

(No Model.)

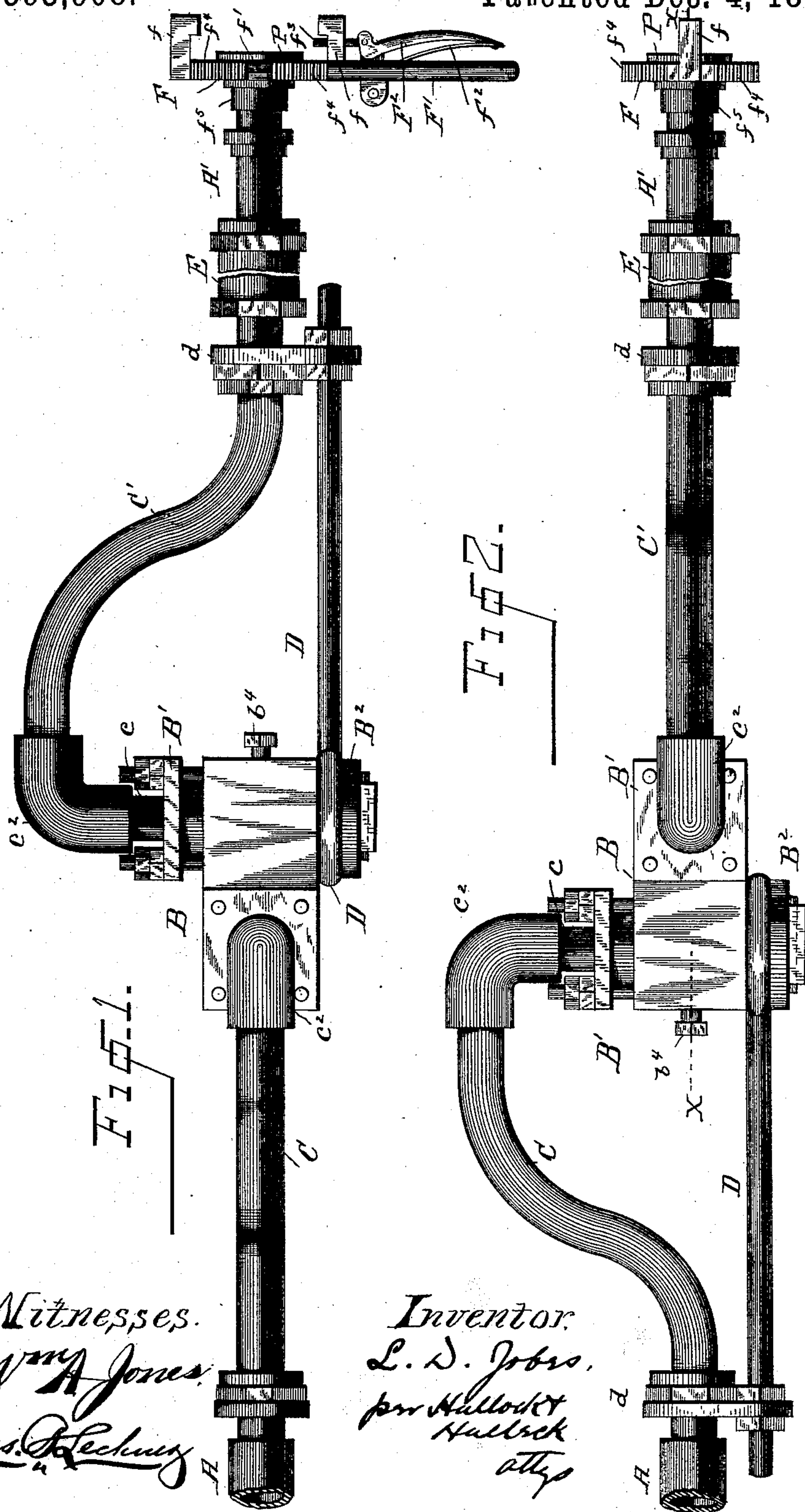
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L. D. JOBES.

# STEAM HEATING APPARATUS FOR RAILWAY CARS.

No. 393,908.

Patented Dec. 4, 1888.



