

942,717.

H. DIEFENBAUGH.
MAIL EXCHANGING DEVICE.
APPLICATION FILED JULY 27, 1909.

Patented Dec. 7, 1909.
3 SHEETS—SHEET 1.

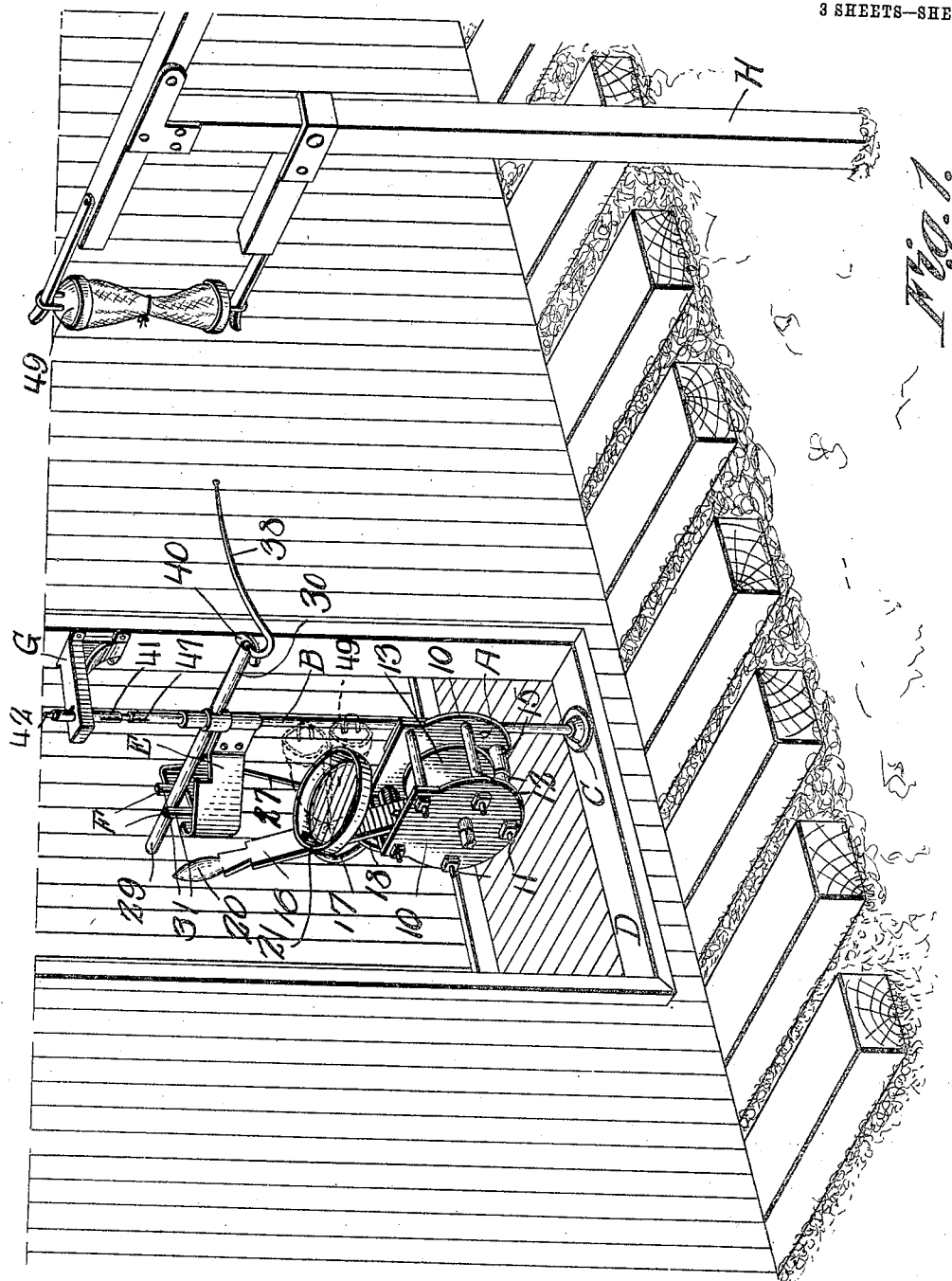


Fig. 1

Witnesses

Charles Richardson.
Wm. Bagger

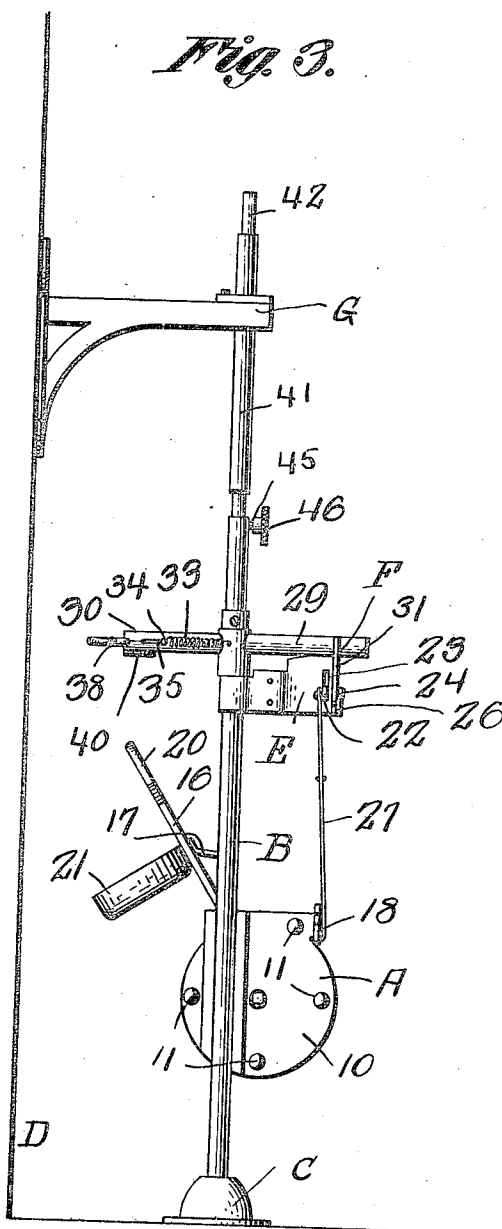
