No. 894,122. PATENTED JULY 21, 1908.

T. DOUGHERTY.

GRAIN BIN.

APPLICATION FILED NOV. 7, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

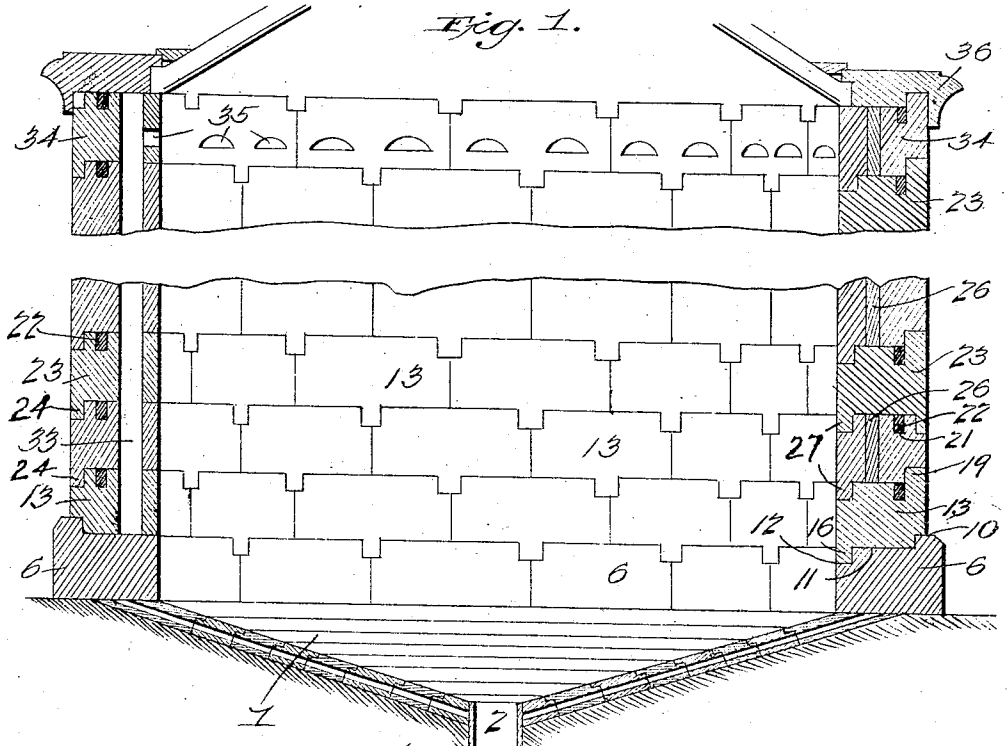


Fig. 3.

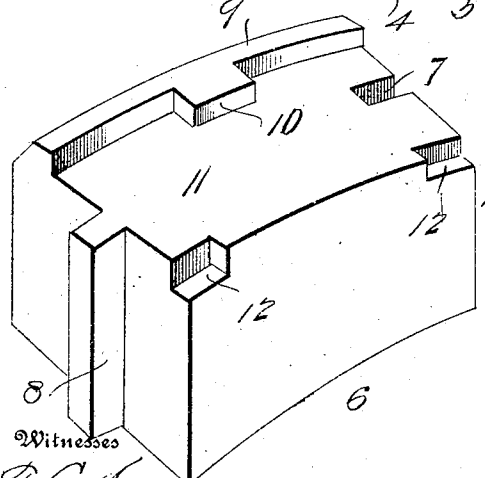
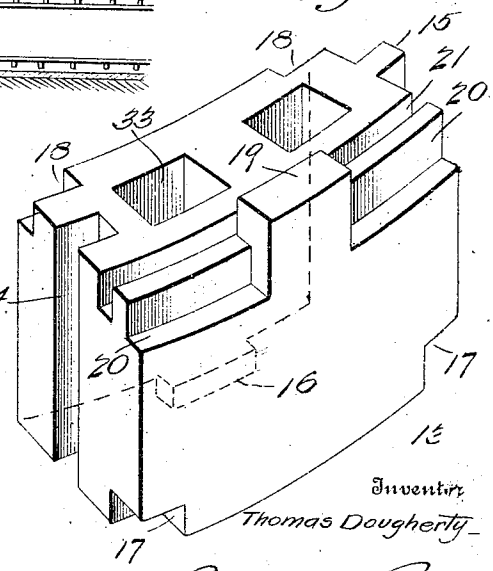


Fig. 4.



