction, operation and use of a preferred embodiment thereof and the advantageous, new and useful results obtained thereby, the new and useful construction and reasonable mechanical equivalents thereof obvious to those skilled in the art are set forth in the appended claims.

What we claim is:

1. A brick package forming machine including a base carriage member, a cradle member, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, a vertical side gate having an inner face, said gate being hingedly connected to said cradle member, and guide means on said side gate partially extending outward from the inner face of said side gate serving as guides for positioning each layer of bricks in a particular lateral position in a brick package being formed.

2. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, a side gate having an inner face, said gate being hingedly connected to said cradle member, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning bricks in their proper place in a brick package being formed, and guide means partially extending outward from the inner face of said side gate serving as guides for positioning each layer of bricks in a particular lateral position in a brick package being formed.

3. A machine upon which bricks are formed into a package bound by straps, said machine including a base carriage member, a cradle member having a horizontal base portion and a vertical back portion, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, a side gate hingedly connected to said

cradle member, strap guide means on said cradle member vertical back portion and said side gate to guide horizontal straps around the brick package including arcuately formed box-like strap guides on at least one of said portion and gate for guiding straps across said one of said portion and gate and then in an arcuate path into the strap guides on the other of said portion and gate.

4. A machine upon which bricks are formed into a package bound by straps, said machine including a base carriage member, a cradle member having a horizontal base portion and a vertical back portion, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, strap guide means on said cradle member horizontal base portion and vertical back portion to guide vertical straps around the brick package including arcuately formed box-like strap guides on at least one of said portions for guiding straps across said one portion and then in an arcuate path into the strap guides on the other of said portions, a side gate hingedly connected to said cradle member, and strap guide means on said cradle member vertical back portion and said side gate to guide horizontal straps around the brick package including arcuately formed box-like strap guides on at least one of said portion and gate for guiding straps across said one of said portion and gate and then in an arcuate path into the strap guides on the other of said portion and gate.

5. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning bricks in their proper place, and cushion means constructed to automatically tilt said cradle member from normal position to a slightly tilted position as the brick package is being lifted from the brick package forming machine so that said guide means on said cradle member is out of engagement with the brick package.

6. A machine upon which bricks are formed into a package bound by straps, said machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, a side gate having an inner face, said gate being hingedly connected to said cradle member, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning the bricks in their proper place, guide means partially extending outward from the inner face of said side gate serving as guides for positioning the bricks in their proper place, and strap guide means on said cradle member vertical back portion and said side gate to guide horizontal straps around the brick package including arcuately formed box-like strap guides on at least one of said portion and gate for guiding straps across said one of said portion and gate and then in an arcuate path into the strap guides on the other of said portion and gate.

7. A machine upon which bricks are formed into a package bound by straps, said machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, a side gate having an inner face, said gate being hingedly connected to said cradle member, guide means extending outward from the upper side of said horizontal cradle

base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning the bricks in their proper place, guide means partially extending outward from the inner face of said side gate serving as guides for positioning the bricks in their proper place, strap guide means on said cradle member horizontal base portion and vertical back portion to guide vertical straps around the brick package including arcuately formed box-like strap guides on at least one of said portions for guiding straps across said one portion and then in an arcuate path into the strap guides on the other of said portions, and strap guide means on said cradle member vertical back portion and said side gate to guide horizontal straps around the brick package including arcuately formed box-like strap guides on at least one of said portion and gate for guiding straps across said one of said portion and gate and then in an arcuate path into the strap guides on the other of said portion and gate.

