Inventions New and Interesting

Simple Patent Law ; Patent Office News ; Notes on Trademarks

A Silencer for Gas Engines

FOLLOWING his well known invention of the silencer for rifles, Mr. Hiram Percy Maxim turned his attention to the noisy exhaust of the gas engine and has evolved a silencer which will muffle or deaden that noise and smooth out the sharp gaseous impulses. The silencer consists of a nested series of spiral shells between which are formed spiral whirl chambers, that the exhaust must traverse. In order to increase the silencing effect these spiral whirl chambers are alternately reversed in direction, so that the gases in passing through them must travel alternately in a right-handed and in a left-handed direction. The whirl chambers are progressively larger, permitting the gases to expand. The arrangement of the spiral shells is shown in the accompanying drawing. They are inclosed in a cylindrical casing. At the inlet end of the silencer, there is an end plate *A* formed with flanges *A'*. Near the outlet end of the silencer is a support *B*, also formed with annular flanges *B'*. The shells *C* are mounted between the plate *A* and support *B*, and are fitted between the flanges. The parts are held in place by means of long bolts *D*, which pass from the plate *A* through the support *B* and the end plate *E*. The bodies of these bolts are flattened where they pass between the spiral shells, so as to offer as little resistance as possible to the flow of gases. They may be seen in section in the enlarged view of the silencer. It will be observed that the spiral shells are formed with lapping ends to provide discharge throats to the succeeding whirl chambers. The shells are so arranged that each discharge throat is angularly advanced in its discharging direction beyond that of the succeeding whirl chamber. In some types of these silencers, certain of the spiral shells, particularly the outer ones, are corrugated, so as to retard the flow of the gases. The arrows indicate the course of the gases through the silencer. They enter at *F*, and pass successively through the whirl chambers, finally issuing into the chamber formed between the outer spiral shell and the wall of the casing. Thence they pass over the end of the support *B*, and out through the exhaust port *G*. In the end plate *A*, a passage *H* is formed, through which cooling water may be admitted to the first whirl chamber of the silencer. In the opposite end plate *E*, there is a port *J* adapted to be fitted with a drip connection for the discharge of the cooling fluid from the silencer.

Moving Pictures at Home

THE public entertainment possesses this disadvantage that it must suit a heterogeneous assembly of people of varied interests and tastes. Consequently, its programme must be made up of a variety of subjects which may not altogether satisfy any one of the audience or spectators. If the entertainment is a concert a disappointed listener can at least go home and make up the deficiency with his own piano, player piano or phonograph; or on the other hand if one has heard something that particularly strikes his fancy he may purchase the selection and reproduce it to his heart's content at home. In the case of the moving picture show, however, the spectator is obliged to accept a "table d'hôte" programme even though prepared for a public whose tastes are absolutely at variance with his own, on the chance of witnessing now and then a selection that he finds interesting and instructive. But he cannot reproduce these selections or make up his own programme at home; at least he has not been able to do so heretofore, for the reason

Nested spiral whirl chambers to silence gas engine exhaust.

A home cinematograph, which generates its own current.

Diagram showing the action of the soft palate in directing a part of the breath in speech through the nasal passages (figure on left) or closing off these passages and directing the entire stream out through the mouth (as shown on right). Two mirrors placed, one under the nose, the other before the mouth, catch the breath and thereby indicate the relative strength of the two streams.

Dr. Glover using his transmitter with nose-piece attachment.

that up to the present time there have been no practical cinematographs for home use. Although a machine of this character was placed on the market a year or two ago, it was found deficient in a number of respects and was finally withdrawn by the manufacturer. Now, however, a hand operated home cinematograph has just been put on the market which is very promising. It is manufactured by a well known foreign cinematograph company and has already met with great success abroad. The machine is shown in the accompanying photograph.

One of the first questions that occurs to a man who is contemplating the introduction of a cinematograph into his home is the danger of fire. The new machine employs fireproof films made of acetyl cellulose and to make sure that the owner may not attempt to use the highly inflammable films of the commercial machine, it is designed to take a special form of film which can be had from the manufacturers only.

The source of light is another important question. In the machine which was withdrawn from the market because it proved to be impracticable, a carbon arc lamp was employed. This called for much heavier current than could be obtained without a special circuit. In the new cinematograph no connection with the lighting circuit is necessary for the machine generates its own current in sufficient quantity to light a small osram lamp.

