

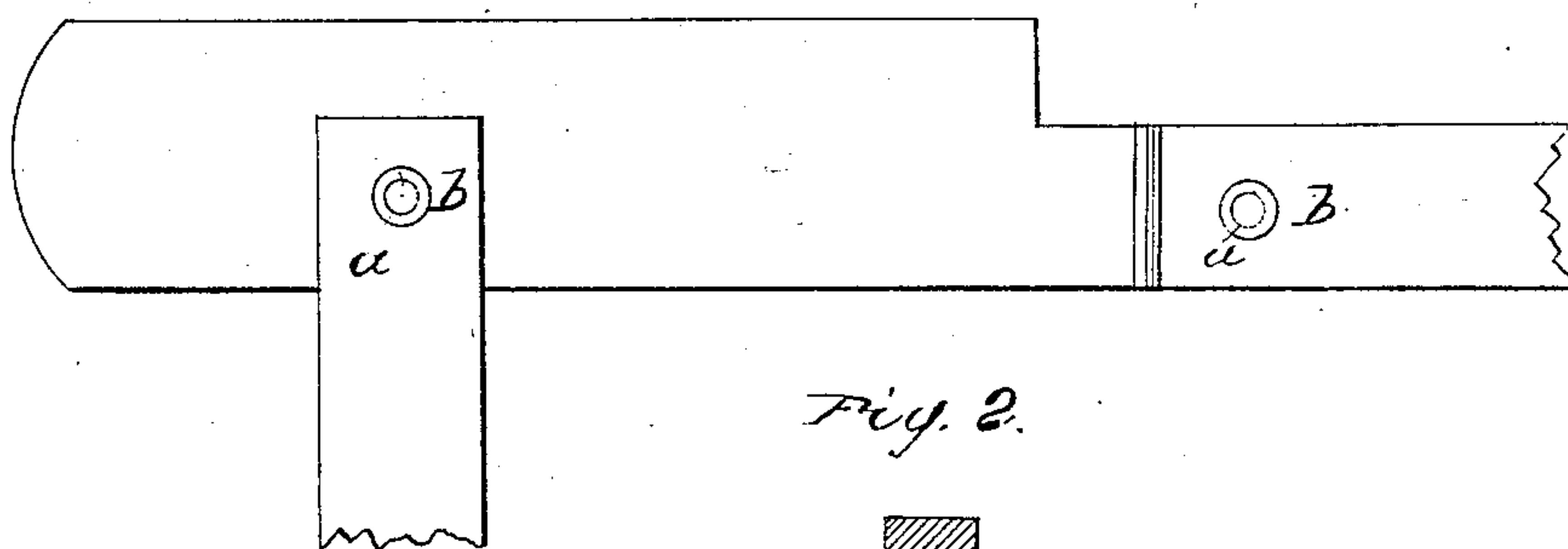
*C. Bollermann,*

*Piano Action,*

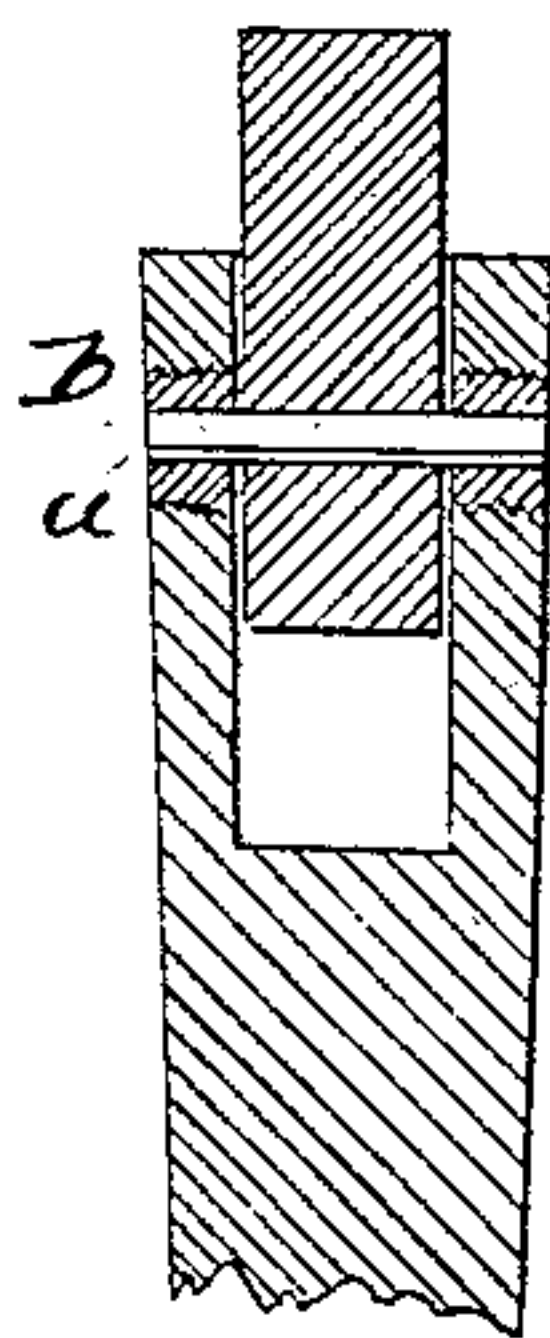
*Nº 42,740.*

*Patented May 17, 1864.*

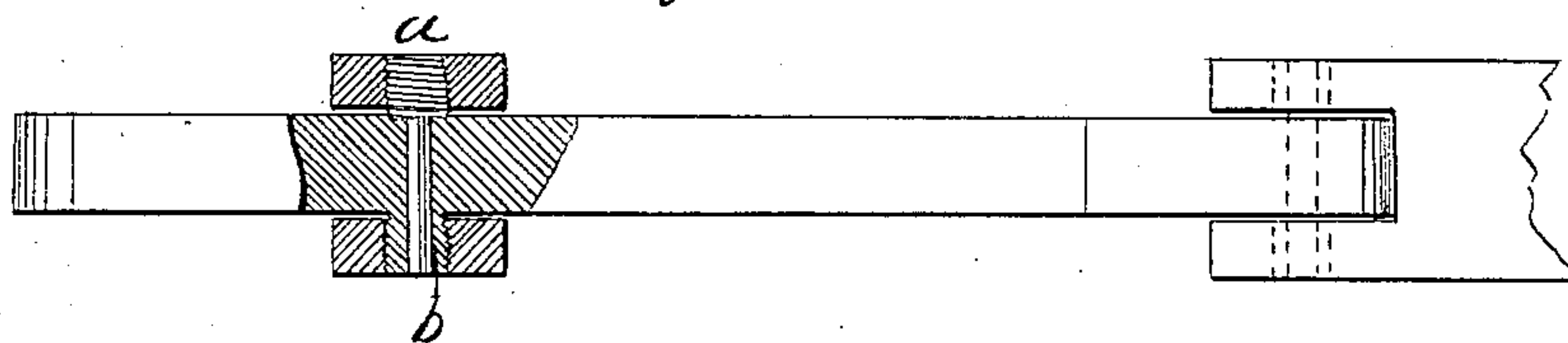
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses*

*Jas. T. Hall*  
*Geo. H. Reed*

*Inventor*

*Charles Bollermann*

# UNITED STATES PATENT OFFICE.

CHARLES BOLLERMANN, OF NEW YORK, N. Y.

## MODE OF SECURING CLOTH BUSHES IN HOLES.

Specification forming part of Letters Patent No. 42,740, dated May 17, 1864.

*To all whom it may concern:*

Be it known that I, CHARLES BOLLERMANN, of the city, county, and State of New York, have invented a new and Improved Mode of Securing Cloth Bushes in Holes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a side elevation of a portion of a piano-forte action, with holes made according to my invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a horizontal section of the same, a portion of the bush having been removed to expose the inner surface of the hole.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to secure in a permanent and easy manner the cloth bushes in holes, particularly in the actions and other parts of musical instruments.

The invention consists in the employment or, use for the purpose of securing a cloth bush in a hole, of a screw-thread cut into said hole, so that when the bush is inserted and expanded by immersing it in water the cloth forces itself into the screw-threads, and the bush is permanently and securely fastened without the use of cement.

To enable others skilled in the art to fully understand and construct my invention, I will proceed to describe it.

