

# UNITED STATES PATENT OFFICE.

WILLIAM F. BROOKS, OF NEW YORK, N. Y., ASSIGNOR TO WILLIAM BROOKS JONES, OF SAME PLACE.

## IMPROVEMENT IN HOMOGENEOUS METALS FOR CASTING GIRDERS, BEAMS, &c.

Specification forming part of Letters Patent No. 118,336, dated August 22, 1871.

*To all whom it may concern:*

Be it known that I, WILLIAM F. BROOKS, of the city, county, and State of New York, have invented an Improved Composition for Cast Girders, Beams, and other architectural purposes, of which the following is a specification:

My invention has for its object increasing the strength of metallic beams, girders, and other supporting and retaining parts in architectural and engineering construction; and it consists of a compound formed by the admixture of steel with cast-iron, as hereinafter set forth.

To prepare the composition for casting girders and other parts of structures requiring unusual strength, I place in the melting-furnace a certain amount of scrap or other steel, and then add cast-iron in sufficient quantity for the charge, and largely in excess of the steel, and fuse the whole together. The proportion of steel to the iron varies with the quality of both. The higher the quality of the steel the smaller proportion is required, as is also the case when the iron is hard. With iron known as No. 2 anthracite twenty-five per cent. of scrap-steel has given the best result.

The relative quantity of steel to the iron will range from fifteen to thirty-three per cent., or thereabout, the proportions required for the different specimens being readily determined by an experienced workman who is acquainted with his materials.

The composition, when fused, is cast in the same manner as iron, and with equal facility.

The castings are homogeneous, and possess great hardness and tenacity, and resistance to tensile and lateral strains, which specially adapts the material to use for those parts of bridges and buildings which require the greatest strength.

I claim as my invention—

A composition of steel and cast-iron, fused together, for casting beams, girders, and for other architectural purposes, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WM. F. BROOKS.

Witnesses:

J. FRASER,  
K. N. JONES.