

No. 878,441.

PATENTED FEB. 4, 1908.

J. S. WILSON.
SECTIONAL CULM.
APPLICATION FILED MAR. 14, 1907.

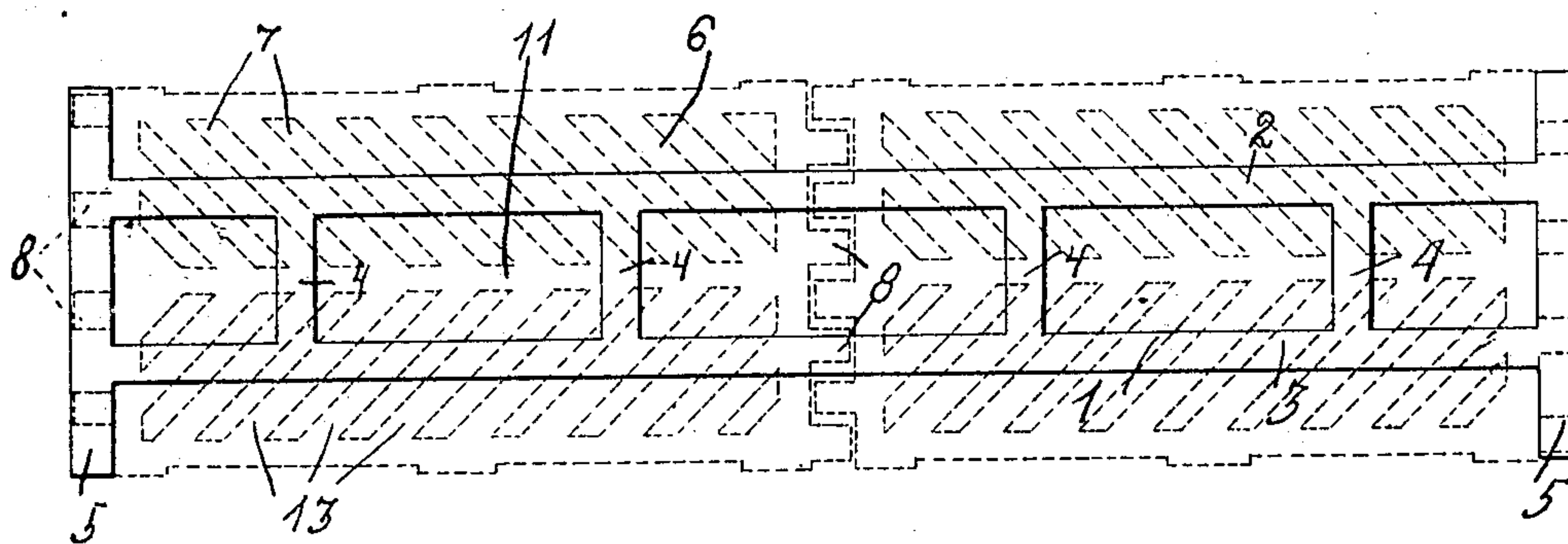


FIG. 1.

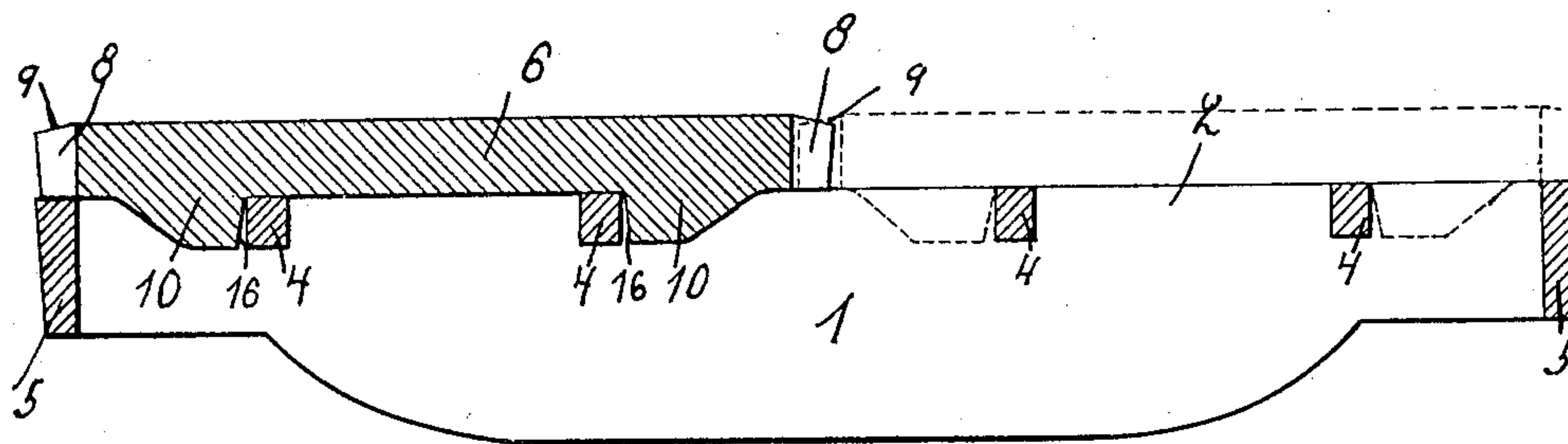


FIG. 2.

