

No. 701,795.

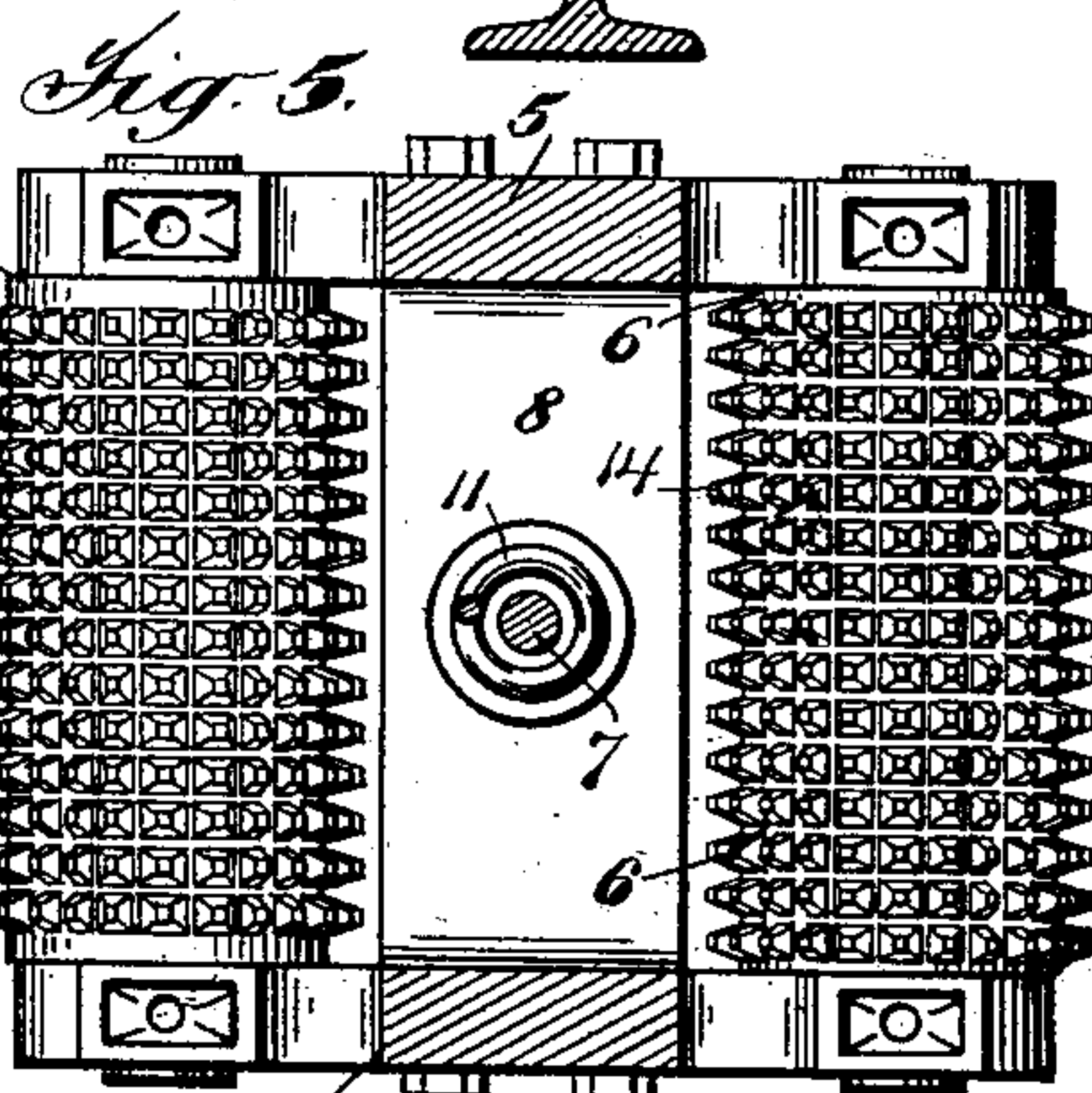
