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Frederick J. Smith's

PATENTED APR 5 1870

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Cord Bar Heads

Figure 1

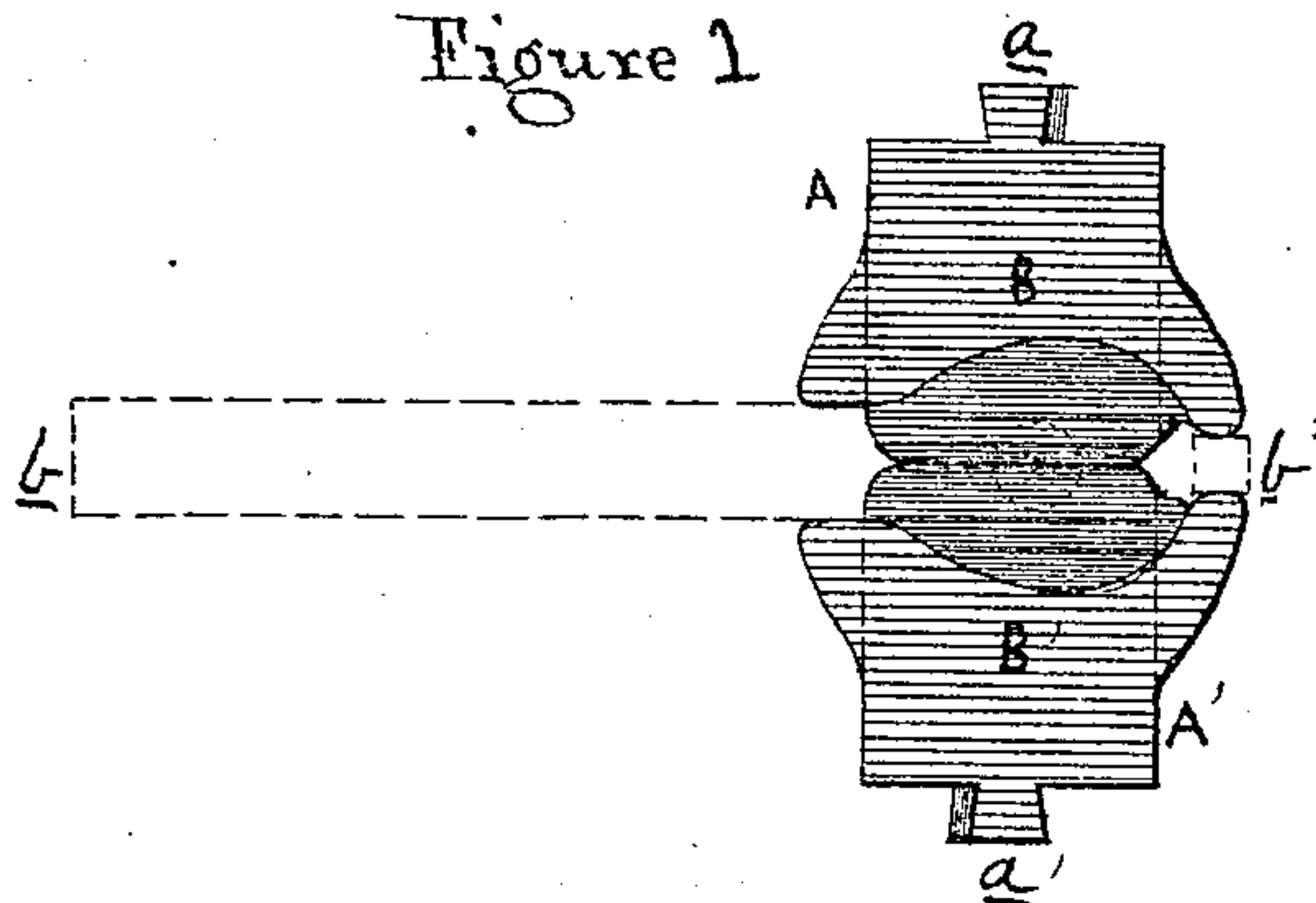
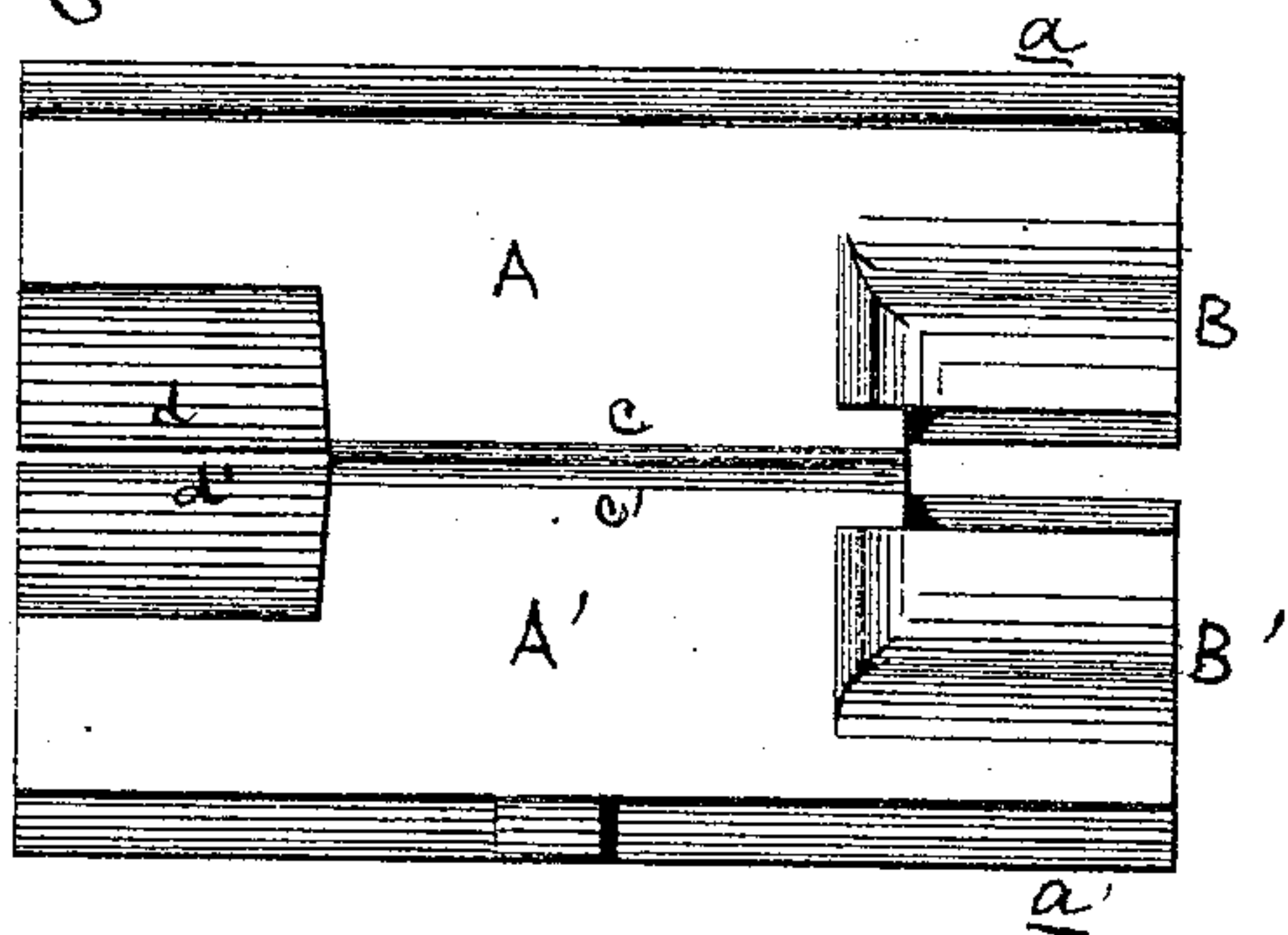


