

No. 881,960.

PATENTED MAR. 17, 1908.

C. W. ROLIN.

GRATE BAR.

APPLICATION FILED OCT. 4, 1907.

Fig. 1.

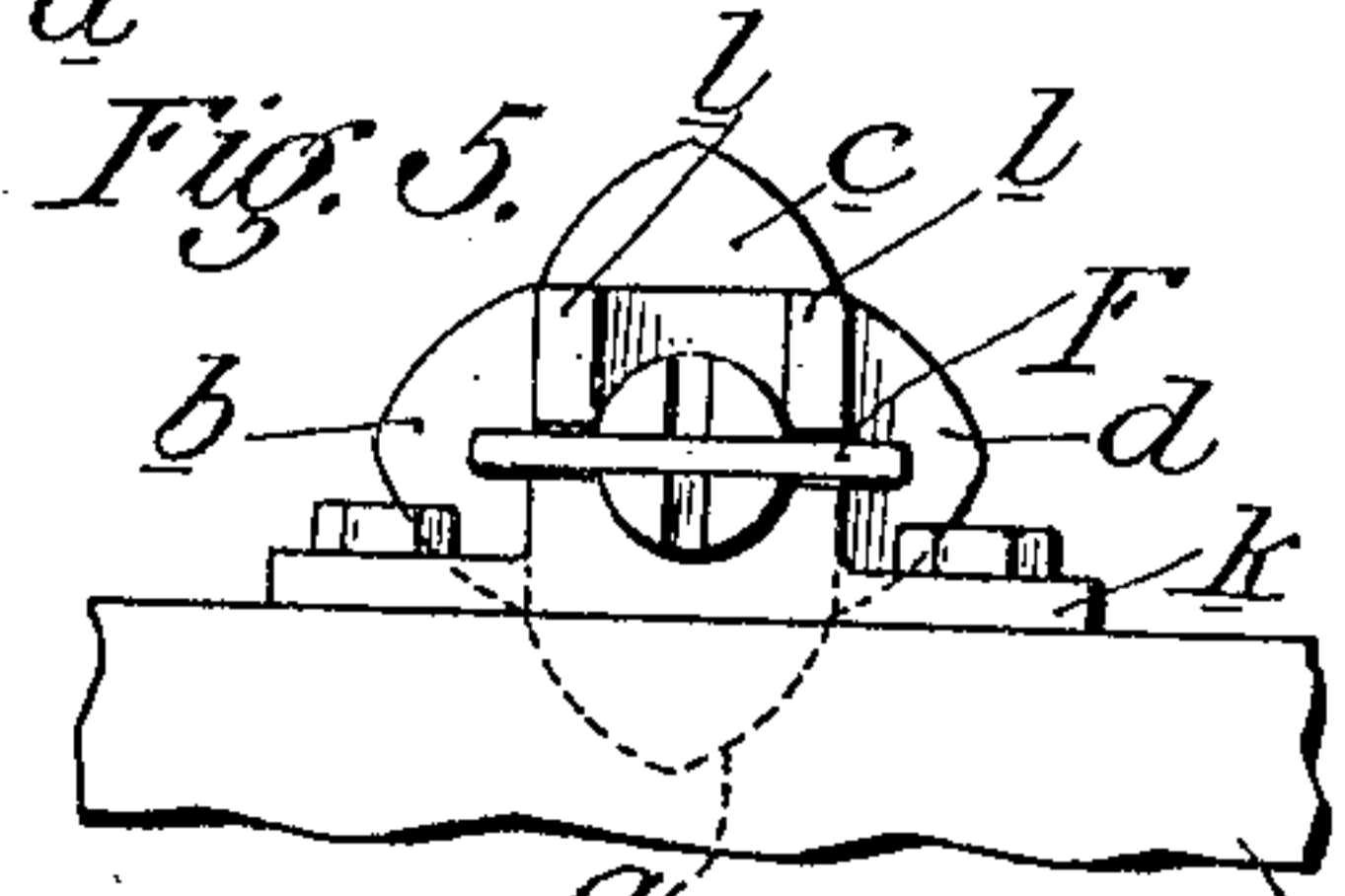
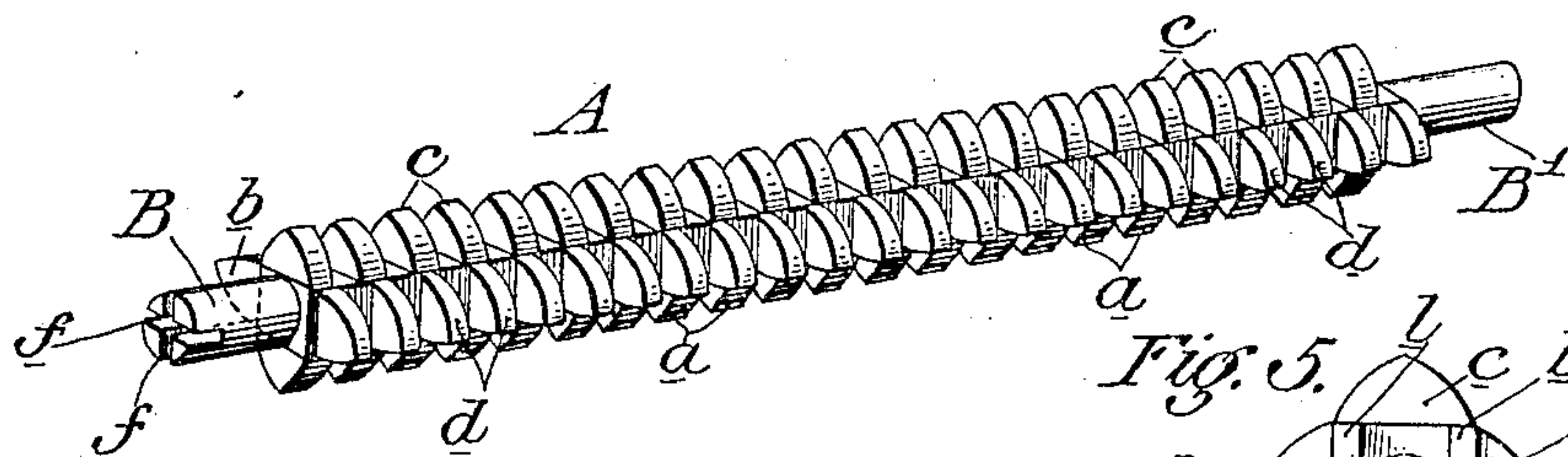


