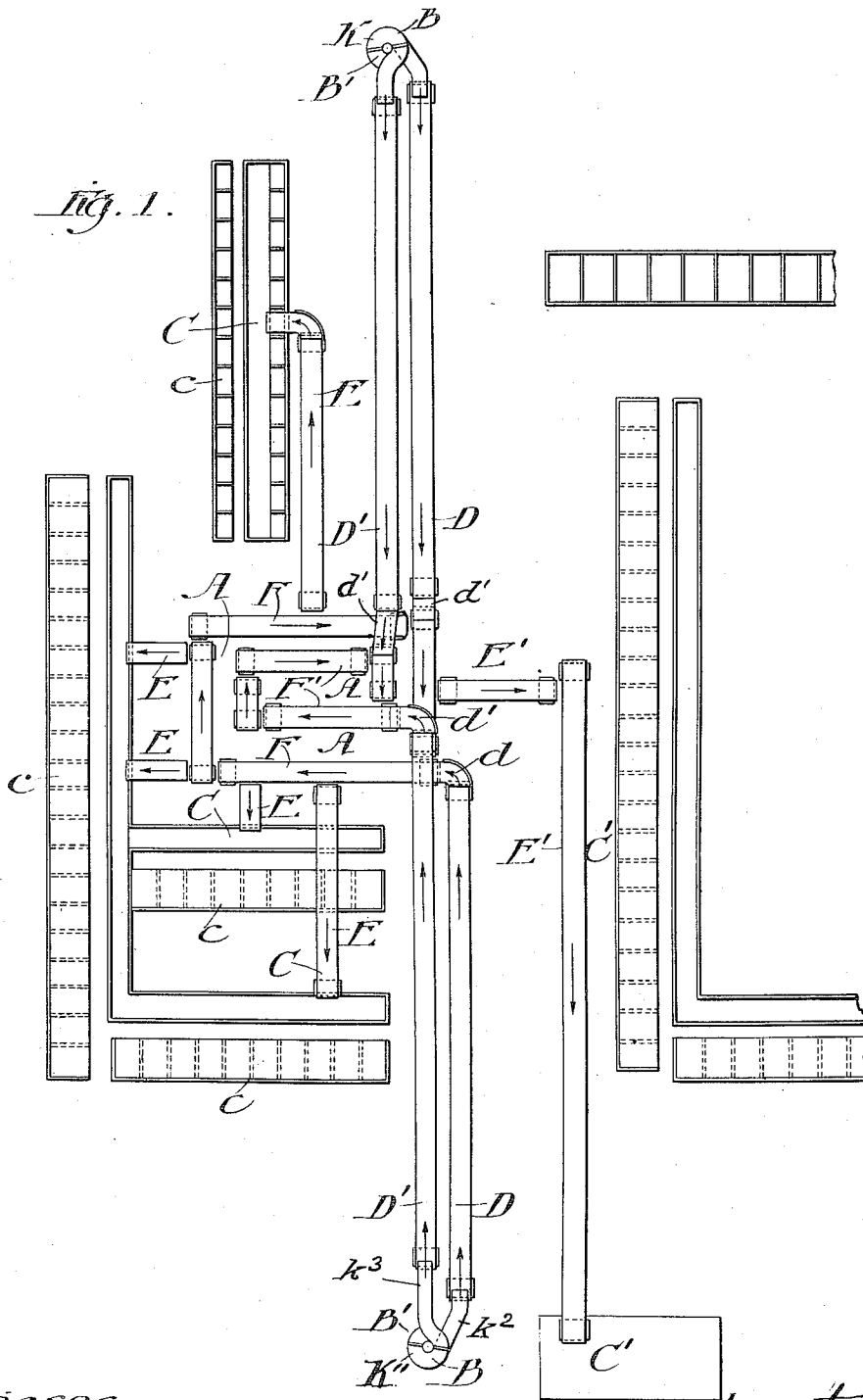


M. C. SCHWAB.
 SYSTEM FOR COLLECTING AND DISTRIBUTING PARCELS.
 APPLICATION FILED DEC. 27, 1909.

995,379.

Patented June 13, 1911.

