Jan. 23, 1951 T. R. BERRY 2,538,744

MECHANICAL BOXER TOY

Filed Feb. 3, 1949

FIG. 1

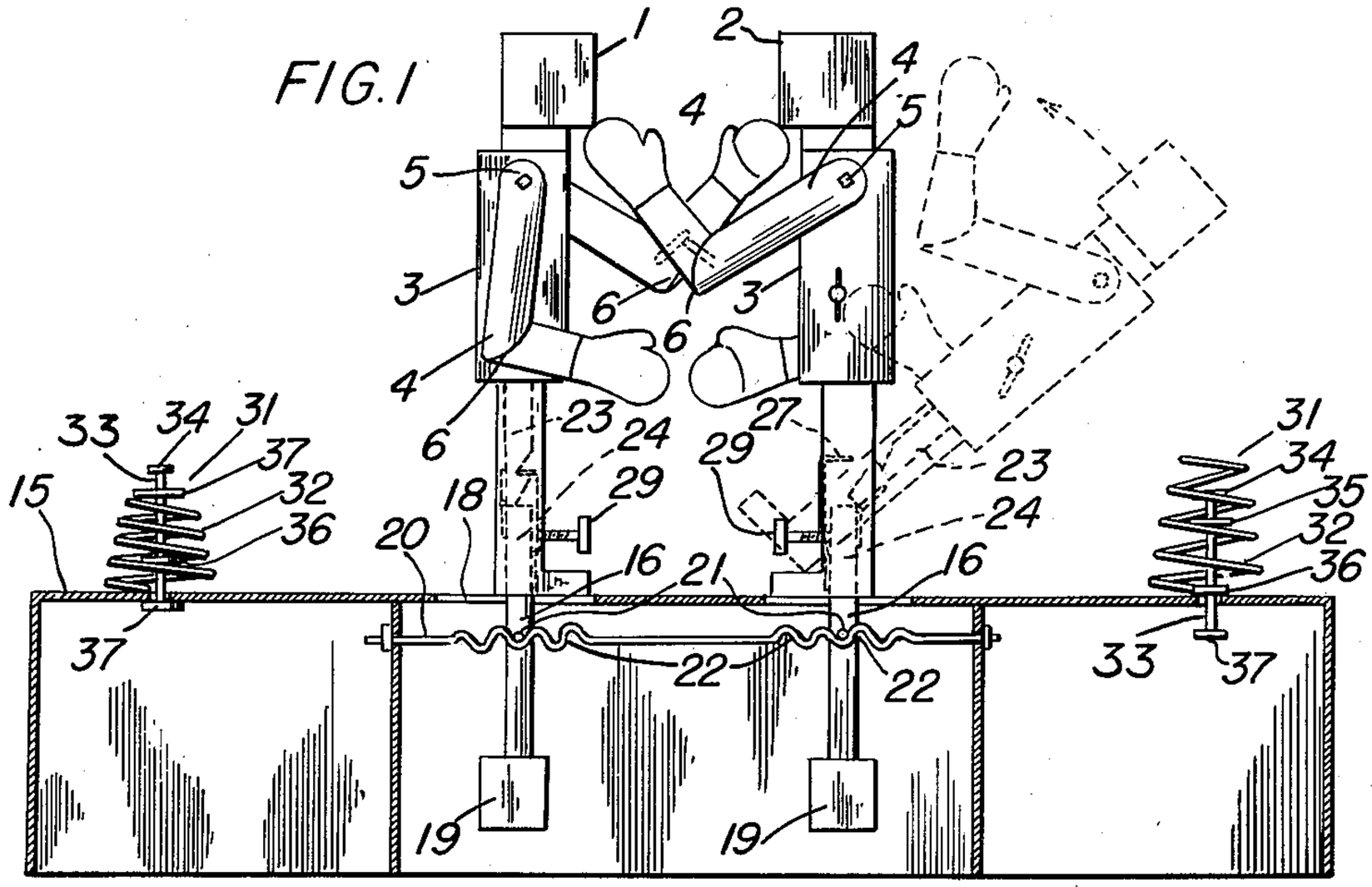


FIG. 2

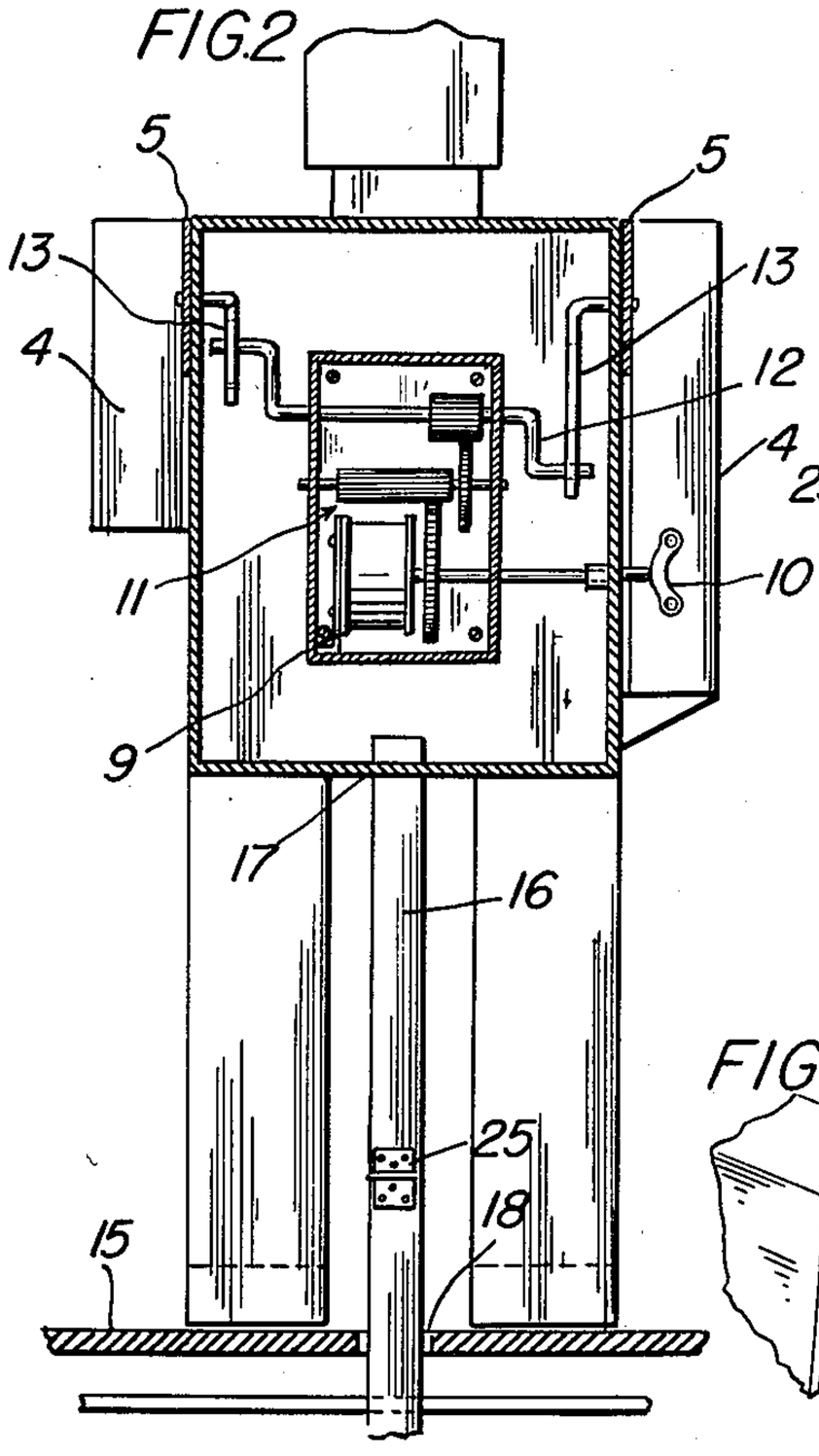


FIG. 3

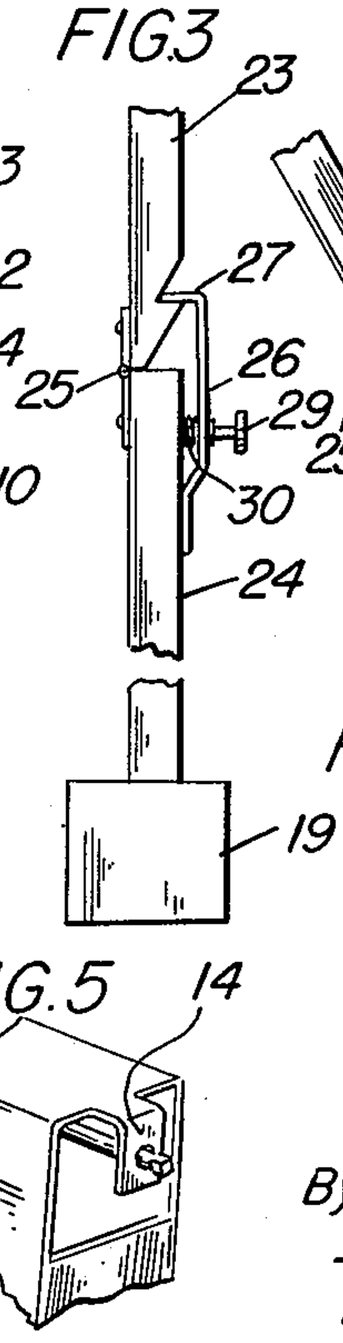


FIG. 4

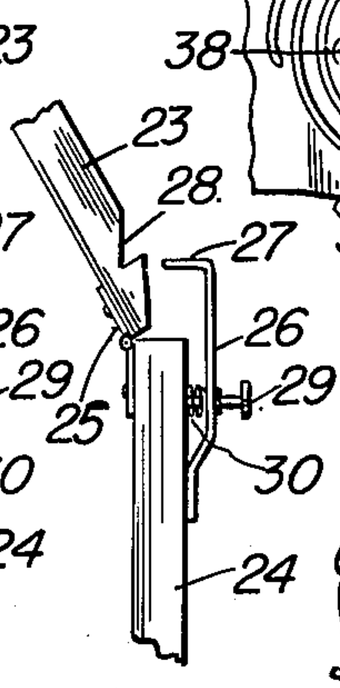


