

No. 749,765.

PATENTED JAN. 19, 1904.

W. N. WIGHT & F. E. TOWNSEND.
RESERVOIR BOTTOM AND EXPANSION JOINT.

APPLICATION FILED MAR. 9, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

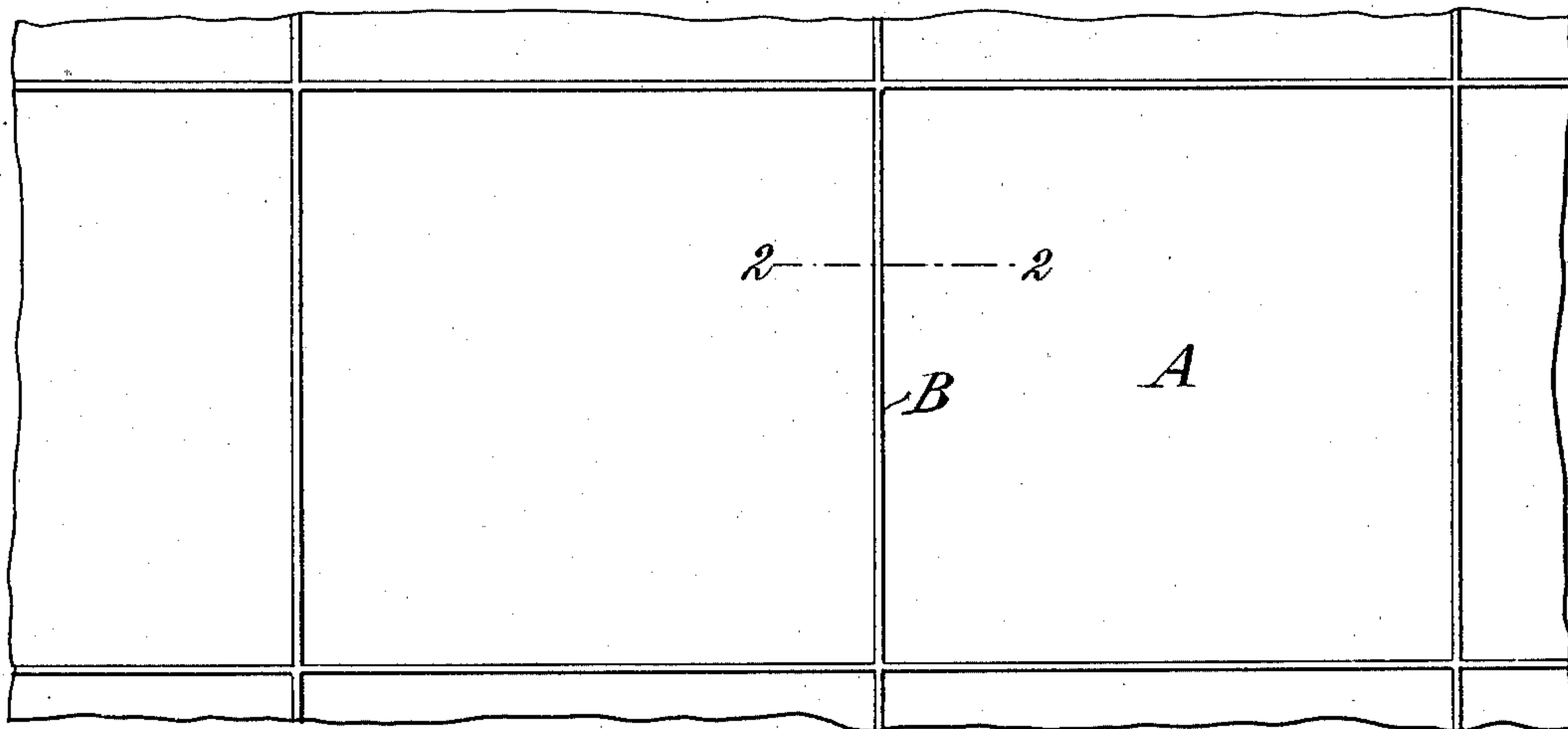
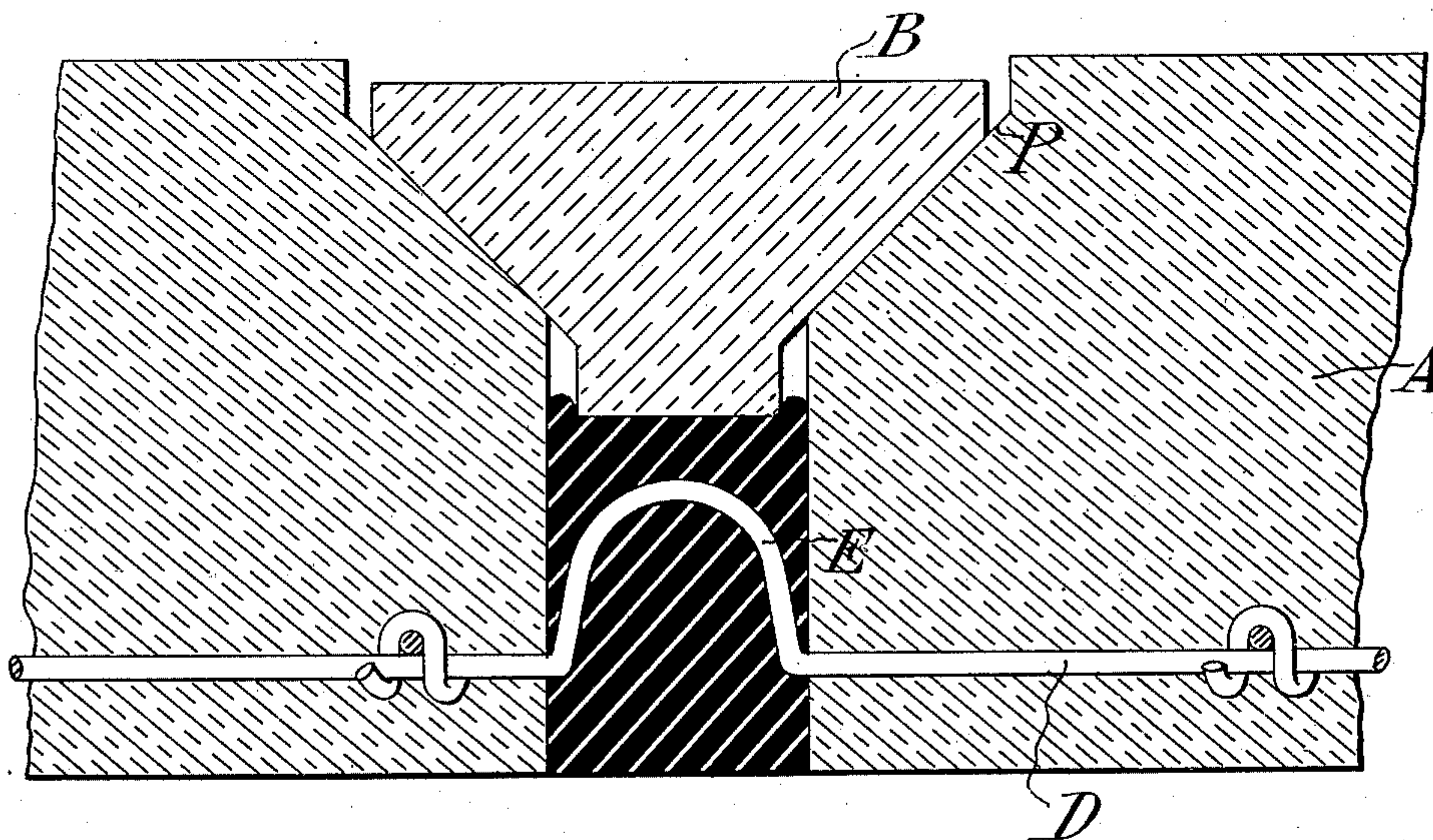


FIG. 3.



WITNESSES:

Fred White
Rene' Prouine

INVENTORS:

William N. Wight and Fred E. Townsend,

By Attorneys,

Arthur C. Draper & Co.

