May 4, 1926. 1,583,237

A. W. PARSONS

SYSTEM FOR CARRYING OUT MIMIC BOMBING AND TORPEDO ATTACKS

Filed July 6, 1925 2 Sheets-Sheet 1

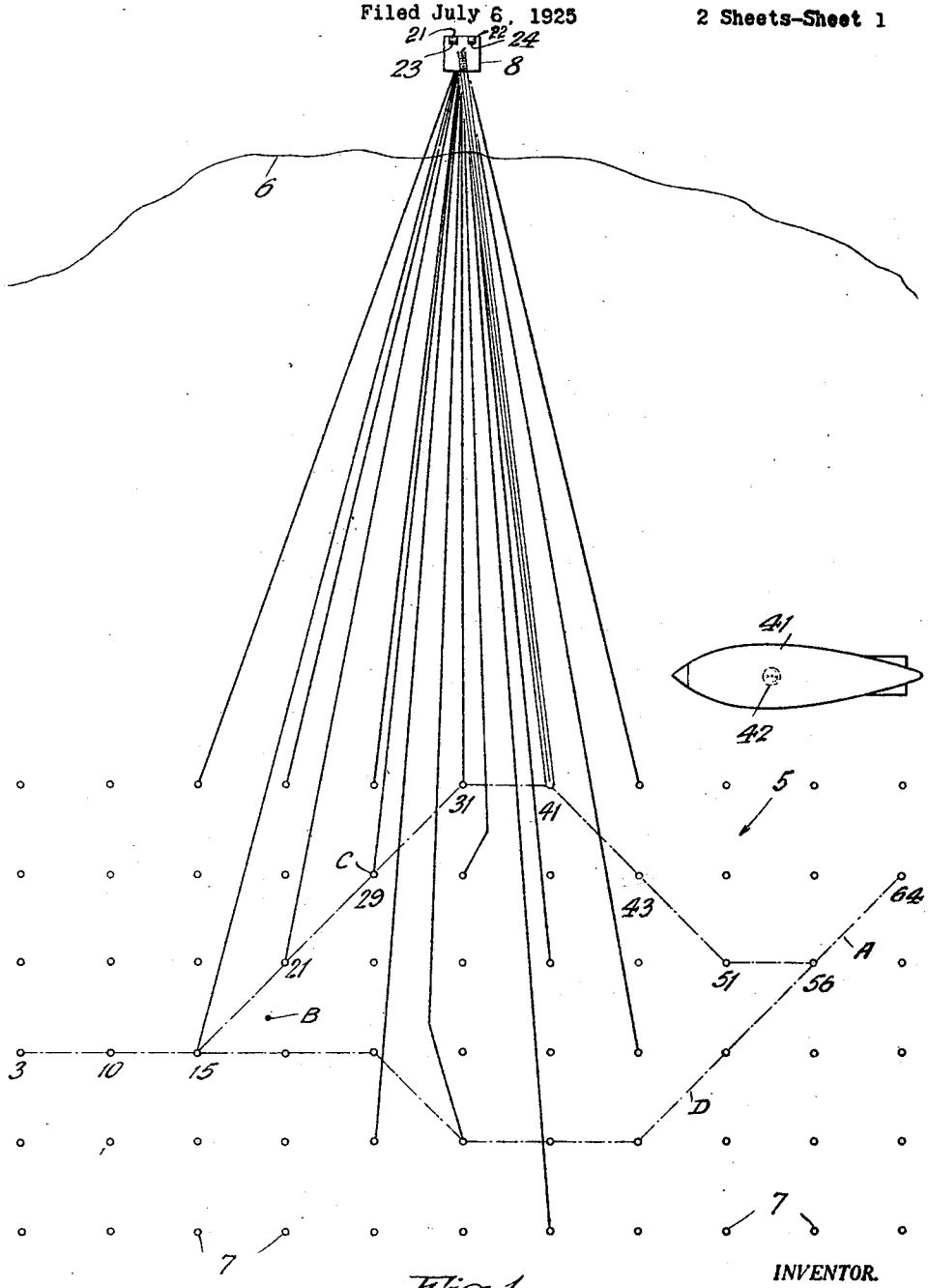


Fig. 1.

INVENTOR.

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Fig. 2.

