

No. 632,089.

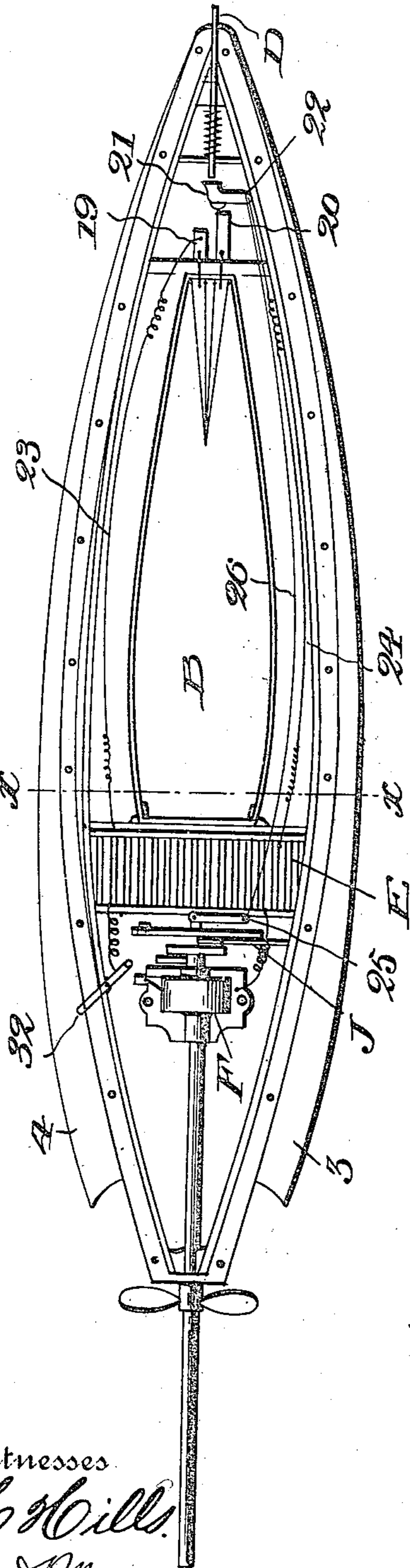
Patented Aug. 29, 1899.

T. E. BARROW.  
AUTOMOBILE TORPEDO.

(No Model.)

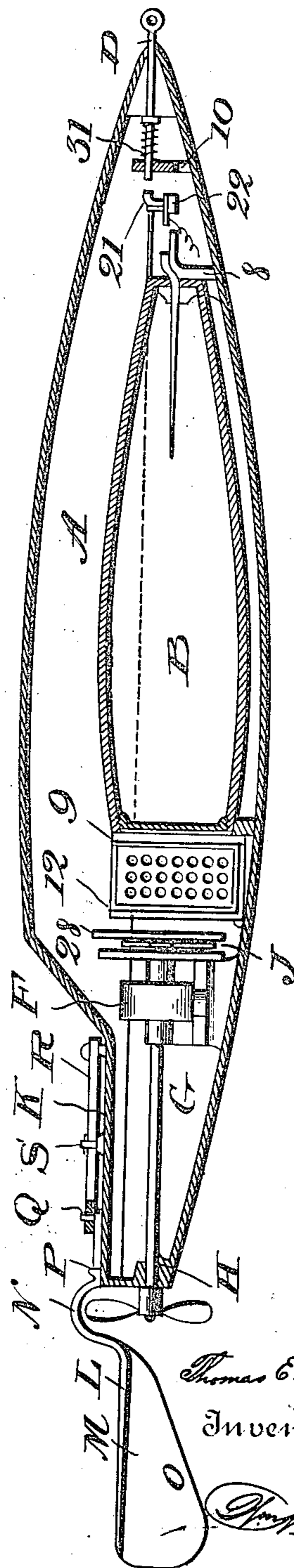
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Fig. 1



Witnesses  
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Fig. 2.