Fig. 2.

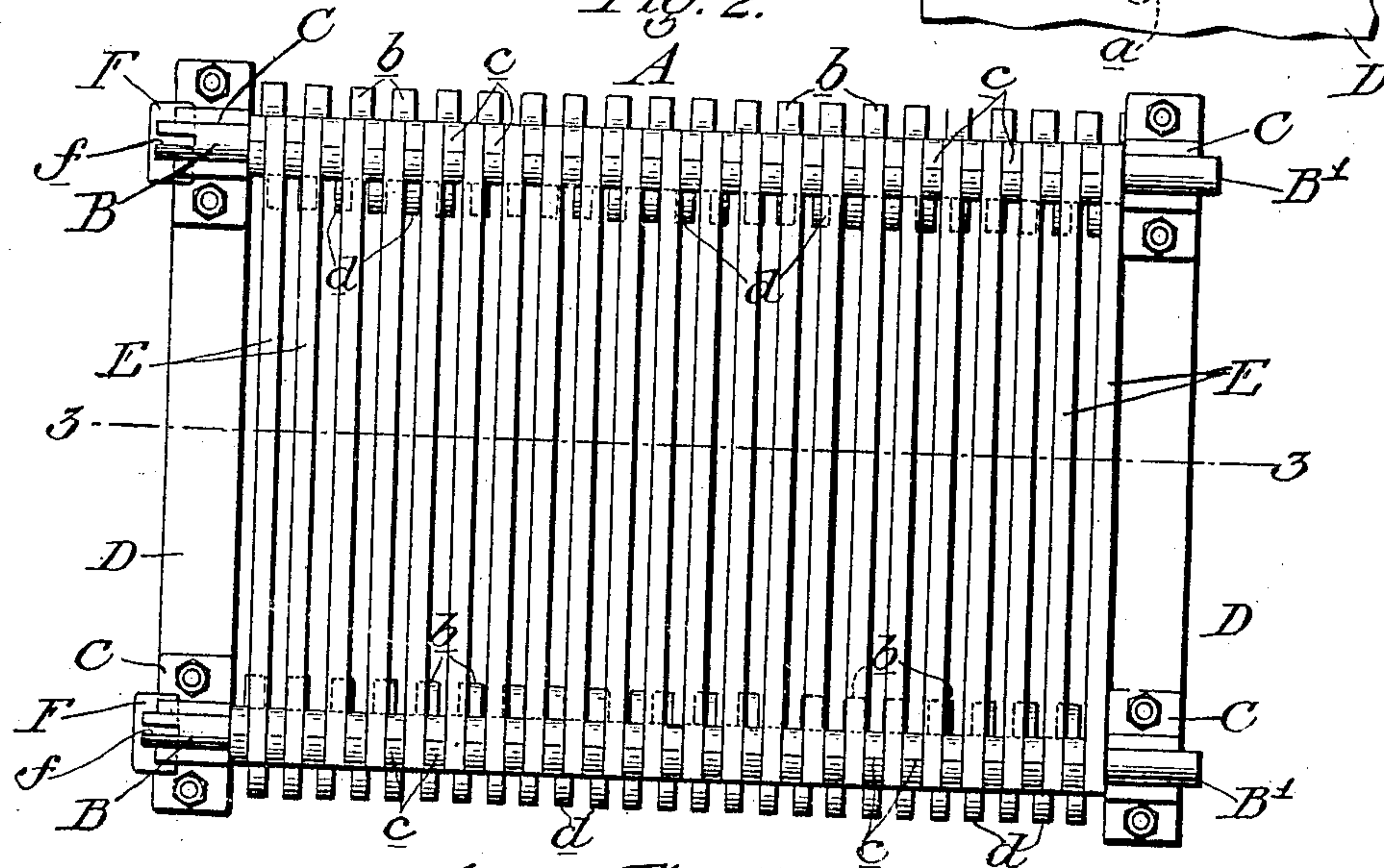


Fig. 3.