Witnesses

T. C. Mocrane

V. E. Burnett.

Inventor

Thomas Dougherty

By Edson Bros,

Attorneys

No. 894,122. PATENTED JULY 21, 1908.

T. DOUGHERTY.

GRAIN BIN.

APPLICATION FILED NOV. 7, 1907.

2 SHEETS—SHEET 2.

Fig. 2.

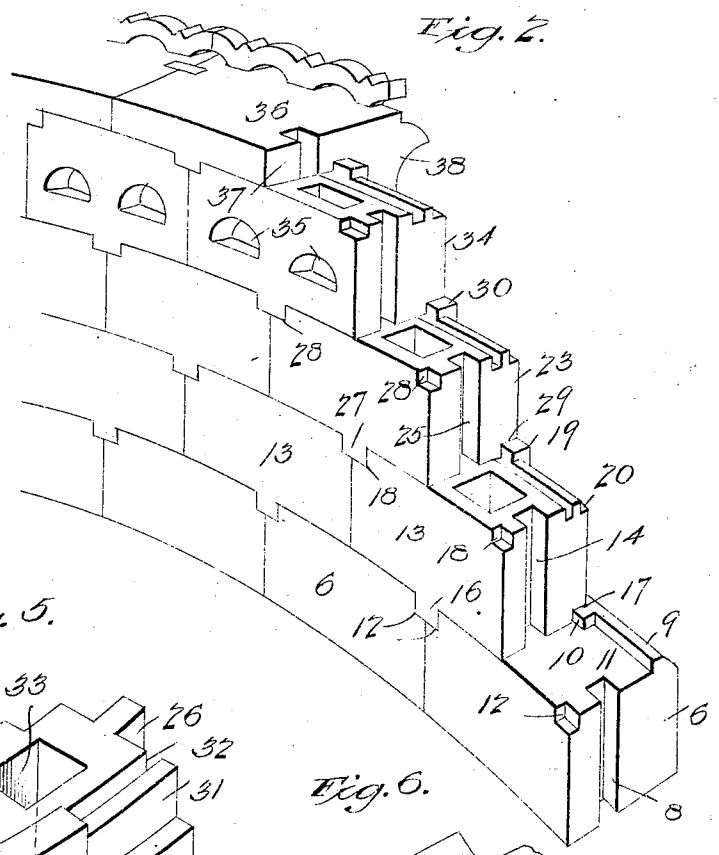


Fig. 5.

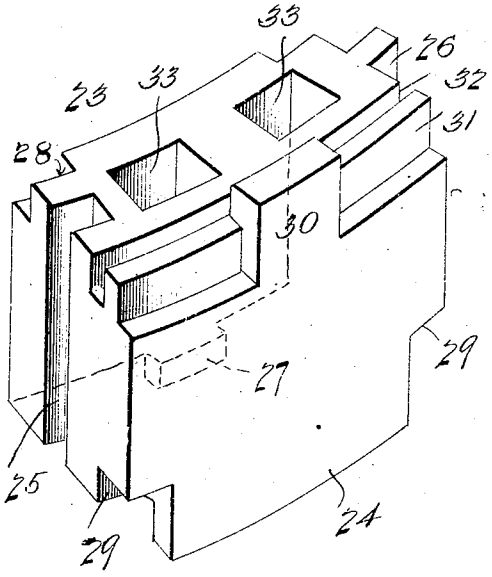
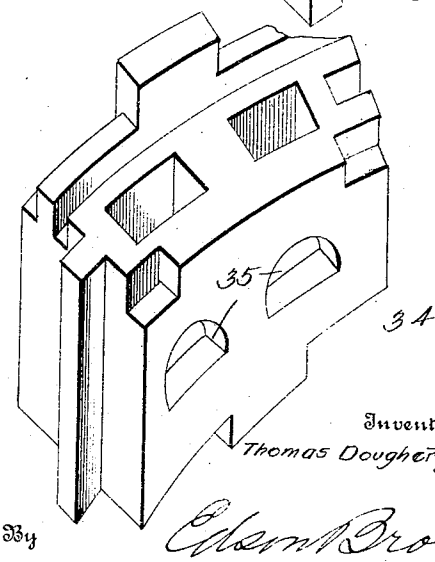


Fig. 6.



Witnesses

G. L. Mockabee

V. C. Burner.

Inventor

Thomas Dougherty

By Adams Bro's

Attorneys

UNITED STATES PATENT OFFICE.

THOMAS DOUGHERTY, OF MINNEAPOLIS, MINNESOTA.