FIG. 5

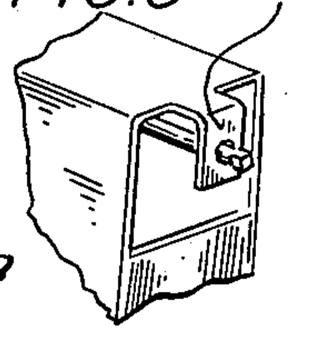


FIG. 6

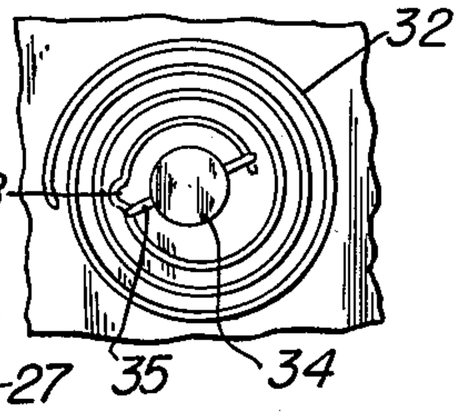
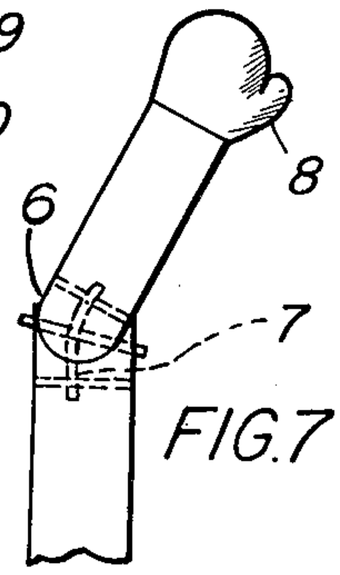


FIG. 7



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MECHANICAL BOXER TOY

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9 Claims. (Cl. 46—143)

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The present invention relates to a mechanical boxer toy and more particularly to a toy in which two mechanical boxers automatically punch one another, the blows of each boxer landing on the body of the other.

