

No. 620,430.

Patented Feb. 28, 1899.

S. W. DURHAM.  
HAMMER HEAD FOR PIANOS.

(Application filed June 18, 1898.)

(No Model.)

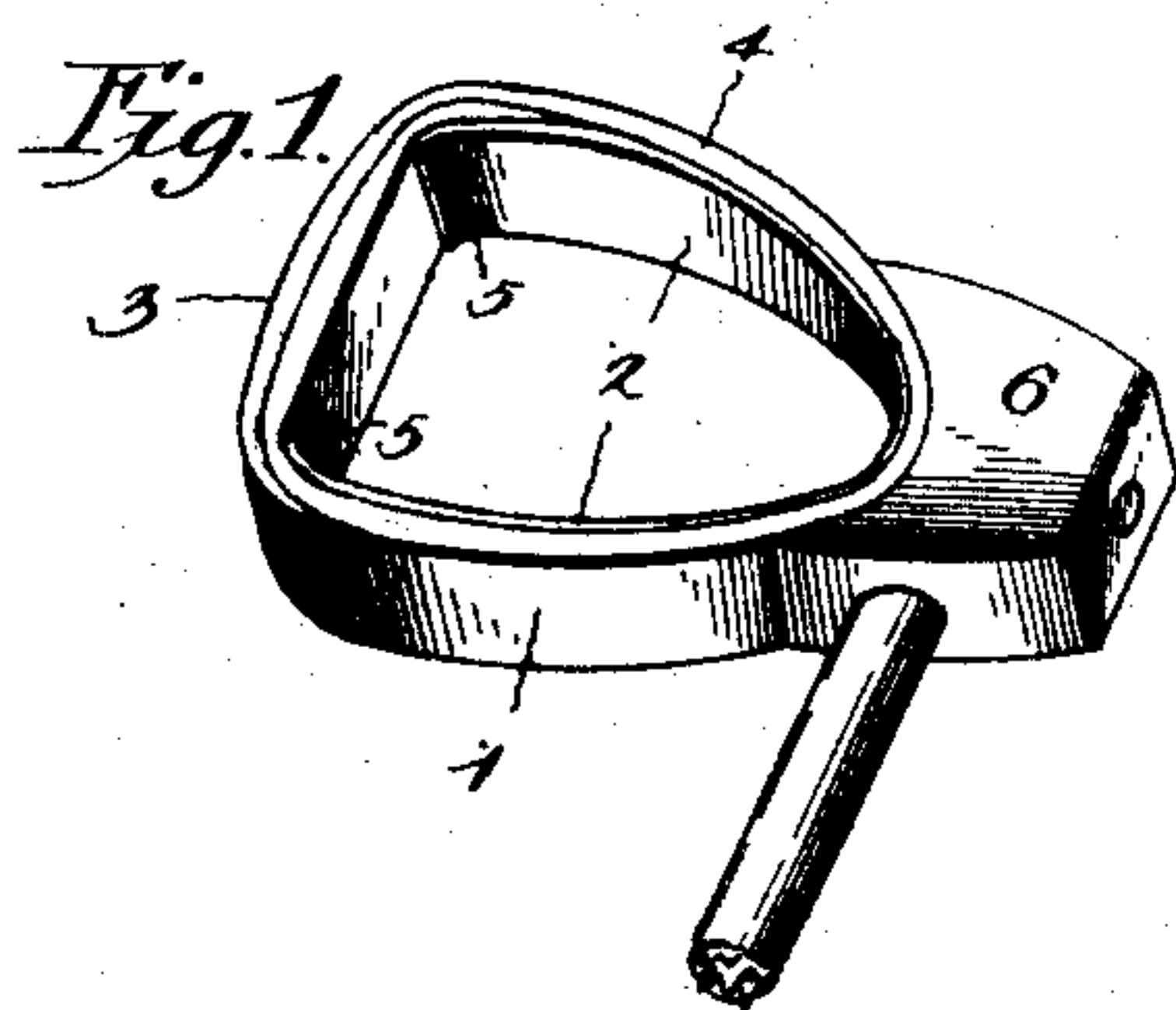


Fig. 1.