GRAIN-BIN.

No. 894,122. Specification of Letters Patent. Patented July 21, 1908.

Application filed November 7, 1907. Serial No. 401,160.

To all whom it may concern:

Be it known that I, THOMAS DOUGHERTY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Grain-Bins; 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 appertains to make and use the same.

My invention relates to improvements in the construction of buildings and especially to grain bins or elevators.

It has for its object to produce a dry and well-ventilated structure of this nature which may be easily and quickly built and will withstand great pressure from within.

The invention is designed as an improvement on the grain bin shown and described in my patent No. 849,984, dated April 9, 1907.

It consists in the features of construction of the building blocks employed and in the combinations of the various parts hereinafter described and specified in the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention: Figure 1 is a broken vertical section of a grain bin constructed in accordance with my invention. Fig. 2 is an enlarged perspective view of a portion of the wall of the bin. Fig. 3 is an enlarged perspective view of one of the foundation blocks. Fig. 4 is an enlarged perspective view of one of the bottom row of wall blocks which rest upon the foundation blocks. Fig. 5 is a similar view of one of the wall blocks used for the intermediate rows constituting the main part of the bin, and Fig. 6 is an enlarged perspective view of one of the top row of blocks which are arranged just below the cornice and are provided with passages leading from the vertical passages therein to the inner face thereof.

In carrying out my invention, I construct the floor, walls, and roof of blocks or tile made of composition, preferably fire-proof, or any suitable material. The wall is strengthened by metal bands, as will be presently described. The floor 1 of the bin preferably slopes from the sides to the center, where an opening 2 is arranged leading to a chute 3, extending downward to the horizontal passage 4 in which is mounted the endless belt carrier 5, arranged below said chute and by means of which the grain is drawn off from the bin.

The wall is circular and built upon foundation blocks 6 which are curved to conform to the circle of said wall. Each of said foundation blocks has a vertical groove 7 in one end and a corresponding tongue 8 on its other end. A raised ledge 9 is formed at the outer edge of said block as shown clearly in Fig. 3. A small projecting lug 10 extends from the middle of said ledge and on a level therewith out upon the main bearing face 11. The inner edge of said face 11 is notched or cut out at each end forming recesses 12. It will be observed that when said foundation blocks are assembled, with the tongue 8 on each engaging the groove 7 on the next one, two of the recesses 12 will come together and form a broad recess to receive the downwardly extending lug on the inner edge of a block of the next row above. Each of said next row of blocks 13 is provided with a vertical groove 14 and tongue 15 on opposite ends thereof. On the inner edge of each of said blocks is a downwardly extending lug 16 adapted to fit in the recesses 12 of the foundation blocks as above described. The outer edge of the bottom face of said block 13 is recessed at each end, as at 17. The inner edge of the upper face of said block is provided with similar recesses 18. The outer edge of said upper face has an upwardly extending lug 19 formed thereon and arranged centrally thereof. Said upper and outer edge is also provided with a ledge or rabbet groove 20 on each side of said lug 19. A groove 21 is formed in the upper face to receive a strengthening band 22, shown in Figs. 1 and 2.

The wall above the row of blocks just described and up to the row immediately below the cornice is composed of successive rows of blocks 23. Each of these blocks is formed like the blocks 13 except that it is also provided with a downwardly extending flange 24 on its outer edge which is adapted to fit upon the ledges or rabbet grooves 20 on said blocks 13. Each block 23 is provided with a vertical groove 25 in one end and a corresponding tongue 26 at the other end. A downwardly extending lug 27 is arranged at the middle of the lower edge of its inner face while the ends of the upper edge thereof are recessed as at 28. On its outer face recesses 29 are formed in the lower edge and a central upwardly projecting lug 30 with a rabbet

groove 31 at either side thereof on the upper ledge. A groove 32 is also formed in the upper face of said block 23 to contain the brace bar or band 22.

Each of the wall blocks has vertical air passages 33 formed therein, preferably two in each block positioned so that when said blocks are in place and break joints, said passages will constitute continuous flues extending from top to bottom of the bin. Each of the top row of wall blocks 34, which are otherwise constructed like the blocks 23, are provided with tributary passages 35 leading from the vertical passages 33 to the inside of the bin. Said tributary passages being arranged in the top row of wall blocks are above the level of the grain in the bin.

