

W. KESPOHL.
BRICK MACHINE.

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1,241,398.

Patented Sept. 25, 1917.

2 SHEETS—SHEET 1.

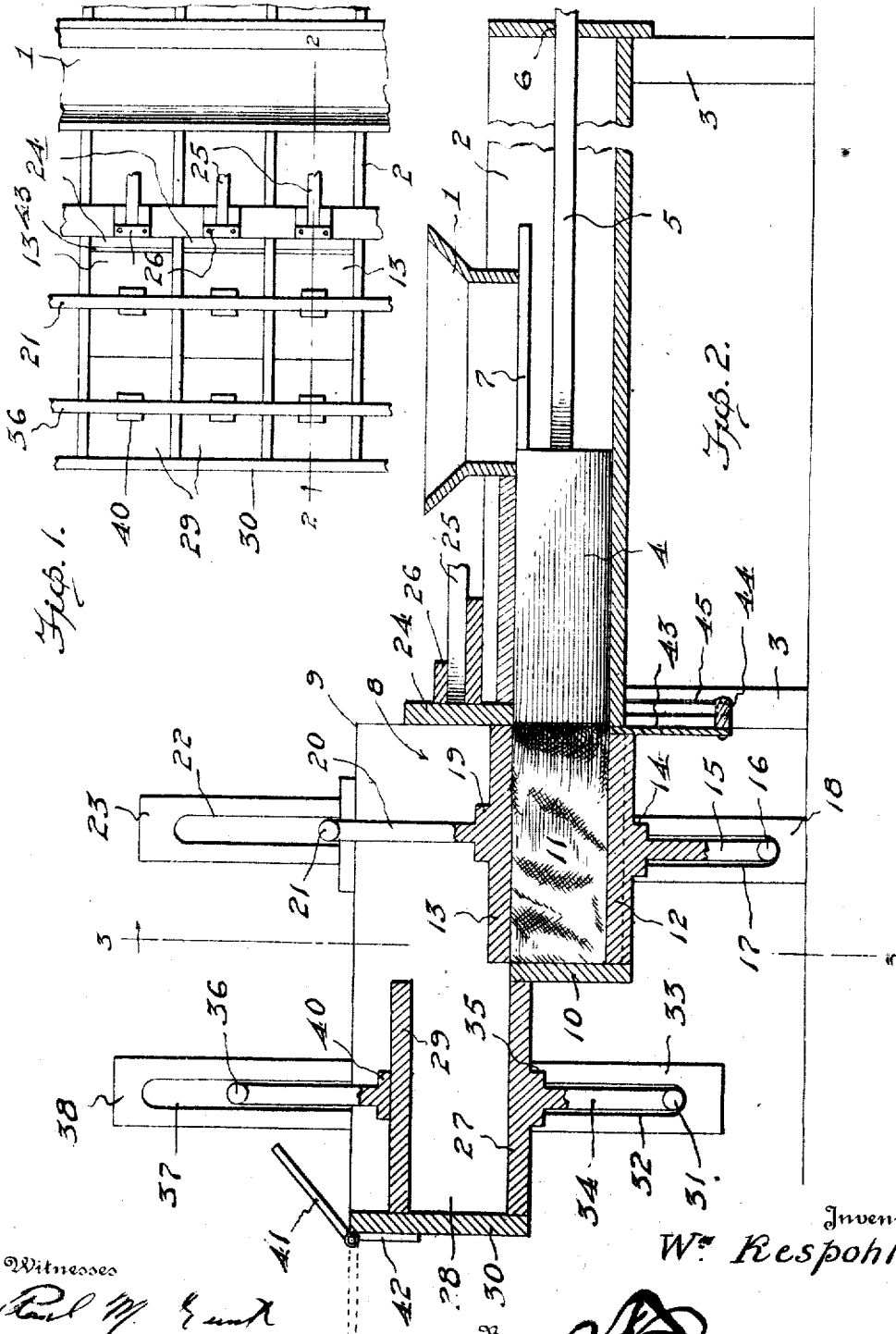


Fig. 1.

Fig. 2.