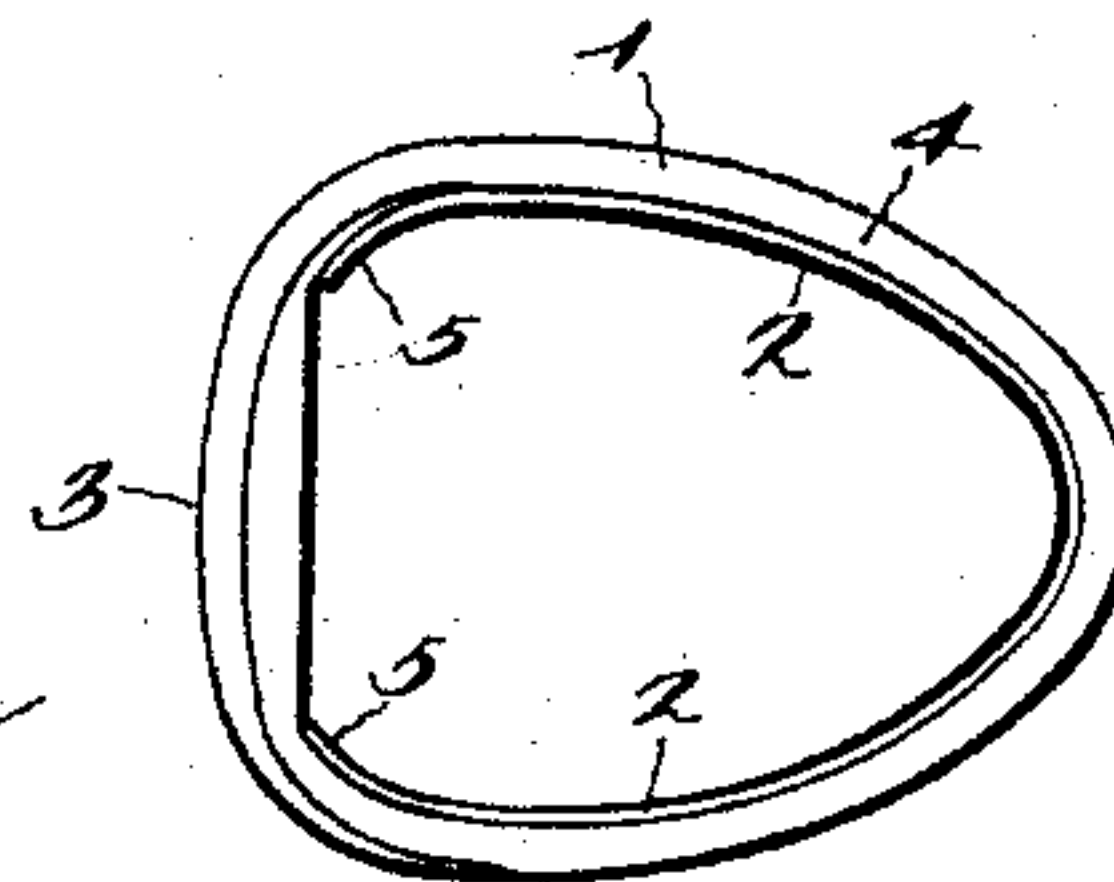


Fig. 2.

