

# UNITED STATES PATENT OFFICE.

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COMPOSITION OF MATTER FOR FILLING CRACKS IN METAL.

1,349,648.

Specification of Letters Patent. Patented Aug. 17, 1920.

No Drawing.

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*To all whom it may concern:*

Be it known that I, CARL F. ALLISON, a citizen of the United States, residing at Woodlawn, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Composition of Matter for Filling Cracks in Metal, of which the following is a specification.

My invention relates to a composition of matter for filling cracks in metal and particularly cast iron, steel and the like, to produce a water tight joint.

In accordance with my invention, I preferably mix ten parts by weight of powdered aluminum, two parts by weight of zinc, and eighty-eight parts by weight of sulfur, and heat the mixture to a fusing or melting temperature of about 240° F., at which temperature the sulfur melts and a homogeneous mass is produced which may be cast into bars or sticks. The invention is in no sense restricted to these precise proportions, while they are preferred, as I have found that satisfactory results are obtained by combining from six to twenty parts by weight of aluminum, one to two parts by weight of zinc, and a sufficient amount of sulfur by weight whereby the entire mass has one hundred parts by weight. I have also found that other elements may be added to the alloy embodying the elements above stated in either of the proportions stated, such elements being iron, chromium, cadmium, bismuth and antimony. These elements are added in small amount, and their total by weight should not exceed two per cent. of the total weight of the mass.

I have found that my solder composition is particularly useful in filling cracks in water jackets and crank cases of automobile

engines, but it may be used for filling cracks in any cast iron or steel article where it is desired to obtain a water tight joint.

The composition is applied by heating the casting to be soldered to a temperature of about 500° to 600° F., then igniting the end of the bar or stick which burns slowly on account of the high sulfur content and applying the burning end of the bar to the cracked part of the casting. The tendency of the sulfur is to creep and fill up the entire crack, thus effecting a water-tight joint.

It is to be understood that the forms of my invention herewith described are to be taken as the preferred examples of the same, and that various changes may be resorted to in the proportions of the several ingredients and that known chemical equivalents may be employed without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A composition of matter for filling cracks in metal, comprising a major portion by weight of sulfur and a minor portion by weight of powdered aluminum and powdered zinc.

2. A composition of matter for filling cracks in metal comprising from 6 to 20 parts by weight of powdered aluminum, 1 to 2 parts by weight of powdered zinc and sufficient sulfur to make 100 parts by weight of composition.

In testimony whereof I affix my signature in presence of two witnesses.

CARL F. ALLISON.

Witnesses:

D. J. HALLISEY,  
ANNA E. SOLKOVY.