Mechanical boxer toys have previously been known, but generally speaking these have been unrealistic in that the toy boxers did not actually strike each other, but merely went through a series of predetermined gyrations, which were always the same.

The present invention provides a toy wherein two mechanical boxers exchange blows, each boxer actually hitting the other. Means are further provided whereby the boxers are fellably supported above a base so that either boxer may be thrown down on the base from the effect of his opponent's punches. It is characteristic of my invention that the supporting means are so constructed and arranged that the question of which boxer will be knocked down is always unpredictable.

It is a feature of the preferred embodiment of my invention that rebound means are provided whereby a boxer may be knocked down once and regain his feet, but when knocked down a second time, stays down.

In the drawings:

Fig. 1 is a side view of a preferred form of my toy, partly in elevation, partly in vertical section, showing the boxers in fighting position in solid lines, and one boxer in dotted line as he would appear rising after being knocked down;

Fig. 2 is a front view, partly in elevation, partly in vertical section, showing, on a larger scale than Fig. 1, the mechanism by which one of the boxers of my novel toy operates;

Figs. 3 and 4 are fragmentary views, on a larger scale than Fig. 1, showing details of my novel supporting standards for the boxers, Fig. 3 showing the position of the parts when the boxer is erect and Fig. 4 when he is partially down as in the dotted position of Fig. 1;

Fig. 5 is a fragmentary view showing the construction of a shoulder of one of the boxers;

Fig. 6 is a plan view showing the rebound spring as used in the embodiment of my invention shown in the drawings;

Fig. 7 is a fragmentary plan view showing the details of construction of an arm of one of the boxers.

As shown in Fig. 1 the preferred embodiment of my invention comprises two combatant members or boxers 1 and 2 which have rigid bodies 3 and arms 4. The arms are pivoted at the shoulders 5 and have flexible elbows 6.

As shown in Fig. 5 the elbows 6 of each boxer are pivoted and a curved spring 7 is used to bias them to a normally bent position. The fists 8 may be suitably weighted so that when the arm is

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swung forward the inertia of the fist will cause the arm to straighten out against the tension of the spring 7.

Suitable mechanism (Fig. 2) is provided in each boxer for oscillating its arms about the shoulders 5 and thereby delivering punches to the other boxer. The mechanism may be of the clockwork type comprising a spring 9, and a key 10 for winding. The spring, through gears 11, drives a crank shaft 12 which is suitably joined to connecting rods 13. Each arm 4 is mounted on a connecting rod 13 which is pivotally carried on a shoulder 5 by simple flexible strips 14 (Fig. 5). The provision of the flexible strips allows the arm a slight lateral play, adding to the realism of the action.

Each boxer is fellably supported on a common base 15 by a standard 16 which extends from the crotch 17 of each boxer downwardly through a slot 18 in the upper surface of the base. Suitable weights 19, attached to the lower ends of the standards, give the figures stability.

The standards are carried on longitudinal stringers 20 which form part of the base 15. The standards have horizontal cross pins 21 which rest in notches 22 provided in the stringers. The notches are made sufficiently large to give the pins considerable play, and thus allow a free rocking motion of the boxers on the pins.

Preferably the standards are made in two pieces, as shown in Figs. 3 and 4, an upper section 23 and a lower section 24, joined by a hinge 25 and a blade spring 26. The spring 26 is fixed, for example, to the lower section and has a beak 27 which is fitted into a notch 28 in the upper section. The pressure exerted by the spring tends to keep the two sections together by opposing the breaking away of the upper section 23 on the hinge 25. An adjusting screw 29 is threaded through the spring 26 and into the lower section 24. With the screw 29 may be combined a small helical tensioning spring 30. The screw 29 serves to vary the pressure exerted by the spring 26 through its beak 27 on the notch 28, thus changing the resistance of the upper section 23 to breaking on the hinge 25.

