

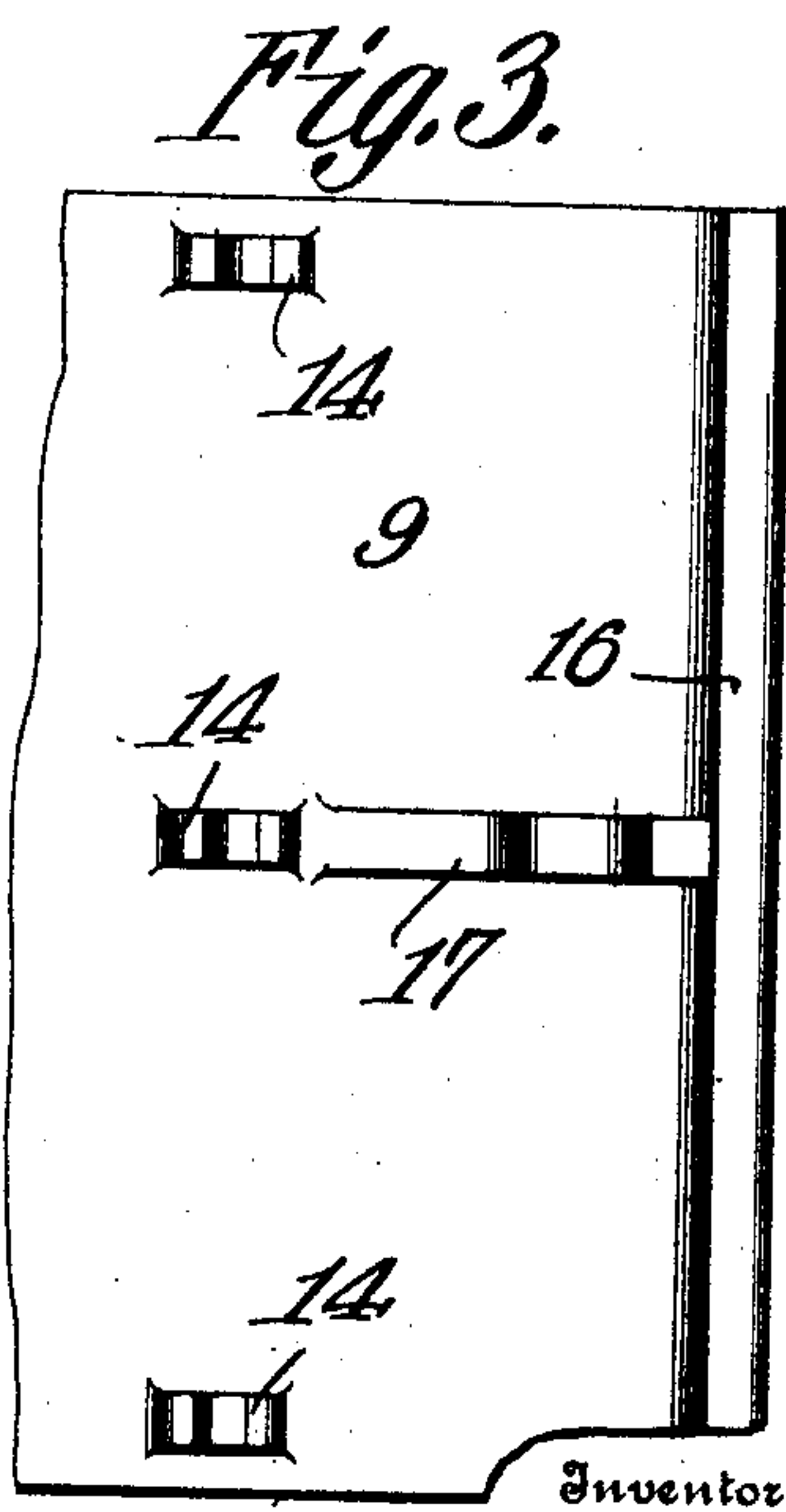
