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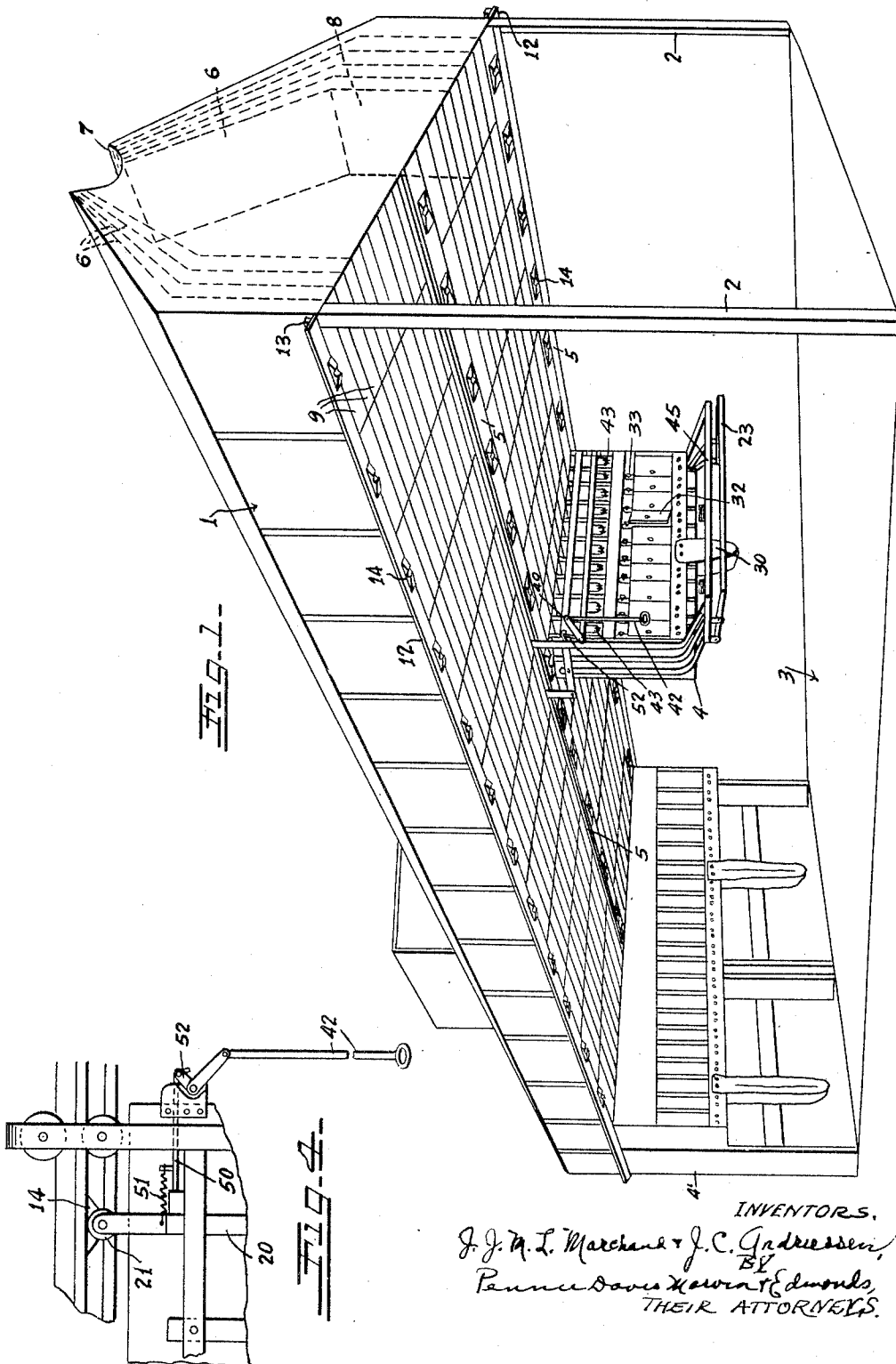
J. J. M. L. MARCHAND ET AL

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MAIL DISTRIBUTING APPARATUS

Filed Aug. 30, 1930

2 Sheets-Sheet 1



INVENTORS.
J. J. M. L. Marchand & J. C. Gaudessien,
BY
Renné Davis Harcourt & Edmonds,
THEIR ATTORNEYS.

