

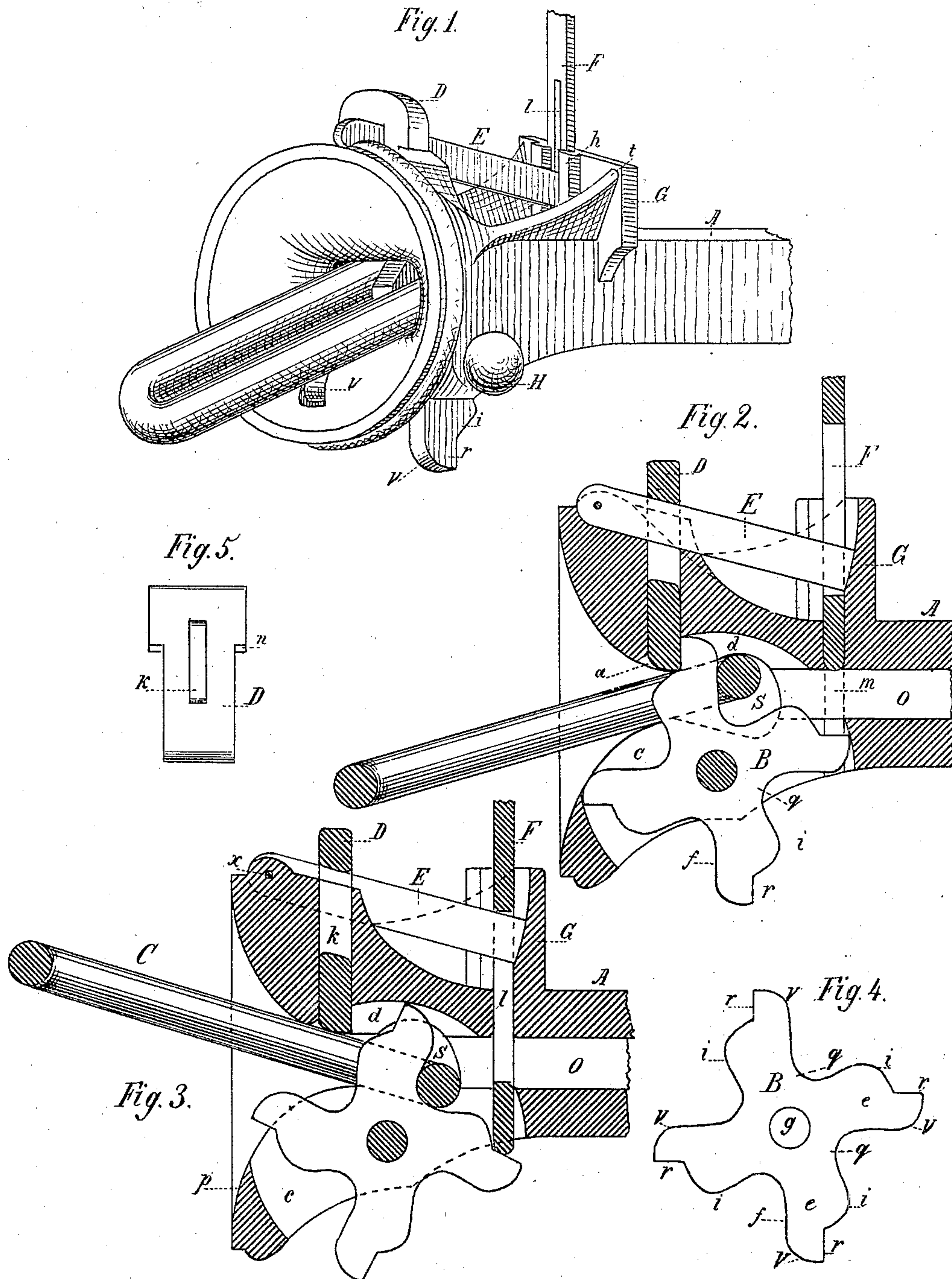
(No Model.)

2 Sheets—Sheet 1.

R. POWELL.
CAR COUPLING.

No. 283,920.

Patented Aug. 28, 1883.



Witnesses:
Deshler & Benson.
J. H. Kennedy

Inventor:
Robert Powell

(No Model.)