The generator, which is in the form of a magneto, may be seen in the foreground of the accompanying photograph. It is operated through suitable gearing by a crank handle and is fitted with a governor to prevent excessive velocity of the armature. The osram lamp is placed in small light-tight casing fitted with a reflector and condenser. So little heat is generated that there is no possible danger of injuring the film, particularly when we realize that the flow of current and feed of the film are effected by one and the same crank handle so that the film cannot be stalled without arresting the flow of current as well.

The film is given an intermittent motion in front of the lamp by mechanism similar to that employed in the commercial machine. Very little effort is required to operate the machine. It projects a picture measuring about three by four feet at a distance of ten or twelve feet, the exact dimensions depending, within limits, upon the distance of the screen from the camera. Hence the machine may conveniently be used in the ordinary parlor or sitting-room. A large library of films has already been prepared for this machine, including in addition to those of the customary dramatic and vaudeville type of exhibition, a wide variety of educational subjects, which should make an instrument of this sort particularly valuable in the class room.

An Intensifier for Telephone Transmission

By Jacques Boyer

HAS it ever occurred to the reader that there is something very artificial about our present method of speaking over the telephone? The mouthpiece is so constructed that it gathers only those sounds which proceed directly from the mouth, whereas in actual speech, a not inconsiderable portion of the sounds emitted are carried more or less completely through the nose. All such sounds must be almost completely lost in an ordinary telephone conversation, and we can therefore not be surprised if the voice carried

over the wires, although recognizable to one accustomed to the instrument, nevertheless differs materially from that of ordinary speech.

Hitherto telephone engineers, in attacking the problem of increasing the distinctness of transmission of the voice over the telephone, have mainly concentrated their attention upon improvements in the construction of the microphone, or else upon improvements in the design of the telephone line. No one, until recently, seems to have paid much attention to the study of the human voice and its peculiarities with a view to applying the observations thus obtained for perfecting telephony. It is by starting from such a basis as this that Dr. Jules Glover has evolved an apparatus shown in our illustration, by the aid of which the sound carried over the wire is much intensified and the clearness of speech is greatly increased, a matter which is of no small importance, especially for long distance transmission.

Inasmuch as in the telephone the electric current reacts upon the magnet in the receiver, not so much by its intensity, but by the variations in its intensity, it is necessary, if the ear is to receive as perfect as possible a rendering of the sound impressed upon the transmitter, to reproduce as exactly as possible all the modulations of the voice. To realize just what this implies, we must bear in mind the construction of our throat. On issuing from the pharynx the sound waves impinge upon the soft palate, which divides them into two unequal parts, of which the one escapes through the nose, while the other issues at the mouth (see our illustration). Evidently to obtain a perfect result, it is necessary that each of these two groups of sound waves be transmitted in proper proportion over the telephone, while as a matter of fact, the instruments in common use transmit almost exclusively the mouth waves, so that nearly one half of the voice remains unutilized. This is not a mere guess, but can be actually proved experimentally by recording by photographic means the variations in the intensity of the microphone current, which can be done by the aid of an oscillograph; a simpler means to effect the same end, perhaps less perfectly, is to observe the condensations of the breath from the mouth and nose by means of mirrors or other suitable devices. It is found that the records so obtained for the mouth and nose differ for the same word, according to loudness of speech.

In the improved telephone invented by Dr. Glover, contrary to the usual custom, the entire voice assists in producing the electro-magnetic phenomena by the aid of which speech is transmitted. The new apparatus differs from the customary form in that it possesses two microphone transmitters one for the mouth and one for the nose, each of properly adjusted sensibility. The couple of mouthpieces is attached to a handle as in the ordinary telephone.

Microphones of this kind can be used directly in the primary without conversation battery and without induction coil. The apparatus functions perfectly by the use of a single central battery, giving 24 volts or less. The uniform resistance has a total of 150 ohms, which, however, can be adjusted to suit circumstances. The induction coil can be omitted as the variations in the intensity of the current due to the voice are found to be sufficiently accentuated without it. Nevertheless, transmission is somewhat assisted by the use of the coil.

As a matter of hygiene, a roll of tissue paper may be passed in front of the mouth and nose to prevent any possible infection, the tissue paper being renewed automatically at each call.

A School Girl Inventor.—A school girl attending the Business High School in Washington City realizing the need of a pocket, notwithstanding fashions decree to the contrary, recently appeared at school in a collar of her own invention in which she had formed pockets at either

side. One pocket was adapted for carrying small change and the other for carrying a lead pencil or similar small articles.