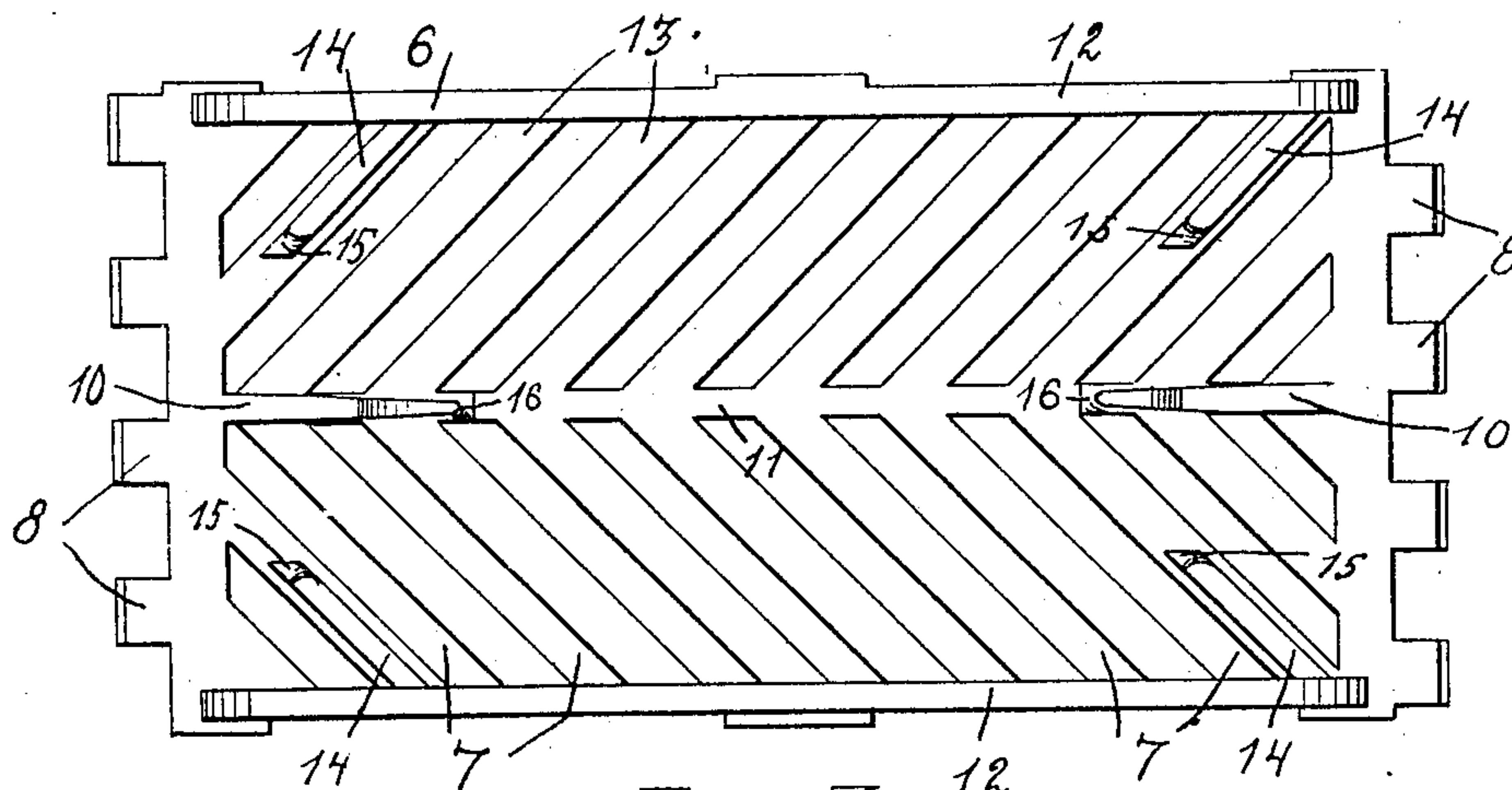


FIG. 3.

Witnesses

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JAMES S. WILSON, OF SCRANTON, PENNSYLVANIA.

SECTIONAL CULM.

No. 878,441.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES S. WILSON, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Sectional Culms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to what are known as culm bars comprising a grate bearing bar and grate sections resting thereon and used for burning all kinds of coal and culm under horizontal boilers.

