

No. 848,319.

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W. M. PHILLIPS.

SILO.

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Fig. 1.

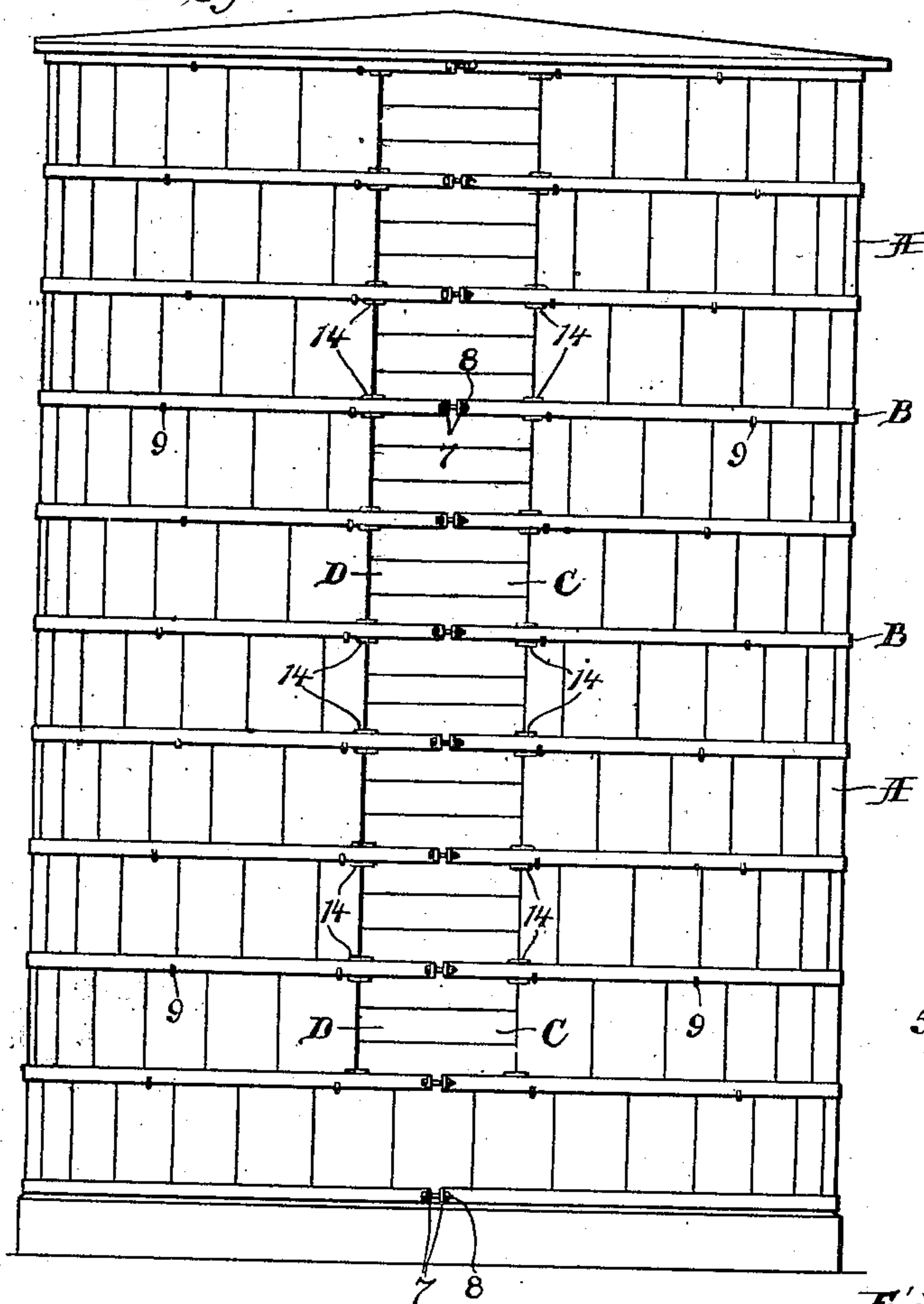


Fig. 3.

