W. E. ROBINSON.

MAIL DISTRIBUTING MACHINE.

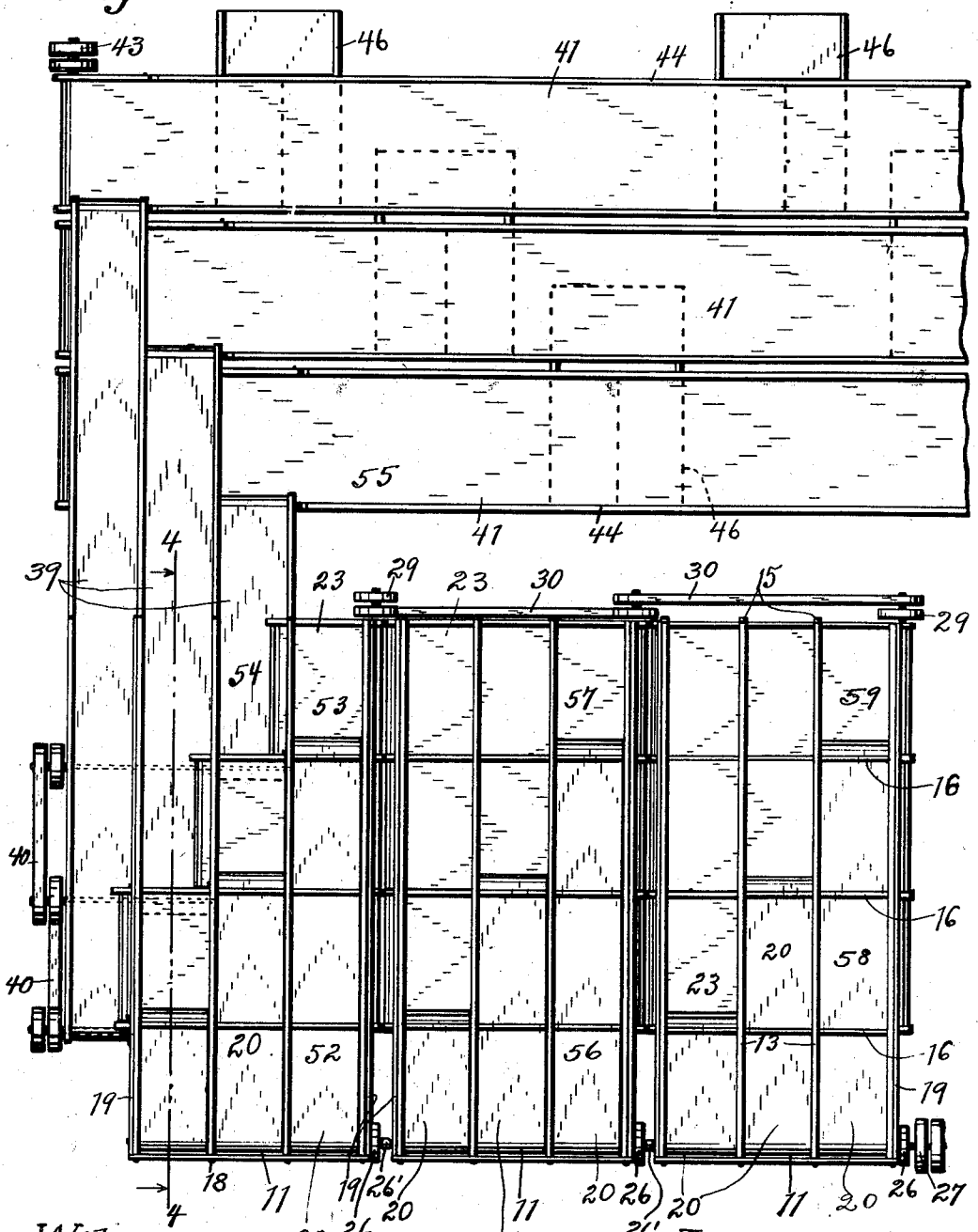
APPLICATION FILED DEC. 19, 1912.

1,072,504.

Patented Sept. 9, 1913

4 SHEETS—SHEET 1.

Fig. 1.



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his Attorney.

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4 SHEETS—SHEET 2.