Fig. 2<sup>a</sup>

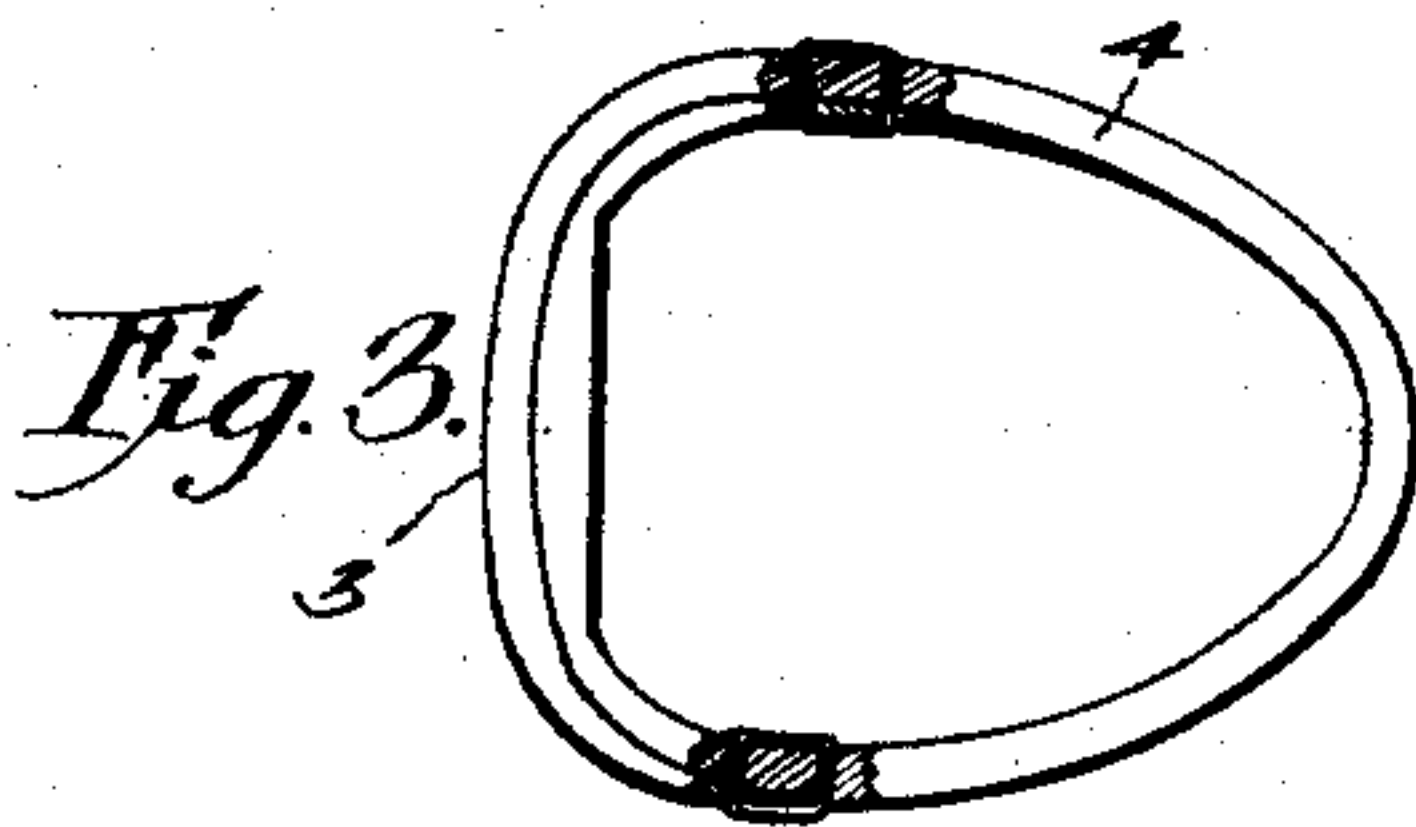
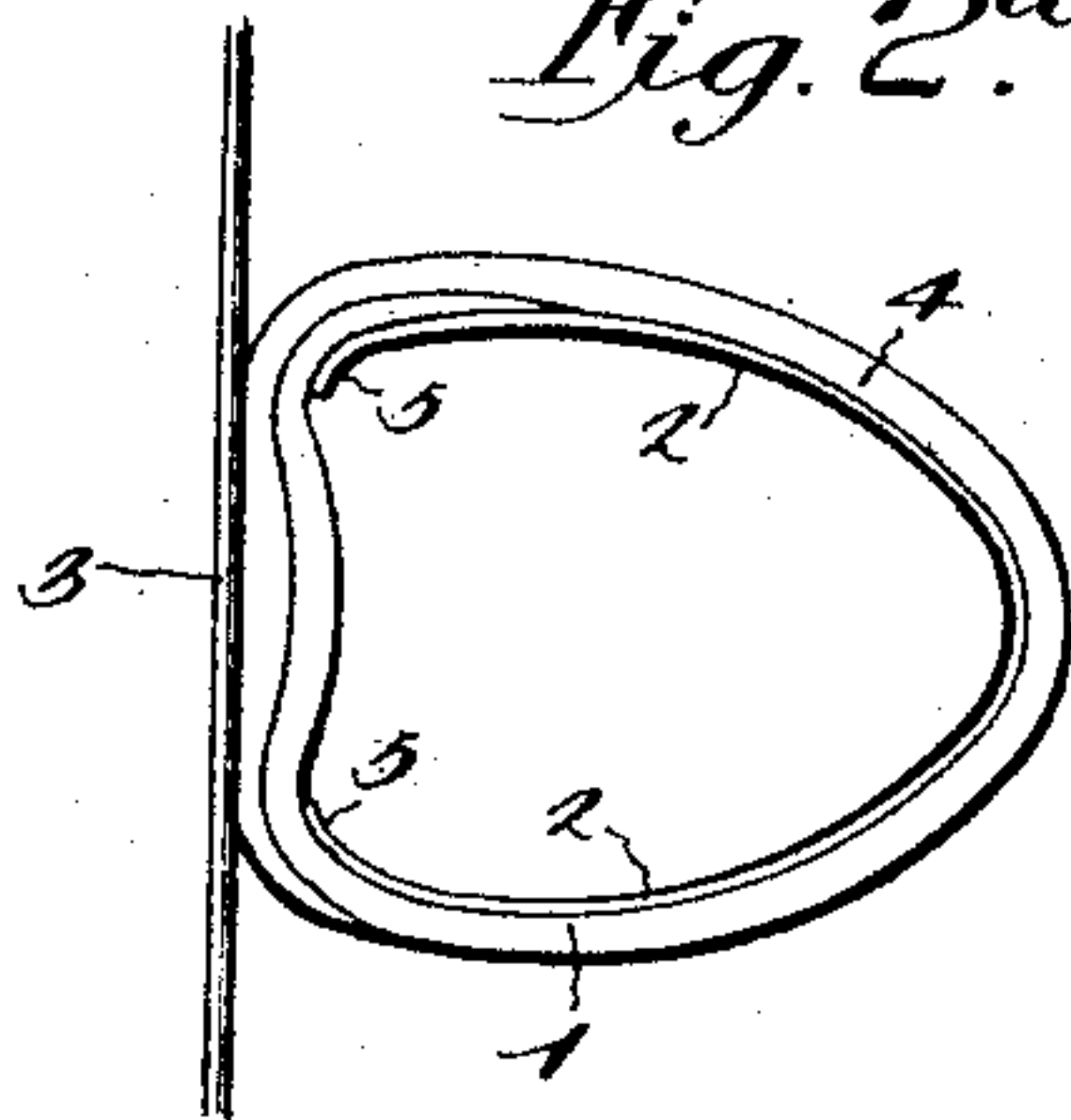


Fig. 3.

