

P. BREKKE.
CAR COUPLING.

No. 453,611.

Patented June 9, 1891.

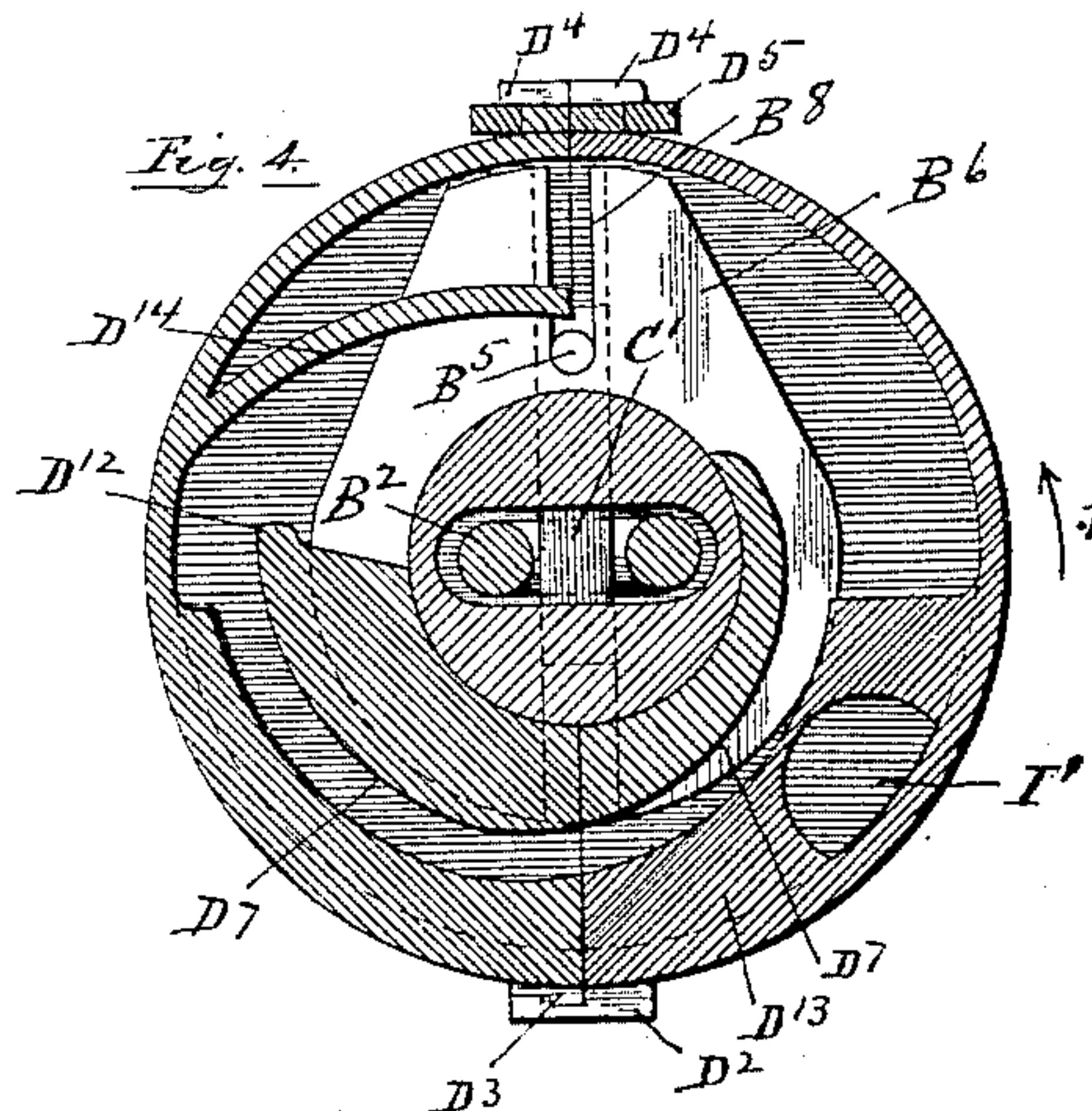
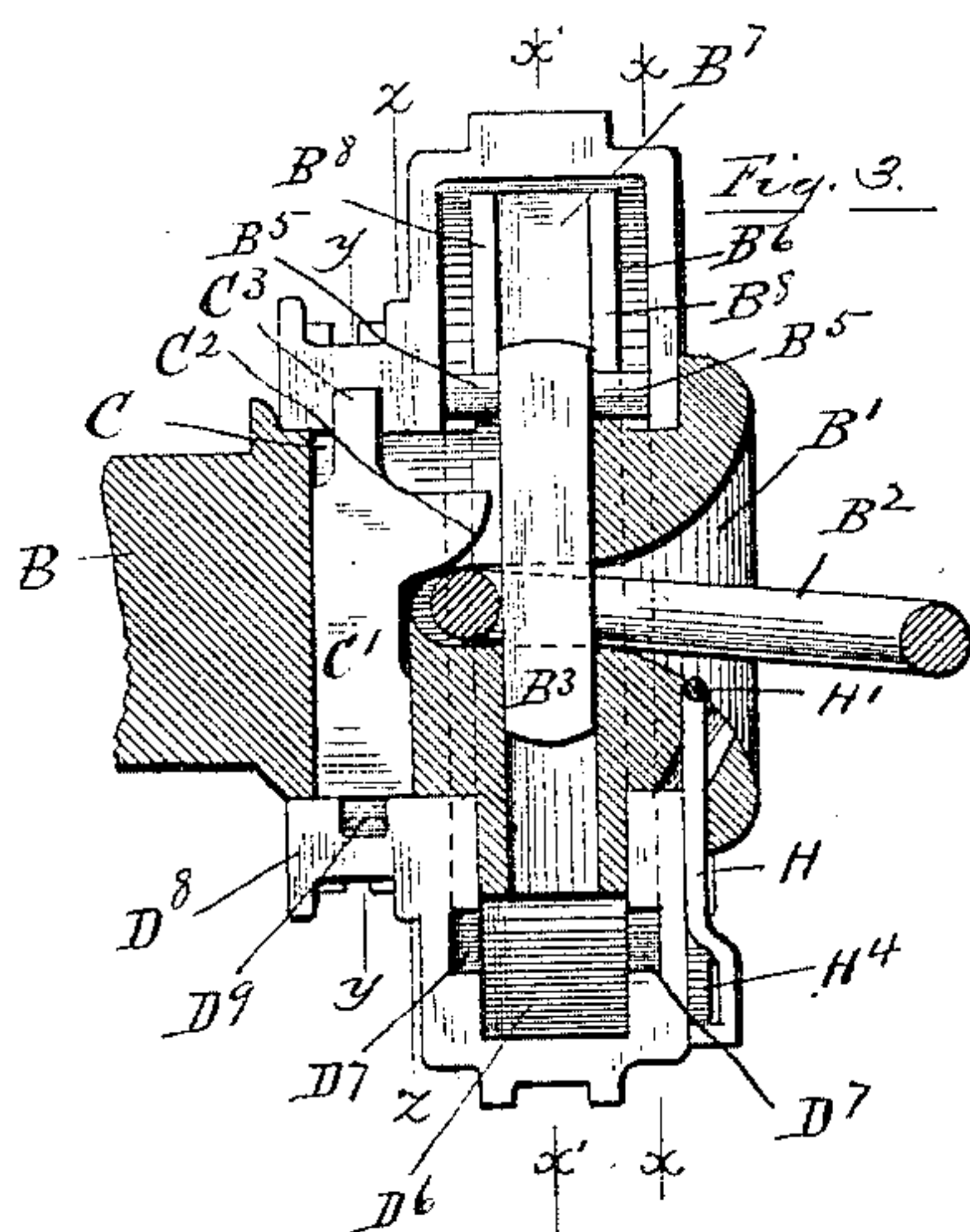