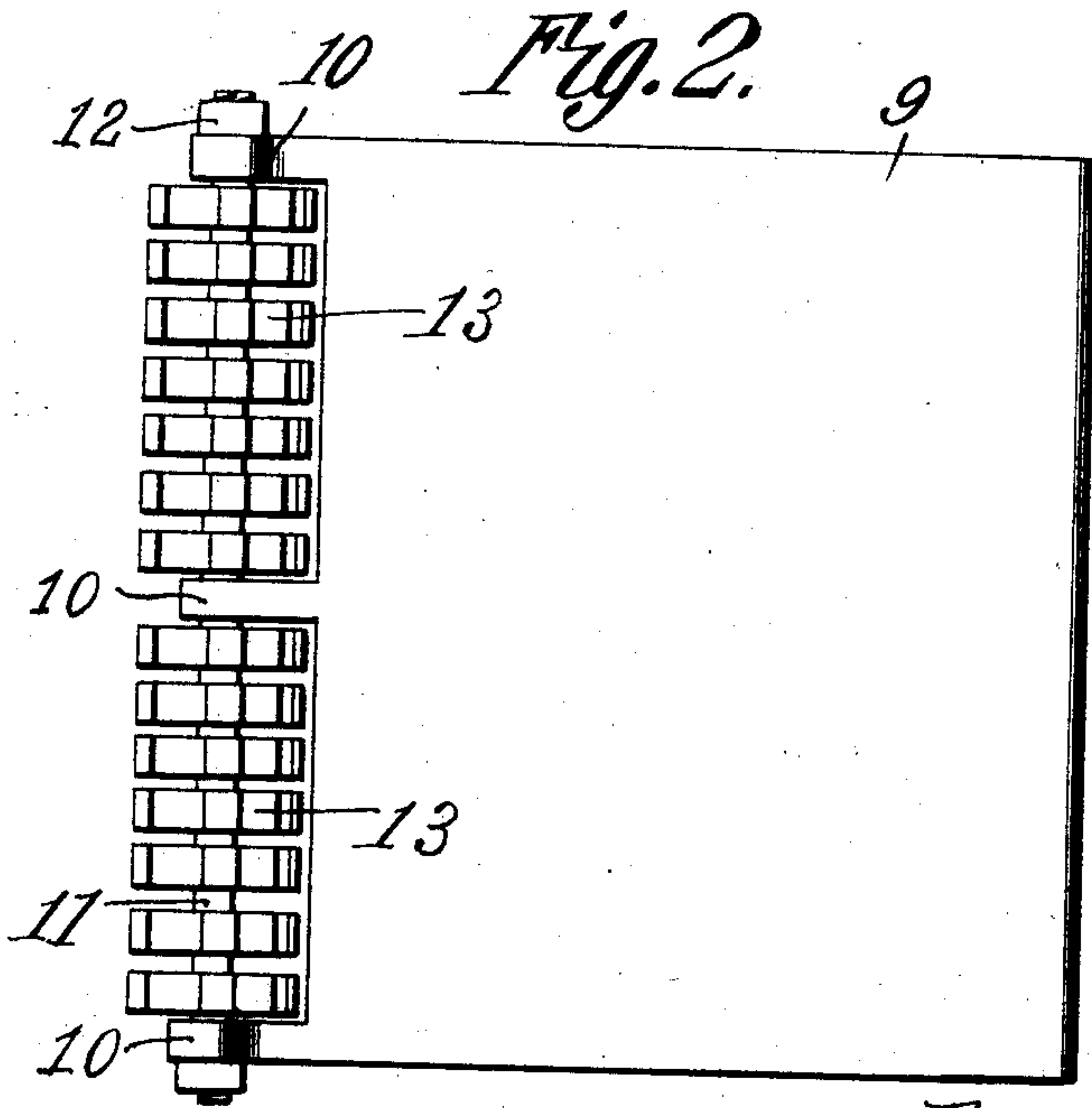