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Inventor

Attorney

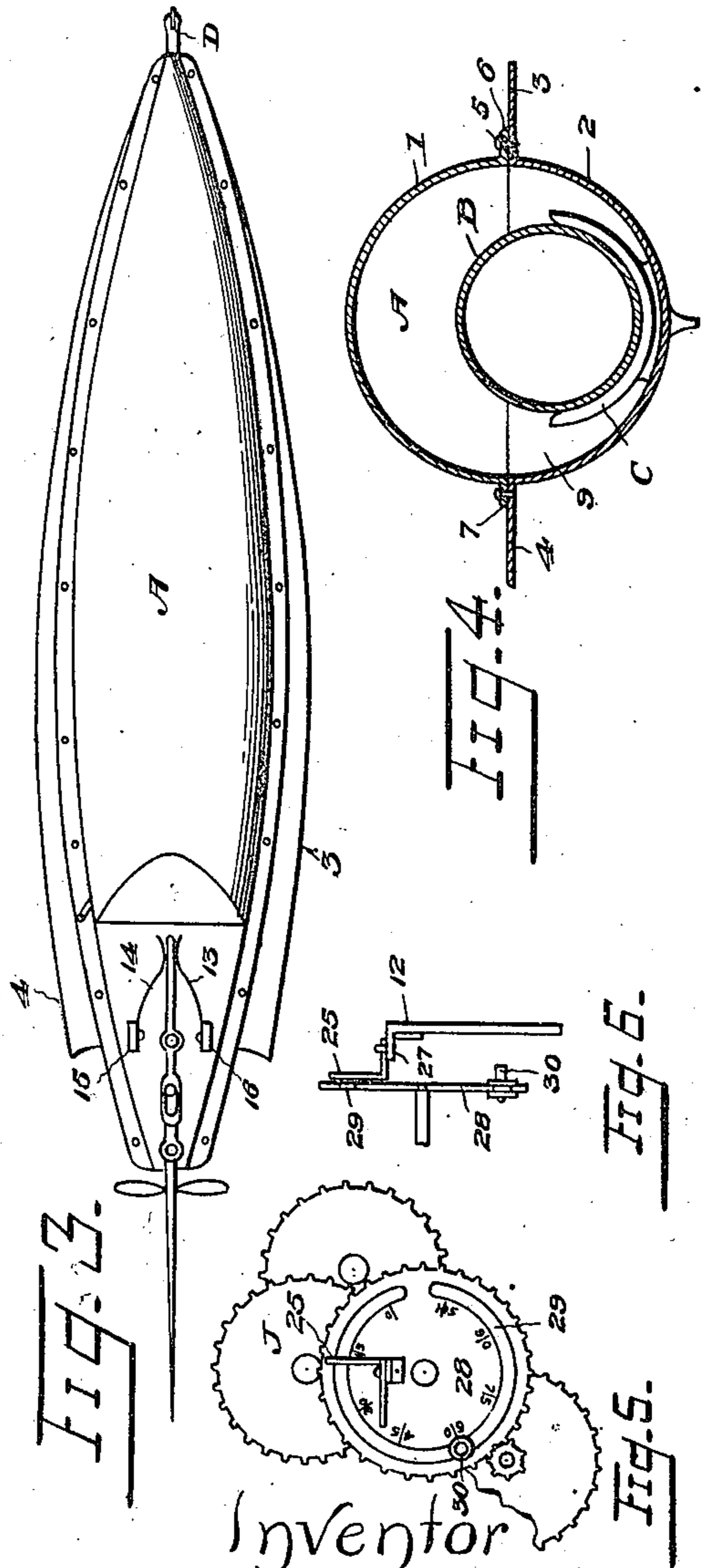
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# UNITED STATES PATENT OFFICE.

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TO LOUIS J. McCRAY, OF SAME PLACE, AND HENRY L. McCRAY, OF  
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## AUTOMOBILE TORPEDO.

SPECIFICATION forming part of Letters Patent No. 632,089, dated August 29, 1899.

Application filed July 11, 1898. Serial No. 685,658. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS E. BARROW, a citizen of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Marine Motor-Torpedoes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in submarine automobile torpedoes; and the objects of my invention are, first, to provide a submarine torpedo for naval warfare that can be sent through the water in any direction without being fired from a torpedo-tube; second, to construct a torpedo that can be sent through the water any distance required and be exploded by coming in contact with any obstruction or at any given time set by electricity stored within the torpedo; third, to construct the shell which carries the explosive charge separate from the outer case, the same to be loaded and carried in the magazine ready for use; fourth, to so construct the explosive shell that it will be ignited by an electric current supplied by a battery carried within the outer case, the electric current actuated by the stem or front end of the outer case coming in contact with the objective point or at a given time by a gear mechanism operated by a clock-spring placed in the stern or rear end of the outer case, the exact construction and mode of operation being fully explained hereinafter, and, fifth, the provision of a means whereby the rudder is maintained in a central position. These objects I accomplish by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved automobile torpedo with the top of the casing removed. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a top view of motor-case intact, showing more fully the mode of operating the rudder. Fig. 4 is a transverse

sectional view taken in line  $x x$ , Fig. 1. Fig. 5 is a front view of a train of gears to be operated with a clock-spring for exploding the explosive charge at any given time. Fig. 6 is a side sectional view of the slow gear, adjustable pin, and switch-lever connection, showing the mode of operating the same.

