

J. W. WEBB.

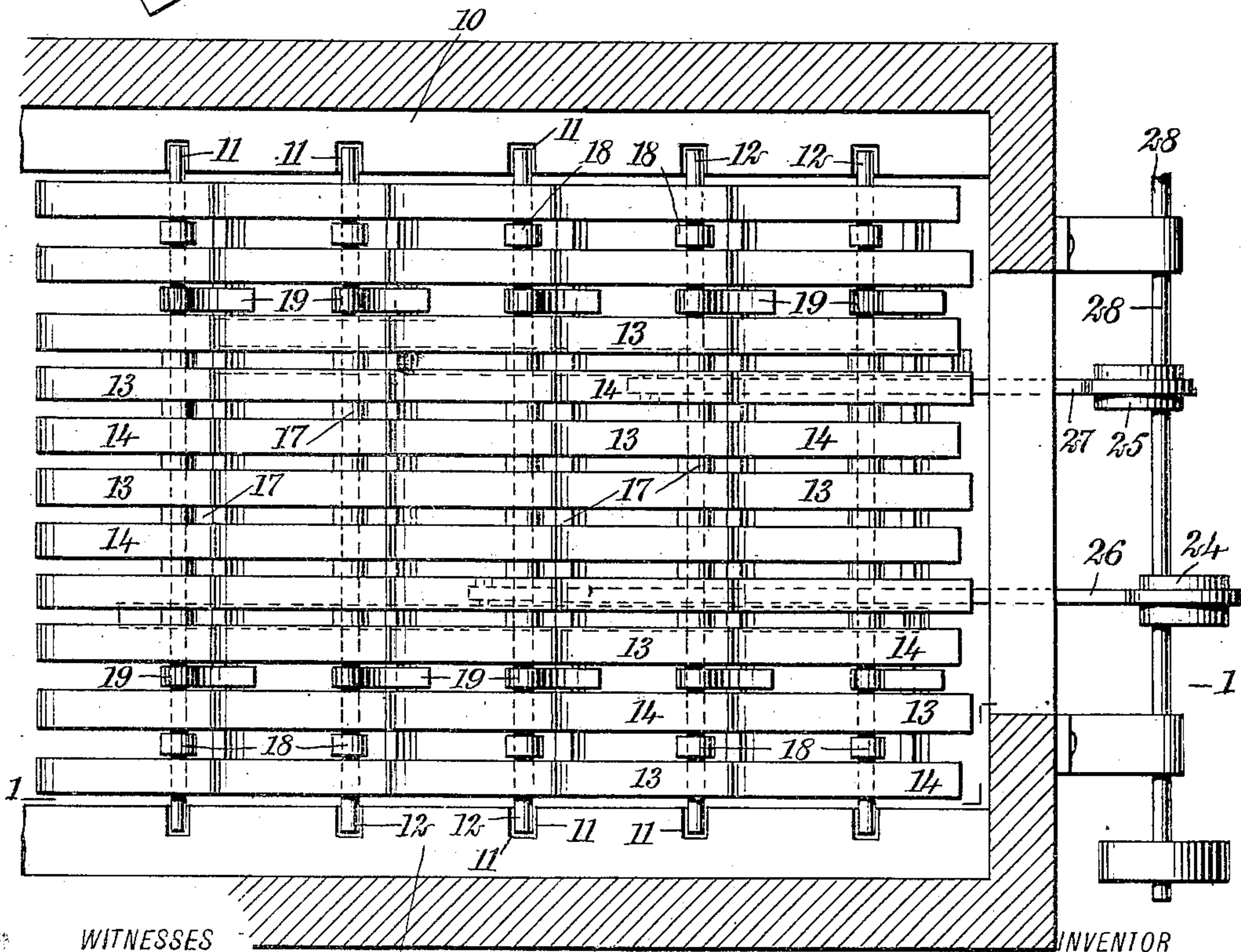
