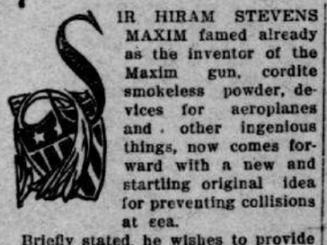


# A SIXTH SENSE FOR VESSELS

Hiram Maxim Has Plan to Prevent Collisions at Sea.—Takes Lesson from the Bat



SIR HIRAM STEVENS MAXIM famed already as the inventor of the Maxim gun, cordite smokeless powder, devices for aeroplanes and other ingenious things, now comes forward with a new and startling original idea for preventing collisions at sea.

Briefly stated, he wishes to provide ships with a "sixth sense," represented by an apparatus that will send out vibrations and record minutely the "echoes" caused by them if they strike against any hard object near the ship—an iceberg, for example. Sir Hiram got his idea of this sixth sense from the bat, which, according to him and other scientists, possesses such a sense, and is able by means of it to find its way about in the dark with perfect ease.

The inventor explains his invention in a pamphlet just published by him in London. "The wreck of the Titanic was a severe and painful shock to us all," he writes. "I asked myself: 'Has science reached the end of its tether? Is there no possible means of avoiding such a deplorable loss of life and property?' At the end of four hours it occurred to me that ships could be provided with what might be appropriately called a sixth sense, that would detect large objects in their immediate vicinity without the aid of a searchlight."

Then Sir Hiram set to work to study the bat's peculiar possession in an endeavor to apply it to preventing marine collisions, and soon hit upon the idea which he now makes public. Before describing the new Maxim apparatus it is well to set down what he has to say about that which inspired it, the sixth sense of the bat.

"Every naturalist that has either experimented on bats or writes on the subject," he says, "seems to admit that the extraordinary appendages attached to the bat's face are organs of perception more or less allied to the sense of feeling, but not one of them, so far as I can learn, has ever suggested that these organs are for the purpose of receiving the echo from the vibrations of the wings. I think I was the first to discover this. The inventor goes on to show that the wings of the bat are extremely sensitive and very well provided with nerves, which is also true of the various organs of the bat's face. These nerves, he maintains, are intimately connected with each other and with the brain. Thus a bat, flying about in total darkness, sees out, by means of its wings, a series of pulsations or wave-like round waves, but too low to be considered a sound. These waves, striking against all surrounding objects, are reflected back to their source, just as sound and light are, and these reflections of the vibrations, being received by the sensitive organs on the face of the bat, enable it to judge the distance to any object by the lapse of time between the sending out and the receiving of the waves.

Coming, then, to his collision-preventer, Sir Hiram says: "Suppose now that we construct an apparatus that will produce atmospheric vibrations of about the same frequency as those produced by the bat, but instead of using the infinitesimal amount of energy employed by the bat, we use 200 or 300-horsepower—that is, we send out waves that have an amplitude and energy at least 300,000 times as great as those sent out by the bat. These vibrations, although of great energy, will not be audible to our ears, but they will shake up and agitate light ob-

jects for a considerable distance, and will travel at least 20 miles, so that they could be received and recorded by a suitable apparatus at that distance, and would be able to travel at least five miles and send back to the ship a reflected echo that would be strong enough to be detected."

Sir Hiram point out that in providing a ship with a "sixth sense," three distinct devices must be combined: one for producing and sending out the necessary sound waves, one for receiving the reflected waves and making them audible by ringing bells and another apparatus for recording the amplitude of the waves. Here is his description of the apparatus he has invented:

"For producing the vibrations of waves I prefer to use a modified form of siren, the disk being rotated at a suitable speed by a motor of some kind, preferably an electric motor. I