Witnesses

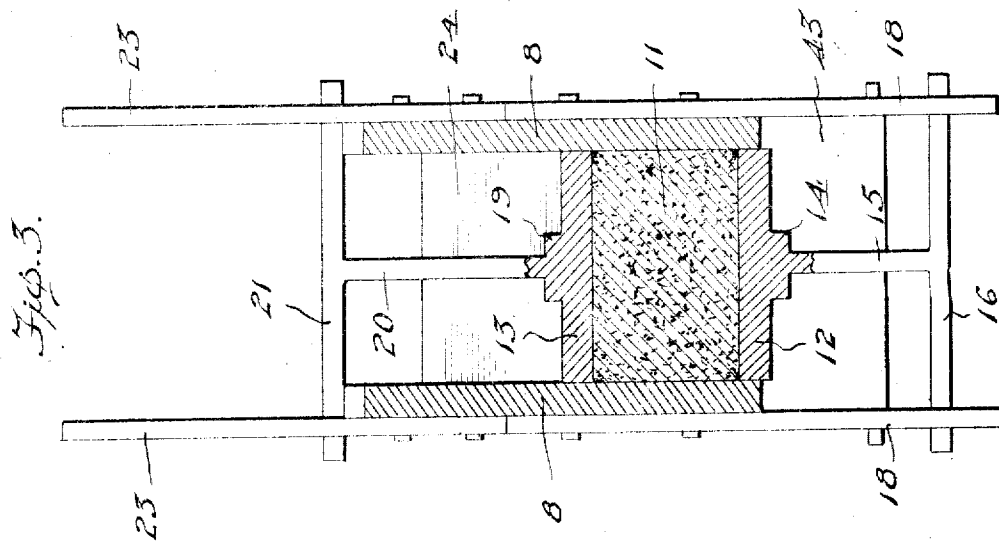
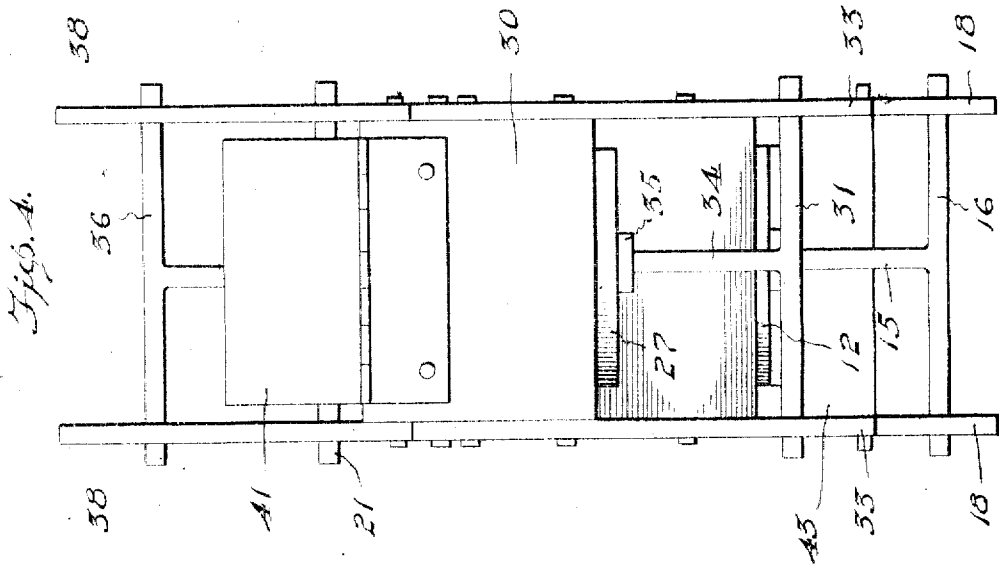
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 2 SHEETS—SHEET 2.



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BRICK-MACHINE.

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To all whom it may concern:

Be it known that I, WILLIAM KESPOHL, a citizen of the United States, residing at Hannibal, in the county of Marion and State of Missouri, have invented certain new and useful Improvements in Brick-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it apper-
tains to make and use the same.

This invention comprehends certain new and useful improvements in brick machines, and has for its primary object to provide a machine of this character which will be provided with a feeding compartment with a plunger mounted therein for forcing material from said feeding compartment to the main compression chamber within which the upper and lower coöperating reciprocating plungers are movably engaged and through which is adapted to operate the plunger employed for forcing the bricks formed in the main compression chambers to the auxiliary or secondary compression chambers to be further compressed before being delivered from the machine.