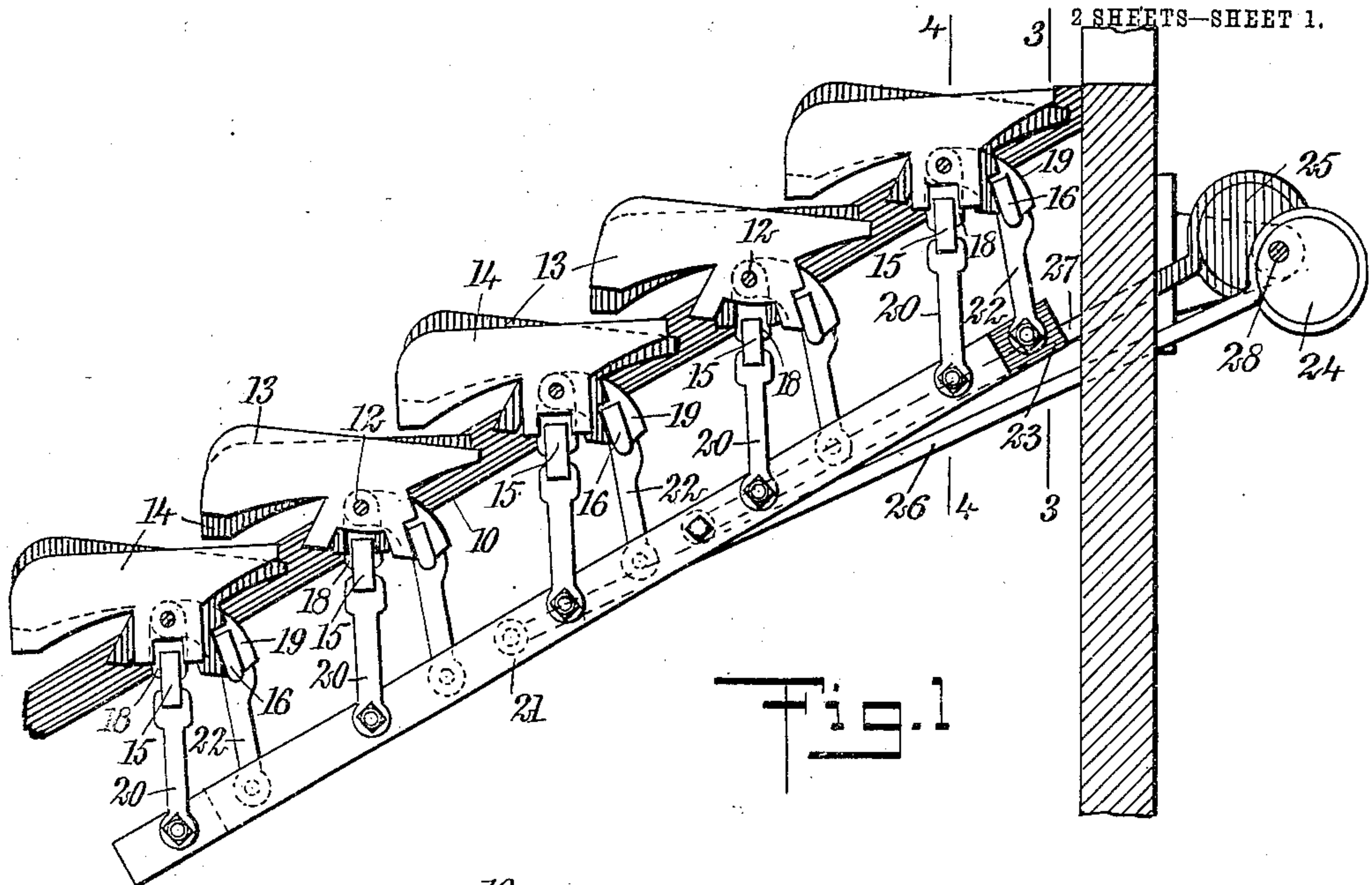
GRATE.

