July 6, 1943. M. R. SCHALL 2,323,624

SWIVEL

Filed Aug. 25, 1941

Fig. 1

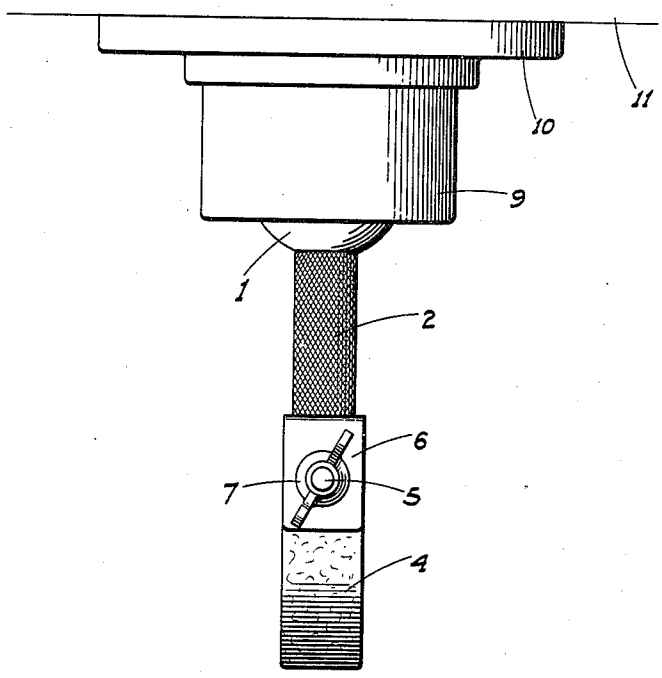


Fig. 2

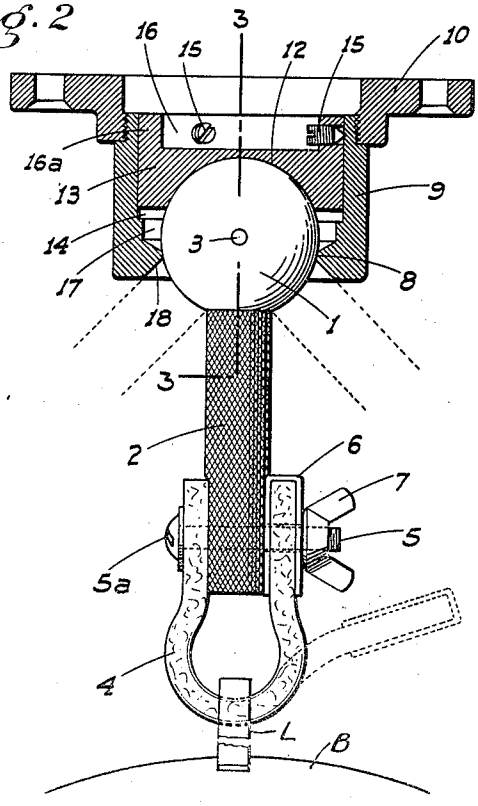
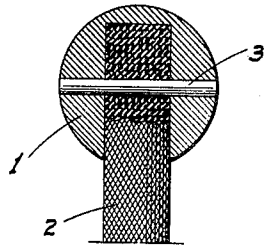


Fig. 3



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Patented July 6, 1943

2,323,624

UNITED STATES PATENT OFFICE

2,323,624

SWIVEL

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Application August 25, 1941, Serial No. 408,221

6 Claims. (Cl. 272—78)

This invention relates to swivel mounting units for punching bags; my principal objects being to provide a device for the purpose so constructed that the bag will have equal freedom of movement in any direction radially of the axis of the swivel; one which includes a ball and socket connection having adjustment means so arranged that the ball may be easily maintained against loose play in its socket, and without the possibility of the ball rattling or becoming noisy in operation regardless of wear; one having a ball adjustment means adapted to be very easily and quickly operated while at the same time being enclosed so that it cannot be inadvertently disturbed or readily tampered with; a swivel unit which enables the bag to be easily and quickly attached or detached, and one which will withstand long use without material wear. Also, the stem which depends from the ball may be easily and quickly replaced when necessary, and the bag-loop engaging member is of such a nature that the loop suffers little wear, in contrast to the usual bag supporting devices now in use.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly useful for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is an exterior elevation of the swivel.

Figure 2 is a similar view but partly in section and taken in a plane at 90° to Fig. 1.

Figure 3 is a diametral section of the ball and the adjacent portion of the depending stem, taken on the line 3—3 of Fig. 2.

Referring now more particularly to the characters of reference on the drawing, the swivel comprises a metal ball 1, from which a cylindrical stem 2 depends. This stem is of a tough highly resistant but non-extensible material, preferably a woven fabric and rubber composition known as "Bixler Cord," which I have found extremely suitable for my purpose. This stem depends with a snug fit into a deep radial socket in the ball and is held in place by a diametral cross pin 3 mounted in the ball and projecting through the stem with a tight fit, as shown in Fig. 3. This pin, however, is removable.