In the actions and other parts of musical instruments the holes have to be provided with a bush of cloth, in order to prevent or dampen the sound which otherwise would result if the pivot should be allowed to work in

a hole made in the wood not protected by cloth or other soft substance. The usual way of securing the cloth bushes in the holes is by means of cement; but the use of cement is objectionable, particularly because it penetrates the cloth and renders the same hard, and the object of inserting the bush is frustrated. To avoid this difficulty many manufacturers of musical instruments have the practice to insert the bushes without any fastening at all, and in this case the cloth remains soft; but the bushes are liable to work loose and to become the source of much trouble.

All these difficulties are avoided by my invention, which consists, simply, in cutting into the hole *a* before the bush *b* is inserted a screw-thread, finer or coarser, as may be desired. If the bush is inserted in a hole of this kind and immersed in water, the cloth swells or expands and fills the screw-threads, and thus the bush is firmly retained in the hole without cement. The cloth retains its original softness, and the full benefit of the bush is obtained.

This invention is applicable to the actions of all musical instruments or whenever it is desirable to use cloth bushes in the holes, whether made in wood or metal.

What I claim as new, and desire to secure by Letters Patent, is—

The employment or use of a screw-thread cut in the hole *a*, for the purpose of securing therein the bush *b*, of cloth or other soft material, in the manner substantially as herein specified.

CHARLES BOLLERMANN.

Witnesses:

JAMES P. HALL,  
GEO. W. REED.