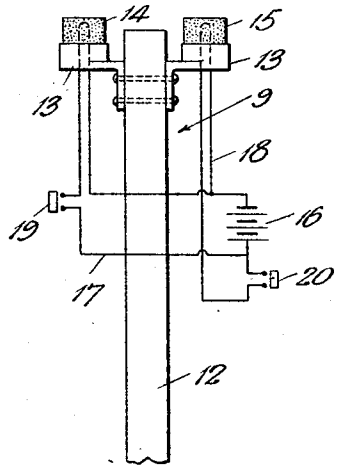


Fig. 3.

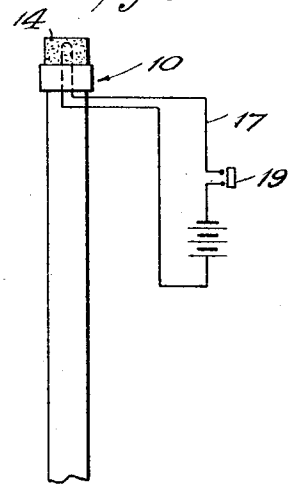


Fig. 6.

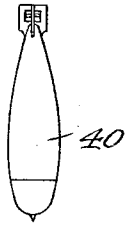


Fig. 4.

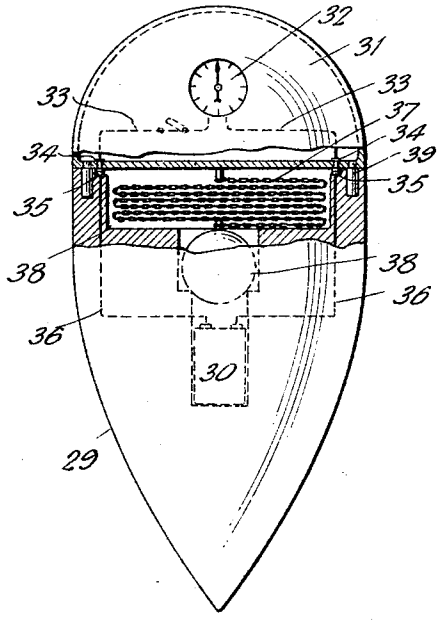
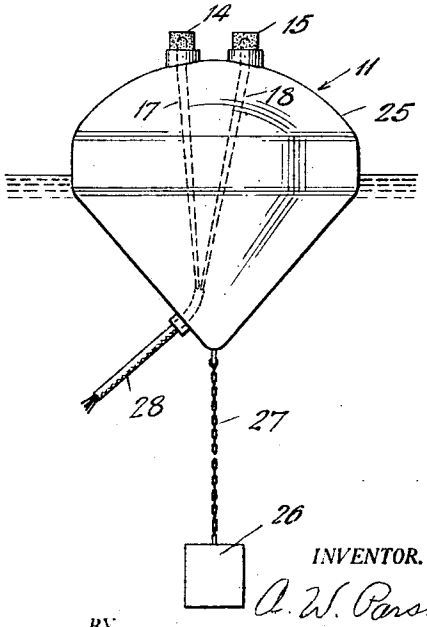


Fig. 5.



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Patented May 4, 1926. 1,583,237

UNITED STATES PATENT OFFICE.

ARTHUR W. PARSONS, OF MIAMI, FLORIDA.

SYSTEM FOR CARRYING OUT MIMIC BOMBING AND TORPEDO ATTACKS.

Application filed July 6, 1925. Serial No. 41,602.

To all whom it may concern:

Be it known that I, ARTHUR W. PARSONS, a citizen of the United States, and a resident of Miami, county of Dade, State of Florida, have invented certain new and useful Improvements in Systems for Carrying Out Mimic Bombing and Torpedo Attacks, of which the following is a specification.

This invention relates to a system for carrying out mimic bombing and torpedoing attacks upon imaginary moving battleships.

A general object of the invention is to provide means for promoting accuracy in the directing of bombs as, from an aeroplane, and torpedoes as from an aeroplane or war vessel, at moving targets.

Another object of the invention is to provide means for enabling one to determine the result, in so far as accuracy is concerned, that might be expected in actual warfare from bombing attacks, launched from aeroplanes, and from torpedo attacks launched as from aeroplanes or war vessels, against a hostile fleet.

A further object of the invention is to provide means whereby the system may be rendered particularly applicable to water covered areas out of sight of land thus eliminating any land marks by which, when taken in connection with the moving target, it would be possible to approximate the rate of speed at which the target is traveling, thereby placing the aviator or attacking war vessel at the same disadvantage, in so far as being unable to approximate the speed of the attacked vessel is concerned, as would exist in open sea conflict in actual warfare.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawings in which—

Figure 1 is a diagrammatic representation of a water covered area or field over which certain instrumentalities used in the practicing of my invention are distributed.