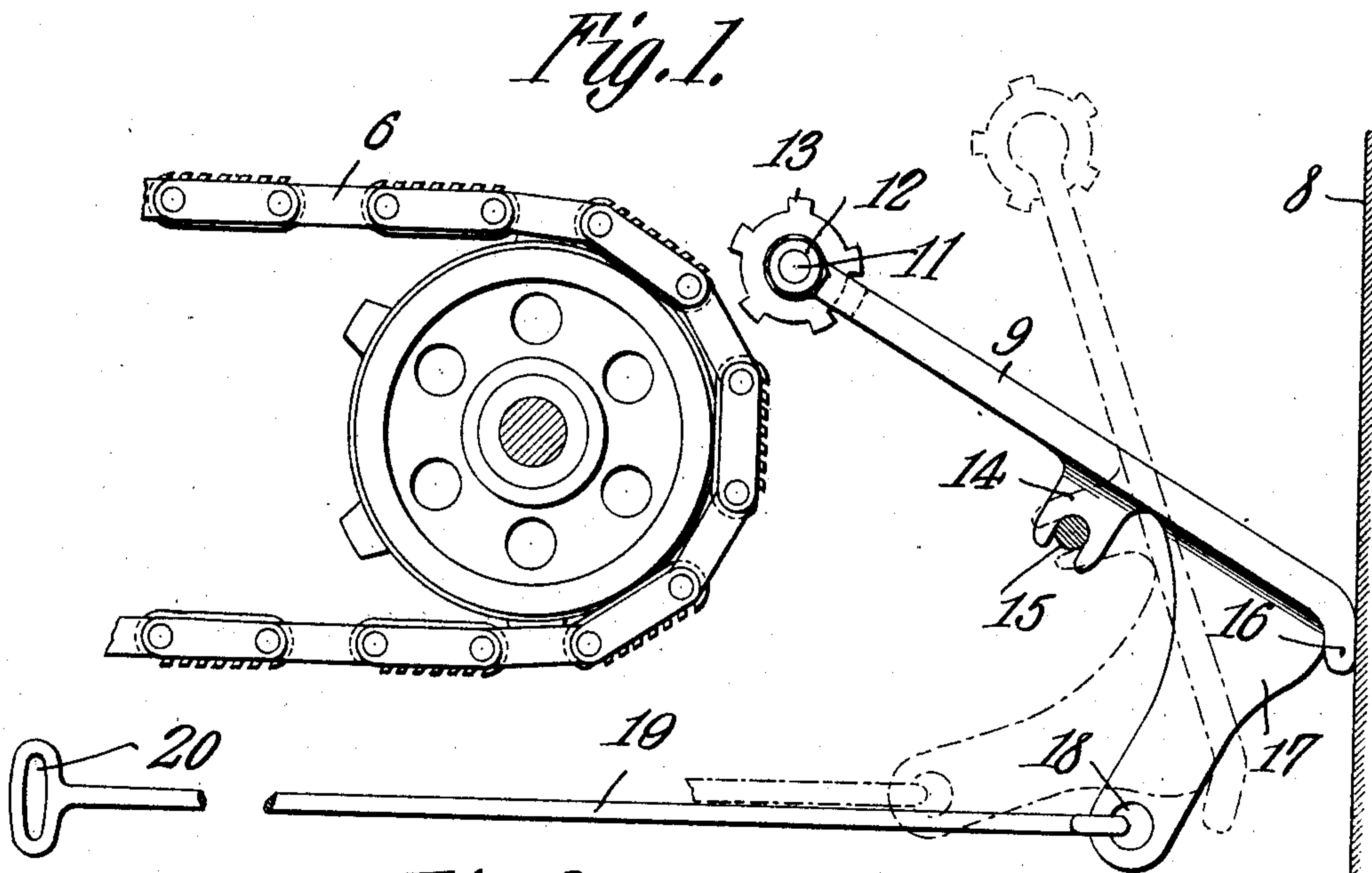
J. D. SAVERY.