2 Sheets—Sheet 2.

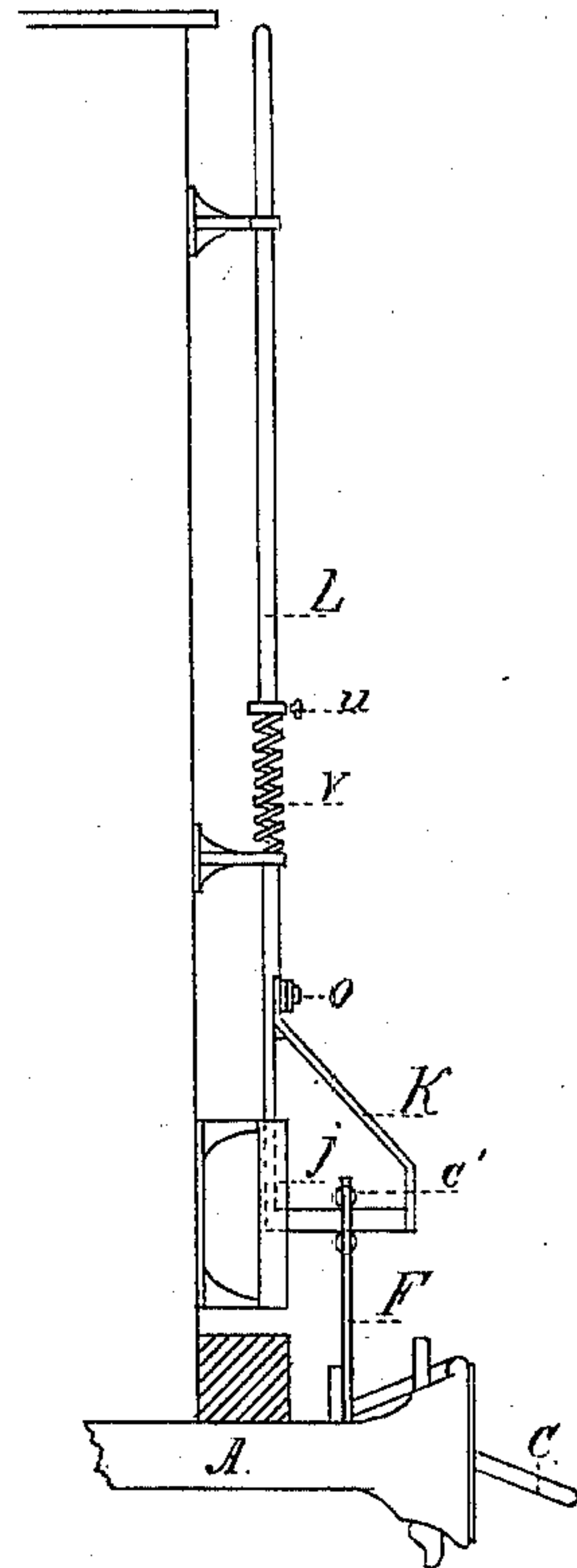
