PUNCHING BAG SIMULATOR

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References Cited

UNITED STATES PATENTS
2,558,081 6/1951 Gardenhour 273/55 R
3,399,892 9/1968 Jurkiewicz 273/55 R

ABSTRACT

A punching bag simulator has a base for mounting on a stationary surface and a spring biased arm pivotally connected to the base and constrained to move only in a single plane with one end of the arm biased by the spring against a resilient bumper. On the other end of the arm a deformable pad is presented for striking by the fists and each time the pad is struck, the arm moves along a lineal path against the spring bias and snaps back to its original position for repeated striking. A pair of resilient bumper elements are placed between the pivoted arm and base in spaced relation to each other. One resilient element serves to absorb kinetic energy of the pivot arm when the pivot arm is moved towards the base against the spring bias and the other resilient element serves to absorb the kinetic energy of a pivot arm when the pivot arm is moved away from the base as a result of the spring bias.

5 Claims, 3 Drawing Figures
PUNCHING BAG SIMULATOR

BACKGROUND OF THE INVENTION

This invention generally pertains to punching or speed bags and more specifically concerns a punching or speed bag simulator which may be used successfully by those having less than a high proficiency in hand-eye coordination skills.

A conventional mount for punching or speed bags typically permits the punching bag to swing freely like a pendulum about a swivel in many different planes after it is struck by the fists. The swinging motion continues until mechanical or air friction forces dampen the swinging motion to a level where the user may coordinate his eyes and fists to deliver another blow. In the case of the speed bag, for example, it is very difficult for the untrained or unskilled in rapid hand-eye coordination tasks to coordinate their blows as required to control the motion of the speed bag for the sustained periods necessary for optimum exercise. U.S. Pat. No. 3,813,093 issued to Leo E. Long (one of the present inventors) is addressed to this problem and discloses a structure which serves to return the speed bag to its normal rest position each time it is struck by the fists. The present disclosure is yet another structure for exercising upon which simulates the response and movements of the pneumatic speed bag. The present disclosure relates to an improved and simplified speed bag simulator which incorporates the advantages of U.S. Pat. No. 3,813,095, which is readily mounted on a variety of stationary surfaces and which is economically manufacturable.

SUMMARY OF THE INVENTION AND OBJECTS

In summary the invention is directed to a speed or punching bag simulator comprising a base member mountable upon a stationary surface. A pivot arm is interconnected to the base member and a return spring means acts between the base member and the pivot arm so that in a rest condition a first end of the arm is disposed outwardly and away from the base and a second end of the arm is disposed adjacent to the base. First bumper means are arranged between the first end of the pivot arm and the base and are formed and sized to absorb the excess kinetic energy imparted to the simulator in the punching action as the first end of the pivot arm approaches the limit of movement about the pivot axis. Second bumper means are interposed between the second end of the arm and base member for minimizing the tendency of the pivot arm to rebound from the punching action. And a punching bag element is mounted on the first end of the pivot arm and is configured to serve as a target for the human fists. Said punching bag element is formed from a resilient material for deformation upon impact with the fists.

An important object of the invention is to provide a improved punching bag simulator enabling the user to quickly become proficient in striking and controlling the action of the speed bag.

Another object of the invention is to provide an improved punching bag simulator which maintains the line of action in a single path and which returns the struck element to a predetermined starting position after each blow.

Another object of the invention is to provide an improved speed or punching bag simulator mountable in a variety of locations and of a readily manufacturable design which may be used by novices for the time necessary for optimum physical exercise.

These and other objects will become apparent from the following disclosure taken in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view of the punching bag simulator according to the present invention;
FIG. 2 is a view in the direction of the arrows 2—2 of FIGS. 2, and
FIG. 3 is a fragmentary sectional view in the direction of the arrows 3—3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A punching or speed bag simulator embodying the principles of the present invention is shown in FIG. 1 operatively mounted upon a vertical surface of the stationary member 11. The speed bag simulator includes a base member 12, a pivot arm 13, a return spring 14, and a striking pad 16. More specifically, the base member 12 may be fabricated from sheet metal material and formed to be substantially U-shaped in lateral cross section and thus includes a web 17 with a pair of flanges 18 and 19 extending outwardly therefrom, FIGS. 1 and 2. Provisions are made in the web 17 for receipt of the lag screws 21, or the like fasteners, therethrough so that the punching bag simulator may be fixedly mounted to the stationary member 11, which may comprise a post, a building wall, a ship's bulkhead, etc.

A first shock absorbing bumper 22 is arranged between the flanges 18 and 19 of the base 12 at the lower end portion thereof as viewed in FIG. 1, the bumper 22 being of cylindrical configuration and being mounted between the flanges by an axially extending pin 23. Similarly, a second bumper 24 is mounted between the flanges 18 and 19 at the upper end portion of the base 12 and is maintained in this location by a pin 26. The bumpers 22, 24 are formed from shock absorbing material such as a clay loaded butyl rubber or similar non- resilient but flexible material able to effectively deaden rebound forces.

The pivot arm 13 may be formed from sheet metal material in the U-shaped configuration described above in regard to the base member 12 and thus includes a web portion 27 and flanges 28 and 29 extending therefrom. The inside width (taken laterally) of the pivot arm 13 is selected so as to permit the flanges of the pivot arm to be juxtaposed with respect to the flanges 18, 19 of the base as shown in FIG. 2. The base 12 and pivot arm 13 are pivotally interconnected by an axle pin 31 arranged in the upper portion of the unit so that the substantially longer portion of the pivot arm 13 extends on one side of the pivot axis 31. The arrangement of the juxtaposed flanges at a right angle to the axle 31 restricts the motion of the pivot arm to a single path so that there is no wobble to the return action which could thwart the novice user.

