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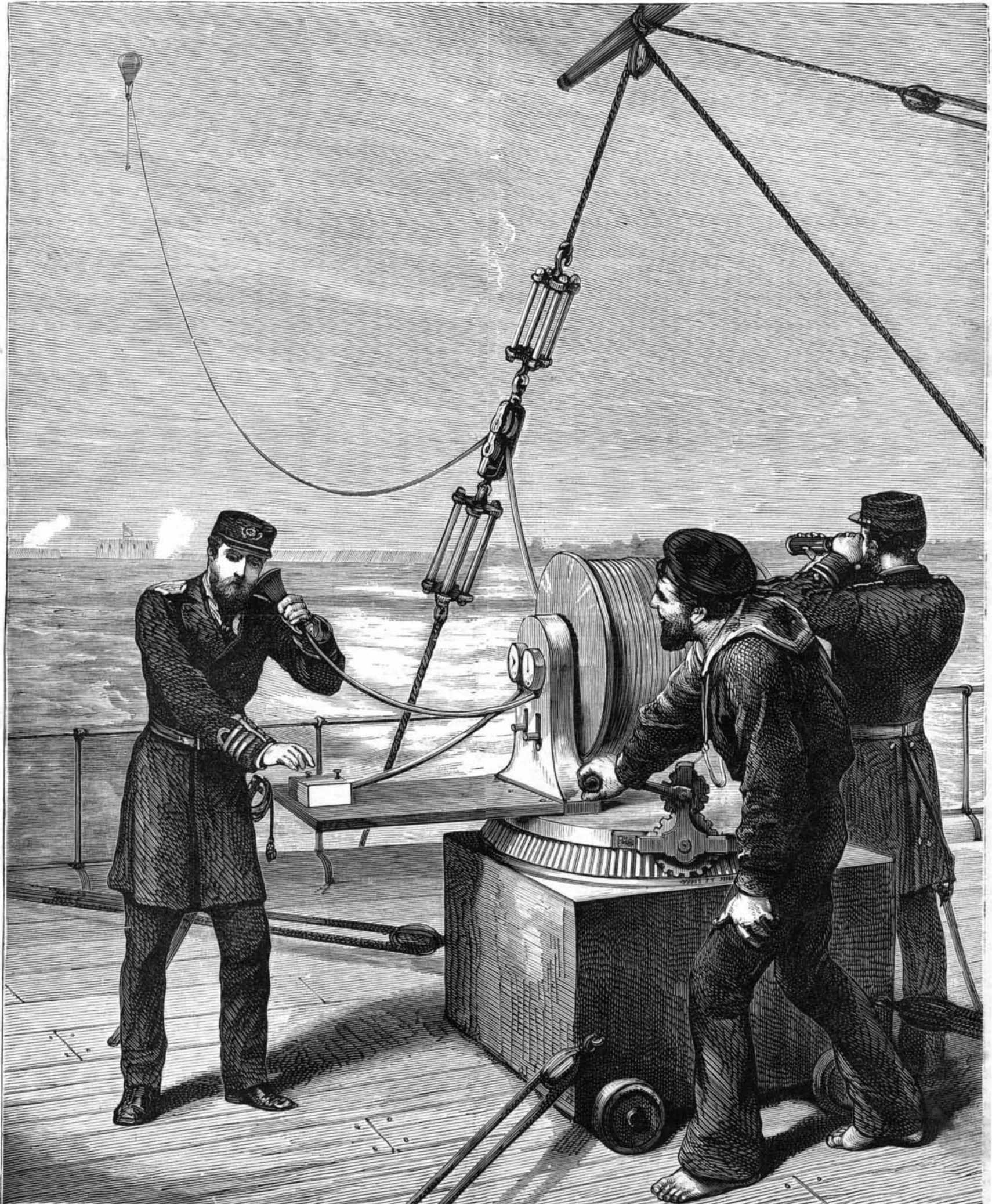
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AERIAL WARFARE.

The idea first published in these columns of dropping torpedoes into an enemy's camp or cities from balloons seems in a fair way to be put in practical shape abroad. The London *Graphic* publishes the large engraving given herewith, showing how a balloon carrying a large torpedo could be

sent over a hostile fort from on shipboard. Our cotemporary proposes that gunboats shall be provided with balloons large enough to carry one man and the can of nitro-glycerin or other powerful explosive suspended at considerable distance below the car. To the latter is attached a rope or wire, which is rove through a fair-leader and taken to the

winch shown on the poop of vessel. The length of wire paid out as the balloon moves over the point to be attacked is indicated by dials on the side of the winch drum, and by means of a telephone the officer directing operations communicates with the occupant of the car, and receives from him directions when to slacken or reel in the wire. The



THE BALLOON TORPEDO.

vessel lies out of range of the fort's guns, and the balloon is allowed to ascend to a thousand feet or so before dropping its torpedo.

We are inclined to think that a good many practical difficulties would oppose themselves to the Graphic scheme, mostly arising from the necessity of keeping the balloon captive. The strain on a wire nearly six miles long would be great, and the weight of the wire would be a heavy load for a balloon to carry.