Similar letters and figures of reference indicate the several parts throughout the several views.

In the accompanying drawings, A indicates an outer shell or case. The said case is made in two parts 1 and 2. The lower half 2 is provided upon each side with outwardly-projecting fins or flanges 3 and 4. The said flanges serve for two purposes—first, to form a seat for the upper half 1 and to which the upper half is bolted by the bolts 5, and, second, to form fins to hold the torpedo level when in the water and obviating all danger from turning over. The upper half or section 1 is also provided with small flanges 6 and 7, and flexible packing is placed between the flanges to make a water-tight joint when the sections 1 and 2 are bolted together. The lower half of the case is provided with the bulkheads 8 and 9, and between the same and near the bottom of the lower half of the shell rests the explosive shell B, in suitable bearings C, secured to or forming part of the bulkhead or partition. The object in placing the torpedo B below the center of the outer shell or case is to ballast and keep the case A in a normal position when passing through the water.

The front end or point of the outer case is provided with a spring-bolt D, operating in suitable bearings 10 in the lower half of the outer shell. Its object will be fully explained in the operation.

E indicates a storage battery which is placed between the partitions 9 and 12 to retain the same in position. I mention storage "battery," but any other device may be used which will give sufficient current to propel the torpedo.

F indicates an electric motor, which may be of any construction to rotate the propeller-shaft G. The said shaft rotates in suitable bearings H, secured at the stern end of the

lower half of the outer case and is provided upon its outer end with a suitable propeller I. The front end of the said shaft may be attached direct to the motor-shaft or may be separate and geared one to the other with spur-gears of different sizes to increase the velocity of the propeller-shaft above that of the motor.

I will now give a description of the rudder or steering mechanism.

The upper half of the outer shell or case A is so constructed at the stern end as to form a flat deck or platform K. This deck is used for the rudder mechanism. The rudder L is composed of the bar M, which is horizontal and bent in the center to form a U-shaped loop N to form an opening to allow the rotation of the propeller I. The outer end is provided with the downwardly-projecting blade O. The said rudder arm or bar is pivoted on the pivot-bolt P, secured upon the deck K. The inner end of the said bar is provided with the upwardly-projecting pin Q, which passes through a slot formed in the rear end of the bar R, which is pivoted upon the standard S, secured upon the deck K in a center line. The inner end is placed between two springs 13 and 14. The said springs are secured at their rear ends to the standards 15 and 16. The loose ends of the springs bear against the loose end of the bar R. Any tension required can be placed upon the springs bearing against the loose end of the lever R.

The torpedo-shell B is separate and distinct from the outer case A and tapers from the center toward the ends, the front end being the smaller, and it may be solid and also may be screwed within the shell. The large or rear end is screwed within the cylinder for the convenience of loading the same. The front end is provided with two tapering carbons 17 and 18, so placed that their inner sides, near the points, come in contact with each other. The large ends, which are secured within the cylinder-head, are insulated from the head to prevent all accident when placing the shells within the outer case and making the connections with the battery. Wire connections are made from the carbons to the switch-plates 19 and 20. These plates, when secured to the head, are also insulated from the shell and from each other.

21 indicates an electric switch-lever pivoted upon a suitable bracket 22. The lever composing the switch is placed in such a position that the loose end lines with the plunger-bolt D. The electric wire 23 connects one pole of the battery to the carbon-point 18. The other pole of the battery is connected to the switch-lever 21 by the electric wire 24. (Shown fully in Fig. 1.)

