Oct. 16, 1928.

1,688,033

R. S. BLAIR

ATHLETIC APPARATUS

Filed March 22, 1924

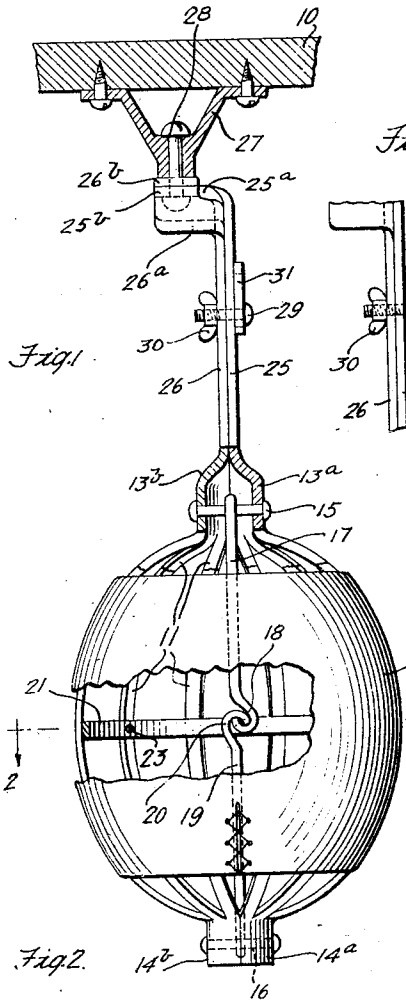


Fig.1

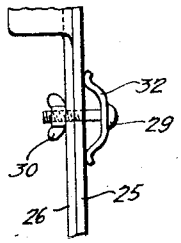


Fig.4.

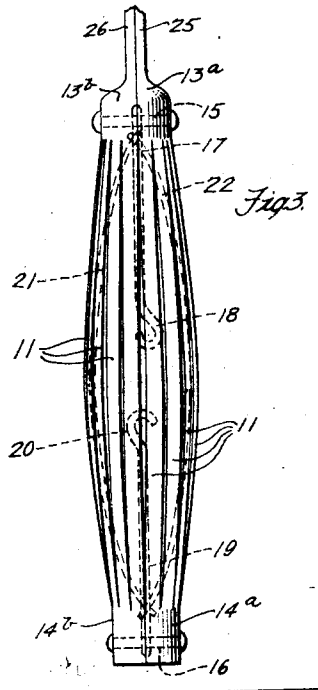


Fig.3.

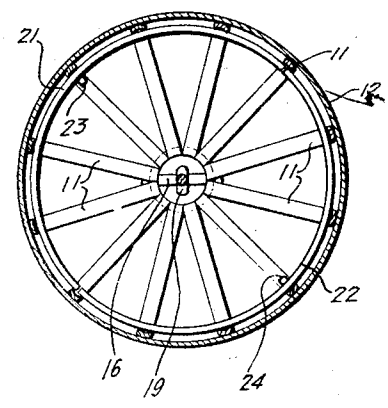


Fig.2.

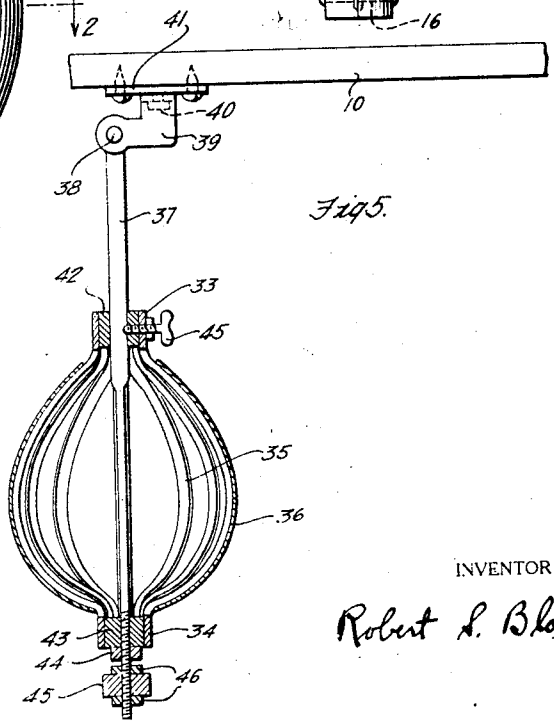


Fig.5.

