

No. 720,058.

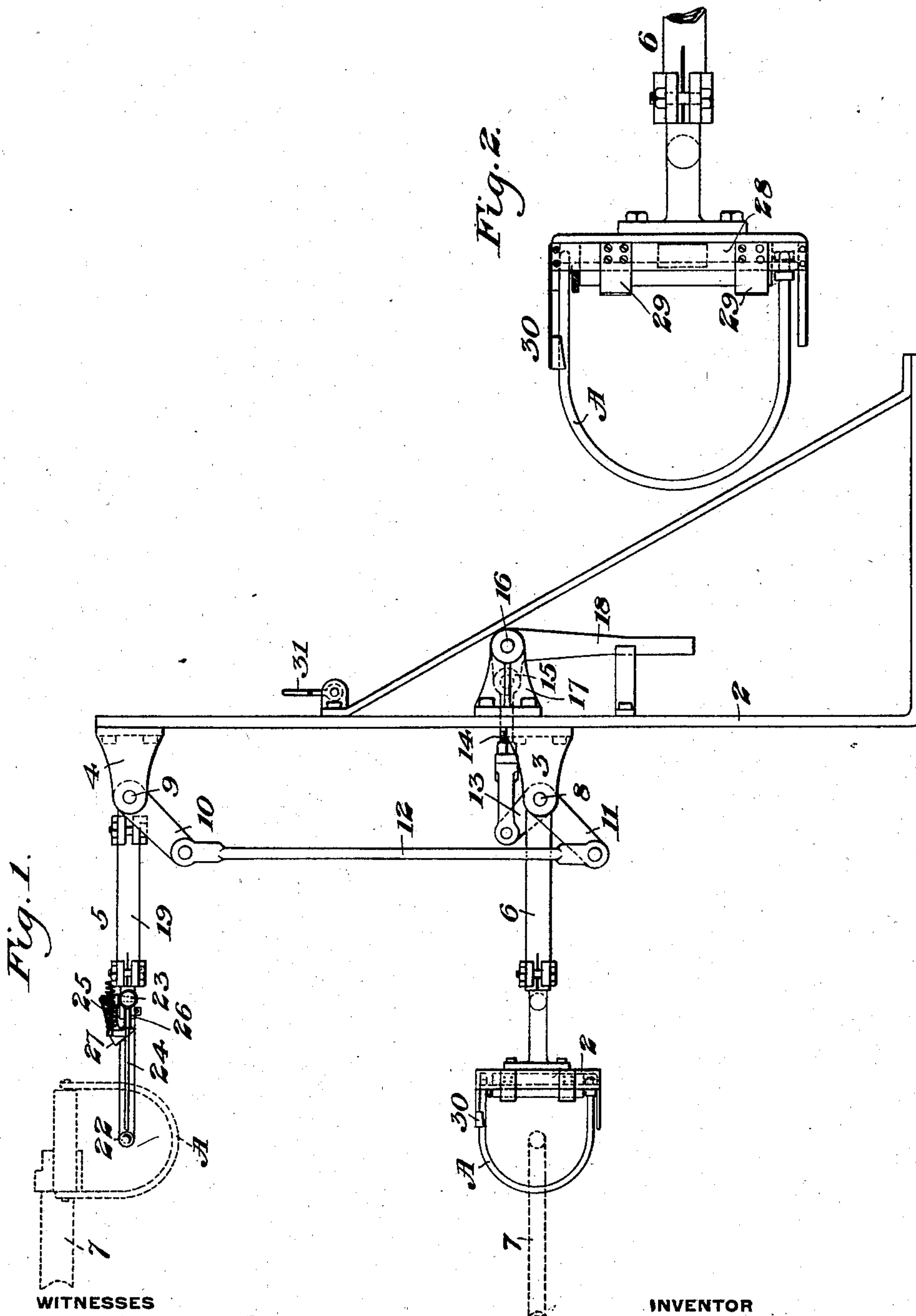
PATENTED FEB. 10, 1903.