5 SHEETS—SHEET 1.



Witnesses:
 Frank S. Blanchard
 R. J. Rinkenberg

Inventor
 Martin C. Schwab
 By *[Signature]*
 Attorney

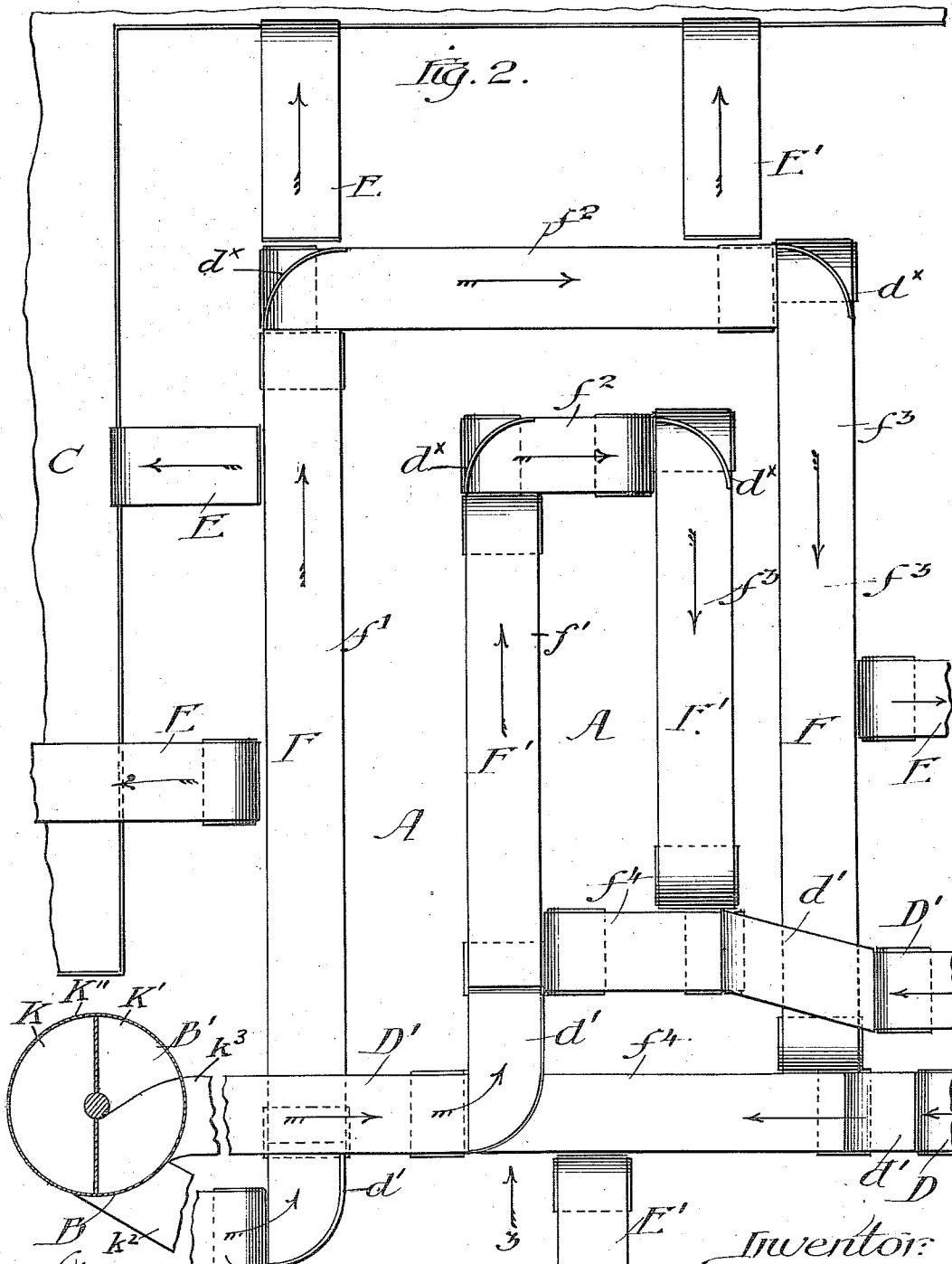
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Witnesses: D
Frank Blanchard
Ed Rinkenberger

