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F. C. ROBERTS.

FURNACE BOSH JACKET AND BOSH PLATE.

APPLICATION FILED APR. 24, 1908.

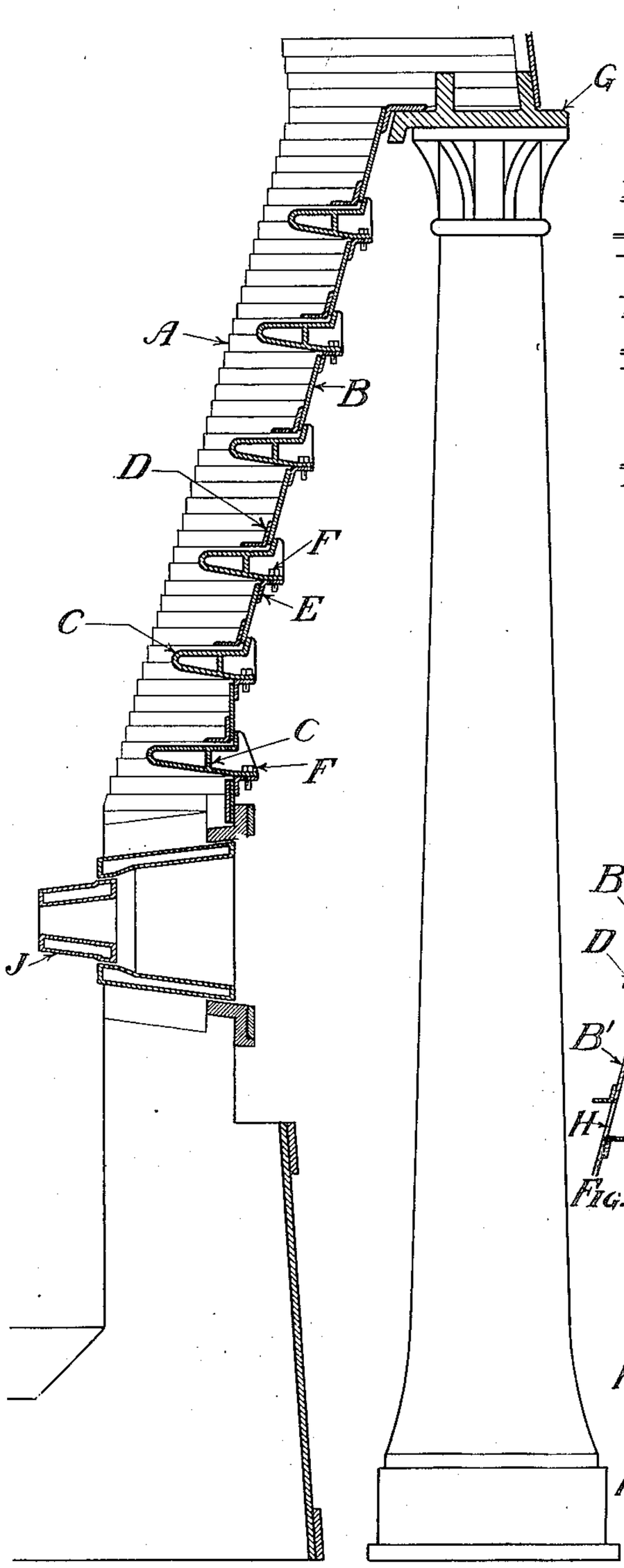

FIG. 1

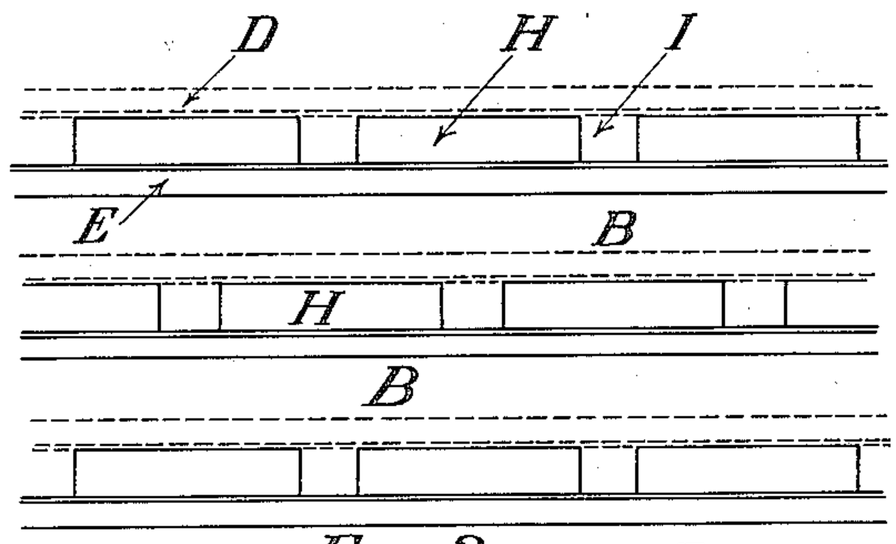

FIG. 2

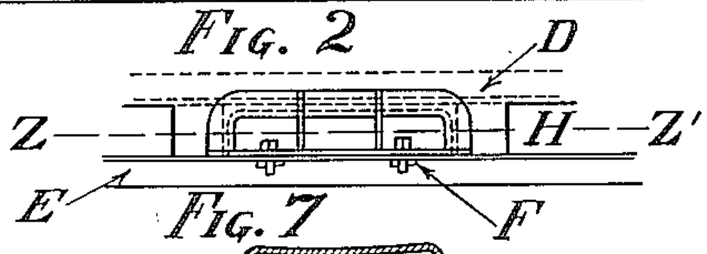

FIG. 7

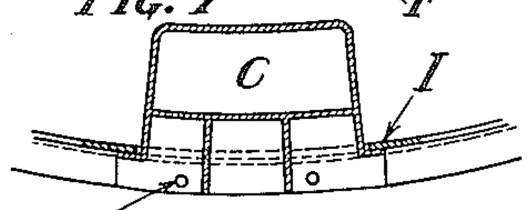

FIG. 8

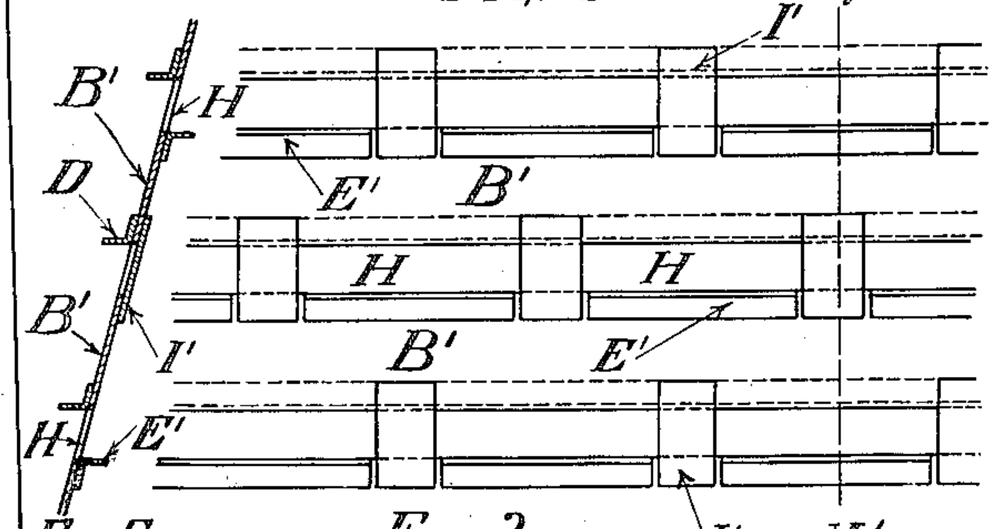

FIG. 5 FIG. 3

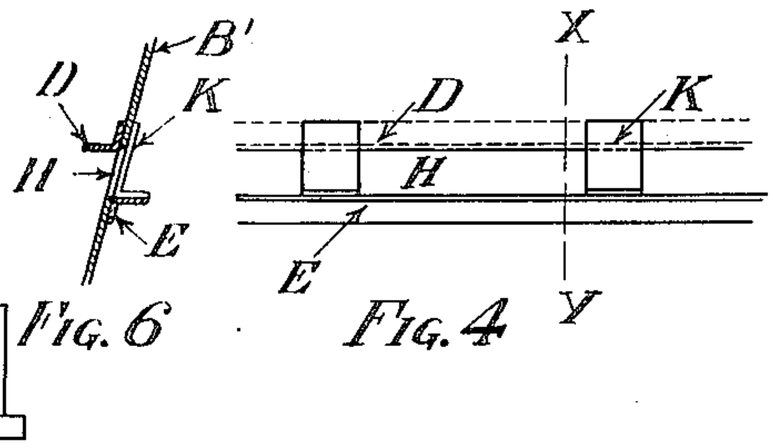

FIG. 6 FIG. 4

WITNESSES:

L. K. Lachman

Wilhur E. Smith.

INVENTOR.

Frank C. Roberts

UNITED STATES PATENT OFFICE.

FRANK C. ROBERTS, OF PHILADELPHIA, PENNSYLVANIA.

FURNACE BOSH-JACKET AND BOSH-PLATE.

No. 897,016. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed April 24, 1908. Serial No. 429,060.

To all whom it may concern:

Be it known that I, FRANK C. ROBERTS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Furnace Bosh-Jackets and Bosh-Plates, of which the following is a specification.

My invention relates to bosh plates placed in the walls of blast furnaces for the purpose of preserving and cooling said walls.

In the building of modern blast furnaces it has been found necessary to provide a bosh construction of great strength and also to securely support the bosh plates in such manner as to permit their removal and renewal without difficulty. In some instances it is preferred to inclose the bosh walls in a metal casing, usually termed a bosh jacket, and to omit bosh plates, whereas in other instances it is preferred to strengthen the bosh walls by a series of horizontal bands with bosh plates located between them.

The object of my invention is to provide a bosh construction in which bosh plates may be used to advantage in connection with a bosh jacket, said bosh plates being so designed that they are capable of being held securely in position and of being removed and renewed without difficulty.