The cornice comprises blocks 36 made substantially like the cornice blocks shown and described in my patent previously referred to herein. Each of said cornice blocks 36 has an inwardly extending portion 37 to cover the top row of wall blocks and provided with cut-out portions or recesses at each end to fit over half of the upper lugs of said top row of wall blocks. A downwardly extending molding 38 on the outer face of said cornice blocks fits upon the ledge or rabbet groove on the upper edge of the blocks below it. Said cornice blocks have lateral tongue and groove connection with each other, as do the other blocks.

Any suitable construction of roof may be placed upon the bin but as it does not constitute a part of my invention, I will not describe any particular form but simply show that illustrated in my previous patent No. 849,984, dated April 9, 1907. It will be observed that my present construction is much simpler than that shown in my said patent in that it does away with the inner and outer walls of the old structure. The rabbet grooves and flanges engaging them displace the outer wall while the flues with the tributary openings at the top to permit the escape of dead air keep the wall always dry and prevent the grain from spoiling.

I claim:

1. A building block, for the purpose specified, provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

2. A building block, for the purpose specified, provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a downwardly extending flange on the lower outer edge, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

3. A building block, for the purpose specified, provided with a downwardly extending lug arranged centrally of its lower rinner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a groove in its upper face, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

4. A building block, for the purpose specified, provided with a vertical groove in one end and a corresponding tongue at the other end, a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

5. A building block, for the purpose specified, provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, vertical air passages therethrough, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

6. A building block, for the purpose specified, provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, vertical air passages therethrough, tributary passages leading from said vertical passages to the inner face thereof, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

7. A curved building block, for the purpose specified, provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, and recesses in the ends of the upper inner edge and the lower outer edge, all for the purposes specified.

8. In a structure of the character described, the combination, with a foundation, of a wall composed of laterally interlocking blocks, certain of said blocks being provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a downwardly extending flange on the lower outer edge, and recesses in the ends of the upper inner edge and the lower outer edge thereof, said blocks being arranged in horizontal rows which break joints whereby the lugs on each block engage the recesses

in the adjacent blocks and the downwardly extending flange on each block fits the rabbet grooves in the block below it.

9. In a structure of the character described, the combination, with a foundation, of a wall composed of laterally interlocking blocks, certain of said blocks being provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a downwardly extending flange on the lower outer edge, and recesses in the ends of the upper inner edge and the lower outer edge thereof, said blocks being arranged in horizontal rows which break joints whereby the lugs on each block engage the recesses in the adjacent blocks and the downwardly extending flange on each block fits the rabbet grooves in the blocks below it, and a cornice comprising laterally interlocking blocks recessed to engage the upper lugs on the wall blocks and having a downwardly extending molding fitting the rabbet grooves in the top row of wall blocks.

10. In a structure of the character described, the combination, with a foundation, of a wall composed of laterally interlocking blocks, certain of said blocks being provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a downwardly extending flange on the lower outer edge, a groove in its upper face, and recesses in the ends of the upper inner edge and the lower outer edge thereof, said blocks being arranged in horizontal rows which break joints whereby the lugs on each block engage the recesses in the adjacent blocks, the grooves in the upper faces form continuous channels and the downwardly extending flange on each block fits the rabbet grooves in the blocks below it, and strengthening bands arranged in said channels.

11. In a structure of the character described, the combination, with a foundation, of a wall composed of laterally interlocking blocks, certain of said blocks being provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a downwardly extending flange on the lower outer edge, vertical air passages therethrough, and recesses in the ends of the upper inner edge and the lower outer edge thereof, said blocks being arranged in horizontal rows which break joints whereby the lugs on each block engage the recesses in the adjacent blocks, said air passages form continuous air flues and the downwardly extending flange on each block fits the rabbet grooves in the blocks below it.

12. In a structure of the character described, the combination, with a foundation, of a wall composed of laterally interlocking blocks, certain of said blocks being provided with a downwardly extending lug arranged centrally of its lower inner edge, a central upwardly extending lug on its outer upper edge, a rabbet groove at each side of said upper lug, a downwardly extending flange on the lower outer edge, vertical air passages therethrough, and recesses in the ends of the upper inner edge and the lower outer edge thereof, said blocks being arranged in horizontal rows which break joints whereby the lugs on each block engage the recesses in the adjacent blocks, said air passages form continuous air flues and the downwardly extending flange on each block fits the rabbet grooves in the blocks below it, the top row of wall blocks being provided with tributary passages leading from the air flues to the interior of the structure to permit the escape of dead air.

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

THOMAS DOUGHERTY.

Witnesses:

GEORGE NICKERSON,

ROBERT LARSON.