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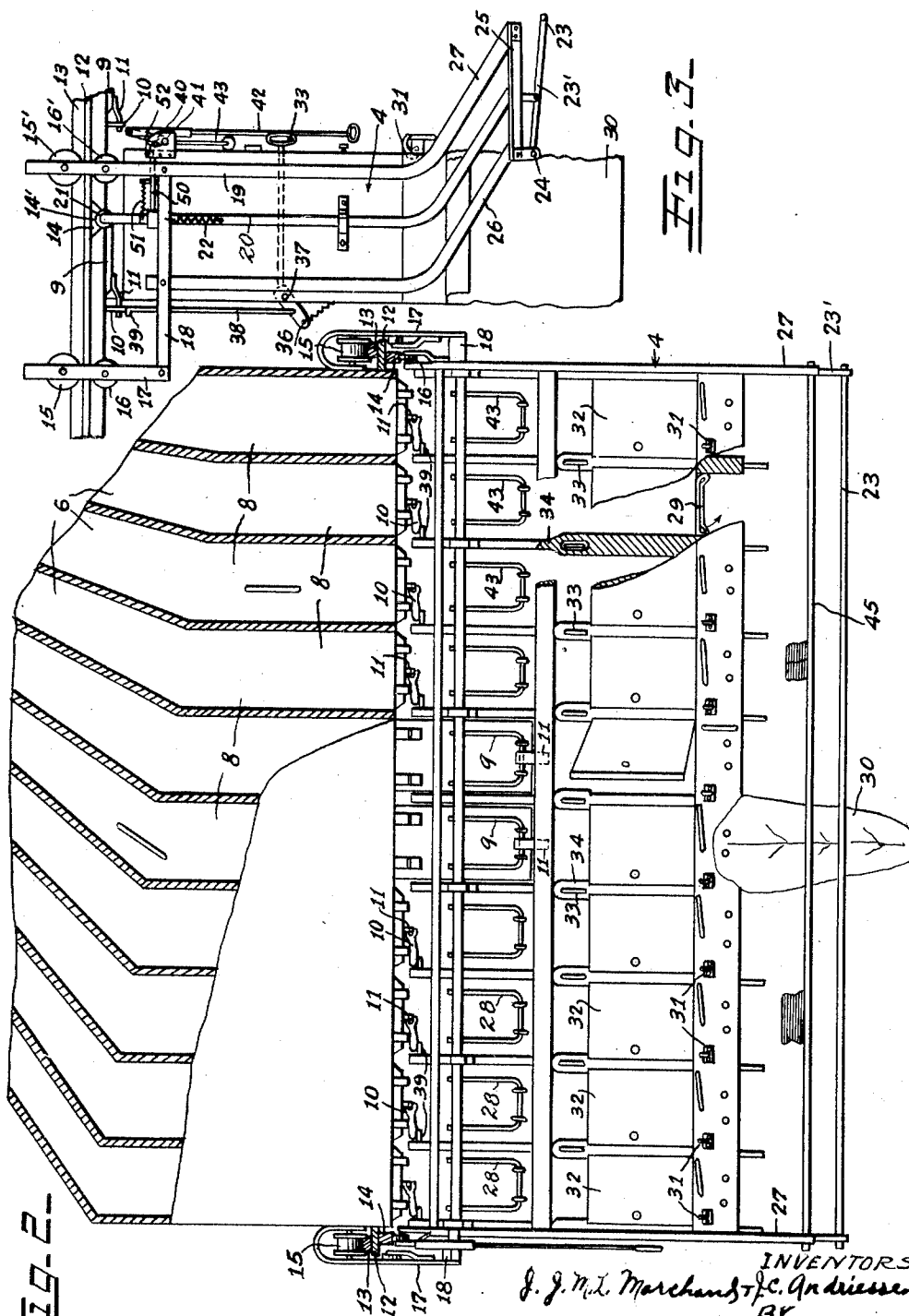


Fig. 2-

Fig. 3-

INVENTORS
J. J. M. L. Marchand & C. Andriessen,
BY
Pennie Davis Marvin & Edwards,
THEIR ATTORNEYS.