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3 SHEETS--SHEET 2.

Fig. 3.



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Fig. 4.

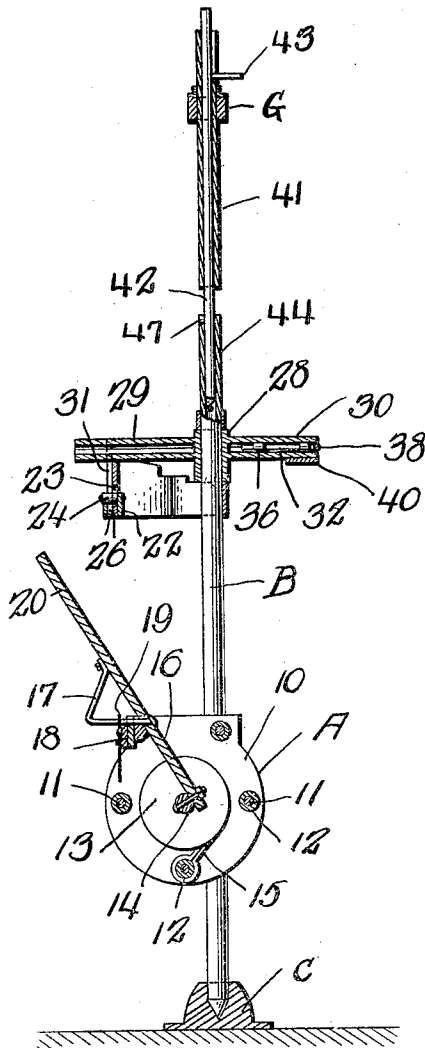


Fig. 5.

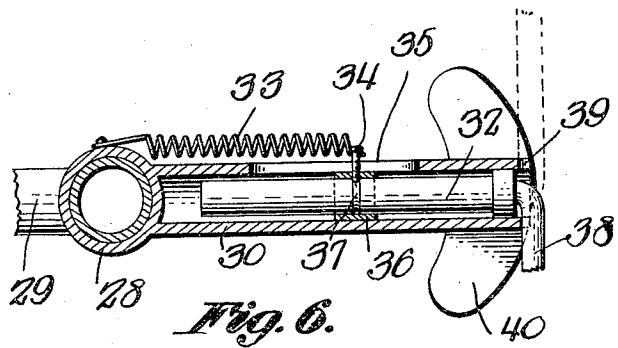
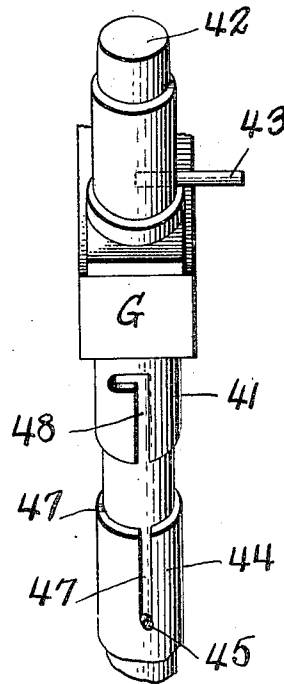