Fig. 2.

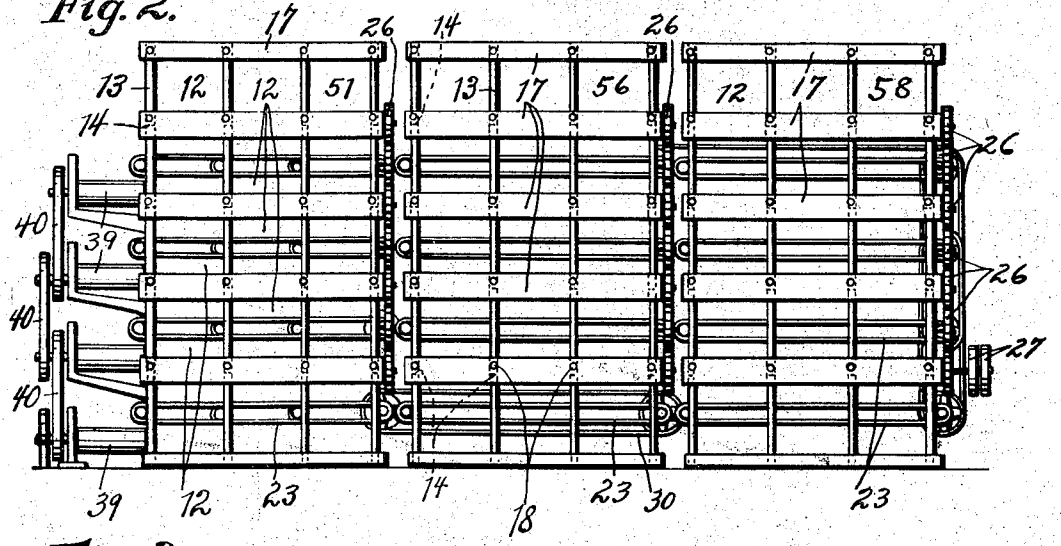
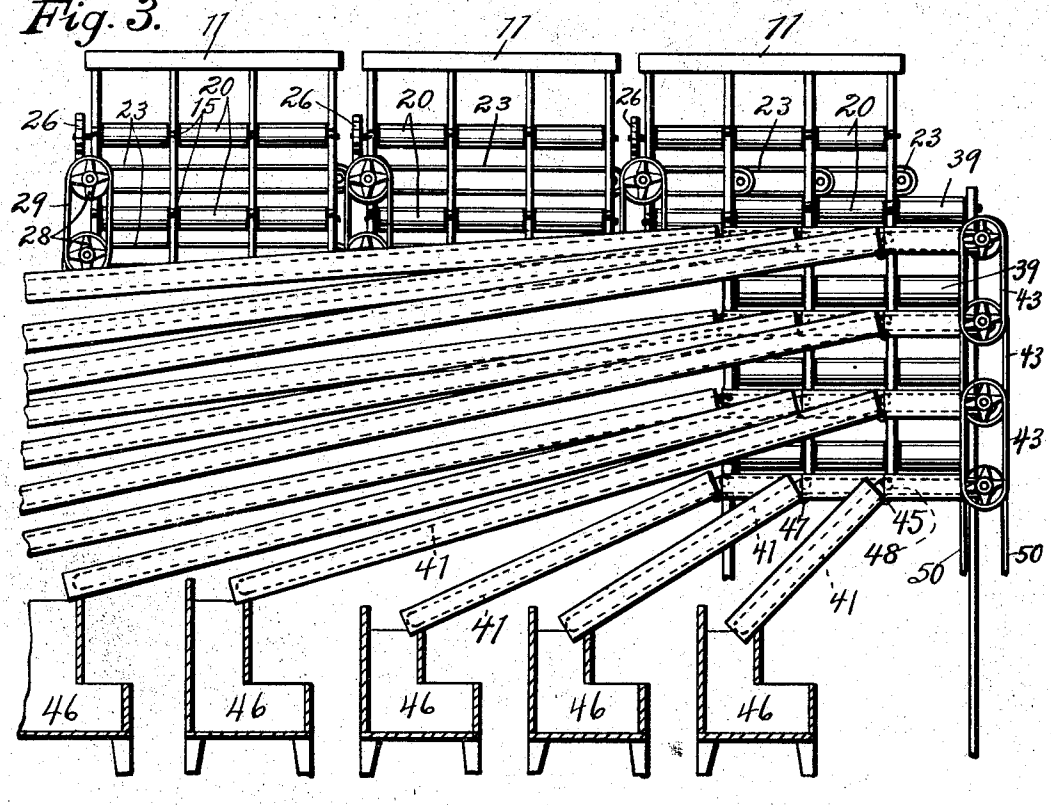


Fig. 3.



