(No Model.)

D. A. BARBER, G. BATES, W. MABRY & H. T. SKELTON.

PIANOFORTE.

No. 494,051. Patented Mar. 21, 1893.

Fig. 1.

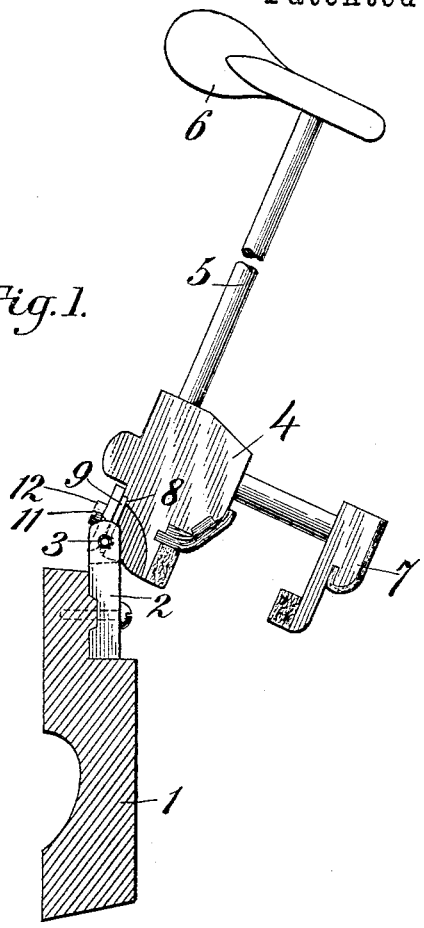


Fig. 2.

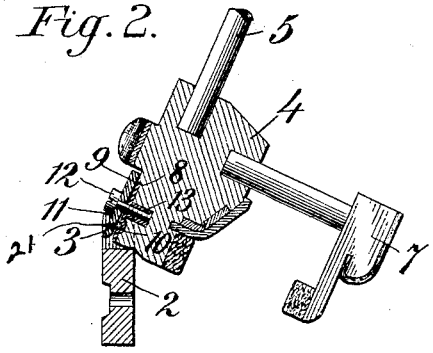
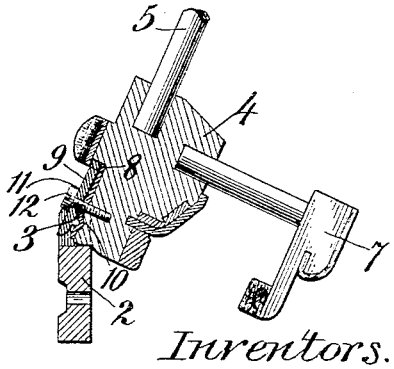


Fig. 3.



Witnesses:
Viviton Coombs
F. H. Schott

Inventors.
David A. Barber.
George Bates.
Willis Mabry.
Horace T. Skelton.
by Munn & Goldsborough attys

UNITED STATES PATENT OFFICE.

DAVID A. BARBER, GEORGE BATES, WILLIS MABRY, AND HORACE T. SKELTON, OF CAMBRIDGE, MASSACHUSETTS.

PIANOFORTE.

SPECIFICATION forming part of Letters Patent No. 494,051, dated March 21, 1893.

Application filed November 9, 1892. Serial No. 451,420. (No model.)

To all whom it may concern:

Be it known that we, DAVID A. BARBER, GEORGE BATES, WILLIS MABRY, and HORACE T. SKELTON, citizens of the United States, residing at Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Pianofortes; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention has reference to that part of the piano forte known as the action; and relates more especially to the manner of mounting the hammer, or other pivotal part.

All piano manufacturers know that great skill and care are required in making and properly adjusting the bearings of the action; for upon the accuracy of fit and durability of construction of this part of the mechanism depends very largely the satisfactory performance of the instrument when new, as well as the maintenance of the same in perfect order during continued use.

Our invention has for its object to provide a novel and improved construction of joint or bearing for the pivotal parts of the action; especially for the hammer, where the hardest work is required and the greatest wear occurs.

The invention is herein illustrated in connection with the action of an upright piano forte. We would have it understood, however, that it is equally applicable to the square, grand, or other style of action.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of the hammer, the same being shown as secured in place on the rail, which appears in section. Fig. 2 is a view of the hammer-butt in section, showing the details of construction of the joint. Fig. 3 is a similar view of the same parts, the screw sleeve being omitted.

In the following description the several parts are referred to by numerals on the drawings, and the same numerals occurring in the different views denote the same parts.

