

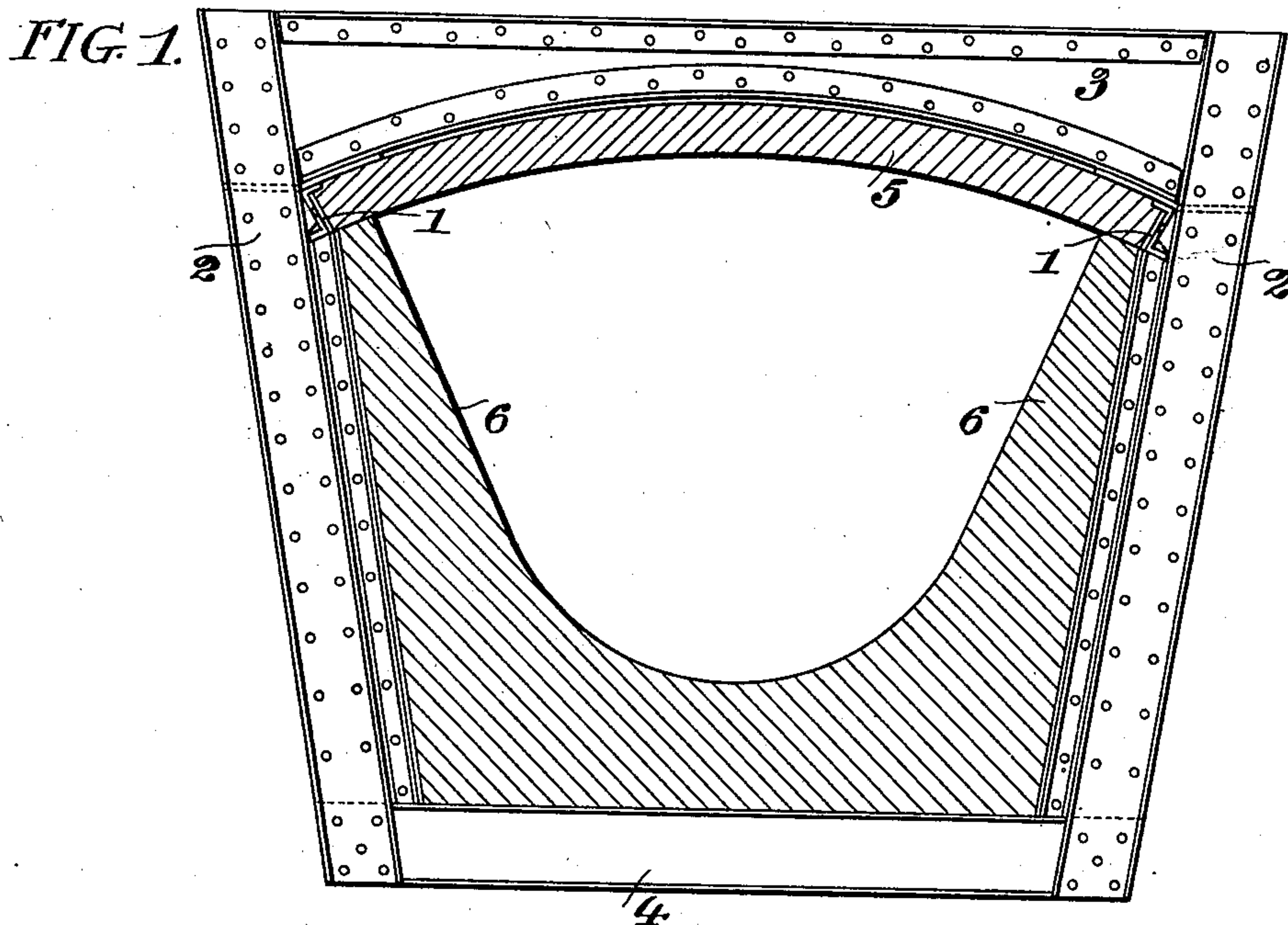
No. 668,797.