UNITED STATES PATENT OFFICE

JEAN JOSEPH MARTIN LAMBERT MARCHAND, OF THE HAGUE, AND JACOBUS CORNELIS ANDRIESEN, OF RIJSWIJK, NETHERLANDS

MAIL DISTRIBUTING APPARATUS

Application filed August 30, 1930, Serial No. 479,061, and in Germany May 12, 1930.

This invention relates to a mail distributing system and more particularly has reference to an apparatus for use in post-offices for facilitating the transfer of postal matter from a central station where it is classified according to destination to a plurality of remote delivery points.

In one system of mail distribution in use at the present time an endless conveyor, provided with receptacles into which mail matter is deposited at a central sorting station is adapted to transport the assorted pieces to various delivery positions along its length where the matter contained within the various receptacles is automatically discharged by the action of control means arranged adjacent the path of the conveyor and operated by the receptacles. The supply of mail accumulating at the delivery positions is removed at intervals and placed in sacks either for final delivery or for shipment.

It is the aim of the present invention to improve upon the above-described system by providing an apparatus which affords a compact mode of storage for the mail deposited at the various delivery points while permitting the convenient removal of the mail by gravity when desired. More specifically the apparatus contemplates the provision of a multiplicity of rows of bins suspended above the floor level, the bins of each row being in communication with a series of radially disposed chutes emanating from a common dispatch station at which the mail is adapted to be introduced into the chutes. The bins are constructed so that their contents may be discharged through their bottoms into a fixed compartment or into a compartment transversely movable at an elevation below the bins and arranged to be selectively brought into vertical alignment with any of the bins. Such construction permits the arrangement of a larger number of bins in a cellular manner while affording a ready means for emptying the same.

By locating the bins overhead in out-of-the-way position the postal employees are enabled to work more quickly and efficiently than heretofore when their movement has been hampered by receptacles promiscuously dis-

posed over the floor space. Furthermore, the use of complicated machinery which is likely to get out of order is avoided by this invention.

The invention will be more particularly described, reference being had to the annexed drawings in which:

Figure 1 is a perspective view of a mail distributing apparatus constructed in accordance with the present invention, the parts thereof being illustrated in a more or less diagrammatic manner;

Figure 2 is an end elevation, in part sectional, of the apparatus shown in Fig. 1 and illustrating in greater detail the receiving carriage which forms a part of the distributing apparatus; and

Figures 3 and 4 are side views of the receiving carriage.

Referring to the structure shown in Fig. 1, the apparatus comprises generally a housing 1 supported upon standards 2 above floor 3 fixed compartments 4 and receiving carriages 4 one of which is shown arranged to travel along tracks fixedly mounted upon the lower surface of the housing and extending the length thereof. The housing 1 is so partitioned as to form a multitude of chutes 6 radiating from a trench 7 of semicircular cross-section running from one end to the other of the housing, the chutes communicating at their lower ends with vertical bins 8. The lower ends of each bin lies in a common horizontal plane and is closed by hinged door 9 designed to swing downwardly by gravity into vertical position but normally held closed by a spring latch 10 engaging a lug 11 fastened to the door. The elevation of the bins 8 above the floor 3 is such as to allow adequate clearance for the operator of the carriage 4.

