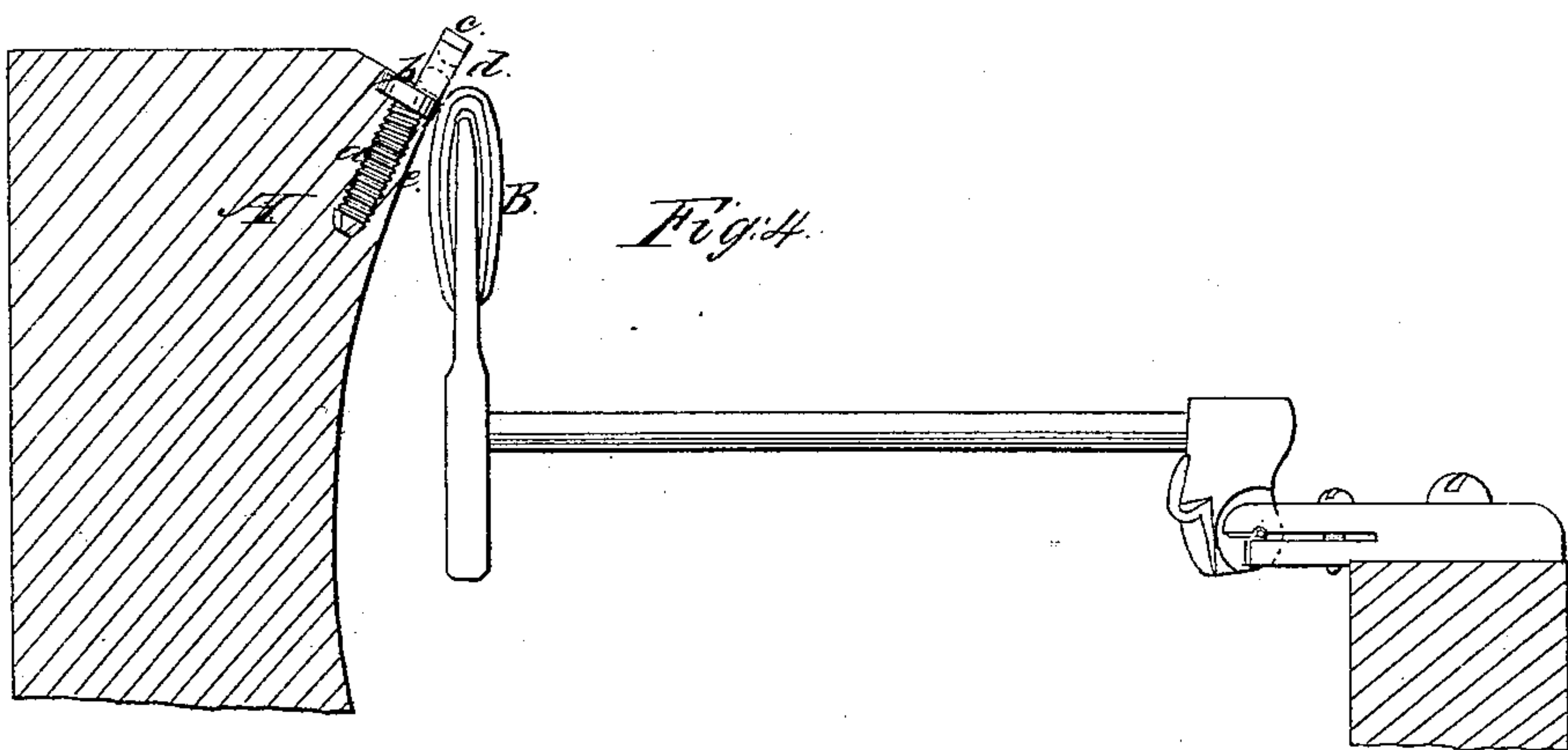
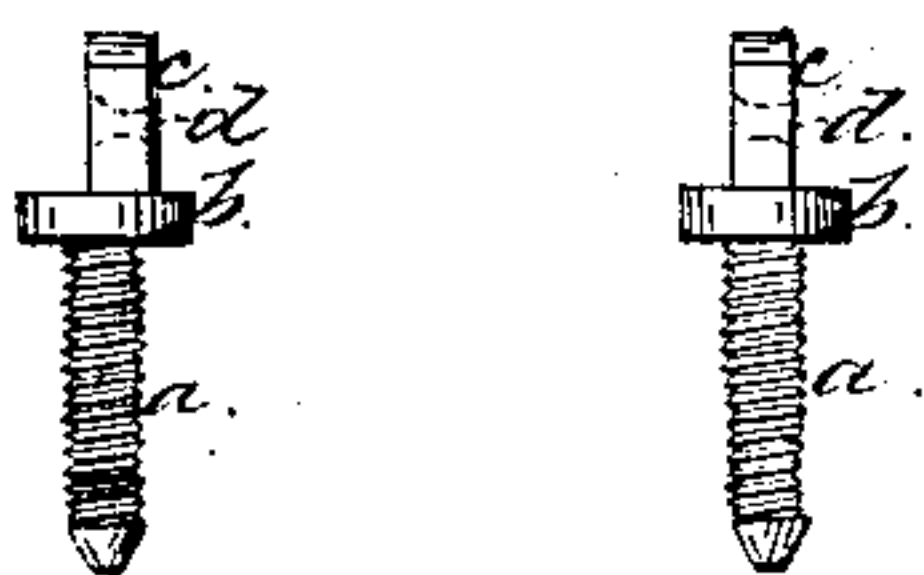