The Supreme Court of the United States on Price Maintenance

THE right of the patentee to fix the retail price of articles embodying his invention and to treat as an infringement of his patent any attempt to sell at other prices has now been squarely passed upon by the Supreme Court of the United States in *Bauer & Co. and the Bauer Chemical Company v. James O'Donnell*. In legal history this will be known as the *Sanatogen Case*. The decision of the Supreme Court is of immense importance to the public, to retailers and to manufacturers. It denies absolutely the right of a patentee to control the selling price of his product after it leaves his hands. The following is an abstract of the decision.—EDITOR.]

The right to make, use and sell an invented article is not derived from the patent law. This right existed before and without the passage of the law and was always the right of an inventor. The act secured to the inventor the exclusive right to make, use and vend the thing patented, and consequently to prevent others from exercising like privileges without the consent of the patentee. *Bloomer v. McQuewan*, 14 How., 539, 549; *Continental Paper Bag Company v. Eastern Paper Bag Company*, 210 U. S., 405, 425. It was passed for the purpose of encouraging useful invention and promoting new and useful improvements by the protection and stimulation thereby given to inventive genius, and was intended to secure to the public, after the lapse of the exclusive privileges granted, the benefit of such inventions and improvements. With these beneficent purposes in view the act of Congress should be fairly or even liberally construed; yet, while this principle is generally recognized, care should be taken not to extend by judicial construction the rights and privileges which it was the purpose of Congress to bestow.

In framing the act and defining the extent of the rights and privileges secured to a patentee Congress did not use technical or occult phrases, but in simple terms gave an inventor the exclusive right to make, use and vend his invention of a definite term of years. The right to make can scarcely be made plainer by definition, and embraces the construction of the thing invented. The right to use is a comprehensive term and embraces within its meaning the right to put into service any given invention. And Congress did not stop with the express grant of the rights to make and to use. Recognizing that many inventions would be valuable to the inventor because of sales of the patented machine or device to others, it granted also the exclusive right to vend the invention covered by the letters patent. To vend is also a term readily understood and of no doubtful import. Its use in the statute secured to the inventor the exclusive right to transfer the title for a consideration to others. In the exclusive rights to make, use and vend, fairly construed, with a view to making the purpose of Congress effectual, reside the extent of the patent monopoly under the statutes of the United States. *Bloomer v. McQuewan*, 14 How., 549.

The case presented pertains to goods purchased by jobbers within the District of Columbia and sold to the appellee at prices not stated, and resold by him at retail at less than the price of one dollar fixed in the notice. The question therefore now before this court for judicial determination is: May a patentee by notice limit the price at which future retail sales of the patented article may be made, such article being in the hands of a retailer by purchase from a jobber who has paid to the agent of the patentee the full price asked for the article sold?

The object of the notice is said to be to effectually maintain prices and to prevent ruinous competition by the cutting of prices in sales of the patented article.

That such purpose could not be accomplished by agreements concerning articles not protected by the patent monopoly was settled by this court in the case of *Dr. Miles Medical Company v. Park & Sons Company*, 220 U. S., 373, in which it was held that an attempt to thus fix the price of an article of general use would be against public policy and void. It was doubtless within the power of Congress to confer such right of restriction upon a patentee. Has it done so? The question has not been determined in any previous case in this court, so far as we are aware. It was dealt with under the copyright statute, however, in the case of *Bobbs-Merrill Company v. Straus*, 210 U. S., 339. In that case it was undertaken to limit the price of copyrighted books for sale at retail by a notice on each book fixing the price at one dollar and stating that no dealer was licensed to sell it for less and that a sale at a less price would be treated as an infringement of the copyright. It was there held that the statute, in securing to the holder of the copyright the sole right to vend copies of the book, conferred a privilege which, when the book was sold, was exercised by the holder, and that the right secured by the statute was thereby exhausted. The court also held that it was not the purpose of the law to grant the further right to qualify the title of future purchasers by means of the printed notice affixed to the book, and that to give such right would extend the statute beyond its fair meaning and secure privileges not intended to be covered by the act of Congress.

Section 4952 Revised Statutes, a part of the copyright act, secures to an author, inventor, designer or proprietor of books, maps, charts or dramatic or musical compositions the sole liberty of printing, reprinting, publishing, completing, copying, executing, finishing and vending them. While that statute differs from the patent statute in terms and in the subject matter intended to be protected, it is apparent that in the respect involved in the present inquiry there is a strong similarity between and identity of purpose in the two statutes. In the case of patents the exclusive right to vend the invention or discovery is added to the like right to make and use the subject matter of the grant, and in the case of copyrights the sole right of multiplying and reproducing books and other compositions is coupled with the similar right of "vending the same." So far as the use of the terms "vend" and "vending" is concerned, the protection intended to be secured is substantially identical. The sale of a patented article is not essentially different from the sale of a book. In each case to vend is to part with the thing for a consideration.