One of the objects of the invention is to provide a device in which longitudinal and lateral expansion of the grate section is provided for yet preventing too great lateral or sidewise movement of the sections.

Another object is to produce interchangeable and reversible sections, and also to provide means for interlocking the sections at their ends in such a manner as to increase the air space, and, at the same time, prevent the scraper from dropping down between the ends of the sections.

With these objects in view the invention consists in the novel construction and combination of the grate bar and sections as will be hereinafter more fully set forth.

In the accompanying drawings which illustrate the invention, Figure 1 is a top plan view with two of the grate sections shown in dotted lines; Fig. 2 is a central longitudinal sectional view; and Fig. 3 is a bottom plan view of one of the sections.

Referring more particularly to the drawings, 1 indicates the grate bearing bar which may be of any desirable length and size and comprises two bars, 2 and 3, which are spaced apart by cross pieces, 4, and have their ends provided with the usual cross pieces, 5, for properly spacing them within the furnace.

Removably seated upon the bars are a plurality of grate sections, 6, two being shown, which are provided with the usual air spaces, 7, and each one has its ends provided with projections, 8, so spaced apart as to provide recesses for the reception of the corresponding lugs of the adjacent section. The lugs upon the opposite ends of the same section are so arranged as to cause the lugs at one end to be in alinement with the recesses at the other end, whereby the lugs of

one section will always be in position for entering the recesses of the adjacent section, no difference which ends of the sections are thus placed, thereby rendering the sections interchangeable and reversible. In other words, the lugs of each end commence in alinement with one of the sides of the sections and terminate at a distance from the other side far enough to form a recess for the reception of the lug of the adjacent section, the lugs upon the opposite ends being diagonally opposite each other.

The upper faces of the lugs are preferably slightly beveled or inclined downward as shown at 9, so as to cause the lip or extreme end of each lug to lie below the adjacent portion of the lugs of the other section when the sections are placed end to end upon the grate bar, thereby rendering it impossible for the scraper to engage with the ends of the lugs of either bar when being used for removing the ashes or any other purpose.

The under side of each section is provided with centrally located shoulders, or downwardly extending projections, 10, adjacent to its ends, preferably on the mid rib, 11, which are adapted to pass down upon opposite sides of two of the cross bars, 4, whereby longitudinal expansion of the sections is permitted without permitting undue longitudinal movement of the section. To permit of this construction without destroying the reversibility of the sections, the lugs, 10, are spaced from each end a distance equal to one-fourth of the entire length of the section, and the outer face of the end cross bar, 4, is the same distance from the outer end of the bar, and the distance between the inner faces of the two middle cross bars is just double that, or substantially the same distance apart as the two shoulders.

Located upon opposite sides of the center of the section, preferably near the ends and extending inwardly from the side pieces, 12, of the section and upon the under side of one of the lateral ribs, 13, are shoulders, 14, which are adapted to pass down upon the outer side of the side pieces, 2 and 3, of the grate bar and thereby permit of any lateral expansion of the grate sections from the intense heat to which they are subjected, without permitting undue lateral movement of the section. The inner ends of the shoulders are preferably slightly inclined as shown at 15 for permitting the section being placed upon the bars, and, if desired, the inner faces

of the shoulders, 10, may be also slightly inclined as shown at 16 for permitting the ready engagement with the cross bars, 4.

As above described it will be seen that by
5 constructing the grate bar and the sections,
as above described, a very complete and
serviceable structure is secured which can
be readily placed in position, and which will
permit of the expansion of the sections with-
10 out interfering with their efficiency or with
the process of cleaning them by means of the
ordinary scraper. In placing them in posi-
tion any section will readily fit and coöperate
with any and all of the other sections, there-
15 by permitting of the rapid assemblage of the
parts in constructing the furnace originally,
or in replacing any of the parts in case they
should become broken or burned out.

Having described my invention, I claim:
20 1. In a culm bar, a grate bar provided with
parallel side pieces and cross bars therebe-
tween, and grate sections thereon, each sec-
tion being provided with shoulders at its
ends, the central ones of which are adapted

to engage with opposite faces of two of said 25
cross bars and the lateral shoulders being
adapted to engage with the outer sides of said
side pieces.

2. In a culm bar, a grate bar provided with
parallel side pieces and cross pieces therebe- 30
tween, and grate sections thereon, each sec-
tion being provided with a mid rib and de-
pending side pieces and having shoulders ad-
jacent to its ends, two of said shoulders being
on the mid rib and adapted to engage with 35
the opposite sides of two of the said cross
bars, and the other shoulders extending in-
wardly from the side pieces in position for
engaging with the sides of said side pieces,
the engaging portions of said shoulders being 40
inclined.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JAMES S. WILSON.

Witnesses:

CHAS. H. WELLES, Jr.,
EVAN HOPKINS.