APPLICATION FILED DEC. 2, 1908.

931,534.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.



WITNESSES

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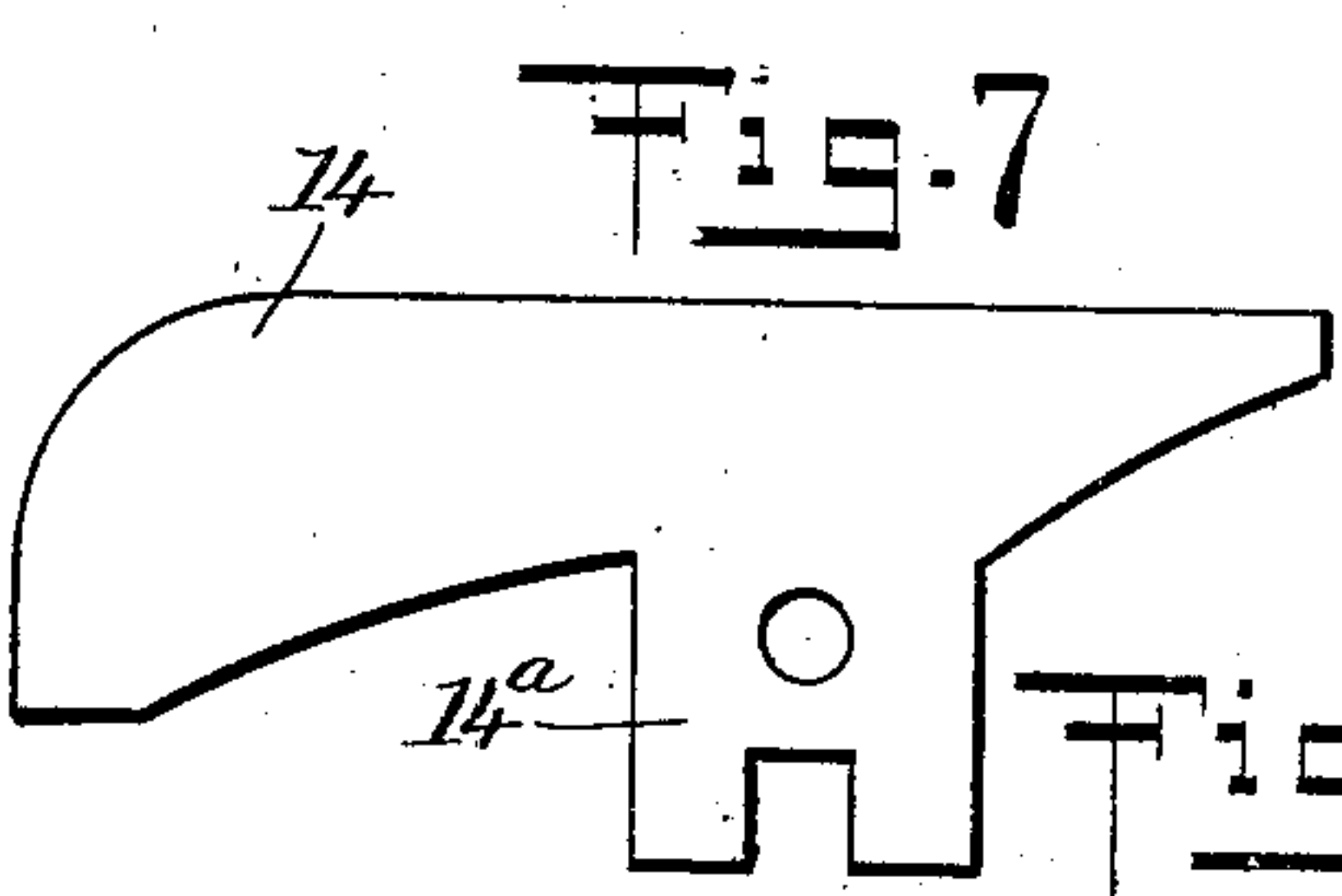