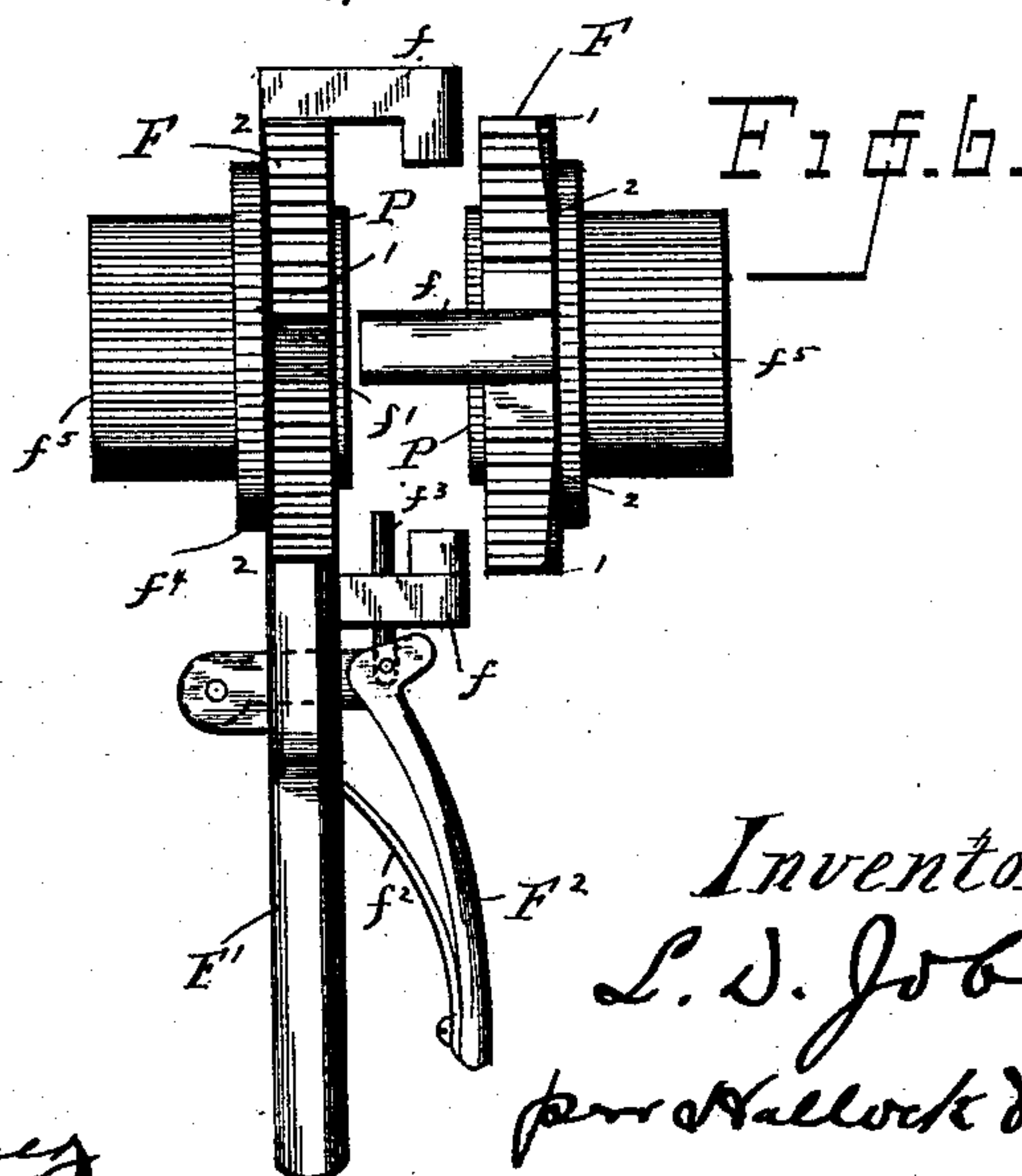
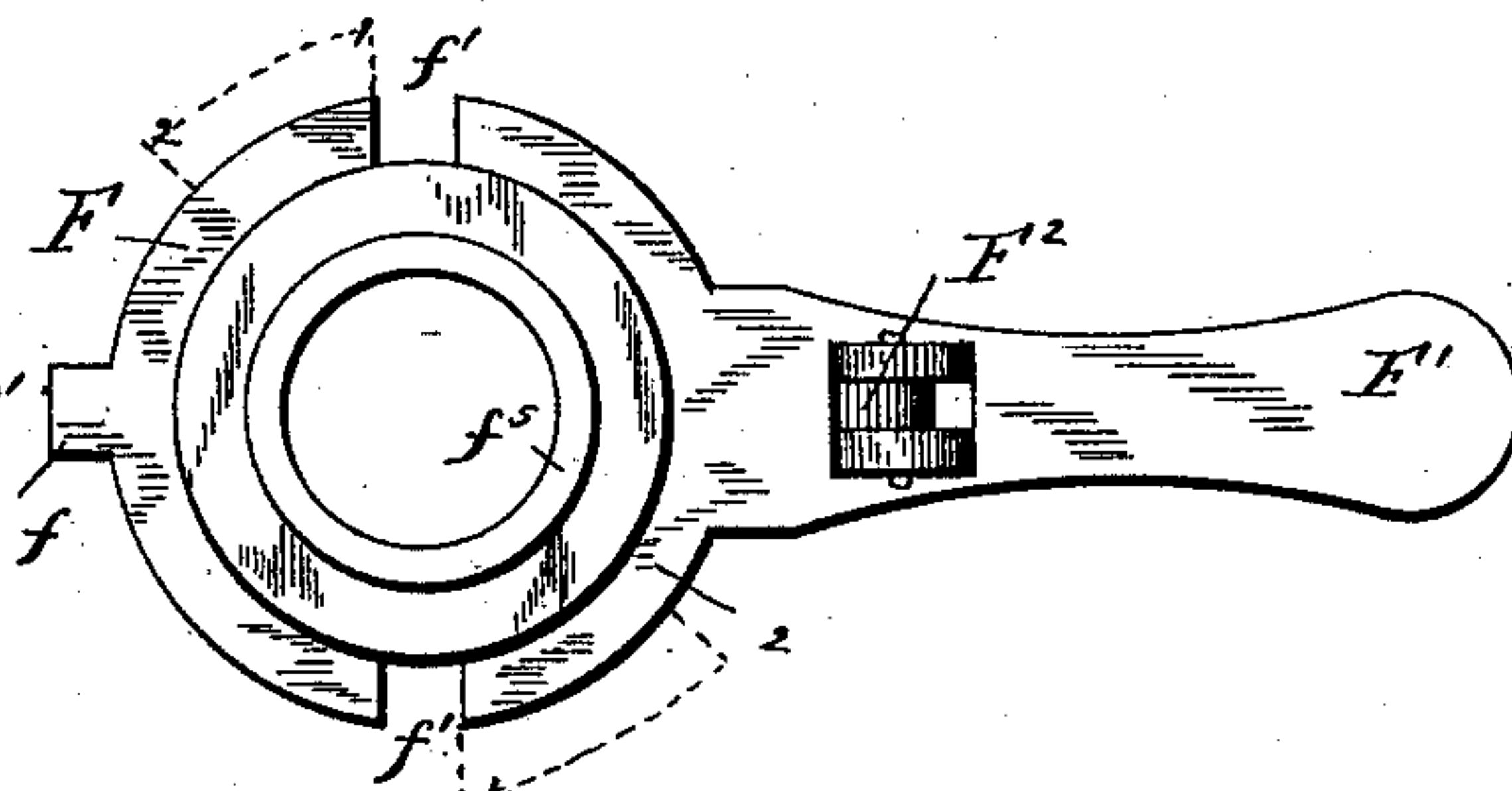
