M. KLAUBER.

SUBMARINE MINE.

APPLICATION FILED APR. 7, 1908.

913,401. Patented Feb. 23, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

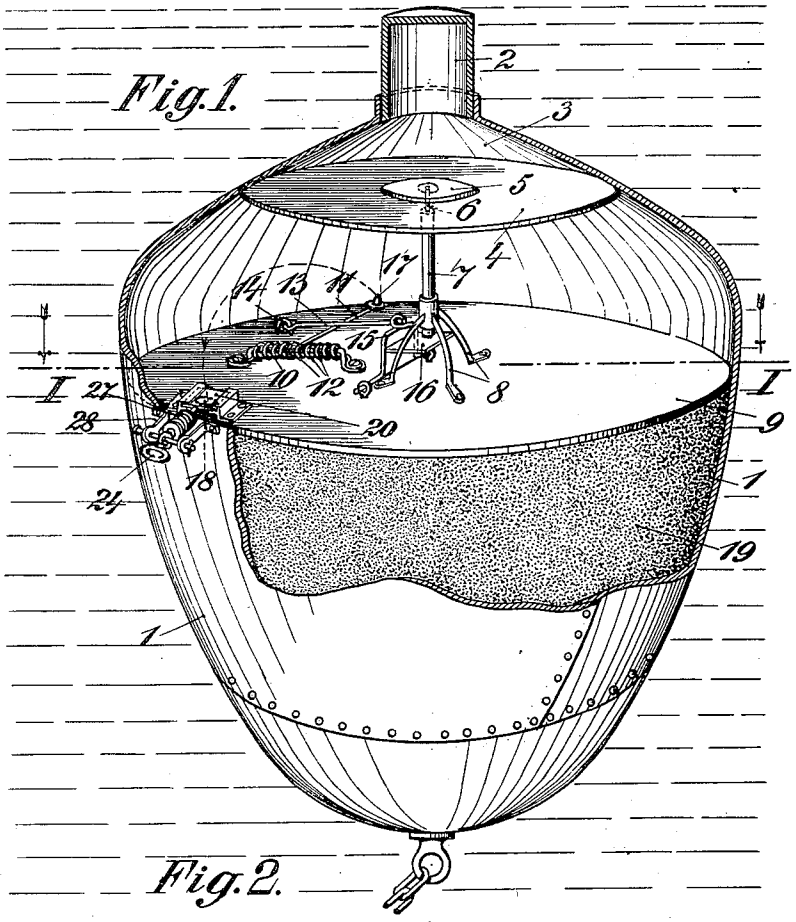
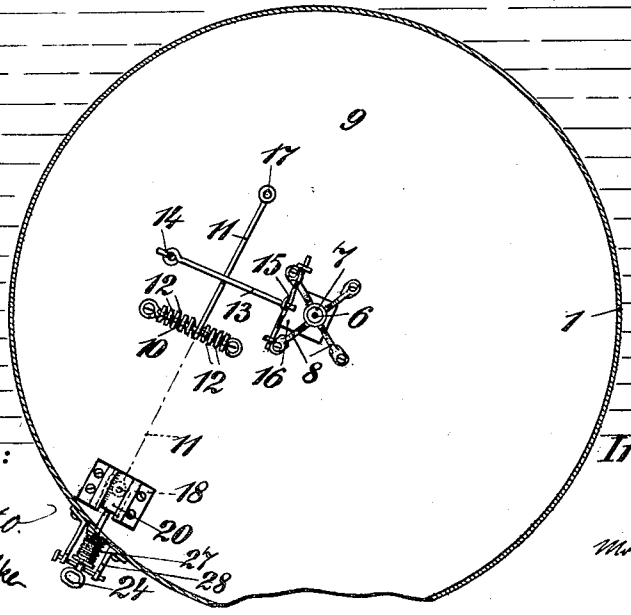



Fig. 2.




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2 SHEETS—SHEET 2.

Fig. 3.

