(No Model.) 2 Sheets—Sheet 1.

W. H. BUSH.

CAR COUPLING.

No. 497,859. Patented May 23, 1893.

Fig. 1.

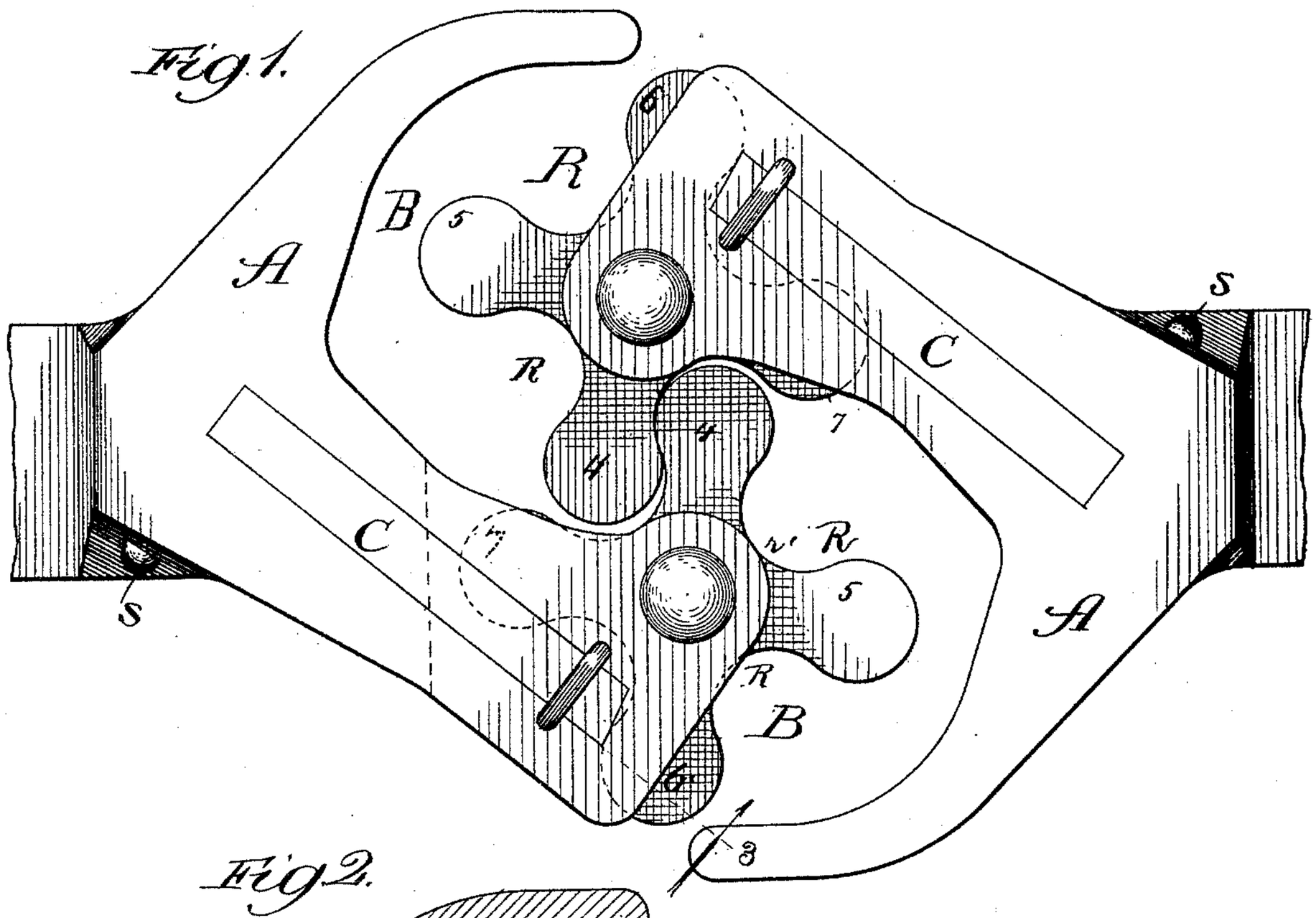
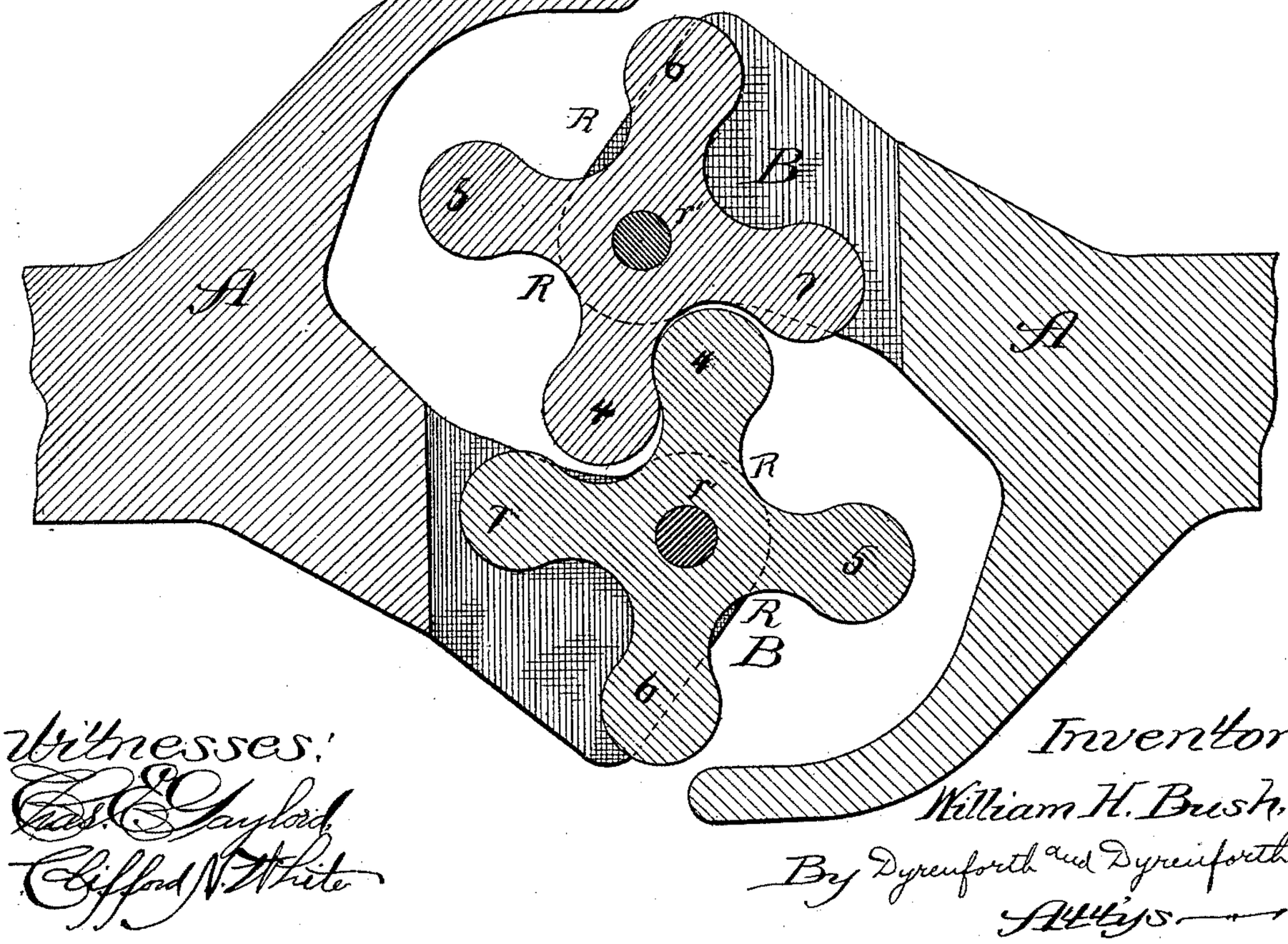


