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## IGNITION COMPOSITION

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This invention relates to an ignition composition, adapted more especially for use in blasting caps.

The ignition compostion in accordance with this invention is adaptable for use in various types of blasting caps, but will be found of special advantage for use in delay caps, and will be readily ignited or fired by means of a fuse or electrically.

The ignition composition in accordance with this invention will be found especially adaptable for use in ventless delay caps, since on burning it will produce little or no gas. Further, with use of the composition misfires are avoided, since, if the quantity used is not excessive, it will not cause rupture of a firing circuit arranged for the firing of a series of caps. The advantage of the composition for use in caps arranged to be fired in series is due not only to the fact that it will burn without the production of any material amount of gas and hence when used in ordinarily suitable amounts will not rupture the cap casing or dislodge the bridge wire, but also to the fact that the residue left after burning is, for a short time conductive of electric current. Hence, since the firing of the ignition composition does not instantly interrupt the electric circuit, as in the case, for example, of fulminate, current will pass through a series of caps for a longer period than with the ordinary caps of the prior art and individual slow firing caps are given more opportunity to ignite than heretofore.

From the broad standpoint the ignition composition in accordance with this invention comprises a mixture of selenium and lead or tin. The ingredients will desirably be in finely divided form and in intimate mixture.

The position may include selenium and lead or tin in widely varying proportions. Thus, for example, a selenium-lead mixture may include lead in amount within about the range 40–85%; while, for example, a selenium-tin mixture may include tin in amount within about the range 50–70%.

From the specific standpoint the lead or tin will be proportioned to the selenium on the basis of approximately chemical equivalency. Thus, a selenium-lead composition may include selenium about 27.6% and lead about 72.4%; while a selenium-tin composition may include selenium about 40.0% and tin about 60.0%.

In preparing an ignition composition in accordance with this invention the ingredients will be reduced to a finely divided form and will be intimately admixed by any suitable procedure.

The ignition composition may be loaded into any desired form of blasting cap in any usual manner, it being noted that no air space need be left, since the composition develops practically no gas on burning.

As illustrative, the composition may be loaded loosely into any form of ventless delay cap assembly above the fuse and the usual sulphur plug holding the usual bridge wire placed above the loosely loaded composition with the bridge wire embedded in the composition. Similarly, the composition may be loosely loaded into any ordinary blasting cap above the priming charge.

As between the two compositions embodying this invention as described above, it will be noted that this composition including selenium and lead will be found to be markedly superior over the composition including selenium and tin, and as a consequence the former will generally be preferred over the latter.

What I claim and desire to protect by Letters Patent is:

1. A solid ignition composition including as ingredients selenium and a metal from the group consisting of lead and tin.

2. A solid ignition composition including in intimate admixture in finely divided form selenium and a metal from the group consisting of lead and tin.

3. A solid ignition composition including in intimate admixture in finely divided form selenium and a metal from the group consisting of lead and tin, the selenium and metal from said group being present in chemically equivalent amounts.

4. A solid ignition composition including in intimate admixture in finely divided form selenium and lead.

5. A solid ignition composition including in intimate admixture in finely divided form selenium and lead in amount within about the range 40–85%.

6. An ignition composition including in intimate admixture in finely divided form selenium about 27.6% and lead about 72.4%.

7. A solid ignition composition including in intimate admixture in finely divided form selenium and tin.

8. A solid ignition composition including in intimate admixture in finely divided form selenium and tin in amount within about the range 50–70%.

9. An ignition composition including in intimate admixture in finely divided form selenium about 40.0% and tin about 60.0%.

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