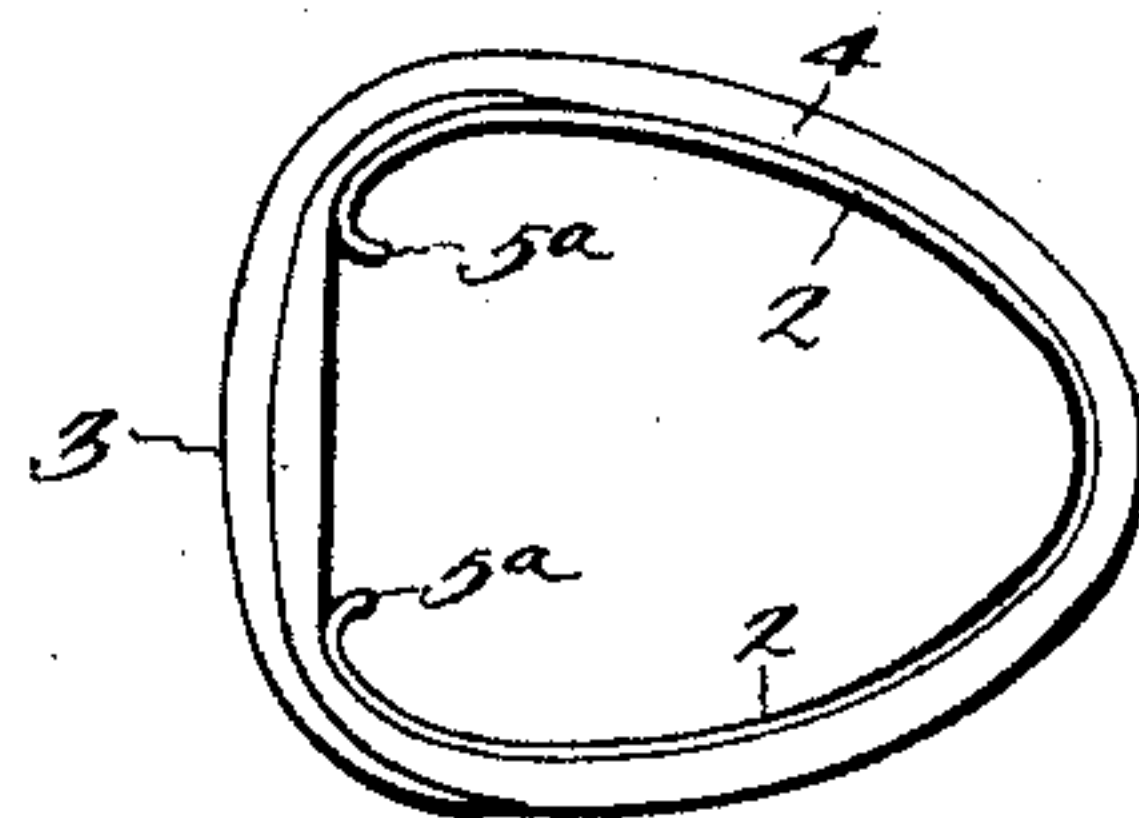


Fig. 5.