Figure 2.



Witness

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FREDERICK J. SMITH, OF CHICAGO, ILLINOIS.

Letters Patent No. 101,529, dated April 5, 1870.

IMPROVED DIE FOR MAKING CHORD-BAR HEADS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, FREDERICK J. SMITH, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Dies for Chord-Bar Heads; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, and being a part of this specification.

Figure 1 is an end view of the dies, with a chord-bar head between them receiving shape, and

Figure 2 is a side elevation of the same.

The object of this improvement is the making of chord-bar heads for iron bridges more rapidly than by the usual process, and to make them not only at less expense, but of greater strength, with the same weight of metal, than heretofore; and

The nature of the invention consists in the application of the dies herein described to the faces, respectively, of a steam or other power hammer, and of a proper anvil, for the purpose of manufacturing chord-bar heads.

In the drawings—

A is the die attached to the hammer-face by the tongue *a*, and provided with the shape B, of a form nearly semi-elliptical in front outline, and A' is the die attached to the anvil-face by the tongue *a'*, and provided with the shape B', of form similar to that of B.

The shapes B and B', whose openings face each other, are recessed or cut away in the front of the dies for a suitable distance, so that, when the bodies of the dies meet on the line *c c'*, the shapes B and B' are separated such a distance as will receive between them the finished chord-bar head, leaving room upon

one side for the chord-bar proper, *b*, and upon the other for its point *b'*.

d and *d'* are faces made in the rear ends of the dies A and A' respectively, by cutting them away upon their sides for a portion of their length, in lines curved inwardly, so as to leave said faces of about one-fourth of the entire width of said dies.

In operation, I take scrap-iron, pile and shingle it into billets of suitable size, heat the same sufficiently, and forge into bars having the general outlines of the finished bars and heads, by means of the faces *c* and *c'* and *d* and *d'*. The heads are then placed between the dies, and by repeated blows brought into the desired size, shape, and finish.

I find, by experience, that the chord-bar heads, made in the usual manner from bar-iron, will not sustain more than fifty to fifty-five thousand pounds per inch, while those I manufacture in the way described sustain from eighty to eighty-five thousand pounds per inch.

I find, by actual trial, that the cost of manufacture by the use of these dies is about one-third of the cost of making the chord-bar heads by the usual process.

Having thus fully set forth the nature and merits of my improvement,

What I claim as my invention, and desire to secure by Letters Patent, is—

For the manufacture of chord-bar heads, the dies A and A', provided with the shapes B and B', the faces *c* and *c'* and *d* and *d'*, when constructed as described and shown, and arranged to operate as set forth.

Witnesses:

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