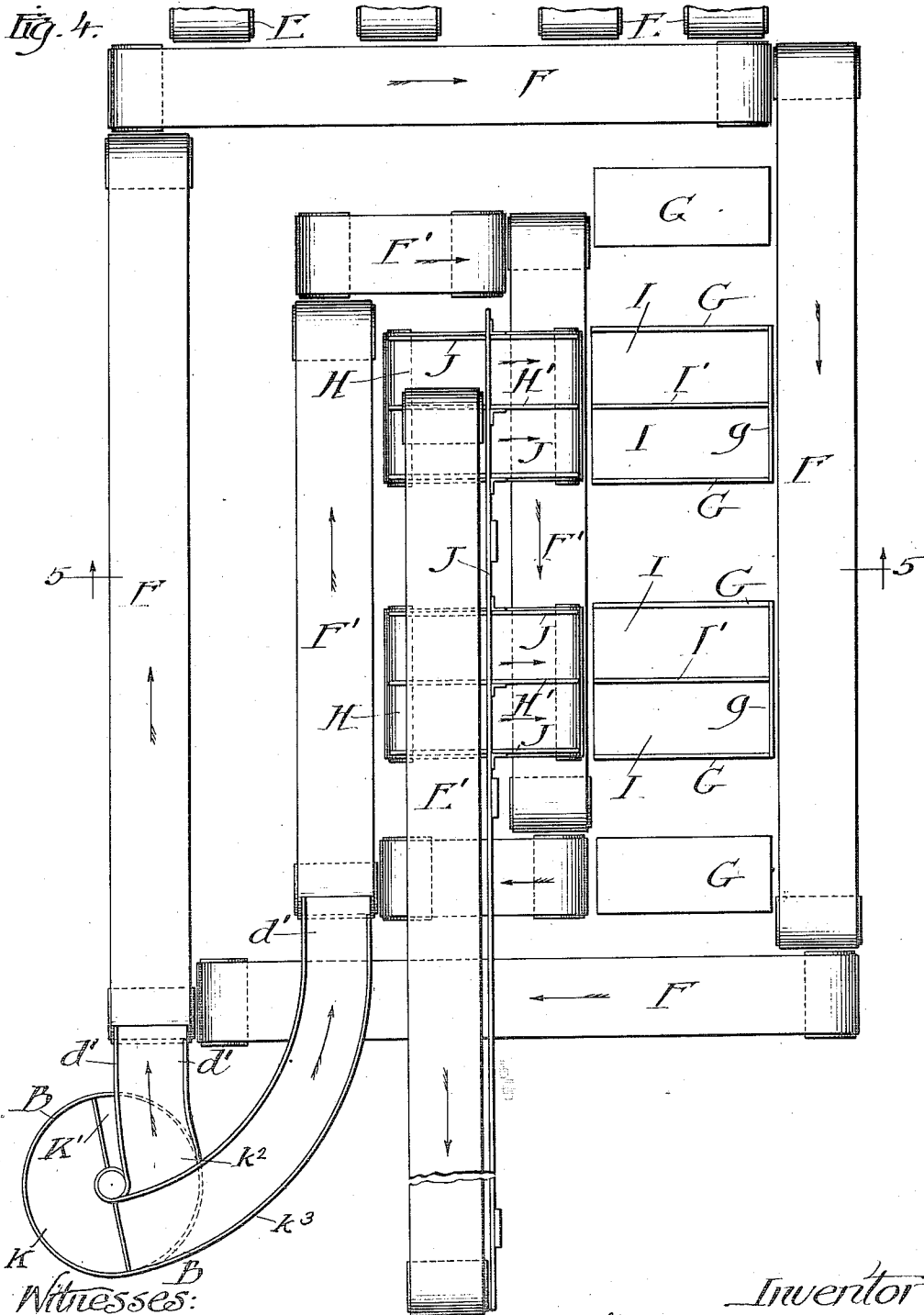
Inventor:
Martin C Schwab
By *[Signature]*
Attorney.

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5 SHEETS—SHEET 4.



Witnesses:

Frank S. Blanchard
 New Bedford

Inventor

Martin C. Schwab
 By *[Signature]*
 Attorney.

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5 SHEETS—SHEET 5.