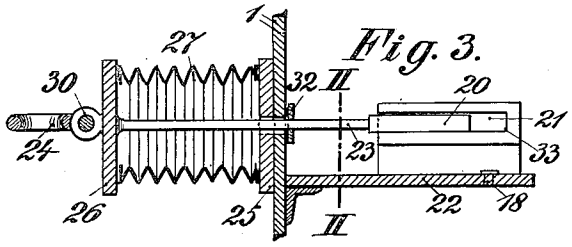



Fig. 4.

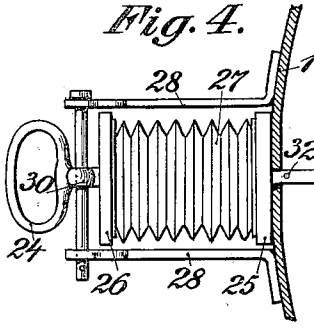
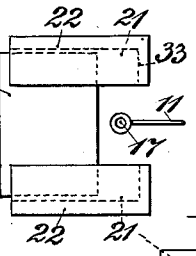



Fig. 5.



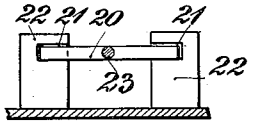




Fig. 8.

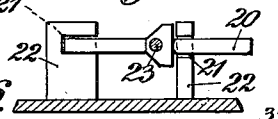
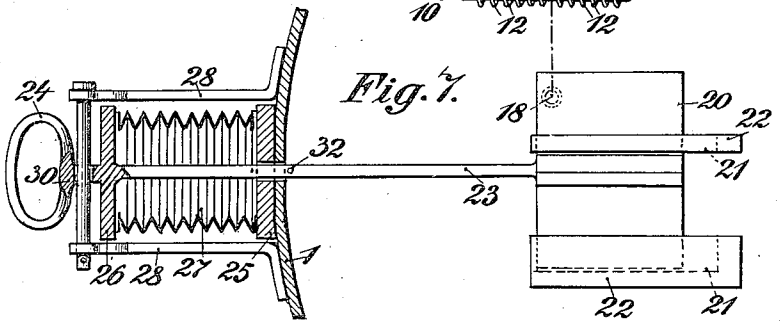



Fig. 6.




Fig. 7.




Witnesses:

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# UNITED STATES PATENT OFFICE.

MORIZ KLAUBER, OF PRAGUE, AUSTRIA-HUNGARY.

## SUBMARINE MINE.

No. 913,401. Specification of Letters Patent. Patented Feb. 23, 1909.

Application filed April 7, 1908. Serial No. 425,635.

*To all whom it may concern:*

Be it known that I, MORIZ KLAUBER, a subject of the Austrian Emperor, and resident of Brandelgasse 12, Prague, Bohemia, Austria-Hungary, have invented certain new and use-Improvements in Submarine Mines, of which the following is a specification.

The object of the present invention is an improvement in submarine mines, and relates to an arrangement whereby the certain explosion of the mine is insured in the simplest manner possible when any object comes against it, on the one hand, and an arrangement whereby the mine may be temporarily brought out of action so that it cannot explode, on the other hand.

The arrangement consists essentially of a percussion hammer under the action of a spring, and secured in its position by a locking device which is released when any ship comes into contact with the mine and allows the hammer to knock against the ignition wad, so that the mine charge is fired and explodes. Further, in the interior of the mine a movable protecting shield is placed which can be moved backward and forward from the outside, and can be pushed over the ignition wad so that it protects the latter from the hammer and receives the blow of the same itself. By this arrangement absolute safety from explosion is obtained when laying mines, and it is also possible when the other conditions allow it, to make the mine safe from explosion by shifting the protecting shield, even when the mine has been in the water a long time, and without having to bring it to the surface, and later on to prepare it for exploding again by withdrawing the protecting shield.

On the accompanying drawings, the improvements according to the present invention are illustrated.

Figure 1 is a view in perspective, and partly a vertical section through the mine respectively. Fig. 2 is a horizontal section through line I—I of Fig. 1. Figs. 3—8 show two forms of construction of the safety arrangement. Fig. 3 is a side view and a vertical section respectively of one form of construction. Fig. 4 is a plan and horizontal section respectively. Fig. 5 is a vertical section through line II—II of Fig. 3. Fig. 6 shows a second form of construction of the safety arrangement, being a side view and vertical section respectively. Fig. 7 is a plan and horizontal section respectively. Fig. 8 is a vertical section through line III—III of Fig. 6.

