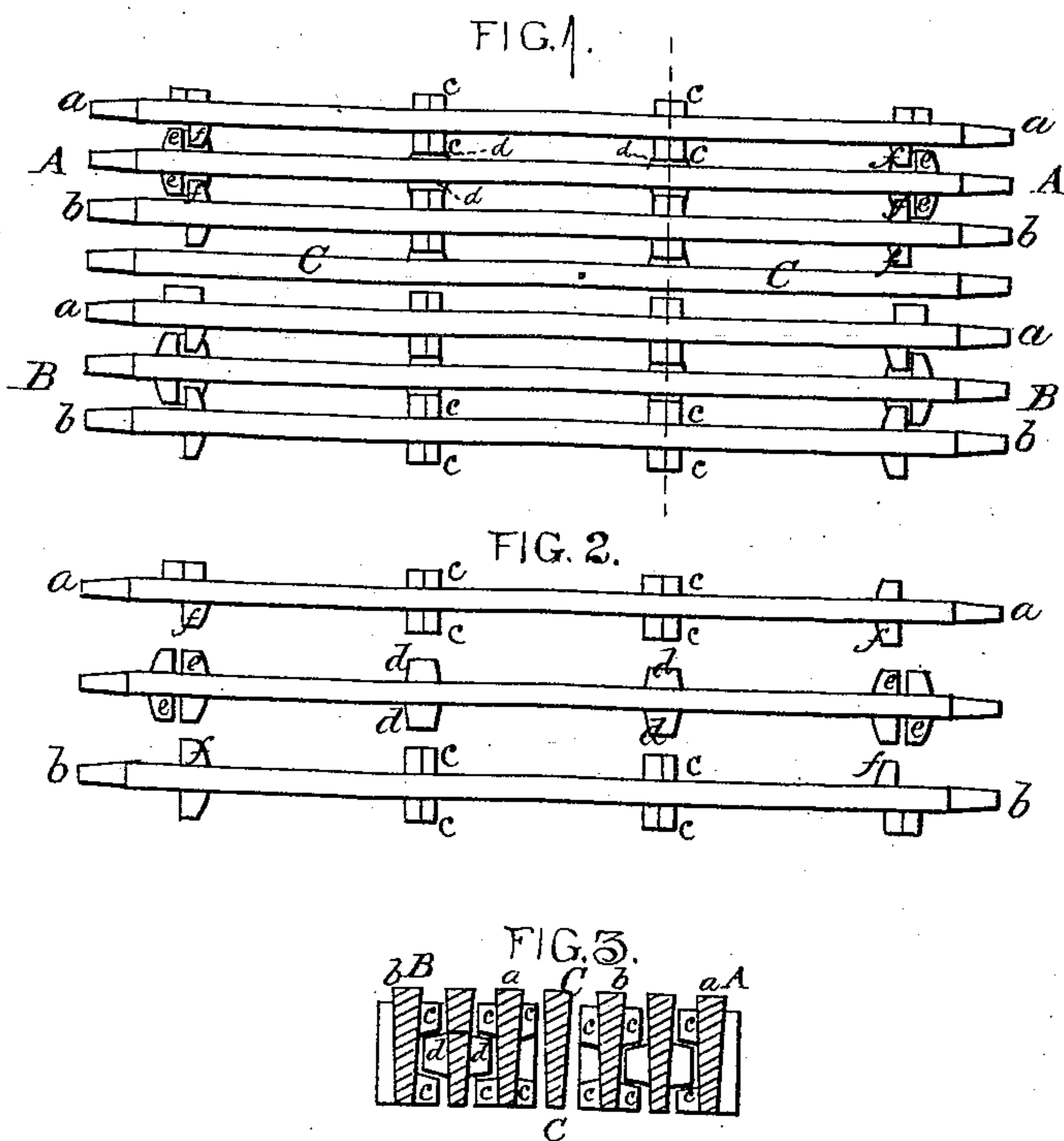


A. F. CROWELL.

Grate-Bars.

No. 157,091.

Patented Nov. 24, 1874.



WITNESSES.

E. H. Johnson.
J. P. Crawford.

INVENTOR.

Alphonse F. Crowell
per *[Signature]*

Atty.

UNITED STATES PATENT OFFICE.

ALPHONSO F. CROWELL, OF HYANNIS, MASSACHUSETTS, ASSIGNOR TO
GEORGE H. CLARKE, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN GRATE-BARS.

Specification forming part of Letters Patent No. **157,091**, dated November 24, 1874; application filed
September 8, 1874.

To all whom it may concern:

Be it known that I, ALPHONSO F. CROWELL, of Hyannis, county of Barnstable and State of Massachusetts, have invented certain Improvements in Grate-Bars, of which the following is a specification:

My invention relates to interlocking grate-bars, and has for its object to admit of the bars being taken apart from the middle of the grate, as will be fully hereinafter set forth.

Figure 1 is a plan view of a series of bars; Fig. 2, a plan view of the bars separated; Fig. 3, a transverse section of Fig. 1 through the line.

A B C represent two series of bars, three in each series, as shown; but this number may be increased, as desired. The two outside bars *a b* have similar recessed projections *e e* cast on each side, and the middle bar has the tenons or projections *d* on each side, which, when

the bars are put together, form a mortise-and-tenon joint, thus preventing the bars from rising. At each extremity of the bar are projections *e e*, also alike on both sides, which receive the projections *f* on the bars. In the middle of the grate is a plain bar, C, which can be readily removed to allow the other bars on either side of it to be taken out from the middle of the grate.

I claim—

The key-bar C, in combination with the series of locked bars A B, which can be readily removed for taking the grate apart from the middle, substantially as described and specified.

ALPHONSO F. CROWELL.

Witnesses:

J. P. CRAWFORD,
E. H. JOHNSON.