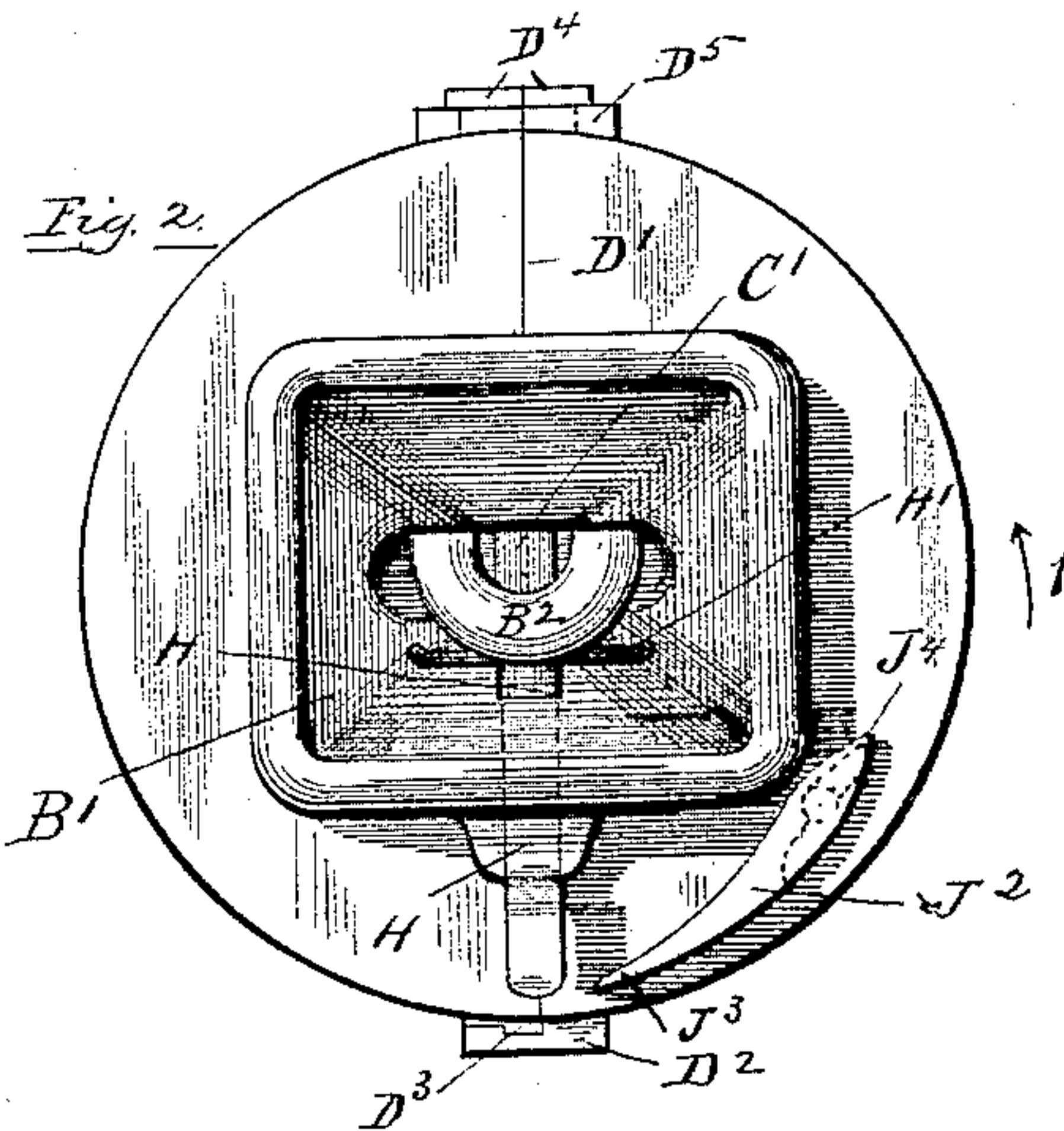
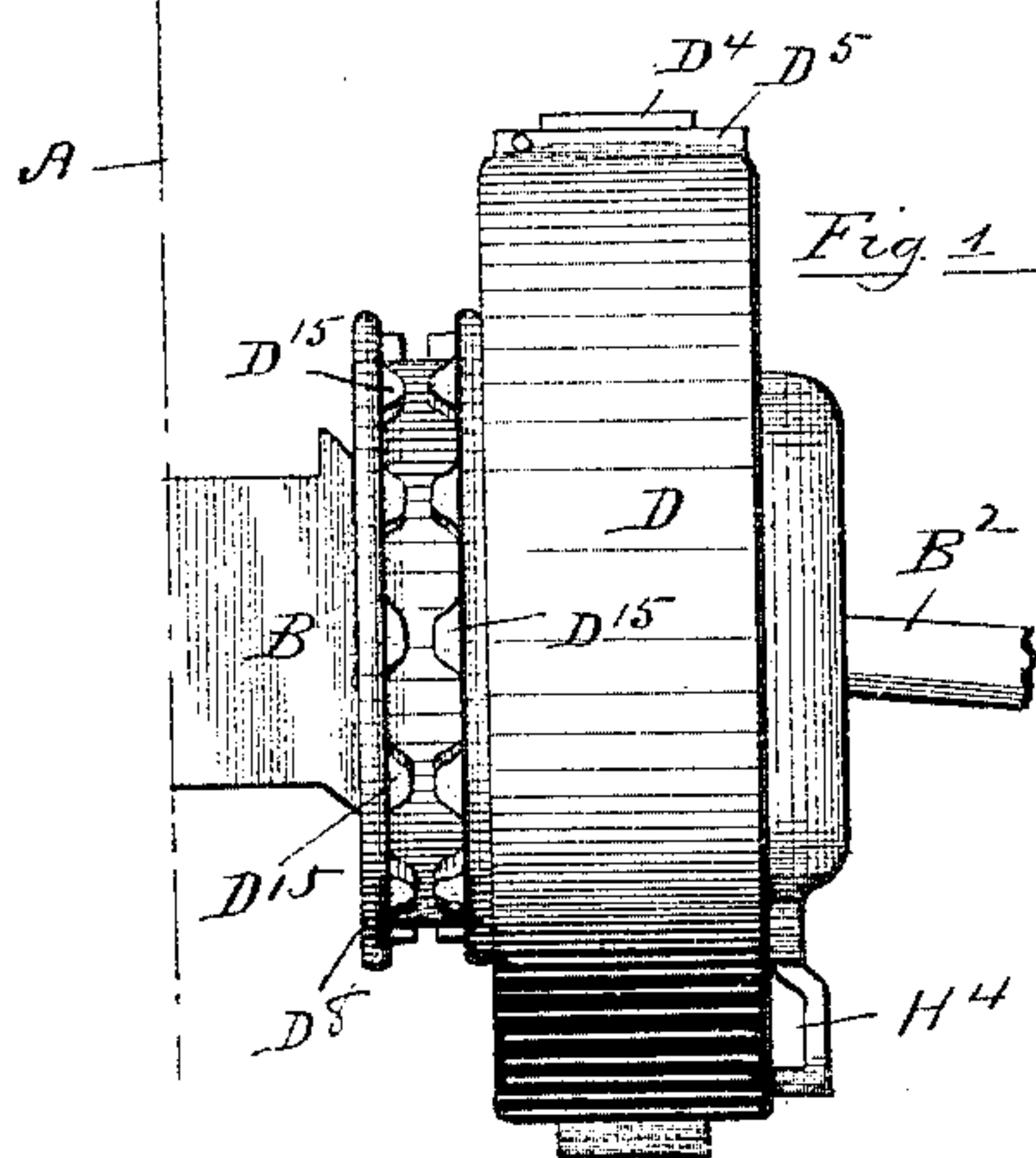
