May 20, 1924.

1,494,696

J. G. MACLAREN

CARRIER SPACING DEVICE

Filed Sept. 30, 1920

Fig. 1,

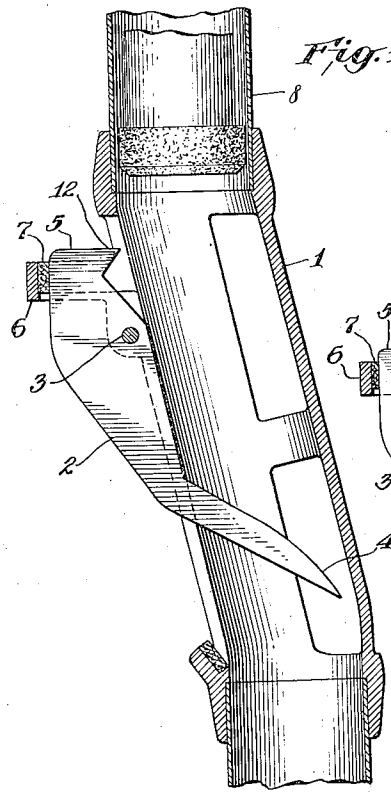
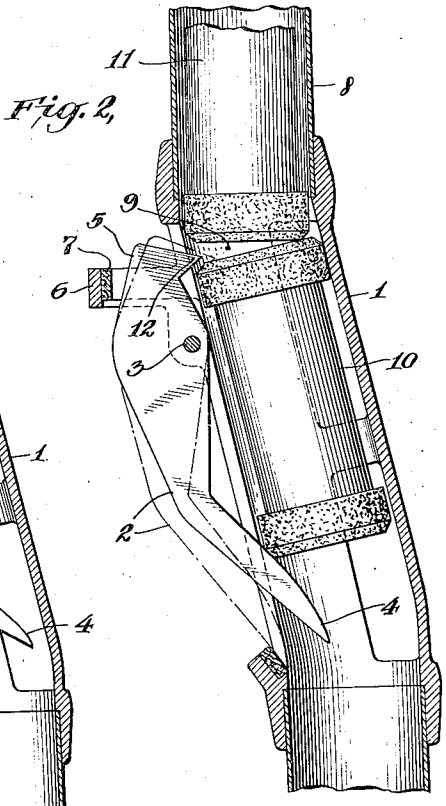


Fig. 2,



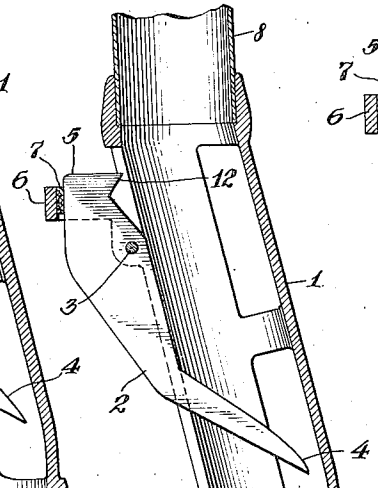
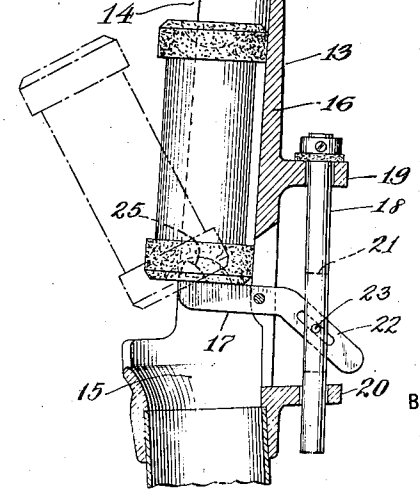


Fig. 3,



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UNITED STATES PATENT OFFICE.

JAMES G. MACLAREN, OF MAMARONECK, NEW YORK.

CARRIER-SPACING DEVICE.

Application filed September 30, 1920. Serial No. 413,694.

To all whom it may concern:

Be it known that I, JAMES G. MACLAREN, a citizen of the United States, residing at Mamaroneck, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Carrier-Spacing Devices, of which the following is a specification.