At that end of the pivot arm 13 the striking pad 16 is fixedly secured to the web 27 by fasteners 32, 33. The pad 16 may be rectangular in configuration and composed of an inner body of sponge rubber or similar resilient compressible material encased within a cover 31 of material which will minimize the frictional abrasion to the fists. Such material may be a dipped, heat cured vinyl.
The return spring 14 may be of hair-pin configuration having a coiled portion 38 arranged about the axle pin 31 and two spring arms 39, 41 which extend into engagement, respectively, with the webs of the base and pivot arm. Strike-out spring keepers 42, 43 insure that the legs 39, 41 of the spring are maintained in the operative position on the webs. As shown in FIG. 1, the return spring 14 acts through the spring arms 39, 41 to bias the pivot arm 13 so that in the rest position the upper end thereof abuts the bumper 24 and the striking pad 16 on the lower end portion of the arm is positioned outwardly away from the base.

OPERATION

The punching or speed bag simulator for operational use is first mounted upon a stationary support 11 by means of the fasteners 21 and preferably the unit is arranged so that the base 12 is disposed in a generally vertical position with the striking pad disposed outwardly as shown in FIG. 1. The user when exercising strikes with his fists, one at a time, the striking pad 16 which substantially deforms in conformation with the fist while driving the pivot arm against the bias of the return spring 14 along the single path indicated by the arrow 46, FIG. 1. The pivot arm rotates downwardly about the axis 31 and further compresses the return spring 14. The forces exerted upon the pivot arm by the return spring causes the pivot arm to snap back, moving the striking pad upwardly to the starting or rest position where the second bumper 24 absorbs the shock of rebounds. The material of the bumper 24 is such as to effectively deplete the rebound energy and minimize the tendency for the pivot arm to bounce after its return to the starting or rest position.

Should the striking pad 16 be struck sufficiently hard to exceed the free length of travel of the pivot arm about the axis 31, the first or lower positioned bumper 22 arrests further movement of the pivot arm by absorbing the excess kinetic energy and permits the pivot arm to return to the starting position in a normal fashion. The bumper 22, in this manner, also protects the overly strong user from the reaction forces of metal to metal contact when delivering a blow which exceeds the energy absorbing value of the return spring.

The arrangement of the juxtaposed flanges 18, 19, 28, 29 of the base and pivot arm respectively in cooperation with the axle pin 31 as shown and described above, limits the pivot arm 16 to a single path of travel. Thus the striking pad 16 upon return of the arm always finds its original position so that the user may strike with his fist the pad in the same position. This is in contrast to the prior art speed bags which require substantial hand-eye coordination of the level obtained by skilled boxers but infrequently obtained by the novice. It will be seen from the foregoing that there has been disclosed a speed or punching bad simulator which fulfills all the advantages and objects set out above.

What is claimed is:

1. A punching or speed bag simulator comprising a base member having provisions for mounting upon a stationary vertical surface, a pivot arm, means serving to pivotally interconnect said pivot arm to said base member, return spring means acting between said base member and said pivot arm and biasing said pivot arm in a rest condition so that one end portion of said arm is disposed outwardly and away from said base, and a second end of said arm is disposed adjacent to said base, first bumper means interposed between said first end of said pivot arm and said base and being formed of a material and sized to absorb the excess kinetic energy imparted to said simulator in the punching action as the first end of the pivot arm approaches the limit of movement about the pivot axis, second bumper means interposed between said second end of the arm and said base member and being formed of a material serving to deaden the tendency of said pivot arm to bounce and rebound from the punching action, a punching bag element secured adjacent to said first end of said arm and being configured to serve as a target for the human fists and being formed from a resilient material for deformation upon impact with the fists, the kinetic forces applied to said punching bag element by the fists serving to pivot said pivot arm against the bias of said return spring means about said pivot axis and towards said first bumper means, the forces developed in said spring means serving to snap back said pivot arm about said pivot axis so that said second end of said pivot arm engages said second bumper means in a substantially non-rebound action serving to position said punching bag element for a subsequent blow by the fists.

2. The apparatus of claim 1 wherein said return spring means is arranged to coact with said pivot arm so as to bias the second end portion of the same in contact against said second bumper means when said unit is in the rest position.

3. The apparatus of claim 1 wherein said pivot arm and said base member are each constructed to be substantially U-shaped in lateral cross section, having a web and a pair of flanges extending outwardly therefrom, the flanges of said base member and pivot arm being juxtaposed and having openings extending therethrough for receipt of an axle member defining said pivot axis between said arm and base member, said return spring means being of generally hair-pin configuration and being received over said axle member with the two arms of said spring means extending along the webs of said pivot arm and base member.

4. The apparatus of the preceding claim 3 wherein said first and second bumper means are each received between the flange members of said base member.

5. A punching or speed bag simulator comprising a base member having provisions for mounting upon a stationary surface, a pivot arm, means serving to pivotally interconnect said pivot arm to said base member, return spring means acting between said base member and said pivot arm and being positionable for biasing said pivot arm in a rest condition so that one end portion of said arm is disposed outwardly and away from said base, first and second bumper means being interposed between said pivot arm and said base member, said first bumper means being positioned between said one end portion of the pivot arm and said base member and being formed from a resilient material and sized to absorb the excess kinetic energy imparted to said pivot arm, said second bumper means being positioned between the other end portion of said pivot arm and said base member and being formed of a material serving to dampen the tendency of said pivot arm to bounce and rebound from the punching action, a punching bag element secured to said pivot arm adjacent to said one end and being configured to serve as a target for the human fists and means acting with said pivot means serving to maintain the movement of said pivot arm substantially entirely in a path normal to the pivot axis upon impact of said punching bag element with the fists.

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