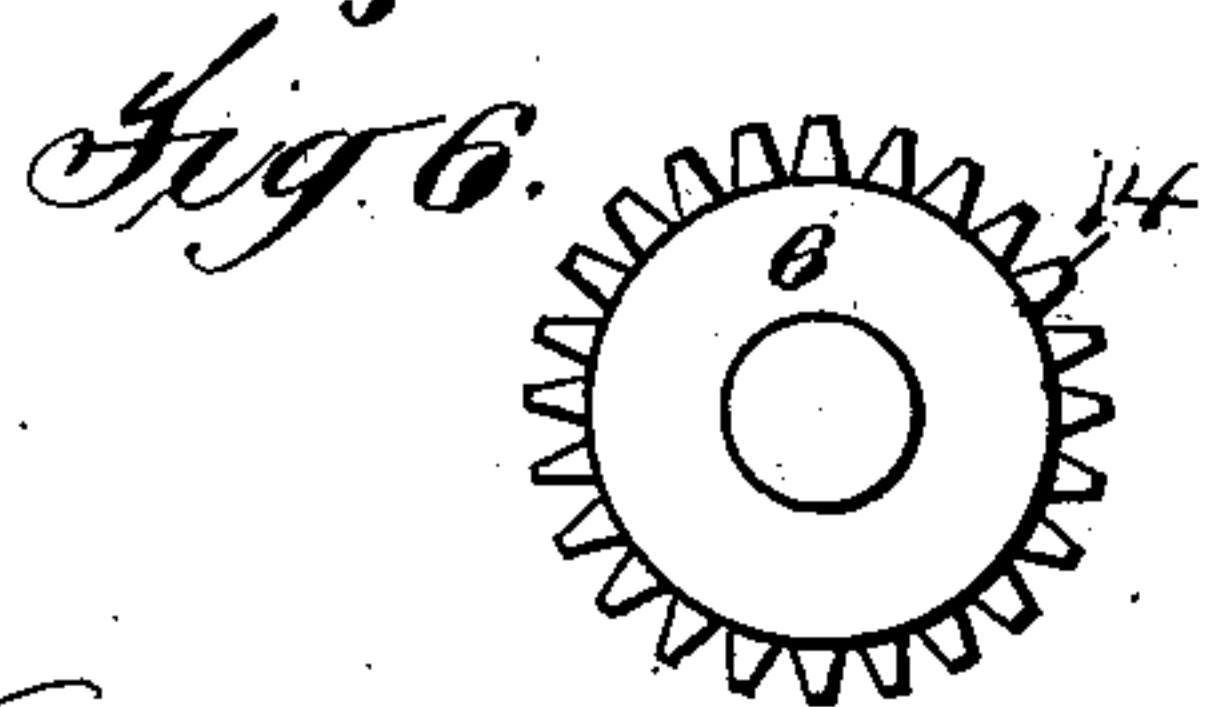