Fig. 6.

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UNITED STATES PATENT OFFICE.

HOWARD DIEFENBAUGH, OF WEST ALEXANDRIA, OHIO.

MAIL-EXCHANGING DEVICE.

942,717.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed July 27, 1909. Serial No. 509,817.

To all whom it may concern:

Be it known that I, HOWARD DIEFENBAUGH, a citizen of the United States, residing at West Alexandria, in the county of Preble and State of Ohio, have invented new and useful Improvements in Mail-Exchanging Devices, of which the following is a specification.

This invention relates to what may be properly designated a mail exchanging device the same comprising a train apparatus adapted to cooperate with a mail bag crane of conventional construction; said train apparatus comprising means for supporting and for forcibly expelling a mail bag through the door opening of a mail car; the trip mechanism of the expelling device being actuated by the receiving hook which receives the mail bag from the supporting crane.

The invention has for its objects to simplify and improve the construction and operation of this class of devices and with these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention; it being however understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings: Figure 1 is a perspective view showing the improved apparatus arranged in position for operation upon the door frame of a railroad car and showing also a crane of conventional construction supporting a mail bag in position for delivery to the car. Fig. 2 is a rear elevation showing the apparatus as seen from the inside of the car when in position for operation. Fig. 3 is a side elevation. Fig. 4 is a vertical sectional elevation. Fig. 5 is a perspective detail view showing the upper end of the oscillatory shaft or standard enlarged. Fig. 6 is an enlarged sectional detail view

showing the reversible receiving hook and the supporting means for the same.

Corresponding parts in the several figures are denoted by like characters of reference.

The improved apparatus comprises a frame or casing A which is firmly supported upon an upright B the lower end of which is stepped for rotation in a bearing C upon the sill of the door frame D. The frame or casing A may be of any appropriate construction; it has been shown as comprising side members 10 which are spaced and connected by means of bolts 11 having spacing sleeves 12 interposed between the side members. One of the side members 10 combines with a partition member 13 to form a spring valve through which extends a shaft 14 which is supported for rotation in the side members 10; one end of the spring 15 which is coiled in the spring barrel is connected with the shaft, and the opposite end of said spring is secured upon one of the spacing and connecting members. Upon the shaft 14, intermediate the spring valve and one of the side pieces of the frame, is mounted a lever 16 which is actuated by the spring in the direction indicated by an arrow in Figs. 3 and 4, said lever being provided with a catch 17 adapted to be engaged by a spring actuated trigger 18 which is pivotally supported upon the frame for the purpose of holding the spring actuated lever 16 under tension. The trigger 18 is operated against the tension of its actuating spring 19 by mechanism actuated by the mail-bag receiving mechanism as will be presently more fully described. The lever 16 has a terminal handle 20, and said lever supports a suitably shaped tray or carrier 21 upon which one or more mail bags may be placed for delivery from the car.

The upright B supports a bracket E upon which a lever 22 is pivotally supported; said lever extending through a slot 23 in the supporting bracket whereby the movement of said arm or lever is limited. The arm or lever 22 carries a suitably supported pin or roller 24 that extends through a slot 25 in the supporting bracket E. Pivotally mounted upon the latter adjacent to opposite sides of the slot 25 are bell crank levers F having short arms 26 extending laterally