*D. Decker,*  
*Stringing Pianos,*

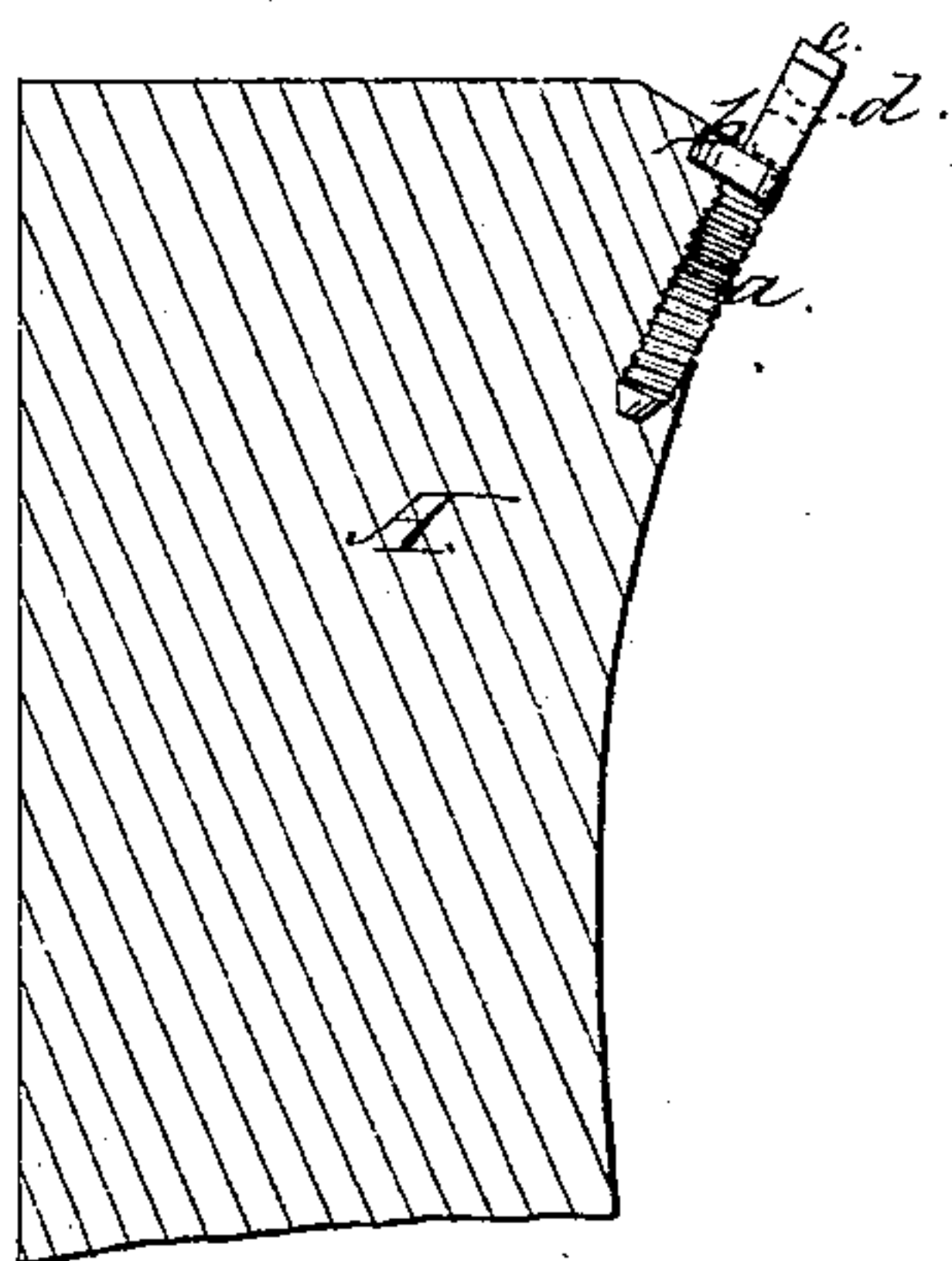
*N<sup>o</sup> 45,818.*

*Patented Jan. 10, 1865.*

*Fig. 2. Fig. 1.*



*Fig. 3.*



*Witnesses;*  
*Henry T. Brown,*  
*J. W. Coombs.*

*Inventor;*  
*David Decker.*

# UNITED STATES PATENT OFFICE.

DAVID DECKER, OF NEW YORK, N. Y.