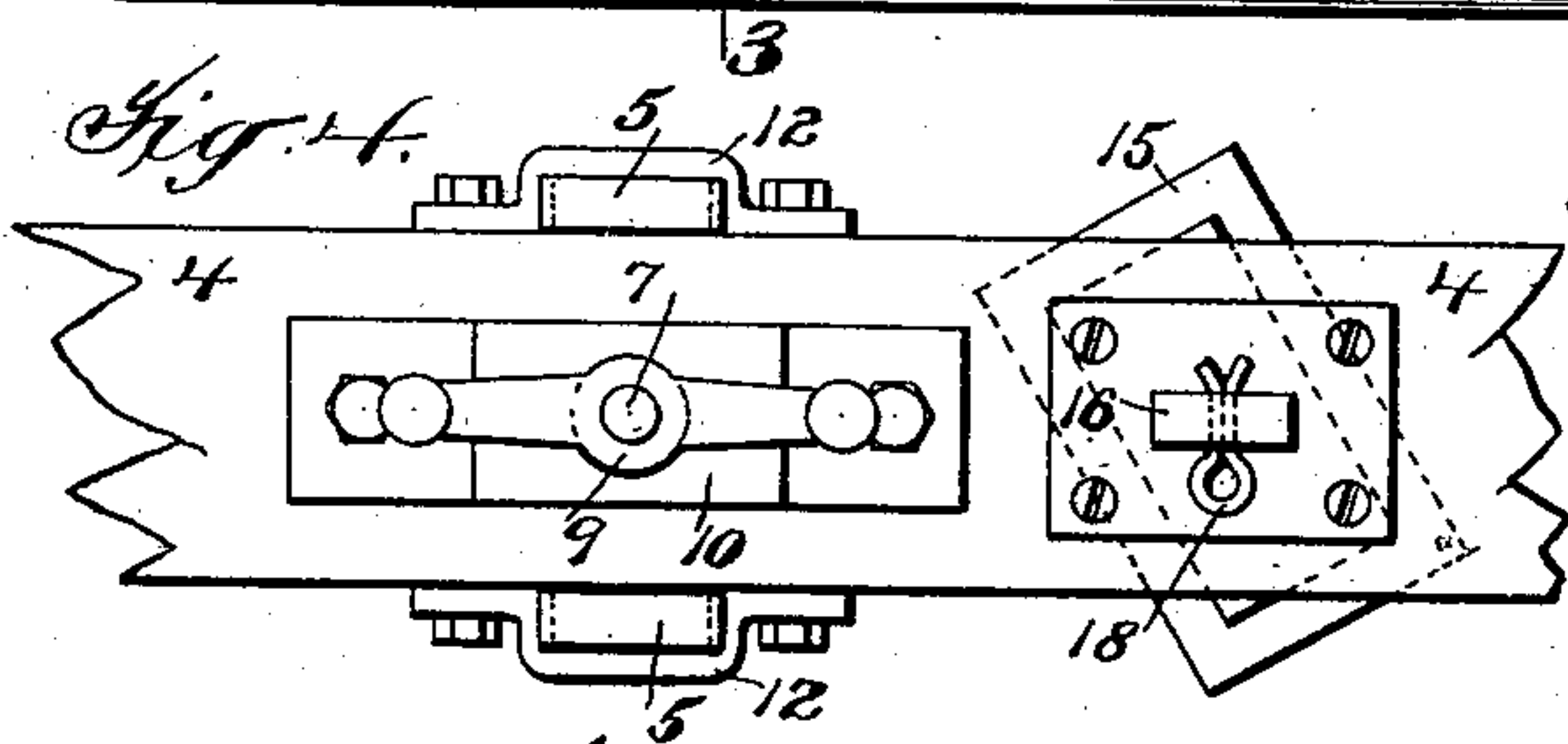
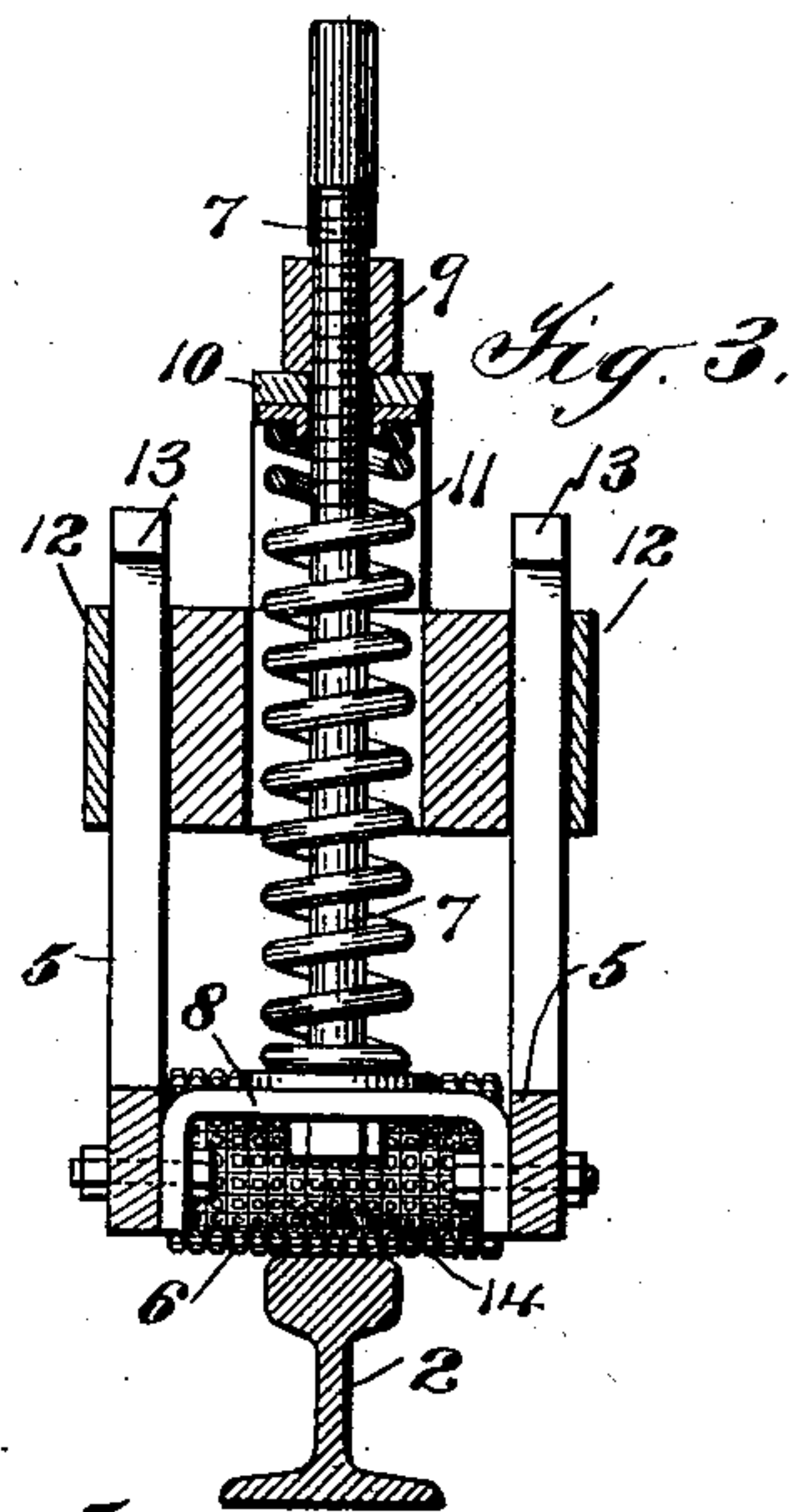