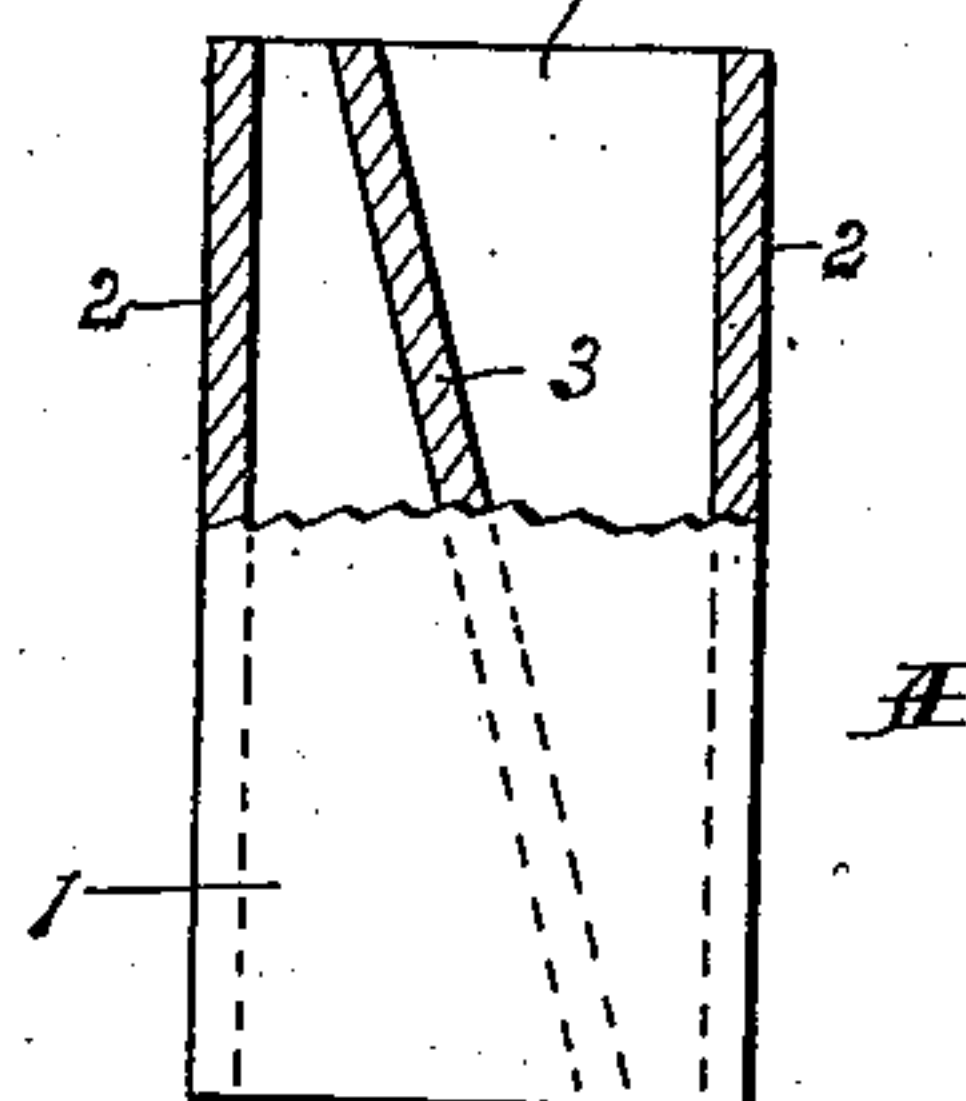


Fig. 4.

