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M. V. T. DUBREUIL.

CONSTRUCTION OF VESSELS.

No. 536,135. Patented Mar. 19, 1895.

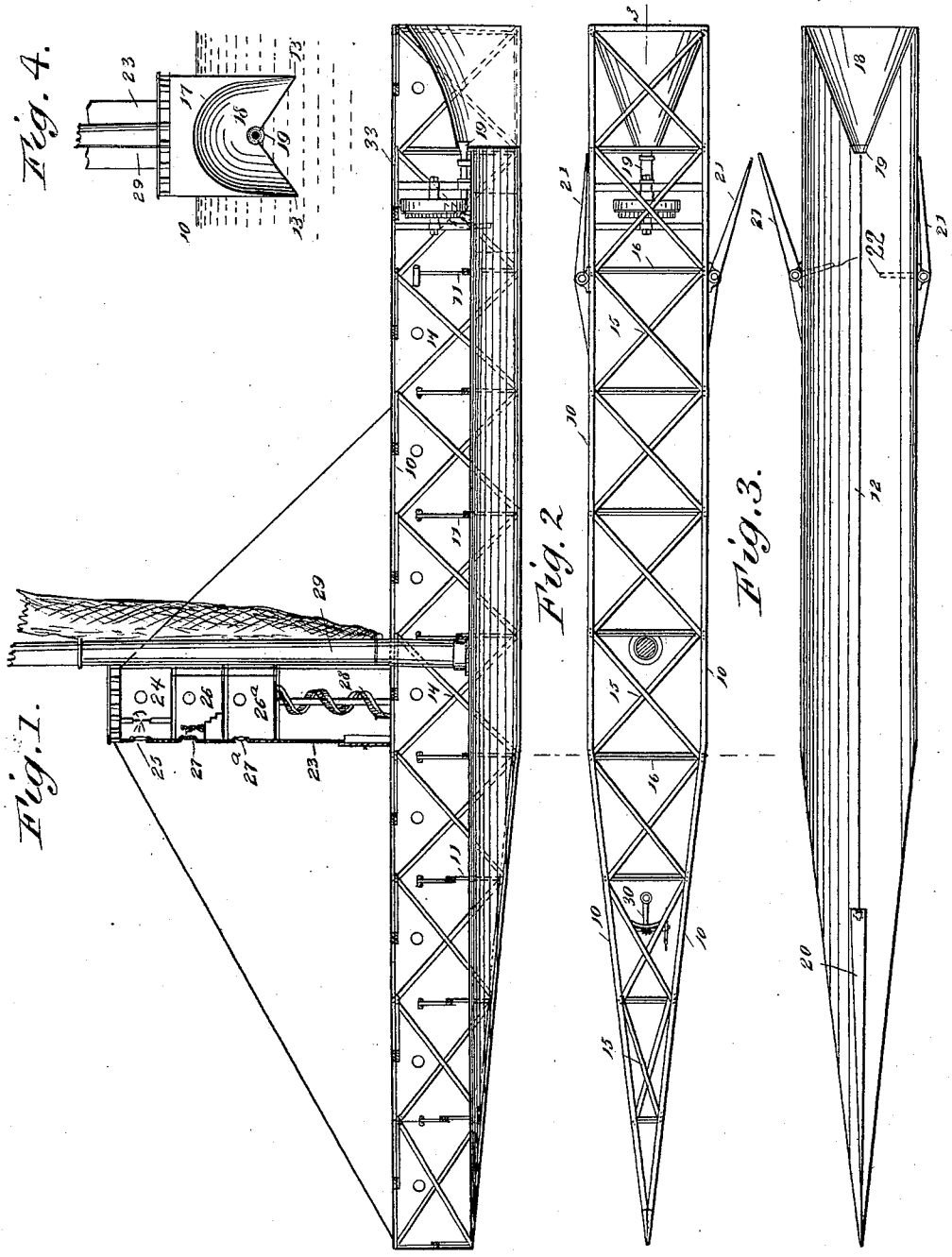

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Fig. 6.

