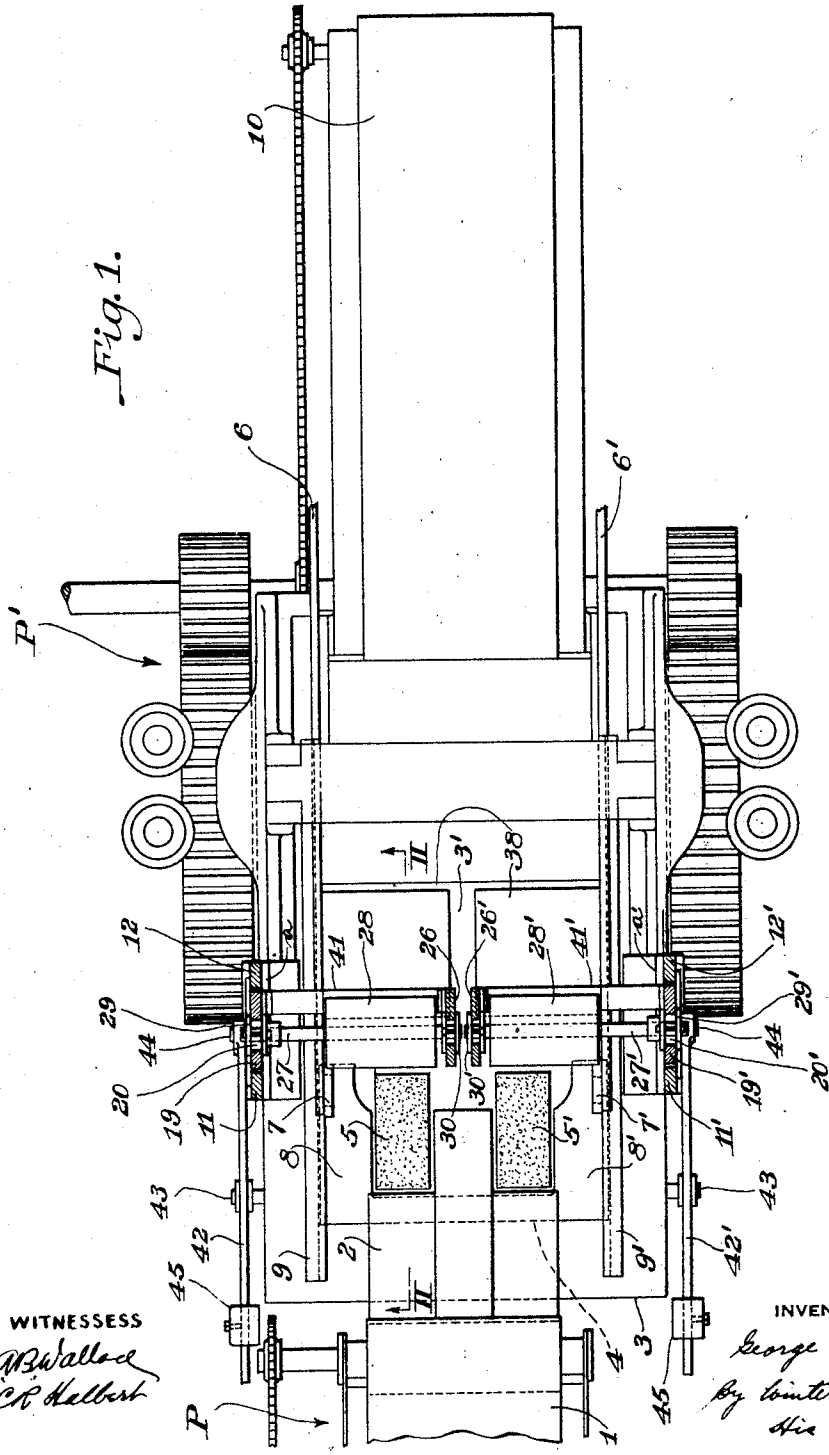
Dec. 15, 1925. 1,565,739

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TRIMMING MECHANISM FOR BRICK MACHINES

Filed Feb. 29, 1924 3 Sheets-Sheet 1

Fig. 1.