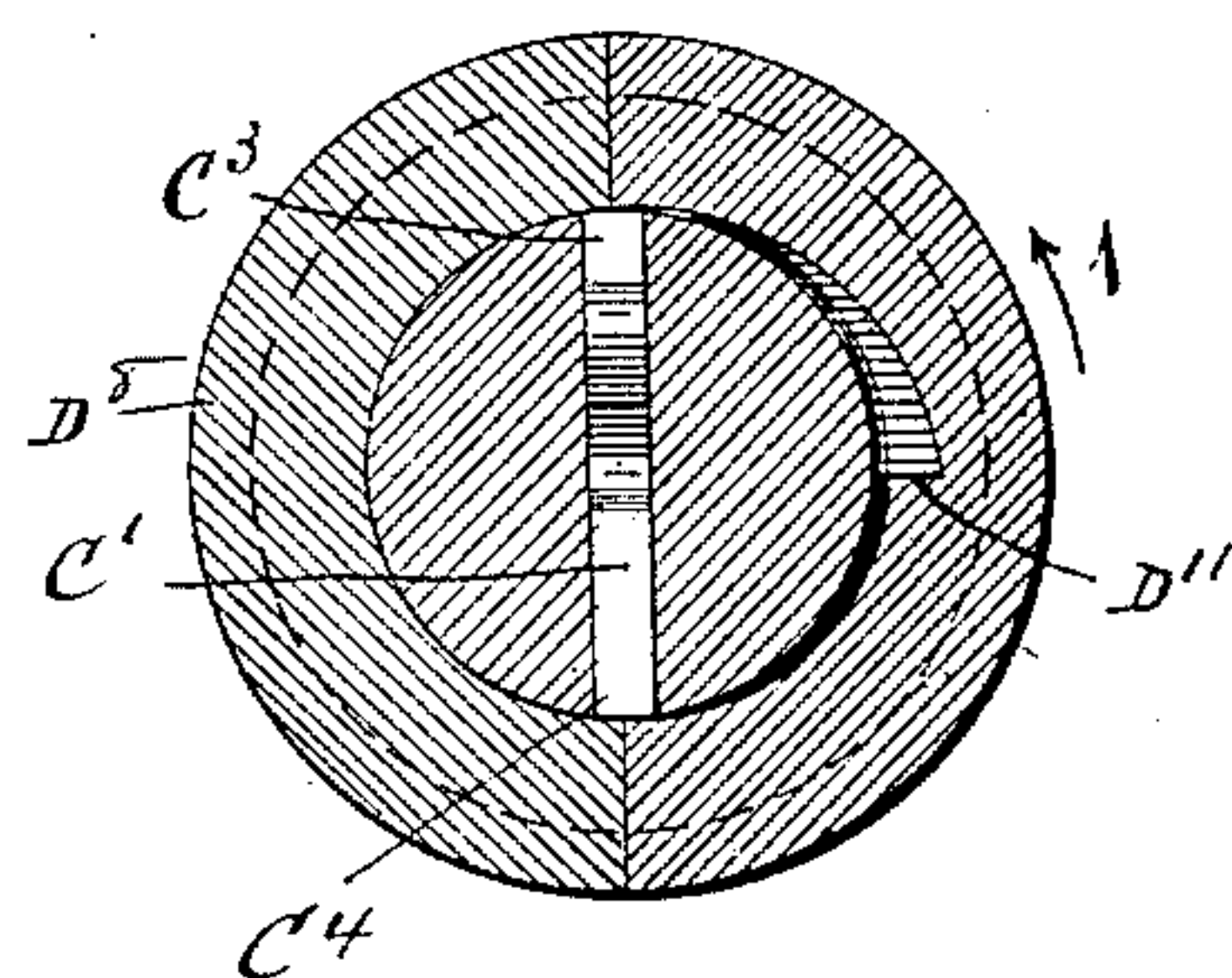
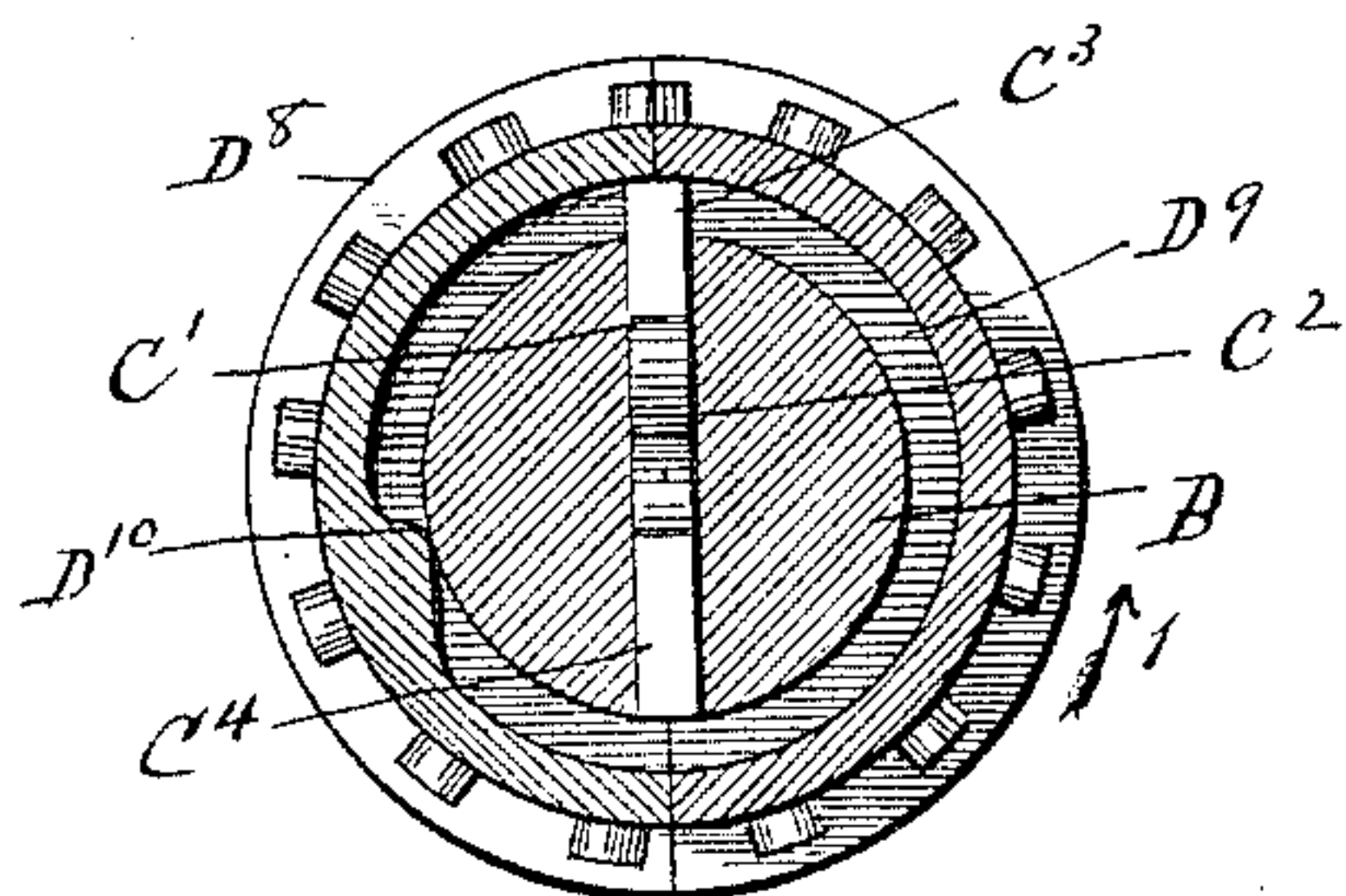