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

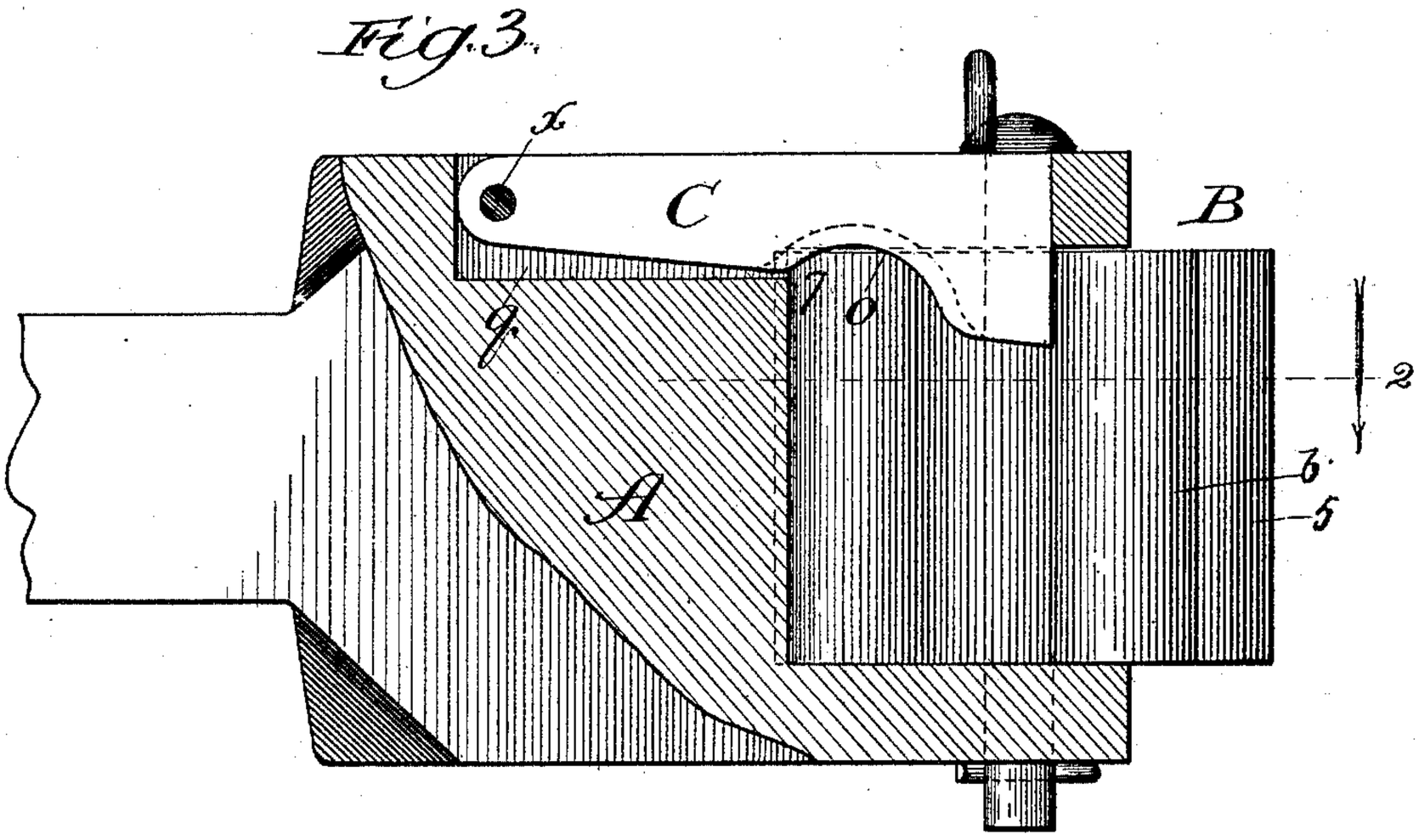
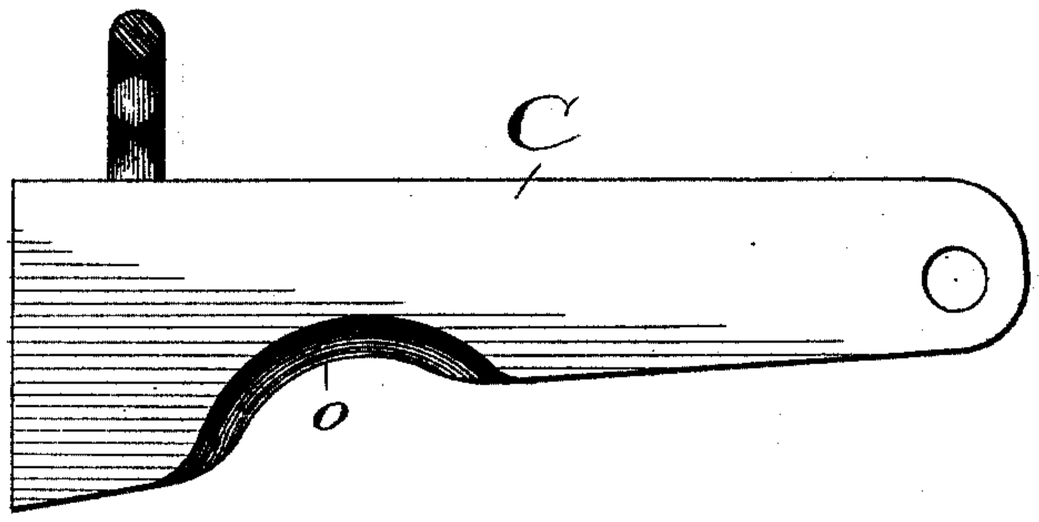


