(No Model.)

N. H. WHITTEN.

BOOK SUPPORTING ATTACHMENT FOR FURNITURE.

No. 454,553. Patented June 23, 1891.

Fig. 1.

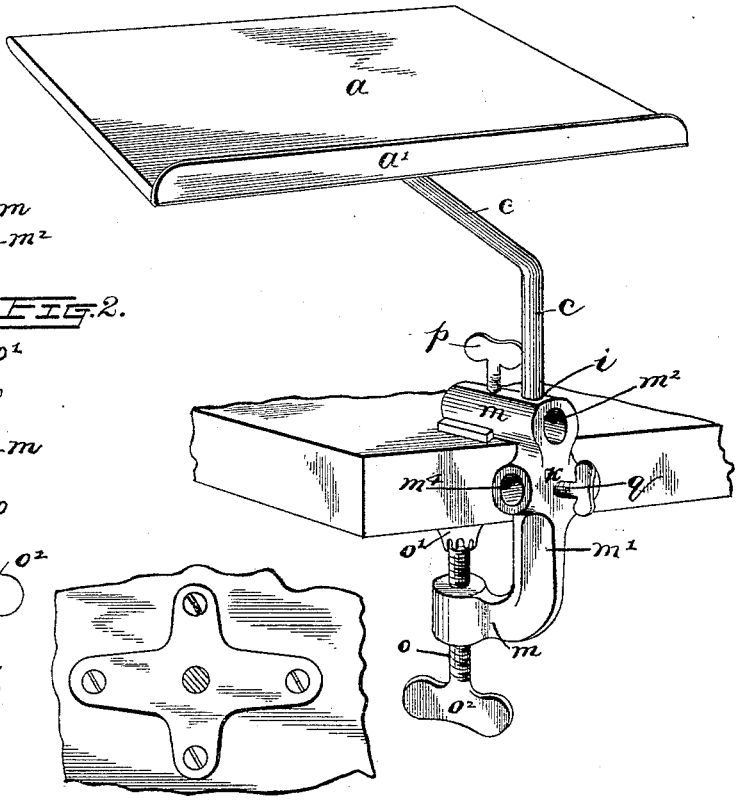


Fig. 2.

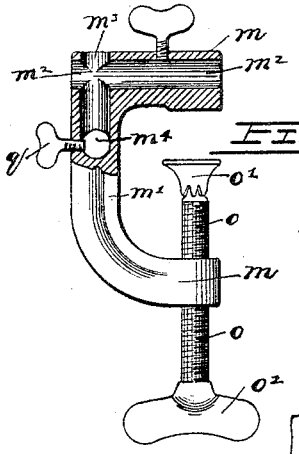


Fig. 5.

Fig. 3.

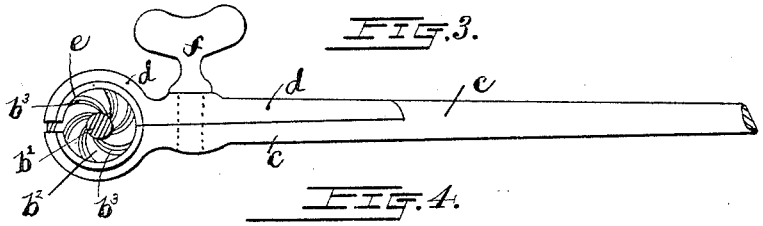
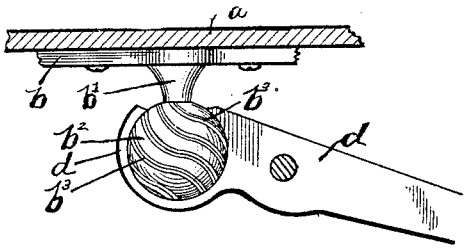


Fig. 4.



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BOOK-SUPPORTING ATTACHMENT FOR FURNITURE.

SPECIFICATION forming part of Letters Patent No. 454,553, dated June 23, 1891.

Application filed January 24, 1891. Serial No. 378,983. (No model.)

To all whom it may concern:

Be it known that I, NERI H. WHITTEN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Book-Supporting Attachments for Furniture, of which the following is a specification.

My invention relates to that class of supports which are designed to be attached to and suspended from chairs, desks, or other articles of furniture, and are designed for the support of books, papers, &c., wherein a suitable book or paper holding table or plate is adjustably connected with a supporting-arm by a ball-and-socket connection.

The objects of my invention are to provide an improved connection of said arm and table of this class by means of which an exceedingly firm connection of the ball and socket may be readily produced, which will resist great weight or pressure upon the table; to provide a superior form of socket-clamp which will admit of the connection of the same with various forms of chair-arms, desk-tops, and projecting portions of furniture in such manner as to support the table-holding arm in the desired position, and to accomplish these objects in a comparatively simple, neat, and inexpensive manner.

In the accompanying drawings, Figure 1 is a view in perspective of my improved book-support, showing the same supported from a horizontal furniture projection. Fig. 2 is a view, partly in section and partly in elevation, of the socket-clamp. Fig. 3 is a transverse section of the bearing-ball stem taken beneath the table-top and showing a plan view of the socketed portion of the table-supporting arm. Fig. 4 is a sectional view through the central portion of the table or book holding plate, and the socketed portion of the supporting-arm, showing the joint-ball in elevation therein; and Fig. 5 is a view on the same plane as that taken in Fig. 3, looking upward.