Fig. 5.

Fig. 6.



Witnesses

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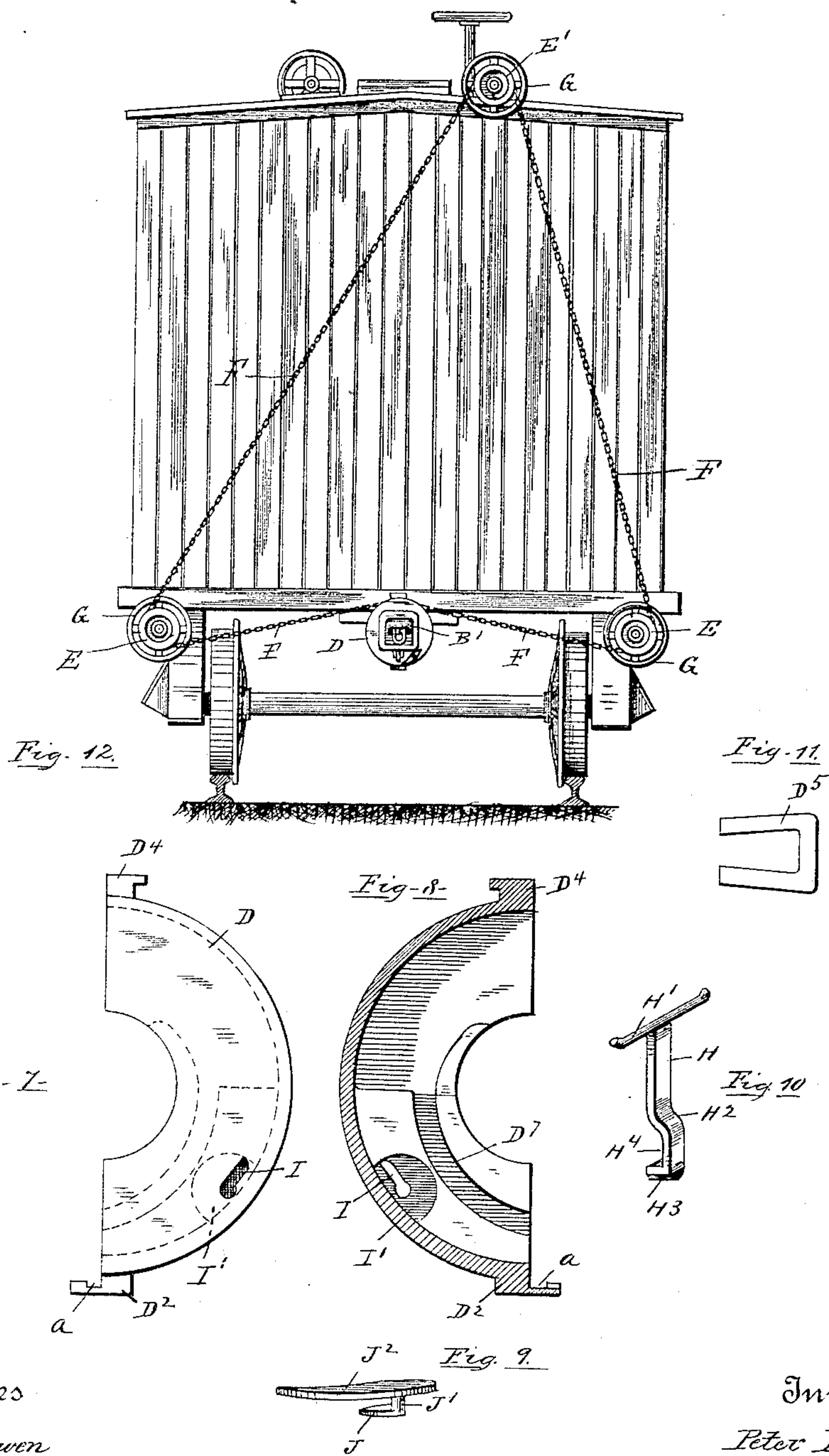
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UNITED STATES PATENT OFFICE.

