Both the testimony of the complainants' expert and the comparison of the exhibits made by the court are decisive that the manufacture by the respondents is, in the sense of the patent law, substantially the same as that of the complainants, which shows that the complainants are entitled to an account.

Decree for complainants.

By the Commissioner of Patents.

(*Appeal from the Examiners-in-Chief.*)

MCTAMMANY JR., *vs.* NEEDHAM—AUTOMATIC MUSICAL INSTRUMENTS.

Marble, Commissioner:

1. It is not necessary that an applicant, in order to defeat a patent, should show that he conceived the invention and reduced the same to practice before the time at which such invention was conceived by the patentee.

2. To defeat the rights of a patentee it is sufficient to show "that he had surreptitiously and unjustly obtained the patent for that which was in fact invented by another who was using reasonable diligence in adapting and perfecting the same."

3. Diligence in perfecting an invention is a relative matter, and the law does not require that an inventor who is engaged in developing a number of improvements at the same time should devote all his time and energy to any one at the expense of others.

4. When an applicant has once reduced an invention to practice the question of diligence in applying for a patent is one between him and the public, and can only enter as an element in the question whether the completed invention was abandoned by him to the public.

Destruction of a Lighthouse by an Earthquake.

Telegraphic information has been received at the Hydrographic Office, Admiralty, from the officer commanding the naval forces in the Dutch East Indies, that the stone lighthouse on First Point (Tanjong Koelong), Java, the south point of entrance to the Strait of Sunda, separating Java and Sumatra, has been thrown down by a violent earthquake.

AN IMPROVED TELEPHONE.

The engraving shows an improved form of telephone receiver and transmitter, and a very convenient combination of the two instruments, lately patented by Mr. John P. McDermott, of Galveston, Texas.

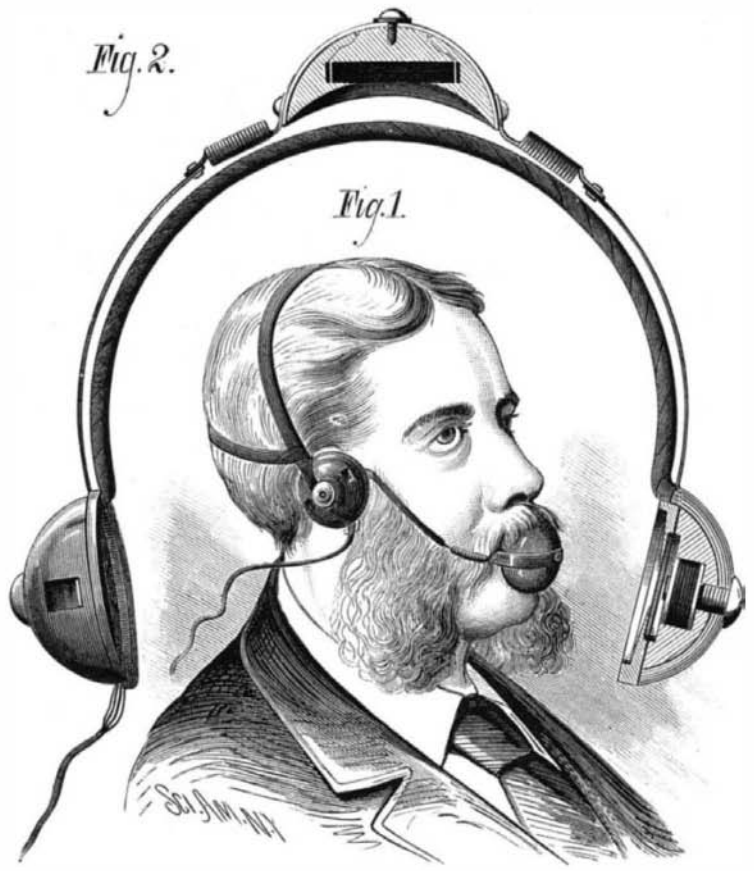
The combined instrument is designed to be worn upon the head, as shown in Fig. 1, so that the user may hold telephonic conversation without regard to position, and listen without fatigue or inconvenience to lectures, concerts, etc. This arrangement possesses the advantage of excluding extraneous sounds and of preventing bystanders from hearing what is said in the transmitter. The receiver magnet consists of thin strips of magnetized steel having a U-form and adapted to the head. The ends of the magnet are curved to receive the support for the diaphragms, mouthpieces, and bobbins. The iron cores of the bobbins are inserted in the curved portion of the magnet.

