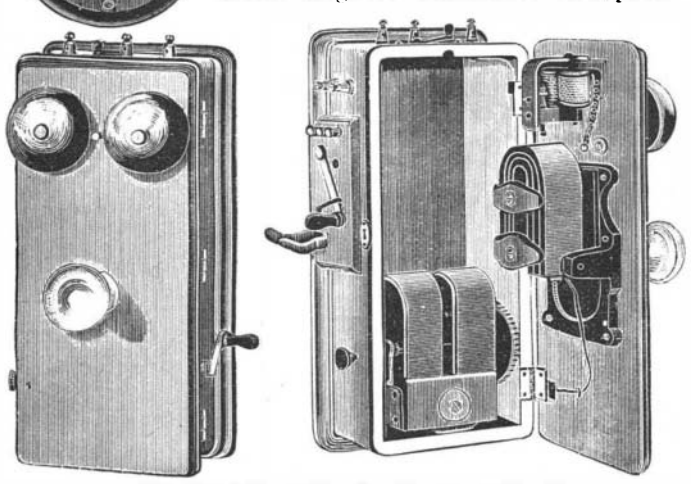
AN EFFICIENT MAGNETO TELEPHONE.

Until lately, it has been generally believed that a magneto telephone could not be used to advantage except in connection with a microphone transmitter. This may be true of magneto telephones heretofore in use. Lately, however, a new telephone has been introduced by the Viaduct Manufacturing Co., of Baltimore, Md., which is adapted for use in manufacturing establishments, hotels, asylums and public and private buildings and small exchanges.

A number of exchanges in which these magneto telephones are used have been established in several small towns, among which are West Winsted, Conn., Great Barrington, Mass., Emporium and Laceyville, Pa., Reidville, N. C., Liberty, N. Y., Vineland, N. J., Clinton, Tenn., Gaffney, S. C., Suffolk, Va., and Newport, Pa. The number of subscribers varies in the different exchanges from ten to one hundred.

Our engravings show the combination magneto transmitter and



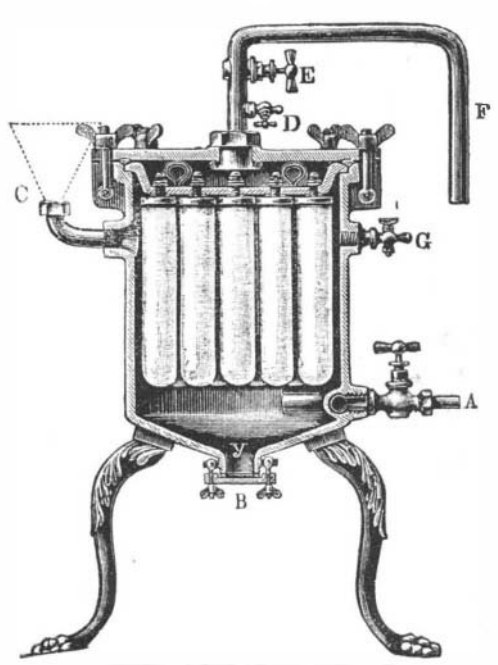
AN EFFICIENT MAGNETO TELEPHONE.

call both closed and open. In the open view is shown the powerful magnet of the transmitter which is depended on for superior results. The small cut shows one of the switches used at the Central Office.

Purchasers of the Viaduct instruments, magneto bells, transmitters, receivers and switch board, it is said, run no risk of litigation, as the company claims not to make anything which infringes existing patents.

THE BERKEFELD FILTER.

A filter which will mechanically perform its work so well as to thoroughly sterilize water, necessarily at the same time removing all minor impurities, and which will operate so rapidly as to be practically applicable to the ordinary household supply faucet, without greatly delaying the flow, presents the first elements of merit, the further most essential practical matter being that such filter may be readily cleaned and kept in its state of original efficiency. Such a filter the Berkefeld Filter Co. claim to offer, Mr. August Geise, proprietor, No. 4 Cedar Street, New York City. The small figure shows a filter of this kind attached to an ordinary water faucet, and the larger figure represents a group of such cylinders combined in one, as might be necessary in hotels and large manufacturing establishments, with added appliances to facilitate the frequent and ready cleaning out of the filters. The filtering cylinder, or the filter proper, is made in several different sizes, with inclosing metal