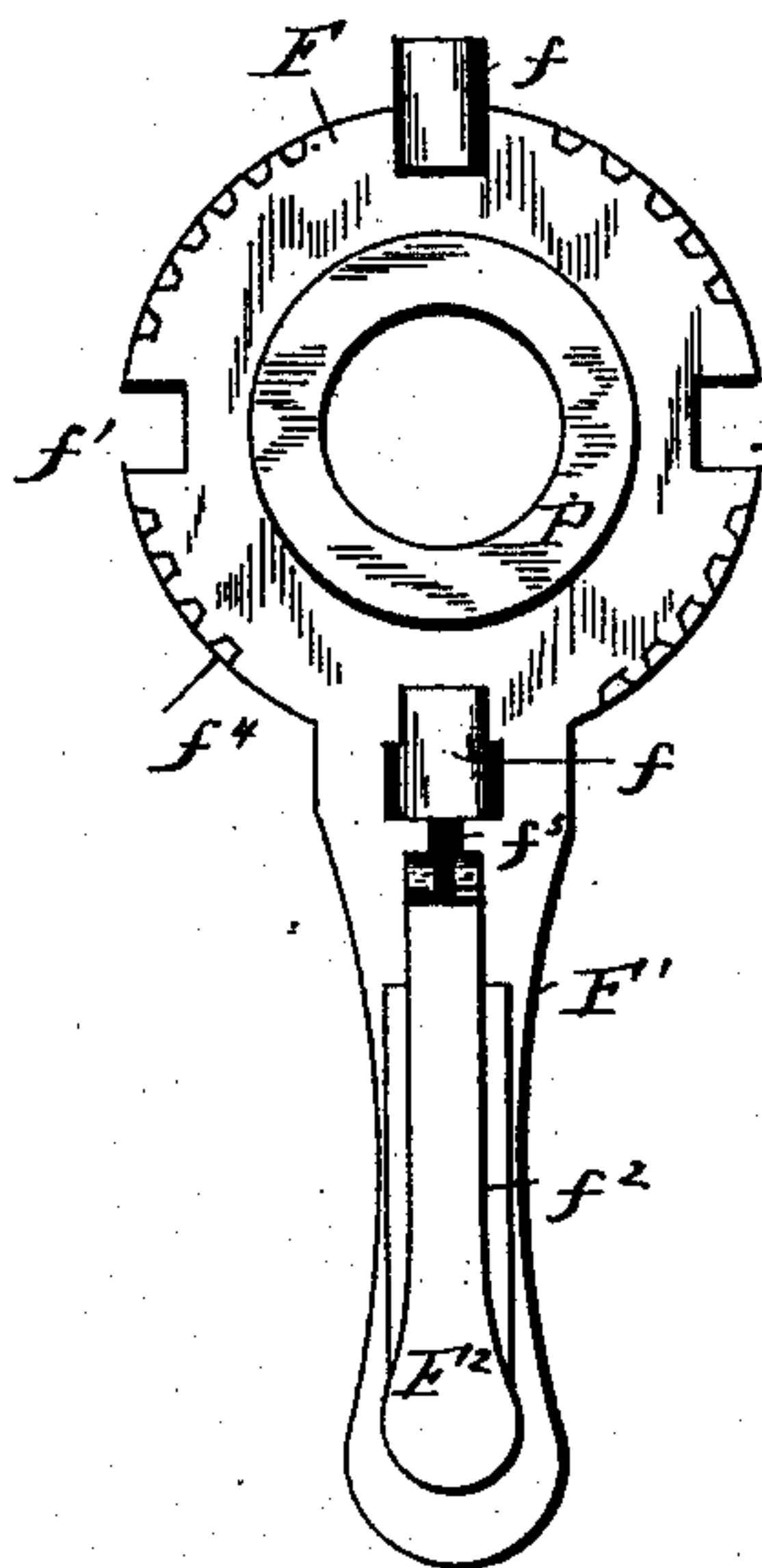
Witnesses.  
Wm A Jones.  
Chas. Beckwith