Fig. 5.

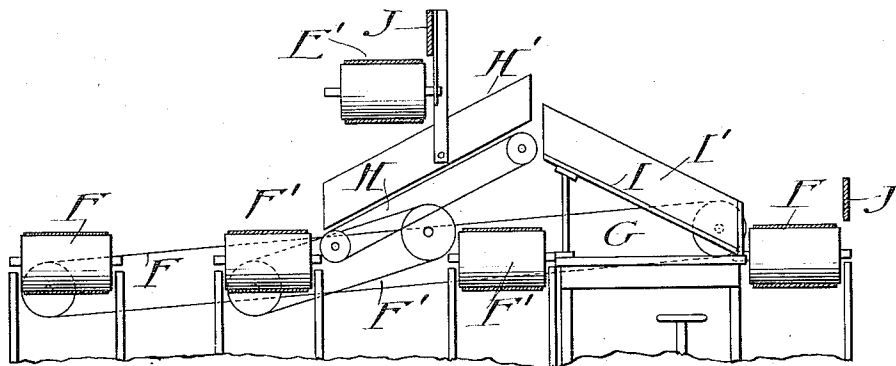
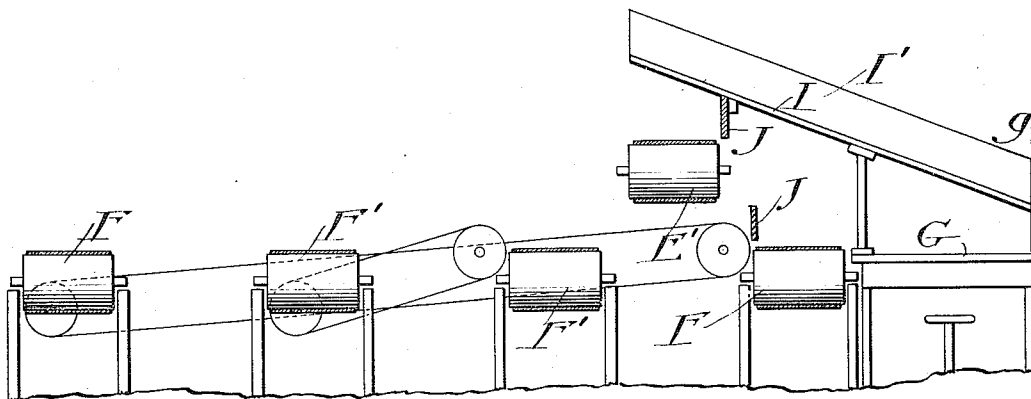


Fig. 6.



Witnesses:
Frank Blanchard
Newbury

Inventor:
Martin C. Schwab
By *[Signature]*
Attorney.

UNITED STATES PATENT OFFICE.

MARTIN C. SCHWAB, OF CHICAGO, ILLINOIS.

SYSTEM FOR COLLECTING AND DISTRIBUTING PARCELS.

995,379.

Specification of Letters Patent. Patented June 13, 1911.

Application filed December 27, 1909. Serial No. 535,224.

To all whom it may concern:

Be it known that I, MARTIN C. SCHWAB, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Systems for Collecting and Distributing Parcels, of which the following is a specification.

The present invention relates to that class of systems for collecting and distributing parcels, an example of which is shown and described in my companion application filed October 25th, 1909, Serial No. 524,499. The system described in said application has one or more conveyers, called "sending conveyers", by which all of the parcels from various points or places hereinafter called "sending stations" are carried to a point or place called the "central station" and there delivered onto a conveyer called a "collecting conveyer", where they are assorted and distributed to appropriate conveyers, called "distributing conveyers", by which they are carried and delivered at various distantly located points or places hereinafter called "distributing stations" and these may be classified as "regular" and "special". The characteristics which are necessary in the several conveyers are fully described in my former application so that a full description of their construction is not necessary in this application, excepting as to some features that are not shown in said former application.

The fundamental object of the present invention is to economize in the matters of space and labor required in assorting the parcels and distributing them to the appropriate conveyers by which they are carried either directly to the regular distributing stations where they are distributed to the delivery wagons, or the like, or else to the special distributing stations whence they are ultimately sent to the regular delivery stations or elsewhere.