THE BERKEFELD FILTER.

case and connections for attachment to the house supply service, the filter cylinder in the small illustration being 3½ inches high and of 2 inches outside diameter. The prime merit of this filter lies in the peculiar quality of the filtering cylinder, which is made of infusorial earth from the kieselguhr mines of Hanover, Germany, composed of minute skeletons of diatomaceæ, and having an enormous number of exceedingly small pores, designed to intercept the flow of the minutest suspended organic or inorganic matter, while their hard silicious nature affords a firm and practically indestructible material. The pores are so minute as to be practically impassable by the minute germs which develop into the organisms causing putrefaction, fermentations, and the various zymotic diseases, and yet the filter may be easily cleaned, ordinarily by simply brushing off the surface of the filtering cylinder, or it may be thoroughly sterilized by being boiled in water, being gradually brought to the boiling point. The capacity of a single cylinder small filter is a gallon of filtered water in three minutes at a pressure of forty pounds, equal to about ninety feet head, and at other pressures in proportion. The larger illustration represents a large supply filter, especially adapted for hotels or manufacturing purposes, mineral water makers, brewers, etc., and provided with special facilities for easy cleaning. A is the inlet pipe, the filtered water passing out through F, and C represents a funnel through which a silicious wash may be introduced. An air pump is connected at D, and G and E are air cocks to be operated in connection with it, whereby suspended silica is made to do the internal scouring of the cylinders without removing them from the casing. Among the high testimonials commending this filter are the indorsements of Professors Koch, of Berlin, and Flugge, of Breslau, Surgeon-General Sternberg, of the United States Army, etc.

AN IMPROVED TUCK MARKER.

In no class of sewing machine attachments has there been less improvement made in past years than in the tuck marker, and manufacturers will find in the "Perfection" all the elements required to make it what its name implies. This attachment is manufactured by the Perfection Tucker Company, of No. 2 River Street, Rochester, N. Y. It throws absolutely no extra wear on the machine to which it is attached, nor does it affect the operation of machine in any particular, a defect so prevalent in other markers. It enables the operator with a glance and turn of screw to instantly change from one width of tuck to another and back again, or to throw any desired space in or out. The marker is made of the best material, and is tested before leaving the works. The marker is fastened to the machine base with a single screw, and not to the presser-foot, as in most others, thereby avoiding unnecessary jar and wear on the attachment or machine on which it is used. The attachment itself is held in fixed position, it being unnecessary to tighten or loosen this screw for any purpose other than its application to or removal from machine.

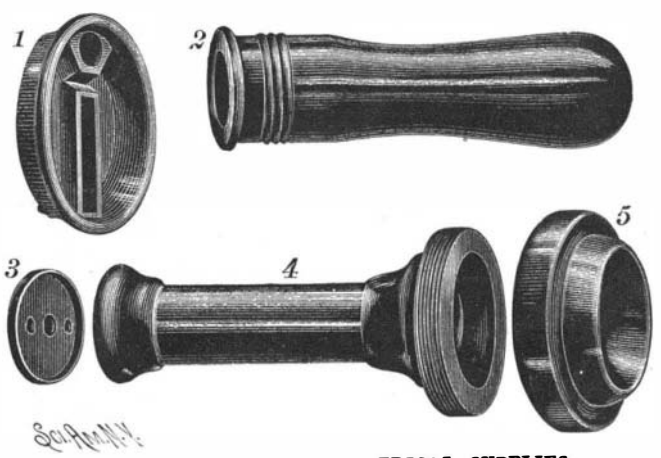
The "Perfection" has the largest range of any in the market, as it will make tucks from ⅛ inch in width up to those of 2 inch, including a 1 inch space. The adjustment is accomplished by means of two screws on the "tuck and space" scale, located on the upper part of attachment, and in plain view of the operator. The screw on the left is used when marking tucks and that on the right when space is desired between tucks, and they are manipulated as follows: Let it be assumed that we are to make a combination of tucks and spaces as the following—¼, ¼, ¼ "tucks," ⅜, ⅛ space tuck; then the operation would be, first set cloth guide, which is part of attachment, to mark on its scale corresponding to width of first tuck desired, viz., ¼ inch; next, loosen left hand screw of "tuck and space" scale, and push scale out until it arrives at a point marked ¼, which is the one desired; tighten screw with thumb and finger, and attachment is set for ¼ inch tucks. Make first two, then loosen screw on right hand end of scale, push marker out until it arrives at a point marked ⅜, fasten screw; stitch third tuck, and we have now made three ¼ inch tucks and one ⅜ space; now proceed as above for remainder. This is absolutely all that is required on part of the operator to make any combination of tucks and spaces.