Inventor,  
L. D. Jones,  
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# STEAM HEATING APPARATUS FOR RAILWAY CARS.

Patented Dec. 4, 1888.



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(No Model.)

3 Sheets—Sheet 3.

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STEAM HEATING APPARATUS FOR RAILWAY CARS.

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Fig. 7.

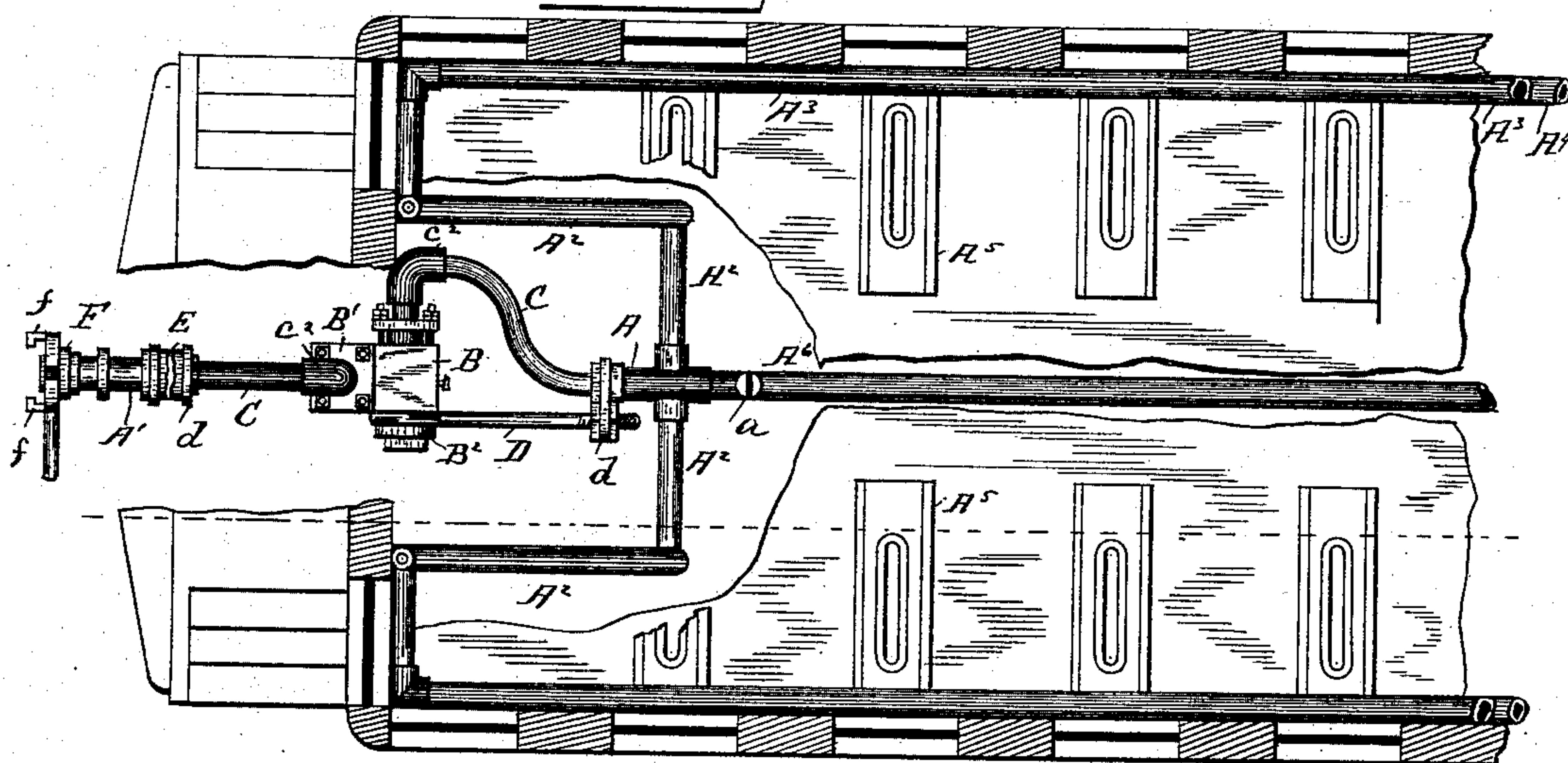
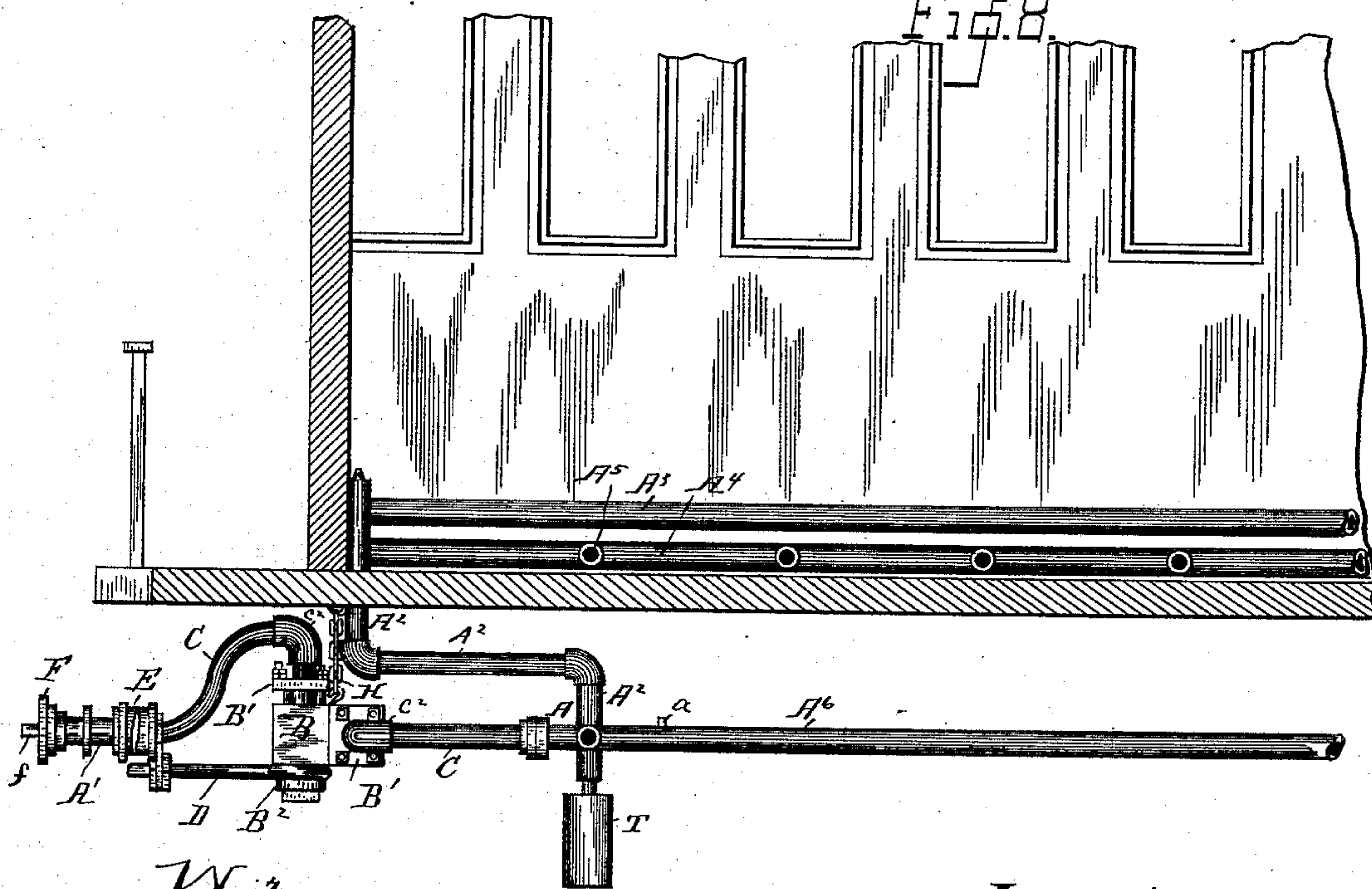