Similar letters refer to similar parts throughout the several views.

a represents the table or plate, which is preferably oblong in form and which has projecting upwardly from one of its long edges a flange *a'*. Secured longitudinally to the under side of the plate *a* is a suitable metallic bar *b*, which has formed centrally therewith and extending downwardly therefrom a short stem or neck *b'*, on the lower end of which is formed a bearing or joint ball b^2. Formed in the surface of the ball b^2 are grooves or corrugations b^3, which pass spirally about said ball-surface.

c represents a supporting-arm, the upper termination or head of which is slightly enlarged, as shown, said enlargement having formed therein in one side thereof a half ball-socket. Against the socketed side of the upper portion of the arm *c* is supported, as shown, a socket-plate *d*, the flat portion of which bears in a suitable recess formed in the inner side of a portion of the arm *c*. This plate *d* has formed in its head or forward end a half ball-socket corresponding with the half-socket of the arm *c*, said half-socketed portions being supported opposite each other to form, as shown, a ball-socket *e*. The plate *d* and arm *c* are adjustably connected by means of a thumb-screw *f* in rear of said socket portions.

As shown in the drawings, the ball-socket formed as above described forms a seat for ball *b'* in the manner common to ball-and-socket joints. From the joint thus formed the arm *f* extends outward from a desired incline and thence downward and has an extended tenon formed on its lower end, resulting in the production of a shoulder *i*.

k represents my improved socket-clamp, which is adapted to receive and support, as hereinafter described, the arm *c*. The body of said clamp is, as shown, formed of two clamping-jaws *m*, which project from the ends of an arm *m'*. The upper jaw-arm *m'* is provided throughout its length with a central bore or socket m^2, which is continued through the arm *m'*. The outer end portion of the socket m^2 is intersected by a socket m^3, formed at right angles therewith in the upper end portion of the arm *m'* and extending nearly to the center of the length of the latter. The lower end of the socket *m* is intersected by a transverse socket m^4, which is formed at right angles with the sockets m^2 and m^3 and extends through the arm *m'*. The lower clamp-arm *m* is provided with a screw-hole parallel with the arm *m'*, through which passes a clamping-screw *o*, the inner end of which is pro-

vided with a suitable clamping-head o' and the outer end of which has an enlarged head or finger-piece o^2. The under or inner side of the jaw-arm m is preferably flattened, as shown, while a screw-hole is formed in said arm at about the center of its length to receive a set-screw p. The arm m' at a point opposite the intersection of the sockets $m^3 m^4$ is provided with a screw-hole extending at right angles with said socket portions, which is adapted to receive a set-screw q.

As shown in Fig. 1 of the drawings, when it is desired to support the book-holding table or plate from the projecting edge of a horizontal desk, chair-arm, or other article of furniture, the tubular jaw m rests upon the upper side of the furniture projection, while the screw o is turned until its clamp-head o' is pressed firmly against the under side of said furniture projection. In this position the tenon or smaller end of the arm c may be inserted within the socket m^3 to conveniently support the plate a from the article of furniture, the set-screw q being turned inward sufficiently to engage with the surface of the arm c and hold it by frictional contact therewith in the desired position.

It will readily be seen that in case the nature of the article of furniture to which the clamp is to be attached makes it more convenient to so connect the clamp therewith as to bring the jaw m in a vertical position, the lower portion of the arm c may be retained in the desired vertical position by inserting it in the upper end of the socket m^2, in which position the arm c will be held by the set-screw p. It will also be seen that should the clamp be so connected with the article of furniture as to bring the socket m^4 in a vertical position the upper end of said socket m^4 may conveniently receive the vertical portion of the arm c, in which position said arm may be held by the set-screw q.

From the construction shown and described it is observed that my improved clamp is adapted to be connected with various forms of furniture parts and at the same time admit of the lower portion of the supporting-arm c being held in a vertical position thereby. The sockets m^2 and m^4 formed in said clamp, passing entirely through the parts of the clamp in which they are formed, results in the formation of an open mouth at each end of said socketed portions, thus admitting of each of said sockets being utilized for two positions of the clamp and admitting in connection with the socket m^3 of the clamp being supported in five positions without causing a variation of the lower portion of the arm c from a vertical position.

The socketed portions of the arm c and plate d being sufficiently separated to receive the ball b^2, the latter is inserted and inclosed by said socketed portions and the set-screw f turned until the inner surfaces of the socketed portions of the plate d and arm c are clamped firmly against the grooved surface of the ball. In order to adjust the plate or table-top a to different angles the ball may be loosened in its socket by turning the set-screw f, the latter being tightened after the ball has been turned sufficiently.

I am aware that ball-and-socket joints have been utilized heretofore in connection with a book-support; but in the use of these devices considerable difficulty has been experienced in clamping the half-socketed portions with sufficient firmness against the ball to prevent the latter turning when the table-top is submitted to a heavy weight or pressure. It has been demonstrated that this difficulty is overcome by forming in said ball the spiral grooves b^3 herein shown and described. The formation of these grooves results, as will readily be seen, in the production of numerous edges or breaks in the surface, which greatly increase the friction between the socketed parts and the ball, and said grooves, being formed spirally therein, present edges at such varying angles as to give a largely-increased edge surface to said ball.

The construction herein shown and described is exceedingly simple and effective and has been found of great utility.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a book-supporting attachment for furniture, the combination, with a supporting-plate a, a jointed ball projecting therefrom, and spiral grooves formed in the surface of said jointed ball, of a supporting-arm, a detachable plate d, adjustably connected therewith, said arm and plate having formed therein half ball-sockets adapted to embrace, as described, said grooved joint-ball, and a socket-clamp adapted to be attached to an article of furniture and to receive and support the arm c, substantially as described.

NERI H. WHITTEN.

In presence of—
C. C. SHEPHERD,
E. E. BRAGG.