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REINFORCED SEWER CONSTRUCTION.

APPLICATION FILED MAR. 18, 1915. RENEWED JUNE 10, 1916.

1,209,693.

Patented Dec. 26, 1916.

Fig. 1.

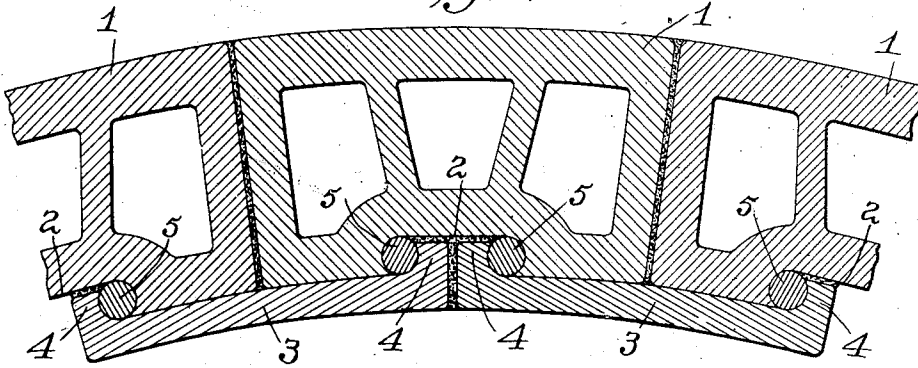


Fig. 2.

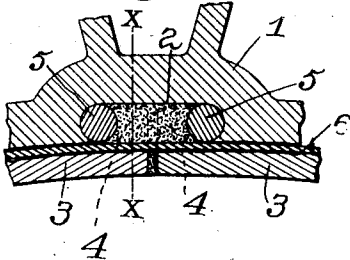


Fig. 3.

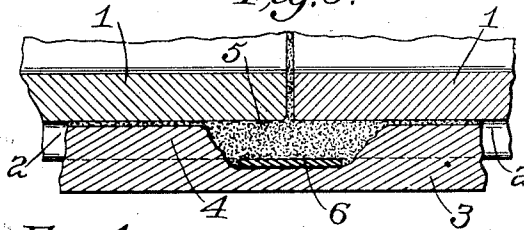


Fig. 4.

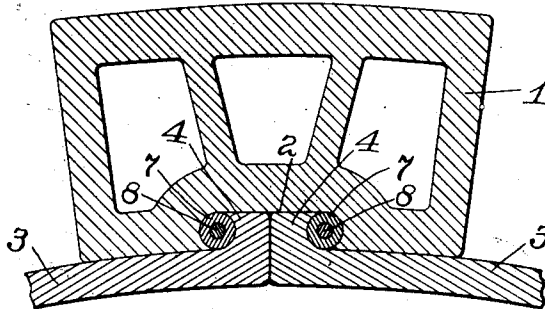
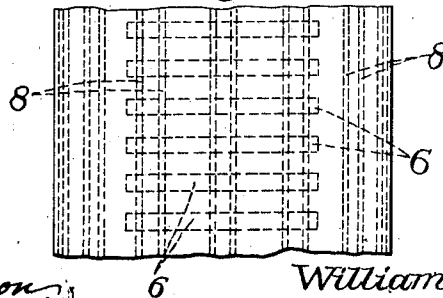


Fig. 5.



Attest:

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UNITED STATES PATENT OFFICE.

WILLIAM C. FERGUSON, OF CHAMPAIGN, ILLINOIS.

REINFORCED SEWER CONSTRUCTION.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM CLARENCE FERGUSON, a citizen of the United States, residing at Champaign, State of Illinois, have invented certain new and useful Improvements in Reinforced Sewer Construction, of which the following is a specification.

This invention relates to the reinforcement of sewer or other conduit construction in which blocks are used and the object of the invention is to give such additional strength as is necessary to the sewer such for instance as when passing under a large building or a railroad.

The invention consists in reinforcing the sewer construction both transversely and longitudinally.

With these objects in view, the invention consists in the arrangement, combination and construction of parts hereinafter described and more particularly pointed out in the claims, it being understood that I do not intend to limit myself to the details of construction of the different parts.

The invention is illustrated in the accompanying drawings in which:

Figure 1 shows a cross sectional view of a sewer section upon which my invention is designed to be used. Fig. 2 is a sectional view of the modifications necessary in the structure shown in Fig. 1 for the use of my reinforcing members with one of those members in place. Fig. 3 is a section on line *a-a* of Fig. 2 and shows the channeling necessary for the reception of the reinforcing elements. Fig. 4 is a cross sectional view and shows my method of transverse reinforcement. Fig. 5 shows diagrammatically the location of the various reinforcing elements.

In the drawings the numeral 1 indicates an outer block used in sewer or conduit construction provided with a recess 2 in its under face.

3 indicates lining plates used for tying the blocks 1 together. These plates are provided with longitudinal edge ribs 4 that are adapted to enter the recess 2 and be retained therein by locking means 5 such as mortar or plugs or any other suitable device. For the operation of my reinforcement it is necessary that the ribs 4 be securely locked in the recess 2.

In Fig. 2 the ribs 4 and the plates 3 are channeled as indicated for the reception of

the reinforcing element 6 which consists of a flat curved plate, which elements are inserted, as shown, at intervals between the plates 3 and the blocks 1. Fig. 3 shows clearly the channeling.

In Fig. 4, the construction is the same as in Fig. 1, except that the locking means 7 for retaining the ribs 4 in the recess 2 are strengthened by reinforcing members 8 preferably in the form of metallic rods or bars for the purpose of longitudinal reinforcement.

In sewer construction ordinary pressures or strains will be withstood but if the sewer is to be subjected to abnormal strains, reinforcing is required. Dependent upon conditions, sometimes longitudinal reinforcing is required, sometimes transverse reinforcing, and sometimes both. Considering transverse reinforcement first, the reinforcing clearly must be inserted between the lining plates 3 and the outer block 1 in order to be most effective. In order to so place the reinforcing elements, the ribs 4 and the plates 3 have to be channeled to permit their insertion. The reinforcing is to sustain downward pressure upon the sewer section. If the reinforcing elements were simply placed between two layers of bricks or blocks, when the excessive downward pressure came, it would tend to straighten out the reinforcing element which in turn would force the lower layer of blocks apart from the upper layer and thereby causing a rupture unless the lower and upper layer of blocks are securely locked together so that the insertion of the reinforcing element is useless unless the two layers of blocks are secured together. This requisite locking together of the upper and lower blocks is secured by the structure shown in Fig. 1.

Considering the longitudinal reinforcement, this is best secured by placing it just above the transverse reinforcing so I place it within the locking members 7. This is not only a convenient and efficient location for it but by adding stiffness to the members 7 it adds to the effectiveness of the locking members 7 in retaining the ribs 4 in the recess 2.

Having now described my invention, what I claim is:

1. The combination in a sewer construction comprising outer blocks having a longitudinal recess in its inner side, lining plates having longitudinal edge ribs adapted to

enter said recesses, and locking means for retaining said ribs in said recesses, of continuous transversely extending elements for supporting said locking means, said rib, and
5 said plates being channeled for the reception of said elements.

2. The combination in a sewer construction comprising outer blocks having a longitudinal recess in its inner side, lining
10 plates having longitudinal edge ribs adapted

to enter said recesses, and continuous locking means for retaining said ribs in said recesses, of combined supporting means for said locking means and transverse reinforcement comprising flat plates of greater length
15 than two lining plates inserted transversely at intervals immediately under said locking means in channels in said ribs and plates.

W. C. FERGUSON.