that the detailed manipulations of the process require infinite care and patience and that there are still many difficulties to be overcome before the process can be labeled "fool-proof." It may be possible to polymerize small-sized samples in several hours, just as it is possible to polymerize a thin film within a matter of minutes, but when dealing with larger, more practical specimens successful polymerization will often require a period of weeks, during which time the process becomes increasingly more difficult. So far, we have also found that only relatively dry materials can be successfully mounted in methyl methacrylate. In some cases where the water content is not excessive it is possible to coat the specimen with gelatin before imbedding, but our results using gelatin for this purpose have not been entirely satisfactory. Attempts to imbed fresh flowers and leaves in methyl methacrylate, using either benzoyl peroxide or sulfur trioxide as the catalyst, have resulted in color loss. Furthermore, iridescent butterflies do not lend themselves readily to the imbedding process, at least not without some sort of protective coating, since such specimens lose their iridescent effect, owing to the fact that this phenomenon is caused by a structural or grating effect and not to the presence of actual pigment. However, unusually attractive and pleasing mounts in methyl methacrylate have been made of such butterflies, by a process which prevents actual contact between the methyl methacrylate and the specimen.

We anticipate that both the Fessenden and the methacrylate mounts of biological materials will possess considerable value for exhibit and other educational purposes and as permanent records of healthy and abnormal specimens. It is highly important, therefore, that the imbedded specimen retain its natural shape, size and color and that the finished mount be free of imperfections, including cloudiness, bubbles, color deterioration and alterations such as "crazing" in the plastic itself.

Until now, the Bureau of Chemistry and Soils has considered premature any announcement as to methods and results of this research project, since many undetermined factors and problems connected with the work remain to be studied and overcome. When the final details and directions for the successful mounting of biological specimens in plastics are worked out, a full and comprehensive report will be forthcoming.

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## A HYDRO-AGITATOR FOR SOLUTIONS

SUITABLE agitation of a solution over a period of days for decalcification of bone, etc., is effected by securing a cylindrical half-liter bottle three fourths full of the solution on the hooks in the illustration, so that half the bottle is below the pivotal center. A stream of water at the rate of four gallons an hour tips the pans alternately twice a minute, which we find sufficient to decalcify bone tissue embedded in nitrocellulose blocks, and placed first in a solution of nitric acid followed by a 3 per cent. solution of alum.

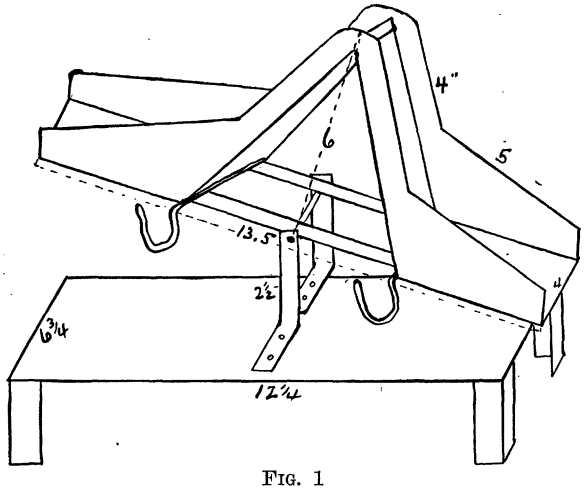


FIG. 1

The table is wood with steel legs, the upright supports for the pivot are steel, and the pans are copper, all scrap material from our shop, constructed in a half day. The apparatus may be made to any scale desired, or the height of the pivot may be increased so as to extend the arc of rotation of the pans. The figures are dimensions in inches.

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