INVENTOR

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Patented Oct. 16, 1928. 1,688,033

UNITED STATES PATENT OFFICE.

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ATHLETIC APPARATUS.

Application filed March 22, 1924. Serial No. 701,001.

This invention relates to athletic apparatus and with regard to certain more specific features thereof to such athletic apparatus as punching bags and the like.

One of the objects of the invention is to provide a construction of the above nature practical and efficient and capable of meeting the requirements of use in a highly satisfactory manner. Another object is to provide apparatus of the above nature which is simply made and inexpensive. Another object is to provide such apparatus strong and durable and capable of affording long continued service. Other objects will be in part obvious or in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing in which are shown one or more various possible embodiments of the several features of this invention,

Figure 1 is a side elevation of a punching bag, certain parts being cut away to better disclose the structure.

Figure 2 is a section taken substantially along the line 2—2 of Figure 1.

Figure 3 shows a portion of the apparatus of Figure 1 in collapsed position.

Figure 4 is a slightly modified form of certain parts shown in Figure 1, and

Figure 5 shows in section a modified form of punching bag.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Referring now to the drawing in detail with reference first to Figure 1, there is shown suspended from any suitable support 10 a bag having resilient characteristics and in this instance taking the form of a punching bag. It may be here noted that the term bag, as employed herein, is to be interpreted broadly throughout to comprehend various devices in the nature of a resilient ball or bag employed as athletic apparatus. This bag, as shown in Figure 1, comprises an inner supporting frame preferably formed of a plurality of resilient ribs 11, this inner frame being covered by an outer casing 12 of some suitable material, such as leather or heavy fabric. The ribs 11 in order to form the supporting frame of the desired rounded contour are connected together at their ends and arch outwardly therebetween in the desired shape. Preferably these ribs 11 are of metal such as a suitable spring steel and are formed and held in the desired outwardly curved positions in a manner which will now be described.

The ribs 11 merge at their upper ends in a tubular part 13 and at their lower ends in a tubular part 14, the part 13 being preferably formed in two halves 13^a and 13^b, and the part 14 being formed in two halves 14^a and 14^b. As viewed in Figure 1 therefore the right-hand half of the ribs 11 join the parts 13^a and 14^a and the left-hand half of the ribs 11 join the parts 13^b and 14^b. The frame work therefore comprises two sections which are held together by the rivet 15 passing through the tubular part 13 and by the rivet 16 passing through the tubular part 14. The complete frame work is preferably made from a single tubular member of metal having the desired resilient properties as above described. A tube, substantially of the size indicated by the tubular parts 13 and 14, is first split longitudinally into two halves; thereupon the ribs 11 are formed by longitudinally slitting the metal of each half between points adjacent their ends, leaving the tubular end portions 13 and 14. The frame work is shown in collapsed position in Figure 3 and its construction may be better realized by reference to this figure. After the formation of the ribs 11 by slitting the metal of the tube, the two halves are placed together and secured by the rivets 15 and 16.

Connected to the rivet 15 is a rod 17 extending downwardly toward the center of the frame work and terminating in a hook 18. Connected to the rivet 16 is a rod 19 extending upwardly within the frame work and terminating in a hook 20. By forcing the two tubular parts 13 and 14 toward each other, the ribs 11 are sprung outwardly and the engagement of the hooks 18 and 20, as shown in Figure 1 holds the parts in this position. The metal of the ribs 11 may be suitably weakened at the necessary points to cause the ribs to assume the desired contour when they are thus distorted or sprung outwardly. The frame work may be col-

lapsed to the position shown in Figure 3 by disengaging the hooks 18 and 20.