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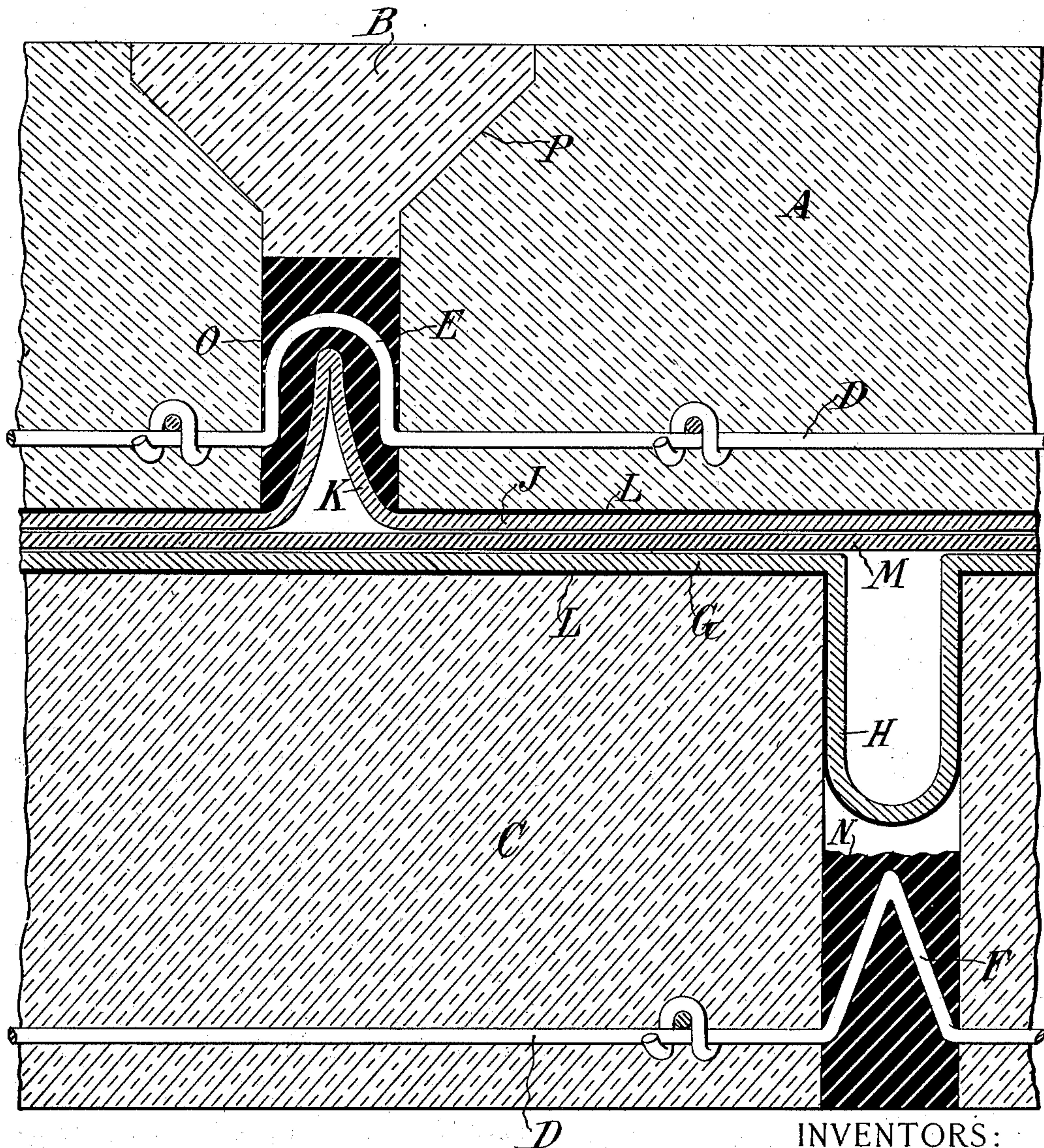
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2 SHEETS—SHEET 2.

FIG. 2.



WITNESSES:

Fred White
Rene' Prune

INVENTORS:

William N. Wight and Fred E. Townsend,

By Attorneys,

Arthur C. Orason & Co.