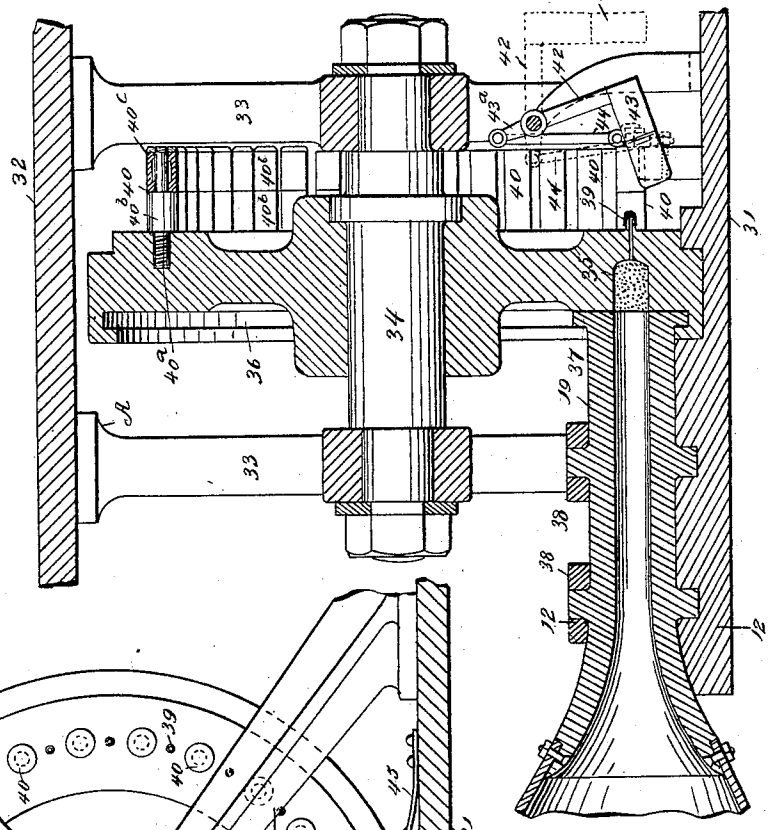

Fig. 5.

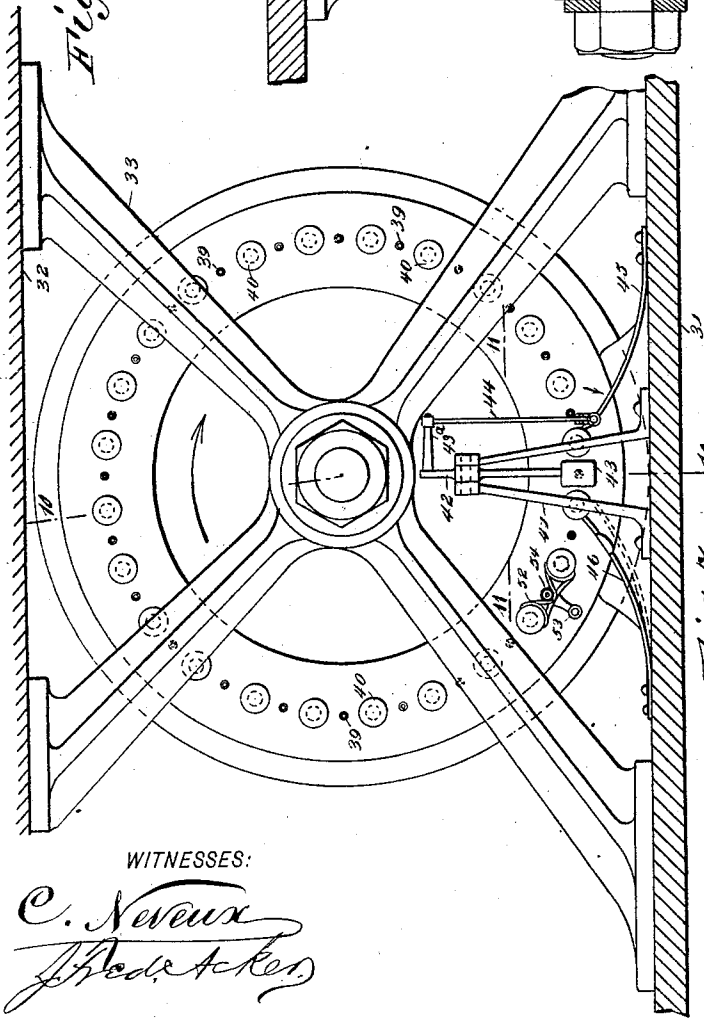

Fig. 7.