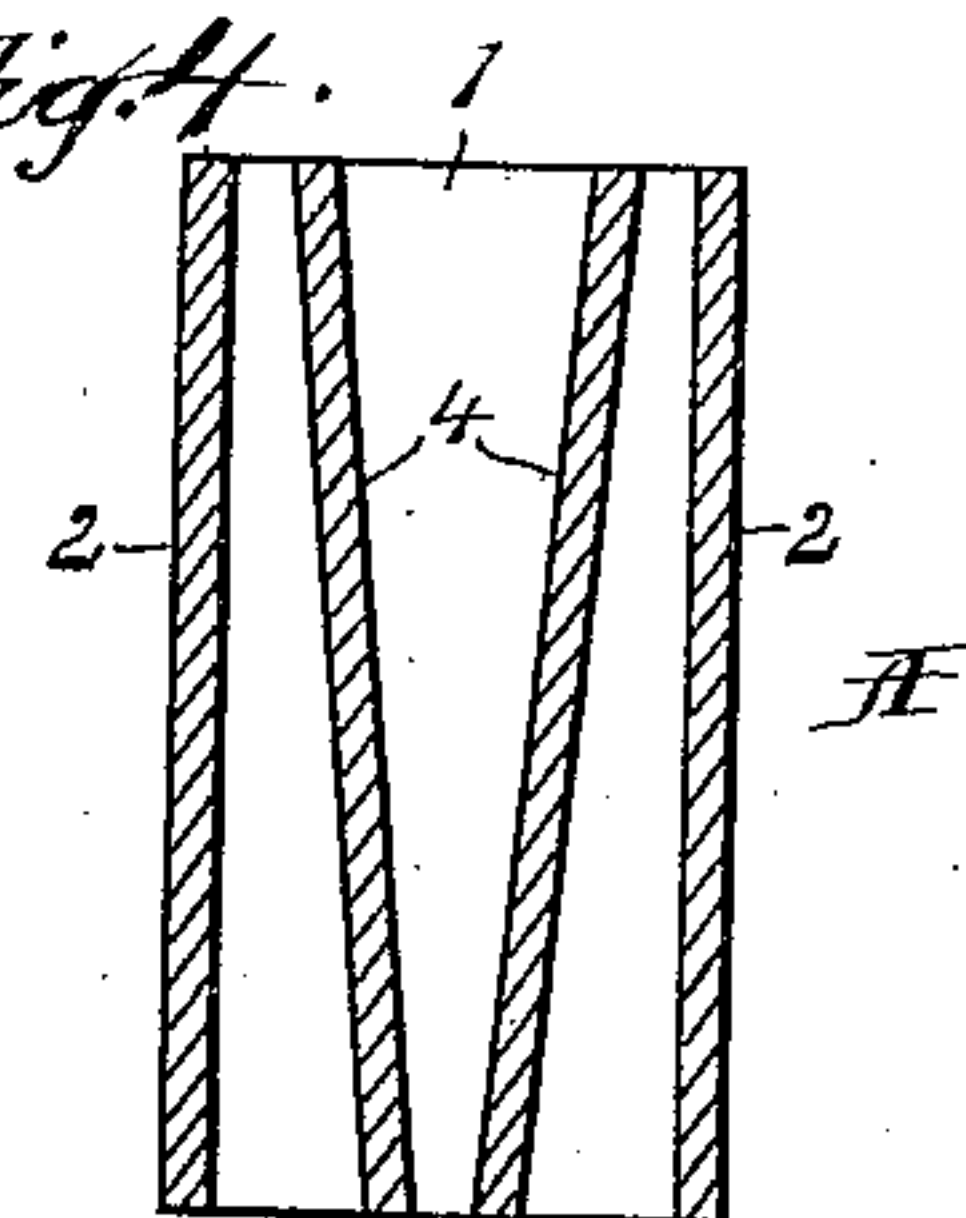


Fig. 5.

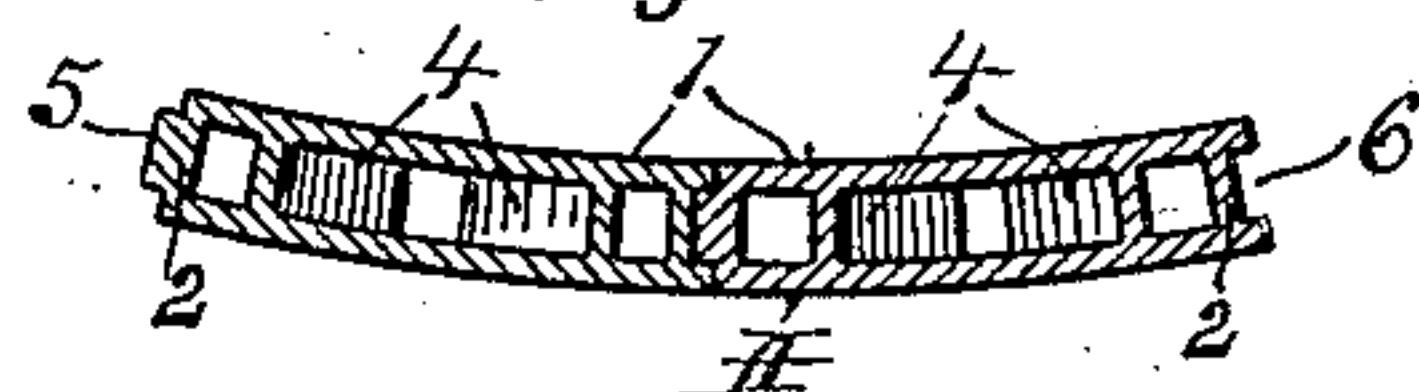


Fig. 6.



Fig. 2.