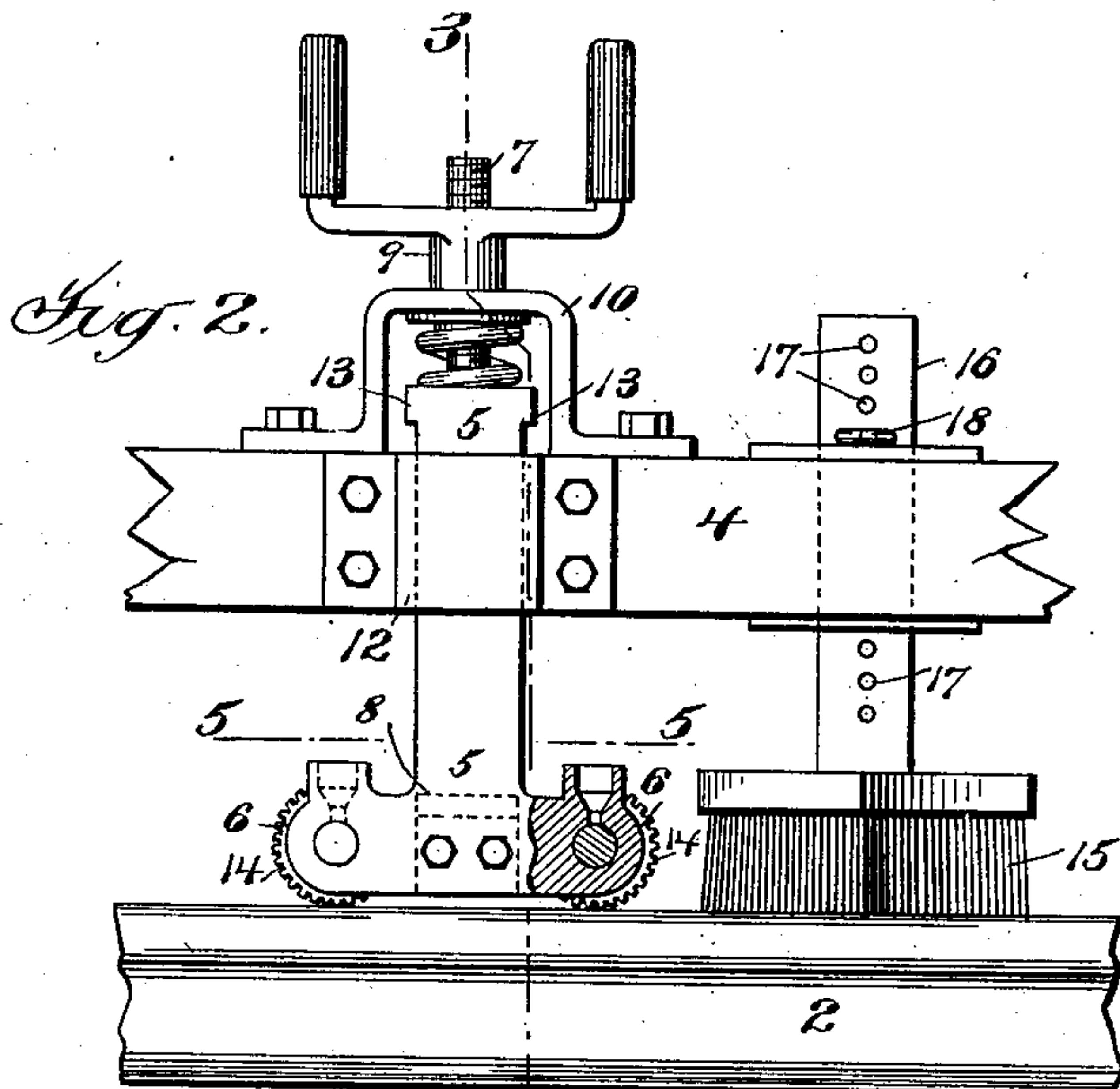