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4 SHEETS—SHEET 3.

Fig. 4.

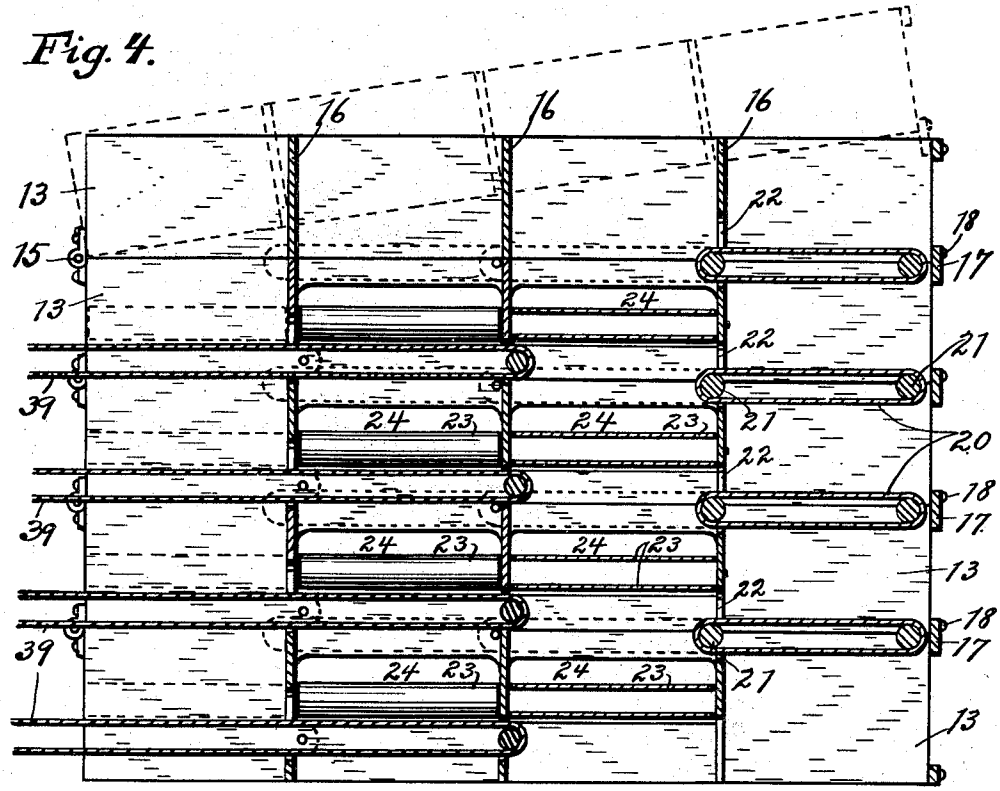
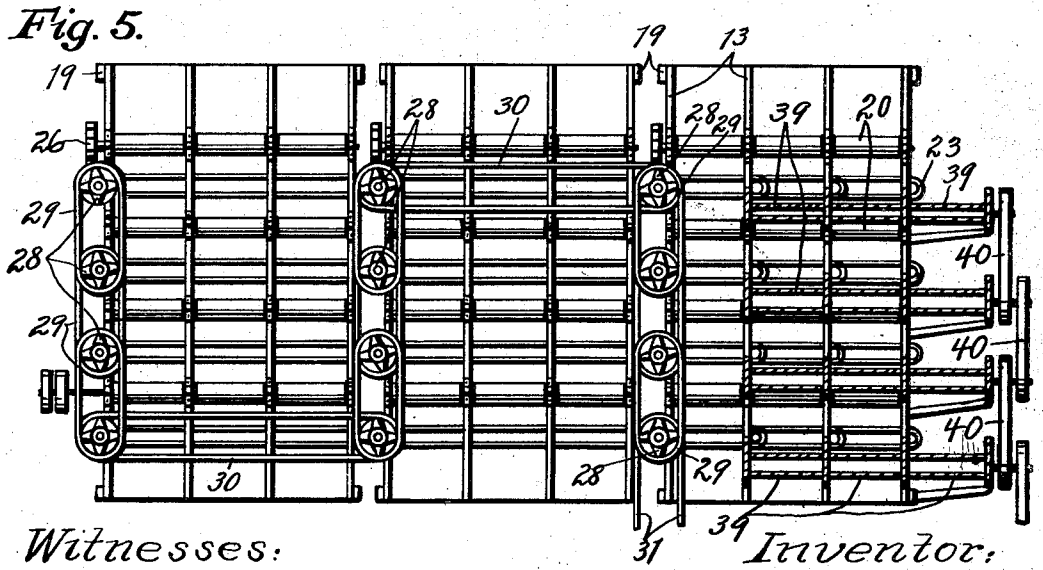