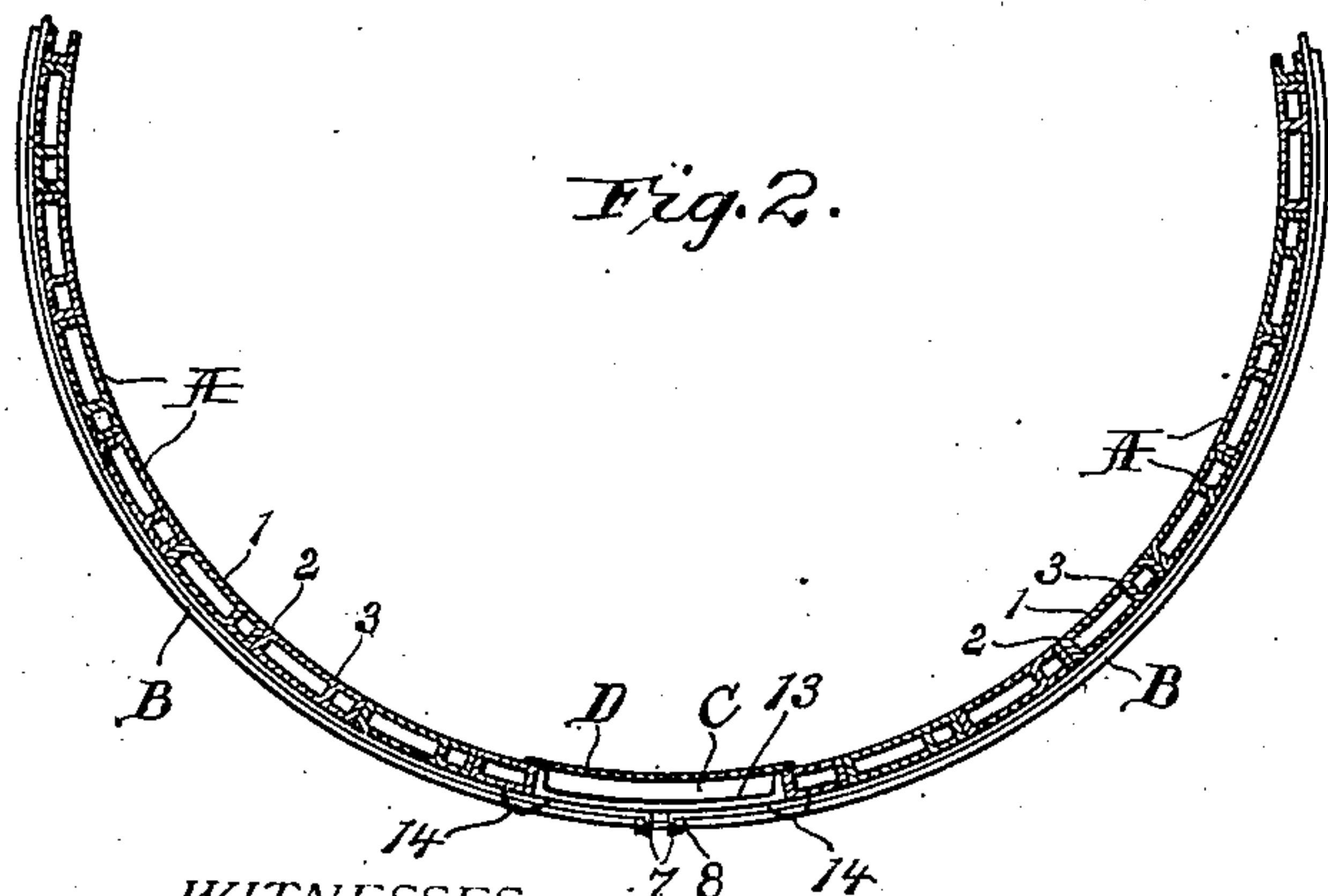


Fig. 7.