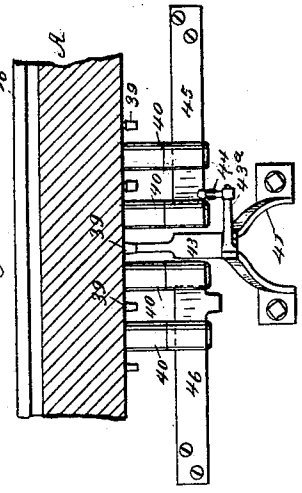

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Fig. 9.

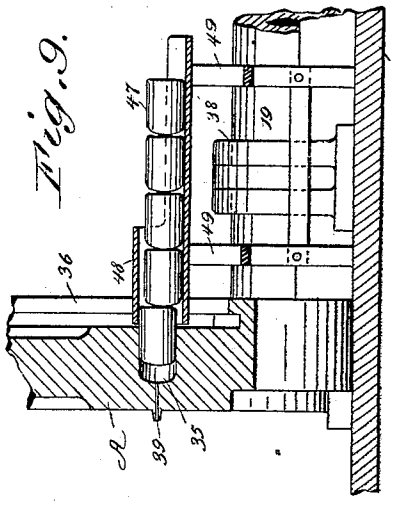


Fig. 10.

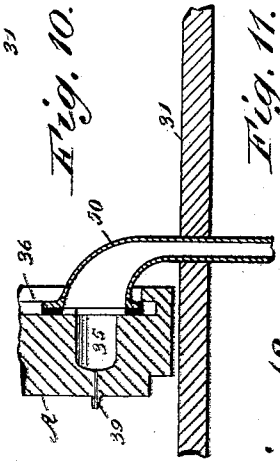


Fig. 11.

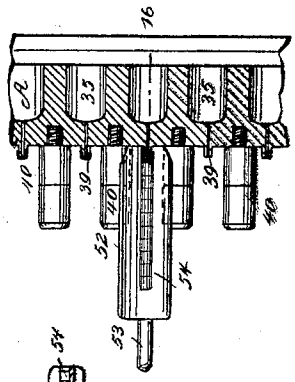


Fig. 12.

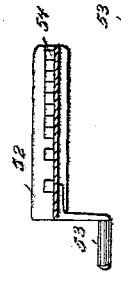
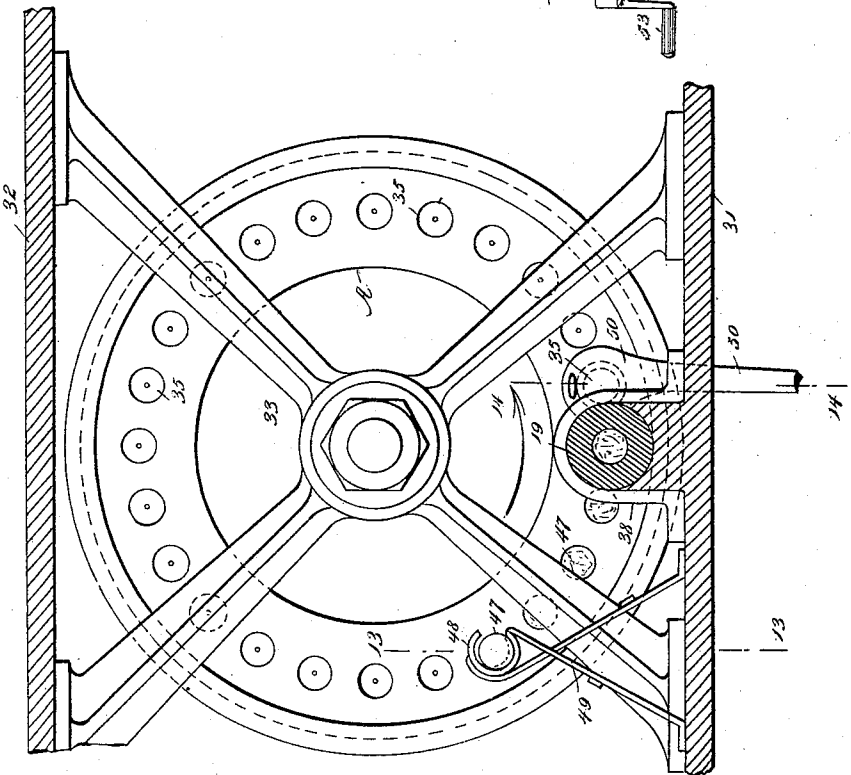