Simple Method of Sterilizing Water.

M. Traube states that by mixing water with chloride of lime in the proportion of half a milligramme to 100 cubic centimeters, all micro-organisms present are destroyed within the space of two hours. Water abounding in bacteria, after having been thus treated will be found perfectly sterile when tested in suitable culture media. The amount of active chlorine present is reduced within the two hours by about 9·1 per cent, and the remainder may be neutralized by the addition of sodium sulphite in sufficient amount—the addition of an excess would not be detrimental, as it would be soon converted into sulphate by the oxygen dissolved in the water. After treatment in this manner, water has a pure taste and a perfectly neutral reaction. Whether pathogenic bacteria are completely destroyed by such treatment has not been exactly ascertained.—*Zeitschr. Hygiene; Pharm. Jour.*

A NEW ARTICLE OF MANUFACTURE.

The illustration represents a few of many samples of goods put on the market within a comparatively recent period, and made from "fibrone" by hydraulic pressure by the Fibrone-Terraloid Co., of No. 97 Oliver Street, Newark, N. J. The goods have a polish equal to the finish of the dies, and are designed to



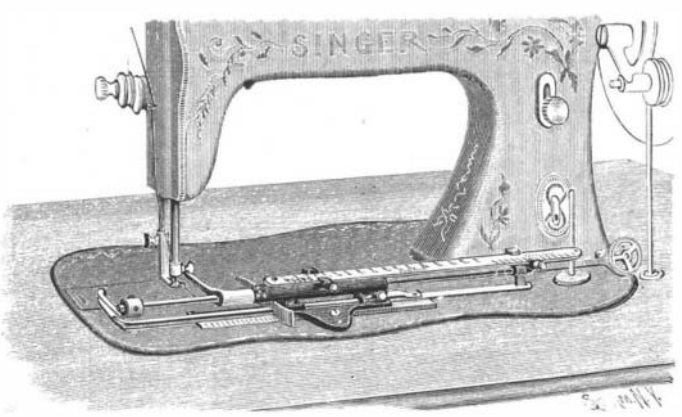
FIBRONE-TERRALOID ELECTRICAL SUPPLIES.

take the place of hard rubber in nearly all articles for which the latter is employed. They are made in all colors, and in marble and wood imitations, and are not affected by damp walls. In our illustration Fig. 1 shows a battery jar cover, Fig. 2 a switch handle, and Fig. 4 a telephone handle, Fig. 3 being an insulating disk, and Fig. 5 a mouth piece. The material is adapted to fill a most useful place in the making of a wide variety of articles.

How to Make Ice.

BY H. N. WARREN, RESEARCH ANALYST.

To procure ice in the laboratory, even when intended to illustrate the same as an experiment, is generally brought about either by the clumsy method of mixing large quantities of the original compound with sodium or calcium chloride, and exposing to its influence the substance under examination; or when in larger quantity, by employing one of the costly refrigerators now upon the market. With a practical chemist all such apparatus is ridiculed. Take for the expensive refrigerator a fractional distillation flask; place the flask in the desired quantity of water which is intended to freeze, contained in a suitable receptacle. Through the neck of the flask is now inserted a rubber tube terminating in a glass point, which should all but touch the surface of the liquid contained in the flask, which consists of about 20 c. c. of an equal mixture of ether and carbon disulphide. The further end of the rubber is now connected to a pair of constant bellows, and a brisk current of air continued



AN IMPROVED TUCK MARKER.

for about three minutes; almost immediately the thermometer will sink to zero, the vapor of the mixture introduced escaping through the small tubular of the flask, while the outside vessel, containing the water, will be found to have become inseparable, owing to the thickness of the ice formed. This constitutes a beautiful experiment for a lecture table, where the gradual development of the ice can be readily observed. By this means I have frozen a liter of water when the room was at 70° F. in half an hour.—*Chem. News.*