The invention has for another object to provide a brick machine of this character which will be constructed in such manner that the bricks may be formed in the main compression chambers and then forced into the auxiliary or secondary compression chambers while a second set of bricks are formed in the main compression chambers.

The invention has for a further object to provide a brick machine of this character which will be of such construction and operation that a number of bricks may be formed in the main compression chambers with one operation of the reciprocating piston within the feeding compartment.

The invention has for a still further object to provide a brick machine of the above stated character which will be of extremely simple construction and operation and comparatively cheap to manufacture as well as highly efficient in use.

With the above and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts, as will be hereinafter more fully described and claimed.

For a complete understanding of my in-

vention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a fragmentary plan view of the brick machine constructed in accordance with my invention.

Fig. 2 is a longitudinal section through the complete machine, taken substantially on the plane of line 2—2 of Fig. 1.

Fig. 3 is a vertical transverse section on the plane of line 3—3 of Fig. 2, looking in the direction indicated by the arrow, and

Fig. 4 is a rear elevation of one section of the machine.

Referring more particularly to the drawings, in which similar reference characters designate corresponding parts throughout the several views, 1 designates the hopper positioned above and depending in the feeding compartment or chamber 2 which is supported in elevated position by suitable legs 3, as will be readily understood by referring to the drawings.

Reciprocally mounted transversely in the feeding compartment or chamber 2 is the main plunger 4 formed on the inner end of a plunger rod 5 which reciprocates through the outer end of the feeding compartment or chamber 2, as shown at 6, and may be operated by any suitable mechanism, not shown.

Projecting rearwardly from the upper edge of the main plunger 4 is a guard plate 7 which is adapted for movement beneath the hopper 1 during operation of the plunger 4 to prevent the material in the hopper 1 from working back of the plunger 4. The plate 7 is clearly shown in Fig. 2 of the drawing.

At the opposite end of the feeding compartment or chamber 2 is a plurality of main compression chambers 8 separated by the vertical walls 9 and having low rear walls 10 opposite the heating chamber or compartment 2 and against which the material from the feeding chamber or compartment 2 is forced by the plunger 4 to form the bricks 11 within said compression chambers 8, the bricks being formed between the ends of the plunger 4, the walls 10 and the lower and upper compression plungers 12 and 13 in the compression chambers 8. It will be understood that the compression chambers 8 have no bottom and top walls, but the bricks 11 are formed upon the lower compression plungers 12 and the upper com-

pression plungers 13 are thrust downwardly upon the top of the bricks 11 by suitable mechanism, not shown.

Each lower plunger 12 has a transverse bracing strip 14 secured upon its lower face with the upper end of a plunger rod 15 secured therein while the lower end of said plunger rod 15 is secured to the cross bar 16 having its opposite ends slidably engaged in elongated guide slots 17 of the standard 18, positioned upon and depending from the opposite sides of the main compression chambers 8. It will be understood that when the material for forming the bricks 11 is forced into the main compression chambers 8, the lower compression plungers 12 are in their lowermost position at the bottom of the main compression chambers 8 and the clamp bars 16 rest upon the lower walls of the guide slots 17.

After the brick 11 has been formed in each compartment 8 by the main plunger 4 and the plungers 12 and 13, the bricks 11 are moved upwardly by suitable mechanism connected with the cross bars 16, it being understood that during the operation of forming the bricks 11, the plungers 13 are moved downwardly, each plunger 13 being provided on its upper face with a transverse bracing bar 19 to which is secured the lower end of a plunger rod 20 having its upper end connected with a cross bar 21 which has its opposite ends slidably mounted in the elongated vertical guide slots 22 formed in the upstanding guide bars 23 at the opposite sides of the compression compartments 8. When the lower plungers 12 are moved upwardly with the bricks 11 upon the same, however, the plungers 13 are forced upwardly, thereby moving the cross bars 21 upwardly in the guide slots 22. When the lower plungers 12 reach the upper ends of the rear walls 10 of the compression chambers 8, the bricks 11 are in position to be moved by the auxiliary horizontally moving pistons 24 normally positioned at the forward end of the compression compartments 8 and secured to the plunger rods 25 which are reciprocally mounted in the supports 26 and are spaced above the compartment or chamber 2. The plungers 24 may then be moved against the bricks 11 to force the same from upon the plungers 12 to position upon the lower plungers 27 in the auxiliary or secondary chambers 28; said plungers 27 forming the bottom of said auxiliary compression chambers 28. The bricks 11 are further compressed in the auxiliary or secondary chambers 28 by means of the plungers 24, lower plungers 27 and the upper plungers 29 of the auxiliary or secondary compression chambers 28, one end of the bricks 11 being forced against and pressed against the outer end walls 30 of said chambers 28. It will also be under-

stood that the upper plungers 29 of the secondary compression chambers 28 are in their lowermost positions, as shown in Fig. 2, when the second compressing operation is completed.