One of the principal differences between the present system and that of my former application is that the system shown in said application has but one horizontal collecting conveyer located at the central station while the present system has a plurality of such conveyers and accessories thereto necessary to accomplishing the object aimed at by the present invention. The peculiarities of the plurality of conveyers are that they

are located in proximity to each other with a view of economizing floor space and to permitting an attendant to pass parcels from one conveyer to the other. Also, they are substantially parallel with each other in the sense that they are movable in substantially parallel directions, and are "endless" in the sense that each is in the form of a complete circuit through which the parcel may be carried one or more times until it reaches and is ready to be removed by the proper attendant. Also, they are located at substantially the same horizontal level so as to be within convenient reach of the attendant. Also, one is located within or is surrounded by another, in the sense that the outer one surrounds a common imaginary vertical line. It is desirable, in order to obtain the highest attainable advantages of the system that the collecting conveyers have all of these peculiarities but it will be understood, of course, that these are separate features of the invention and any of them may be omitted in instances where it is not desired to avail of the advantages incident to them. The parcels are delivered onto the collecting conveyers by a plurality of sending conveyers and when removed from the collecting conveyers by the attendants they are delivered on to the receiving ends of a plurality of distributing conveyers which are located in proximity to the collecting conveyers in the respective relations hereinafter fully described.

The invention consists in the features of novelty that are hereinafter described with reference to the accompanying drawings, which are made a part of this specification and in which:

Figure 1 is a diagrammatic view of a collecting and distributing system of simple form embodying the principal features of the invention. Fig. 2 is a plan view, largely diagrammatic, of the endless collecting conveyers and portions of adjacent parts. Fig. 3 is an end elevation thereof viewed in the direction of the arrows 3, Fig. 2. Figs. 4 and 5 are views similar to Figs. 2 and 3, respectively, of a system of modified form embodying the features of the invention shown in Figs. 1, 2 and 3, and some additional features. Fig. 6 is a vertical section of still another modification. Figs. 7 and 8 are, respectively, a plan and vertical section of fragments of a system of still another modification.

fication this being elected as the preferred form, for the purposes of this application.

A represents the central station, B, B', etc., the sending stations, C regular delivery stations, C' the special stations, respectively, of which there may be any desired number located wherever desired, D, D' etc. the sending conveyers and E, E' etc., the distributing conveyers, all of which conveyers radiate or extend to points in proximity to the endless collecting conveyers, F and F', located at the central station. Each of the collecting conveyers comprises four parts, sections or divisions, f^1 , f^2 , f^3 , and f^4 , respectively arranged in the form of a rectangle, and the several sorters and examiners have their stands or stations in proximity to suitable portions of these conveyers.

In my former application there was but a single sending conveyer extending from each sending station to the central station which delivered all of the parcels on to the single endless collecting conveyer so that all of the parcels passed within reach of each and possibly all of the sorters until each parcel reached the sorter whose stand was within easy reach of the receiving end of the appropriate distributing conveyer. In instances where the endless conveyer is of great length and a great many sorters are required an individual parcel may be taken from the endless conveyer and may have to be again returned to it, and so on until it reaches the proper sorter, and this represents a loss of space, time and labor. It is, of course, well known that the parcels handled are divisible into classes, according to the conditions under which they are sold or are to be delivered. For instance, some are paid for and are to be sent out by the regular deliveries: others are C. O. D. and are to be sent out by the regular deliveries: others are to be charged and sent out by the regular deliveries, and others, falling in any of the preceding classes, are to be sent out by special delivery. According to the present invention these several classes may be separated and divided to any desired extent at each sending station and separately sent out to corresponding collecting conveyers. For the purpose of illustrating the invention, I have shown in the drawings a system having provision for thus separating and dividing the parcels at the sending stations and sending them to the central station in two divisions. One of these may include cash and C. O. D. parcels, which will amount to by far the greater part of the business and these may be sent from any sending station to the endless collecting conveyer, F, by the sending conveyers, D. The proper sorters stationed along this collecting conveyer will then remove the parcels and throw them directly into the receiving ends of the appropriate distributing conveyers, E, by

