

R. P. HOUSTON.
CRANKS AND CRANK-SHAFTS.

No. 188,138.

Patented March 6, 1877.

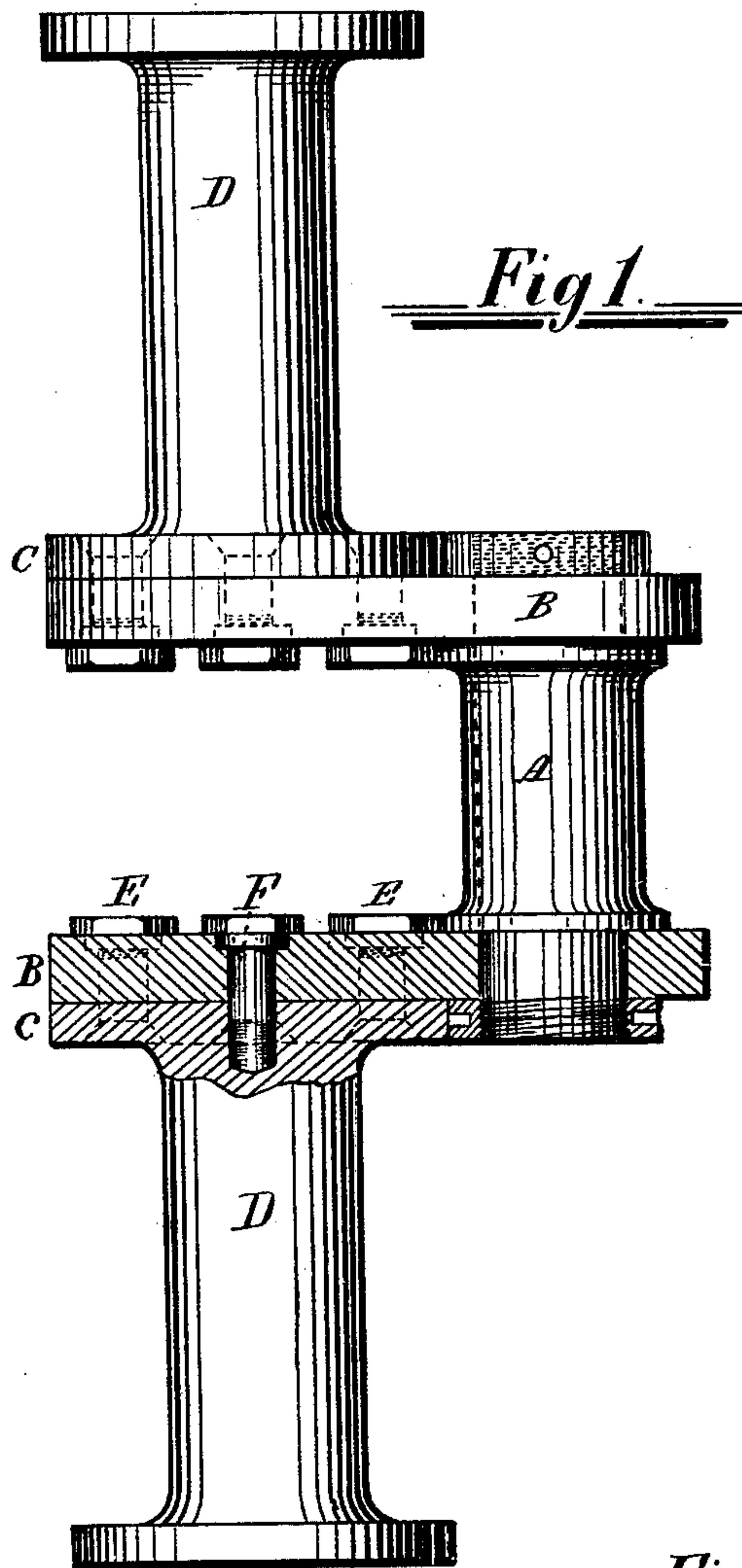
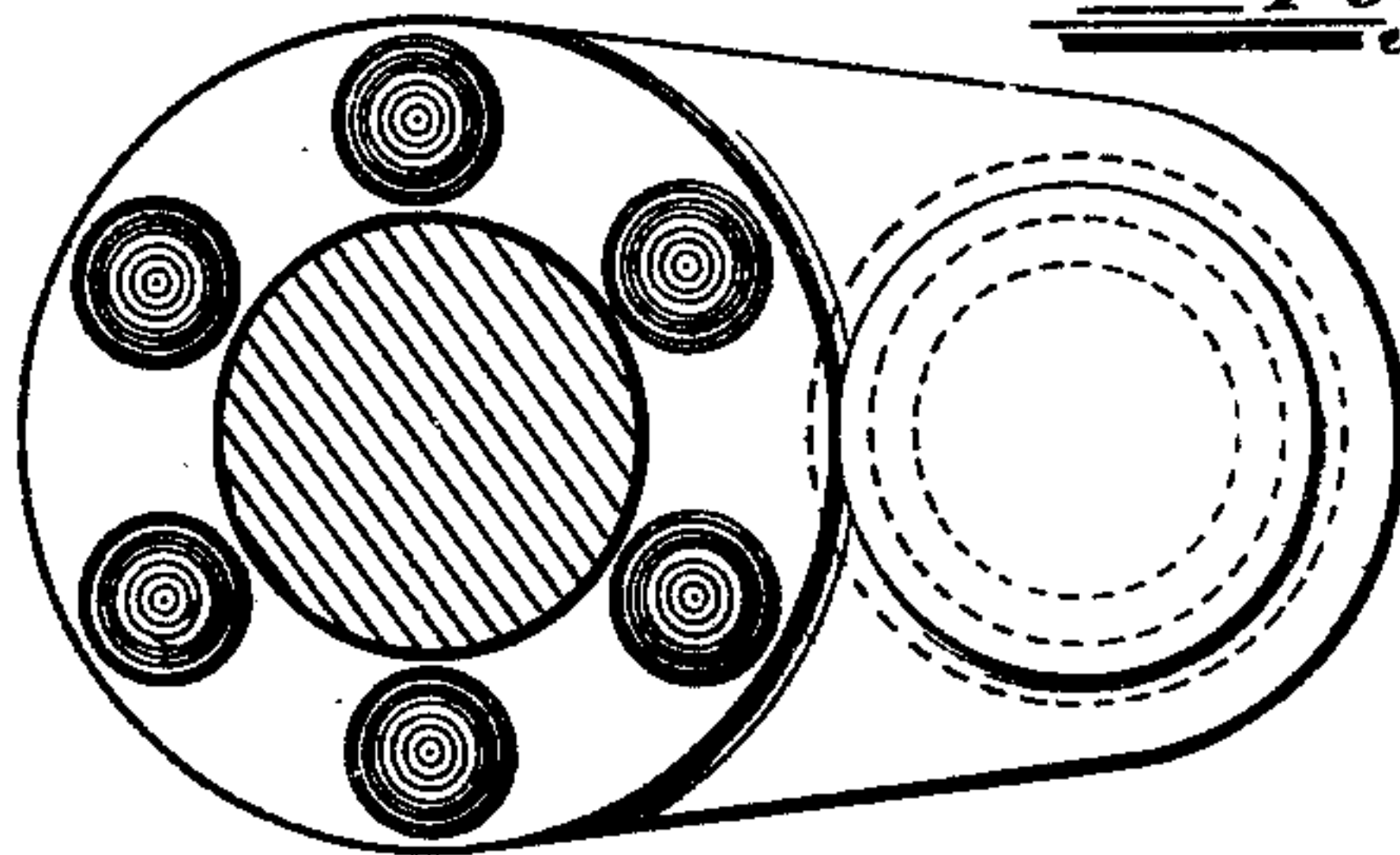