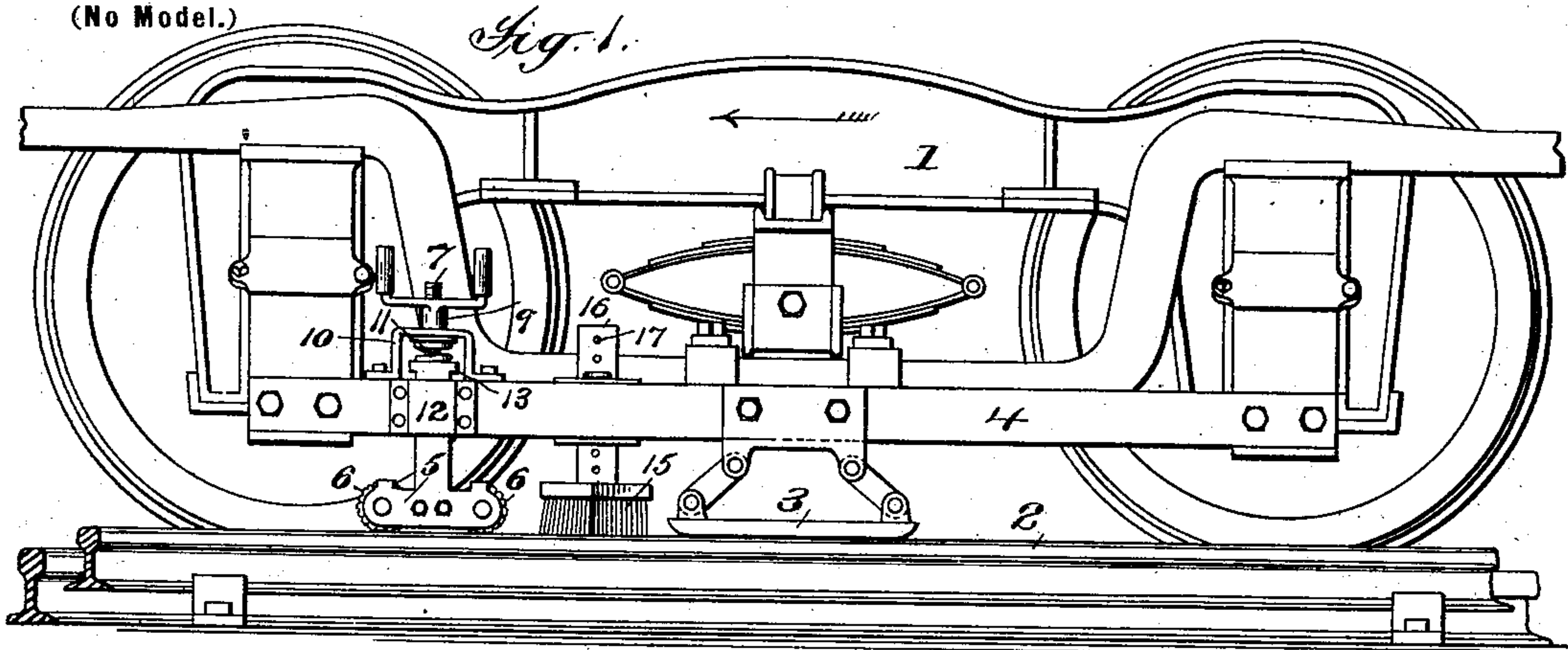
Patented June 3, 1902.