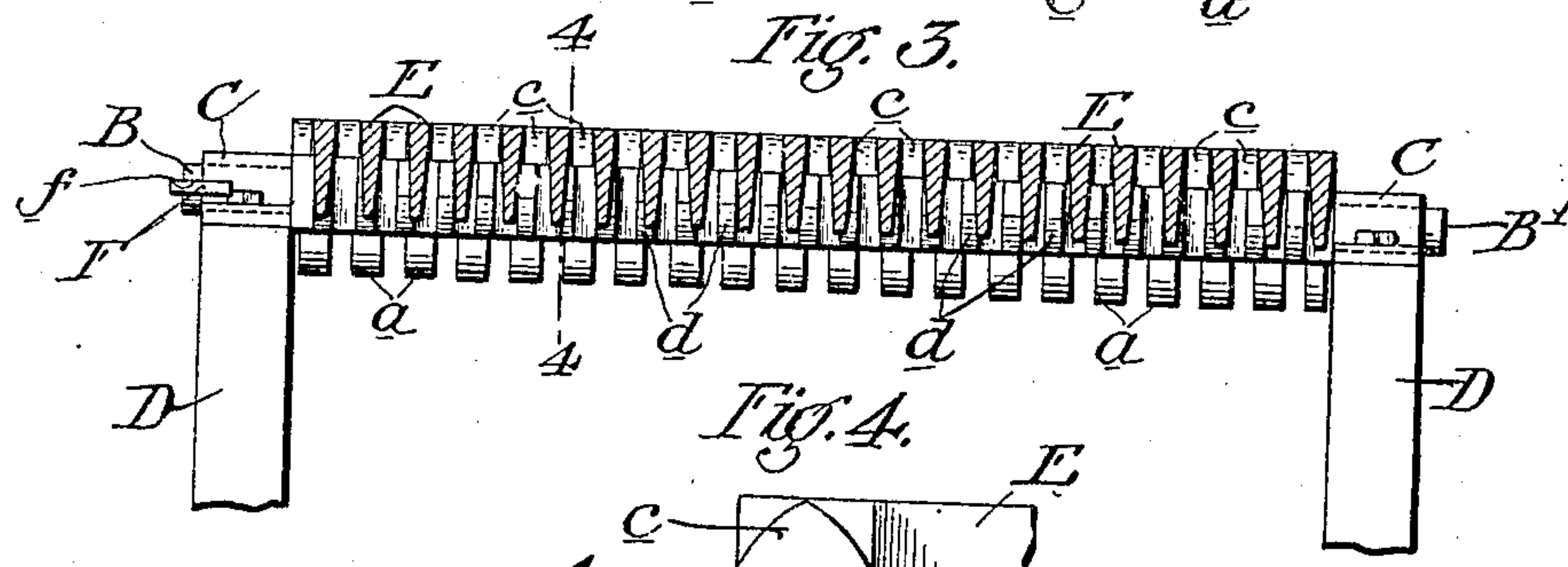
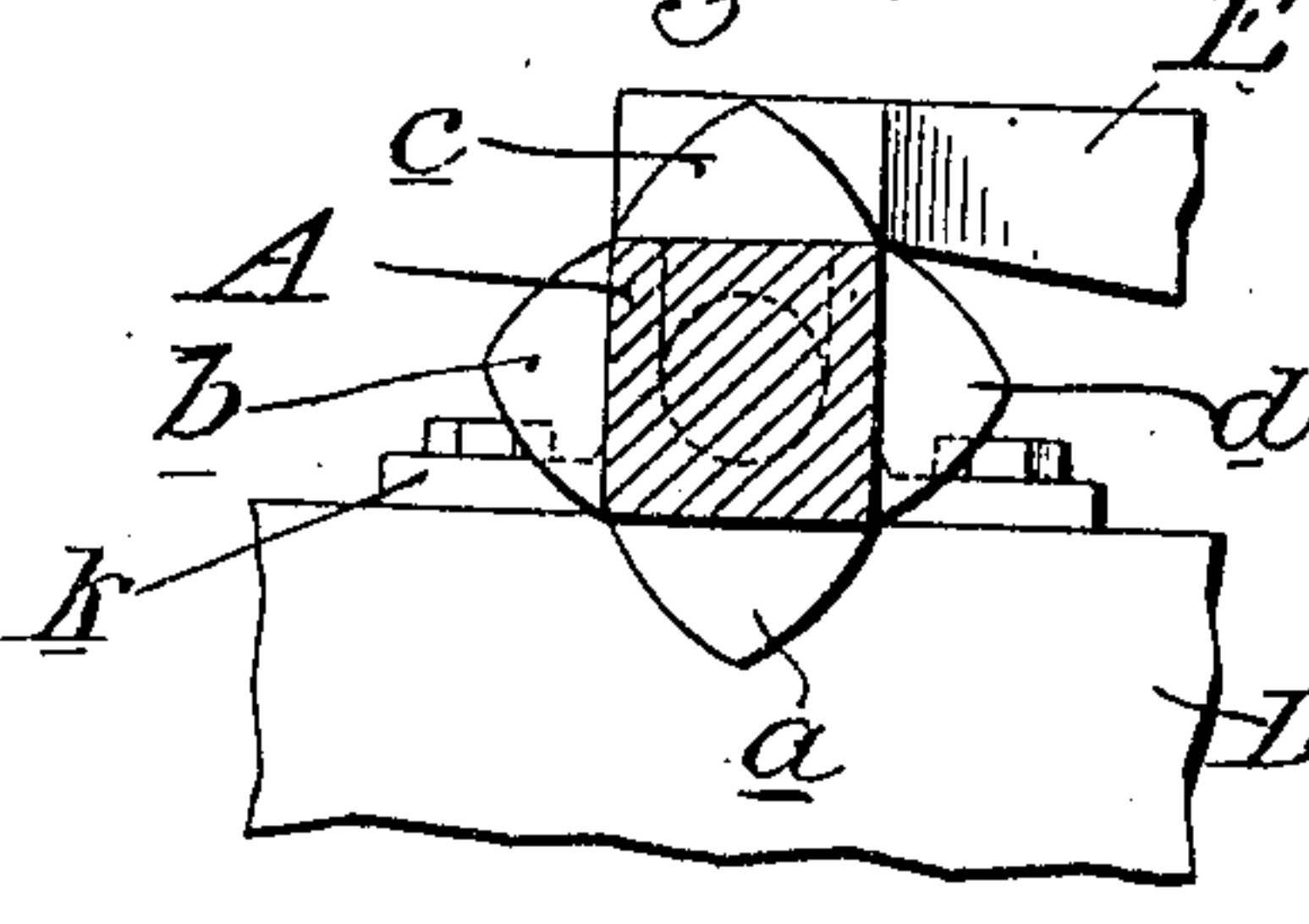


Fig. 4.



WITNESSES:

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INVENTOR

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BY

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# UNITED STATES PATENT OFFICE.

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## GRATE-BAR.

No. 881,960.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed October 4, 1907. Serial No. 395,831.

*To all whom it may concern:*

Be it known that I, CHARLES W. ROLIN, a citizen of the United States of America, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Grate-Bars, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to improvements in grate constructions and has for its object to produce a supporting bar so constructed that the distance between the grate bar seats may be varied to accommodate the different grades of coal.

My invention consists in the details of construction and manner of operation set forth in the following description and the accompanying drawing, like reference characters referring to corresponding parts.

In the drawings: Figure 1 is a perspective view of my supporting bar. Fig. 2 is a plan view of the grate bars in position in a furnace. Fig. 3 is a transverse section, taken on the line 3—3 of Fig. 2. Fig. 4 is a fragmentary view of a cross-section of one of my supporting bars in position, and Fig. 5 is an end view of one of the supporting bars locked in its bearing.