I attain my object by means of the construction illustrated in the accompanying drawings in which

Figure 1 is a vertical section through one side of the bosh and lower part of a blast furnace; Fig. 2 is an elevation of a portion of the bosh jacket shown in Fig. 1; Figs. 3 and 4 are elevations showing other designs of bosh jackets; Fig. 5 is a sectional elevation on the line V V′ of Fig. 3; Fig. 6 is a sectional elevation on the line X Y of Fig. 4. Fig. 7 is an elevation showing a bosh plate in place and Fig. 8 is a horizontal section on the line Z Z′ of Fig. 7.

Similar letters refer to similar parts throughout the several views.

Referring to Fig. 1:—A represents the wall of the bosh of a blast furnace inclosed by a metal bosh jacket B extending from and supported by the mantel plate G to a point above the twyers J. D and E are metal bands or ledges of angle section extending around the jacket B, the former being located on the inside and the latter on the outside of B. C is a bosh plate furnished on the lower side of the outer end with a flange extending over and bolted to the angle band E by means of a bolt or bolts F. The upper outer end of C is provided with a flange projecting upwards and bearing against the jacket B. As indicated in Fig. 2, the bosh jacket B is provided with a series of openings H separated by sections I of the jacket B, the openings H being cut in B of the proper size to accommodate the bosh plates C which are installed in H (see Figs. 7 and 8). The bosh plate C may be furnished with flanges on each side, as well as on top, said side flanges being of sufficient width to cover the opening in B; all as indicated in Figs. 7 and 8.

Figs. 3 and 5 show another design of bosh jacket formed by a series of bands B′, each band being of the necessary width to extend between the rows of bosh plates. The various bands are supported the one from the other by straps I′ attached to said bands; the whole being supported as in Fig. 1 from the mantel plate G. Each band is provided at its lower edge with an angle section band or ledge D on the inside. In this design E of Figs. 1 and 2 is replaced by angle sections or ledges E′ extending between the straps I′. The openings H for the insertion of the bosh plates are formed by dividing the space between the bands B by the straps I′.

Figs. 4 and 6 show a modification of the design shown in Figs. 3 and 5 wherein the angle band or ledge E is continuous and not in sections as in Figs. 3 and 5. In this case the straps K supporting the bands B′ the one from the other, are attached to the flange of E which extends outwards.

In all designs the angle section bands D are intended to support the brickwork of the wall above the bosh plates C and the angle section bands E (or E′) are provided in order to attach the bosh plate thereto; in addition D and E add to the strength of the jacket. It is evident that D and E need not be continuous around the jacket in order to support the brickwork and the bosh plates; they may be made in sections.

It is evident that the various designs of bosh jacket shown in the drawings differ only in the method of construction; they are all bosh jackets, whether the openings are cut in the jacket or whether they are formed by the bands and straps connecting the bands together.

Having described my invention, what I claim and desire to cover by Letters Patent is—

1. In a blast furnace a metal bosh jacket provided with an opening, a metal ledge attached to said jacket below said opening and projecting outwardly from said jacket, a bosh plate located in said opening, said bosh plate having a flange at the top of its outer end projecting over the upper edge of said opening and bearing against said jacket and having a flange at the bottom of its outer end resting on and secured to said ledge.

2. In a blast furnace a metal bosh jacket provided with an opening, a bosh plate located in said opening in the bosh jacket, said bosh plate having a flange at the top of its outer end projecting over the upper edge of said opening and bearing against said bosh jacket and having flanges at the sides of its outer end projecting over the side edges of said opening and having a flange at the bottom of its outer end resting on and secured to a ledge attached to said bosh jacket below said opening, said ledge projecting outwardly from said bosh jacket.

3. In a blast furnace, a metal bosh jacket encircling the brickwork of the bosh wall and supported independently of said brickwork, a series of horizontal openings in said bosh jacket, metal ledges or bands attached to said bosh jacket above said openings and projecting inwardly, metal ledges or bands attached to said bosh jacket below said openings and projecting outwardly, bosh plates located in said openings, said bosh plates having flanges at the tops of their outer ends projecting over the upper edge of said openings and bearing against said bosh jacket and having flanges at the bottoms of their outer ends resting on and secured to said ledges or bands projecting outwardly from said bosh jacket.

4. In a blast furnace, a metal bosh jacket encircling the brickwork of the bosh wall and supported independently of said brickwork, a series of horizontal openings in said bosh jacket, metal ledges or bands attached to said bosh jacket above said openings and projecting inwardly, metal ledges or bands attached to said bosh jacket below said openings and projecting outwardly, bosh plates located in said openings, said bosh plates having flanges at the tops of their outer ends projecting over the upper edge of said openings and bearing against said bosh jacket and having flanges at the sides of their outer ends projecting over the side edges of said openings and having flanges at the bottoms of their outer ends resting on and secured to said ledges or bands projecting outwardly from said bosh jacket.

FRANK C. ROBERTS.

Witnesses:
L. K. LACHMAN,
J. DONALDSON PAXTON.