The outer casing 12 may completely cover the ribs 11 or, as shown in Figure 1, it may terminate a short distance from either end of the bag in this punching bag embodiment of the invention. The open ended covering shown in Figure 1 facilitates the connecting of the hooks 18 and 20 when the bag is distended. Preferably the covering is laced as indicated in Fig. 1 to insure its being at all times drawn tightly around the frame work.

Preferably, reinforcing means are provided for the ribs of the frame work, taking the form of a transverse member extending around the inside of the ribs adjacent the middle of the bag or at that portion thereof where its diameter is the greatest. Preferably two such members as shown at 21 and 22 respectively are provided, each extending half way around the frame and meeting at their ends. These members 21 and 22 are preferably of spring steel and at their central portions are pivoted to one of the ribs 11, as indicated at 23 and 24. Before the bag is collapsed these members are swung around their pivots out of transverse position and the bag may then be collapsed, the members 21 and 22 straightening out and assuming a position such as shown in dotted lines in Figure 3. It will be seen that a bag constructed as above described, is one which attains many practical advantages. It is springy and resilient and well adapted to meet the requirements of a punching bag or similar device employed as athletic apparatus. It is easily made and inexpensive and capable of affording almost unlimited service without wearing out. The ribs 11 being formed from a tubular member are curved on their outer surfaces as brought out in Figure 2 so that they present no sharp corners to cut into the leather or fabric. The bag is also easily collapsed and distended for convenient manipulation.

The bag employed as a punching bag may be suspended in any desired manner, but preferably it is suspended as shown in Figure 1. The two halves of the tubular part 13 extending upwardly are formed into flat spring members 25 and 26 which rest together as shown. The upper ends of these springs 25 and 26 are shaped to provide laterally extending portions 25^a and 26^a and overlapping flanges 25^b and 26^b. Secured to the support 10 is a bracket 27 in which is supported a vertical pin 28. The pin 28 passes through the flanges 26^a and 25^a and rotatably supports the springs 25 and 26 and the punching bag. This suspension by the pin 28 is therefore similar to a caster mounting. The bag, when it is struck, will swing about the pin 28 so that the lateral parts 25^a and 26^a are in line with the direction of the blow. The force of the blow is taken up by the spring 25—26 and the pivotal mounting causes the spring to so position itself at each blow that it is flatwise with respect to the direction of the blow. At each blow therefore the spring 25—26 stores up the energy of the blow in flat-wise bending and expends this energy in returning the bag. The springs 25 and 26 with their upper bent portions, the tubular parts 13 and 14 and the ribs 11 may all be formed from one tubular member of spring steel longitudinally divided as above described and split to form the ribs 11. The whole apparatus is therefore very conveniently made.

Passing through the spring members 25 and 26 is a bolt 29 provided with a wing nut 30 and underneath the head of this bolt 29 is clamped a slotted metal member 31. This member 31 may therefore be moved up or down the spring and clamped in any position so that the stiffness of the spring is regulated thereby. If desired, instead of the slotted member 31, an arched member 32, as shown in Figure 4, may be employed. As this member 32 is flattened by tightening the thumb nut 30 its ends move along the spring 25—26 increasing the stiffness thereof. In this manner the opposition to blows against the punching bag may be conveniently adjusted.

Referring now to Figure 5, there is shown a modified form of punching bag. The bag itself comprises an inner frame made from a tubular metal member substantially as above described being provided with tubular end portions 33 and 34 and outwardly arching ribs 35 formed by slitting the tube, together with the outer covering 36. The bag in this instance is adapted, when struck, to fly upwardly and strike the ceiling or other suitable support 10 from which it is pivotally suspended. The bag is mounted as will presently be described upon a rod 37 which is pivoted adjacent its upper end by a lateral pin 38, to an L-shaped member 39. The member 39 is pivoted about a vertical pin 40 secured to a plate 41 which is in turn secured to the support 10. The lateral pivot 38 and the vertical pivot 40 thus provide substantially a universal suspension for the rod 37 and the bag thereon. The member 39 will swing about the pin 40 so that its lateral arm is substantially in line with the blow each time the ball is struck.