T. H. PATENALL.  
CATCHING AND DELIVERING APPARATUS.

APPLICATION FILED APR. 18, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

*L. A. Pomeroy*  
*A. M. Steen,*

INVENTOR

*Thomas H. Patenall*  
*by James E. Patenall*  
*his Attorney*

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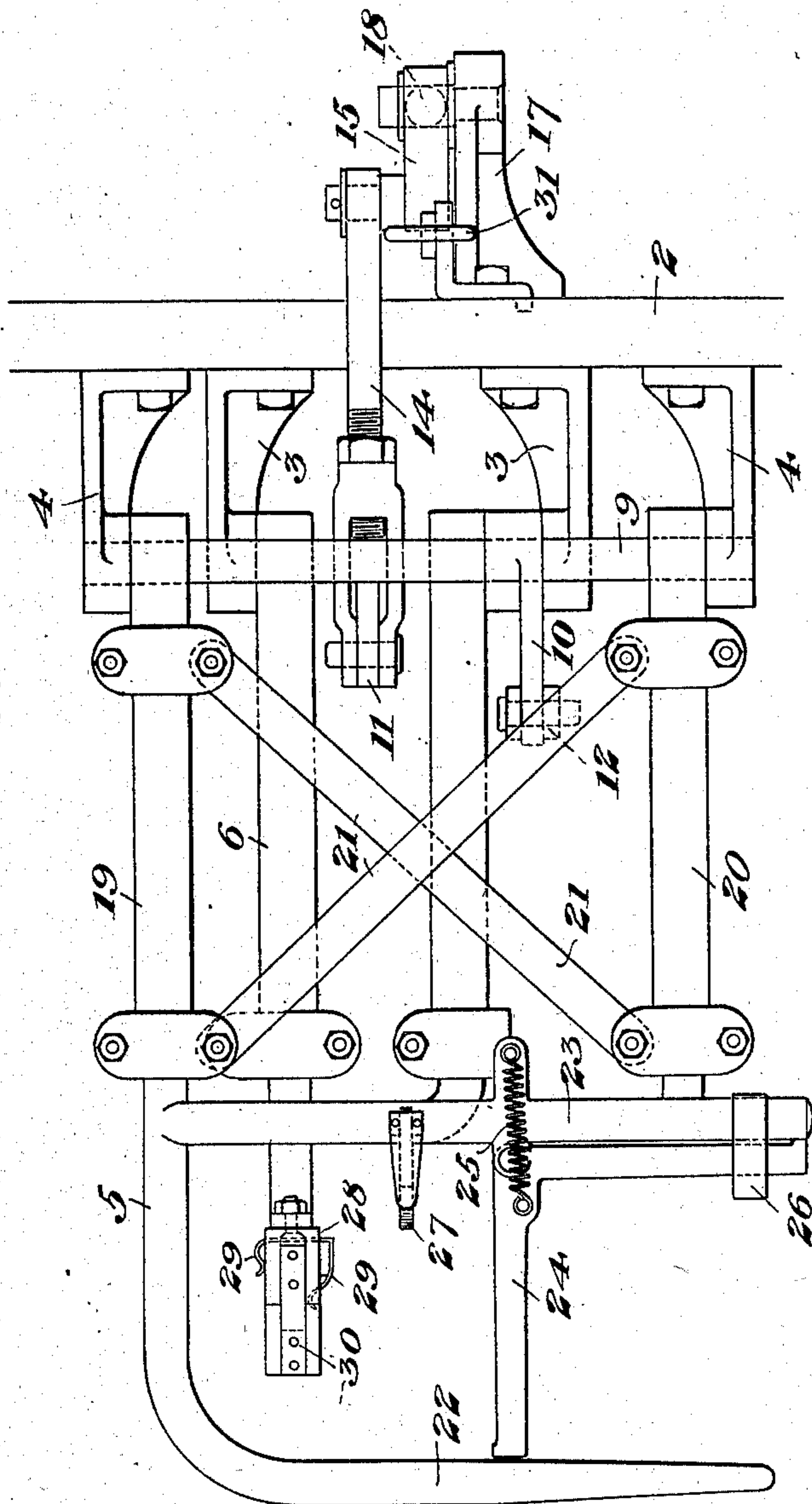
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2 SHEETS—SHEET 2.