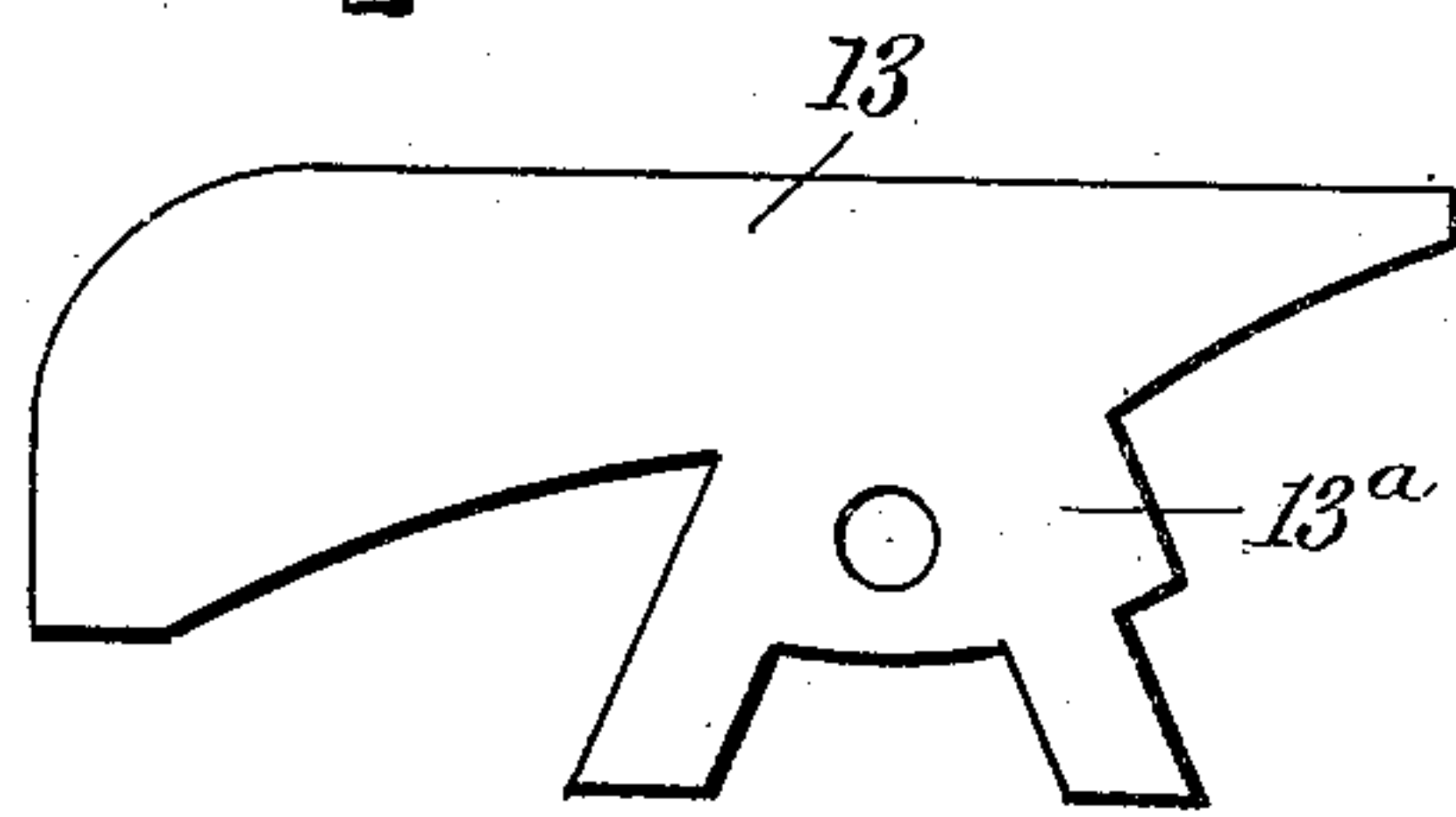
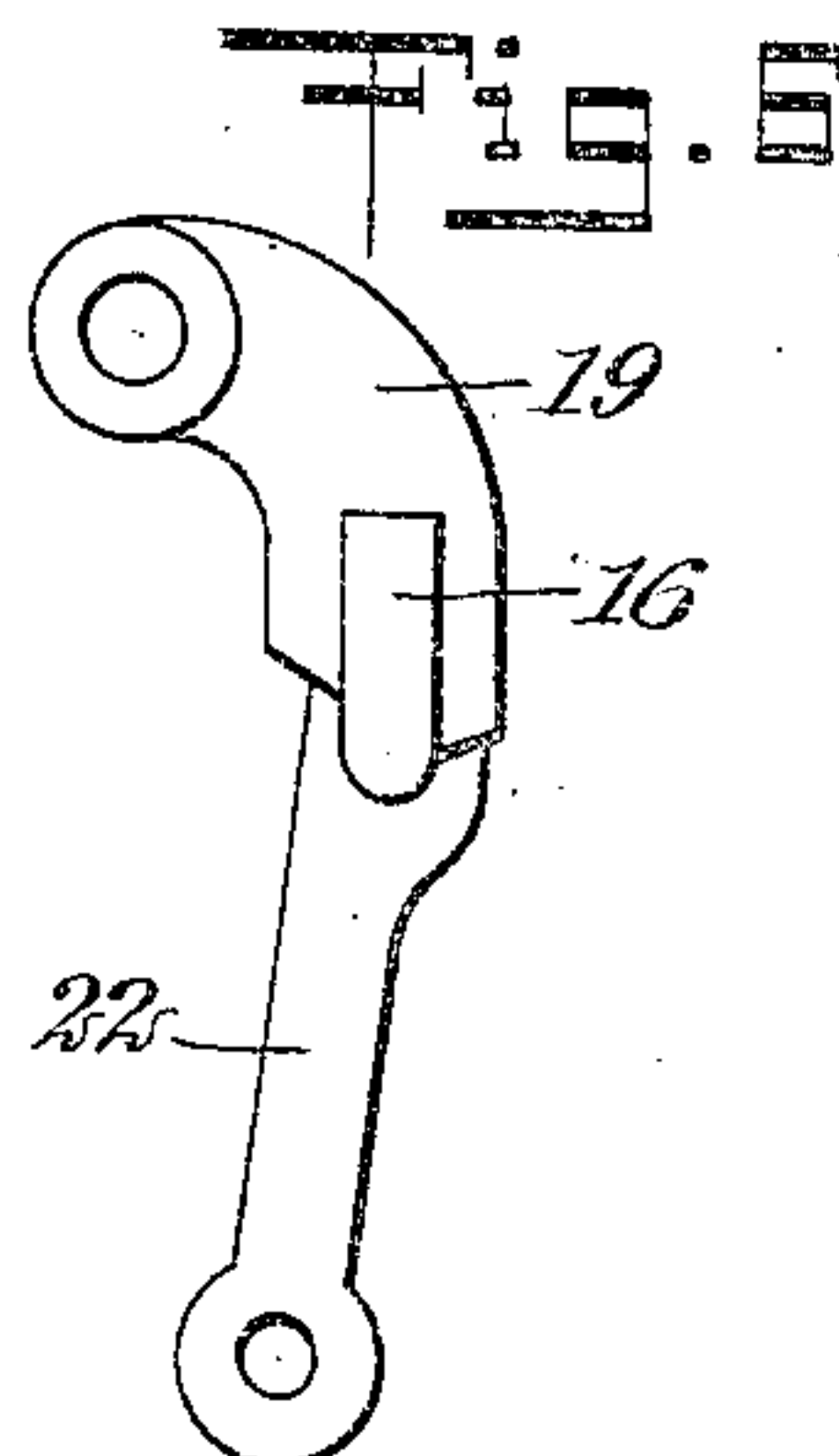