E. CHAMBERLIN & W. T. THOMPSON.

MECHANISM FOR REMOVING ICE AND SNOW FROM THIRD RAIL OR SIMILAR CONDUCTORS.

(Application filed Apr. 3, 1901.)

(No Model.)



Attest:
T. F. Kehoe
A. V. Bourke.

Inventors
Eugene Chamberlin and
Watson T. Thompson
By Philip Dampier Rice Kennedy
Attys

UNITED STATES PATENT OFFICE.

EUGENE CHAMBERLIN AND WATSON T. THOMPSON, OF BROOKLYN, NEW YORK.

MECHANISM FOR REMOVING ICE AND SNOW FROM THIRD-RAIL OR SIMILAR CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 701,795, dated June 3, 1902.

Application filed April 3, 1901. Serial No. 54,135. (No model.)

To all whom it may concern:

Be it known that we, EUGENE CHAMBERLIN and WATSON T. THOMPSON, citizens of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Mechanism for Removing Ice and Snow from Third-Rail or Similar Conductors, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to mechanism for removing ice and snow from the third-rail or similar conductors of electric-railway systems, so as to insure proper electrical contact therewith of the contact-plate or other contact device carried by the car.

It is the object of the present invention to provide mechanism for clearing such conductors of ice and snow, the mechanism provided for this purpose by the present invention comprising means, traveling with the car, for breaking up or crushing the ice or snow upon the conductor into small particles, and, preferably, also, a brush in rear of such means for then brushing over the conductor to insure the removal therefrom of such particles of ice or snow.

In the accompanying drawings, Figure 1 is a side elevation of one of the trucks of an electric car provided with the present invention in its preferred form. Fig. 2 is a similar view of a portion of the truck shown in Fig. 1, illustrating the mechanism embodying the present invention on an enlarged scale. Fig. 3 is a section on the line 3 of Fig. 2. Fig. 4 is a plan view of Fig. 2. Fig. 5 is a section on the line 5 of Fig. 2; and Fig. 6 is an end view of one of the devices—namely, a roller—carried by the truck for breaking up or crushing the ice or snow upon the conductor.

Referring to said drawings, 1 represents the truck of an ordinary electrically-propelled railway-car; 2, the stationary conductor, usually termed the "third rail," and 3 the plate which makes electric contact with the third rail 2 and which is supported in the usual way from the shoe-beam 4 of the truck. So far as the mechanism thus far referred to is concerned, it is of ordinary and well-known construction, so that further description of it here is unnecessary.

The shoe-beam 4 has mounted on it in advance of contact-plate 3 (assuming the car to be running in the direction of the arrow, Fig. 1) a vertically-movable bracket 5, bearing a pair of rotative members or rollers 6 in line with third rail 2, said rollers, which will be presently more fully described, constituting the means provided by the present invention for breaking up and crushing ice or snow deposited upon the third rail 2.

The bracket 5 is supported from shoe-beam 4 by means of a spindle 7, the lower end of which is secured to the cross-piece 8 of bracket 5 and the upper threaded end of which is provided with a nut 9, resting upon a yoke 10, secured to shoe-beam 4. By reason of this connection between the bracket 5 and shoe-beam 4 the former may by turning the nut 9 (which is provided with insulated handles) be moved to and from third rail 2, so as to adjust its rollers 6 relatively to said rail or move them entirely out of operative relation thereto, as desired. The rollers 6 are held yieldingly in engagement with third rail 2 by a spring 11, coiled about spindle 7 and engaging yoke 10 and cross-piece 8 of bracket 5. Bracket 5 is also provided on opposite sides with uprights passing through guides 12, secured to the sides of the shoe-beam 4, for guiding said bracket in its vertical movements and maintaining it and the roller 6 in alinement with third rail 2, the downward movement of bracket 5 being limited by lugs 13, formed on the upper ends of the uprights.