The rod 37 extends downwardly through the bag, projecting from the bottom thereof. The tubular parts 33 and 34 are preferably provided with bushings 42 and 43 which fit slidably upon the rod 37. The lower end of the rod 37 is threaded and a nut 44 thereon holds the bag from slipping downwardly. Extending through the upper tubular part 33 and the bushing 42 is a set screw 45, the end of which engages the rod 37. The bag

is therefore locked in distended position by the screw 45, as shown in the drawing, and may be collapsed by loosening the screw 45 and permitting the upper end of the bag to slide upwardly along the rod 37.

As is well known, the center of percussion of a body pivoted about a certain axis is the point of application of all of the forces tending to cause the body to rotate about that axis. It is the point at which a suspended body may be struck without causing any pressure on the axis passing through the point of suspension. The center of percussion of a homogeneous rod suspended at its upper end is positioned two-thirds the length of the rod from the point of suspension. Therefore, if the rod 37 were of a uniform size and homogeneous throughout its length, its center of percussion would be substantially two-thirds its length from the pivot 38, and the parts are preferably so proportioned that this point would be in the vicinity of the center of the punching bag. The weight of the bag causes the center of percussion of the rod and bag to be higher than that of the rod 37 alone. The rod 37 is preferably reduced in diameter inside the bag in order to compensate for this to some extent. In order to bring the center of percussion substantially to the center of the bag or to the point thereon at which the blows are applied, a weight 45 is threaded upon the lower end of the rod 37. The weight 45 is therefore adjustable up and down along the rod 37 and may be locked in any position by the lock nuts 46. The weight 45 serves to lower the center of percussion which, by proper adjustment of the weight, may be fixed at substantially the point where the blows are applied to the punching bag. With the center of percussion so fixed, the striking of the bag causes substantially no pressure upon the pin 38, which is the point of suspension. The noise and vibration ordinarily caused by operating a punching bag may be thus greatly reduced. Furthermore, the suspension pin 38 may be made very light since there will be very little strain thereon as the bag is struck and swings upwardly to the support 10.

From the above it will be seen that there is herein provided an apparatus which embodies the features of this invention, attains the objects thereof and is well adapted to meet the requirements of practical use.

As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be understood that all matter hereinbefore set forth is to be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. In athletic apparatus, in combination, a bag comprising a plurality of resilient ribs connected together adjacent their ends and shaped and connected to permit them to be distended outwardly intermediate said ends to form a collapsible frame-work, releasable means formed and connected to hold said frame-work in distended form with said ribs outwardly bowed, and pivoted means reinforcing the distended portions of said ribs and adapted to permit the collapse of said frame-work.

2. In athletic apparatus, in combination, a collapsible resilient frame-work the members of which are connected and positioned to move apart as their opposite ends are brought toward one another and adapted to be expanded into approximately spherical form, supporting means for said frame-work comprising a spring and connected to said frame-work and adapted to permit it to swing about an exterior axis, and releasable means connected and adapted to hold said frame-work in expanded form.

3. In athletic apparatus, in combination, a supporting spring formed of sheet metal, and resilient sheet metal means forming a substantial continuation of said spring and split into three or more substantially parallel flexible parts shaped and connected to permit their opposite ends to be drawn toward each other and adapted upon the ends of said parts being drawn together to assume an approximately spherical form.

4. In athletic apparatus, in combination, a resilient frame-work of approximately spherical form, swinging supporting means comprising a spring connected to resist swinging thereof, and a substantially rigid connection between the adjacent end of said frame-work and said supporting means whereby upon said frame-work being struck the entire force of the blow tends to swing said supporting means.