PETER BREKKE, OF WORCESTER, MASSACHUSETTS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 453,611, dated June 9, 1891.

Application filed February 7, 1891. Serial No. 380,558. (No model.)

To all whom it may concern:

Be it known that I, PETER BREKKE, a subject of the King of Norway, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Rotary Head Car-Couplings, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of my improved car-coupling. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical central sectional view. Fig. 4 is a sectional view on line X X, Fig. 3. Fig. 5 is a sectional view on line Y Y, Fig. 3. Fig. 6 is a sectional view on line Z Z, Fig. 3. Fig. 7 represents a front view of one-half of the rotating shell. Fig. 8 represents a sectional view of the same, taken on line X' X', Fig. 3, and showing the inside of the shell. Fig. 9 is a detached perspective view of the pawl carried upon the face of the rotating shell by which the link is raised. Fig. 10 is a detached and perspective view of the T-shaped sliding bar by which the link is raised. Fig. 11 is a top view of the "U-shaped" spring-clamp by which the two halves of the shell are held together at the top; and Fig. 12 represents an end view of a car having my improved car-coupling applied thereto, and showing the operating mechanism by which the coupling is operated from the side or top of the car.

Similar letters refer to similar parts in the different figures.

My present invention consists in applying to a draw-bar adapted to receive a coupling-link and retaining-pin of a rotating head, by which the operation of uncoupling cars can be performed at the top or side of the cars without requiring that the brakeman should pass between the cars, and by which the operation of coupling can be automatically performed as the cars are brought together.

I have termed the car-coupling embodying my invention the "rotary head car-coupling," as expressive of its peculiarities of construction and operation, consisting of a rotating head inclosing the draw-bar, and by which the operation of coupling and uncoupling is effected.

Referring to the drawings, the broken line A, Fig. 1, represents the front line of the car.

B denotes the draw-bar, which is connected with the car in any of the well-known methods now in use. The end of the draw-bar B is provided with the flaring mouth or opening B', in which the end of the coupling-link B² is received. The retaining-pin B³ is rectangular in shape, and is capable of a vertical sliding motion in the hole B⁴, and is provided with the transverse pin B⁵. The draw-bar is provided upon its upper side with a wing-shaped projection B⁶, having a groove B⁷, in which the pin B³ slides, and communicating with the groove B⁷ are the slots B⁸ B³, through which the ends of the pin B⁵ project. At the rear of the opening B⁴ the draw-bar is provided with a vertical mortise C to receive the sliding pin C', provided on its front side with the cam projection C².

Journaled upon the draw-bar is a shell or case D, formed in two halves divided at D'. The two halves of the shell D are united at the bottom by the interlocking lugs D² D³, and at the top they are provided with the lugs D⁴ D⁴, which are held together by the U-shaped elastic clamping-bar D⁵, (represented in top view in Fig. 11,) the opening between the ends of the bar being slightly contracted, causing the clamping-bar when forced upon the lugs D⁴ to be held in position. The central section of the shell D consists of a concentric cylindrical chamber D⁶, upon either side of which are the cams D⁷, arranged as the shell is rotated in the direction of the arrow 1, Fig. 4, to engage the ends of the pin D⁵ and raise the retaining-pin B³, thereby releasing the link.

The cylindrical shell D is provided with a hub D⁸, having its central section provided with an annular groove D⁹ to receive the tongue C³ of the sliding pin C'. Within the annular groove D⁹ is a cam-surface D¹⁰, which, as the shell D is rotated in the direction of the arrow 1, Figs. 4 and 5, is brought in contact with the tongue C³ of the pin C', pushing the pin C' downward, so that its lower end C⁴ will project below the draw-bar B and be brought into the path of the shoulder D¹¹, thereby checking the rotation of the shell D. This rotation of the shell D, which is equal to three-quarters of a complete revolution, serves to bring the cam D⁷ beneath the ends of the pin B⁵, thereby raising the retaining-