This invention relates to carrier spacing devices for use in pneumatic despatch apparatus.

In the operation of pneumatic despatch systems in which the carriers are delivered from a pneumatic tube into selector mechanism designed to separate the carriers into two or more classes, it has been found that the operation of the selector mechanism is seriously interfered with if the carriers enter the mechanism in uninterrupted contact with each other. The object of the invention is to provide a device for momentarily restricting the advance of all but the leading carrier as the carriers approach the delivery end of the tube, in order to insure that only one carrier at a time will enter the selector mechanism for the desired selecting operation.

The invention consists in mounting a short section of the despatch tube at an angle to the main axis of the tube in order to produce a gap between one side of the rearmost end of the leading carrier, as it enters the angular section, and the advancing end of the following carrier. A coacting spacer member is so mounted that the passage of the carrier causes a portion of the spacer member to enter the gap and check the movement of the following carriers, the spacing member being so mounted that the action of gravity will cause it to resume its normal position out of carrier restricting position when the passing carrier has moved out of engagement therewith.

In the drawing,

Fig. 1 is a vertical section of a spacing device embodying the invention and showing the spacing member in inoperative position.

Fig. 2 is a view similar to Fig. 1, in which the carrier spacing member is shown in operative position.

Fig. 3 is a vertical section of the spacing device shown in Fig. 1 mounted in cooperative relation to a preferred form of selecting mechanism.

Referring to the drawing, there is shown at 1 a housing or framework for my carrier spacing device in which is pivotally mounted the elongated lever member 2 which constitutes the carrier spacing member of the device. The spacing member 2 is pivotally mounted on the framework at 3 in a vertically extending opening in the side wall thereof and is normally held, by the action of gravity, with its tail portion 4 extending substantially across the bore of the tubular framework, as indicated in Fig. 1. The upper and relatively massive head portion 5 of the spacer member normally rests against the stop member 6, which is preferably provided with a cushioning pad 7 of leather or similar material.

It will be seen that the open framework in which the spacer member 3 operates is mounted at an angle to the axis of the vertical tube 8 from which the carriers are received. The effect of this is to divert the carriers entering the framework from the path of travel of the carriers moving downward in the tube 8, so that a gap is produced, as at 9 in Fig. 2, between the rearmost end of the carrier 10 in the framework 1 and the immediately contiguous following carrier 11 still in the tube 8.

The forward end of the carrier 10 in the spacer framework engages the tail portion 4 of the spacer member 2 and rocks the spacer about its pivotal point 3, so as to cause the projecting edge 12 to enter the gap 9 and obstruct the descent of the following carrier 11. The carrier 12 meanwhile continues its descent and enters the selector mechanism shown at 13 in Fig. 3, where the carrier is either directed to the left through the open side 14 of the tube or allowed to pass down through the lower end 15 of the selector tube, according to the formation of the end of the carrier.

When the carrier descending into the selector mechanism 13 passes and thereby releases the tail piece 4, the spacer member 2 swings back to the normal position shown in Fig. 1 through the action of gravity on the relatively massive head portion, as has already been explained, thereby releasing the next succeeding carrier 11, when the described operation is repeated. It will be clear that the passage of carriers independently into the selector mechanism insures the proper operation of the selector on each carrier and prevents the passage of a carrier downward through the tube because of the contact of its forward end with the car-

rier in advance and the consequent failure of the selector device to engage the carrier end and operate in the desired manner.

The selector mechanism 13 consists of the tube section 16 having an arm 17 pivoted in a wall thereof. The arm 17 is provided with an upwardly projecting lug 25 at its forward end which engages the surface of such carriers as are provided with flat ends and enters a depression in the ends of the other class of carriers. The arm 17 is weighted in any desired manner so that the end of the arm within the tube assumes a raised substantially horizontal position in the path of the descending carriers. While the weight might obviously form a part of the arm itself, which extends outside the tube wall, I have chosen to show the weight as a separate member in the form of a bar or rod 18, slidably mounted in the guide lugs 19 and 20 formed on the tube. The bar 18 may be provided with a slot 21 through which the tail portion 22 of the arm 17 extends and to which it is connected by the pin 23.