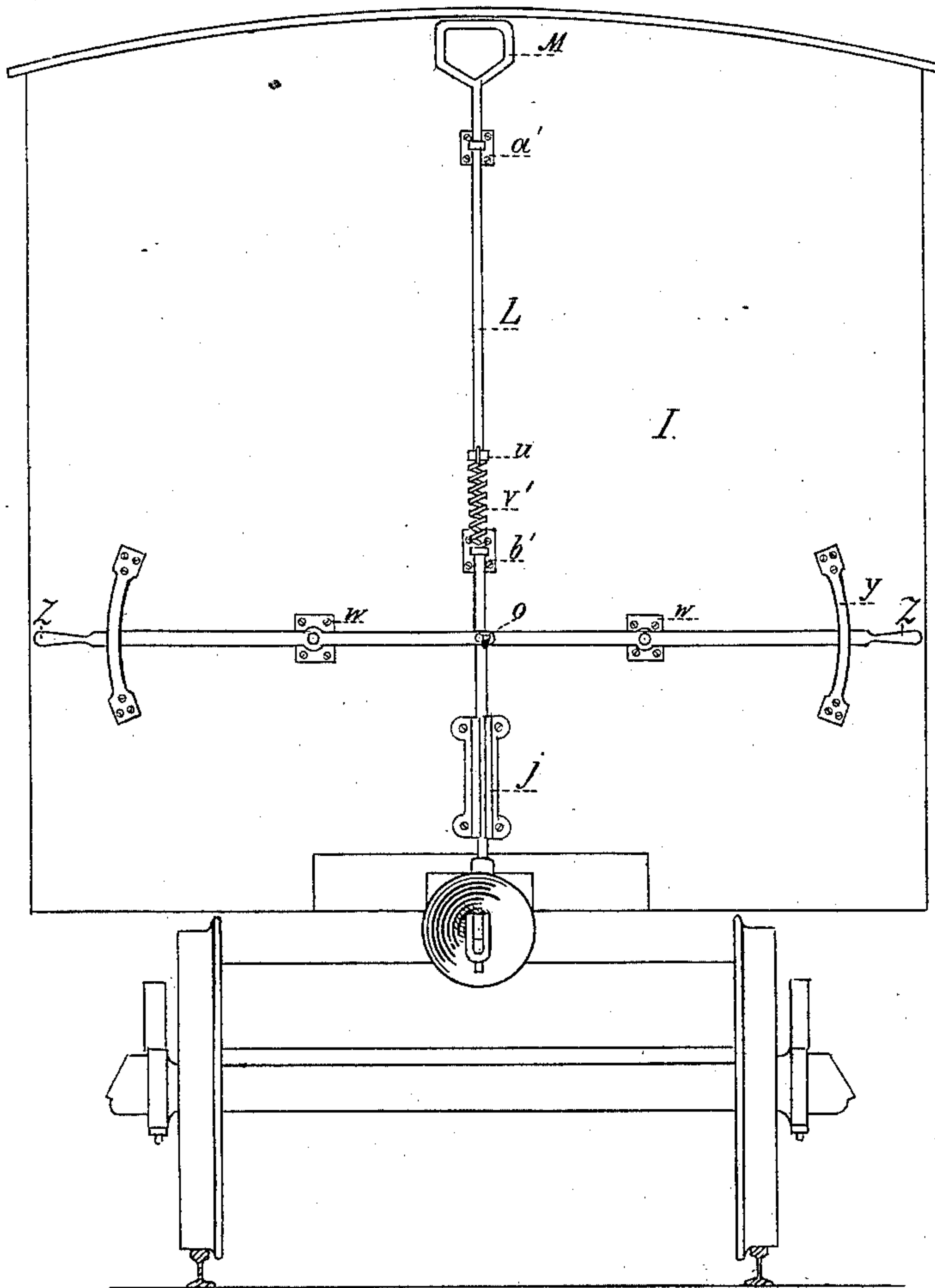
R. POWELL.
CAR COUPLING.