Fig. 8.



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UNITED STATES PATENT OFFICE.

MARIE VICTOR THEODORE DUBREUIL, OF NEW YORK, ASSIGNOR OF ONE-HALF TO MICHEL MEYER, OF TUXEDO PARK, NEW YORK.

CONSTRUCTION OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 536,135, dated March 19, 1895.

Application filed August 24, 1894. Serial No. 521,166. (No model.)

To all whom it may concern:

Be it known that I, MARIE VICTOR THEODORE DUBREUIL, of New York city, in the county and State of New York, have invented a new and useful Improvement in the Construction of Vessels, of which the following is a full, clear, and exact description.

My invention relates to the construction of vessels, and it has for its object to provide an improved means of propulsion, employing explosives as a propelling medium.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a central longitudinal section of the frame of the hull, taken on the line 3—3 of Fig. 2. Fig. 2 is a plan view of the framing of the hull. Fig. 3 is a bottom plan view of the complete hull. Fig. 4 is a rear elevation of the complete hull. Fig. 5 is an enlarged rear elevation of the trip band adapted for attachment to the chambered wheel adapted to carry explosives. Fig. 6 is a vertical section through the said chambered wheel and through the trip band, the section being taken practically on the line 10—10 of Fig. 5. Fig. 7 is a detail horizontal section, illustrating the manner in which the trip devices of the trip band operate upon the hammer adapted to be used to explode a charge. Fig. 8 is a section taken substantially on the line 12—12 of Fig. 6. Fig. 9 is a section taken substantially on the line 13—13 of Fig. 8, illustrating the manner in which the charges are placed in the chambers of the propelling wheel. Fig. 10 is a section taken substantially on the line 14—14 of Fig. 8. Fig. 11 is a central view through the wheel provided with the explosive chambers, and illustrating the manner in which the caps are applied thereto; and Fig. 12 is a section on the line 16—16 of Fig. 11.

In carrying out the invention the hull is preferably pointed at the bow and is given a rearward sheer in opposite directions, ordinarily to a point near the center, from whence the sides of the vessel are usually continued straight to the stern, as shown in Figs. 2 and 3, and the bottom of the hull is given a downward sheer or inclination from the bow, terminating at practically the same point as the side sheer or inclination, whereby the bow of the vessel's hull is narrower than at any other portion of its length.

The sides 10 of the hull may be of metal or of any approved material, and are connected on the inside by a series of cross transverse braces 11, the braces 11 being practically **X**-braces, and as the bottom 12 is made to follow the inverted **V**-shape of the lower members of these braces, as shown in Fig. 4, two keels 13, are obtained, one at each side, and the vessel is given an inverted trough-shaped run. The hull is further braced by side crossed beams 14, extending from bottom to top, and these beams are arranged in longitudinal series, as is best shown in Fig. 1. The deck beams 15 are likewise crossed, and also serve to connect the sides of the vessel, and transverse straight beams 16 may also be employed to tie the side walls of the vessel together, and may serve also as girders for the flooring, if necessary.

The stern of the vessel is provided with an overhang, and beneath said overhang an arched chamber 18 is formed, somewhat bell-shaped since it is widest at its outer end, and a conducting tube 19, located upon the inside of the vessel's hull is made to extend through into the contracted portion of the said stern chamber 18, as shown in Figs. 1, 2, 3 and 4, the explosive employed for the propulsion of the vessel finding an exit through this tube, and consequently it impinges upon the water with which the tube is constantly filled. The tube at its outer end is made more or less flaring, or trumpet shaped.