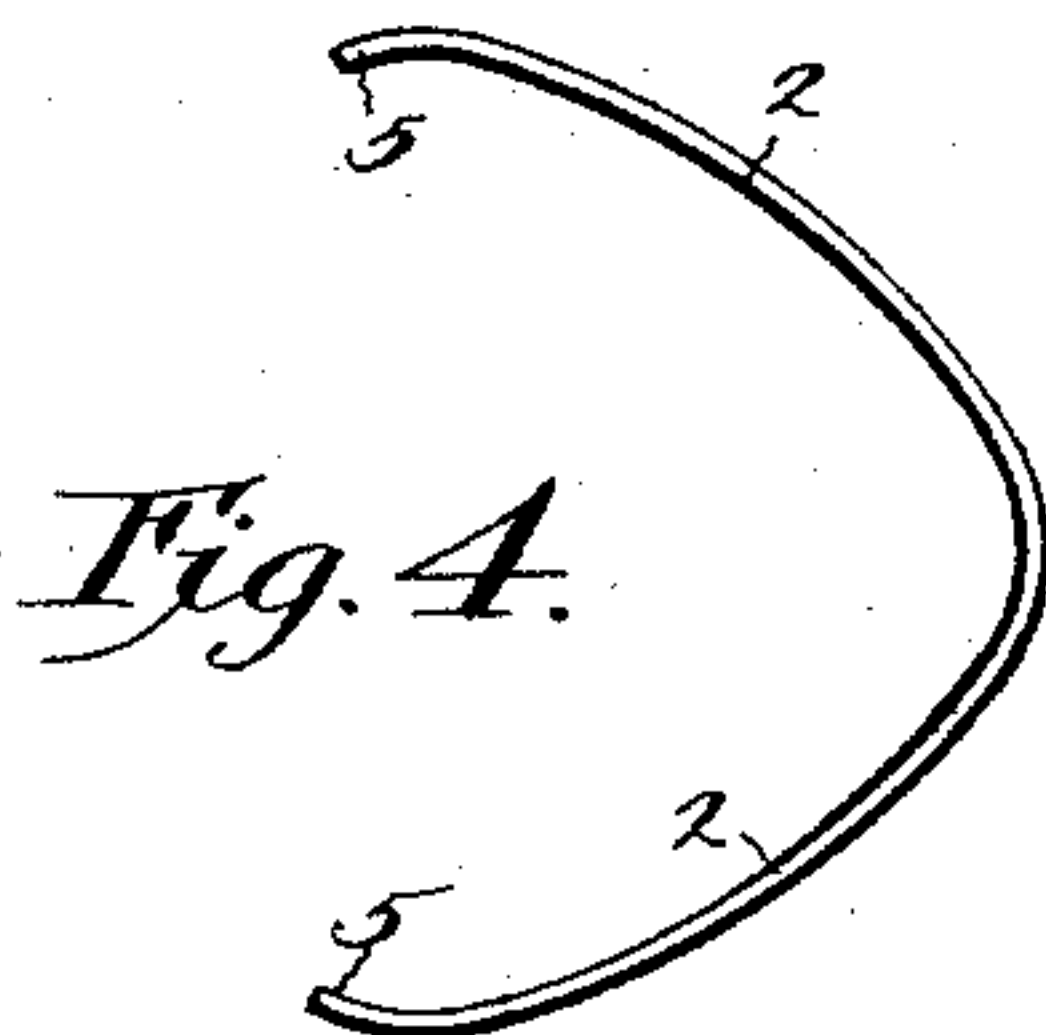


Fig. 4.