The carriage 4 is adapted to be moved back and forth under the housing 1 by virtue of the following construction: Pairs of tracks upon which the carriage is adapted to run are provided by two plates 12 fixedly connected to the flat under-side of the housing 1 and spaced apart a substantial distance transversely thereof so as to include between them a transverse row of bins 8. The plates

12 extend substantially the length of the housing and in parallelism with the longitudinal rows of bins. Upon the upper sides of the plates are mounted rails 13; and upon their lower sides at spaced intervals therealong and in definite relationship to the door 9 of each bin are fastened lugs 14 having sloping edges leading to a segmentally shaped notch 14'.

For the purpose of removing the material accumulating within the bins 8 fixed compartments 4' and the receiving carriage 4 are provided. The fixed compartments are advantageously used for assembling the large mail destined for large cities. The carriage is supported at each side upon flanged rollers 15 and 15' adapted to bear upon the rails 13, complementary lower rollers 16 and 16' being provided to limit vertical displacement and to prevent the rollers 15 and 15' from jumping the track. The complementary pair of rollers 15 and 16 are mounted upon a vertically extending plate 17 reversely bent at its upper end so as to span the roller 15 and provide two bearings for the shaft upon which this roller is journaled. The lower end of plate 17 is connected to one end of a spacing block 18 rigidly fastened to the side of the carriage. Similarly the rollers 15' and 16' are journaled in a plate 19 fixed to the other end of spacing block 18. It will be understood that the arrangement of the rollers upon opposite sides of the carriage is the same.

A detent for cooperating with the notches 14' of the lugs 14, is provided by a vertical plunger 20 slidably mounted upon the side of the carriage and carrying at its upper end a roller 21. The plunger 20 is biased by a spring 22 so as to normally hold the roller in engagement with the lower surface of the plate 12 but permitting the roller 21 to ride up the inclined edges of the lug 14 leading to the notch 14'. When the roller 21 seats in this notch the carriage is resiliently retained against movement. In order that the roller 21 may be manually disengaged from the notch 14' the plunger 20 is adapted to be retracted against the action of spring 22 by means of a handle bar 23 extending across the front of the machine and forming part of levers 23' on opposite sides of the carriage. The levers 23' are pivoted upon pins 24 to one end of the side plates 25. Each of the side plates 25 are supported upon opposite sides of the carriage by arms 26 and 27. The arms 26 and 27 are fixed to the sides and extend forwardly of the carriage, the member 27 as shown in Fig. 3 forming an elongation of the roller supporting plate 19. A shelf 45 extends between the two side plates 25 at the front of the machine to provide a support upon which to rest packets of mail.

The carriage 4 consists of a row of compartments 28 each of the same cross-sectional

dimensions as the bins 8 and arranged in alignment crosswise of the housing 1. Each compartment 28 is provided with a false bottom 29 (Fig. 2) normally latched shut but capable of being swung to open position. When it is desired to fill a mail sack 30 directly from the bin 8 the bottom 29 is opened and the mail allowed to pass directly into the sack which is supported in receiving position by means of a hook 31 provided at each compartment. The compartments 28 are accessible laterally by means of doors 32 hinged upon one side.

In order to establish communication between a bin and its corresponding compartments in the carriage, pull-rods 33 are slidably mounted in the partitioning walls 34 of the carriage for rocking the bell cranks 36 about the pivot 37 so as to vertically raise and lower the rods 38. The upper end of each of the rods 38 is provided with a projection 39 which, when the carriage is properly positioned with respect to an overhead row of bins, engages a stem forming part of the latch 10. This rotates the latch pivotally releasing lug 11 and permitting the door 9 to swing open. Since each compartment unit 28 of the carriage 4 is provided with the unlatching mechanism above described, the compartments may be individually and selectively charged with mail from the bins 8. To close any or all of the doors 9 which may be open there is provided a common control device comprising a crank 40, keyed to shaft 41, the outer end of the crank being in connection with a pull-rod 42 extending downwardly to a position within easy grasp of the operator. Arranged along and fixedly connected to the shaft 41 are a series of wipers 43, one for each compartment 28, the wipers 43 being arranged in such a position relative to the doors 9, when the compartments are aligned with the bins 8, that movement of the crank 40 in a clockwise direction causes them to rub against the vertically hanging doors and raise them to closed position where they are held by the latches 10. To avoid the possibility of moving the carriage 4 when the doors 9 are not yet closed, the vertical plunger 20 and its roller 21 is locked in grooves 14 by means of a horizontal shaft 50 which may be provided with a pin for entering shaft 20 to prevent downward movement thereof and a spring 51 which tends to return the shaft to bear against member 20 and connected to the pull-rod 42 by a lever 52 in such a way that first all the open doors 9 are shut by pulling that rod 42 and then the plunger 20 is released.

