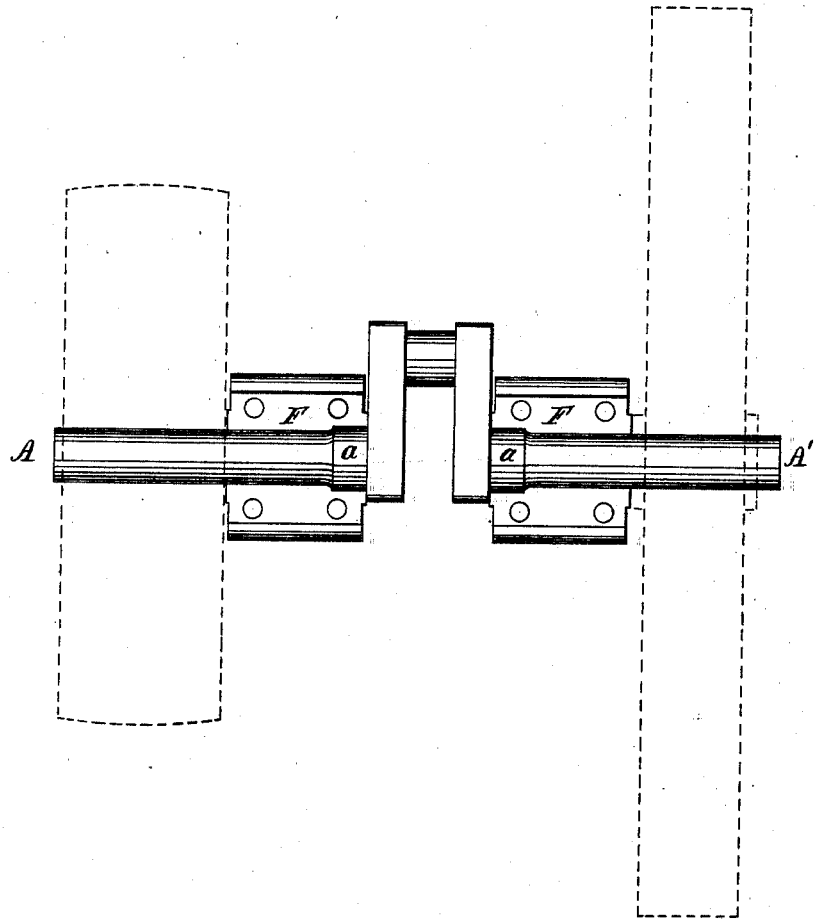
D. A. WOODBURY.

CRANK-SHAFTS FOR STEAM-ENGINES.

No. 191,790. Patented June 12, 1877.



WITNESSES.
W. J. Creelman.
Wm. A. Montgomery.

INVENTOR.
D. A. Woodbury

UNITED STATES PATENT OFFICE.

DANIEL A. WOODBURY, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN CRANK-SHAFTS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **191,790**, dated June 12, 1877; application filed May 18, 1877.

To all whom it may concern:

Be it known that I, DANIEL A. WOODBURY, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Crank-Shafts for Steam-Engines, of which the following is a specification:

My invention consists in a method of strengthening that class of engine-shafts which are formed in one piece with the crank.

In the drawings, the figure is a plan view of my invention showing the bearings of the shaft uncovered.

It is well known by practical engineers that crank-shafts forged in one piece, and having the crank located at or near the center of their length, are extremely liable to break at the neck of the crank; because, first, the whole labor of the engine passes through these points, and it is often very unequally divided between the two overhanging ends of the shaft; second, it is impossible to weld up and hammer the material at the neck as thoroughly as at the other points in the shaft. The danger of breakage is increased, also, in that form of engine in which the shaft has but two bearings, one each side of the crank, the power being taken off from pulleys or wheels upon the overhanging ends of the shaft, as indicated in dotted lines in the drawing. It is to this class of shafts that my invention is especially adapted.

To obviate the difficulties named, I form enlargements *a* upon the shaft A A′, directly at the neck of the crank, extending a short distance into the main boxes or pillow-blocks F, and forming part of the journal. This increases the amount of material at the point of least strength and greatest strain, while at the same time the general dimensions and weight of the parts are not thereby changed.

I do not intend to confine myself to the special application of the enlargement *a* to forged shafts, as it may be used with equal advantage upon cast shafts, either of iron, brass, or steel.

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

As an improvement in that class of crank-shafts which have the crank formed in one piece therewith, and the journals located close to the crank, the enlargement *a* directly in the neck of the crank, and forming part of the journal, substantially as and for the purposes set forth.

D. A. WOODBURY.

Witnesses:
WM. A. MONTGOMERY,
W. J. CREELMAN.