A rudder 20 is placed longitudinally beneath the central portion of the bow of the vessel, as illustrated in Fig. 3, being operated by suitable gear 30, located conveniently within the vessel's hull and illustrated in Fig. 2. In addition to the bow rudder 20, two side or fin rudders 21 are employed, pivotally attached to the sides of the vessel near the

stern, being operated through the medium of levers 22, or their equivalents, from the hull, as illustrated in Fig. 3.

Upon the deck, preferably near the bow, a tower or turret 23 is erected, the said turret being usually provided, as illustrated in Fig. 1, with an upper chamber 24, an intermediate chamber 26 and a lower chamber 26^a. The upper chamber 24, is fitted with an electric or other light, which shines through lenses 25, suitably placed in the walls of this chamber. The intermediate chamber 26, is likewise provided with lenses or side openings 27, and this chamber is used for taking observations, or for equivalent purposes, while the lower chamber, which is provided with ports or lenses 27^a may be a reception or chart chamber, or may be used likewise for purposes of observation, and these chambers are reached through the medium of a stairway 28, located in the turret or tower. This turret or tower is preferably located in front of the mast 29, which may be stepped or secured in the hull in any well known manner.

In the stern of the vessel, just forward of the stern chamber 18, cross braces are located, one set of braces in front of the other, the said braces being designated as 33 and shown enlarged in Figs. 5 and 8, the braces being made to extend, for example, from the floor 31 of the compartment in which they are located to the deck 32. These braces form bearings or supports for a shaft 34, rotated in any approved manner; and upon the said shaft a wheel A is mounted, and the said wheel is provided with a series of chambers 35, extending through the outer face of the wheel, the chambers being in any desired number and circularly arranged, as illustrated in Figs. 6 and 8. The wheel is likewise provided upon its outer face near its periphery with an annular groove 36, receiving a flange 37 upon the inner end of the conducting tube 19, the several chambers 35 being adapted to register with the bore in this tube, one chamber after the other, and the explosive compound used is packed in these chambers preferably in the form of cartridges.

The conducting tube is rigid, being attached to the flooring 31 or other support by means of straps 38. Each cartridge compartment 35, is provided with a channel extending from its inner or rear end through to a nipple 39 formed upon the inner surface of the wheel, and between each two nipples, as shown in Fig. 5, a trip pin 40, is secured in the inner face of the wheel. These pins 40 are all of the same construction, each consisting of a reduced threaded inner section 40^a, which is screwed into the wheel as shown in Fig. 6, an enlarged body 40^b outside of the wheel and contacting therewith, and a reduced outer section upon which a sleeve 40^c is loosely mounted, as is likewise shown in the said Fig. 6.

As the wheel revolves, the trip pins are adapted to act upon a hammer for the purpose of causing the latter to explode a cap upon one of the nipples 39 when the cartridge chamber to which the said nipple belongs is brought in registry with the bore of the conducting tube 19.

About centrally in front of the inner face of the wheel A, standards 41 are erected, in which an arm 42 is pivoted, carrying at its lower end a hammer 43, the said hammer being in alignment with the various nipples as they are brought to the lower portion of the wheel. The arm 42 is provided at its upper end with a crank arm 43^a, and the said arm is connected by a link 44 with a spring 45, the said spring being attached to the flooring 31, or other support at one side of the standards 41, a like spring 46 being in similar manner located at the opposite side of the said standards, as is best illustrated in Fig. 5.

The spring 45 is preferably provided with a projection which is higher than the under surfaces of the rolling sections 40^c of the trip pins 40. As the wheel is revolved one of the trip pins will engage with the projection on the spring 45 and depress said spring, thus carrying the hammer 43 from the wheel to firing position, as shown in dotted lines in Fig. 6; and when the wheel is revolved so far as to bring one of the cartridge chambers in alignment with the conducting tube, the trip pin that had depressed the spring 45 will have released itself from the spring and thereby released the hammer, permitting it to swing outward, strike the cap and explode the cartridge in said chamber.