On the case 1 of the mine which is anchored in the usual manner a known form of glass cap 2 is placed. Directly below the latter inside the case 1 is a small space 3 which is made tight below by means of a leather bottom 4 or similar device. In the center of this bottom part 4 is a plate 5 which should preferably be constructed of wood. On the plate 5 a rod 6 is fixed, which is guided vertically in a tube 7 without friction, the tube being attached to the partition 9 by means of the feet 8. Further, on this partition 9 an axle 10 is firmly attached on which the percussion hammer 11 turns. Springs 12 are placed round the axle 10 which continually exert an effort to bring the hammer 11 into the dotted position shown in Fig. 2.

In order to maintain the hammer 11 in the position shown in Fig. 1, where it is under the tension of the spring, a detent arm 13 is placed above it, the end of which is linked to an eye 14, while the other end is held by a catch 15. The latter is fixed to the partition 9 so that it can turn and carries a plate 16 on one side, which is at right angles to the bow-formed catch 15. The rod 6 rests on this plate 16. If a ship now comes into contact with the mine, the shock will break the glass cap 2 and the water will flow through the opening formed, into the space 3. Hereby the elastic bottom 4 carrying the plate 5 will be bent down and consequently the rod 6 will move downward in the tube 7. The same will thus press downward on the plate 16, whereby the bow-formed catch 15, which is attached to the latter, will be turned and drawn from the end of the detent arm 13. The last will thus be released so that the hammer 13 can fall into the dotted position shown in Fig. 2, by the action of the springs 12. In this way the end of the hammer 17 knocks against the ignition-priming 18 of a cartridge placed in the partition 9, whereupon the charge 19 is fired and the mine exploded.

In order to be able to lay the mine and remove the same without danger, for to place the same temporarily out of action the following arrangement is provided. Inside the case of the mine 1 a plate 20 is placed above the ignition-priming 18 of the cartridge, which by means of its parallel sides may be moved in the slots 21 of the guide pieces 22 without friction. The plate 20 is attached

to a rod 23 which passes through the case of the mine and has a handle 24 at its end, by means of which the plate or shield 20 inside the mine can be moved backward and forward. At the point at which the rod 23 projects from the mine a plate 25 is fixed to the case 1 through which the rod 23 also passes. A plate 26 is fixed to the rod 23, the construction of which is similar to the plate 25. The handle 24, the plate 26, the rod 23 and the shield 20 are all connected together. In order to prevent the entry of water at the point where the rod 23 enters, the mine, both plates 25 and 26 are connected together and made watertight by means of leather bellows 27, or similar arrangement, so that a thoroughly watertight packing is insured.

For fixing the protecting shield 20 in its end positions rails 28 are placed on both sides of the rod 23 and parallel to it, these rails being provided with corresponding holes 29. A rod 30 is passed through the holes 29 and a ring 30 on the handle, whereby the plate 20 is fixed in its position. By the use of stops 32, 33 the movement of the plate 20 can be limited, thus allowing a safe adjustment of the same in every case.

In the form of construction shown in Figs. 3—5 the protecting shield 20, in order to protect the cap 18 against the action of the percussion-hammer, must be pushed toward the inner part of the mine. The arrangement can, however, also be made as shown in Figs. 6—8 so that the shield 20 must be drawn outward toward the mine case in order to cover the cap 18. In the first case, the hammer 11 will fall onto the cap 18 in the direction of movement of the shield 20 (Fig. 4), whereas in the last case it moves vertically to the shield 20, as shown in Fig. 7. If when laying or removing the mine or for any other reason it is desired to put the mine out of action, it is only necessary to move the protecting shield over the ignition-cap and to secure the former in its position in the manner described. An accidental blow from the hammer will thus be caught by the safety shield.