The transmitter is attached to the receivers by a swinging elastic yoke, which renders it adjustable to the mouth of any user and admits of readily removing it from the mouth when not in use. A cloth band passes around the back of the head to hold the apparatus in its proper position. The compound magnet is covered with silk or other suitable material. This covering conceals the primary and secondary wires and protects them from injury.

The transmitter consists of a non-conducting mouthpiece, and a chambered hemispherical block containing two semicircular plates of carbon insulated from each other, and connected by a wire with the two metal pieces forming the yoke which supports the mouthpiece. A plane disk of carbon rests upon the two semicircular carbon plates and is free to vibrate upon them.

The primary current passes through the yoke and through the carbon disk and the two semicircular carbon plates. The variations of contact produced between the three carbon surfaces by the action of sound waves on the carbon disk disturb the primary current, inducing undulatory currents in the secondary wire of the induction coil.

The primary and secondary circuits differ little from the common practice. Mr. McDermott has dispensed with a special call bell magnet, using the magnet of the induction coil for the purpose of operating the bell hammer armature.



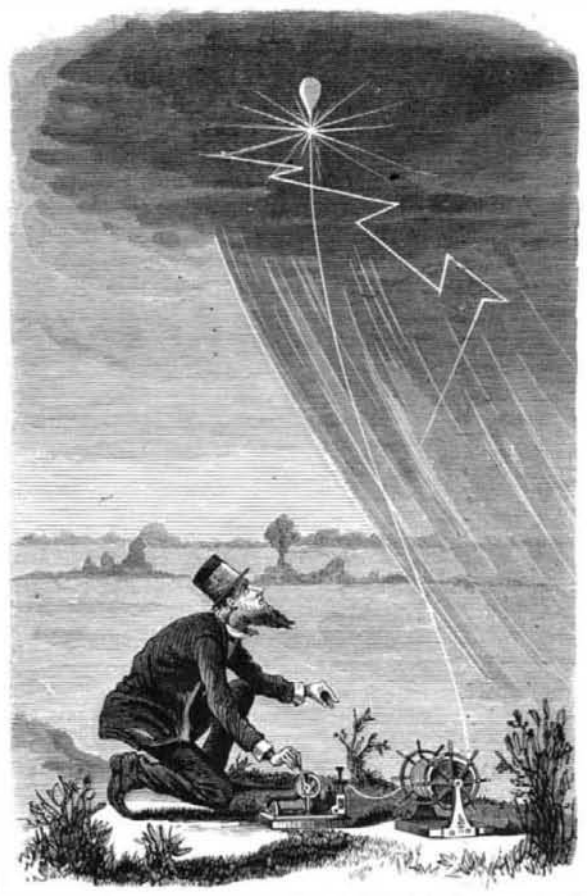
McDERMOTT'S TELEPHONE.

This arrangement of telephone transmitter and receiver possesses many obvious advantages; for example, it would be very convenient in cases of writing by dictation, or of stenographers recording speeches. Persons may remain at home listening to public addresses, sermons, or concerts, sitting comfortably and listening without the slightest inconvenience.

This invention enables two persons to carry on a conversation as readily as if they were in each other's presence. As the entire apparatus weighs but a few ounces, its weight is not at all noticeable. It is unnecessary to point out the further advantages possessed by this novel arrangement, as they will be apparent to those understanding the requirements of telephonic communication.

NOVEL METHOD OF PRECIPITATING RAINFALLS.

A patent has recently been issued to Daniel Ruggles, of Fredericksburg, Va., for a method of precipitating rain storms, which, judging from a well known precedent, is not



PRECIPITATING RAINFALLS BY MEANS OF EXPLOSIVES.

entirely chimerical. It has frequently been noticed that heavy cannonading is followed by a fall of rain. Profiting by this suggestion, Mr. Ruggles has invented a method of producing a concussion or a series of concussions in the upper regions of the atmosphere which he believes will induce rain.

The invention consists in brief of a balloon carrying torpedoes and cartridges charged with such explosives as nitroglycerine, dynamite, gun cotton, gunpowder, or fulminates, and connecting the balloon with an electrical apparatus for exploding the cartridges.

Our engraving represents an individual in the act of bringing down the rain.

Mining in Maine.