The distance between the two springs 45 and 46 is equal to that between the outer faces of two adjoining trip pins. Thus at the time of firing the spring 45 will be in engagement with the outer side of one trip pin, and the spring 46 in engagement with the outer side of the opposite pin, as shown in Fig. 5, and by this means the wheel is held from revolving until after the explosion has taken place. When the wheel is again turned, after the cartridge has been fired, the spring 46 yields, its free end being depressed so that the pin 40 passes over it, whereupon the said spring instantly resumes its normal position.

The cartridges 47 are placed in a tube 48, which is circular for a portion of its length and semi-circular for the remaining portion; and this tube is supported upon standards 49, or other form of bearings, as shown in Figs. 8 and 9, located adjacent to the outer face of the wheel, or that carrying the cartridge chambers, and the position of the loading casing or tube 48 is such that as the empty cartridge chambers are made to approach the conducting tube by the movement of the wheel, they will be brought one after the other in registry with the circular portion of the loading casing, and an operator standing near by can quickly load the empty chambers by simply pressing the column of cartridges in

direction of the wheel until one of them has entered and filled an empty chamber, as is particularly shown in Fig. 9.

Since the conducting tube opens out into the sea, after the cartridge has been exploded in the wheel chamber the water will enter the empty chamber. It is therefore necessary that the water should be emptied from the chamber that it may receive another cartridge. To that end a funnel 50 is located at one side of the conducting tube within the hull, having a water-tight connection with the outer face of the wheel, as shown in Figs. 8 and 10, and as soon as the chamber containing the water passes from the tube 19 it will be brought in registry with the funnel 50, which connects with a reservoir in the bottom of the hull, and therefore the compartment in which the wheel is placed is prevented from becoming wet.

The caps are placed upon the nipples preferably in the manner shown in Fig. 11, and through the medium of a loading casing 52, shown in Figs. 5 and 12, as well as in Fig. 11. This casing is so shaped that it is provided with a trough or depression in its upper face and at its outer end is usually provided with a crank arm or handle 53, while the sides of the loading casing are concaved, or so shaped that they will rest upon the inner faces of opposing trip pins 40. The caps 54, lie in longitudinal alignment in the trough of the body of the casing, and the column of caps is pushed forward until the innermost one has fitted itself over a nipple, whereupon the loader is removed and made to engage with two other trip pins to load the nipple between them.

It will be observed that the manner of propelling this vessel is entirely through the medium of explosives, and by exploding cartridges or any equivalent thereof, from a constantly revolving cannon or mortar wheel or equivalent object, presenting cartridges successively to a conducting tube or its equivalent, in the stern of a ship, the impact of the exploding material upon the body of water upon which the ship floats serves to propel the vessel ahead at each explosion; and as the explosions can be made to occur at exceedingly frequent intervals, there need be practically but little break in the forward propulsion of the vessel, and no damaging jar need be sustained by the vessel itself.

I do not claim herein the particular construction of the vessel, tower, or rudder, as these parts form the subject-matter of separate applications filed by me on or about November 23, 1894, Serial Nos. 529,710 and 529,711.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In the propulsion of vessels, the combination, with a hull, a cannon-like conductor located at the stern and extending from within the hull to the exterior thereof, and a rotating receiver mounted within the hull and provided with a series of chambers adapted to receive explosive material and to register successively with the bore of the cannon-like conductor, of a hammer adapted to cause the explosion of the explosive material in registry with the cannon bore, and a trip mechanism carried by the rotating receiver and adapted to actuate the said hammer, as and for the purpose specified.

2. In the propulsion of vessels, the combination, with a hull, a cannon-like conductor located at the stern and extending from within the hull to the exterior thereof, and a rotating receiver mounted within the hull and provided with a series of chambers adapted to receive explosive material and to register successively with the bore of the cannon-like conductor, of a hammer adapted to cause the explosion of the explosive material in registry with the cannon-bore, a trip mechanism carried by the rotating receiver and adapted to actuate the said hammer, and check devices adapted to act upon the receiver, as and for the purpose set forth.

MARIE VICTOR THEODORE DUBREUIL.

Witnesses:
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