No. 283,920.

Patented Aug. 28, 1883.

Fig. 6.

Fig. 7.



Witnesses:
Decker & Broom,
J. H. Kennedy

Inventor:
Robert Powell

UNITED STATES PATENT OFFICE.

ROBERT POWELL, OF KANSAS CITY, MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 283,920, dated August 28, 1882.

Application filed August 12, 1882. (No model.)

To all whom it may concern:

Be it known that I, ROBERT POWELL, of Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Improvement in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to construct an automatic device for coupling and uncoupling railroad-cars; and it consists in the novel combination and arrangement of parts herein-after fully described, and specifically pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the draw-head and coupling devices. Fig. 2 is a sectional side elevation of the same, showing the devices in a coupled position. Fig. 3 is a similar view of the devices as seen in Fig. 2 when acting to elevate the shackle. Fig. 4 is a side view of the rotary cam-wheel. Fig. 5 is a front view of the catch-bolt. Fig. 6 is an end elevation of a car, showing the devices by which the coupling and uncoupling are effected from the top or sides of the same. Fig. 7 is a sectional side view of the same.

A represents the draw-head of a car, having inclines *p*, slots *c* and *O*, recesses *d* and *s*, and vertical openings *a* and *m*.

B is a rotary cam-wheel, having arms *e*, cams *i*, curved ends *v*, rabbets *r*, direct extension *f*, and curved declension *q*, and is perforated at *g* to receive a cross-bolt, H, upon which bolt the wheel rotates in the draw-head.

C is a common shackle.

D is a vertical catch-bolt, having shoulders *n* and slot *k*.

E is a horizontal lever, pivoted at *x* to the draw-head and passing through slot *k* of the catch-bolt D and slot *l* of lifting-bar F.

F is a vertical lifting-bar, having slot *l*, and moving in an opening, *m*, in the draw-head.

G is a buffer-head on the draw-bar, and has attached thereto oblique flanges *t*.

H is a cross-bolt passing through the draw-head and also perforation *g* of the rotary cam-wheel, by which the latter is held in place.

L is a self-adjusting lifting-lever connected

with the coupling devices, located upon the end of the car I, and having handle M, spring *v'*, the adjustable collar *u* regulating the tension of said spring, and is secured to the car by slotted brackets *a'*, *b'*, and *j*.

K is an angular extension of lever L.

Z Z are horizontal levers in guides *y* on the end of car, and are fulcrumed at *w* to operate the lever L, to which it is movably attached by pivot *o*.

In the construction of my invention I form in the draw-head of a car a suitable longitudinal slot, *c*, extending from an operative point in rear of the opening, and in the lower part of the draw-head, and also part way, as shown at *d*, in the upper portion of the draw-head, and as far back as is necessary to admit of the reception of the coupling devices. Within this slot and midway in the draw-head is inserted a peculiarly-constructed cam-wheel, B, which is held within the slot by a pin or bolt passing transversely through it and the draw-head, upon which it is freely rotated. Passing through at right angles the end of the bolt H is a pin or spline, (not shown in the drawings,) to secure the bolt from accidental removal.

Cam-wheel B is constructed with a number of arms, *e e*, which arms project from and are arranged eccentrically upon the axis of the wheel, to lessen the distance between the corresponding bearings in opposite draw-heads. The arms *e e* are severally provided on the surfaces presented to an entering shackle in the draw-head with the cam projections *i*, which projections may be varied in form and accomplish the same results.

At the end of each arm, contiguous with the cam *i*, is formed a rabbet, *r*, to meet the face of a catch-bolt, D, in the draw-head. Upon the opposite ends of the several arms *e e*, and to the rabbets *r*, a curved or beveled inclination is given to the same, which meets the direct extension *f* of said arms. The direct extension *f*, in its approach to the center of the wheel, meets a curved declension, *q*, which latter receives the shackle when coupled.

Near the outer portion of the draw-head, slightly beyond the beveled opening *p*, is a vertical opening, *a*, extending through the upper portion of the draw-head, and which receives

a catch-bolt, D. This bolt D is provided with shoulders $n\ n$, restricting its extension beyond a certain point in the draw-head, or so far within the longitudinal opening as to lock one of the arms of the wheel. Catch-bolt D is also
 5 slotted at k to receive a lever, E, which is pivoted on the draw-head at x , and outwardly a sufficient distance to obtain the necessary leverage, and then passes transversely through
 10 slot k and also through a slot, l , in the elevating-bar F.

In rear of the catch-bolt D a vertical opening, m , is provided, extending through the draw-head and into the longitudinal slot O, to
 15 receive an elevating-bar, F. Bar F has an extended slot, l , arranged in the same vertical relation, through which it is enabled to be extended into slot c , below the longitudinal slot O, a sufficient distance to rest upon one of the
 20 rabbets r upon an arm of the wheel, depressing the arm and thereby the arm in rear, so as to incline the latter arm against and draw down one end of the shackle C when said shackle is inserted.

25 A suitably-shaped recess is made in the sides of the draw-head between the vertical openings a and m , to permit the shackle C to be elevated or depressed within the limits of the opening in the draw-head.

30 In rear of the elevating-bar F is the buffer-head G, which is strengthened by oblique flanges t on the draw-head, and supports a guide, h , which latter receives and holds the elevating-bar in place.