Patented Feb. 26, 1901.

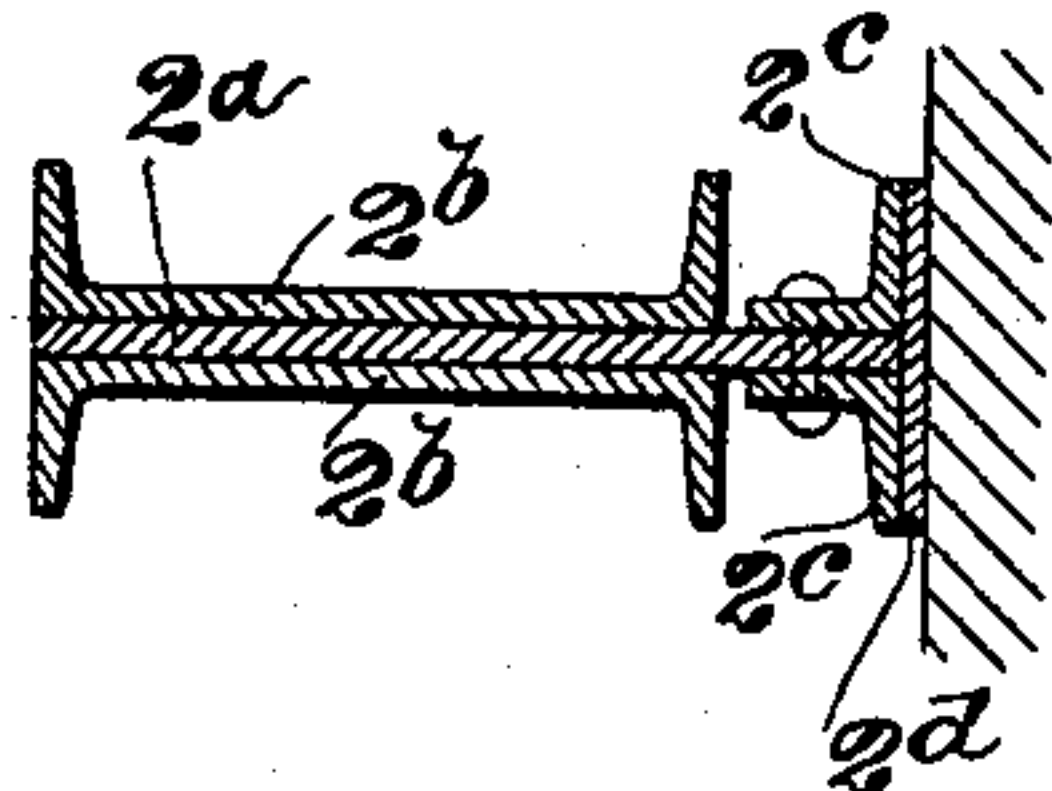
W. B. HUGHES.  
ARCH SKEW BACK.

(Application filed Sept. 8, 1900.)

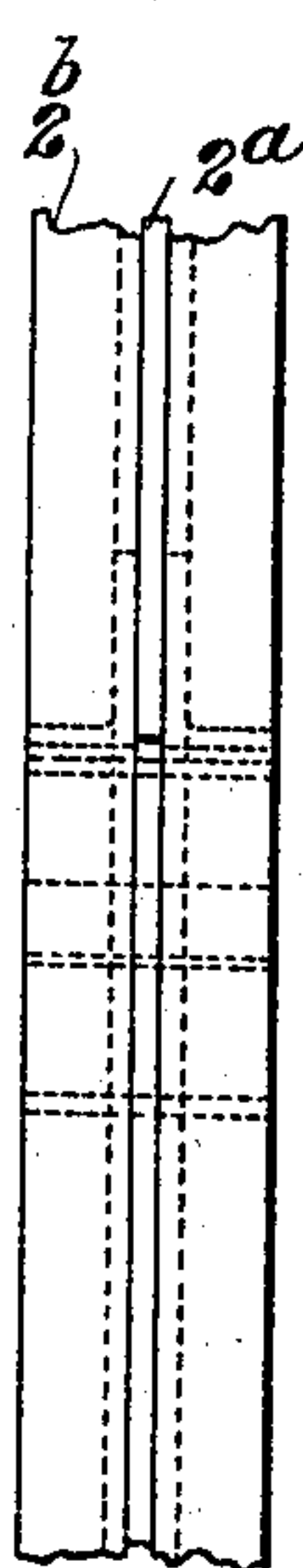
(No Model.)



