merits are such as to deserve more particularly the attention of chemists. Instead of the cumbrous bottle generally employed, the plate of an air pump may be advantageously substituted, and a receiver, with an india-rubber cork, through which the neck of the funnel is passed as represented in the drawing. In order to prevent loss by the bursting of bubbles of air at the end of the tube of the funnel, it is continued low down into the beaker by an india-rubber tube A. The latter

can easily be removed at the end of a filtration, and the drops of adhering liquid, washed with water from the spritz, into the filtrate. This simple arrangement obviates the necessity of a transfer from one vessel to another, and permits all the operations of an analysis to be carried on as usual, in beakers. Instead of an air-pump plate, a sheet of glass may be used, and the exhausting tube as well as the funnel in this case must be passed through the tubulure of the bell-jar. A similar arrangement is useful for the dessication of bodies, either alone or with sulphuric acid.

Improved Form of Wash-bottle.—The accompanying drawing represents a wash-bottle which I have seen in use abroad, but which I have not seen in text-books or employed at home. The

delivery tube A is bent sharply upon itself, and then cut off at a point not quite directly above where it makes the first bend. The jet is bent in the same manner but in a contrary direction, and the two parts are connected by an india-rubber tube. Over this is fitted a short piece of glass tube of such a bore as to fit tightly, yet permit at the same time the jet to be pointed upward, downward or in any direction. In transferring precipitates from one beaker to another, or in washing a precipitate back into a beaker, etc., such a form of wash-bottle is much more convenient than that in common use. B is the entrance tube, c cork tied around the neck of the bottle, *ddd* pieces of india-rubber tubing where the glass tubes, in order to give greater flexibility, are cut into parts. The delivery tube is bent at *e* so as to reach into that corner which is lowermost when the flask is inclined.

ALBERT R. LEEDS.

A Machine for Sewing on the Bottoms of single-soled shoes, commonly called "turns," has been invented by Mr. M. J. Stein, of New York City.