UNITED STATES PATENT OFFICE.

WILLIAM N. WIGHT AND FRED E. TOWNSEND, OF NEW YORK, N. Y.

RESERVOIR-BOTTOM AND EXPANSION-JOINT.

SPECIFICATION forming part of Letters Patent No. 749,765, dated January 19, 1904.

Application filed March 9, 1903. Serial No. 146,905. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM N. WIGHT, residing in the borough of Manhattan, county of New York, and FRED E. TOWNSEND, residing in borough of Brooklyn, county of Kings, city and State of New York, citizens of the United States, have invented certain new and useful Improvements in Reservoir-Bottoms and Expansion-Joints, of which the following is a specification.

Our invention aims to provide certain improvements in reservoir-bottoms and in expansion-joints for such structures and for similar structures, such as reservoir-walls and other walls, pavements, or floors.

Our invention aims to provide such a structure which shall be adapted to resist the strains to which it is subjected and in which provision shall be made for changes of temperature to prevent leakage as the structure expands and contracts.

Various features of advantage in detail are recited hereinafter.

The accompanying drawings illustrate a reservoir-bottom embodying our invention.

Figure 1 is a plan of a portion of the bottom. Fig. 2 is a transverse section of the same. Fig. 3 is a section of a portion of Fig. 2, showing the effect of contraction of the masonry and showing also a modified form of the invention.

According to one feature of the invention the structure is formed of blocks of masonry, preferably concrete, having a metal reinforce (preferably reticulated) embedded in them so as to give them strength to resist the pressures to which they are subjected, and between two adjacent blocks the metal reinforce is crimped so as to give freely under temperature strains in either direction.

According to another feature of the invention a sheet of waterproof fabric is laid along the face of the masonry blocks and at the joint is crimped between them to yield similarly to the metal reinforce. For heavy structures subjected to considerable strain the masonry is preferably formed in two courses with a sliding joint between them formed by apply-

ing sheets of fabric by means of adhesive waterproofing material to the adjacent faces of the two courses of masonry, and these sheets of fabric are provided with non-adhesive outer faces, and preferably a separate sheet of non-adhesive fabric is applied between them to permit free movement between the two courses.

Another feature of improvement consists in forming the edges of two adjacent blocks flaring toward the face of the structure and introducing a wedge-shaped plug in the space between said flared edges, so that the pressure against the face of the masonry forces the plug in and automatically maintains the joint tight as it is widened by contraction of the masonry.

A feature of the invention of especial value in reservoir-bottoms is the laying of the blocks of masonry with wide joints between them and filling these joints with waterproof material of substantially permanent plasticity, such as the well-known coal-tar or asphalt mixtures of this kind. The plastic material then continues to fill the joint and to stop the passage of water under all normal condition of temperature.

Referring to the reservoir-bottom illustrated in the accompanying drawings, Fig. 1 shows the same divided into sections or blocks A, formed of concrete and of as great size as will hold together in use, the strength and possible size of the blocks being increased by the embedded metal reinforce, hereinafter referred to. For example, we propose to make these blocks about fifty feet square. The blocks A are separated by wide joints sufficient to allow for the extreme expansion to which the material may be subjected, the exposed edges of the joints being indicated at B.

The structure may be built of a single course of masonry, as indicated in Fig. 3, but preferably for such structures as reservoir-bottoms, which may be subjected to a heavy pressure of water and which may be under great strain owing to the inequalities of the ground upon which the masonry rests, we prefer to provide a base course which may be built of deeper blocks C, preferably of the same length