Figure 2 is a fragmental elevation of a post or other support upon which is mounted electrically ignited flares.

Figure 3 is a view similar to that of Figure 2 and shows a post upon which is mounted but one electrically ignited flare.

Figure 4 is a view partly in elevation and partly in section of a dummy bomb having a time recording mechanism incorporated therein.

Figure 5 is a view in elevation of a float or buoy adapted to carry one or more electrically ignited flares.

Fig. 6 is a view in elevation of a torpedo used in the practice of my invention.

In the drawings, wherein for the purpose of illustration I have shown certain embodiments of my invention more or less diagrammatically and certain other embodiments more or less in detail which are essential to the practicing of my invention, the numeral 5 indicates a water covered field or area of any desired dimensions which is preferably located out of sight of land, the shore line of which is indicated at 6. For the sake of convenience, however, I have shown the field so proportioned as to represent a width of one nautical mile and a length of two nautical miles. Over the field are stationed certain signals spaced preferably at unequidistant points 7 and hereinafter more particularly described, the signals being adapted to be controlled from a station 8 which may be located on shore, on the water outside of the field, or even on the field in the midst of the signals. The points 7, however are herein represented as being located approximately one thousand feet apart, there being six points to each nautical mile both longitudinally and transversely of the field.

The signals, which are adapted to be placed at the points 7, may be of the type shown in Figure 2, or of the type shown in Figure 3, or of the type shown in Figure 5, these signals being indicated, respectively, by the numerals 9, 10 and 11.

The signal 9 comprises a post or stick 12 adapted to be driven into the bed of the water covered area, and carries at its upper end a pair of brackets 13 carrying flares 14 and 15, for a purpose hereinafter more fully appreciated. The composition of material entering into the flare 14 may be such that when the same is ignited a red flare is produced and the composition entering into the flare 15 may be such that when the same is ignited a more or less dense black smoke is emitted. These flares are each connected electrically with a source of electrical energy 16 through electric circuits indicated, respectively, by the numerals 17 and 18. The circuits 17 and 18 are adapted to be closed by push buttons 19 and 20 associated with switchboards 21 and 22 located at the central station 8. These switchboards may be associated, respectively, with timing devices 23 and

24 also located at the central station 8, the timing devices being of such design as to record the exact time at which the flares 14 and 15 are ignited. If desired, however, the recording device 24 may be dispensed with, inasmuch as it may not be of any great importance to record the time of firing of the flare 15 which is adapted to produce a black smoke.

The type of signal shown in Figure 3 is substantially identical with that shown in Figure 2 except that the flare adapted to produce a black smoke is omitted, leaving only the flare 14 which is controlled from the central control station 8 through the circuit 17 and push button 19 as previously described.

Under certain conditions, as for example when the water covering the field is relatively deep, it may be found impracticable to employ posts for carrying the signals, in which instances a buoy 25 may be placed at each of the points 7. Each buoy is adapted to be anchored by means of a weight 26 suspended from the buoy by means of a chain 27, and may be provided with a single flare, of the type shown in Figure 3, or with a pair of flares 14 and 15, as in the case of the type of signal shown in Figure 2. When the buoy is employed as a means for supporting the flares 14 and 15 the same circuits 17 and 18 may be employed for igniting the flares from a central control station 8, as previously described. The conductors constituting these circuits, in the case of the buoy, may be passed through a suitable waterproof housing 28, as shown.