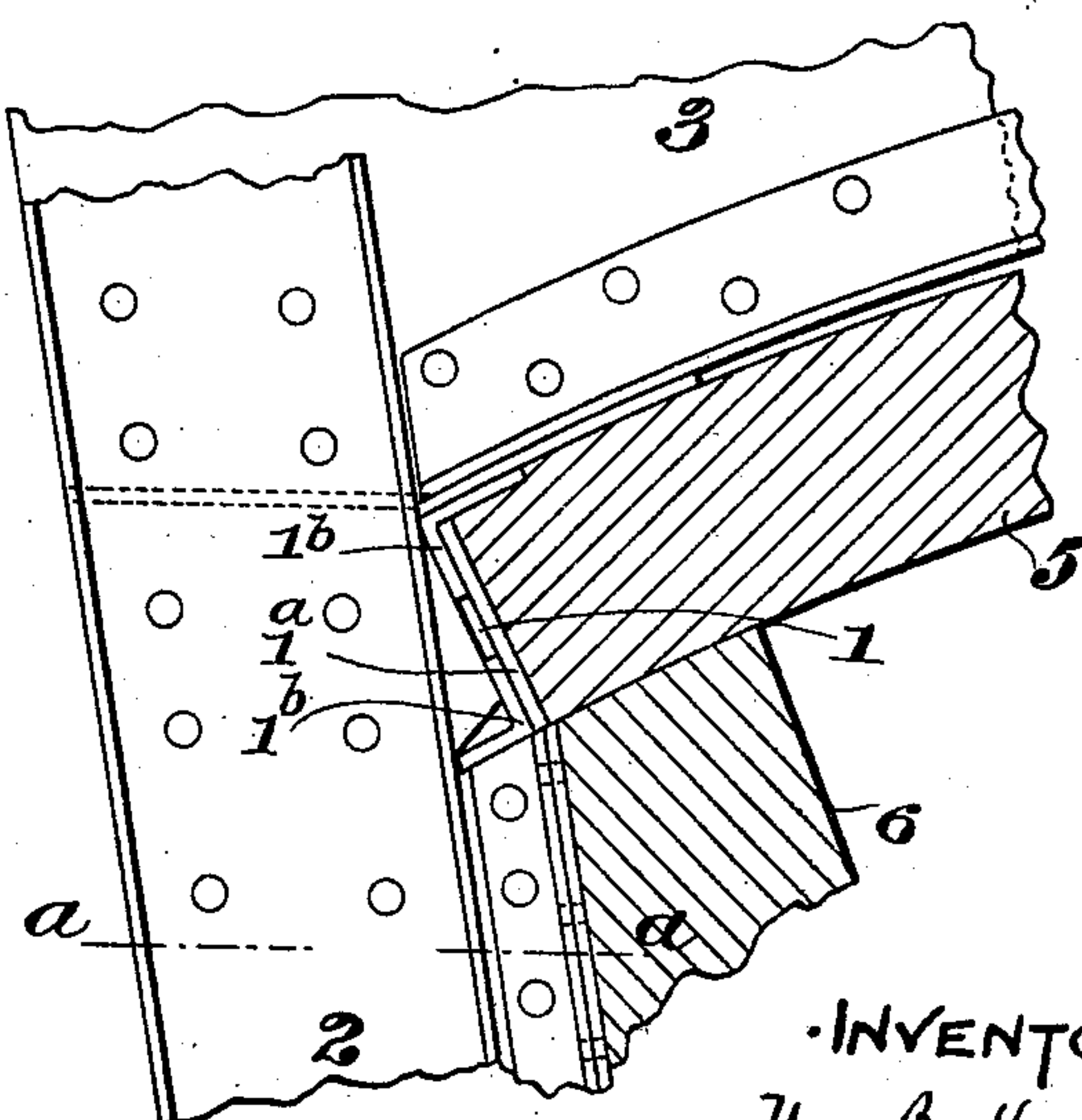
**FIG. 5.**



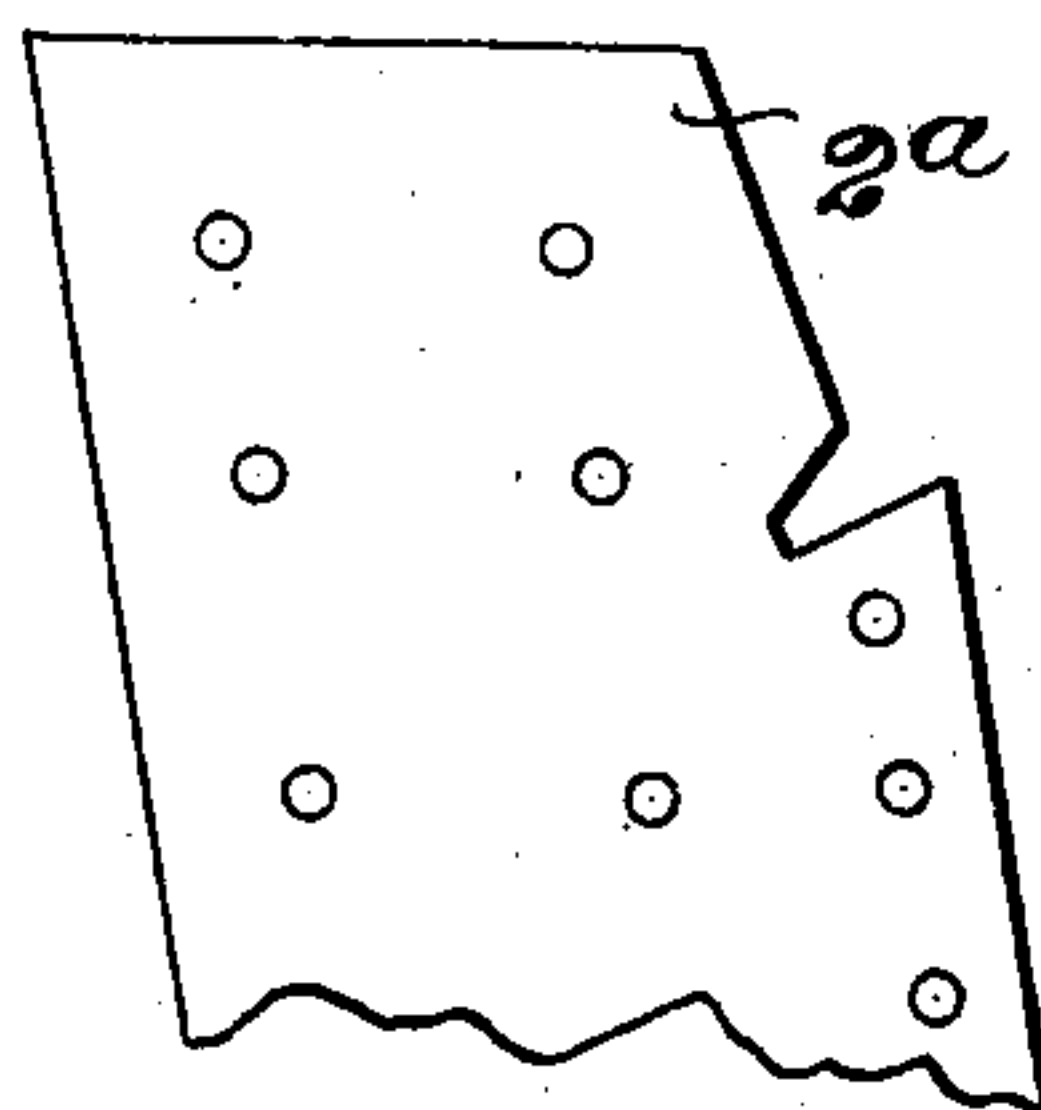
**FIG. 3.**



**FIG. 2.**



**FIG. 4.**



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# UNITED STATES PATENT OFFICE.

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## ARCH-SKEWBACK.

SPECIFICATION forming part of Letters Patent No. 668,797, dated February 26, 1901.

Application filed September 8, 1900. Serial No. 29,378. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. HUGHES, a citizen of the United States, residing at Wissahickon, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Arch-Skewbacks, of which the following is a specification.

This invention is more particularly a skewback or footing for sustaining an arch independently of the side walls. Its principal objects are to permit the use of ordinary commercial bricks throughout the construction, thus dispensing with bricks of special form ordinarily employed for building the arch-footings, to provide for the construction and repair of the side walls independently of the arch, and to secure a footing wholly outside of the walls. Specially in furnace construction it is important that the arch be sustained independently of the side walls to permit the repair of the same without disturbing the arch, and it is further important that the skewback when made of metal be outside of the furnace-walls