A leather strap 4 normally bent to U-shape form depends from the lower end of the stem, the sides of the strap abutting against the lower portion of the stem on its opposite sides. A bolt 5 projects through the engaging portions of the strap and stem. The head 5a of the bolt, which may be considered as permanently mounted in the stem, holds one side of the strap against the stem while the outer end of the ball projects freely through the opposite side of the strap which is there reinforced by a metal binding 6. A removable wing nut 7 on the bolt releasably clamps the binding against the stem. This construction enables the normally closed eye in the strap below the stem to be readily opened up for the reception of the usual loop L on top of the punching bag B, by removing the wing nut and withdrawing the adjacent side of the strap from the bolt, as indicated in dotted lines on Fig. 2.

The ball is supported in a seat 8 formed in a cup 9 which removably screws into a plate or flange 10 by which the swivel is supported in depending relation to the rebound platform 11. The upper portion of the ball projects into a socket 12 of corresponding shape which is formed in the under face of a cylindrical head 13 slidable with a close running fit in the bore 14 of the cup 9 above the seat 8. The head is adjustably held in a predetermined position in the cup by a plurality of set screws 15 mounted radially in the head near the top and projecting from its periphery to engage the wall of the bore 14. The heads of the set screws are exposed for operation in a circular well or depression 16 formed in the head at the top, the well thus providing a peripheral flange 16a in which the set screws are mounted.

By reason of this construction the ball may be accurately seated, without any play or binding and regardless of wear as it occurs, by loosening the set screws, allowing the head (which is relatively heavy) to bear of its own weight against the ball, and then tightening the set screws. This arrangement also provides a grease retaining chamber 17 between the head and the seat 8.

The cup is of course formed with an opening immediately below the seat 8 which exposes the adjacent portion of the ball, and through which the stem depends, said opening being of considerably greater diameter than the stem so as to allow of a considerable arcuate movement of the stem in any direction from the perpendicular position. Immediately below this opening, the bottom of the cup is formed with a taper or downwardly sloping annular surface radiating out from said opening, as shown at 18. This

surface is disposed relative to the center of the ball and to the diameter of the stem so as to flatly engage the portion of the stem immediately adjacent the ball when the stem is deflected laterally to its limit of movement, as indicated in dotted lines in Fig. 2. This prevents excessive bending of the stem immediately adjacent the ball and avoids possible cutting of the stem where it enters the ball.

The ball seat adjustment means being enclosed it cannot be tampered with or disturbed from the outside, while at the same time it is a very easy matter to unscrew and remove the cup from the supporting flange 10, and adjust the head as may be necessary to provide for the desired snug fit of the ball. The stem 2 being cylindrical and universally resilient with respect to deflection from a straight axial plane, the bag supported from said stem may hit the platform at any point with equal effectiveness and smoothness.

By reason of the various features of construction, as above described, the swivel is absolutely noiseless in operation, the stem 2 may be easily and quickly replaced, while the loop of the bag supported by the swivel will wear indefinitely. This is because the leather loop is engaged by the leather strap 4, avoiding appreciable wear either of the loop or of the strap.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A swivel mounting for a punching bag comprising a ball, a socket unit for the ball having a bottom opening, exposing the bottom portion of the ball, means to mount the unit in depending relation to a platform, and a non-extensible resilient cylindrical stem deflectible universally relative to a straight axial line, secured in and depending from the ball radially thereof; there being a bag-loop engaging element on the lower end of the stem.

2. In a swivel mounting for a punching bag, a depending supporting stem and a flexible strap normally bent to U-shaped form to engage the loop of a bag, the end portions of said strap being normally disposed against opposite sides of the stem adjacent its lower end and means securing one end portion of said strap to the stem and releasably holding the other end portion of the strap against the stem whereby said other end portion may be moved away from the stem and projected through the bag loop.

3. A swivel mounting for a punching bag comprising a ball, a socket unit for the ball, means to mount the unit in depending relation to a platform, said unit including a lower member having a bottom opening exposing the lower portion of the ball and having a seat for the ball immediately above the opening, a universally resilient cylindrical stem secured in and depending from the ball radially thereof and having a bag-loop engaging element on its lower end, the diameter of the stem being less than that of the opening, whereby the stem may swivel with the ball through a predetermined arc in any direction from a perpendicular position of the stem; the member below the opening being formed with a slope diverging from the opening at an angle such as to flatly engage the adjacent portion of the stem when the latter remains radial with the ball and has reached its limit of arcuate movement from said perpendicular position.

4. In a swivel mounting unit, a ball, a cup having an opening in the bottom to expose the adjacent portion of the ball and a seat for the ball inwardly of and adjacent said opening, a head slidably projecting into the cup from its outer end and having a socket to engage the ball in opposition to the seat, and a radial set screw between the cup and head to hold the latter against movement in the cup.

5. In a swivel mounting unit, a ball, a cup having an opening in the bottom to expose the adjacent portion of the ball and a seat for the ball inwardly of and adjacent said opening, a head slidably projecting into the cup from its outer end and having a socket to engage the ball in opposition to the seat, the head having a peripheral flange about its end opposite the socket, and a set screw mounted in said flange radially of the head and releasably engaging the cup, the screw being operable from radially inward of the flange.

6. A swivel mounting for a punching bag including a flange adapted to be mounted on a rebound platform in depending relation thereto, a cup removably supported by and depending from the flange, the cup having a bottom opening and a ball seat immediately above the opening, a ball in the cup engaging the seat, a bag supporting unit secured in and depending from the ball, and an adjustable ball-socket head slidable in the cup and engaging the ball; there being means between the head and cup to clamp the latter against movement.

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