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BUSH, OF TEXARKANA, ARKANSAS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 497,859, dated May 23, 1893.

Application filed June 28, 1892. Serial No. 438,300. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BUSH, a citizen of the United States, residing at Texarkana, in the county of Miller and State of Arkansas, have invented new and useful Improvements in Car-Couplers, of which the following is a specification.

This invention has relation to that class of car couplers in which the jaws are revoluble, and have arms, of which latter those of one jaw are designed to engage those of the jaw of the co-operating coupler: and the invention consists in certain peculiarities in the construction, arrangement and combination of the several parts substantially as hereinafter described and particularly pointed out in the subjoined claims.

The object of my invention is to provide a coupler of the class stated in which the couplers will not interfere with the approach of one car toward another in the stopping or slacking of the speed of the train and at other times while at the same time such approaching movement of the cars will not cause the arms of the couplers to be disengaged and will not result in a shock to the jaws when the cars assume their normal position. This object is accomplished by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a broken plan view showing the engaging parts of two companion couplers of my improved construction, as coupled together. Fig. 2 is a horizontal section of the same, taken below the plane of the locking devices at the line 2 on Fig. 3 and viewed in the direction of the arrow. Fig. 3 is a section taken at the line 3 on Fig. 1, and viewed in the direction of the arrow, and Fig 4 is a detail side elevation of the pivoted locking bolt for the coupler.

A is the expanded end or head of the coupler, in the form of which should be observed the accepted or standard so-called master car builders' lines.

B designates a jaw pivotally supported, in any suitable manner that will adapt it to rotate on its axis, on the head A. This jaw is formed of an oblong cylindrical block cut, in more or less of a wave line, to form the radially projecting arms 4, 5, 6 and 7, each having an enlarged outer end, and the recesses or cavities R, said recesses extending into the part of the central or hub portion r' of the jaw between said arms and also into the sides of said arms a suitable distance. As clearly shown in Figs 1 and 2 of the drawings, when the jaws of the co-operating couplers are engaged and the cars thereby coupled, the headed end of an arm of each jaw will be received by one of the cavities or recesses in the other jaw and will lie between two arms thereof. This construction of the jaw is of greatest importance, and, in fact, is necessary to a practical coupler employing revoluble jaws, as will hereinafter appear.

C is a lock, which consists of a flat bar set into a recess in the top of the head A at the sides thereof carrying the rotary jaw and extending at a suitable angle to the plane of rotation of the jaw, the bar being pivoted, as at x, near its rear end and expanded toward its forward extremity and there protruding normally at its under side, through a slot p in the base of the forward portion of the recess q, and there presenting its extremity to the back of each arm brought in front of it, and thereby obstructing the backward rotation of the jaw.

In the under side of the lock bar, back of the abutting end, is a concave recess o beveled along its lateral edge presented to and engaged by the arms of the jaw in rotating in the forward direction to present an inclined surface to the same and enable them readily to pass under the lock by lifting it when they come in contact with it. It will be observed that this bar C operates vertically and under the action of gravity in locking the jaw against rearward movement.