Fig 2.



Witnesses.

William Keene Edwards
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Inventor.

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UNITED STATES PATENT OFFICE.

ROBERT P. HOUSTON, OF LIVERPOOL, ENGLAND.

IMPROVEMENT IN CRANKS AND CRANK-SHAFTS.

Specification forming part of Letters Patent No. **188,138**, dated March 6, 1877; application filed February 16, 1877.

To all whom it may concern:

Be it known that I, ROBERT PATERSON HOUSTON, of Liverpool, in the county of Lancaster, in the Kingdom of England, have invented a new and useful Improvement in Cranks and Crank-Shafts, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention has for its object the construction of crank-shafts in a more perfect, accurate, and economical manner than heretofore. It consists chiefly in constructing a built-up crank-shaft by bolting the webs of the cranks to the shaft instead of forging the whole out in one piece. The pin also is made in a separate piece. The pieces being smaller insures better forgings and castings, and must necessarily become more economical.

By these means I insure the greatest accuracy of construction, while at the same time the fiber of the iron in every part follows approximately the line of strain.

Another great advantage consists in the great ease with which it can be repaired—the failure of a crank-pin, for instance, being remedied in a few hours at furthest, instead of condemning the whole shaft, as always is the case in the ordinary make of shafts.

This invention is best described by the accompanying drawings, in which Figure 1 is a plan view; Fig. 2, section through crank-shaft.

In these, A is the crank-pin. This can be

either solid, as shown, or a simple bolt with a ferrule round it. It can be screwed on with nuts or secured by pins, or shrunk or keyed onto the two webs. B B are the webs composed of simple plates or slabs or disks of metal, bolted to the flanged ends c of the shafts D by bolts E. F is a turned and tapped center-pin. This can, if desirable, be turned solid on the shaft; but it is preferably tapped in, as shown.

In erection, the line-shafts being placed in position, the crank-pin is placed in the web-plates, and these latter attached to the shaft by the center-pins. The webs or shafts are now turned round till the bolt-holes meet, when the bolts are inserted and their nuts screwed up. All parts being planed or turned true to templet, accuracy is insured.

The nuts of the bolts can be locked or guarded in several ways, to prevent them slacking back.

I claim as my invention—

1. The crank-shaft consisting of the shafts D, webs B, and pin A, made in separate pieces, and united substantially as shown and described.

2. In a crank-shaft, the combination of a shaft, D, having a flanged or enlarged end, and a web, B, bolted thereto, as shown.

R. P. HOUSTON.

Witnesses:

WM. EDWARDS,
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