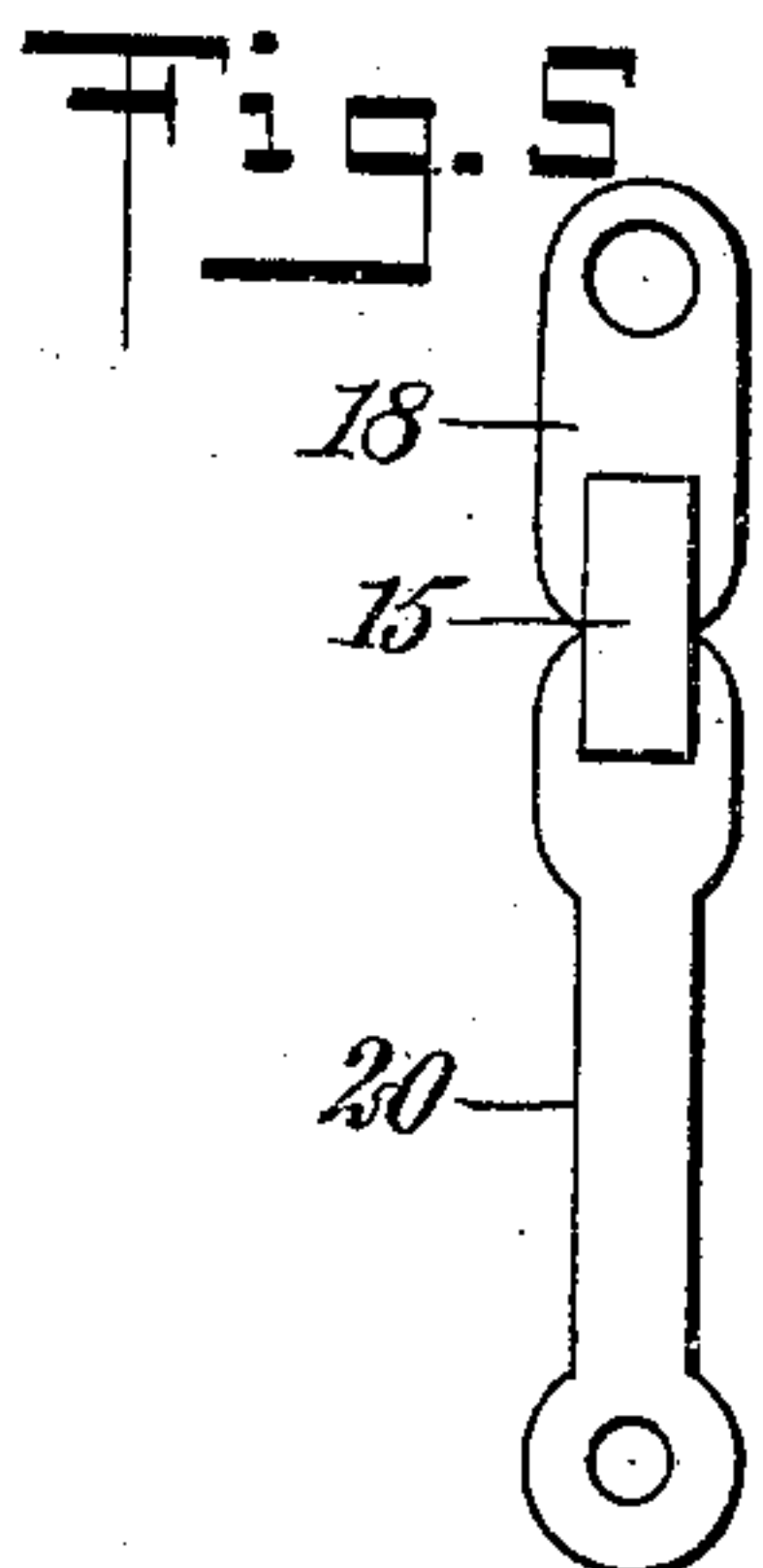
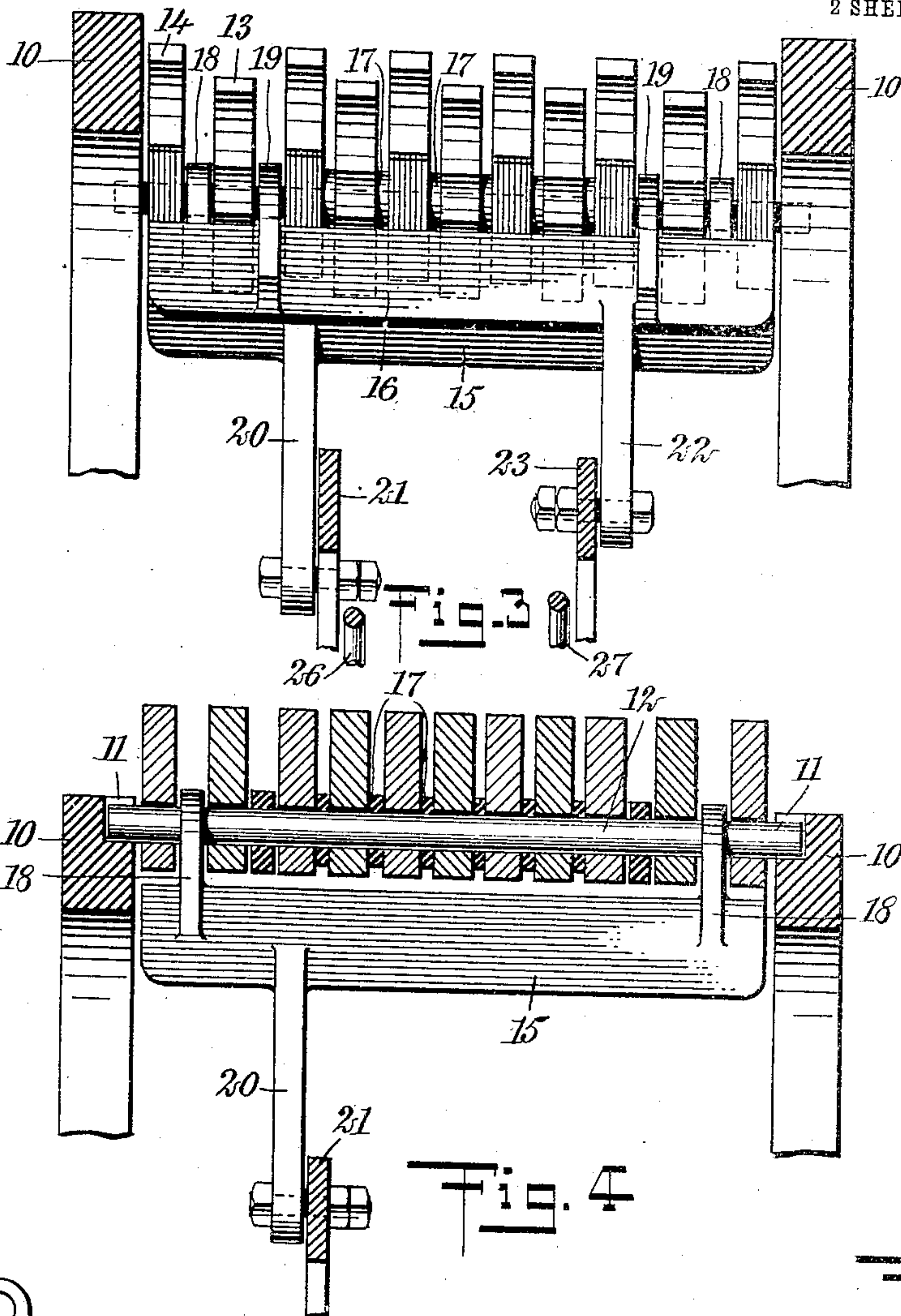
Fig. 2