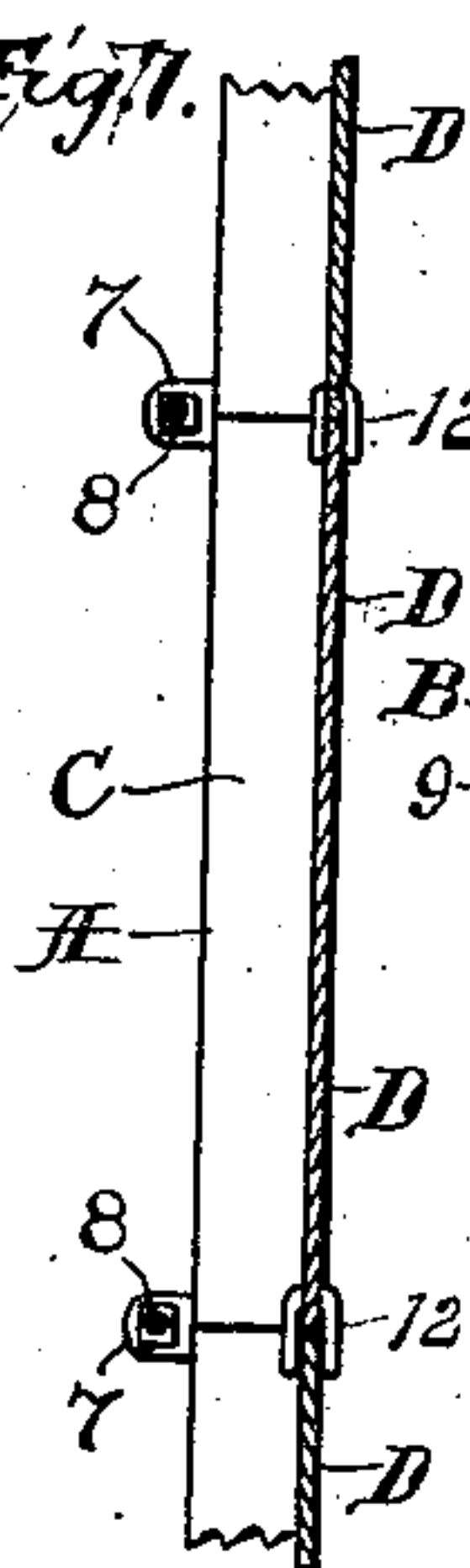


Fig. 8.

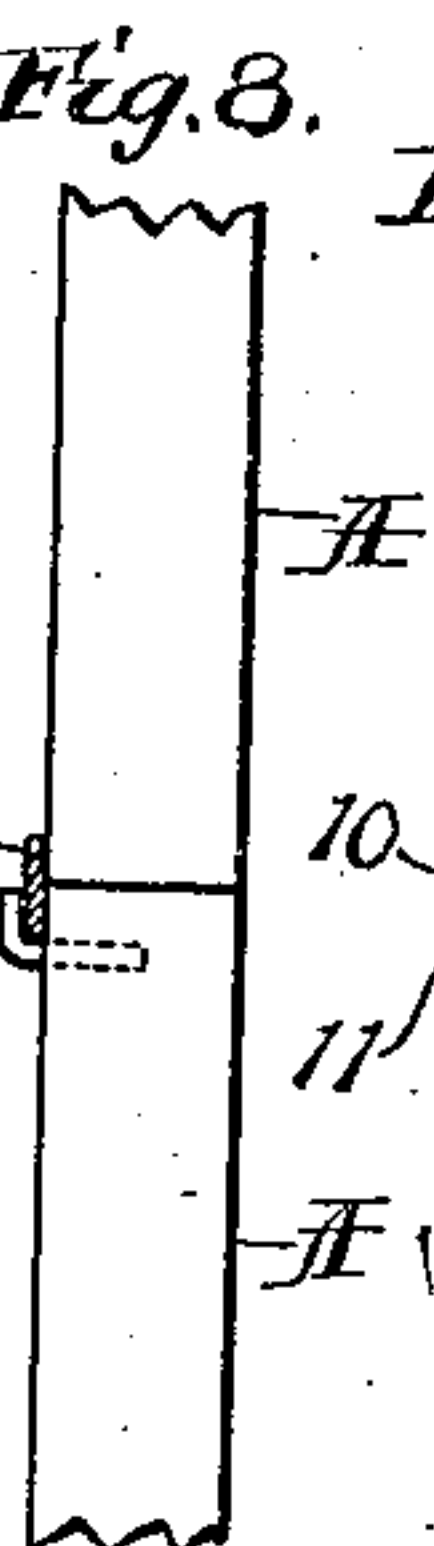


Fig. 9.



WITNESSES:

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SILO.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM M. PHILLIPS, a citizen of the United States of America, residing at Northville, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Silos, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to improvements in the construction of silos; and the object of the invention is to provide an indestructible structure which will effectually exclude the air, water, and frost and may be taken down
15 for the purpose of removal or repair with facility.