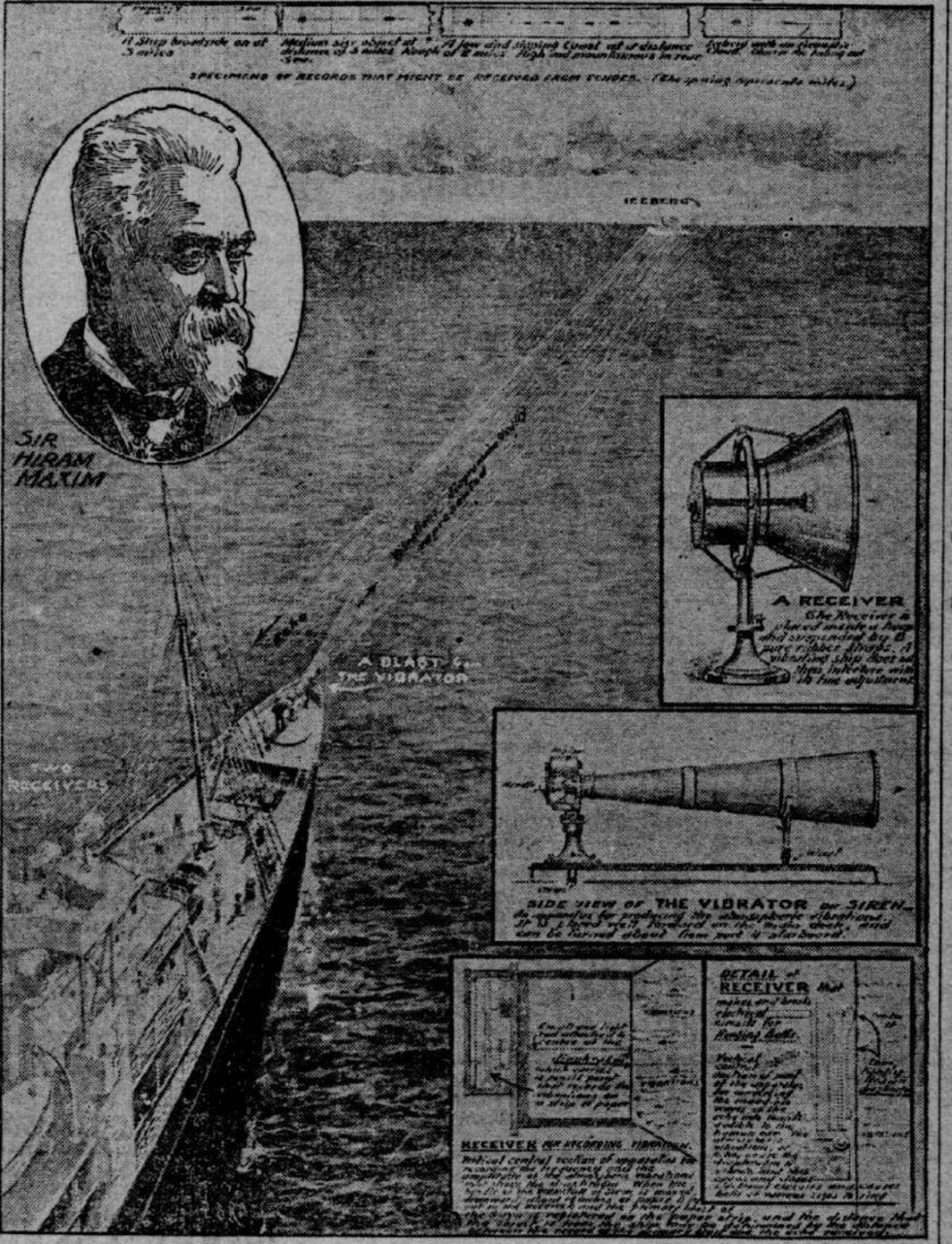
great amplitude and power they are able to travel over great distances, and when they come in contact with a body the waves are reflected back to the ship in the same manner that sound would be reflected back, but this echo would not be audible to the human ear.

"I therefore provide an apparatus which might be considered as an artificial ear. It is provided with a large diaphragm tightly drawn over a drum-shaped cylinder, and so arranged that the atmospheric pressure is always the same on both sides, quite irrespective of any air blast. It is therefore always able to vibrate freely in response to the waves of the echo, and its vibrations are made to open and close certain electrical circuits which ring a series of bells of various sizes. If, for example, the object is very small or at a very great distance from the ship, a very small

instead of ringing a bell it produces a diagram of the disturbances in the air—that is, when there is no noise except that due to the action of the ship or the sea waves, a wavy line is produced, but whenever the vibrations sent out by the vibrator strike an object and return, the wavy line on the paper becomes very much increased in amplitude, so as to be easily observed, and the distance that the object is from the ship can be measured by the length of the paper strip between the giving off of the vibrations and the receiving of the echo; therefore, the distance can be determined with a considerable degree of nicety, and the size of the object may be determined by the amplitude of the waves that return.