Fig. 8.



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# UNITED STATES PATENT OFFICE.

LESLIE D. JOBES, OF ERIE, PENNSYLVANIA.

## STEAM-HEATING APPARATUS FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 393,908, dated December 4, 1888.

Application filed June 4, 1887. Serial No. 240,320. (No model.)

*To all whom it may concern:*

Be it known that I, LESLIE D. JOBES, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Steam-Heating Apparatus for Railway-Cars; and I do hereby 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 steam-heating apparatus for railway-cars; and it consists in certain improvements in the construction thereof, as will be hereinafter fully set forth, and pointed out in the claims.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a side elevation of the coupler, by which the pipes of one car are connected to those of an adjoining car, a universal joint in the pipe giving flexibility of action. Fig. 2 is a top or plan view of the same parts seen in Fig. 1. Fig. 3 is a vertical longitudinal section view on the line  $xx$  in Fig. 2, the coupler being omitted. Fig. 4 is a front view of one of the parts of the coupler. Fig. 5 is a back view of the other part of the coupler. Fig. 6 is a side elevation of the coupler, showing the two parts in position to be set together. Fig. 7 is a plan view showing the parts shown in the foregoing figures in place in a car and my method of piping a car. Fig. 8 is a vertical longitudinal section of a part of a car, and shows the parts seen in Fig. 7 in side elevation.