On the upper surface of the base 15, directly behind each boxer, are located rebound devices 31 (Figs. 1, 6). Each of these consists of a rather large conical spring 32 and a retaining pin 33. The retaining pin has a handle 34, a retainer 35, a stop 36 and an anchor 37. The retainer 35 serves to keep the spring in a compressed position (see device at left of Fig. 1). The stop 36 prevents the pin from falling inside the base and the anchor 37 limits the upward movement of the pin. The handle 34 facilitates resetting the pin. A notch 38 may be provided in the upper coil of the spring 32 to allow the retainer to pass through the upper coil on resetting (see Fig. 6).

The operation of my novel toy is as follows:

The key 10 is inserted in the key-way of each boxer and the spring 9 is wound up. The arms of the boxers proceed to swing from their shoulders so that the fists of each boxer alternately strike the other boxer.

The swinging of the arms of each boxer and the impact of the blows set both boxers rocking on the pins 21. When the coincidence of blows is exactly right, one of the boxers will be pushed over; the question of which boxer will fall being determined by a number of factors, chief among them the point in his oscillation about pin 21 at which a boxer is struck and the force with which each spring 26 opposes breaking of the standards on hinge 25.

In the preferred embodiment here illustrated, the boxer will generally fall through the disengagement of spring 26 from its notch 28 and the breaking of standard 16 on hinge 25. Under certain conditions, however, a boxer may be knocked down without the standard 16 breaking at the hinge at all. Thus under a suitable setting of spring 26 and with the proper rhythm of blows, a boxer may fall by a simple pivotal movement on the pins 21.

As the boxer falls he strikes the retaining pin 33 of the rebound device located behind him. This is sufficient to push the retainer 35 through the upper coil of the helical spring 32 thus releasing the helical spring. Expanding suddenly, the spring 32 pushes the boxer back with sufficient force to snap the beak 27 of the spring 26 into its original position in notch 28 and the contest continues. The boxer at the right in Fig. 1 is rising after such a fall. If the same fighter is knocked down a second time, the spring 32, having already been released, will not return him with sufficient force to cause the spring 26 to reengage with notch 28 and thus the fighter can be said to have been knocked out. If it is desired that this fighter be given a greater chance to resist a knock down, the adjusting screw 29 on his spring is withdrawn a suitable distance. If desired the adjusting screw on the other fighter is screwed down somewhat. By such manipulations the resistance of both fighters can be varied over a wide range and the result of any contest will always be uncertain.

When it is desired to reset the rebound devices 31, the retaining pin 33 is grasped by the handle 34 and pulled up through the spring 32, the retainer 35 slipping through the notch 38 on the upper coil of that spring. The pin 33 is then rotated until the retainer no longer matches with the notches 38. The contact between the retainer 35 and the spring 32 is then strong enough to resist the expansion of the spring but yet not strong enough to prevent a boxer when falling over from knocking the pin through the upper coil of the spring.

The boxers may be moved nearer to one another or farther apart, thus simulating either infighting or sparring, by shifting the pins 21 to the appropriate notches of the stringers 20.

Various modifications of the toy are, of course, possible without departing from the spirit of my invention. Thus, for example, the weights 19 on the bottom of the standards may be dispensed with and instead of the long slot 18 a series of sockets may be provided for the standards 16. In such an embodiment there is little or no rocking of the sort described in connection with the preferred embodiment, and the boxers fall only when the standards 16 break on hinges 25.

Still another modification envisages elimination of hinge 25 and spring 26 and the construction of the standard 16 in one piece. In such an embodiment the boxers would fall only through pivoting on pins 21. To add to the uncertainty of the result the weights 19 may be made movable up and down the standards, thus permitting the center of gravity of the boxers to be shifted and their stability varied.