WITNESSES

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TRIMMING MECHANISM FOR BRICK MACHINES

Filed Feb. 29, 1924 3 Sheets-Sheet 2

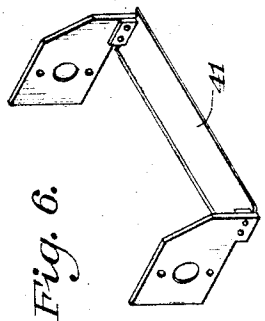


Fig. 6.

Fig. 2.

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TRIMMING MECHANISM FOR BRICK MACHINES

Filed Feb. 29, 1924 3 Sheets-Sheet 3

Fig. 3.

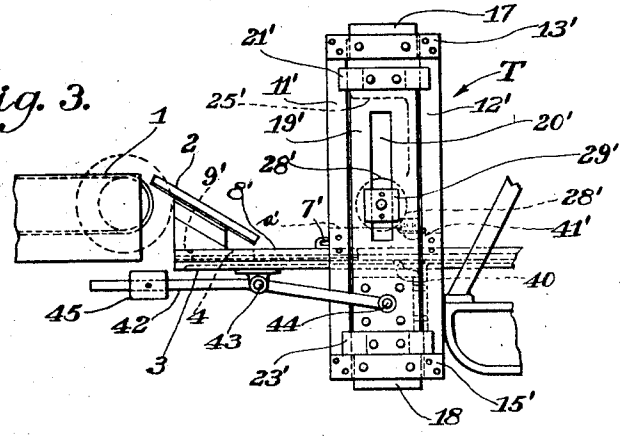


Fig. 4.

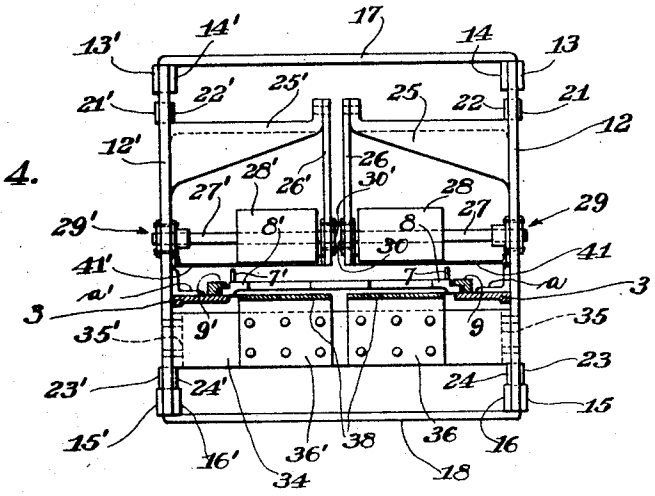
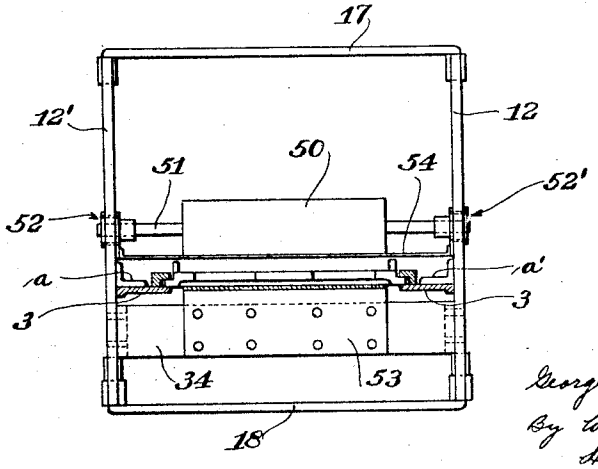


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

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TRIMMING MECHANISM FOR BRICK MACHINES.

Application filed February 29, 1924. Serial No. 695,928.

To all whom it may concern:

Be it known that I, GEORGE B. HANEY, a citizen of the United States, and a resident of Ashland, in the county of Boyd and State of Kentucky, have invented a new and useful Improvement in Trimming Mechanism for Brick Machines, of which the following is a specification.

This invention relates generally to brick making machinery comprising a press and a repress associated with an interposed sizing device or trimmer, and particularly to a new and improved form of trimming mechanism together with its association with the press or repress.

It is an object to provide a brick trimming mechanism which is simple and sturdy in construction, which will not easily get out of order, which is economical to install, which will operate in an efficient manner and which can be attached to the brick presses already in use or furnished as a part of their initial equipment.