The essential features of a steam-car-heating apparatus in which the steam is supplied from a single generator to the whole train of cars are, first, an efficient coupling device, whereby the pipes of one car may be coupled quickly and efficiently to those of the adjoining car; second, means whereby longitudinal extension or contraction of the connecting-pipes may take place; third, an efficient steam-tight universal joint on the connecting-pipe on each end of each car, so that free lateral and vertical action can take place; fourth, proper means for drainage of condensation from the pipes should be provided; and, fifth, perfect circulation of steam within the sys-

tem of pipes within the car should be secured.

Following the order above named, the first part of my invention relates to the device for coupling the pipes of adjoining cars together. This device is shown in the accompanying drawings, as follows: At the right of Fig. 1 is a side elevation view of one of the parts of the coupler. At the right of Fig. 2 is a top view of the same part. In Fig. 4 I show the same part in front elevation. In Fig. 5 I show a back elevation of the same part, or, as the two parts are alike in all respects, it may be said to be a back elevation of the companion part, and this may be so considered, because the position of the two parts in the two figures is that which they occupy when about to be brought into conjunction. Each of these parts consists of a disk,  $F$ , with a handle,  $F'$ , and having claws or clutches  $f$  and notches  $f'$ . On the face of each is a packing-gasket,  $P$ , (or this may be on the face of only one of them, and a seating for it to impact upon on the other.) On the periphery of each disk are notches  $f^4$ , and on the handle of each is a bolt,  $f^3$ , which is actuated by a grip-lever,  $F^2$ , and a spring,  $f^2$ . On the back of each disk, extending up from each notch  $f'$ , as from 1 to 2 in Fig. 5, is an inclined surface. When the two disks are to be coupled, the operator grasps one in each hand by the handle  $F'$ , and in so doing compresses the grip-levers  $F^2$ , which draws back the bolt  $f^3$ . He then puts the two faces together, letting the clutches  $f$  of one pass through the notches  $f'$  of the other. He then turns them upon each other, which causes the clutches  $f$  to bind on the inclined surfaces 1 to 2, and draw the two parts firmly together. The operator then releases the handles, and this releases the grip-levers, and the springs  $f^2$  react them and force the bolts  $f^3$  into engagement with the serrated periphery of the disk, and prevents disengagement of the two disks. In Figs. 7 and 8 the position of these couplers is clearly shown.

I am aware of the construction shown in Letters Patent of the United States, Nos. 210,459, of December 3, 1878; 290,195, of December 18, 1883, and 320,939, of June 30, 1885. From these it will be seen that couplings con-



sisting of abutting disks having claws overlapping the opposing disk and cam-faces engaging said claws and operating-handles and spring-catches for holding the parts in engagement are old; but in none of these devices is my precise construction shown; and my invention consists only in the peculiar and improved arrangements of parts which I show.

10 The second feature of my invention relates to means for providing for longitudinal expansion and contraction, and consists in providing the connecting-pipes at each end of each car with a slip-joint, E, immediately back  
15 of the coupler. There are no novel features in the construction of this slip-joint, and therefore it needs no further description.

The third feature of my invention relates to the means for providing for the lateral and  
20 vertical vibratory action of the cars while moving, and consists of a universal joint in the connecting-pipe at the ends of each car, so constructed as to allow the cars to vibrate and not strain the coupler or any other joints,  
25 and so that it will not permit the escape of steam or become set as the metal becomes heated and expands. This feature of my construction is shown in Figs. 1 and 8 in side elevations, in Figs. 2 and 7 in plan or top view,  
30 and in Fig. 3 in longitudinal section. In these figures, A marks the pipe which is connected with the system of pipes on the cars, and A', the pipe bearing the coupler. The universal joint consists of a block or body, B, which is  
35 perforated transversely by two chambers, *b* *b'*, which stand at right angles to each other, one being at one end of the block B and the other at the other end, and a chamber, *b*<sup>2</sup>, connects the two chambers *b* *b'*. Each of the  
40 chambers *b* and *b'* are ledged, as at *b*<sup>3</sup>, Fig. 3, to form a seat for a short section of pipe, *c*, which is properly packed by a stuffing-box, B', and is held against longitudinal movement by any proper means—such, for instance,  
45 as the screw *b*<sup>4</sup>. After these short sections of pipe *c* are in place the large ends of the chambers are plugged by a screw-plug, B<sup>2</sup>, on the outer end of the swivel-pipes *c*, and curved  
50 pipes C extend from these elbows to a line drawn through the longitudinal axis of the block B. At the outer ends of these curved pipes C are fixed yokes *d*, and from these stay-  
55 rods D extend to and engage the outer ends of the plugs B<sup>2</sup> pivotally, so as not to interfere with the pivotal movement of the pipes in the block B. The outer end of the pipes C on one hand connect with the slip-joint E and on the other with the service-pipe A on the car.