## IMPROVEMENT IN PIANO-FORTES.

Specification forming part of Letters Patent No. 45,818, dated January 10, 1865.

*To all whom it may concern:*

Be it known that I, DAVID DECKER, of No. 91 Beecker street, of the city, county, and State of New York, have invented a new and useful Improvement in Agraffs for Piano-Fortes; 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, forming part of this specification.

In all grand and in some square piano-fortes what are known as "agraffs" are used to connect the strings with the wrest-plank; but it has hitherto been found impracticable in the square instrument and difficult in the grand to apply them in the treble portion of the scale without screwing them into the iron plate, which is objectionable on account of its giving the strings a hard and impure tone. The difficulty in applying them in the treble portion of the scale has arisen from the extreme shortness of the strings, the shortest being but one and seven eighths-inches, and the center of the hammer requiring to strike the strings at a distance from the wrest-plank bearing equal to from one-sixteenth to one-eighteenth part of the whole length of that portion of the string between its two bearings. With an agraff of the old kind the hammer working as close as possible to the wrest-plank without touching it would have required the screw of the agraff to be screwed into the wrest-plank at the extreme edge of the latter, and the screw could not have had the requisite hold in the wood, and therefore the agraff was never used in the treble except when screwed into the iron plate. The object of my invention has been to obtain some means of employing the agraff screwed directly into the wood of the wrest-plank, and my improvement in the agraff consists in a simple change in its construction by which that much-desired end is accomplished.

To enable others skilled in the art to make and apply my invention, I will proceed to describe it with reference to the drawings.

Figure 1 is a side view of an agraff as heretofore constructed. Fig. 2 is a side view of my improved agraff. Fig. 3 is a transverse vertical section of the wrest-plank, showing the only manner in which the agraff, as heretofore constructed, could have been applied in the

wood to enable the hammer to strike at the requisite distance from the string-bearing. Fig. 4 is a similar section of the wrest-plank, showing the application of my improved agraff and representing also a side view of the hammer.

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

The agraff, as heretofore constructed, represented in Figs. 1 and 3, consists simply of a screw, *a*, made with a collar, *b*, to give it a broad bearing on the wrest-plank, and with a flat head, *c*, in which is a hole, *d*, (shown in dotted outline,) for the passage of the string through it, the head *c* being directly over the center of the screw and its flattened sides not projecting over or beyond imaginary lines drawn lengthwise of the screw along the tops of the threads thereof.

My improved agraffs (shown in Figs. 2 and 4) only differ in construction from the former in having the heads *c* so constructed as to project beyond the imaginary line aforesaid, or, in other words, to overlap the screw on that side which is toward the hammer, as illustrated in Fig. 4. Now, in inserting the first-described agraff directly into the wooden wrest-plank, that face of the head *c* which is toward the outer edge of the wrest-plank cannot be brought flush with the face of the plank or be made to project slightly over or beyond the said face, as is desirable, so that the hammer may work as close to it as is necessary to strike the string at the proper point without inserting the screw *a* so close to the edge of the plank that the tops of its threads will be close to or project slightly beyond the face of the plank, as shown in Fig. 3, thus leaving the screw unsupported on that side; but by constructing the head to project beyond the line of the tops of the threads or overlap the screw, as shown in Figs. 2 and 4, the screw can be inserted into the wrest-plank so far from the edge or face thereof as to inclose it entirely within the wrest-plank and leave a thickness of wood on its outer side beyond the tops of the threads, as shown at *e* in Fig. 4, thus giving it the necessary support. This result, though obtained by such very simple means, has never before been accomplished.

When the agraff has been screwed into the plank, its collar *b* is filed off flush, or nearly so,



with the face of the head which is toward the hammer, to enable the latter to pass by it and reach the string.

My improved agraff is not limited in its application to the treble part of the instrument, nor to a square piano-forte, but it is in the treble portion of the scale that its application is of the greatest importance, as it produces in the strings of that portion of the scale of the instrument a purity of tone never before obtained.

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

The construction of the agraff used in piano

fortes, substantially as herein described, whereby the face of its head which is toward the hammers may be flush with or project slightly beyond the edge or face of the wrest-plank while its screw is entirely inclosed in the wood of the said plank and a sufficient supporting thickness of wood is left on the outer side of it to obviate the necessity of screwing it into the iron plate.

DAVID DECKER.

Witnesses:

HENRY T. BROWN,  
J. W. COOMBS.