8. A machine upon which bricks are formed into a package bound by straps, said machine including a base carriage member, a cradle member having a horizontal base portion with an upper face and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, a side gate having an inner face, said gate being hingedly connected to said cradle member, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning the bricks in their proper place, guide means partially extending outward from the inner face of said side gate serving as guides for positioning the bricks in their proper place, strap guide means on said cradle member horizontal base portion and vertical back portion to guide vertical straps around the brick package including arcuately formed box-like strap guides on at least one of said portions for guiding straps across said one portion and then in an arcuate path into the strap guides on the other of said portions, strap guide means on said cradle member vertical back portion and said side gate to guide horizontal straps around the brick package including arcuately formed box-like strap guides on at least one of said portion and gate for guiding straps across said one of said portion or said gate and then in an arcuate path into the strap guides on the other of said portion and gate, means positively holding said cradle member in the tilted position, cylinder means engaged with said cradle member and said base carriage member constructed to slowly and safely return said cradle member from tilted position to normal position, cushion means automatically tilting said cradle member as the brick package is being lifted from the brick package forming machine so that said guide means on said cradle member back portion is out of engagement with the brick package, adjustable stop means to position said cradle member in the tilted position, latch means latching said side gate in its closed position, automatic unlatching means to unlatch the side gate automatically when the cradle member is returned to normal position including an unlatching bar pivotally mounted on one of said cradle member and base carriage member engaged by the other of said members and engaging the latch means during said return movement of said cradle member, a telescoping lifting member on said cradle member, and fork deflecting plates on said cradle member.

9. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion and a vertical back portion, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, the cradle member being movable between a normal position in which the cradle base por-

tion extends generally horizontally and a tilted loading position in which said base portion is angled from horizontal, a side gate hingedly connected to the cradle member and movable between an open and closed position, latch means for securely retaining the side gate in closed position, and unlatching means for automatically unlatching said latch means when the cradle member is moved from its tilted loading position to its normal position.

10. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion and a vertical back portion, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, the cradle member being movable between a normal position in which the cradle base portion extends generally horizontally and a tilted loading position in which said base portion is angled from horizontal, selectively releasable means for securely retaining said cradle member in said tilted loading position, a side gate hingedly connected to the cradle member and movable between an open and closed position, latch means for securely retaining the side gate in closed position, and unlatching means for automatically unlatching said latch means when the cradle member is moved from its tilted loading position to its normal position.

11. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, the cradle member being movable between a normal position in which the cradle base portion extends generally horizontally and a tilted loading position in which said base portion is angled from horizontal, selectively releasable means for securely retaining said cradle member in said tilted loading position, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning bricks in their proper place, and cushion means constructed to automatically tilt said cradle member from normal position to a slightly tilted position as the brick package is being lifted from the forming machine so that said guide means on said cradle member is out of engagement with the brick package.

12. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back portion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, the cradle member being movable between a normal position in which the cradle base portion extends generally horizontally and a tilted loading position in which said base portion is angled from horizontal, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning bricks in their proper place, a side gate hingedly connected to the cradle member and movable between an open and closed position, latch means for securely retaining the side gate in closed position, unlatching means for automatically unlatching said latch means when the cradle member is moved from its tilted loading position to its normal position, and cushion means constructed to automatically tilt said cradle member from normal position to a slightly tilted position as the brick package is being lifted from the forming machine so that said guide means on said cradle member is out of engagement with the brick package.

13. A brick package forming machine including a base carriage member, a cradle member having a horizontal base portion with an upper side and a vertical back por-

tion with a front face, cooperating hinge means on said base carriage and cradle members hingedly connecting said cradle member to said base carriage member, the cradle member being movable between a normal position in which the cradle base portion extends generally horizontally and a tilted loading position in which said base portion is angled from horizontal, selectively releasable means for securely retaining said cradle member in said tilted loading position, guide means extending outward from the upper side of said horizontal cradle base portion and outward from the front face of said vertical cradle back portion serving as guides for positioning bricks in their proper place, a side gate hingedly connected to the cradle member and movable between an open and closed position, latch means for securely retaining the side gate in closed position, unlatching means for automatically unlatching said latch means when the cradle member is moved from its tilted loading position to its normal position, and cushion means constructed to

automatically tilt said cradle member from normal position to a slightly tilted position as the brick package is being lifted from the forming machine so that said guide means on said cradle member is out of engagement with the brick package.

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