Fig. 5.



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4 SHEETS—SHEET 4.

Fig. 6.

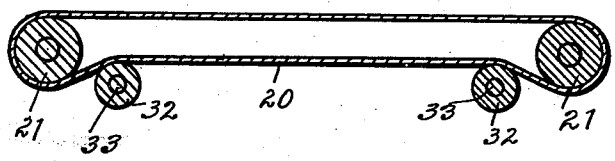


Fig. 7.

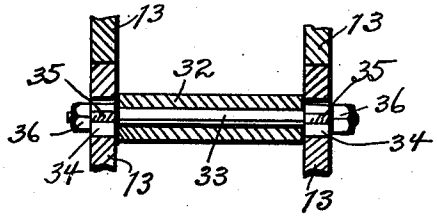


Fig. 8.

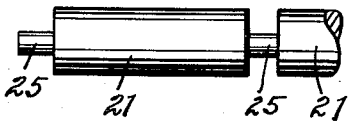


Fig. 9.

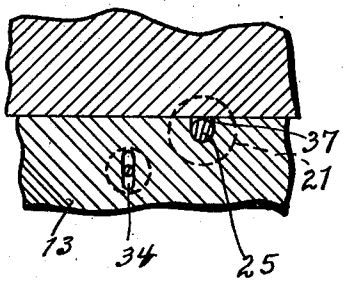
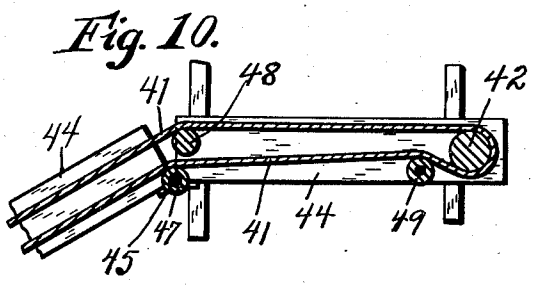


Fig. 10.



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UNITED STATES PATENT OFFICE.

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MAIL-DISTRIBUTING MACHINE.

1,072,504. Specification of Letters Patent. Patented Sept. 9, 1913.

Application filed December 19, 1912. Serial No. 737,679.

To all whom it may concern:

Be it known that I, WILLIS E. ROBINSON, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Mail-Distributing Machines, of which the following is a specification.

My invention relates to distributing machines and particularly to the class of such machines which are adapted to distribute mail and like articles.

The object of this improvement is to provide a simple and effective device having pigeon holes into which the distributing clerk deposits the mail or similar objects, and which will carry said mail or the like from each pigeon hole to a separate repository.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a plan view of a machine embodying my invention, Fig. 2 is a front elevation of the same, Fig. 3 is a broken rear view of the same, Fig. 4 is an enlarged partial section of the same, taken on line 4—4 in Fig. 1, Fig. 5 is a rear view of a part of the same, Fig. 6 is an enlarged fragmental section illustrating the means for tightening the belt conveyers used in my device, Fig. 7 is an enlarged fragmental section illustrating the means for moving the idler pulley for tightening the belt conveyers, Fig. 8 is an enlarged fragmental elevation of one of the pulleys used in the construction, Fig. 9 is an enlarged fragmental section showing the means of journaling the pulleys used in the conveyers and further illustrating the means for adjusting the belt tightening pulleys, and Fig. 10 is an enlarged fragmental section of one of the final conveyers illustrating the means for adjusting its outer end and for tightening the belt conveyer in the same.

