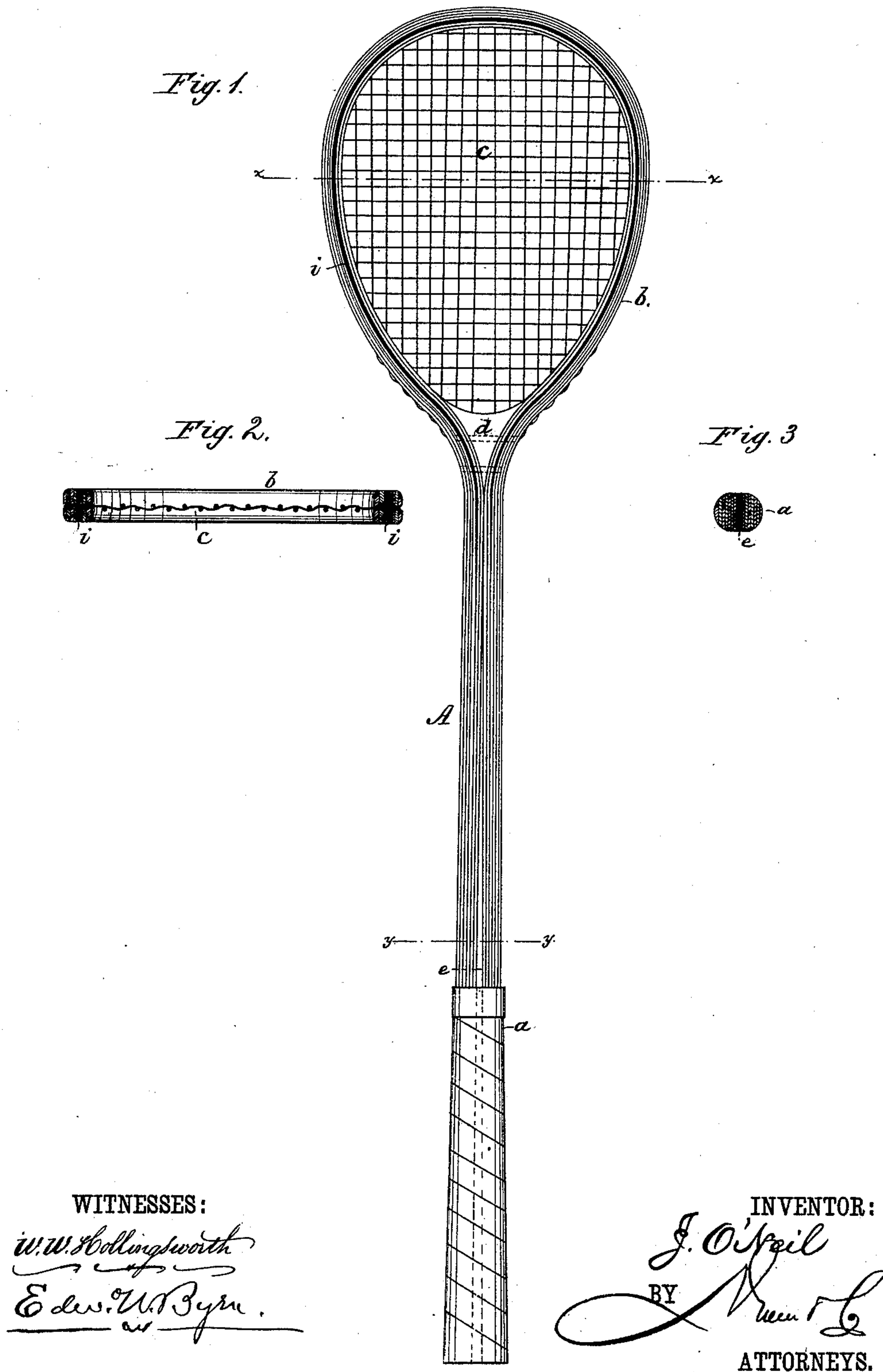


J. O'NEIL,
Game-Bat.

No. 223,163.

Patented Dec. 30, 1879.



UNITED STATES PATENT OFFICE.

JAMES O'NEIL, OF NEW YORK, N. Y.

IMPROVEMENT IN GAME-BATS.

Specification forming part of Letters Patent No. **223,163**, dated December 30, 1879; application filed October 9, 1879.

