

L. B. LARSEN.  
 DIVIDED BOND FOR TWO MEMBERED CONCRETE BUILDING BLOCKS.  
 APPLICATION FILED FEB. 17, 1908.

903,734.

Patented Nov. 10, 1908.



Fig. 1.

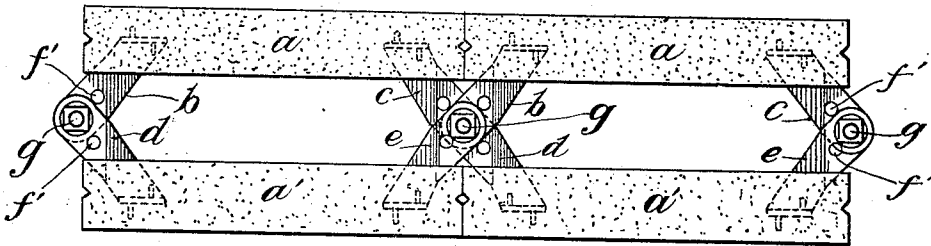


Fig. 2.

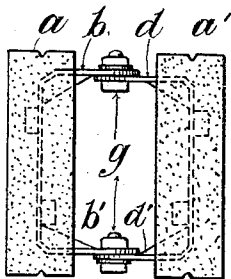


Fig. 3.

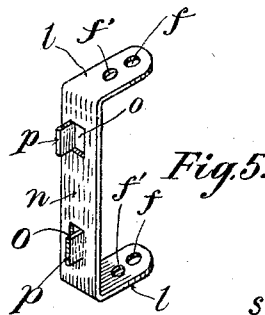


Fig. 5.

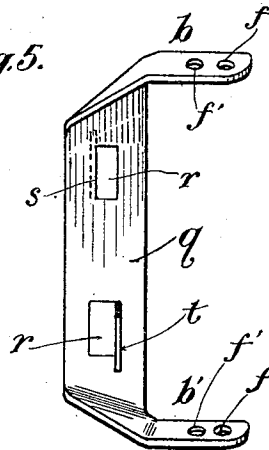


Fig. 6.

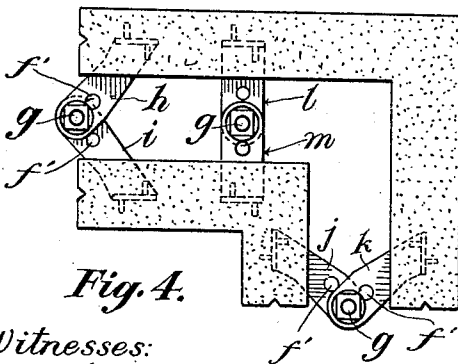


Fig. 4.

Witnesses:  
 A. D. Gurking  
 Cecil Long

Inventor:  
 Ludwig B. Larsen  
 by *L. J. Seisler*  
 Atty.

# UNITED STATES PATENT OFFICE.

LUDWIG B. LARSEN, OF PORTLAND, OREGON, ASSIGNOR OF ONE-HALF TO WILKIE C. DUNIWAY, OF PORTLAND, OREGON.

## DIVIDED BOND FOR TWO-MEMBERED CONCRETE BUILDING-BLOCKS.

No. 903,734.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed February 17, 1908. Serial No. 416,405.

*To all whom it may concern:*

Be it known that I, LUDWIG B. LARSEN, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Divided Bonds for Two-Membered Concrete Building-Blocks, of which the following is a specification, reference being had to the accompanying drawings as constituting a part thereof.

This invention relates to the present well known system of two-membered construction of concrete building blocks, comprising a block made in two pieces, said pieces separated from each other so as to leave an intermediate air-passage and integrally united by metallic bonds; and my present invention has for its object to so arrange the bonds as to adapt the two members of the concrete block to be kept separated until put together for use in construction work; in other words, making the bonds divided, each of the two members of the concrete block having one of the portions of the divided bond, and the parts being arranged so that they can be readily and securely put together in the process of construction. The advantage obviously gained by this method is, that the blocks are handier to transport, and easier to handle when placing the same in position, in the process of construction work, since only one-half of the weight of the whole block has to be handled at a time. Also, blocks of my present type of improvement are handier to set up; and the wall thereby built can be made wider or narrower as expedient; for example, the same blocks may be made wide in the foundation courses and narrower in the superstructure. Furthermore, my improved method provides for the tying of the blocks together at their abutting ends.