It is a special object to provide a trimmer which effects the sizing of the bricks by removal of the material from the bottom faces thereof, the chips removed being directly discharged downwardly through an opening in the table of the press.

It is also a special object to provide a trimmer of the character referred to which automatically adjusts itself to the required condition for trimming bricks to a predetermined size regardless of their thickness when fed to the trimmer, and which can be readily set to produce trimmed bricks of different thicknesses, as desired.

A further special object is to provide a trimming mechanism so associated with the table of the press in a unique manner whereby the usual pull-over devices for feeding the bricks into the press will also serve to force the bricks through the trimmer.

A still further object is to provide a novel form of trimmer having a lifting element rigidly but adjustably connected to the cutting element whereby the two move in bodily unison, in which they are so associated with the press table as to elevate the cutting element in accordance with variations in the thickness of the brick fed to the press, and which simultaneously and proportionately varies the size of the escape opening for the chips according to the quantity removed.

These and other objects of the invention will more fully appear when taken in conjunction with the following description and the appended claims.

In the accompanying drawings, Fig. 1 is a plan view, with the trimming mechanism partly in section, illustrating the association of the trimmer with the receiving end of the repress, and involving one embodiment of the invention; Fig. 2 a side elevation of the mechanism shown in Fig. 1, the receiving table of the repress and the trimmer being illustrated in section, said section being taken substantially on the line II—II of Fig. 1; Fig. 3 a fragmentary elevation showing the delivery end of the press and the mounting of the trimming mechanism upon the receiving table of the repress; Fig. 4 a sectional view taken substantially on the line IV—IV of Fig. 2; Fig. 5 a view similar to Fig. 4 showing a modified form of the invention comprising but a single lifting roller; and Fig. 6 a detail perspective view of a pair of plates forming a part of the adjustable bearings for the shaft of the lifting roller, together with the guide plate carried thereby.

In the drawings, P, P′, and T, represent generally the delivery end of the press, the repress, and trimmer mechanism, respectively. All of these mechanisms are suitably mounted upon any desirable support or floor and are successively arranged in relation to each other in the manner shown in Figs. 1 and 2.

Both the press and the repress, except in so far as they are particularly arranged with relation to the remaining parts, and as hereinafter described in detail, are of a conventional standard form of construction now upon the market. For this reason, the entire detailed construction of the presses will not be set forth, both their structure and mode of operation being well known to those familiar with the art, and is apparent from the drawings.

For the purposes of this invention, it is sufficient to describe that the press is provided at its discharge end with a discharge conveyor belt 1 which delivers the bricks from the press to an inclined guide plate 2 which in turn delivers them upon the receiving table or apron 3 of the repress, the table in the present instance being provided with a rectangular opening 3′ extending

therethrough. The bricks are deposited upon the table 3 in a position in advance of the transverse feed bar 4 of a pull-over so as to be caught by the feed bar and delivered into the repress. A pair of bricks in position upon the table 3 to be caught by the transverse portion 4 of the pull-over are indicated at 5, 5', in Fig. 1 of the drawings. The pull-over shown is a conventional standard form well known to those familiar with the art, and is adapted to be actuated in timed relation with the press by any suitable mechanism. In the form illustrated, the pull-over is adapted to be actuated by the bars or links 6, 6', which are pivotally connected to the pull-over at the points 7, 7', respectively, and the pull-over is guided in its reciprocating movement in predetermined spaced relation to the table by having its side portions 8, 8' underlying the guiding ribs 9, 9', respectively, the bottom face of the intermediate portion of the pull-over being disposed somewhat above the upper surface of the table 3. After the bricks are acted upon by the repress P', the same are delivered upon the discharge belt 10 and conveyed to suitable receiving devices, in accordance with the usual practice in this art.

The trimmer comprises a main guiding frame attached to the marginal portions of the table 3, at opposite sides of the opening 3', and a sliding frame carrying the cutting element mounted for vertical reciprocation in the guide frame. The guiding frame consists of upright standards 11, 12, connected adjacent their upper ends by the straps 13, 14, and adjacent their lower ends by the straps 15, 16. The opposite side of the guide frame is similarly constructed and the several standards and straps are indicated in the drawings by the same reference numerals with the addition of an exponent "'". The guide frame is strengthened and braced at its upper portion by a bar 17, the opposite ends of which are rigidly held between the straps 13, 14, 13', 14', and likewise the bottom portion of the guiding frame is equipped with a transverse bar or brace 18.