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GRATE.
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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GRATE.

No. 931,534.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed December 2, 1908. Serial No. 465,643.

To all whom it may concern:

Be it known that I, JAMES W. WEBB, a citizen of the United States, and a resident of Becks Run, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Grate, of which the following is a full, clear, and exact description.

The grate is more especially designed to be continuously movable and used in connection with an automatic stoker, enabling perfect combustion and the consumption of a grade of coal which could not be used under less favorable conditions.

The invention may be defined as a grate divided into transverse sections, each section having bars spaced apart, with the bars of the several sections arranged in alinement, and the bars of each section overhanging bars of an adjacent section, and means for rocking the alternate bars, both as regards the same and different sections, in opposite directions.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section on the line 1—1 of Fig. 2 through a firebox having my improved grate applied thereto; Fig. 2 is a horizontal section through the firebox, showing the grate in plan; Fig. 3 is a section substantially on the line 3—3 of Fig. 1; Fig. 4 is a similar section on the line 4—4 of Fig. 1; Fig. 5 is an edge view of one of the rockers for each section of the grate; Fig. 6 is a similar view of the other rocker for each section of the grate; Fig. 7 is a side view of one of the grate bars; and Fig. 8 is a side view of the grate bar which alternates with the grate bar shown in Fig. 7.