FURNACE GRATE.

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906,823.

Patented Dec. 15, 1908.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH D. SAVERY, OF CHATTANOOGA, TENNESSEE.

FURNACE-GRATE.

No. 906,823.

Specification of Letters Patent.

Patented Dec. 15, 1908.

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To all whom it may concern:

Be it known that I, JOSEPH D. SAVERY, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and useful Furnace-Grate, of which the following is a specification.

This invention relates to grates and more particularly to a dumping grate especially designed for use in connection with chain grates of steam boiler furnaces and the like.

The object of the invention is to provide a dumping grate section pivotally mounted in the fire box between the bridge wall of the latter and the rear end of the endless grate, thereby to afford a means for removing ashes, clinkers and the like and also dispensing with the usual arch or arches at the rear end of the fire box.

A further object of the invention is to provide a grate the construction and relative disposition of the several parts of which is such that should a clinker pass over the rear end of the endless grate the pivoted grate section will automatically dump and permit the discharge of the same.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation partly in section of a dumping grate section constructed in accordance with my invention showing the same interposed between the chain grate and the bridge wall of the fire box. Fig. 2 is a top plan view of the pivoted grate section removed. Fig. 3 is a bottom plan view of the rear end of the pivoted grate section.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The device consists of a flat imperforate body portion 9 having one end thereof cut away to form spaced ears 10 having perforations formed therein for the reception of a transversely disposed pin or rod 11, the latter being locked against accidental displacement by means of clamping nuts 12

engaging the threaded terminals of the pin or rod 11, as shown.

Secured to and mounted for rotation with the rod 11 are a plurality of spaced disks or wheels 13 having their peripheral edges formed with teeth or spurs adapted to engage the clinkers as the latter pass over the rear end of the main grate 6.

Depending from the bottom of the plate or body portion 9 are spaced lugs 14 having their free ends bifurcated for the reception of a transverse rod 15 and on which the auxiliary grate section is mounted for pivotal movement.

The grate section 9 is disposed at an angle or inclination to the base of the fire box and is provided at its lower end with a depending stop flange 16 adapted to bear against the bridge wall 8 for limiting the downward movement of the disks 13 and thus maintain the forward end of the auxiliary grate in proper spaced relation with respect to the main grate 6. Depending from the bottom of the section 9 is an arm 17 having an opening 18 formed in the lower end thereof for the reception of the adjacent end of an operating rod 19, the opposite end of the rod being extended to a point outside of the fire box and provided with a loop or handle 20 by means of which the rod may be actuated to effect the dumping of the auxiliary grate when desired. It will thus be seen that should one or more clinkers pass over the rear end of the grate the latter will come in contact with the disks or rollers 13 and move the auxiliary grate section 9 to the dotted line position shown in Fig. 1 of the drawings and in which position the clinkers will be discharged downwardly between the main and auxiliary grates into the ash pit. The upper or long end of the auxiliary grate section 9 is preferably made heavier than the rear or flanged end thereof so that after the discharge of the clinkers into the ash pit the upper end of the grate will fall by gravity to normal position, indicated by full lines in Fig. 1 of the drawing. In order to effect the manual dumping of the grate it is merely necessary to exert a longitudinal pull on the handle 20 when the grate will be tilted upwardly on its pivotal axis 15 so as to permit the discharge of clinkers, ashes and other matter on the upper surface of the grate, as will be readily understood. Attention is called to the fact that by manipulating the rod 19, the upper sur-

face of the auxiliary grate 9 may be arranged at any angle or inclination with respect to the bottom of the fire box and the clinker engaging end of the auxiliary grate
5 arranged at different positions of adjustment with respect to the rear end of the main grate. By making the auxiliary grate imperforate the cold air is prevented from
10 passing upwardly between the rear end of the main grate and the bridge wall, which would have a tendency to reduce the temperature of the fire box.