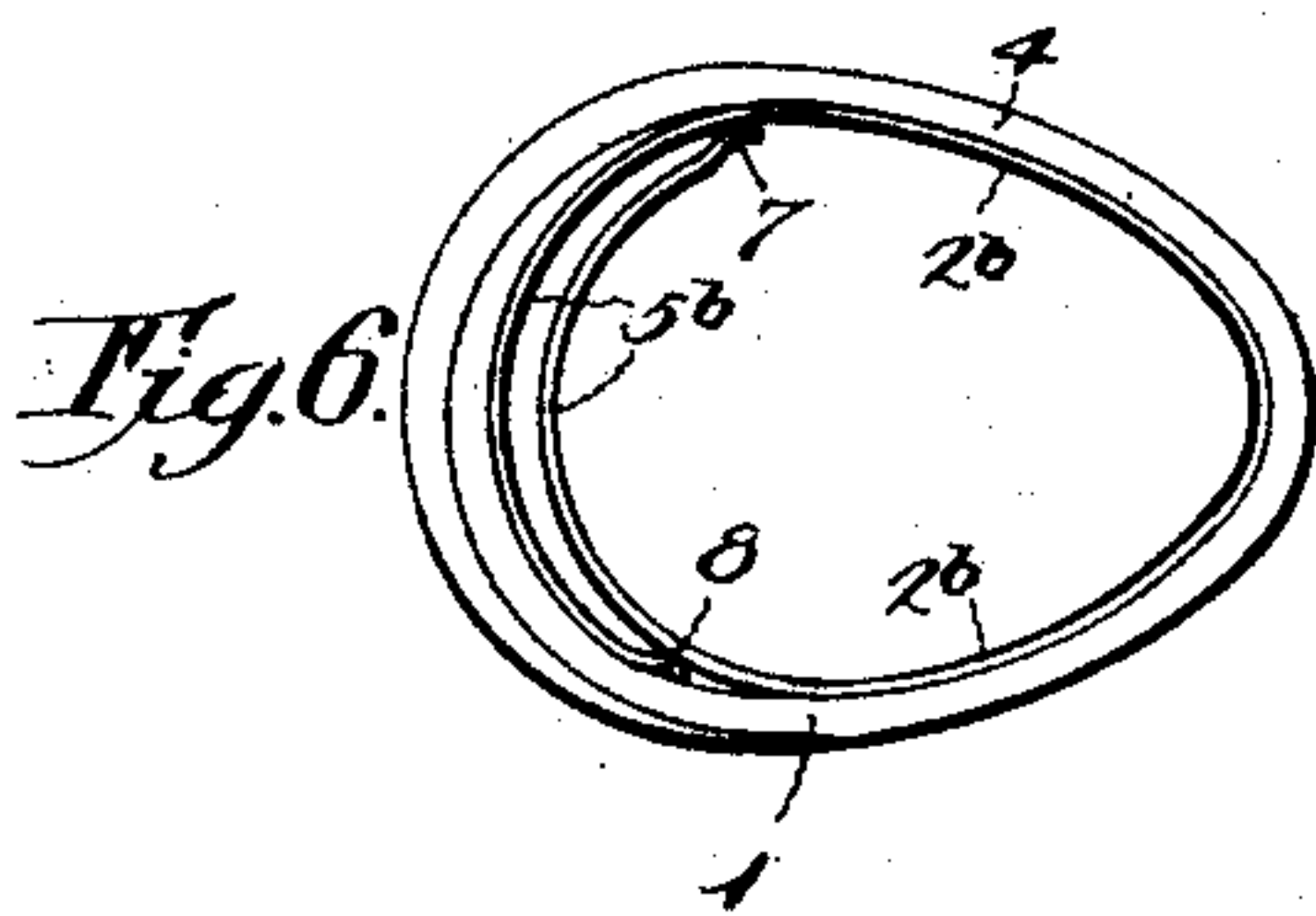


Fig. 6.

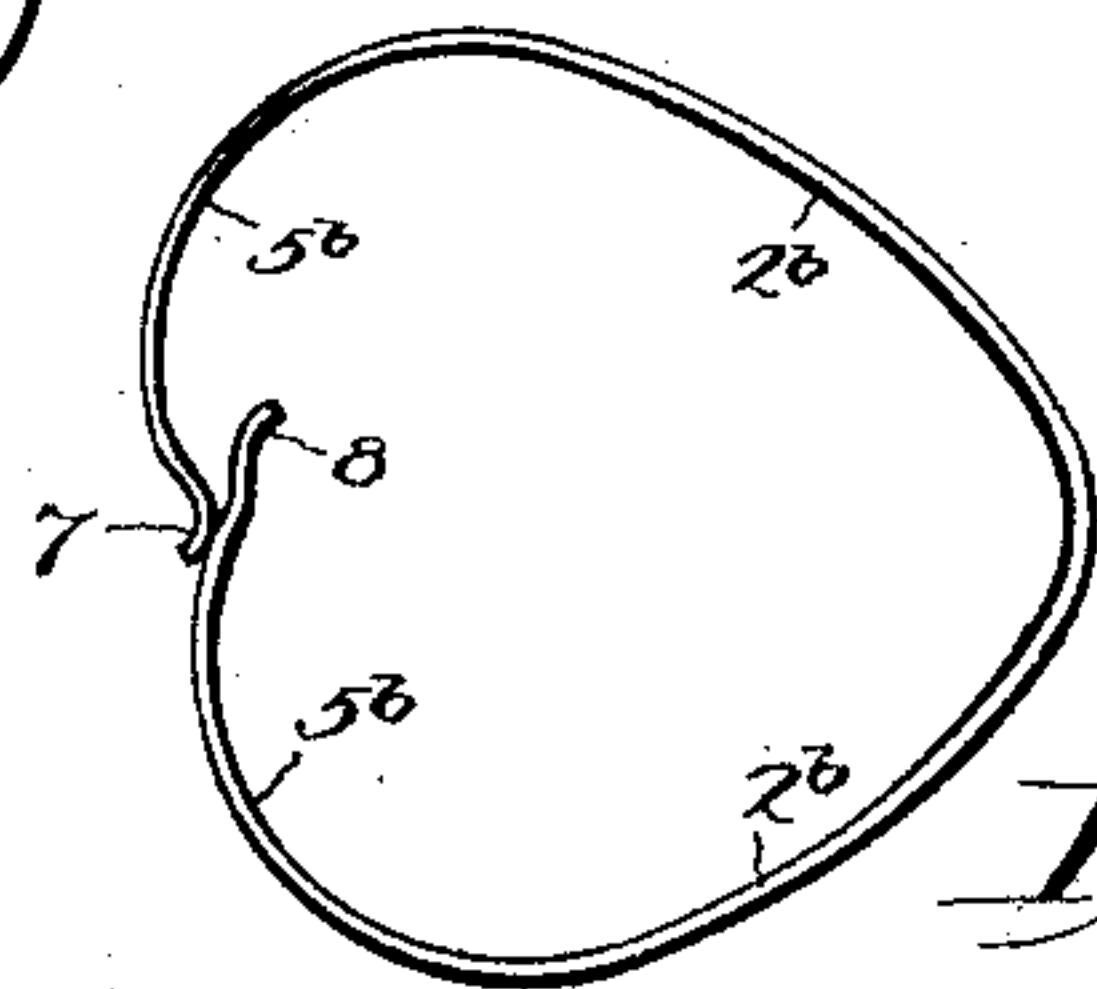


Fig. 7.