The machine consists in a case 11 having a plurality of pigeon holes 12 which are arranged in vertical and horizontal alinement as is clearly shown. The pigeon holes have their front openings in a vertical plane similar to cases used for this same purpose now in general use. The mail matter or other substance which it is desired to distribute is placed by the distributing clerk in the proper pigeon hole and a conveyer, which begins with the floor of said pigeon hole conveys the mail matter or other substance to a separate compartment, such as a mail sack or a table upon which the mail is accumulated. The names of stations or any other division which it is desired are indicated on the cross pieces between the pigeon holes. When there are more than one clerk distributing such mail or other matter, a plurality of cases 11 are set up, as illustrated, and a clerk using each case 11. Mail matter deposited in the corresponding pigeon hole in each case is carried to a common conveyer which takes such matter and deposits it on its proper repository.

The preferred form of construction, as illustrated in the drawings comprises the cases 11, each provided with a plurality of partitions 13 which divide the case into sections 14. The partitions 13 are of a height corresponding to the height of each pigeon hole and the sections 14 are joined together by means of hinges 15 on their rear portions. The partitions 13 are spaced apart by means of cross partitions 16 which are of a height corresponding to the depth of each section 14. At the front edges of each of the partitions 13 are cross bars 17 which are secured thereto by means of screws 18, or their equivalent. The bars 17 are provided to lap the joints between the sections and to maintain such sections in vertical alinement. Bars 19 are secured to the sides of the sections 14 at the points between said sections to maintain said sections in vertical alinement.

The floor of each of the pigeon holes consists of an endless belt 20 mounted on pulleys 21. The front ends of the belts 20 are positioned immediately behind the bars 17 so that the operator's hand will not contact the belt and so that the pigeon holes will be separated far enough to prevent the operator from making a mistake in the pigeon hole he desires. The cross partitions 16 are provided with openings 22 through

which the conveyer belts 20 pass and the partitions 13 are provided with openings 24 through which conveyer belts 23 pass transversely of such belts 20 and in positions to receive the mail matter from said belts 20. The belts 23 are mounted in a similar manner as the belts 20 on suitable pulleys.

Referring particularly to Figs. 1, 3 and 4, it will be seen that the conveyer belts 20 forming the floors in the first vertical tier of pigeon holes are of an equal length and just extend through the first partition 16 depositing mail matter received thereby on the cross belts 23. The belts 20 forming the floors in the second vertical tiers of the pigeon holes extend through the first and second partition 16 and deposits their mail on the second set of cross belts 23. The belts 20 forming the floors of the third vertical tier of pigeon holes extend through the first, second and third cross partitions 16 depositing their mail matter on the third set of cross belts 23. In this case it will be seen that the cross belts 23 are of varying lengths. In the second and third cases 11, the cross belts 23 extend entirely across the case so that mail deposited by the belts forming the floors of the pigeon holes in these cases will be carried through both of said cases and over the cross belts 23 in the first case to be delivered with the mail matter from the corresponding pigeon holes in the first case. It is understood that the first case referred to is the one nearest the left hand side of the figure, the second case the middle one and the third case the one at the right hand side of the figure. In these drawings cases are shown having three pigeon holes in horizontal alinement and four in vertical alinement, but it is understood that any desired number may be substituted and corresponding cross belts added to convey the mail matter from each individual pigeon hole as is suggested by the construction shown. The pulleys 21 along the front portion of each of the cases are preferably made of a single bar with portions turned down to a smaller diameter for bearings such as is illustrated at 25 in Fig. 8. In this manner each of the pulleys 21 along the front of the case in a horizontal tier of pigeon holes will be propeled simultaneously. The next horizontal tier of pulleys 21 are geared by means of spur gears 26 to rotate simultaneous with the other corresponding pulleys 21 in the forward end of each of the cases. The cases are joined at the end of one of such lateral sets at the bottom of the case by means of a suitable connecting collar 26′ so that all of the pulleys 21 driving the floors of the pigeon holes will be moved simultaneously at a uniform rate of speed. The outer lowermost pulley set is provided with an extension on which is mounted a driving pulley 27 through which power is applied to this set of conveyer belts. The cross belts 23 are connected by means of pulleys 28 and belts 29 on one set of each of their pulley sets, as clearly illustrated in Fig. 5. Each of the cases is connected to its next adjacent by means of an endless belt 30 so that all of said cross belts will be moved simultaneously and at a uniform rate of speed. The belt 31 connected with a suitable source of power, not shown, is connected with one of the pulleys 28 to effect the driving of all of said cross belts 23.