The inventor says that the apparatus for producing the atmospheric vibrations should be placed well forward on the main deck of the ship or in any position where it can be turned about from port to starboard. It should be secured to the deck very firmly, and connected, by means of a three-inch pipe, with a high-pressure boiler. A straightaway valve should be placed in the pipe near the boiler, and some means should be found of preventing the accumulation of water in the pipe leading to the apparatus.

Except in foggy or stormy weather, the apparatus would be merely ornamental, of course, until it were used for communicating with other ships.



prefer to use a very high pressure of steam, to have all the parts large and strong, and to produce about 14 or 15 vibrations per second. These will not come within the range of the human ear, consequently they cannot be considered as sound, and as they are of

bell rings, while a large object at a distance of two miles would ring a larger bell, and a very large object a still larger bell. This apparatus gives an audible notice if anything is ahead of the ship. "The other apparatus is similar, but

But just as soon as darkness set in and the captain began to suspect that icebergs or other dangerous objects were close at hand, it would become useful. Of its operation under such circumstances Sir Hiram says: "It should be used constantly sending out the blasts in every direction. If the sea were perfectly clear, the blasts sent out would be recorded at the very instant of their production, but no echo would be returned other than that due to the waves of the sea, which would provide a zigzag line of small amplitude; but if there should happen to be an object of any considerable size at a distance no greater than two or three miles, the zigzag line on the paper would be changed, the amplitude of the waves would be greater and would be very noticeable. "To make sure, the blasts could be repeated several times; and then, if the result should be always the same, it would indicate the presence of some object, and the length of paper between the primary blast and the echo would indicate the distance that the object was from the ship. It might be so arranged that one inch of paper represented a mile. "The receiving instruments can be placed anywhere on the ship where they can be turned in the same direction that the siren is turned, and there may be as many of them as desirable."

Sir Hiram points out that there are vastly more accidents to ships caused by running ashore than by collision, and that a coast does not need to present a very bold sea front to produce a very strong "echo" on his apparatus. If a ship provided with his apparatus was approaching the coast of Ireland, he says, the echo would be sufficiently strong to show itself over a distance of at least ten miles.

**Cold Blooded and Death Dealing**  
CHILLS. Cheatham's Chill Tonic is the only medicine which has entirely cured me of chills. After spending a great deal of money for several years to get cured, I bought and used your Cheatham's Chill Tonic which cured me and also two of my children. I recommend it to all as the best Chill Tonic I ever saw, says Mr. T. J. House of Bulcher, Texas. Guaranteed to cure malaria or price promptly refunded. All dealers sell it in 50c bottles. Mfd. by A. B. Richards Medicine Company, Sherman, Texas.

**The Love in Fiction and Life.**  
A periodical devoted to the drama pleads for plays based on some emotion other than love. The difficulty in producing such plays is that every play must have a hero, and in making a hero the playwright, as well as his audience, almost inevitably adopts the view expressed 2,000 years ago by a scribbler of the dead walls of Pompeii: "He who has never loved a woman is not a gentleman."

**His Weapon.**  
"Did you see where an escaping maniac somewhere struck down his pursuer with a cake of soap?"  
"Then I suppose he made a clean getaway."

**A Condition.**  
"Say, if you take us out in this hired car, is the ride on you?"  
"Yes, if at the end of it, the car isn't."

Instead of liquid antiseptics, tablets and peroxide, for toilet and medicinal uses, many people prefer Paxtine, which is cheaper and better. At druggists, 25c a box or sent postpaid on receipt of price by The Paxton Toilet Co., Boston, Mass.

**Filial.**  
"I thought your father looked very handsome with his gray hairs."  
"Yes, dear old chap. I gave him those."—London Opinion.

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Australia is irrigating more than two million acres of grazing lands with artesian wells.

A great majority of summer ills are due to Malaria in suppressed form. Lassitude and headaches are but two symptoms. OXIDINE eradicates the Malaria germ and tones up the entire system.