It is apparent that the principal difference in the enactments lies in the presence of the word "use" in the patent statute and its absence in the copyright law. An inventor has not only the exclusive right to make and vend his invention or discovery, but he has the like right to use it, and when a case comes fairly within the grant of the right to use, that use should be protected by all means properly within the scope of the statute.

Chief reliance, however, of the plaintiff in this case is upon the recent decision of this court in *Henry v. Dick Company*, 224 U. S., 1. An examination of the opinion in that case shows that the restriction was sustained because of the right to use the machine granted in the patent statute, distinguishing in that respect the patent from the copyright act. In that case a patented mimeograph had been sold which bore an inscription in the form of a notice that the machine was sold with the license restriction that it might only be used with stencil, ink and other supplies made by the A. B. Dick Company, the owners of the patent. The alleged infringer sold to the purchaser of the mimeograph a can of ink suitable for use with the machine with full knowledge of the restriction and with the expectation that the ink sold would be used in connection with the machine. It is expressly

stated in the opinion that the machine was sold at cost or less and that the patentee depended upon the profit realized from the sale of the non-patented articles to be used with the machine for the profit which he expected to realize from his invention (224 U. S., 26). After commenting upon the copyright statutes and the resemblance between the author's right to vend copies of his work and the patentee to vend copies of his work and the patentee's right to vend the patented thing, it was said (page 46):

"To the inventor, by Section 4884, Revised Statutes, there is granted 'the exclusive right to make, use and vend the invention or discovery.' This grant, as defined in *Bloomer v. McQuewan*, 14 How., 539, 549, 'consists altogether in the right to exclude every one from making, using or vending the thing patented.' Thus, there are several substantive rights, and each is the subject of subdivision, so that one person may be permitted to make, but neither to sell nor use the patented thing. To another may be conveyed the right to sell, but within a limited area, or for a particular use, while to another the patentee may grant only the right to make and use, or to use only for specific purposes. *Adams v. Burke*, 17 Wall., 453; *Mitchell v. Hawley*, 16 Wall., 544; *Rubber Company v. Goodyear*, 9 Wall., 788, 799." (*Italics in the original opinion.*)

That case was distinguished from *Bobbs-Merrill versus Straus*, construing the copyright act, because of the difference in the terms of the copyright and patent statutes, the patent act conferring not only the right to make and sell, but the exclusive right to use the subject matter of the patent. It was under the right to use that the license notice in question was sustained, and it is obvious that the notice in that case dealt with the use of the machine and limited it to use only with the paper, ink and supplies of the manufacture of the patentee. While the title was transferred, it was a qualified title, giving a right to use the machine only with certain specified supplies. It was said in the *Dick* case that "there is no collision whatever between the decision in the *Bobbs-Merrill* case and the present opinion. Each rests upon a construction of the applicable statute, and the special facts of the cases."

It is contended in argument that the notice in this case deals with the use of the invention, because the notice states that the package is licensed "for sale and use at a price not less than one dollar," that a purchase is an acceptance of the conditions, and that all rights revert to the patentee in event of violation of the restriction. But in view of the facts certified in this case, as to what took place concerning the article in question, it is a perversion of terms to call the transaction in any sense a license to use the invention. The jobber from whom the appellee purchased had previously bought, at a price which must be deemed to have been satisfactory, the packages of *Sanatogen* afterward sold to the appellee. The patentee had no interest in the proceeds of the subsequent sales, no right to any royalty thereon or to participation in the profits thereof. The packages were sold with as full and complete title as any article could have when sold in the open market, excepting only the attempt to limit the sale or use when sold for not less than one dollar. In other words, the title transferred was full and complete with an attempt to reserve the right to fix the price at which subsequent sales could be made. There is no showing of a qualified sale for less than value for limited use with other articles only, as was shown in the *Dick* case. There was no transfer of a limited right to use this invention, and to call the sale a license to use is a mere play upon words.

The real question is whether in the exclusive right secured by statute to "vend" a patented article there is included the right, by notice, to dictate the price at which subsequent sales of the article may be made. The patentee relies solely upon the notice quoted to control future prices in the resale by a purchaser of an article said to be of great utility and highly desirable for general use. The appellee and the jobbers from whom he purchased were neither the agents nor the licensees of the

(Concluded on page 547.)