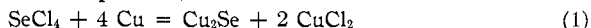
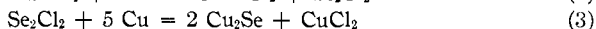
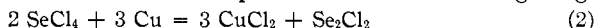


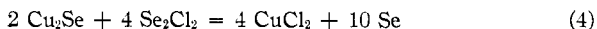
Selenium tetrachloride, made in the usual manner from selenium kindly supplied by the Baltimore Copper Company, was transferred to a bulb at the bottom of a glass tube. This was then bent at an obtuse angle, a weighed roll of freshly reduced copper gauze was introduced, the whole was evacuated through a tube containing phosphorus pentoxide and sealed to the pump. It was then heated for some hours at 105°. The selenium tetrachloride disappeared, and was replaced by drops of a brown liquid (the dichloride, Se_2Cl_2); finally these also were absorbed. The copper gauze was ground in a mortar, and the unchanged copper was picked out. Samples of the total product, and of the soluble and insoluble parts of this, were analyzed separately, and the combined copper, selenium and chlorine were compared with the weight of the selenium tetrachloride taken. All checks, for which analytical data are supplied in our complete paper, agree satisfactorily with the equation,



Summary.—By combining the qualitative with the quantitative results, we conclude that the reactions proceed in the following stages,



and with an excess of the chlorides thus

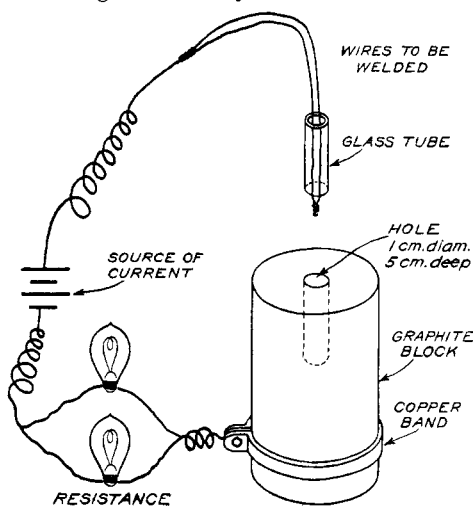


NOTTINGHAM, ENGLAND

W. W. TAYLOR
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RECEIVED MARCH 31, 1926
PUBLISHED AUGUST 5, 1926

A Device for Arc-Welding Easily Oxidizable Wires.—I have found the following device very serviceable in welding thermocouples. A hole 1 cm.



in diameter and 5 cm. deep is bored in a graphite block. The block forms one terminal and the wires to be welded the other terminal. A drop of "oil-dag," or of common lubricating oil, is dropped into the hole, and the wires are placed in the hole to make a contact with the oil. The wires are then quickly pulled out a very little and the resulting arc, in a reducing atmosphere, gives a very good weld.

A glass tube, open at both ends, may be slipped over the

wires to prevent contact with the block at any other place except the very ends, which are twisted together.

Lamps of suitable resistance are placed in parallel. One ampere with 230 volts is sufficient to weld the common wires employed as thermocouples. However, wires of larger gage may be welded by decreasing the resistance.

THOUSAND ISLANDS PARK,
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HARRY P. COATS

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[CONTRIBUTION FROM THE CHEMICAL LABORATORY OF BROWN UNIVERSITY]

STUDIES RELATING TO ALKYL TIN COMPOUNDS. I. SOME STANNOETHANES. II. TRIMETHYLBENZYL STANNANE

BY CHARLES A. KRAUS AND RALPH H. BULLARD¹

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I. Some Stannoethanes

Introduction.—The elements of the fourth group of the periodic system (not including titanium) form compounds of the type $R_3M.MR_3$, where M is an element of the fourth group and R is an organic group or hydrogen. In these compounds the stability of the bond between the atoms of the element M depends upon the nature of the central element as well as upon that of the substituent groups R. In general, the more electronegative the central element M, the more stable is the bond between the atoms of that element. Thus, tin atoms are bonded much more loosely than are atoms of germanium or silicon. The bond between carbon atoms is extremely stable with the exception of compounds in which the substituents R are aryl or very heavy alkyl groups. The stability of a bond between two carbon atoms in these compounds is the weaker the heavier the substituent groups.

In the case of carbon, these compounds are spoken of as methyls as, for example, triphenylmethyl, the idea being that these compounds consist actually of the free substituted methyl groups. Here there is an attempt to differentiate between the C—C bond as it occurs in the methyls on the one hand and carbon-chain compounds on the other. Such differentiation appears somewhat arbitrary, particularly in the case of other elements of the fourth group, such as lead, tin, germanium and silicon. Little is known with regard to the stability of the Pb—Pb bond. In the case of tin compounds, the Sn—Sn bond is fairly stable, particularly when phenyl groups are the substituents. The Ge—Ge bond appears to be very stable. Probably the stability of the Si—Si bond is even higher than that of germanium.

In view of the gradation in the strength of the bonds of the type M—M

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