From the foregoing description of the construction of my improved coupler, the operation thereof will be readily understood to be the following:

One arm of each coupler extends normally at a proper angle across the open forward end of the coupler head in position to be met at its side presentation by the end of the corresponding arm of the jaw of a companion coupler. Then when two couplers are brought together they will, by the eccentric pressure exerted on each by the other, mutually rotate one another until two arms, one on each of the couplers, mutually overlap, and the lock of each coupler, meantime raised by the passage under it of an arm, will, when said arm

clears it, drop behind the same and thus obstruct backward turning of the jaw, thereby causing the mutually overlapping and interlocked arms to positively resist the strain of draft. To permit uncoupling it is only necessary to raise the lock C of one coupler, which permits its rotary jaw to rotate backward and thus permit one coupler to be withdrawn from the other.

As is well known, the cars of a train are almost constantly changing their relative positions. In all previous constructions of car couplers wherein revoluble jaws are employed the construction and arrangement of the jaws has been such that when one of the cars approach the other, the jaw of the approaching car moves away from and out of contact with the other and is disengaged therefrom until the said car again assumes its proper relative distance from the other, and in assuming said proper position the arm of the coupler strikes the arm of the companion coupler with more or less force, thus weakening the latter, and in a comparatively short time entirely destroying it, thereby making said couplers unreliable and impractical. This objection is obviated by my improved construction in which, as above stated, the enlarged ends of the arms, as 4, of the respective jaws are received by cavities or recesses in the other and lies between two arms, as 4 and 7 thereof, so that when one of the cars approaches the other, the arm 4 of the coupler carried thereby will be moved out of engagement with the arm 4 of the companion coupler but the arm 7 will immediately be brought into engagement therewith, and if such approaching movement is continued the jaw of the coupler on said car will be rotated until such movement of one car toward the other ceases, and during the return of said car to its proper distance with respect to the other car, the coupling jaws automatically assume their original position, without receiving any shock, the one from the other, as will be readily understood. It will thus be seen that the jaws are rotatable not only during the coupling of the cars but upon changes of the relative positions of the cars when coupled, and that when the cars are coupled the arms of the couplers are always engaged with each other, whereby the coupler is made reliable, and is durable.

The construction of the lock C, that is with a laterally beveled under portion engaged with the arm of the jaw and operating vertically and by gravity in locking, is important, because it prevents backward rotation of the jaw when in its lowermost position and engaged at its forward end with an arm thereof, and yet will not bar forward rotation of the jaw either in coupling or when the jaw is to be rotated to an extent corresponding with the amount of approach of one car toward the other, as it will automatically be raised by the forward rotation of the jaw, as above explained.

I prefer to form each of the jaws B with four radial arms, but this number may be changed without departing from the spirit of my invention, and I therefore do not wish to be understood as limiting myself to the precise number of arms shown in the drawings.

Having now described my invention, I claim—

1. A car coupler having a revoluble jaw provided with radially projecting arms having enlarged outer ends, and cavities or recesses between said arms and extending partly into the same at the sides thereof, said arms being so located that when the co-operating couplers are engaged the headed end of an arm of each will be received by a recess of the other and lie between two arms thereof, as specified, whereby the jaws of the co-operating couplers will be rotatable the one by the other both in coupling and by changes in the relative location of the cars when coupled.

2. The combination, in a car coupler, of the head A, a jaw revolubly mounted therein and having projecting arms, and a vertically-movable gravity lock, pivoted at one end in said head and expanded toward its opposite end, said lock extending at an angle to the plane of rotation of the jaw, and having its enlarged end located in the path of the arms of said jaw and formed on its under side with a concave recess beveled along its lateral edge, said expanded end of the lock being engaged with one side of one arm and said recessed and beveled portion being engaged with another of the arms, when two couplers are engaged, substantially as described and for the purposes specified.

3. The combination, in a car coupler, of the head A, a jaw revolubly mounted in said head, said jaw having radially projecting arms formed with enlarged outer ends and also having cavities or recesses located between said arms and extending partly into the same at the sides thereof, said arms being so located that when two couplers are engaged with each other the headed end of an arm of each will be received by a recess of the other and lie between two arms thereof, and a vertically-movable gravity lock pivoted at one end in said head and expanded toward its opposite end, said lock extending at an angle to the plane of rotation of the jaw and having its enlarged end located in the path of said arms so as to bar backward rotation thereof, the under side of said enlarged portion of the lock having a concave recess beveled along its lateral edge and engaged with an arm of the jaw when two companion couplers are coupled together, as described.

WILLIAM H. BUSH.

In presence of—
M. J. FROST,
J. N. HANSON.