It will be readily seen by those skilled in the art that should the switch-lever 21 be forced in contact with the switch-plate 20 the electric current through the carbons is closed, causing electric heat at these points of contact, exploding the charge placed within

the shell B. The crank-lever 25 is connected to the switch-lever 21 by a rod 26 or any suitable connection. The lever 25 is pivoted upon a suitable bracket 27, secured to the partition 12, and is operated by the chain of gears or clock-motor J, which is of any form of clock mechanism run by a spring. The object of this connection is to explode the torpedo at any given time without the spring-bolt D coming in contact with any object, as the crank-lever 25 is so arranged as to be contacted by the pin 30, adjustably or movably secured in the groove or slot 28, formed in the face of the cog-wheel or slow-gear 29, which is connected to the same mechanism of a clockworks that moves the hour or minute hand, as desired, and thus it will be seen that by winding the clock mechanism the clockworks are set in motion, and to cause the explosive charge to be exploded at a determinate time the pin 30 is slid in the slot in the body of the slow gear until it is opposite the time desired inscribed upon the face of the gear, when the motor of the torpedo is set in motion and the torpedo glides on its way toward the obstruction, and when the pin 30 comes in contact with the lever 25, which in turn pulls upon the rod or connection 26 and causes the lever 21 to be brought in contact with the plate 20 of the carbon-point, which causes an electric circuit, which causes the points to ignite the explosive charge to explode the same. It will also be seen that with this time mechanism in connection with the striking mechanism my torpedo may be caught in the protective nets used to surround vessels and not being exploded by said contact will at a certain time be caused to explode by the time mechanism. The battery also supplies a current for the electric motor, which is put in motion by the switch-lever 32 or button attachment.

The shells or torpedoes B are loaded and kept ready for use placed in a suitable magazine, also the storage batteries. When it is necessary to use the torpedoes, all that is necessary to do is to place the battery E in its proper position, then place the torpedo in its bearings C in the partitions 8 and 9, attach the wires 23 and 24, and also the wires 33 and 34 from the battery, to the motor F. The upper half 1 is then screwed down upon the lower half 2 by the screws 5. It is then ready for operation. It is then placed in the water and pointed toward the object to be destroyed. The motor is then started by the button or lever 32, which conveys motion to the propeller I through the shaft G, forcing the torpedo through the water in a straight line to the object.

Having fully illustrated and described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A submarine automobile torpedo, consisting of an outer and inner case, an electric battery situated in the rear of the inner case, a motor to propel said torpedo located in the

outer case and operated by the battery, and a mechanism to complete a circuit when the torpedo strikes an obstruction to explode the charge in the inner case, consisting of a spring-actuated bolt movably secured in the forward end of the outer casing, a lever adapted to be contacted by said bolt, and two igniting-points located in such a manner and connected with the battery so that when the lever is struck by the bolt, the lever contacts one of the igniting-points and makes an electrical circuit to ignite a charge in the inner case.

2. A submarine automobile torpedo, consisting of an outer and an inner case, an electric battery in the outer case, a motor to propel said torpedo located in the outer case and operated by the battery, and a mechanism to complete an electric circuit at any desired time to explode the charge in the inner case, consisting of the clock mechanism, a slow gear carried by said mechanism provided with a dial and slotted face, a pin adjustably secured in said slot, a crank-lever mounted upon a rod in the rear of the battery, a lever in the front of the outer casing having electrical connection with the battery and being operated by the lever in the rear of the battery when the same is contacted by the pin carried by the slow gear, and means for igniting the charge having electrical connection with the battery and forming a complete circuit when contacted by the lever in the forward part of the outer casing.

3. A submarine automobile torpedo, consisting of a two-part outer double-pointed shell or casing, the bottom part of said shell being formed with the flanges or wings to

steady the shell in the water and carrying the explosive charge and means to explode the same, and a deck formed upon the rear of the upper part of the shell carrying a steering mechanism for the torpedo.

4. A submarine automobile torpedo, consisting of a shell or casing formed in two parts an upper and a lower one, said lower part having part of its edges terminating in the balancing flanges or wings, a tapering casing located in the forward part of said lower part for containing the explosive charge, an electric battery and motor located in said lower part for propelling the torpedo and furnishing electricity to explode the charge and operate the motor, and a device in the forward part of the shell to make an electric circuit to explode the charge when the torpedo strikes an obstruction.

5. A submarine automobile torpedo, consisting of a shell or casing formed in two parts an upper and a lower one, said lower part carrying a pair of balancing wings or flanges, a tapering casing located in the forward part of said lower part for containing the explosive charge, an electric battery and motor located in said lower part for propelling the torpedo and furnishing electricity to explode the charge and operate the motor, and a mechanism to cause an electric circuit to explode the charge at any desired interval or time.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS E. BARROW.

Witnesses:

V. C. ROUTZAHN,  
GEO. W. STATLER.