Referring to Fig. 1, A represents one of my supporting bars. This bar is rectangular in transverse section and has rows of lugs *a*, *b*, *c*, and *d*, on each side thereof respectively. All the lugs in the same row have a uniform thickness longitudinally of the bar but the lugs in one row have a different thickness from the lugs in any of the other rows, that is, the lugs *a* in one row are thicker than the lugs *b* in the next row, and the lugs *b* in turn have a greater thickness than the lugs *c* in the next row etc. The supporting bar terminates at its ends in cylindrical bearings B, B', one of which contains slots *f*, *f*, arranged at right angles to each other in the end thereof, the purpose of which will be hereinafter described.

In Figs. 2 to 5 inclusive, a pair of my supporting bars A, A, are shown locked in end bearing seats C, C, resting on the lining E, of a furnace or other fire containing chamber wherein grate bars are employed. These bearing seats consist of a flat base portion *k*, and vertical walls *l*, *l*, between which is

formed a seat for the cylindrical bearing of the supporting bar as shown in Fig. 5.

All of the bearing seats are of the same construction with the exception that the ones supporting the slotted ends B, B, of the supporting bars each have a slot through the side walls thereof, each of said slots being in alinement with one of the slots in the corresponding bearing B. A flat key F, is passed through the alined slots in the bearing and its seat for the purpose of locking the supporting bar against rotation. The grate bars E, E, are supported at their ends respectively, in the seats formed between the upper rows of lugs *c*, *c*, on the two supporting bars and, as heretofore stated, the distance between these lugs are uniform and correspond substantially to the thickness of the end of each grate bar. The thickness of each lug in these upper two rows is also uniform and determines the distance between each grate bar.

In order to vary the distance between the grate bars E, E, these latter, together with the flat keys F, F, are removed, the supporting bars are then turned on their axes until the respective adjacent rows of lugs *d*, *d*, are brought around to occupy a position along the top of the bar in the place of the lugs *c*, *c*. This brings the corresponding slot *f*, in the end of each bearing B, in alinement with the slots in the bearing seat C. The keys F, F, are inserted in these slots and the supporting bars are thus locked in their changed positions. The distance between the lugs *d*, *d*, like that of the lugs *c*, *c*, are uniform and correspond substantially with the thickness of the ends of the grate bars respectively, which latter are between the lugs *d*, *d*. The lugs *d*, *d*, however are not so thick as the lugs *c*, *c*, and thus determine a less distance between the grate bars than the lugs *c*, *c*. The same operation may be continued to bring the lugs *b*, *b*, into position between the grate bars to determine a greater distance between the seats than that of the lugs *c*, *c*, and the operation may be still further continued to bring the bottom lugs *a*, *a*, into position between the grate bars which, by virtue of their thickness, determine a still greater distance between the grate bars than that of the lugs *b*, *b*.

By the above construction of supporting bars I am enabled to obtain a grate having a



changeable space between the bars thereof to accommodate different grades of coal, as, for instance, pea coal having small nuts would require a less distance between the bars than stove coal having large nuts. It is obvious that I may use one or more supporting bars and that the same may be adapted to other fire containing receptacles in which grates are employed, and further I do not restrict myself to a support rectangular in cross-section nor having four rows of lugs around the same, as supports of any cross-section may be employed and any number of rows utilized, provided the structure is within the scope of my invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is,

1. A support for grate bars having a plurality of grate bar seats arranged in two or more interchangeably used groups, the seats in different groups being spaced differently.

2. A rotatable support for grate bars having two or more groups of grate bar seats, each group of seats being at a different side of the support from any other groups and the seats in different groups being spaced differently.

3. A rotatable support for grate bars having two or more groups of grate bar seats,

each group of seats being at a different side of the support from any other groups and the seats in different groups being spaced differently, and means for locking said support in different operative positions.

4. A rotatable support for grate bars having two or more groups of grate bar seats, each group of seats being at a different side of the support from any other groups, the seats in different groups being spaced differently, the said support having slots in one end thereof, a slotted seat for the said end of said support and a key adapted to fit in the slotted seat and one of the slots in the support for locking the latter in operative position.

5. In a fire grate construction, the combination with a plurality of grate bars of supporting means having grate bar bearing seats arranged in two or more interchangeably used groups, each group being adapted to support said bars at determined distances apart, different from the distances between the bars when supported by any other group of seats.

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Witnesses:

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