**Soda to Brighten China.**  
Soda will brighten china that has been burned or darkened by long use.

A baseball player may be sluggish without being a slugger.

**Grouch's Vacation.**  
"Is your husband enjoying his vacation?"  
"Not so much as I am."  
Three is a crowd, but not in the eyes of the man who must pay the prima donna's salary.—Judge's Library.

**WHAT WILL CURE MY BACK?**  
Common sense will do more to cure backache than anything else. 'Twill tell you whether the kidneys are sore, swollen and aching. It will tell you in that case that there is no use trying to cure it with a plaster. If the passages are scant or too frequent, proof that there is kidney trouble is complete. Then common sense will tell you to use Doan's Kidney Pills, the best recommended special kidney remedy.

**An Arkansas Case**  
Henry J. White, 415 N. 3rd St., Ft. Smith, Ark., says: "I suffered a great deal with backache, but death from terrible kidney trouble. I had awful headaches and dizzy spells, urine acid and my back ached so I bought Doan's Kidney Pills and I cured me completely and I have had no sign of kidney trouble since."  
Get Doan's at any Drug Store, 50c a Box  
**Doan's Kidney Pills**

**Constipation Vanishes Forever**  
Prompt Relief—Permanent Cure  
**CARTER'S LITTLE LIVER PILLS** never fail. Purely vegetable—act surely but gently on the liver. Stop after dinner distress—cure indigestion, improve the complexion, brighten the eyes.  
**SMALL PILL, SMALL DOSE, SMALL PRICE.**  
Genuine must bear Signature  
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**PARKER'S HAIR BALM**  
Grows and maintains the hair. Prevents a hair from falling. Restores hair to its youthful color. Prevents hair falling. Use and it will grow.

**5 or 6 doses 666**  
breaks any case of Chills & Fever; if taken then as a tonic the Fever will not return. Price 25c.

## THESE SIX LETTERS From New England Women

**Prove that Lydia E. Pinkham's Vegetable Compound Does Restore the Health of Ailing Women.**

Boston, Mass.—"I was passing through the Change of Life and suffered from hemorrhages (sometimes lasting for weeks), and could get nothing to check them. I began taking Lydia E. Pinkham's Vegetable Compound (tablet form) on Tuesday, and the following Saturday morning the hemorrhages stopped. I have taken them regularly ever since and am steadily gaining."  
"I certainly think that every one who is troubled as I was should give your Compound Tablets a faithful trial, and they will find relief."—Mrs. GEORGE JURY, 603 Fifth Street, South Boston, Mass.

**Letter from Mrs. Julia King, Phoenix, R.I.**  
Phoenix, R.I.—"I worked steady in the mill from the time I was 13 years old until I had been married a year, and I think that caused my bad feelings. I had soreness in my side near my left hip that went around to my back, and sometimes I would have to lie in bed for two or three days. I was not able to do my housework."  
"Lydia E. Pinkham's Vegetable Compound has helped me wonderfully in every way. You may use my letter for the good of others. I am only too glad to do anything within my power to recommend your medicine."—Mrs. JULIA KING, Box 292, Phoenix, R.I.

**Letter from Mrs. Etta Donovan, Willimantic, Conn.**  
Willimantic, Conn.—"For five years I suffered untold agony from female troubles causing backache, irregularities, dizziness, and nervous prostration. It was impossible for me to walk up stairs without stopping on the way. I was all run down in every way."  
"I tried three doctors and each told me something different. I received no benefit from any of them but seemed to suffer more. The last doctor said it was no use for me to take anything as nothing would restore me to health again. So I began taking Lydia E. Pinkham's Vegetable Compound to see what it would do, and by taking seven bottles of the Compound and other treatment you advised, I am restored to my natural health."—Mrs. ETTA DONOVAN, 769 Main Street, Willimantic, Conn.

**Letter from Mrs. Winfield Dana, Augusta, Me.**  
Augusta, Me.—"Lydia E. Pinkham's Vegetable Compound has cured the backache, headache, and the bad pain I had in my right side, and I am perfectly well."—Mrs. WINFIELD DANA, R.F.D. No. 1, Augusta, Me.