in order that it may not be burned, but kept cool by exposure to the circulation of the air. It is also of material economy to be able to dispense with the usual special forms of bricks required heretofore for the skewbacks of the arch, which add to the cost of construction in the first instance and require to be constantly replaced in furnaces as they burn out.

In the accompanying drawings, Figure 1 is a transverse sectional view of a furnace embodying my invention in its construction. Fig. 2 is an enlarged detail view of a portion of the same, showing the relation of my invention to the arch and side wall. Fig. 3 is a view of a stay for supporting the skewback, taken at right angles to the position which it occupies in Fig. 2. Fig. 4 is a side elevation of the top of the web employed in building the stay, and Fig. 5 is a sectional view taken on the line *a a* of Fig. 2.

As shown in the drawings, the skewbacks 1 are sustained by the stays 2, which are suit-

ably built up from webs 2<sup>a</sup>, channels 2<sup>b</sup>, angles 2<sup>c</sup>, and plates 2<sup>d</sup>, connected together by the beams 3 and 4. In the construction shown the skewbacks 1 are iron Z-beams built up from webs 1<sup>a</sup> and angles 1<sup>b</sup>. The tops of the webs 2<sup>a</sup> are cut away as required to form seats for the skewbacks 1, which form bearings substantially radial to the arch 5 and outside and independent of the wall 6. Footings for the arch are thus formed which avoid the use of all bricks of special form and permit the construction of the walls and arch independently. In a furnace of this construction there is no danger of the skewbacks burning out, as they are outside of the furnace-walls and exposed to the chilling influence of freely-circulating air, and when the furnace-walls are burned out they may be replaced without disturbing the arch or wholly rebuilding the furnace.

Having thus described my invention, I claim—

1. A skewback substantially radial to an arch supported thereby, said skewback having a permanently-fixed support outside and independent of the side wall joined with said arch, substantially as specified.

2. A pair of skewbacks substantially radial to an arch supported thereby, in combination with a frame comprising a pair of struts and a tie connecting said struts, said skewbacks being non-adjustably supported by said frame, substantially as specified.

3. A skewback substantially radial to an arch supported thereby in combination with a stay or strut for supporting said skewback, said skewback being permanently fixed outside of the wall joined with said arch, substantially as specified.

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

WM. B. HUGHES.

Witnesses:

J. EDGAR BUTLER,  
JOHN THIEL.