To this end the invention consists in building the structure of suitably-formed hollow cement blocks and detachably securing the
20 same in place within the structure by metal hoops or bands, the blocks being so formed as to make a circular wall, within which is an air-space to prevent the frost from penetrating:

25 A further object of the invention is to so construct the blocks that they will be very strong, yet comparatively light, and to provide the same with means for engaging and holding the hoops, it being also an object of
30 the invention to provide suitably-constructed doors and means for holding the same and to further provide certain other new and useful features, all as hereinafter more fully described, reference being had to the accompanying drawings, in which—

35 Figure 1 is a side elevation of a silo embodying the invention; Fig. 2, a partial horizontal section of the same. Fig. 3 is an enlarged elevation of one of the blocks with parts
40 broken away to show the construction. Fig. 4 is a longitudinal section of a block embodying a modified construction. Fig. 5 and Fig. 6 are transverse sections of blocks embodying still further modified forms. Fig. 7 is a detail
45 showing a vertical section through the doors of the structure. Fig. 8 is a detail of the means for holding the flat hoop, and Fig. 9 is a similar view showing a modified form of hoop and means for holding the same.

50 As shown in the drawings, A are cement blocks, which are formed hollow, with thin side walls 1 and edge walls 2 and open at their upper and lower ends. These walls are strengthened to withstand the outward pressure on
55 the inner face of the block when in the silo by a transverse wall 3, formed integral with the

side walls and extending at an angle to the edge walls—that is, said wall 3 extends from near one edge wall at one end of the block diagonally across the space to near the opposite edge wall at the opposite end of the block—and thus by the use of but one
60 strengthening-wall the side walls are strengthened from one edge wall to the other, permitting the use of thin walls and making a
65 very light yet strong construction.

In Fig. 4 is shown a construction of block in which two diagonally-extending strengthening-walls 4 are provided, these walls converging toward one end of the block, and in
70 Fig. 5 interlocking blocks of this character are shown, each being formed with a longitudinal rib 5 on one edge and a corresponding groove 6 in the opposite edge. In the construction shown in Fig. 6 the hollow is
75 formed by a series of longitudinal circular holes, one-half of a hole being formed in each edge of the blocks, so that when the blocks are in the wall there will be a continuous series of equally-spaced holes in the wall, making
80 a substantially continuous air-space.

Each block is suitably curved transversely throughout its length, so that when said blocks are placed in the wall, they will form a complete circle of the desired diameter, and
85 this circular wall is built up by placing row upon row and securing the blocks in place by placing an iron band or hoop B around the wall over the joint between each row.
90 On the ends of the band are perforated ears 7 to receive a clamping-bolt 8, by means of which the ends of the band are drawn toward each other and the band clamped around the wall. The blocks are thus forced
95 into close contact by the band and the joint between the horizontal rows of blocks covered. The rows are preferably so placed relative to each other as to break joints, and the wall is made substantially air and water
100 tight by the hoops.

To prevent the hoops from slipping down from over the joints between the rows of blocks, hooks 9 are set in some of the blocks when they are molded, or if it is desirable to use a round rod 10 in place of the flat hoop a
105 recess or groove 11 to receive the rod is formed by molding a slight depression along the upper and lower horizontal edges of the blocks.

A vertical opening C is left in one side of
110 the wall, and this opening is closed by a series of superimposed doors D, placed against

the inner face of the wall over said opening and held in place, edge to edge, by downwardly-extending fingers 12 on the lower edge of each door, which fingers embrace the upper edge of the door below. These doors are held tightly against the wall by the ensilage pressing them outward, or any suitable locking means may be provided. The doors are placed one upon the other as the silo is filled up, and thus the opening is tightly and securely closed.

The blocks being held in place by the bands only, the structure may be quickly and easily taken down for removal or repair at any time, and all of the parts being fireproof the whole is practically indestructible.

Having thus fully described my invention, what I claim is—

A silo composed of a wall formed of independent segmental blocks the adjacent faces

of adjacent blocks each being provided with a depression at the horizontal outer edges thereof whereby said depressions will register to form a continuous circumferential groove, clamping-hoops within said grooves, said hoops engaging each of the adjacent blocks, said wall being provided with a vertical door-opening, a series of sheet-metal doors engaging the inner face of the wall and being disposed with the horizontal edges of abutting doors in engagement with one another, and downwardly-extending fingers carried by the lower end of each door to engage the opposite face of the adjacent door.

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

WILLIAM M. PHILLIPS.

Witnesses:

THOS. S. LONGSTAFF,
OTTO F. BARTHEL.