35 Independently connected with the elevating-bar F on the car is a self-adjusting lifting-lever, L, having upon its lower end an angular extension, K, which supports the elevated bar F and permits the lateral movements of
 40 the draw-bar without affecting the vertical relations of said bar with the lifting-levers on the car. Elevating-bar F is provided with one or more friction-rollers, c' , arranged in a slot in the upper part of the same, and which
 45 rest upon the extension K of the lifting-lever L.

A spring, v' , is arranged upon the guide-plate b' , and above said spring, on the lever L, is an adjustable collar, u , by which collar the
 50 tension of the spring is regulated.

Across the end of the car, in guides $y\ y$, are arranged the levers $z\ z$, by which the uncoupling may be effected from the ground.

In the operation of my devices, a shackle, 55 when inserted in the draw-head, will at once meet one of the cams upon an arm of the wheel, and in so acting will depress the arm rearward and below the plane of the longitudinal slot O. At the same time the arm in rear has followed the arm depressed to nearly a
 60 vertical position and met the catch-bolt, above which it instantly rises, the bolt falling in rear of the arm and automatically locking the same. By this arrangement of my cam-wheel the
 65 coupling is insured at whatever angle the shackle may be inserted in the draw-head; nor are they required to be set upon the approach

of a car, but are ready to be coupled without regard to the position taken in uncoupling, thus obviating the necessity of constant inspection to ascertain the relation of the coupling parts. For the purpose of adapting the shackle to meet the varying heights of draw-heads, it is inserted and held in play by the oblong recess in the vertical sides of the draw-head, so that when the elevating-bar is depressed, either from the top or side of the car, the slot in the elevating-bar permits it to pass the lever operating the catch-bolt and impinge directly upon the end of the rear arm of the wheel, depressing it below the opening in the draw-head and causing the vertical arm, which holds the shackle in position, to act upon said shackle, first slightly backward, and then, drawing the same downward, elevating the outward portion of the shackle to any desired angle.

In the making up of trains in the yard or elsewhere, when it is desired that the car shall not couple, the lifting devices are operated to raise the catch-bolt, and are held in that position by any suitable retaining device on the car. When so arranged, a shackle attached to other draw-heads may come in contact with my devices without coupling. Upon the release of the levers they will adjust themselves in a neutral position. In coupling the lengthened slot in the catch-bolt permits the bolt to be elevated by the arms of the wheel without imparting any action to the levers or lifting devices. When the self-adjusting lifting-lever is depressed to act upon the shackle in the draw-head, the spring upon said lever acts to adjust the lever in the proper position; but when the lifting devices are so arranged as to lift the catch-bolt, they will, upon release, at once adjust themselves to their former position by their own weight, and be held therein by the adjustable collar, which comes in contact with the spring.

Having fully described my invention, what I now claim, and desire to secure by Letters Patent, is—

1. In combination with the draw-head of a car, an automatic coupling device consisting of a wheel and arms arranged eccentrically upon the axis of the wheel and to each other, and adapted to rotate upon suitable bearings in the draw-head, for the purpose described.

2. In combination with the draw-head of a car, provided with a vertical longitudinal slot, and a wheel adapted to rotate upon suitable bearings within said slot, the arms arranged eccentrically upon the axis of the wheel and to each other, and provided with cam projections, as and for the purpose described.

3. In combination with the draw-head of a car, provided with a vertical slot therein, a catch-bolt having a longitudinal slot and a horizontal bar attached to the draw-head, and passing transversely through said slot in the catch-bolt, as described.

4. In combination with the draw-head of a car, provided with a rotary coupling device,

having arms so arranged within the draw-head that they will engage with and lock the shackle, a bar extending vertically in suitable slots into the draw-head, and adapted to engage with
5 and depress an arm of said rotary device, as shown and described.

5. In combination with the vertical catch-bolt in the draw-head and a horizontal lever connected with said bolt, a lifting and depress-
10 ing bar having a longitudinal slot therein, and arranged to operate as shown and described.

6. In combination with the vertical lifting and depressing bar arranged in suitable slots in the draw-head, and provided with one or more friction-rollers, the lifting devices ar- 15
ranged upon the car, and provided with a horizontal extension or slide, as shown and described.

ROBERT POWELL.

Witnesses:

DESHLER BEESON,
T. H. KENNEDY.