which they are carried to the delivery stations, C, where they are again assorted and thrown into appropriate delivery boxes or bins, *c*. The other division may include parcels which are to be charged and parcels which are to be sent out by special delivery, or both, or require other appropriate attention, and these will be sent from the sending stations by the sending conveyer, D', to the collecting conveyer, F'. The special delivery parcels, if paid, will be thrown by the sorters stationed at the collecting conveyer, F', to the receiving end of the distributing conveyer, E', by which they are carried to a place or station C' appropriated to the special delivery of parcels by messengers or otherwise. The parcels to be charged are taken from the endless collecting conveyer, F', directly by an examiner stationed by it (in the system shown in Fig. 1) and the account of the purchaser looked up. If it is found to be correct it is O. K'd and thrown on to the conveyer, F, whence it is taken and thrown on to the receiving end of one of the distributing conveyers, E or E', accordingly as it is to be sent out by special delivery or regular delivery.

With one endless collecting conveyer located within the other it is necessary that the delivery ends of the sending conveyers be located at different levels in order that the sending conveyer for serving the inner collecting conveyer may cross and pass the outer collecting conveyer. Various arrangements for accomplishing this result will suggest themselves to those skilled in the art. In the drawings I have shown both of the collecting conveyers located in practically the same horizontal plane and I have shown the delivery end of the sending conveyer, D', which serves the inner collecting conveyer, as being located at a sufficiently high level to permit the parcels resting upon the outer collecting conveyer to pass beneath the delivery end of the sending conveyer, D'. By reason of this difference in the levels of the inner collecting conveyer and the delivery end of its sending conveyer an inclined chute, *d'*, is arranged between them so as to guide and direct the parcel from one to the other, but this chute must be considered as forming a part of the sending conveyer, within the meaning of the term "conveyer" as already defined. Guides *d*^x are used wherever they are necessary in order to guide the parcels in their transit from one level or from one direction of travel to another and are of the shape appropriate to the individual requirements, but in all instances when used they may be considered as a part of the conveyer, generally speaking. Where the volume of business is comparatively small one examiner may be sufficient to handle all of this special branch of the business so that while he is examining

one parcel the others may remain upon the inner conveyer and be carried around and around thereon until he is at liberty to handle it but this is not feasible where the volume of business is very large and hence I have provided the somewhat modified systems. It should be understood that the invention is not limited to the specific proximity or relative locations of the several parts of the system to each other, excepting where this is necessary to a carrying out of the invention. With the system shown in Figs. 1, 2 and 3 it is proposed that the examiner or examiners, and possibly a sorter for disposing of special delivery parcels, shall stand in the space surrounded by the inner collecting conveyer, but where the volume of business is large enough to warrant it, the system may be arranged otherwise.

In the system shown in Figs. 4 and 5, the distributing conveyer E' for special delivery parcels crosses both the inner and the outer collecting conveyers and extends practically the entire length of the inner conveyer so that all of the sorters stationed at the inner conveyer may throw special delivery parcels on to the conveyer, E'. But this system contemplates the services of a large number of examiners and each of these examiners must have a desk or table equipped with the necessary reference books. For example, in Fig. 4 I have shown tables, G, for as many examiners as may be required. The reference books are arranged alphabetically and divided into sets each including certain letters of the alphabet, as, for example, A to D, E to H, I to L, etc., and each of these sets is assigned to one of the examiners. The sorters stationed at the inner conveyer deliver the charge parcels on to the tables of the appropriate examiners and having examined and O. K'd them the examiners will dispose of them by delivering them on to the outer collecting conveyer F, if they are to be sent out by regular delivery or directly on to the distributing conveyer E', if it is within reach, or on to the inner collecting conveyer F', from which they are removed by the sorter and by him delivered on to the distributing conveyer E' if they are to be sent out by special delivery. On the other hand if they are not in condition to be O. K'd, and require other special attention they are disposed of accordingly. The proximity of the sorters' stands and the examiners' tables may be such that the sorters may throw parcels directly on to the tables, (as shown in Fig. 6) but in some instances the distance will be too great to permit this and in these instances a suitable number of distributing conveyers, H, are arranged with their receiving ends within convenient reach of the sorters and their delivery ends above the examiners' tables which latter are to be considered as special