and breadth as the blocks A, but breaking joints therewith, as illustrated. The blocks are reinforced by embedded metal near their bases, at which point the greatest tensile strain comes. The reinforcing metal is preferably in the form of a wire fabric D, which may be of the type described in the application of William N. Wight, Serial No. 114,868, filed July 9, 1902. The fabric is preferably formed in continuous sheets extending across the joints and crimped, as at E or F, to yield readily to expansion or contraction. In order to prevent any possible escape through the lower course of blocks C of water which may pass through the upper course, a sheet of waterproof fabric, such as felt G, extends along the face of the blocks C, preferably also in a continuous sheet and with a crimped portion H between the blocks. Preferably a similar sheet of felt or the like J is provided on the adjacent face of the upper course of blocks A and is formed with a crimped portion K in the joint between the blocks A. An additional function of these two sheets of felt is the provision of a sliding joint between the two courses of blocks A and C, so that the upper and lower portions of the bottom may expand unequally without injury. The sheets of felt G are preferably applied on the faces of the masonry blocks by means of adhesive waterproof material L, such as the coal-tar compounds referred to, but their outer faces are non-adhesive, and preferably for greater facility of movement an additional non-adhesive sheet M of fabric is laid between the two sheets G and J. The joints are left somewhat wide, and a mass of plastic waterproof material is placed therein, which by reason of its substantially permanent plasticity will close the space between the blocks under all conditions. The mass of plastic material N of the lower course extends directly to the lower face of the masonry. The mass of similar material O of the upper course rests on the crimped portion K of the facing fabric J.

An element of additional security and adapted for use in all structures which are subjected to pressure against their face consists of a plug B of concrete between the blocks A and at the exposed face thereof, this plug flaring outward to correspond with the flaring edges P of the masonry blocks. This plug may, as shown in Fig. 1, be a single narrow strip of concrete extending the entire length of a joint between two blocks or between any number of blocks. The inclined faces of the plug or the beveled faces P of the masonry blocks may be provided with felt to facilitate relative movement of the plug and the block, if desired. When the blocks A contract, Fig. 3, the pressure within the reservoir forces the plugs B down into the joint and continuously maintains the joint tight.

Though we have described with great particularity of detail a structure embodying our invention, yet it is to be understood that the invention is not limited to the specific embodiment illustrated. Various modifications thereof in details and in the arrangement and combination of the parts may be made by those skilled in the art without departure from the invention.

What we claim is—

1. An expansion-joint for masonry comprising the two adjoining ends of masonry blocks, and a reticulated metal reinforce embedded therein and crimped between them.

2. An expansion-joint for masonry comprising the two adjoining ends of masonry blocks, and a sheet of waterproof fabric along the face of said blocks and crimped between them.

3. An expansion-joint for masonry comprising the two adjoining ends of masonry blocks with a wide space between them, a reticulated metal reinforce embedded in said blocks and crimped between them, and a mass of plastic waterproof material in said space.

4. A masonry structure formed of two courses of masonry with a sliding joint between the courses.

5. A masonry joint formed of two courses of masonry with a sliding joint between the courses and each course being formed of blocks with expansion-joints between them.

6. A waterproof sliding joint between two courses of masonry comprising the two adjoining portions of masonry, and sheets of fabric applied on said faces by means of adhesive waterproof material and having non-adhesive outer faces.

7. A waterproof sliding joint between two courses of masonry comprising the two adjoining portions of masonry, sheets of fabric applied on said faces by means of adhesive waterproof material and having non-adhesive outer faces, and an additional sheet of fabric between the other two and having non-adhesive faces.

8. A masonry structure comprising two courses of masonry, sheets of fabric applied on the adjacent faces thereof by means of adhesive material and having non-adhesive outer faces, said sheets being crimped between the blocks.

9. A masonry structure formed of two courses of masonry in blocks with wide joints between them, and a mass of plastic waterproof material in the joints.

10. An expansion-joint for masonry structures subjected to pressure against their faces comprising the two adjoining ends of masonry blocks, the edges of said blocks flaring toward the face of the structure, and a wedge-shaped plug in the space between said flared edges.

11. A reservoir-bottom or the like formed of two courses of concrete in blocks with open

5 joints between them, a filling of plastic waterproof material in the joints, sheets of fabric applied on the adjoining faces of the courses by means of adhesive waterproof material and having non-adhesive outer faces, said sheets being crimped between the blocks, and metal reinforcing embedded in the blocks and crimped between them.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WILLIAM N. WIGHT.
FRED E. TOWNSEND.

Witnesses:

DOMINGO A. USINA,
FRED WHITE.