It will be seen that the joint just described  
60 will permit of both lateral and vibratory movement of the ends of the adjoining cars, and in no way strain or wrench the slip-joints or the couplers, and that no steam will leak from it if the stuffing-boxes are properly attended to,  
65 and also that the joint will not become set when heated by steam, but will work freely under all conditions.

I am aware of the constructions shown in United States Patents No. 276,186, of April 24, 1883, and No. 289,120, of November 27, 1883, 70 and in English Patent No. 5,834 of 1882; but in none of these is my construction shown, although they contain the elementary parts contained in my construction, my invention in this particular being limited in view of such 75 former constructions.

The fourth and fifth features of my invention relate to the arrangement of the service-pipes in the car, their connection with the supply-pipe and the application of steam-traps, 80 whereby perfect drainage of condensation and proper circulation of steam are effected. In Figs. 7 and 8 these features are illustrated. These figures only show one end of a car, but as the opposite end is an exact counterpart of 85 of the end shown any further illustration is unnecessary. At a point immediately back of the universal joint the supply-pipe A branches each way in pipes A<sup>2</sup> A<sup>2</sup>, which pass up into the car on each side. A third pipe, 90 A<sup>6</sup>, passes from one end of the car to the other, which is only used when it is desired to convey the steam to the next car back without passing it through the service-pipe of the car, proper shut-off cocks *a* being provided. At 95 the point where the pipes A<sup>2</sup> branch off I put a steam-trap, T, one at each end of the car.

It has been common to use a steam-trap to receive the drainage from the car; but I am not aware that one has been used at each end 100 of the car in the manner I show it. It is true that in the construction shown in United States Patent No. 348,664, of September 7, 1886, there is shown a steam-trap at each end 105 of the car; but this is not as I show it or shall claim it, said trap being located forward of the universal joint and not at the point where the service-pipes branch to opposite sides of the car. The arrangement of the steam-trap, 110 as shown, possesses many advantages, as it is sure to catch any condensation which occurs in the connecting-pipes between the cars before it can enter the service-pipes in the car, and it will insure a perfect drainage of the service-pipe, no matter if the car is standing 115 for a time on any inclined track or is running on a long upgrade, while if the steam-trap is located in the middle of the car, as is often the case, or at one end only, these advantages are not secured. 120

The service-pipes extend along each side of the car, connecting with the cross-pipes A<sup>2</sup> A<sup>2</sup> at each end of the car. These are marked A<sup>3</sup> A<sup>4</sup>. There may be as many of these as desired, and to one of them are attached radi- 125 ating loops A<sup>5</sup>, which lie under the seats.

If in Fig. 8 marks a chain or other proper means for suspending the universal joint, so as to relieve the piping from the strain of its support. 130

What I claim as new is—

1. In a steam-heating apparatus for railway-cars, the combination, with the pipe A, which is connected with the service-pipe in the

car, and the pipe A', which is connected with the pipes of the adjoining car, of the curved pipe C C, block B, having chambers *b b'*, passing through the same in different planes at  
5 right angles to each other and connected by a chamber, *b<sup>2</sup>*, swivel-pipes *c c*, journaled in said chambers *b b'* and connected with said curved pipes C C, stuffing-boxes B' B', for packing said swivel-pipe, plugs B<sup>2</sup> B<sup>2</sup>, closing  
10 the opposite ends of said chambers *b b'*, and stay-rods D, pivoted on said plugs and connected with the outer ends of said curved pipes.

2. In a universal joint for steam or other  
15 conduits, the combination of the block B,

having chambers *b b'* through the same in different planes at right angles to each other and connected by the chamber *b<sup>2</sup>*, the swivel-pipes *c c*, journaled in said chambers *b b'*, plugs B<sup>2</sup>, closing the ends of said chambers 20 opposite said swivel-pipe, and stuffing-boxes B', for packing said swivel-pipe, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

L. D. JOBES.

Witnesses:

JNO. K. HALLOCK,  
M. F. HALLECK.