5. In athletic apparatus, in combination, a punching-bag, a flat spring secured to said bag and adapted to be bent upon said bag being struck, and supporting means for said flat spring comprising a portion freely rotatable about a substantially vertical pivot the axis of which is out of alignment with the axis of said bag, whereupon, upon said bag being struck, said spring will automatically swing about said pivot and bend flatwise from the force of the blow.

6. In athletic apparatus, in combination, a resilient frame-work of an approximately spherical form, a flexible cover about said frame-work and provided with an opening at one end, and supporting means passing through said opening in said cover and secured to said frame-work and formed to permit said frame-work, upon being struck, to swing about an exterior axis spaced therefrom.

7. In athletic apparatus, in combination, a collapsible resilient frame-work, releasable means adapted to hold said frame-work in expanded form, reinforcing means extending between the intermediate portions of the members of said frame-work and adapted to permit the same to collapse, and a spring-actuated suspension having a rigid connection with said frame-work adapted to permit same to swing about an exterior axis spaced therefrom.

8. In athletic apparatus, in combination, a bag comprising a tubular member split longitudinally to form a plurality of ribs, said ribs being arched outwardly intermediate their ends to form a frame-work and a yielding covering over said frame-work.

9. In athletic apparatus, in combination, a bag comprising a tubular member split longitudinally into two parts, each part being split longitudinally between points adjacent its ends to form a plurality of ribs, means securing said two parts together adjacent their ends, said ribs being arched outwardly intermediate their ends to form a frame-work, and a yielding covering over said frame-work.

10. In athletic apparatus, in combination, a bag comprising a plurality of resilient ribs connected together at their ends and adapted to distend outwardly intermediate said ends to form a frame work, means within said frame work detachably connecting said ends to hold said ribs in distended position, and a yielding covering over said frame work.

11. In athletic apparatus, in combination, a bag comprising a plurality of resilient ribs converging at their ends to form two tubular end members and adapted to be distended outwardly intermediate said ends to form a frame work detachably connecting said end members to hold said ribs in distended position, and a yielding covering about said frame work.

12. In athletic apparatus, in combination, a bag comprising a plurality of resilient ribs connected together adjacent their ends and adapted to be distended outwardly intermediate said ends to form a collapsible frame work, collapsible means reenforcing said distended portions of said ribs when in distended position, and a yielding covering about said frame work.

13. In athletic apparatus, in combination, a mounting for punching bags and the like comprising a substantially vertical pivot about which the bag is pivoted and freely movable, laterally offset from the vertical center line of the bag whereby, upon said bag being struck, it tends to align the axis of said pivot with the direction of the blow, said pivot being substantially over the bag with the bag in normal position.

14. In athletic apparatus, in combination, a punching bag, means mounting said bag comprising a resilient elongated member adapted to bend transversely in response to blows against said bag, and means for adjusting the resistance of said member to bending.

15. In athletic apparatus, in combination, a punching bag, means mounting said bag comprising a flat spring member, and a support means connecting said spring member to said support the point of connection being freely movable about an upright axis, whereby said last means is adapted to cause said spring in response to a blow against said bag to assume a position flatwise with respect to the direction of said blow.

16. In athletic apparatus, in combination, a pair of flat spring members secured face to face and adapted to be connected at one end to a support, said spring members being split longitudinally adjacent their other ends and said split portions being arched outwardly to form a frame work, and a yielding covering about said frame work.

17. In athletic apparatus, in combination, a plurality of resilient ribs converging at their ends to form solid end members and adapted to be distended outwardly intermediate said ends to form a frame work, a yielding covering about said frame work, one of said end members being elongated and forming a flat spring member, and means at the end of said flat spring member adapted for connection to a support.

In testimony whereof, I have signed my name to this specification this 21st day of March, 1924.

ROBERT S. BLAIR.