In Figure 4, I have disclosed, more or less diagrammatically, a dummy bomb adapted to be directed towards the imaginary target from an aeroplane. The bomb comprises a body portion 29 within which is arranged a source of electrical energy, such as a battery 30. Upon the body portion 29 there is removably attached a cap or head 31 carrying a suitable type of electrically operated clock or time recording mechanism 32 from which is lead conductors 33 suitably connected to contacts 34, the contacts 34 in turn being adapted to engage contacts 35 carried by the body portion 29 and connected by means of conductors 36 to the battery 30. The head or cap 31 is connected to one end of a chain 37 which is carried within a pocket 38 formed in the body portion 29, the opposite end of the chain being secured to a weight or ball 38′ as shown. When the bomb is directed from the aeroplane towards the imaginary target moving over the water covered area or field 5, it is necessary for the cap 31 to become separated from the body portion 29 so that the cap will be permitted to float after landing of the bomb, and in order to insure such separation the head 31 is connected to the body portion by means of more or less fragile pins 39. These pins are intended to shear, or otherwise break down, when the bomb strikes the water, and the shearing or breaking down is insured by reason of the fact that the bomb, moving at a high rate of speed downward as a result of its having been dropped from a great height, is traveling, when it strikes the water, laterally at a speed corresponding to the speed at which the aeroplane was traveling when the bomb was released. The instant the body portion 29 strikes the water its lateral speed is retarded whereas the cap 31 tends to continue to move, thus setting up within the pins 39 a shearing stress which insures their being snapped, or otherwise released, to permit the cap 31 to separate from the body 29 whereupon the cap, which is lighter than water, floats upon the surface and the body submerges to the bed of the water covered area. By reason of the chain connection afforded between the cap 31 and the weight or ball 38′, the weight or ball upon striking the bed of the field, serves to anchor the cap and thus enables one to determine the exact location, with respect to a given point 7, at which the bomb struck. The instant at which the bomb strikes the water is recorded by the time recording mechanism 32 inasmuch as the electrical connection afforded between the time recording mechanism 32 and the battery 30 through the conductors 33 and 36 is severed due to disengagement of the contacts 34 with the contacts 35 upon separation of the cap or head 31 from the body portion 29.

In practice, one or more aeroplanes may be provided with any desired number of bombs, of the type shown in Figure 4, preparatory to carrying out a mimic bombing expedition. Before the aeroplanes are started on their flight the timing mechanism 32 of the several bombs is set in accordance with the time indicated by the clock mechanism, not shown, incorporated into the timing devices 23 and 24. The aeroplanes may be started on their flight simultaneously, or otherwise, and after a prescribed period of time the imaginary target, or supposed battleship, is started on a course which is predetermined by the operator or operators at the central control station but unknown to the aviator. Such a course, for example, may be laid out to correspond to the curve A passing through certain points 7. In order to effect or simulate the movement of the battleship over its course, the flares 14 are ignited progressively at the points through which the curve A passes. The time elapsing between successive ignitions determines the speed of the imaginary target. The imaginary target may, therefore, be made to travel as fast or as slowly as desired throughout its entire course or any portion thereof, the speed being dependent upon the speed at which the

push buttons 19 are progressively operated. In order to enable the operator or operators at the signal station to definitely follow a prescribed course, the posts or buoys may be numbered and the buttons controlling the respective circuits of the flares may be correspondingly numbered. For example, the points, through which the curve A passes, may be numbered 3, 10, 15, 21, 29, 31, 41, 43, 51, 56 and 64, respectively. In order, therefore, to direct the imaginary target along the curve A, only the buttons 19 at the central control station identified by those numbers need be considered and these buttons are operated in the order above named. As previously described the exact time of igniting a flare 14 at a given point 7 is recorded by the recording mechanism 23. This enables one to definitely ascertain, after the course has been run, the exact position at any given instant of the imaginary target in its course. The foremost flare at the time of ignition represents the position of the ship's bow, and the adjacent ignited flare at the same time indicates the approximate position of the stern of the imaginary battleship, in the event the points 7 are spaced from each other both longitudinally and transversely of the field a distance of one thousand feet. The position of the imaginary target, therefore, at the time the foremost flare is ignited is definitely known to the aviators and it is their object to so direct the bombs to score a direct hit. These bombs may be dropped simultaneously with the firing of the foremost flare or any time thereafter prior to the next succeeding flare, but in the latter case the exact location of the imaginary target may be only approximated by the aviator. Whether or not a direct hit has been scored may be readily determined after the course has been run by noting the time that each bomb struck the water, the time of striking being recorded by the time recording mechanism 32, and thereafter checking this time with the position of the battleship at that instant. For example, if a cap 31 is found located in the position B and its recorded mechanism 32 indicates that the bomb struck the water at ten minutes past ten and the time recording mechanism 23 shows that the bow of the battleship had just reached point 29, the distance by which the bomb missed the battleship may be readily calculated. If, on the other hand, a cap is found located at point C or in very near proximity thereto, say ten feet from point C, and the time recording mechanism 32 indicates that the bomb struck the water at twelve minutes past ten, it then becomes positively known that a direct hit has been scored if the recording mechanism 23 shows that the bow of the battleship had passed the point 29 at such a time and at such a speed that midship passed directly over point C at the time corresponding to the time at which the bomb was recorded by the time recording mechanism 32 as having struck the water.

