be put inside his desk; for in this way the reagents are kept cleaner, and the work of the janitor is made much easier.

HORACE GROVE DEMING.

LOS BAÑOS, P. I.

Note on a New Analytical Suction Filter.—The description of the following apparatus which I have invented is not of particular interest simply because it contains certain new features, or even old features combined in a new way, but because it is an apparatus whose value can be measured by its usefulness.

Probably every chemist at some time in his course of study has done a certain amount of quantitative analysis, and in the analysis of more complicated substances, such as dolomite or talc, has felt a desire that he might use a Gooch crucible and a suction filter, in one of the first stages of analysis, owing perhaps to the quickness of the filtration and the simplification by eliminating the necessity of burning the filter paper and many other details which tend to lengthen and make tedious some of these analyses. But the style of the present suction filter makes its use at this stage practically prohibitive, because the next stage of analysis could not be carried on in this vessel, nor could the contents be readily taken out, owing to the awkwardness of its shape.

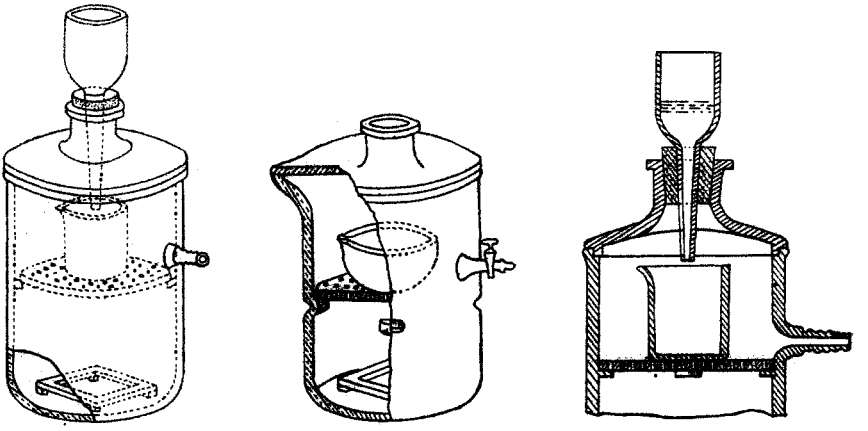
It is often necessary to operate with very small quantities of liquid and it is important in such cases to avoid possible loss of liquid through adherence to the surface of the receptacles employed in making the analysis. At the same time it is desirable to avoid the necessity of carrying in stock various sizes of filter apparatus. It is also necessary to employ for filtering purposes an apparatus which can be easily and conveniently handled and cleansed. It is exceedingly desirable to employ apparatus so constructed as to utilize suction action in effecting the filtering.

So it is the purpose of my filter to provide an apparatus which accomplishes these various desirable results. A description of the apparatus is as follows:

The apparatus is very simple and consists of three parts. The main body of the apparatus somewhat resembles Witts filter, and consists of a cylindrical glass jar, $6^1/_2$ inches deep and $5^1/_2$ inches in diameter, with a suction outlet near the top fitted with a ground glass stopcock. The top rim has a pouring lip in the side opposite the suction outlet and the entire upper surface is ground. Half way up from the bottom on the inside surface are three glass protrusions at equal distances apart for supporting a perforated shelf, which is the second part. The third part is the cover having a ground glass rim to fit the upper surface of the jar and having an extra large stopper opening of one and three-quarter inches in diameter.

Now, where small quantities are to be filtered, the shelf is inserted and

a small beaker or crucible is placed thereon to catch the filtrate. After the filtration, whether with a Gooch or ordinary filter, we find the filtrate is in the desired vessel ready for the next operation. If large quantities



are to be filtered the shelf is removed and a large beaker inserted; or the jar itself may be used very conveniently, the three small protrusions interfering but little in washing, and the pouring lip facilitating the emptying of the jar.

There are, indeed, many suction filters which in certain respects resemble my filter, but owing to their lacking in certain features have not rendered themselves very popular. My filter I find the most simple and natural, and at the same time most convenient for speed, neatness and accuracy, and for that reason have called attention to it and have named it the Takamine Analytical Filter (for which the patent is pending).

JOKICHI TAKAMINE, JR.

NEW YORK.

An Alternating Current Thermoregulator.—The electromagnetic thermostat regulator is a well-known convenient instrument. The principle of operation is that the expansion or contraction of mercury in a large open mercury thermometer makes or breaks a contact which throws on or off a current through an electromagnet.

Regarding these regulators Ostwald[1] says: "The great drawback I find with such instruments is that the current always remains closed for a considerable length of time. This causes a rapid running down of the battery which in turn easily occasions the regulator to fail in its action."

It was suggested by Professor J. W. Dorsey of the electrical engineering department of the University of Manitoba that alternating current from the city mains might be used to run the electromagnet and accordingly

[1] "Physico Chemical Measurements," 1894, p. 62.