To all whom it may concern:

Be it known that I, JAMES O'NEIL, of the city, county, and State of New York, have invented a new and Improved Game-Bat; 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 which—

Figure 1 is a face view of the bat. Fig. 2 is a section through line *x x* of Fig. 1. Fig. 3 is a section through line *y y* of Fig. 1.

My invention relates to bats for racket, tennis, and other games.

Bats of this kind have heretofore been made of a single strip of wood steamed and bent to the required shape, which steaming and bending injure the strength of the wood, so that in use many of the bats break.

The object of my invention is to construct a bat that shall be lighter and at the same time stronger and more durable; and to this end the invention consists in a game-bat composed of thin strips of wood bent double upon a form, and secured one upon the other by cement. The strips are spread at the bend to the required shape for the bat, and united at their ends to form the handle.

The invention also consists in interposing between the layers of the strips forming the bow a strip of vulcanized or other fiber for imparting greater strength and elasticity.

In the drawings, A is the bat, of which *a* is the handle, and *b* the head, bow, or striking end, made of the usual oval shape, with a woven filling, *c*, of catgut or other material. The bat is formed of thin strips or veneers of wood laid together and secured by cement.

In making the bat the strips are bent double, one upon the other, around a suitable form to give the required shape at the bend for the end *b*, and are cemented or glued together as they are laid up. At the crotch a solid triangular piece, *d*, is inserted and cemented, and the bat strengthened at that point by a cross-pin. The ends of the strips are then brought together to form the handle, and a tapering piece, *e*, inserted to give the required swell to the outer end of the handle. The bat may then be dressed and finished as required.

To give greater strength and elasticity to the bat, however, and to enable it the better to resist warping from moisture absorbed from

the earth when lying on the ground, I cement, by preference, in the bowed portion of the frame a strip, *i*, of vulcanized fiber, whose ends are allowed to extend a short distance up the handle. This vulcanized fiber, by its lack of absorbent properties, does not become affected by moisture, and resists the tendency of the bowed portion to warp out of a true plane when laid on the ground.

I do not limit myself, however, to the use of this strip of vulcanized fiber, for the reason that the laminated structure of the bowed portion of the bat of itself very greatly strengthens the bats, and resists their tendency to warp out of a true plane.

In pointing out more fully the distinctive advantages which my invention possesses over a bat composed of a single bent bar, I would state that the latter being homogeneous in transverse section, it can only be bent by steaming, and even then, after it has been made to assume the proper shape, its tension is out of balance, for the reason that the outer portion of the bend is strained under too great tension, while the inner portion is cramped or crowded. The result is, that when acted upon by such influence as dew, dampness from the earth, and the constant tension of the catgut, the bow is warped out of a true plane, and the unbalanced strain of the wood frequently allows the bat to break when in use.

In making the bowed portion laminated and built of strips, the tension throughout the transverse section of the bow is uniform from the inner side to the outer side. As, moreover, a bar or strip is stronger in its greatest transverse dimension to resist bending strains, the flat strips are better able to resist a departure from the plane of the bow, such as might be caused by the laying of the bat on its side on damp grass. This laminated structure also permits the bat to be made much lighter and more ornamental.

In defining the state of the art preceding my invention with greater exactness, I would state that it is an improvement upon that form of bat shown and described in English Patent No. 4,189 of 1877, which I have hereinbefore referred to, descriptively, as being made of a single piece of wood steamed and bent, with its two ends brought together to form a handle.

I would have it understood, also, that I am

aware that articles have been made of layers of veneers glued together, as shown—for instance, in the picture-frame covered in United States Patent No. 99,022. The special application of this laminated structure to a game-bat in the peculiar manner described has, however, value which finds no corresponding existence in other articles heretofore made in layers.

Having thus described my invention, what I claim as new is—

1. A game-bat consisting of a filling, and a frame composed of layers or veneers of wood glued together, with the layers of wood in planes at right angles to the plane of the fill-

ing, the said frame being bowed to receive and distend the filling, and the ends of the frame then joined and extended to form a handle, substantially as described, and for the purpose set forth.

2. The game-bat formed of continuous strips or veneers of wood, combined with a strip of vulcanized fiber or other fabric incorporated in the bowed portion and secured together by glue or cement, substantially as and for the purposes set forth.

JAMES O'NEIL.

Witnesses:

EDGAR TATE,

C. SEDGWICK.