The standards 11, 12, 11', 12' are rigidly attached to the sides of the table 3 by means of the angle members a, a', and extend substantially vertically thus providing guide openings therebetween in which the side portions of the sliding frame carrying the lifting roller and cutting knife may be mounted for vertical reciprocating movement. The side member of the sliding frame located within the space between the standards 11 and 12 is indicated at 19 and that between the corresponding standards at the opposite side of the machine at 19', each of these side members of the sliding frame being equipped with an elongated slot indicated at 20 and 20', respectively. The member 19 is maintained in operative engagement with the standards 11 and 12 by means of the straps 21, 22 at its upper end, and by the straps 23, 24 at its lower end, all of these straps being attached to the member 19 but having their ends extending sufficiently far to lie at the opposite sides of the standards 11 and 12, all as clearly shown in the drawings. Likewise the side frame member 19' is equipped with the straps 21'—24'.

Attached to the sliding frame members 19 and 19' are the inwardly extending brackets 25 and 25', from which depend the respective bearing brackets 26, 26', each of the members 26, 26' being provided with an elongated slot similar in all respects to the slots 20, 20'. The shaft 27, provided with the lifting roller 28, carries at its opposite ends the adjustable bearings indicated generally at 29 and 30 which are adjustably mounted within the elongated slots of the members 19 and 26, respectively. Similarly the shaft 27', carrying the lifting roller 28', is journalled by means of the adjustable bearings 29', 30', cooperating with the slots in the members 19' and 26', respectively. By means of the adjustable bearings provided for the several shafts of the lifting rollers, these may be bodily adjusted to various heights in the side members of the sliding frame.

Also attached to the sliding frame below the table 3 is a cross brace 34. This cross brace may be fixed to the sliding frame in any desirable manner, and as illustrated has its opposite extremities bent angularly as shown at 35, 35', these extremities being riveted to the sliding frame. Cross brace 34 has rigidly attached thereto a pair of knife supports 36, 36'. Each of these knife supports is shaped as illustrated in Fig. 2 of the drawings, having the depending skirt portion 37 which is riveted to the cross brace, and a horizontally flanged portion 38 which lies within the opening 3' when the sliding frame is in its lowermost position, as in Fig. 2, the parts being so associated that in this position the straps 23, 24, 23' and 24' of the sliding frame are adapted to rest upon and contact the straps 15, 16, 15' 16' of the main guide frame. Each knife carrier is equipped with a forwardly projecting ledge adjacent the juncture between the parts 37 and 38 providing a shouldered recess for receiving a cutting knife 40. Knife 40 may be attached to the ledge in any desirable way, such as by riveting, as illustrated. The forward cutting edge of the knife when the sliding frame is in its lowermost position lies substantially flush with the upper surface of the table 3 and adjacent the portion of the table bounding the opening 3'.

Also carried by the sliding frame, and

attached to the adjustable bearings for the shafts 27 and 27′ are the guide plates 41 and 41′. The lower surfaces of the guide plates lie substantially flush with the lower portions of the guide rollers, one method of attaching the guide plate to the portions of the adjustable bearings for the lifting roller is illustrated in Fig. 6.

In order to counter-balance the sliding frame, together with the several parts carried thereby, the levers 42 and 42′ are provided. Each of these levers is pivoted, as indicated at 43, to the table of the press and has one end attached to the sliding frame as at 44 while its opposite end carries an adjustable weight 45.

It is particularly pointed out that the shafts of the lifting rollers directly overlie the portions of the table 3 in advance of the opening 3′ and forwardly of the cutting edges of the knives 40 so that the body of the bricks forced through the trimming mechanism is first caused to contact the rollers while being firmly supported by the table and before being brought into cutting relation with the knives, and that the lifting rollers, cutting knives and guide plates move bodily as a unit.