By removing the safety shield from the ignition-cap the mine can again be prepared for operation at any time.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a submarine mine in combination with a case, a breakable cap on the latter, an elastic bottom in the said case below the said breakable cap, a rod attached to the said elastic bottom and moving with the latter, a hammer under the tension of a spring turnably fixed inside the said case and suitably adapted to give a blow on the ignition-cap of a cartridge placed inside the mine, means to hold the said hammer in the strained position of the spring, the said movable rod adapted to act on the said means for holding the hammer and releasing the latter, means adapted to cover the cap of the said cartridge and catching the blow of the hammer, substantially as and for the purpose set forth.

2. In a submarine mine in combination, a closed case, a breakable cap on the latter, an elastic bottom in the said case below the said breakable cap, a vertically guided rod fixed to the said elastic bottom, a hammer under the tension of a spring and turnably fixed inside the said case and adapted to give a blow on the ignition-cap of a cartridge placed inside the mine, a detent arm for holding the said hammer in the strained position and means to maintain the said detent arm in the locking position, the said vertically guided rod adapted to operate the last said locking means and release the same, a safety shield adjustable from the exterior and adapted to cover the cap of the said cartridge and catch the blow of the said hammer, substantially as and for the purpose set forth.

3. In a submarine mine in combination, with a closed case, a breakable cap on the latter, an elastic bottom in the said case below the said breakable cap, a vertically guided rod fixed to the said elastic bottom, a watertight partition inside the said case, a hammer under spring tension turnably attached to the said partition and adapted to give a blow on the cap of a cartridge arranged in the said partition, a detent arm for the said hammer and fixed to the said partition by a link, a bow-formed catch also turnably fixed to the said partition and adapted to hold the said detent arm in its locking position, a plate attached to the side of the said bow-formed catch, the said vertically guided rod resting and operating on the said plate, a safety shield adjustable from the exterior and adapted to cover the cap of the said cartridge and catch the blow of the said hammer, and means for securing the said safety shield in its position, substantially as and for the purpose set forth.

4. In a submarine mine in combination with a closed case, a glass cap on the last, an elastic bottom in the said case below the said glass cap, a vertically guided rod fixed to the said elastic bottom, a watertight partition inside the said case, a hammer under the tension of a spring and turnably fixed to the said partition and adapted to give a blow on the cap of a cartridge arranged in the said partition, a detent arm for the said hammer and fixed to the said partition by a link, a bow-formed catch also turnably fixed to the said partition and adapted to hold the said detent arm in its locking position, a plate attached to the side of the said bow-formed catch, the said vertically guided rod resting and operating on the said plate, a safety shield movably arranged in the inside of the said case and adapted to cover the cap of the said cartridge and catching the blow of the

hammer, guides for the said safety shield and fixed to the said partition, a rod attached to the said safety shield and passing out through the said case, means to prevent the entrance of water at the point where the said rod passes out, a handle on the said rod, and means to secure the said rod together with the said safety shield, in their positions, substantially as and for the purpose set forth.

5. In a submarine mine in combination with a closed case, a glass cap, a vertically guided rod fixed to the said elastic bottom, a watertight partition inside the said case, a hammer under the tension of a spring and turnably fixed to the said partition and adapted to give a blow on the cap of a cartridge arranged in the said partition, a detent arm for the said hammer and fixed to the said partition by a link, a bow-formed catch also turnably fixed to the said partition and adapted to hold the said detent arm in its locking position, a plate attached to the side of the said bow-formed catch, the said vertically guided rod resting and operating on the said plate, a safety shield movably arranged in the inside of the said case and adapted to cover the cap of the said cartridge and catch the blow of the hammer, guides for the said safety shield and fixed to the said partition, a rod attached to the said safety shield and passing out through the said case, a handle on the said rod, a disk fixed rigidly to the said rod, bellows surrounding the said rod and fixed in a watertight manner to the said case of the mine on the one side and to the said disk on the other side, rails provided with a number of holes and placed on the outside of the said case near the said rod of the said safety shield, a hole in the last said rod, and a pin adapted to be inserted in the holes in the said rails and in the hole in the said rod of the safety shield, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name this 21st day of March, 1908, in the presence of two subscribing witnesses.

MORIZ KLAUBER.

Witnesses:
ADOLF KLINVJUNBERGER,
ADOLF FISCHER.