In an extended review of the progress and prospects of mining in Maine the *Mining Journal* furnishes the following information with regard to the present condition of the more important mines of that State.

Several of the Blue Hill mines are about to be supplied with smelters. The Sullivan mill is turning out bullion, the Waukeag is in magnificent ore, which grows richer and richer with every additional foot of depth, the Milton at a depth of 160 feet, and the Grant at 100, are on the eve of cutting their respective ledges. Further east, at Goulds-boro, the concentrating mill is about to demonstrate the value of the ores of that section. The mines of the Bagaduce region are, at the slight depth attained, showing ores of wonderful richness and in considerable quantity. The Deer Isle is making regular shipments of ore and, as we have before stated, is now on a paying basis. In the Hampden district the Con. Hampden is cross-cutting for the vein at a depth of 200 feet and will probably reach it within a few days. The Lawrence cross-cut has penetrated the vein, and rumor says that very fine ore is being taken out. Recently active work has been commenced by New York parties at two different points upon the Hampden lode, both lying between the properties of the Con. Hampden and Norombega Mining Companies.

There are many other valuable properties scattered all over the State, but we have mentioned a sufficient number to show that mining matters in Maine are progressing favorably and that the industry is rapidly assuming extensive proportions.

MECHANICAL INVENTIONS.

An improved machine for preparing wood pulp has been patented by Mr. John C. Potter, of Orwell, N. Y. The invention consists in a revolving head fitted with cutters having serrated edges, and combined with a sliding carriage for carrying the log. The cutters act in the direction of the grain of the log to reduce the wood to pulp as the carriage reciprocates back and forth.

Messrs. Edgar C. Hall, of Ione, and Charles D. Smith, of Amador City, Cal., have patented a vise. The object of this invention is to provide a device for securely holding wedge-shaped pieces of iron or other material. The invention consists of a movable vise jaw supported on a ball and socket joint or joints, so that it may have lateral and angular adjustment.

Mr. Genry A. Chapman, of Strawberry Point, Iowa, has patented a simple, strong, and effective tool that serves as a cutter and wrench for pipe and as an ordinary monkey wrench. The tool has a movable reversible jaw whose lower end rests against an adjustable nut, which traverses on the screw-threaded handle of the tool, and whose upper or operating end is held to the shank of the fixed jaw by a yoke, and is adjustable by a set screw in the yoke.

What is a Cold Bath?

The season of the year when very many people who have experienced pleasure and advantage from a daily cold bath have to discontinue the practice is come. Months will elapse before the return of genial weather will allow of their indulgence in what may be termed man's natural stimulant. Among the young and robust there are a large number who are able to bathe even in the depths of winter; the advantage of so doing is, however, questionable. But let it be once well understood what a cold bath really is, and the course by which we can avoid Scylla and Charybdis will be obvious. A cold bath is not necessarily a bath in water of the temperature of the atmosphere. A bath is truly and really cold when it produces a certain physiological effect—a slight momentary shock followed by pleasant and lasting reaction. These effects are for the majority of people most pleasantly obtained by bathing in water about 35° to 40° below the temperature of the body—the usual temperature of unheated water in June and July. Bearing this in mind we can enjoy our physiological "cold" bath as safely and pleasantly at Christmas as at midsummer, and there is no necessity for the most timid or weakly to discontinue his morning tub because the summer weather is over. When the water sinks below a temperature of 60°, let it be heated to that point and then used, and we shall still have our "cold" bath, though of heated water. The daily stimulant effect of such a bath is so beneficial to the great majority of persons and is of such marked service in maintaining health, that it is very important to have it widely known that a cold bath may be taken all the year round, provided cold is not mistaken to mean "at the temperature of the outer air." To heat our bath during the winter months is too often thought to be unmanly, while in reality it is truly scientific, and to bathe in unheated water all the year round, whatever the temperature that water may be, is to prove one's self an ignorant slave of outward circumstances.—*Lancet.*

STEAMSHIPS for whaling service have been in successful use on the Atlantic for several years. The first to invade the northern Pacific, the Mary and Helen, of New Bedford, recently arrived at San Francisco from a successful cruise in the Arctic Ocean. She had taken a full cargo of oil and 45,000 pounds of whalebone, together worth over $100,000, the proceeds of one season's work. The consort of the Mary and Helen left New Bedford for the same fishing grounds last summer.