In the modified form of the invention shown in Fig. 5 instead of employing a pair of lifting rollers, a pair of cutting knives, and a pair of guide plates, such as previously described, when the trimmer is to be used in conjunction with a press or repress which acts upon a single brick at a time, instead of a pair of bricks as in the preferred form, but a single lifting roller 50 need be employed. In this instance, the roller 50 is made of sufficient length to substantially bridge the opening 3′ through the table and the opposite ends of its shaft 51 are journalled by means of the adjustable bearings 52, 52′ directly within the side members of the sliding frame. Likewise the knife carrier 53 corresponds to the width of the opening in the receiving table, as does the knife carried thereby, and the single guide plate 54 employed is attached to the inner portions of the bearings 52, 52′. In other respects, the structure of the modification of Fig. 5 corresponds to that pointed out in connection with the form shown in Figs. 1 to 4.

In operation, the bricks from the press are delivered by the conveyor belt 1 to the incline 2 and slide downwardly upon the table 3 in advance of the cross bar 4 of the pull-over mechanism of the repress P′. The ordinary reciprocating movement of the pull-over towards the repress forces the bricks to move into contact with the lifting rollers which are caused to ride upwardly under the pressure exerted by the bricks, the height to which they rise depending entirely upon the thickness of the bricks delivered. Rising movement of the lifting rollers due to their attachment to the sliding frame in turn causes the cutting elements or knives 40 to be elevated above the upper surface of the receiving table, and as the bricks are drawn towards the press by the pull-over, are brought into cutting relation with the knives which effect trimming thereof at their bottom faces. The chips removed from the lower faces of the bricks escape downwardly through the opening 3′, and may be discharged directly upon the floor for the presses or collected by any suitable receiving device placed below the said opening. The bricks under the influence of the pull-over are caused to pass entirely through the trimmer and are ultimately slid over the horizontal flange 38 and into the dies of the press for the usual pressing operation.

The amount of material removed from the lower faces of the bricks is dependent upon the width of the space between the lower edge of the lifting rollers and the cutting edge of the knives 40, and since the shafts for the lifting rollers are freely adjustable to various vertical positions within the sliding frame, the trimmer may be set to obtain trimmed bricks of the desired thickness. During the forcing of the bricks through the trimmer the entire sliding frame including the lifting rollers, the cutting knives and the guide plates reciprocate bodily as a unit, and the pressure exerted upon the upper faces of the bricks may be adjusted to any desired extent by moving the counter-balancing weights 45 along the levers 42, 42′.

It is again particularly noted that the cutting edges of the knives lie somewhat rearwardly of the axis of the lifting rollers, so that the portion of the table 3 in advance of the opening 3′ serves as an effective rigid support for the bricks as they are fed into cutting relation with the knives. It is also noted that as the knives are lifted above the upper surface of the table 3, the effective size of the opening for the escape of the removed chips is made larger. Consequently, the size of the escape opening for the chips is automatically regulated in accordance with the amount of material it is necessary to remove from the bricks in order to reduce them to the desired thickness.

Although the invention is particularly designed and intended to be used in association with the receiving table of a repress for trimming or sizing bricks which have been delivered from the press for subsequent action in the repress, it is obvious that under some conditions it may be desirable to employ the trimming mechanism otherwise than specifically set forth, as with a single press, and it is therefore not intended to limit the invention beyond that particularly pointed out and defined by the appended claims.

It is thus seen that the invention provides

a simple, sturdy and effective means for trimming bricks, and one which may be applied to presses already in use or furnished as part of their initial equipment, one in which the cutting knives remove the material from the bottom faces of the bricks and in accordance with the thickness of the bricks desired, one which may be readily adjusted to secure trimmed bricks of various thicknesses, and one which is associated with the receiving table of the press in such manner that the size of the escape opening for the discharge of the chips removed from the bricks is automatically adjusted in accordance with the amount of material removed.

I claim:

1. In combination with a press having a feed table and means for feeding the bricks into the press, of a trimmer mounted on the table, the trimmer being so disposed relatively to the press and table that the said feeding means forces the bricks through the trimmer prior to reaching the press and during its continued movement in the same direction to the press.

2. The combination of a brick press, a trimmer for sizing the bricks delivered thereto, and a single means for forcing the bricks during its continued movement in the same direction through the trimmer into the press.

3. The combination of a brick press, a table at the inlet side thereof, a reciprocating cutting element supported on the table, and a reciprocating feed bar for forcing the bricks past the cutting element into the press.