In operation the rim of a carrier provided with a slot will engage the upper side of the arm 17 at a point so near the fulcrum point 24 that the leverage is not sufficient to force the arm 17 downwardly and the carrier 3 therefore tilted laterally through the open side 14 of the tube. On the other hand, a carrier having a flat end surface will engage the top of the lug 25 on the arm 17 and exert a sufficient leverage on the arm to raise the weight 18 and swing the arm 17 downwardly and allow the carrier to pass through the lower exit 15 of the tube.

What I claim is:—

1. A device for checking the advance of all but the leading member of a plurality of contacting moving members comprising: means for turning the leading member at an angle to its normal direction of travel to thereby produce a gap between one side of its rearmost end and the advancing end of the following member, and a movably mounted member operated by the leading member to enter the gap and check the movement of the following member.

2. A device for checking the advance of all but the leading member of a plurality of contacting moving members comprising: means for turning the leading member at an angle to its normal direction of travel to thereby produce a gap between one side of its rearmost end and the advancing end of the following member, and a movably mounted member operated by the leading member to enter the gap and check the movement of the following member, the movably mounted member being operated by gravity to move to non-restricting position when the leading member has moved out of operating position.

3. A device for spacing a moving member from a following member comprising: a guide member for turning the leading member at an angle to the path of travel of the following member to produce a gap between the adjacent ends of the leading and the following members, and a spacer member pivotally carried by said guide member and having one end thereof projecting into the path of said leading member, whereby when said projecting end is engaged by the leading member the opposite end of said spacer member is swung into the gap between the adjacent ends of said leading and following members to check the advance of the following member.

4. In a pneumatic despatch system, a device for spacing apart a pair of carriers traveling in end to end engagement in a pneumatic tube comprising: a tube section having an angular relation to the axis of the pneumatic tube whereby a gap is produced between one side of the rearmost end of the leading carrier entering the angularly arranged tube section and the advancing end of the following carrier, and a unitary spacer member pivotally carried by said tube section and having one end thereof projecting into the path of said leading carrier, whereby when said projecting end is engaged by the leading carrier the opposite end of said spacer member is swung into said gap to check the advance of the following carrier, said spacer member being actuated by gravity to assume its normal unrestricting position.

5. In a conveyor system, the combination of a conveyor for transporting a series of carriers, means for acting on the carriers to break the joint between successive carriers and thereby prevent them from following each other in an unbroken line, and a stop mounted for movement into position between adjacent carriers so broken apart to arrest temporarily the movement of certain of said carriers and thereby space the carriers apart longitudinally of said conveyor.

6. In a conveyor system, the combination of a conveyor for transporting a series of carriers, mechanism for spacing the carriers apart along said conveyor by at least certain minimum intervals, said mechanism including a stop mounted to be moved into and out of engagement with the carriers on said conveyor, and means for acting on the carriers to swing them laterally and thereby separate carriers following each other in an unbroken line to facilitate the engagement of said stop with a carrier whose movement is to be arrested.

7. In a conveyor system, the combination with a conveyor for transporting a series of carriers, of mechanism for spacing the carriers apart along said conveyor comprising a stop mounted beside the conveyor for movement laterally into and out of engage-

ment with the carriers on said conveyor, and means for acting on a carrier passing said stop to swing the carrier laterally of the conveyor and thereby facilitate the engagement of said stop with the carrier next behind the carrier so swung.

8. In a conveyor system, the combination of guide means providing a path along which a series of carriers move, a stop pivoted at one side of the path of travel of the carriers, means for moving said stop into and out of position to arrest the movement of a carrier, and means for moving the carriers relatively to their normal path of movement to facilitate the engagement therewith of the stop.

9. In a conveyor system, the combination of means providing a path along which a series of carriers are moved, a stop for arresting the movement of said carriers, means arranged to be actuated by said carriers for moving said stop into and out of its carrier arresting position, and means for moving each carrier at an angle to its normal path of movement as it approaches the stop to facilitate engagement of the stop with the following carrier.

Signed at New York, in the county and State of New York, this 13th day of September, 1920.

JAMES G. MACLAREN.