**Letter from Mrs. J. A. Thompson, Newport, Vt.**  
Newport, Vt.—"I thank you for the great benefit Lydia E. Pinkham's Vegetable Compound has done me. I took eight bottles and it did wonders for me, as I was a nervous wreck when I began taking it. I shall always speak a good word for it to my friends."—Mrs. J. A. THOMPSON, Box 2, Newport Center, Vermont.

**Letter from Miss Grace Dodds, Bethlehem, N.H.**  
Bethlehem, N.H.—"By working very hard, sweeping carpets, washing, ironing, lifting heavy baskets of clothes, etc., I got all run down. I was sick in bed every month."  
"This last Spring my mother got Lydia E. Pinkham's Vegetable Compound for me, and already I feel like another girl. I am regular and do not have the pains that I did, and do not have to go to bed. I will tell all my friends what the Compound is doing for me."—Miss GRACE E. DODDS, Box 133, Bethlehem, N.H.

For 30 years Lydia E. Pinkham's Vegetable Compound has been the standard remedy for female ills. No one sick with woman's ailments does justice to herself who will not try this famous medicine, made from roots and herbs, it has restored so many suffering women to health.  
Write to LYDIA E. PINKHAM MEDICINE CO. (CONFIDENTIAL) LYNN, MASS., for advice. Your letter will be opened, read and answered by a woman and held in strict confidence.



## WAR MEDALS NOT CLAIMED

Only Decoration That the British Soldiers Value Highly is the "Victoria Cross."

The fact that there are no fewer than 50,000 medals stored at Woolwich awaiting claimants causes one to wonder whether the soldier puts so high a value on medals as is usually supposed.

Nearly all of these medals are for the Boer war, and there is a special government department with a staff of clerks endeavoring to trace the owners. Besides these Boer war medals, there are 4,000 medals for the Zulu war which have never been claimed, and even to this day belated claims are still put in for medals for the Crimea and Indian mutiny.

A short time ago, for example, a veteran named James Crystal applied for and received a medal for Afghanistan, after a lapse of thirty years.

Most of the Boer war medals at Woolwich belong to irregulars, who joined on the outbreak of the war, and after it was over, scattered all over the world. But many regulars have not troubled to claim the medal, alleging that it is too cheap, and considering that 750,000 of the medals were struck, it is certainly never likely to become a rarity.

few medals were issued. The first medal ever issued was that given to the Elizabethan seaman who defeated the Armada, and the earliest military decoration was a silver badge issued by Charles I in 1643 for presentation to soldiers who had distinguished themselves in forlorn hopes.

Waterloo was the first occasion when there was a general issue of medals, and since that time, instead of issuing too few medals, England has gone, perhaps to the other extreme. Soldiers point out that the same decoration is awarded to the man who has been fighting at the front and carrying his life in his hands for months, as to the man in a regiment which has never stirred from the base of operations or so much as seen the enemy.

Every effort is made by the authorities to see that medals reach their owners, and if the owner of a medal happens to be dead, the medal is forwarded to his next of kin. Yet there are still large numbers unclaimed, and according to the regulations now in force, at the end of ten years' time the medals will be broken up and the silver debited to the mint.

The Victoria Cross, of course, is a decoration of quite another character, and a soldier would as soon think of parting with his life as with his Vic-

toria Cross. But this is far from being the case with other medals, and Rudyard Kipling tells how he has seen soldiers wager their Indian general service medal on the toss for the price of a pot of beer.—Pearson's Weekly.

**Parthenon in Danger of Collapse.**  
A shock will be given to lovers of antiquity by the suggestion made in the Revue des Beaux Arts that the Parthenon is in serious danger of collapse. Within the last twenty years the columns seem to have lost their rigidity, and unless the work of strengthening the foundations is taken in hand disaster may follow. The cause of the threatened collapse is the removal by archaeologists of sculptured ruins of an earlier temple on the Acropolis which served as foundations for the Parthenon, and which have been taken to various museums for display and preservation. No effective precautions were taken to replace these relics by fresh masonry. Modern Greece has no money to spare for the necessary work of restoration, but it should not be difficult for those countries which have benefited from the spoliation of the treasures of Athens to raise funds to prevent the destruction of one of the wonders of the world.—Westminster Gazette.

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