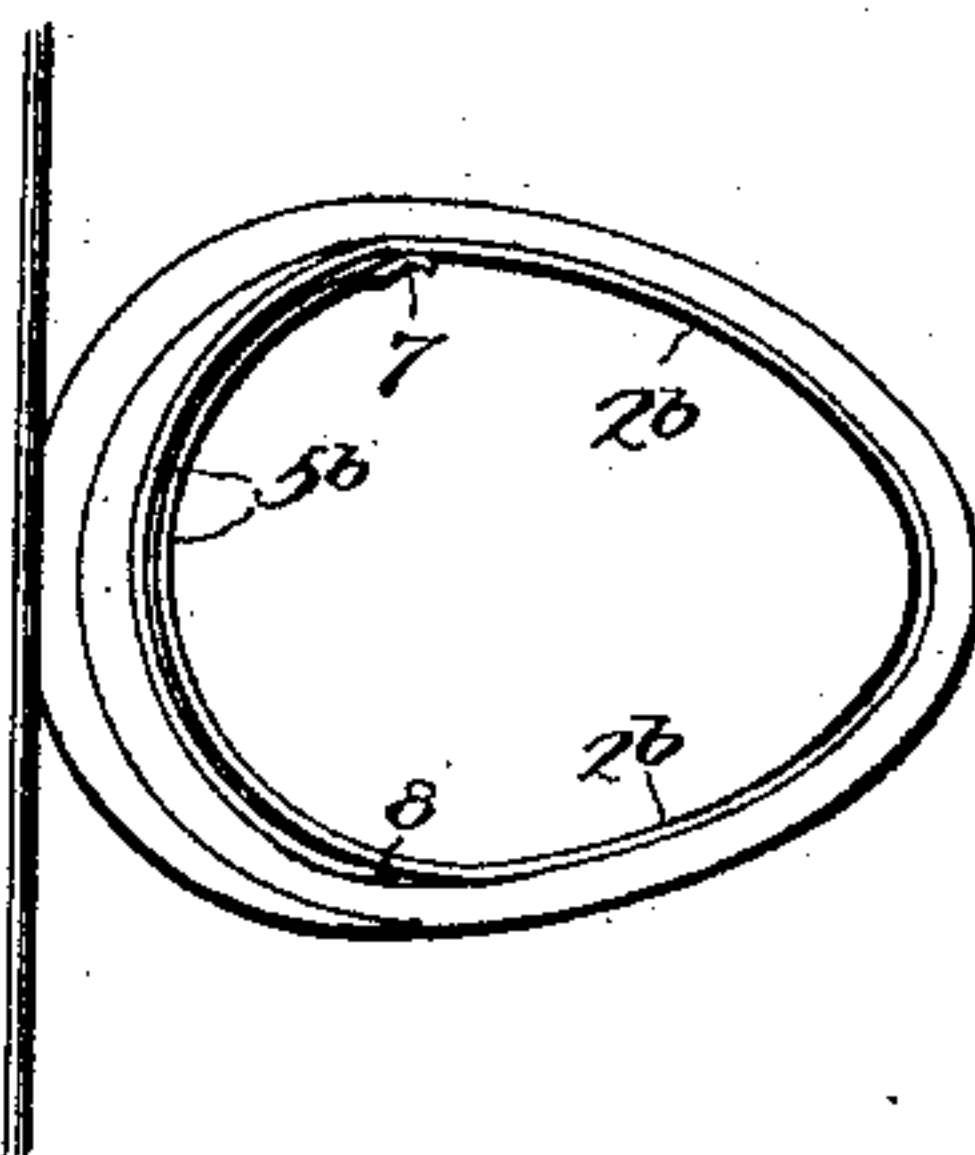


Fig. 6<sup>a</sup>

Witnesses

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# UNITED STATES PATENT OFFICE.

SHILOH W. DURHAM, OF BUSHNELL, ILLINOIS.

## HAMMER-HEAD FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 620,430, dated February 28, 1899.

Application filed June 18, 1898. Serial No. 683,819. (No model.)

*To all whom it may concern:*

Be it known that I, SHILOH W. DURHAM, a citizen of the United States, residing at Bushnell, in the county of McDonough and State of Illinois, have invented a new and useful Hammer-Head for Pianos, of which the following is a specification.

My invention relates to hammer-heads for pianos and similar instruments, and has for its object to provide a yielding hammer-head of simple construction adapted to retain its uncompressed condition of impact-face during protracted use, said impact-face being preserved in the desired position by the tension of repellent spring-arms, which form the body portion or frame of the hammer-head.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a portion of a hammer having a head constructed in accordance with my invention, the same having one form of frame or body portion in which the essential features of my invention are embodied. Fig. 2 is an edge view of the same. Fig. 2<sup>a</sup> is a similar view showing the position of the impact-face when in contact with the piano-strings. Fig. 3 is an edge view of the clothing or band detached. Fig. 4 is a similar view of the hammer-head frame or body portion detached from the band and with its arms in their spread or expanded position. Fig. 5 is an edge view of a hammer-head wherein the extremities of the arms are abruptly curved or returned. Fig. 6 is a similar view showing another embodiment of my invention wherein the free ends of the arms are overlapped. Fig. 6<sup>a</sup> is a similar view showing the relative positions of the parts when the impact-face is in contact with the strings of the instrument. Fig. 7 is an edge view of the frame or body portion of the hammer-head shown in Fig. 6, the arms thereof being expanded or separated.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The hammer-head embodying my invention consists, essentially, of a clothed frame or body portion 1, consisting of repellent arms 2, having a tendency outward or from each other