The rollers 6, of which two are shown, though a greater number may be employed without departing from the present invention, broadly considered, are loosely journaled, one in advance of the other, in opposite ends of bracket 5, so as to be rotated by contact with third rail 2, oil-cups being provided, as shown in Fig. 2, for lubricating the bearings of the rollers, so that they will rotate freely. Each of these rollers has a roughened face, suitable for breaking up or crushing a coating of ice or snow upon the rail 2, each roller for this purpose being provided with projections consisting, preferably, of a number of circumferential rows 14 of tapering teeth, which in passing over a coating of ice or snow upon third rail 2 will grind or break it up into small particles. The projections 14 on one roller alternate with the spaces

on the other, (considering the rollers lengthwise,) so that the portions of the coating of ice or snow left untouched by the teeth of the leading roller 6 will be crushed and broken 5 by the following roller.

Preferably means, such as a brush 15, will be employed in combination with the rollers 6 and following in the wake thereof and in advance of contact-plate 3, so as to insure the 10 removal of all particles of ice or snow from the third rail 2. This brush will also be movably mounted on shoe-beam 4, so that it may be adjusted to and from third rail 2 or entirely out of operative relation thereto. For 15 this purpose the stem 16 of brush 15, which passes through an opening in shoe-beam 4, is provided with a series of openings 17, adapted to receive a pin 18, so that the brush may be fixed in any desired position rela- 20 tively to third rail 2.

It will be understood, of course, that when no ice or snow is being formed or deposited on third rail 2 the bracket 5 will be elevated by turning the nut 9 so as to raise the rollers 6 25 out of contact with third rail 2. When such ice or snow is being formed or deposited on third rail 2, however, the bracket 5 will be lowered by turning nut 9, so as to lower the rollers into position for engagement with rail 30 2, as shown in Figs. 1 to 3, the pressure of the rollers upon the rail being also adjusted or regulated as required by means of nut 9, as before stated.

What we claim is—

35 1. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of a pair of rotative members, one in advance of the other, 40 supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the pro- 45 jections or the like on one member alternating with the spaces on the other, substantially as described.

2. The combination with an electrically-propelled railway-car or the like provided 50 with means for making electrical contact with a third-rail or similar conductor, of a pair of rotative members, one in advance of the other, supported from the truck of the car or the like and adapted to traverse said conductor, 55 said members being provided with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the projections or the like on one member alternating with the spaces on the other, and a brush in 60 rear of said members for brushing the ice or snow from the conductor, substantially as described.

3. The combination with an electrically-propelled railway-car or the like provided 65 with means for making electrical contact with a third-rail or similar conductor, of a pair of spring-pressed rotative members, one in ad-

vance of the other, supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided 70 with projections or the like for breaking up or crushing ice or snow deposited upon the conductor, the projections or the like on one member alternating with the spaces on the other, substantially as described. 75

4. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of a pair of spring-pressed rotative members, one in ad- 80 vance of the other, adjustably supported from the truck of the car or the like and adapted to traverse said conductor, said members being provided with projections or the like for breaking up or crushing ice or snow de- 85 posited upon the conductor, the projections or the like on one member alternating with the spaces on the other, substantially as described.

5. The combination with an electrically- 90 propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of bracket 5 adjustably supported from the truck of the car or the like and adapted to traverse said 95 conductor, and bearing a pair of rollers 6 each having rows of projections 14 for breaking up or crushing ice or snow deposited on the conductor, the rows of projections on one roller alternating with the spaces on the other, 100 substantially as described.

6. The combination with an electrically-propelled railway-car or the like provided with means for making electrical contact with a third-rail or similar conductor, of spring- 105 pressed bracket 5 adjustably supported from the truck of the car or the like and adapted to traverse said conductor, and bearing a pair of rollers 6 each having rows of projections 14 for breaking up or crushing ice or snow 110 deposited on the conductor, the rows of projections on one roller alternating with the spaces on the other, substantially as described.

7. The combination with an electrically-propelled railway-car or the like provided 115 with means for making electrical contact with a third-rail or similar conductor, of spring-pressed bracket 5 adjustably supported from the truck of the car or the like and adapted to traverse said conductor, and bearing a pair 120 of rollers 6 each having rows of projections 14 for breaking up or crushing ice or snow deposited on the conductor, the rows of projections on one roller alternating with the spaces on the other, and brush 15 in rear of 125 rollers 6, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

EUGENE CHAMBERLIN.
WATSON T. THOMPSON.

Witnesses:

T. F. KEHOE,
J. A. GRAVES.