pin B³ and releasing the link. The ends of the pin B⁵ will then be held upon the tip D¹², Fig. 4, of the cam D⁷, and the shell and cam will be held from farther rotation in the direction of the arrow 1 by the engagement of the lower end C⁴ of the pin C' against the shoulder D¹¹, Fig. 6. The lower side of the shell D is weighted at D¹³, so that when the shell has been rotated three-quarters of a revolution in the direction of the arrow 1 the weighted side will be brought in the same horizontal plane as the axis of the shell and will act to cause the revolution of the shell to be completed in the direction of the arrow 1 as soon as the sliding pin C' is disengaged from the shoulder D¹¹. This disengagement of the pin C' from the shoulder D¹¹ is effected by the entrance of the link B² within the flaring mouth B' of the draw-bar, the advancing end of the link striking against the cam-surface C² and raising the bar C', whereupon the weighted section D¹³ will fall into the position shown in Fig. 4, causing the shell D to turn through one-fourth of a revolution, moving the cam D⁷ from beneath the pin B⁵, allowing the retaining-pin B³ to fall by its own gravity through the link B². This downward movement of the pin B³ by means of its own weight is rendered certain by means of the cam-surface D¹⁴, which is carried over the pin B⁵ by the continued rotation of the shell D.

The hub D⁸ is provided with the teeth D¹⁵, arranged to engage the links of a chain in the usual and well-known manner of constructing sprocket-wheels. Similar sprocket-wheels E E are mounted upon studs in suitable position to be reached at the sides of the car and in substantially the same horizontal plane as the draw-bar, and a similar sprocket-wheel E' is mounted in like manner at the top of the car. An endless chain F passes over the hub D⁸, beneath the two sprocket-wheels E E and over the sprocket-wheel E'. Each of the sprocket-wheels E E and E' are provided with hand-wheels G, by which either of the sprocket-wheels can be rotated, causing the corresponding rotation of the shell D through three-quarters of a revolution in the operation of uncoupling the car.

The normal position of the several parts when the car is coupled is shown in Figs. 3 and 4, and the operation of uncoupling the car is as follows: By means of either of the hand-wheels G and connected sprocket-wheels and chain F the shell D is turned three-quarters of a revolution in the direction of the arrow 1, carrying the cams D⁷ beneath the ends of the pin D⁵, raising the pin B³, and releasing the link B², at the same time carrying the cam D¹⁰ over the tongue C³ and forcing the pin C' downward, so that its lower end C⁴ will project below the draw-bar B and be engaged by the shoulder D¹¹, thereby checking the rotation of the shell D and bringing the weighted side D¹³ into the same horizontal plane as the axis of the shell, so that the gravity of the weighted side will serve to complete the rotation of the

shell upon its release by the pin C'. Whenever a link is forced into the draw-bar by an approaching car, the advancing end of the link, striking against the cam-surface C² upon the pin C', will cause the pin C' to be raised, releasing the shell D and allowing the weighted side D¹³ to fall into its normal position, as represented in Fig. 4, completing the rotation of the shell and causing the pin B³ to fall through the link, again coupling the car. In order to raise the free end of the link B² as held in the draw-bar by the pin B³ in order to allow the link to enter within the mouth of an opposing draw-bar, I employ a sliding T-shaped bar H, (represented in Fig. 10,) the straight portion of the bar sliding through a mortise in the draw-bar and the cross-bar H' being brought beneath the link B². The bar H is bent at H² and H³, in order to leave an open space H⁴, Fig. 3, between the bar and the face of the shell D. One-half of the shell D (represented in Fig. 7) is provided with a hole I, and the inner side of the shell is provided with a semicircular recess I' to receive the prong J, extending from the stud J' upon the under side of the pawl J². The pawl, after its stud J' and spur J have been inserted through the hole I, is turned one-half a revolution, bringing the pawl J² into the position represented in Fig. 2, with the spur J resting against the side of the chamber I'. If the shell D is rotated in the direction of the arrow 2, the tip of the pawl J² will be carried beneath the bent end H³ of the bar H, raising the bar and bringing the cross-piece H' against the link B², thereby raising the free end of the link. As soon as the free end of the link has entered the opposing draw-bar the shell D is released, and the weighted side D¹³ will cause the shell to assume its normal position, as represented in Fig. 2. When the shell D is rotated in the direction of the arrow 1 for the purpose of uncoupling the car, the pointed end J⁴ will enter the open space H⁴ between the sliding bar and the face of the shell, the tip J³ of the pawl being slightly raised as it passes through the opening H⁴ without raising the bar H.

My improved mechanism for uncoupling cars, as herein described, includes the use of the ordinary link now used in coupling and the retaining-pin, together with the flaring-mouthed draw-bar connected with the car in the usual and well-known manner, and the uncoupling or drawing of the link-pin is effected by the action of the rotating cam, preferably journaled upon the draw-bar itself, as illustrated in the accompanying drawings. I do not confine myself, however, to the precise construction and arrangement of the several parts composing my improved coupling mechanism; neither does the use of a rotating cam depend in its operation upon the specific construction shown of the latching mechanism, by which the rotation of the cam is checked and released. One half of the shell D is provided upon one side with a projecting lug D²,

provided with a notch *a*, and the opposite half of the shell D is provided with a lug having a spur arranged to enter the notch *a* and lock the two halves of the shell together upon their lower sides.

The elastic bent bar D⁵ represented in Fig. 11 is employed to clamp the two halves of the shell together at their upper side by inclosing the lugs D⁴; but I do not confine myself to any particular method of attaching the two halves of the shell together.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a draw-bar adapted to receive a link, of a link-pin held in said draw-bar and arranged to engage said link, and a rotating head consisting of a shell provided with a cam, by which said pin is raised to disengage the link, substantially as described.