to maintain the supported impact-face 3 in a taut normal condition, such impact-face being stretched by an outward tendency of the arms and being adapted to yield rearwardly when brought into forcible contact with the strings of an instrument to cause a corresponding inward-yielding movement of the arms at their free ends. This impact-face in the construction illustrated is formed by a doubled or reinforced portion of the band, of leather, felt, or equivalent material, forming the exterior clothing 4, and, as shown, the reinforcement of the band or clothing to constitute the impact-face may be produced by overlapping the free ends of such band or strip of clothing. This, however, is only one construction of the impact-face, of which there may be numerous modifications apparent to those skilled in the art, the essential feature being a sufficient yielding portion of the band or clothing to come in contact with the strings of the instrument and produce the desired vibration thereof, such impact-face being held taut or in its normal position by the outward strain or repulsion of the arms which carry the same. The extremities of the arms may be curved inwardly, as shown at 5, to round the front corners of the head, or, as illustrated in Fig. 5, the rounding of the extremities of the arms may be abrupt to form return-bends 5<sup>a</sup>. Also the preferred construction of the frame or body portion of the head involves the formation of the arms 2 from a single continuous strip or blank of sheet metal—such as steel or other equivalent elastic material—whereby the manufacture of the device is simplified, and by forming the impact-face by overlapping the extremities of a band or clothing-strip extending entirely around the frame, it will be seen that the band is utilized to increase the connected spring-arms and that no auxiliary connection between the band and body portion is required, the frame being held in the proper position by the band and the band being held taut by an outward tendency of the arms of the frame. Any suitable means of connection between the head and the shank or shaft 6 of the hammer may be adopted.

In the modified construction illustrated in Figs. 6 to 7 the ends of the arms 2<sup>b</sup> of the elastic frame or body portion instead of terminating short of each other to form an in-



tervening space overlap; but the overlapping portions 5<sup>b</sup> of the arms are held out of contact with each other except at the terminals of the arms, where slight bends 7 and 8 are formed, respectively, on the outer and inner overlapped portions. This spacing of the overlapped portions 5<sup>b</sup> is designed to reduce the friction therebetween to the minimum and allow inward yielding of the arms when the impact-face comes in contact with the strings of the instrument, as in the constructions illustrated in Figs. 1 to 5, inclusive.

I have found in practice that the impact-face of a hammer constructed as described retains its original condition through long use and is not affected by age, or, in other words, does not become hardened and unsympathetic by reason of either protracted use or age. Furthermore, the cushion effect due to the terminal support of the impact-face, particularly in those forms of my invention illustrated in Figs. 1 to 5, inclusive, is of advantage in softening the tone emitted by strings struck by a hammer constructed as described.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. A hammer-head having exteriorly-clothed spring-arms, with their free ends located near the point of impact, substantially as specified.

2. A hammer-head having inwardly-yielding spring-arms, with their free ends located near the point of impact, substantially as specified.

3. A hollow hammer-head having a body portion consisting of repellent spring-arms, and a yielding impact-face connecting and held taut by said arms, substantially as specified.

4. A hollow hammer-head consisting of repellent spring-arms, connected and held at a normal interval by a flexible impact-face, substantially as specified.

5. A hollow hammer-head consisting of repellent spring-arms having relatively-movable terminals, and a flexible connection forming an impact-face between said arms, substantially as specified.

6. A hammer-head having repellent termi-

nally-spaced spring-arms, and an impact-face connecting and spanning the interval between said arms and holding their terminals in their normal positions, substantially as specified.

7. A hammer-head having a frame or body portion consisting of connected repellent spring-arms terminally free at the impact end of the head, and an impact-face connecting said arms near their free ends, substantially as specified.

8. A hammer-head having a frame or body portion consisting of connected spring-arms spaced apart and terminally free at the impact end of the head, and a flexible impact-face connecting and supported by the free ends of the arms, substantially as specified.

9. A hammer-head having opposite repellent spring-arms spaced apart at their free ends, and a terminally-supported flexible impact-face connecting the free ends of said arms and holding them at a normal interval, substantially as specified.

10. A hammer-head having a frame or body portion consisting of a continuous bowed spring forming opposite repellent arms spaced apart at their free ends and provided with return-bends, and a flexible impact-face connecting and supported by said arms, substantially as specified.

11. A hammer-head having a body portion consisting of a continuous bowed spring forming opposite terminally-free repellent arms, and a clothing-band inclosing said spring, substantially as specified.

12. A hammer-head having a body portion or frame consisting of a bowed spring, and an inclosing band of yielding material, consisting of a strip doubled or reinforced at one end of the bowed spring to form an impact-face, substantially as specified.

13. A hammer-head having a frame or body portion consisting of a bowed spring, and an inclosing band of yielding material consisting of a strip fitted exteriorly upon said frame with its extremities overlapped to form a reinforced impact-face, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SHILOH W. DURHAM.

Witnesses:

PATRICK HAGGERTY,  
A. B. HIGGANS.