toward each other and adjacent to the underside of the pin or roller 24 which latter, by tilting either of the levers 26, may be actuated to lift the free end of the arm or lever 22 which is connected by a link 27 with the spring actuated trigger 18 which may thus be actuated to release the lever 16. A sleeve 28 which is supported for oscillation upon the upright B adjacent to the bracket E carries oppositely extending arms 29 and 30, the former of which is extended to lie between the upwardly extending arms 31 of the bell cranks F, either of which may be actuated by the lateral movement of the arm 29 caused by the sleeve 28 being rocked or oscillated upon the upright B. The arm 30 is tubular as shown; and supported slidably in said arm is a rod 32 which is impelled in an inward direction in the tubular arm 30 by a spring 33 connecting the sleeve with a pin 24 that extends through a slot 35 in the tubular arm 30 and through a sleeve 36 surrounding the rod 32 and affording a bearing for the latter within the tubular arm 30; the rod 32 being provided with an annular groove 37 that receives the point of the pin 34. The slidable rod 32 is thus spring actuated in an inward direction, and said rod is also left free to rotate upon its axis. A mail bag receiving hook 38 is formed or supported upon the outer end of the rod 32; and said hook 38 is adapted to be placed in engagement with either one of a pair of oppositely disposed notches 39 at the outer end of the tube 30; thereby enabling the mail bag receiving hook to be maintained in an approximately horizontal position while projecting to either side of the tube 30. The latter is provided adjacent to its outer end with a handle 40 which may be grasped by the operator while adjusting the receiving hook in position for operation.

A bracket G which is suitably supported upon one of the jambs of the door frame B carries a vertically disposed tubular bearing 41 for a rod 42 which may be secured in the bearing by a laterally extending pin 43 or by fastening means of any convenient kind, which will admit of vertical movement of the shaft 42. The upper end of the upright B has a tubular portion or socket 44 for the reception of the shaft 42 which constitutes a bearing for the upper end of said upright B. The shaft 42 has a laterally extending pin 45 provided with a knob or handle 46, and adapted to engage any one of a plurality of notches 47 formed in the upper end edge of the socket 44; said pin may also be placed in engagement with an angular notch 48 in the bearing sleeve 41 for the purpose of supporting the shaft 42 out of engagement with the upright B; thus enabling the latter to be readily removed and replaced, as may be desired.

A mail bag supporting crane H of ordinary conventional construction has been shown in Fig. 1 in proper position adjacent to a railroad track; and a mail bag 49 has been shown in position upon said crane for delivery to the mail car.

From the foregoing description taken in connection with the drawings hereto annexed the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The upright B is supported for oscillation upon the bearing C by the shaft 42 which partly enters the tubular portion or socket 44 while the pin 45 rests upon the upper edge of the upright B; the notches 47 are for the purposes of limiting the oscillatory movement of the upright B by engagement with the pin 45 which by gravity of the shaft 42 will engage whichever of said notches 47 may be brought into registry therewith by a partial rotation of the upright B. The notches 47 will obviously be arranged to check the rotation of the upright at the proper time.

To arrange the apparatus for the exchange of mail the spring actuated lever 16 is tensioned until the catch 17 engages the trigger 18; the mail to be delivered is then placed upon the tray 21, and the upright B is adjusted to place the mail receiving hook 38 outside the car door; it being understood that when the receiving hook is in this position, the spring actuated lever carrying the tray 21 shall face the door opening. When the hook 38 engages the mail bag 49 supported by the crane H it receives an impact whereby the sleeve 28 is slightly rocked or oscillated upon the upright B, thus causing the arm 29 to tilt one of the bell cranks F, thereby rocking the lever 22 and releasing the trigger 18, thus releasing the spring actuated lever 16. The latter, impelled by the spring 15, is rocked in an outward or forward direction toward the door opening until intercepted by one of the connecting members of the frame, and the mail bag or bags supported upon the tray 21 will thus be forcibly expelled through the door opening practically at the same instant that the bag 49 is received by the hook 38. The impact of the bag 49 upon the receiving hook will also cause the upright B to rock or oscillate until the bag is carried within the car when the oscillation of the upright B will be checked by the pin 45 engaging one of the notches 47. The operation of the device, as will be seen, is entirely automatic; and the mail bag expelled from the mail car will always drop approximately at the same spot, thus enabling it to be easily found and obviating the danger of its being sucked under the wheels of the car and destroyed. The po-

sition of the receiving hook 38 may be reversed, whenever desired, according to the direction of movement of the train; and provision is made for the release of the trigger in any position to which the receiving hook 38 may be adjusted, by the presence of the two bell cranks F—F either one of which may be operated to engage the trigger actuating lever 32.

10 The improved device is simple in construction, thoroughly effective in operation, and it may be installed at a moderate expense.