I attain my object by the arrangement and combination of parts as illustrated in the drawings above referred to and hereinafter fully described and claimed.

In the drawings, Figure 1 is a top view and shows a one-half section, or in other words, one of the members of a two-part concrete block provided with my improved means for uniting the same with its companion member, and the members abutting with its ends; Fig. 2 shows a top view of two blocks, complete, built in accordance with my present improvement and united

end to end; Fig. 3 is an end elevation corresponding with Fig. 2; Fig. 4 shows a corner section of a building-block of the type referred to, embodying my improvements; and Figs. 5 and 6 are details of construction more fully described in the body of this specification.

The letters designate the parts described.

As already mentioned, in the introduction of this specification, each of my blocks comprises two companion members *a*, *a'*, which are arranged in spaced parallel relation, and are of approximately duplicate construction. Each of said members is provided with one part of the divided bond, as represented by the members *b*, *c*, *d*, *e*, (and their counterparts, as *b'*, *d'*) approximately arranged at an angle of forty-five degrees, so that when united the bond-parts *b*, *c* and the members *a*, and the bond-parts *d*, *e* of the companion members *a'* will come together and overlap, as illustrated in Figs. 2 and 3; and said overlapping ends are provided with perforations *f*, through which to insert bolts *g*. Preferably I provide said lapping ends of the members of the divided bond with additional perforations *f'*, so disposed as to allow the companion members of a concrete block to be arranged closer together if desired.

In the construction of corner blocks, as illustrated in Fig. 4, the members *h*, *i*, *j*, *k* of the divided bonds projecting from the ends of the companion block-members are arranged at an angle, while the members *l*, *m* of the intermediate divided bond are so arranged that when put together they will constitute a transversely positioned bond, as illustrated in Fig. 4. The detail for constructing the transversely arranged bond is illustrated in Fig. 5. The same consists of a body portion *n*, made with angle bent-members as *l*, *l*, the latter having perforations *f*, or *f*, *f'* at their extremities. Near the bent corners of the member *n* are cut out portions so as to provide apertures *o*, and flange-braces *p*, to effect a unification of the parts in accordance with what I believe to be the best methods of constructing concrete blocks of the type in mind.

The portions of the divided bond which are embedded in the ends of the blocks are made as illustrated in Fig. 5, consisting of a body portion *q*, made of a strip of metal, the extremities of which are bent over into an-

gularly projecting members like  $b, b'$ , the extremities of which members  $b, b'$  are provided with perforations  $f$ , or  $f, f'$ ; and the body-part of said bond sections being made  
 5 with apertures  $r$ , and flange-braces  $s, t$ , for the same purpose as described concerning like provision in the type of bond-members illustrated in Fig. 5.

It now is apparent that with my improved  
 10 system of construction, means are provided not only for firmly uniting the two members of a two-part concrete block, but also for uniting the abutting ends of the individual blocks of a course.

15 I claim:

1. A block comprising two members, a bond for uniting said members and maintaining them in spaced relation, said bond comprising two sections, each including a  
 20 bar having its ends bent substantially at right angles to the body of the bar, the body of each bar being transversely embedded in one of the block members near the end thereof, with the right angular end projecting to-  
 25 ward the adjacent block member, and means to secure the terminals of the angular ends of the respective sections in overlapped relation.

2. A wall made up of a series of blocks arranged end to end, each of said blocks com-

prising two members and a bond for uniting said members and maintaining them in spaced relation, said bond comprising duplicate sections arranged adjacent the respective  
 35 ends of each member, each of said bond sections being in part embedded in a member and in part projecting from the member toward the opposing member, the projecting part of each bond section extending beyond  
 40 the proximate end of the member, whereby to provide for bonding the respective members of each block and also for tying the adjacent blocks together.

3. A block member forming part of a building block and metallic sections secured  
 45 in said member, each of said sections comprising a bar having its ends bent at substantially right angles to the body of the bar, the body of each bar being embedded in  
 50 the member near the respective ends of the latter, the ends of the bar being projected beyond the inner surface of the member and at an incline to such surface, whereby to dispose the terminals of said ends beyond the proximate ends of the member.

LUDWIG B. LARSEN.

Witnesses:

W. A. CLELAND,  
 T. J. GEISLER.