In the event it is desired to simulate a smoke screen, the smoke flares 15 at a given set of points 7 may be ignited, prior to or subsequent to the ignition of the corresponding target flares 14, through the instrumentality of push buttons 20 adapted to be operated from the central control station as previously described. These push buttons may be numbered as in the case of push buttons 19 to enable the operator to ignite smoke flares throughout a course identical with the course being pursued by the imaginary battleship or any course in the vicinity of the course over which the imaginary battleship is traveling.

For the sake of economy, the water covered area or field 5 may be provided with a plurality of definitely known courses rather than with a target located at each of the points 7 without departing from the spirit of the invention. In such a case certain sections of one course may be utilized as a section of any other course, as for example, the portion of the course A lying intermediate points 56 and 64 may be blended with course D. This blending may be carried out in any number of combinations to obtain a similar number of different courses with the use of but a comparatively small number of signals as will be readily appreciated.

The invention is not limited in use to the directing of bombs from an aeroplane but may be similarly carried out in connection with the directing of torpedoes from aeroplanes with the view to determining with what accuracy they may be directed at a moving target. For example, the aeroplanes instead of carrying bombs of the type shown herein, may be supplied with torpedoes, of the type indicated by the numeral 40, which are adapted to be dropped in the water at a suitable distance from the course of the imaginary battleship with the view to scoring as many direct hits as possible throughout the course being pursued by the imaginary enemy vessel. In order to check for accuracy in the firing of torpedoes, one or more captive balloons 41 may be stationed over the water covered area or field 5, or for the balloons observation aeroplanes may be employed. Where captive balloons or aeroplanes are employed for observation purposes, the exact time at which a torpedo crosses the path of the imaginary battleship is recorded, as by means of stop watches, one of which is indicated at 42; and the points 7, in the course of the battleship, between which the torpedo passes is also noted. By checking the time at which the torpedo passes over the course of the imaginary battleship and by noting the points in the course of the imaginary tar-

get between which the torpedo passes, it may be readily determined, after the course has been run, whether a direct hit has been scored, since, by the recording mechanism 23 at the central control station, the exact location of the imaginary battleship may be determined for any given instant during the running of the test. This system of checking not only enables one to determine how many, if any, direct hits have been scored but it also enables one to determine to what extent the target was missed by the torpedo or torpedoes not scoring direct hits.

Further use of the invention may be made to determine the accuracy of torpedo firing from a war vessel, in which case the attacking war vessel may be maneuvered outside of the course being pursued by the imaginary battleship. With the war vessel so maneuvering, the torpedoes are directed at the imaginary target with the view to scoring as many direct hits as possible. The accuracy with which the torpedoes are fired may be readily determined, as in the case of torpedoes fired from an aeroplane and hereinbefore explained, it being necessary only to observe, as from an observation airplane or a dirigible balloon following the course of the imaginary war vessel, the time at which the torpedo crosses the path of the imaginary battleship and record the points between which the torpedo passed and its distance from the nearest numbered point. With this data in hand and with the time recorded, by the recording device 23, at which the signals throughout the course pursued by the battleship were fired, it becomes an easy matter to determine whether a direct hit was scored or by what margin the target was missed.

It will be readily appreciated that the smoke producing flares 15 may be employed in the same manner during torpedo firing and for the same purpose as previously described in connection with bomb dropping.

Regardless of whether a plurality of definite courses are employed or the water covered area or field is provided with a signal device at each of the points indicated by the numeral 7, the aviator or aviators may be enabled to practice directing bombs or torpedoes at an imaginary target which simulates a warship operating under such conditions and maneuvering in such a manner as might be expected in actual warfare. Furthermore, the invention offers the same advantages in the practicing of torpedo firing from a moving war vessel. By the use of this invention the degree of accuracy with which the bombs or torpedoes were directed at the moving target may be readily determined, after the course has been run, thus enabling students of warfare to accurately determine the degree of efficiency that a bombing or torpedoing assault may be expected to have upon an enemy fleet in time of actual warfare.

Having thus described my invention I claim:

1. In a system of the character described, a field in the form of a water covered area, a missile adapted to be directed from a moving object towards a point on said field, means for recording the time at which said missile reaches said point, a plurality of operable target devices located on said field, means for actuating said devices in order to present a succession of targets, and means for recording the time at which each target is presented.

2. In a system of the character described, a field in the form of a water covered area, a missile adapted to be directed from a moving object towards a point on said field, means for recording the time at which said missile reaches said point, a plurality of operable target devices located on said field, means for actuating said devices in order over a prescribed course to present a succession of targets, and means for recording the time at which each of said targets is presented.