Any desired means may be used for producing the proper tension in the belts 20 and 23 such as is shown in Figs. 6, 7 and 9. In the form which is suggested here an idler pulley 32 is mounted on a shaft 33 and said shaft is mounted for vertical adjustment in slots 34 in proper positions in the partitions 13, as clearly indicated in Figs. 6, 7 and 9. Shafts 33 are provided with smaller threaded portions 35 which extend through the partitions 13 and have nuts 36 threaded thereon to bind such shafts 33 to the partitions 13, as clearly indicated. The partitions 13 of the sections 14 are provided with bearings 37 near the top edges of the intermediate and lowermost sections in suitable positions so that the journals 25 may be easily removed from such bearings when it is desired so to do. The sections 14 are provided with hinges 15 at their rear portions so that each of the sections 14 may be moved on said hinges to open up the case to adjust any irregularity that might occur or for the adjustment of the mechanism when so desired. The pivotal movement of one of the sections is indicated by the dotted lines in Fig. 4 and it is understood that each of the sections may be moved in a like manner when so desired.

From the first case, at the left side of Fig. 1 are a plurality of conveyer belts 39 which are adapted to receive the mail matter delivered by the cross belts 23 and convey such mail matter from the machine. The belts 39 are mounted on suitable pulleys and are connected together for simultaneous movement by means of belts 40, indicated in Figs. 1, 2 and 5. Said belts 40 are mounted on pulleys on the extended ends of the pulleys which drive said belts 39, as is clearly indicated. The belts 39 are provided with suitable pulleys similar to those used in conjunction with the conveyer belts 20 and 23, and may be connected in any suitable manner such as is already described. The belts 39 correspond in number to the cross belts 23.

At the rear ends of the belts 39 are conveyer belts 41 which are mounted on suitable drive pulleys 42 and a suitable driven pulley, not shown in detail, and extend to repositories for the mail matter as clearly indicated in Fig. 3. Each of the driving pulleys in a horizontal set of such belts 41

are mounted on the same shaft which is driven by belts 43 so that all of said conveyer belts 41 will be moved simultaneously and at the same rate of speed and corresponds to the rate of speed of the conveyer belts 20, 23 and 39. The side frames 44 of each of the conveyers 41 are hinged, as at 45 so that the free end of said conveyer will reach desired positions to deposit their mail matter on suitable tables 46 or any other repository which it is desired to use. On the pintle of the hinge 45 is an idler roller 47 which prevents the belt conveyer 41 from sagging on its lower side and an idler pulley 48 is journaled above the lower portion of each of said conveyer belts 41 to support the upper portion of said conveyer belt, as clearly shown in Fig. 1. A suitable belt tightening pulley 49 is provided to tighten each of the conveyer belts 41 and is preferably mounted similar to the construction shown in Figs. 7 and 9. However, any desired form of belt tightener may be used. Power is supplied to conveyer belts 41 by means of a belt 50 connected with any suitable source of power, not shown.