After the second compressing operation is completed, the lower compression plungers 27 of the secondary or auxiliary compression chambers 28 are moved upwardly by the operating mechanism, not shown, connected with the cross bars 31 slidably engaged in the elongated vertical guide slots 32 in the supports 33 depending from the secondary or auxiliary compression chambers 28, said cross bars 31 being secured to the lower end of the plunger rods 34 depending from the center of the transverse bracing and reinforcing bars 35 secured to the under face of the lower plungers 27. This also causes the bricks resting upon the lower plunger 27 to be forced upwardly with the upper plungers 29 engaged against the same and thereby move upwardly the upper cross bars 36 engaged in the elongated vertical guide slots 37 in the upstanding guide bars 38, also secured to the sides of the secondary or auxiliary compression chambers 28, it being understood that the cross bars 36 are mounted upon the upper ends of the plunger rods 39 which have their lower ends secured to the transverse reinforcing and bracing bars 40 mounted upon the upper faces of the upper plungers 29. As the upper plungers 29 are moved to their uppermost position, the apron 41 hinged to the upper edge of the rear ends 30 of the secondary or auxiliary compression chambers 28, is swung outwardly to receive the finished bricks 11, the lower compression plungers 27 being at this time at the upper edges of the compression chambers 28. It will be understood that the shelf 41 may be hinged to the end walls 30 in any suitable manner, such as shown at 42.

In order to assure the provision of straight and smooth rear ends for the bricks 11, I have provided a cut-off or trimming blade 43 which has its lower edge secured to a transverse bar 44 having its opposite ends engaged in vertical elongated slots 45 provided in the supporting legs 3 at the inner end of the feeding compartment or chamber 2 in order to guide the blade 43 in its vertical movement, any suitable means, not shown, being connected with the transverse bar 44 for raising and lowering the blade 43, the upper edge of the blade being engaged between the inner end of the bottom of the feeding compartment or chamber 2 and the lower plunger 12 and adapted to move upwardly upon the completion of the operation of compressing the bricks 11 between the plungers 12 and 13 and preferably previous to upward movement of said plungers to elevate the bricks 11. This up-

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ward movement of the blade 43 will cause the latter to cut the ends of the bricks 11 and smooth the same, it being understood that the blade 43 is of such size as to move upwardly only to the lower face of the plungers 13. The blade 43 will therefore cut off all loose material from the ends of the bricks 11 and force the same toward the end of the plunger 4. The blade 43 will remain in its elevated position until the bricks 11 have been elevated, and will move downwardly at the same time that the plungers 12 are returned to their lowermost position.

While the preferred embodiment of the invention has been shown and illustrated, it will be understood that minor changes in the details of construction and arrangement of parts may be made within the scope of the appended claim without departing from the spirit of the invention or sacrificing any of the advantages thereof.

What is claimed is:

A brick machine comprising a casing having an elongated feeding chamber, a main compressing chamber associated with the feeding chamber, and an auxiliary compressing chamber associated with and located in a plane above the main compressing cham-

ber, a hopper located within the feeding chamber, a plunger reciprocally mounted within the feeding chamber and adapted to move material into the main compressing chamber, a cut off plate formed on the rear end of the plunger and adapted to close the hopper upon forward movement of the plunger, upper and lower compressing pistons located in the main compressing chamber and adapted to receive material therebetween, piston rods upon said pistons, transversely extending members upon said piston rods, hangers carried by said casing and having elongated slots to receive the transverse members, means for raising said members to raise the compressed material in a plane with the auxiliary compressing chamber, a plunger for moving said compressed material into the auxiliary compressing chamber, and upper and lower pistons located within the auxiliary compressing chamber.

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

WILLIAM KESPOHL.

Witnesses:

**HENRY RUPP,
FRED BARTROM.**