3. In a system of the character described, a field in the form of a water covered area, a missile adapted to be directed from a moving object towards a point on said field, means for recording the time at which said missile reaches said point, a plurality of operable target devices located on said field, common control means for selectively actuating said devices to project a succession of targets along a predetermined course, and means for recording the time at which each target is projected.

4. In a system of the character described, a field in the form of a water covered area, a plurality of operable target devices, means for actuating said target devices in order to present a succession of targets, means for recording the time at which each target is presented, a missile adapted to be directed toward a point on said field, and means for recording the time at which said missile reaches said point.

5. In a system of the character described, a field in the form of a water covered area, a plurality of operable target devices, means for actuating said target devices in order to present a succession of targets simulating an imaginary moving object, means for recording the time at which each target is presented, a missile adapted to be directed from a moving object toward a point on said field, and means for recording the time at which said missile reaches said point whereby, with the aid of the recorded time at which a given target was presented, the distance by which said missile missed said imaginary object can be determined.

6. In a system of the character described,

a field in the form of a water covered area, a missile adapted to be directed from above said field toward a point on said field, means for recording the time at which said missile reaches said point on said field, a plurality of operable target devices on said field, means for actuating said devices in order to present a succession of targets, and means for recording the time at which each target is presented.

7. In a system of the character described, a field in the form of a water covered area, a plurality of operable target devices located on said field, means for actuating said devices in order to present a succession of targets, simulating an imaginary moving object a missile adapted to be directed from a point over said field toward said imaginary object, means for recording the time at which each target is presented, and means for recording the time at which said missile reaches a given point in the course of travel of said imaginary object.

8. In a system of the character described, a field in the form of a water covered area, a plurality of floats located on said field, operable target devices carried by said floats, means for actuating said devices in order to present a succession of targets simulating an imaginary moving object, means for recording the time at which each target is presented, a missile adapted to be directed from a point over said field towards said imaginary object, a floating body detachably connected to said missile and adapted to be released from said missile when the missile strikes the water, and time recording mechanism carried by said floating body for recording the time at which said missile strikes the water.

9. In a system of the character described, a field in the form of a water covered area, a plurality of floats located on said field, operable target devices carried by said floats, means for actuating said devices in order to present a succession of targets simulating an imaginary moving object, means for recording the time at which each target is presented, a missile adapted to be directed from a point over said field towards said imaginary object, a floating body detachably connected to said missile and adapted to be released from said missile when the missile strikes the water, time recording mechanism carried by said floating body for recording the time at which said missile strikes the water, and means for anchoring said floating body to said missile.

10. In a system of the character described, a field in the form of a water covered area, a plurality of floats located on said field, operable target devices carried by said floats, means for actuating said devices in order to present a succession of targets simulating an imaginary moving object, means for recording the time at which each target is presented, a missile adapted to be directed from above said field towards said imaginary object and comprising separable sections, means for holding said sections together during flight of the missile and adapted to release said sections from each other when the missile strikes the water, one of said sections being adapted to float and the other to sink upon separation, and time recording mechanism carried by the floating section for recording the time at which the missile strikes the water.

11. In a system of the character described, a field in the form of a water covered area, a plurality of floats located on said field, operable target devices carried by said floats, means for actuating said devices in order to present a succession of targets simulating an imaginary moving object, means for recording the time at which each target is presented, a missile adapted to be directed from above said field towards said imaginary object and comprising separable sections, means for holding said sections together during flight of the missile and adapted to release said sections from each other when the missile strikes the water, one of said sections being adapted to float and the other to sink upon separation, time recording mechanism carried by the floating section for recording the time at which the missile strikes the water, and means for anchoring the floating section in the vicinity where the missile strikes the water.

12. In a system of the character described, a field in the form of a water covered area, a plurality of floats located on said field, operable target devices carried by said floats, means for actuating said devices in order to present a succession of targets simulating an imaginary moving object, means for recording the time at which each target is presented, a missile adapted to be directed from above said field towards said imaginary object and comprising separable sections, means for holding said sections together during flight of the missile and adapted to release said sections from each other when the missile strikes the water, one of said sections being adapted to float and the other to sink upon separation, time recording mechanism carried by the floating section for recording the time at which the missile strikes the water, means for anchoring the floating section in the vicinity where the missile strikes the water, and electrical means for controlling the operation of said time recording mechanism, said electrical means being rendered inoperative upon separation of said section.

In testimony whereof, I have affixed my signature to this specification.

ARTHUR W. PARSONS.