2. The combination of a draw-bar adapted to receive a link, a pin held in said draw-bar, a rotating cam turning about said draw-bar and engaging said pin to raise the same, and guides extending from said draw-bar to guide said pin as it is raised by said cam, substantially as described.

3. The combination, with a draw-bar adapted to receive a link, of a pin sliding in said draw-bar and engaging the link, a pin held in said link-pin and transversely thereto, and a cam rotating about said draw-bar and engaging said transverse pin to raise said link-pin, substantially as described.

4. The combination, with a draw-bar adapted to receive a link, of a link-pin held in said draw-bar, and a cam rotating around said draw-bar and engaging said link-pin to raise the same, said cam being weighted upon one side to hold it in position, substantially as described.

5. The combination, with a draw-bar adapted to receive a link, of a rotating head comprising a shell having a cam-surface by which the link-pin is raised by a partial rotation of said head, and having a cam-surface by which the link-pin is lowered to engage the link as the rotation of said head is completed, and a link-pin held in said draw-bar and operated by said cams, substantially as described.

6. The combination, with a draw-bar adapted to receive a link, a sliding link-pin by which the link is engaged, and a cam rotating around said draw-bar, by which said link-pin is raised to disengage the link, said rotating cam having a projecting shoulder, of a sliding latch-pin held in said draw-bar and arranged to engage said projecting shoulder and check the rotation of the pin-lifting-cam when the link-pin is raised, substantially as described.

7. The combination, with a draw-bar adapted to receive a link, and a sliding link-pin held in said draw-bar, of a rotating head consisting of a shoulder provided with a cam-surface by which said link-pin is raised, a projecting shoulder to be engaged by a sliding latch-pin, and a cam-surface by which said

sliding latch-pin is pushed into the path of said projecting shoulder, and a sliding latch-pin held in said draw-bar, by which the rotation of said shell is checked when the link-pin is raised, substantially as described.

8. The combination, with a draw-bar adapted to receive a link, and a sliding link-pin held in said draw-bar, of a rotating shell provided with a cam-surface by which said link-pin is raised, a projecting shoulder to be engaged by a sliding latch-pin, a cam-surface actuating said latch-pin, and a sliding latch-pin held in said draw-bar, whereby the rotation of said shell is checked when the link-pin is raised, said rotating shell being provided with a weighted side, by which the rotation of the shell is completed when the latch-pin is disengaged, substantially as described.

9. The combination, with a draw-bar adapted to receive a link and carrying a sliding link-pin, of a rotating shell having a cam-surface by which said link-pin is raised, a sliding latch-pin held in said draw-bar and arranged to engage said rotating shell for the purpose of checking its rotation when the link-pin is raised, said sliding latch-pin being provided with a projecting cam-surface arranged to be struck by a link entering said draw-bar, whereby said latch-pin is raised and the rotating shell disengaged, substantially as described.

10. The combination, with a draw-bar adapted to receive a link, of a sliding link-pin held in said draw-bar, a rotating cam rotating about said draw-bar and engaging said link-pin for the purpose of raising the same and disengaging the link, a sprocket-wheel attached to said rotating cam, corresponding sprocket-wheels journaled at the sides and top of the car, and a flexible connection between said sprocket-wheel attached to said rotating cam and the sprocket-wheels at the sides and top of the car, substantially as described.

11. The combination, with a draw-bar adapted to receive a link, and a link-pin held in said draw-bar, of a rotating head rotating about said draw-bar and consisting of a shell formed in halves, said halves being divided upon a plane parallel with the axis of said rotating head, and said rotating head being provided with a cam-surface arranged to engage said link-pin and raise the same, substantially as described.

12. The combination, with a draw-bar adapted to receive a link, and a sliding link-pin held in said draw-bar, of a rotating head consisting of a shell D, composed of halves united upon one side by interlocking lugs D² D³, upon the opposite side by the lugs D⁴, and elastic clamping-pin D⁵, said rotating head being provided with a cam-surface by which said link-pin is raised, substantially as described.

13. The combination, with a draw-bar adapted to receive a link, of a sliding T-shaped bar held in said draw-bar, by which the link is raised, a rotating head journaled upon said draw-bar, and a pawl J², carried by said rotating

head and arranged to lift said sliding bar as the rotating head is revolved, and thereby raise the free end of the link, substantially as described.

- 5 14. The combination, with a draw-bar adapted to receive a link, of a sliding bar H, held in said draw-bar and arranged by its sliding motion to raise the free end of the link, a rotating head journaled upon said draw-bar,
10 and pivoted pawl carried by said rotating head, said pawl being arranged when the head is rotated in one direction to raise said sliding bar and lift the free end of the link, and when the head is rotated in the opposite di-
15 rection arranged to pass said sliding bar without engaging the same, substantially as described.

15. The combination, with a draw-bar adapted to receive a link, of a link-pin held in said draw-bar, a rotating head consisting of a shell 20 D, a sliding bar arranged to raise the free end of the link, a pawl J², provided with a stud J', a projecting spur J, said shell D being provided with an opening to receive said stud, and a spur by which said pawl is pivoted 25 upon said shell, substantially as described.

Dated the 17th day of January, 1891.

PETER BREKKE.

Witnesses:

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P. LOBBEN.