The operation of the apparatus is as follows: The pieces of postal matter which have been previously classified at a central sorting station are conveyed to and along the trench 7 by means of an endless carrier. The carrier is provided with receptacles arranged to

be emptied, through the operation of suitable control means, to deposit the matter carried thereby into its corresponding chute 6 where it slides by gravity into the bin 8. When it is desired to remove the supply of mail from the various bins having no fixed receiving compartments one of the carriages 4 is pushed along by the operator, the rollers 15, 15' travelling upon the rails 13 and the plunger 20 being preferably held in retracted position by the operator who may simultaneously grasp and depress the lever 23 while the carriage is in motion. As the carriage approaches a row containing certain of the bins to be emptied the operator releases the lever 23 and the plunger 20 under the action of the spring 22 causes the roller 15 to engage the plate 12 until it encounters the lug 14 up which it rides until the roller snaps into the recess 14' which locks the carriage in such position that its compartments 28 are in alignment with the respective bins 8 immediately above, and the row of projections 39 are in operative relationship with the row of latches 10. The plunger 20 in its turn is locked by the horizontal shaft 50 standing under the action of the spring 51. The operator having determined which bins are to be emptied thereupon operates the proper pull-rods 33 to unlatch the doors 9 of the bins and permit the supply of mail to drop into the respective compartments 28. If, instead of filling the compartments, the mail is to be charged immediately into sacks the false bottoms 29 of compartments are swung open and mail sacks are suspended in position beneath the compartments to catch the mail dropping therethrough.

When the supply of postal matter has been completely removed from the selected bins, the pull-rod 42 is operated which by this single operation closes whichever doors of the bins may have been opened and releases the plunger 20 by retracting the shaft 50. The lever 23 is lowered to disengage the roller 15 from the recess 14', whereupon the carriage 4 may be moved along the rails to a new position.

We claim:

1. Apparatus for sorting and distributing mail matter, comprising a trough, a plurality of chutes radiating from the bottom side thereof, a drop-bin communicating with each chute and having its inlet vertically over its outlet, the drop-bins being elevated off the floor of the mail room and extending vertically in side-by-side parallel relation to form the ceiling of the mail room, the lower ends of the bins being closed by releasable closures, a multi-compartment collector suspended from said ceiling for displacement under the lower ends of said bins, whereby the mail is handled on the ceiling of the mail room leaving the floor thereof unoccupied.

2. In an apparatus as recited in claim 1,

means on the collector for selectively establishing communication between said bins and a compartment of said collector.

3. In an apparatus as recited in claim 1, a releasable closure on the lower end of each of the compartments in said collector, and means thereat for attaching a mail bag for the distribution of the mail.

4. In an apparatus as recited in claim 1, guides for said collector on the lower ends of said bins, and means on the collector for selectively latching the collector in alignment with a desired row of bins.

5. In an apparatus as recited in claim 1, guides for said collector on the lower ends of said bins, and means on the collector for selectively latching the collector in alignment with a desired row of bins, and means for locking the collector latch against release to prevent displacement of the collector as long as a bin bottom remains open.

In testimony whereof we affix our signatures.

JEAN JOSEPH MARTIN LAMBERT MARCHAND.
JACOBUS CORNELIS ANDRIESEN.