There are other ways, however, which might be resorted to to accomplish the same purpose. For example, the balloon might be sent up with no one in its car, thus saving that much weight.

Defense against "dejectiles," as the Graphic proposes to call torpedoes dropped from the clouds, would consist in other balloons sent up to wage warfare aloft, or the invention of some kind of gun would be needed that would throw shells long distances at high elevations with accuracy.

As we have already taken occasion to point out, we think that if aerial torpedoes do become a seriously offensive means of warfare, it will be by the aid of the flying machine.

Experiments with Floating Magnets.

Professor A. M. Mayer describes, in the American Journal of Science and Arts, some entertaining and easily performed experiments in magnetism. Several sewing needles, of No. 5 or 6 size, are magnetized with the same polarity, so that all their points are N.

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ARGUMENTS FOR SECTION 11.

The proposed assimilation of our patent law to that of Great Britain, in the matter of periodical fees, was discussed before the House Committee on Patent Amendments by Messrs. Raymond, Christy, Storrow, Foote, and Smith. All but Judge Foote were decidedly in favor of the scheme; and we may fairly assume that they offered the strongest arguments they could command to sustain their position.

Mr. Raymond stood alone in his sweeping denunciation of the present working of the patent laws. He was not opposed to a wise patent system; for "a wise patent system does encourage inventions, and therefore promote public progress in science and the useful arts." But the working of our system during the past seventeen years has been the reverse of wise. Indeed, the law as it stands is, he said, so defective, and open to so many abuses, that he unhesitatingly and confidently asserted that "that part of the progress of recent years, during which the genius of the people has been exclusively directed to the arts of peace, which is directly the result of the patent system which has obtained during the same period, when put into the scales with the tax, the annoyance, the burden, the 'scare-crow' of capital, the unnatural strifes, the unhealthy speculations, the inflated values, the exorbitant prices, the blackmailing, the tedious and expensive chancery litigation, and the other unholy practices which the patent law has of late hatched and fostered, the progress which it has brought about receives a shock which throws it up into thin air."

Mr. Raymond approves of Section 11 as a remedy for a considerable portion of the evils above enumerated—"evils resulting from trivial, impracticable, and invalid patents, and from those which become of value late in their existence, and then only for the purpose of infringement suits and speculations." The provision of this section, he goes on to say, has been criticised somewhat because the proposed tax was too great and too frequent. It has been criticised more as being too small and not frequent enough. In his opinion, if changed at all, it should be increased both in amount and frequency. "The grant, in any case, is a tax upon or a deprivation to the public, and should not be perpetuated unless it is worth a good fee."

We find no further reference to this section in Mr. Raymond's argument.

Mr. Hyde's friendship for the patent system as a whole is unmistakably genuine, and the same may be said of the rest of the list. His approval of the proposed amendment is based on its power to weed out "worthless patents that are lying about for speculators to pick up and use to the annoyance of subsequent successful patents. There is growing up," he says, "a class of men who, when they find an invention in successful use, go to the Patent Office and rake over all the patent files to see if they can find an old patent which will supersede the later successful one, and then buy it up for a nominal sum. After obtaining a reissue, if needed, they commence an onslaught on legitimate business." Section 11 would put an end to this nefarious business by killing perhaps 75 per cent of the patents issued.

Mr. Storrow's approval was based on the ground that undeveloped patents are a hindrance, not a help to progress. "If the invention at once takes place in the arts as a practical thing, or if it so clearly embodies a great step forward that the inventor or others are incited to develop it to a practical and pecuniarily profitable application, it constitutes a progress, and the purpose of the law is satisfied. But features are often patented which are afterwards found neither to be useful nor to hold out hopes of usefulness enough to lead to attempts to improve them. A subsequent inventor making a truly useful machine unconsciously uses one of those features and the patent stops him; it does not promote the progress of the useful arts that such a patent should live merely to hinder and not to constitute progress." The periodical fees will weed out such undeveloped inventions, to the great advantage of meritorious inventors and to the public. The result of a severer provision in England, Mr. Storrow goes on to say, "has been that the average life of a patent has been shortened from fourteen to about four years; we think that this section will shorten it from seventeen to about eight years, and it will not diminish the stimulus to invention, because it will only cut off those which after trial have been practically abandoned as worthless."

Mr. Smith thought that under the operation of this section fifty per cent of the patents granted would expire at the end of the first period and half of the remainder at the end of the second period, and thus their chance of doing mischief under reissues would be ended. "It has been a subject of frequent complaint," he said, "that old patents which have been idle and worthless in the hands of their owners have often been revived so as to cover subsequent patents and the industries which have grown up under them. It is certain that a large part of such patents will be swept away under the provisions of this bill. The fees will become payable generally before it is discovered that they can be used to embarrass subsequent inventors or manufacturers who have unwittingly used what might be covered by the reissues; and as they are worthless for legitimate purposes at the time, they will to a large extent be allowed to expire."

Further on, Mr. Hubbell asked: "If this country has prospered so long and so well, as compared with other nations, under small patent fees, so that we have superseded England, who, under her prerogative right, has taken excessive fees from inventors, why do you want to crush down inventors by exacting fees that will put them in the same condition as they are in England?"