Referring to Fig. 1, the numeral 1 indicates the main rail of the action, which may be of any preferred size, shape and construction, the particular form shown in this figure being a common one in upright actions. 2 denotes what is known as the butt flange, that shown in the drawings being of the ordinary construction. This flange is secured to the action rail by a screw, as shown, and is cut away at its upper end, so as to form in effect a fork, as will be readily understood from an inspection of Figs. 2 and 3. The side pieces or arms formed by cutting away the upper end of the flange as thus described are perforated to receive a hinge-pin or pintle 3, which constitutes the axis upon which the hammer oscillates. The numeral 4 denotes the hammer-butt, 5 the shank and 6 the head of the hammer, while 7 indicates the hammer check. All of these parts and their arrangements and combination are old and well known at the present day, and require no further description. They form no part of our present invention, which relates to the particular construction of the bearing or hinge-joint between the hammer-butt and the butt flange, as will now be more particularly described.

In carrying out our invention, we cut away the rear edge of the hammer-butt so as to form a rabbet 8, and upon this rabbet we secure a metallic bearing plate 9, the latter being preferably of a width equal to that of the butt, and being secured to the wood of the butt by any suitable means so as to lie flush with the rear face of the same, as shown in Figs. 1 and 2. Near the outer end of this plate we provide a corrugation 10, forming on the one side a groove to receive the pin 3, and on the other side a rib or projection to take into the wood of the butt and prevent the lateral displacement of the plate.

The numeral 11 denotes a clamping plate, which overlies the bearing plate 9, and between which and the latter the pivot pin 3 is clamped by means of the clamping screw 12. A transverse semi-circular groove 21 is formed in the under side of the clamping plate and registers with the groove 10 in the upper side of the plate 9 when the parts are in position. Each of the plates 9 and 11 has a perforation or screw hole formed in it for the passage of the clamping screw which is screwed into the hammer-butt, for the purpose of tightening the clamp plate 11 down on the pivot pin. In order to prevent the splitting of the butt,

and to give the screw a firmer hold on the same, we propose to seat in the butt a small interiorly threaded socket or sleeve 13 for the reception of the screw. It will be understood that the pin is clamped tightly between the plates 9 and 11, and that where it (the pin) passes through the upper side pieces of the butt flanges the perforation is provided with a suitable bushing of felt, flannel, or other soft material.

In the form shown in Figs. 1 and 3, the clamping plate is somewhat longer than the underlying bearing plate, and its rear edge rests as shown upon the face of the butt, extending up to the boss or enlargement where the usual retracting spring bears. In the construction illustrated in Fig. 3, the rear face of the butt is cut away farther up, so as to leave a rabbet or recess in the boss before mentioned. In this form the bearing plate is somewhat longer than in the other arrangement and its upper end fits into the recess, as indicated in the drawings. The clamping plate is also lengthened, and extends up as far as the underneath one. In Fig. 3, we have not shown the sleeve bearing for the screw, but we would have it understood that we contemplate using it in this arrangement also, if desired.

The construction of our improved joint being as above described, it will be understood that the pivot pin 3 is always firmly held in the proper position, and that the displacement of the plates laterally or longitudinally is practically impossible. It will also be understood that, by reason of the plate 9, the wood of the butt is protected from wear, and the tightening of the screw prevented from embedding the pivot pin in the soft wood. The advantage of the sleeve bearing for the screw will be readily understood and appreciated by action makers. It gives a better hold for the threads of the screw, and obviates the danger of splitting the butt in tightening up the screw. Moreover, it permits the making of the butt out of a softer, cheaper wood.

Other advantages will be apparent to those skilled in the art.

We do not intend to limit ourselves to the exact form or construction of parts shown in the accompanying drawings, nor to any particular material out of which to make the plates 9 and 11 and the screw socket 13.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a piano action, the combination with the hammer-butt, the butt flange, and the pivot pin, of a corrugated bearing plate, forming a groove to receive the pin and a rib to prevent displacement of the plate, substantially as described.

2. In a piano action, the combination with the hammer-butt, the butt flange, and the pivot pin, of a clamping plate having a groove to receive the pin, and a sleeve seated in the butt to receive the plate securing screw, substantially as described.

3. In a piano action, the combination with the hammer-butt, the butt flange, and the pivot pin, of a corrugated bearing plate, and a grooved clamping plate between which the pivot pin is clamped, and a threaded sleeve seated in the butt to receive the clamping screw, substantially as described.

DAVID A. BARBER.
GEORGE BATES.
WILLIS MABRY.
HORACE T. SKELTON.

Witnesses:
HERMAN BIRD,
JOSEPH E. FRYE.