To the side walls of the firebox are suitably attached downwardly and forwardly-inclined side bars 10, each having trunnion notches 11 spaced at proper intervals and alining with the similar notches in the other bar. In each set of these notches is journaled a cross-shaft 12, each carrying a transverse section of the grate, which consists of bars 13 and 14 alternating with each other, and rockers 15 and 16, the bars being spaced apart on the cross-shaft by spacing washers 17, and the rockers having arms 18 and 19 respectively, attached to the shaft be-

tween the end bars and adjacent bars and serving as spacing members therefor. The bars 13 and 14, as best shown in Figs. 7 and 8 respectively, embody in their construction lugs 13^a and 14^a depending at their points of support on the shaft 12, the lug 13^a being centrally slotted on the bottom edge to clear the cross-plate of the rocker 15, and the lug 14^a being also centrally slotted to receive and engage the top edge of this plate. The outer edge of the lug 13^a is downwardly and outwardly inclined to receive the cross-plate of the rocker 16, the arm 19 of this rocker being offset, as shown in Fig. 6, to bring the plate 16 in proper operative position. The heads or forward ends of the bars of each grate section overhang the rear ends of the bars of the adjacent grate sections, and the bars of the several sections are arranged in approximate alinement. Each rocker of the several grate sections has a depending arm, the arms 20 of the rockers 15 being pivotally connected to a shifting bar 21, and the arms 22 of the rockers 16 being pivotally connected to a shifting bar 23, the shifting bars in turn being respectively operatively connected to eccentrics 24 and 25 by connecting rods 26 and 27. The eccentrics are oppositely arranged on a driven shaft 28 located at the outside of the firebox.

From the construction described it will be apparent that when the shaft 28 is set in motion, the shifting bars 21 and 23 will alternately move in opposite directions and impart a rocking movement to the grate bars which they respectively control, thus causing the alternate bars, both as regards the same section and different sections of the grate, to rock in opposite directions, this continuous movement keeping the fire clear of clinkers and insuring perfect combustion. When the shifting bars are in intermediate positions of their movement, the upper faces of the grate bars of each grate section will be located in the same horizontal plane, and the grate will present a succession of steps.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A grate divided into transverse sections, each section having rocking grate bars spaced apart, with the bars of the several sections arranged in alinement, and the bars of each section overhanging the bars of an adjacent section, and means for rocking the

alternate bars, both as regards the same and different sections, in opposite directions.

2. A grate composed of a series of sections arranged at different elevations, with one section overlying the next adjacent section, and each section having a series of rocking grate bars spaced apart, and means for simultaneously rocking the alternate bars of each section in opposite directions.

3. A grate divided into sections, each section having grate bars, with the bars of different sections arranged in substantial alinement and the bars of each section overhanging the bars of an adjacent section, and means to simultaneously rock the alternate alining bars of the sections in different directions.

4. In a grate, a cross-shaft, a series of grate bars pivotally supported on the cross-shaft, and rockers supported on the cross-shaft independent of the grate-bars, with each rocker in operative engagement with the alternate grate bars.

5. In a grate, a cross-shaft, grate bars pivotally supported on the cross-shaft, with the alternate bars having slotted bottom edges, a rocker supported on the cross-shaft having a cross-plate in engagement with the slots of said bars, and a rocker supported on the

cross-shaft and having a cross-plate in operative engagement with the remaining bars.

6. A grate composed of a series of overhanging sections, each section comprising a series of rocking grate bars, with rockers in operative engagement with the alternate bars of each section, shifting bars connected to the rockers, and means for simultaneously actuating the shifting bars in opposite directions.

7. In a grate, a series of cross-shafts, grate bars pivotally supported on each cross-shaft, each grate bar having a depending slotted lug, a rocker supported from each shaft and in engagement with the slots of the lugs of alternate bars, a second rocker supported on each cross-shaft and in operative engagement with the the lugs of the remaining bars, a shifter connected with each set of rockers, and means for simultaneously actuating the shifters in opposite directions.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES WILLIAM WEBB.

Witnesses:

THOMAS ERNEST TOMLINSON,
JOB WEBB.