distributing stations. Furthermore the parcels delivered on to the examiners' tables may accumulate, but it is desirable that they should be taken up and passed upon by the examiners in the order in which they are received. To this end inclined chutes, I, are so arranged that the parcels from the conveyers, H, will fall upon and slide down them and on to the examiners' tables so that the accumulation, if any, will be upon the chutes and the parcels will reach the examiners' tables in the order of their delivery, and these chutes are to be regarded as parts of the distributing conveyers. It will also be desirable to provide suitable guide boards, J, in order to prevent the parcels while in transit from falling off of the conveyers and these may be of any desired or suitable construction and supported by any suitable means.

In some instances the examiners' tables are double. That is to say, they are constructed and arranged so that one examiner may be stationed at each side and in these instances, each of the conveyers, H, is of sufficient width to serve one of these double tables. It is desirable, however, that the parcels for the two examiners stationed at the double table shall be kept apart and to this end a stationary dividing board, H', is arranged longitudinally over each conveyer belt and a corresponding dividing board, I', rises from each of the chutes I. This constitutes what is the equivalent of a plurality of entirely separate and independent conveyers.

In Fig. 6 I have shown a modification in which the conveyers, H, are dispensed with. The special delivery distributing conveyer, E', is placed between the inner and outer collecting conveyers and the examiners' tables, G, are placed outside of the outer endless collecting conveyer, F. This allows room within the space inclosed by the inner collecting conveyer, F', for the sorters to stand and, in addition thereto brings the inclined chutes, I, within such reach of the sorters that parcels for the examiners' tables may be thrown on to them directly, without the intervention of the conveyers, H.

It will be understood that the inclined chutes may terminate directly at the top surface of the examiners' table, or they may be continued to a vertical side wall, g, thereof, but in any event they constitute parts of the tables in the form of shelves or platforms above the tops of the tables proper, on which the parcels will accumulate within easy reach and from which they may be taken one at a time by the examiner. This arrangement will also bring the special delivery distributing carrier, E', within convenient reach of the sorters.

All of the parts which are instrumental in carrying or conducting the parcels from

the sending stations B and B' to the collecting conveyers F and F' are to be considered as integrant parts of the sending conveyers, considered as a whole. In the form of the invention shown in Figs. 1, 2 and 3, these parts include spiral blades K and K' arranged within a vertical tube K'' which extends to any desired number of floors, where said tube is provided with openings, k and k' , at the sending stations, B and B', for the admission of parcels to said blades, inclined chutes, k^2 and k^3 , which form continuations of the lower ends of the blades, K and K', and deliver the parcels on to the delivery belts D and D' and the inclined chutes d' on to which the parcels are delivered by said belts and are in turn delivered on to the belts forming the divisions or sections f' , f' , of the collecting conveyers F and F', respectively.

In the system shown in Figs. 7 and 8 the several sending stations, B, B', etc., are located on the same floor and at each station is located a wrapper's desk or table, L, L', etc., having through its top two openings, from which chutes, D^s and d^s , extend downward and through openings in the floor, terminating directly over an endless belt, D^s , which is arranged horizontally in the room below and sufficiently close to the floor thereof to enable a wrapper to throw parcels on to the belt. Suitably supported stationary guide boards, M, similar in function to the guide boards, J, already referred to are arranged at the sides of the belt and a stationary dividing board, M', similar in function to the dividing boards, H', already referred to is suitably supported between the guideboards M, above the belt D^s . The delivery end of the belt, D^s , is directly over the upper ends of two chutes, D' , and d' , which are located one above the other, as appears in Fig. 8, the upper one of which is inclined downward and crosses the outer collecting conveyer, F, terminating at its lower end in proximity to the collecting conveyer, F', while the lower one is similarly inclined and terminates at its lower end in proximity to the outer collecting conveyer, F. Thus the wrapper at each station may divide and separate the parcels intended for the collecting conveyers, F and F', and they will be kept separate throughout their transit. It will be understood that any desired number of wrappers' tables may be served by one continuous belt which, together with the dividing board, M', becomes the function equivalent of two separate conveyers and it will also be understood that the end table of the series will be located at the delivery end of the conveyer and with its chutes, D^s , d^s , directly over the chutes, D' , d' , instead of over the belt.