15 Having thus described the invention what is claimed is—

1. In a device of the class described, an upright supported for oscillation, a frame supported upon the upright, a spring actuated shaft supported in the frame, and a lever extending from said shaft and equipped with mail bag supporting means.

2. In a device of the class described, an upright supported for oscillation, a frame supported upon the upright, a spring actuated shaft supported in the frame and having a lever connected therewith, a tray supported upon the lever, and trigger means engaging the lever to hold the spring-actuated shaft under tension.

30 3. In a device of the character described, an upright supported for oscillation, a frame supported upon the upright and including side members and connecting members, a spring actuated shaft supported in the frame, a lever connected with the shaft, a tray supported upon the lever, and trigger means engaging the lever to hold the spring-actuated shaft under tension, one of the connecting members of the frame constituting a stop lying in the path of the lever to intercept the latter when released from the trigger.

4. In a device of the character described, an upright supported for oscillation, a frame supported upon the upright, a spring actuated tray-carrying lever supported in the frame, and provided with a catch, a spring actuated trigger arranged to engage the catch to hold the lever under tension, a sleeve supported for oscillation upon the upright and having an arm carrying a mail bag receiving hook, and trigger releasing means adapted to be operated by the oscillatory movement of the sleeve under the impact of a mail bag upon the receiving hook.

5. In a device of the class described, an upright supported for oscillation, a frame supported upon the upright, a spring actuated tray carrying lever supported in the frame, trigger means for holding the lever under tension, a sleeve supported for oscillation upon the upright and having a tubular arm, a mail bag receiving hook supported reversibly upon the tubular arm, and

trigger releasing mechanism operable by the oscillatory sleeve and including an arm extending from the latter, bell cranks supported adjacent to opposite sides of said arm, a lever having a projection extending in the path of the bell cranks, and a link connecting said lever with the trigger.

6. In a device of the character described, and including a spring actuated tray-supporting lever, and a spring actuated trigger for holding the lever under tension, a suitably supported mail bag receiving hook, and trigger releasing mechanism operated by the impact of a mail bag upon the receiving hook.

7. In a device of the character described, an upright supported for oscillation, a frame supported upon the upright, a spring actuated tray-supporting lever supported by the frame, trigger means to hold the lever under tension, a bracket supported upon the upright, a lever pivoted upon the bracket and having a laterally projecting member, said lever extending through a slot in the bracket whereby its movement is limited, a link connecting said lever with the trigger, bell cranks pivoted upon the bracket and having short arms extending adjacent to the laterally projecting member of the lever, a sleeve supported for oscillation upon the upright and having an arm extending between the long arms of the bell cranks, a tubular arm extending from the sleeve, and a receiving hook supported upon the tubular arm.

8. In a device of the class described, an upright supported for oscillation, a sleeve supported for oscillation upon the upright and having a tubular arm, a spring actuated rod supported slidably and rotatably with reference to the tubular arm, a receiving hook upon said rod, and engaging nuts for the hook whereby the latter may be retained in any position to which it may be adjusted.

9. In a device of the character described, an upright, a sleeve supported for oscillation upon the upright and having a tubular arm provided with notches, a slidable spring-actuated rod supported for rotation in the tubular arm, and a receiving hook upon said rod adapted to engage one of the notches in the tube to be thereby maintained in adjusted position.

10. In a device of the character described, an upright, supported at its lower end for oscillation and having at its upper end a tubular socket portion provided with notches, a suitably supported bracket, a sleeve supported in said bracket, a shaft slidable in the sleeve and adapted to engage the socket portion at the upper end of the upright, and a projection upon said shaft adapted to engage one of the notches at the upper edge of the tubular socket portion.

11. In a device of the character described,
an upright supported for oscillation, a frame
supported upon the upright, a spring ac-
tuated tray-carrying lever supported in the
5 frame, a spring actuated trigger to hold the
lever under tension, a sleeve supported for
oscillation upon the upright, a mail bag re-
ceiving hook connected with the sleeve and
adapted to rock the latter under the impact
10 of a mail bag, trigger-releasing means op-

erable by the rocking movement of the
sleeve, and means for arresting the oscil-
latory movement of the upright.

In testimony whereof I affix my signa-
ture in presence of two witnesses.

HOWARD DIEFENBAUGH.

Witnesses:

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