Fig. 3.



WITNESSES

*L. A. Conner*  
*A. M. Steen*

INVENTOR

*Thomas H. Patenall*  
*by James H. Patenall*  
*his Attorney*



# UNITED STATES PATENT OFFICE.

THOMAS H. PATENALL, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO  
THE UNION SWITCH & SIGNAL COMPANY, OF SWISSVALE, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## CATCHING AND DELIVERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 720,058, dated February 10, 1903.

Application filed April 18, 1902. Serial No. 103,537. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS H. PATENALL, of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Train-Staff Catching and Delivering Apparatus, placed upon a locomotive or running train and used in connection with a high-speed-train staff system for the safe operation of single-track railroads, the following being a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing my improved catcher and deliverer in position to receive and deliver a ring, pouch, and staff to a suitable crane having catching and delivery arms. Fig. 2 is a detail side elevation of the delivering apparatus which I employ; and Fig. 3 is a top plan view of the parts on a larger scale than shown in Fig. 1.

My invention relates to apparatus for catching a ring, pouch, and staff from a staff-crane and the delivery of the same to said crane, and is designed to be used in connection with a high-speed-train staff system for the safe operation of single-track railroads, and is described in my copending application filed April 7, 1902, Serial No. 101,716, this system being that in which a staff is removed from a locking instrument and is given to the engineer, and so long as it is out of the instrument another staff cannot be taken out of the instrument to give authority to another train to occupy that section of track. This system is also one in which apparatus is used which enables the staff to be delivered to the engineer, in a staff-holding ring and pouch, which is made the subject of my copending application, Serial No. 103,536, filed April 18, 1902, and in a crane-holder located at block-stations for the purpose of holding the ring, pouch, and staff, so as to deliver it to a moving train, and a catching-arm upon the crane to receive the ring, pouch, and staff from a moving train. This device is made the subject of my copending application, Serial No. 103,538, filed April 18, 1902.

The object of my present invention is to provide effective means by which the ring, pouch, and staff may be received and delivered

by a moving train without loss of time and in a manner that shall insure reliability of action in service.

It consists in providing upon the engine-tank or some other suitable point catching and delivering arms, operated by suitable mechanism, so that they may readily be moved into operative position or be withdrawn from said position when not in use.

It further consists in devices for holding the ring, pouch, and staff in proper position for delivery by the moving train and other mechanism arranged to engage the ring, pouch, and staff held by the crane at the side of the track, and automatic means whereby recoil of the ring, pouch, and staff is checked and its retention is assured.

My invention further consists in certain features of construction and combination of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the drawings, 2 represents a standard or framework secured, preferably, to the tank of a locomotive, which is provided with lugs 3 and 4, to which are pivoted arms 5 and 6, the upper arm 5 being the one which catches the ring, pouch, and staff, and the lower arm 6 is employed to deliver it to the staff-crane 7 or other device arranged to receive it. The arms 5 and 6 are mounted on rock-shafts 8 9, which are provided with crank-arms 10 and 11, and these arms are connected by rod or link 12. Upon the lower shaft 8 is secured another crank-arm 13, connected by a rod or link 14 to a crank-arm 15 on the rock-shaft 16, which is mounted in a bearing 17, secured to the standard 2. A hand-lever 18 is also secured to the rock-shaft 16 and is operated to change the position of the arms 5 and 6 from horizontal to an elevated position. The arm 5 is constituted of two members 19 and 20, connected by suitable braces 21, the member 19 having its end 22 bent at right angles to the arm and shaped to engage the ring, pouch, and staff A, held by the staff-crane 7, when the arm 5 is in its horizontal position. An extension 23 of the arm 5 is provided with an angled lever 24, pivoted at 25 to the extension 23, and one arm of said lever is held in its normal position by knife-springs 26. The