Furthermore, while the arms 4 are shown with bent and flexible elbows, it is possible for them to have straight arms or rigid elbows. It is also possible to have the knees of the fighters flexible to some degree or to have them permanently bent.

As will readily be appreciated, various types of mechanisms can be used to drive the arms of the fighters. A plurality of gear ratios may be provided so that the relative speeds of fighting can be changed.

It is within the scope of my invention to provide a constant rebound mechanism so that the fighters are thrown back every time that they are knocked down.

What I claim is:

1. Boxer toy comprising two simulated combatant members having arms pivotally attached thereto, power mechanism including a motor, for oscillating said arms and thereby causing said members to strike one another, a base, standards fellably supporting said members on said base, whereby a combatant member may be thrown down onto said base from the blows struck by the other, and automatic rebound means for immediately restoring a fallen combatant member to his original position.

2. A boxer toy comprising two simulated combatant members having arms pivotally attached thereto, a base, foldable standards supporting said members on said base, power mechanism including a motor, for oscillating said arms whereby said combatant members may be made to strike at each other, and automatic rebound means for immediately restoring a fallen combatant member to his original position.

3. A boxer toy as claimed in claim 2 wherein said base comprises two longitudinal stringers, each having a plurality of notches at intervals along its length and a slot between said stringers adapted to receive said standards, and wherein each of said standards has a cross-pin adapted to rest loosely in the notches of said stringers whereby said combatant members may be rockably supported in a plurality of positions on said base and the distance between said combatant members may be varied.

4. A boxer toy as claimed in claim 2 wherein each of said standards comprises an upper section and a lower section, a hinge pivotably joining said sections, a flat spring fixed to one of said sections and having a beak at the other end, a notch in the other section adapted to engage with said beak and thus resist the folding of the standard on said hinge, and screw adjusting means on said spring whereby the pressure exerted by said beak on said notch and hence the resistance of the standard to folding may be varied.

5. A boxer toy as claimed in claim 2 wherein said rebound means comprises a conical spring and a retaining pin, said retaining pin having a horizontal member somewhat greater in length

than the inside diameter of the uppermost coil of said spring, the difference between said length and said diameter being sufficient to keep said spring compressed by friction but insufficient to retain said spring when said pin is struck downwardly by a falling combatant member, whereby when such falling combatant member strikes said pin said spring will expand and return said combatant member to his original position.

6. A boxer toy comprising two simulated combatant members having arms pivotally attached thereto, a base, foldable standards supporting said members on said base, power mechanism for oscillating said arms whereby said combatant members may be made to strike at each other, and automatic single acting rebound means for immediately restoring a fallen combatant member to his original position upon his first fall but not thereafter.

7. A boxer toy comprising two simulated combatant members having arms pivotally attached thereto, a base, foldable standards supporting said members on said base, power mechanism including a motor, for oscillating said arms whereby said combatant members may be made to strike at each other, automatic rebound means for immediately restoring a fallen combatant member to his original position and means for varying the resistance of said standards to folding whereby the resistance of each combatant member to being struck down by the other member may be varied.

8. A boxer toy comprising two simulated combatant members having arms pivotally attached thereto, a base, foldable standards supporting said members on said base, power mechanism including a motor, for oscillating said arms whereby said combatant members may be made to strike at each other, and automatic rebound means for

immediately restoring a fallen combatant member to his original position, said rebound means comprising a conical spring located behind each of said combatant members and means for retaining said springs in compression, said retaining means being adapted to release said springs upon contact with a falling member.

9. A boxer toy comprising two simulated combatant members having arms pivotally attached thereto, a base, foldable standards supporting said members on said base, means for varying the resistance of said standards to folding, power mechanism including a motor, for oscillating said arms whereby said combatant members may be made to strike at each other and rebound means for restoring a fallen combatant member to his original position, said rebound means comprising a conical spring located behind each of said combatant members and means for retaining said springs in compression, said retaining means being adapted to release said springs upon contact with a falling member.

THEODORE R. BERRY.

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