In operation, an operator deposits mail matter, or any other desired substance which it is desired to distribute in the desired pigeon holes 12 and is conveyed by means of the conveyer belts 20 to the cross conveyer belts 23 thence by the conveyer belts 39 and conveyer belts 41 to the repositories 46. The name of the station or division marked on the bar 17 in front of each pigeon hole 12 will correspond to the repository 26 to which the mail matter is to be deposited from said pigeon hole, for instance when it is desired to put a certain piece of mail matter in a pigeon hole indicated at 51 in Fig. 2, this piece of mail matter will pass over a conveyer belt 20, indicated at 52 in Fig. 1, and be deposited on the cross conveyer belt 23, indicated at 53 in Fig. 1, conveyed to the conveyer belt 39 indicated at 54 in Fig. 1, and then deposited on the conveyer belt 41, indicated at 55 in this figure, and carried to its corresponding repository 46, which is not shown in the figures on account of space, but corresponds to the repositories shown in Fig. 3. Should two clerks be distributing mail matter at the same time, the clerk using the middle case 11 would place mail matter for the same station or division in the corresponding pigeon hole represented at 56 in Fig. 2 which would be conveyed across the cross belt 57 and deposited upon cross belts 53, 54 and 55, as will be clearly understood. Should there be three clerks distributing at the same time, the third clerk uses the case 11 at the right hand side of the page and when he desires to deposit mail for the same station or division he places such mail matter in the corresponding pigeon hole represented at 58 in Fig. 1 which in turn deposits such mail matter on belt 59 and in a like manner such mail matter is conveyed over cross belts 57 and 53 and the conveyer belts 54 and 55 to the same repository, as will be readily understood.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. A distributing machine comprising a case having a plurality of pigeon holes and a conveyer belt forming the floor of each of said pigeon holes; and a conveyer leading from each of said conveyer belts, substantially as described.

2. A distributing machine comprising a case having a plurality of pigeon holes; an individual repository for each of said pigeon holes; and a conveyer connecting each of said pigeon holes with its respective repository, substantially as described.

3. A distributing machine comprising a case having a plurality of pigeon holes and a conveyer belt forming the floor of each of said pigeon holes; an individual repository for each of said pigeon holes; and conveyers connecting each of said conveyer belts with its respective repository, substantially as described.

4. A distributing machine comprising a case having a plurality of vertical tiers of pigeon holes; a conveyer belt forming the floor of each of said pigeon holes, all of said conveyer belts in each of said tiers being substantially of equal lengths and of different lengths from those in said other tiers; and a conveyer leading from each of said conveyer belts, substantially as described.

5. A distributing machine comprising a case having a plurality of vertical tiers of pigeon holes; a conveyer belt forming the floor of each of said pigeon holes, all of said conveyer belts in each of said tiers being substantially of equal lengths and of different lengths from those in said other tiers; and a cross conveyer belt mounted adjacent the end of each of the conveyer belts which form the floors of said pigeon holes and communicating therewith, substantially as described.

6. A distributing machine comprising a case having a plurality of vertical tiers of pigeon holes; a conveyer belt forming the floor of each of said pigeon holes, all of said conveyer belts in each of said tiers being substantially of equal lengths and of dif-

ferent lengths from those in said other tiers; a cross conveyer belt mounted adjacent the end of each of the conveyer belts which form the floors of said pigeon holes and communicating therewith; and a conveyer leading from each of said cross conveyer belts, substantially as described.

7. A distributing machine comprising a case having a plurality of vertical tiers of pigeon holes; a conveyer belt forming the floor of each of said pigeon holes, all of said conveyer belts in each of said tiers being substantially of equal lengths and of different lengths from those in said other tiers; a cross conveyer belt mounted adjacent the end of each of the conveyer belts which form the floors of said pigeon holes and communicating therewith; a repository for each of said cross conveyer belts; and a conveyer connecting each of said cross conveyer belts with its respective repository, substantially as described.

8. A distributing machine comprising a case having a plurality of sections hingedly connected together in vertical alinement, each of said sections being divided into a horizontal row of pigeon holes; and conveyers forming the floor of each of said pigeon holes, substantially as described.

9. A distributing machine comprising a case having a plurality of pigeon holes and a series of endless conveyer belts leading from each of said pigeon holes, the first conveyer belt in each of said series forming the floor of one of said pigeon holes, substantially as described.

10. A distributing machine comprising a casing made up of a plurality of sections disposed in a vertical pile, each section being hinged to its next adjacent section; partitions in each of said sections dividing the latter into pigeon holes disposed in a horizontal row; and an endless belt in each pigeon hole forming the floor thereof and being completely mounted in one of said sections, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIS E. ROBINSON.

Witnesses:
JOSHUA R. H. POTTS,
B. G. RICHARDS.