It will of course be understood that the auxiliary grate sections may be made in
15 different sizes and that one or more of said grate sections may be used according to the size and construction of the furnace.

From the foregoing description it is thought that the construction and operation
20 of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention what is claimed is:

25 1. In a furnace, the combination with a main grate, of an auxiliary grate pivotally mounted near the rear end of the main grate, and clinker engaging members journaled on the forward end of the auxiliary grate and
30 mounted for rotation independently of said auxiliary grate.

2. In a furnace, the combination with a main grate, of an auxiliary grate pivotally mounted near the rear end of the main grate,
35 and a disk carried by and mounted for rotation on the forward end of the auxiliary grate and provided with peripheral clinker engaging spurs, said disk being mounted for rotation independently of the auxiliary
40 grate.

3. In a furnace, the combination with a main grate, of an auxiliary grate arranged in close proximity to the rear end of the main grate, clinker engaging disks carried
45 by and mounted for rotation on the forward end of the auxiliary grate, and means operatively connected with the rear end of the auxiliary grate for dumping the latter, said clinker engaging disks being mounted
50 for rotation independent of the auxiliary grate.

4. In a furnace, the combination with a main grate and bridge wall, of an auxiliary grate pivotally mounted near the rear end
55 of the main grate and having one end thereof provided with a depending stop flange adapted to bear against the bridge wall, clinker engaging disks carried by and mounted for rotation on the opposite end of the auxiliary grate and in close proximity to the main grate, and means operatively connected with the auxiliary grate for effecting the dumping of the latter, said clinker en-

gaging disks being mounted for rotation independently of the auxiliary grate. 65

5. In a furnace, the combination with a main grate, of an auxiliary grate pivotally mounted near the rear end of the main grate, and means mounted for rotation on the forward end of the auxiliary grate and oper-
70 able by engagement with a clinker to automatically effect the dumping of the auxiliary grate, said clinker engaging means being mounted for rotation independently of the auxiliary grate. 75

6. In a furnace, the combination with a main grate, of an auxiliary grate pivotally mounted near the rear end of the main grate and having an imperforate upper surface, and means carried by and mounted for rota-
80 tion on the forward end of the auxiliary grate and operable by engagement with a clinker to automatically effect the dumping of the auxiliary grate, said clinker engaging means being mounted for rotation independ-
85 ently of the auxiliary grate.

7. In a furnace, the combination with the main grate and bridge wall, of an auxiliary grate interposed between the main grate and bridge wall, said auxiliary grate including
90 an imperforate body portion having one end thereof bent downwardly to form a depending stop flange adapted to bear against the bridge wall, the opposite end of the grate being cut away to produce spaced perforated
95 ears, a rod extending through the perforations in said ears, clinker engaging disks mounted for rotation on the rod, an arm depending from the rear end of the auxiliary grate, and an operating rod connected with
100 the arm for manually dumping the auxiliary grate.

8. In a furnace, the combination with the main grate and bridge wall, of a rod extending transversely of the furnace in spaced re-
105 lation to the rear end of the main grate, an auxiliary grate arranged in an inclined position and having spaced bifurcated lugs for the reception of said transverse rod, disks mounted for rotation on the forward end of
110 the auxiliary grate and actuated by engagement with a clinker for automatically effecting the dumping of said grate, a stop flange depending from the rear end of the auxiliary grate for engagement with the bridge wall,
115 an arm secured to the bottom of said auxiliary grate, and an operating rod connected with the arm for manually dumping the auxiliary grate.

In testimony that I claim the foregoing as
120 my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH D. SAVERY.

Witnesses:

CARL GIBBS,
J. S. HARDIN.