4. The combination of a brick press, a table at the inlet side thereof provided with an opening extending therethrough, a knife mounted for vertical reciprocating movement through the said opening, and feeding means for moving the bricks past the knife into the press.

5. The combination of a brick press, a table at the inlet side thereof provided with an opening extending therethrough, a knife mounted for vertical reciprocating movement through the said opening, a bodily movable lifting member connected to the knife and located above the table, and means for forcing bricks between the said member and knife.

6. The combination of a brick press, a table at the inlet side thereof provided with an opening extending therethrough, a knife mounted for vertical reciprocating movement through the said opening, a bodily movable lifting roller operatively connected to but spaced from the knife, and means for forcing bricks through the space between the roller and knife.

7. The combination of a brick press, a table at the inlet side thereof provided with an opening extending therethrough, a knife mounted for vertical reciprocating movement through the said opening, a bodily movable lifting roller operatively connected to but spaced from the knife, means for selectively varying the distance between the roller and knife, and means for forcing the brick between the roller and knife and feeding them into the press.

8. The combination of a brick press, a table at the inlet side thereof provided with an opening extending therethrough, a knife mounted for vertical reciprocating movement through the said opening, a bodily movable lifting roller operatively connected to but spaced from the knife, the axis of the said roller overlying the table in advance of the opening therein, and means for forcing bricks through the space between the roller and knife.

9. The combination of a brick press, a table at the inlet side thereof provided with an opening extending therethrough, a knife mounted for vertical reciprocating movement through the said opening, a bodily movable lifting roller, means for selectively varying the distance between the roller and knife, and means for forcing the brick between the roller and knife and feeding them into the press, the axis of said roller overlying the table in advance of the opening therein and means for forcing bricks through the space between the roller and knife.

10. The combination of a brick press, a feed table at the inlet side thereof provided with an opening, a guide frame supported on the table, a sliding frame mounted in said guide frame and carrying a cutting element rigidly attached thereto adapted to pass through the said opening, and means for forcing bricks through the frames into contact with the said cutting element.

11. The combination of a brick press, a feed table at the inlet side thereof provided with an opening, a guide frame supported on the table, a sliding frame mounted in said guide frame and carrying a cutting element rigidly attached thereto adapted to pass through the said opening, and means for forcing bricks through the frames into contact with the said cutting element, and a weighted lever pivoted to the table and connected to the sliding frame.

12. The combination of a brick press, a feed table at the inlet side thereof provided with an opening, a guide frame supported on the table, a sliding frame mounted for vertical reciprocating movement in the guide frame, a knife fixed to the sliding frame disposed within the said opening, a lifting roller journalled in the sliding frame and spaced from the said knife, and a transverse reciprocating bar for feeding bricks between the roller and knife into the press.

13. The combination of a brick press, a feed table at the inlet side thereof provided

with an opening, a guide frame supported on the table, a sliding frame mounted for vertical reciprocating movement in the guide frame, a knife fixed to the sliding frame disposed within the said opening, a lifting roller having its shaft journalled in the sliding frame and spaced from the said knife, said shaft being adjustably mounted in the sliding frame whereby to vary the width of the space between the roller and knife, and a transverse reciprocating bar for forcing bricks through the said space.

14. The combination of a brick press, a trimming mechanism including a cutter, and means for forcing bricks through the said mechanism over the said cutter whereby to remove material from the entire bottom surfaces of the bricks.

15. The combination of a brick press, a repress, means for conveying bricks from the press to the repress, and means for removing material from the entire extent of the under sides of the bricks during their passage from the press to the repress whereby to size the same.

16. The combination of a press, a repress spaced therefrom, a trimming mechanism provided with a cutter interposed therebetween, and means for conveying bricks from the press to the repress through the trimming mechanism over the said cutter whereby to size the bricks by removing material from the entire bottom surfaces thereof.

17. The combination of a press, a repress spaced therefrom, a trimming mechanism having a cutting knife, means for receiving bricks from the press and feeding them through the trimming mechanism into the repress, said cutting knife lying below the path of travel of said bricks and disposed so as to remove a portion of the material of the bricks from their entire bottom surfaces during passage through the trimming mechanism.

In testimony whereof, I sign my name.

GEORGE B. HANEY.