other arm of this lever 24 closes the opening between the end 22 and the extension 23 of the arm 5. A spiral spring is also secured to this lever 24 and to the extension 23, and when engaged by a portion of the ring, pouch, and staff A, entering between the end 22 and extension 23, the angled lever is turned by it as the train passes the staff-crane which held the ring, pouch, and staff. A spring-pressed detent or latch 27, secured to the extension 23, is placed in such a position that it will engage one arm of the angled lever 24 when turned on its pivot through about ninety degrees. The arms 5 and 6 are preferably made telescopic, so as to provide for the necessary adjustments to bring the arms into proper position with respect to the staff-cranes or other devices with which they coact in carrying out the system.

The delivery-arm 6, which I have shown as the lower one, is provided with a ring, pouch, and staff-holding plate 28, to which are secured spring-clips 29, arranged to receive and retain the ring, pouch, and staff and hold it in the proper position for delivery. This position is maintained by a finger 30, which engages a portion of the ring. The spring-holders 29 and finger 30 offer practically no resistance to its release from the holding-arm 6. A ring 31 or other device engages the hand-lever 18 when it is thrown up and holds the arms 5 and 6 in an inoperative position.

The operation of my device from the foregoing description will be readily understood by those skilled in the art. The parts being placed in the positions shown in the drawings, the catching and delivering arms 5 and 6 are ready to receive a ring, pouch, and staff or to deliver it to other apparatus situated beside the track. The catching-arm picks up the ring, pouch, and staff as the train passes the device which holds it, the arm 22 passes through the ring, and the angled lever 24 automatically holds the ring on the catching-arm 6 and prevents its rebound. The delivery-arm of the apparatus yieldingly holds the ring, pouch, and staff, so that as the train passes a staff-crane station it is caught by the crane, the catching and delivering arms of the device acting without injury to the parts of the ring, pouch, and staff employed. These advantages arise from the simplicity and certainty of action and the fact that it offers no obstruction when not in use.

Many changes may be made by the skilled

mechanic without departing from the spirit and scope of my invention, since

I claim—

1. In a high-speed-train staff system for railways, the combination of a ring adapted to carry a staff, of a catching and delivering device mounted on the train, consisting of arms located in different planes adapted to receive and deliver said ring to devices placed at the side of the track in the path of said arms; substantially as described.

2. In a high-speed-train staff system for railways, the combination of a ring adapted to carry a staff, of a catching and delivering device mounted on the train, consisting of a support, arms located in different planes pivotally mounted on said support, and means for placing said arms in position to receive and deliver said ring to devices placed at the side of the track in the path of said arms; substantially as described.

3. In a high-speed-train staff system for railways, the combination of a support or holder, of a ring adapted to carry a pouch and staff held thereby, of a catching device mounted on the train, consisting of a support, an arm mounted on said support, said arm being provided with devices which engage and receive said ring from said holder, and automatic locking mechanism on said arms whereby the ring, pouch and staff are held against rebound; substantially as described.

4. In a high-speed-train staff system for railways, the combination of a ring adapted to carry a pouch and staff, of a catching and delivering device mounted on the train, consisting of vertically-movable catching and delivering arms, mechanism comprising levers and link connections whereby they are brought into operative or inoperative positions, said catching-arm having its end portion formed to engage a ring held in its path when in operative position, and devices mounted on said arm for automatically locking the ring upon said arm to prevent rebound, and said delivering-arm being provided with holders, which permit the easy removal of the ring held thereby, when engaged by the catching device in the path of the delivering-arm; substantially as described.

In testimony whereof I have hereunto set my hand.

THOMAS H. PATENALL.

Witnesses:

W. L. MCDANIEL,  
JNO. M. LINDSAY.