The drawings do not show details of the mechanism for supporting and driving the

several conveyers, but appropriate mechanism for this purpose will readily suggest itself to any one skilled in the art.

While the several conveyers for use in systems embodying the invention may be of any desired construction, still in the system shown in Figs. 7 and 8 a conveyer of the particular construction there shown is not only well adapted for this particular system, but it may be used in other systems.

What I claim as new and desire to secure by Letters Patent is:

1. A system of the class described having a substantially horizontal endless collecting conveyer, a second substantially horizontal endless collecting conveyer, located within and in proximity to the collecting conveyer aforesaid, and at about the same level, and distributing conveyers having their receiving ends located in proximity to said collecting conveyers, respectively.

2. A system of the class described having a substantially horizontal endless collecting conveyer, a second substantially horizontal collecting conveyer located within and in proximity to the conveyer aforesaid, and a plurality of sending conveyers having their delivery ends in proximity to said collecting conveyers, respectively.

3. A system of the class described having a plurality of substantially horizontal collecting conveyers having parallel portions located in proximity to each other and at substantially the same level, one of said collecting conveyers being endless and surrounding another.

4. A system of the class described, having a plurality of collecting conveyers one of which is endless and surrounds the other, and a sending conveyer which crosses the outer collecting conveyer, the delivery end of the sending conveyer being above the inner collecting conveyer.

5. A system of the class described, having a plurality of collecting conveyers located in proximity to each other but at a sufficient distance apart to afford room for sorters between them, one of said collecting conveyers being endless and surrounding the other, a plurality of sending conveyers having delivery ends in proximity to the inner and outer collecting conveyers, respectively, and a plurality of distributing conveyers having receiving ends in proximity to one of the collecting conveyers.

6. A system of the class described, having a plurality of endless collecting conveyers located one within another and in proximity to each other, a plurality of sending conveyers having delivery ends in proximity to the inner and outer collecting conveyers, respectively, and distributing conveyers having receiving ends in proximity to the collecting conveyers, respectively.

7. A system of the class described, hav-

ing a plurality of endless collecting conveyers located one within another and in proximity to each other, a plurality of sending conveyers having their delivery ends located in proximity to the collecting conveyers respectively, and a distributing conveyer crossing the collecting conveyers and having its receiving end located within the inner collecting conveyer.

8. A system of the class described having a plurality of endless collecting conveyers located one within another, and at such distance apart that both are within reach of a sorter stationed at the side of either, sending conveyers having delivery ends in proximity to the collecting conveyers, and distributing conveyers having receiving ends located in proximity to the collecting conveyers.

9. A system of the class described having a plurality of endless collecting conveyers located one within another, a plurality of sending conveyers having their delivery ends located in proximity to the collecting conveyers, respectively, a plurality of distant delivery stations, a plurality of distributing conveyers having their receiving ends located in proximity to one of the collecting conveyers and their delivery ends at the delivery stations, a plurality of special stations at least one of which is located in proximity to the collecting conveyer last aforesaid, and a plurality of distributing conveyers the receiving ends of which are located in proximity to the other conveyer and their delivery ends at the special stations, respectively.

10. A system of the class described, having a plurality of endless collecting conveyers, located one within another, a plurality of sending conveyers having their delivery ends located in proximity to the collecting conveyers, respectively, a plurality of delivery stations, a plurality of distributing conveyers having their receiving ends located in proximity to one of the collecting conveyers and their delivery ends at the delivery stations, a plurality of special stations, a plurality of distributing conveyers having their receiving ends located in proximity to the other collecting conveyer and their delivery ends at the special stations, at least one of said special stations being located in proximity to the collecting conveyer first aforesaid.

11. A system of the class described, having a plurality of sending stations located on a given floor, a central station, a plurality of sending conveyers each common to a plurality of sending stations and all extending to the central station, and a plurality of collecting conveyers on to which the sending conveyers deliver, respectively, said sending conveyers consisting in part of an endless belt located below the floor level of the sending stations and common to a plurality of said sending stations and a stationary dividing board located above and longitudinally of said belt for dividing it into separate compartments or divisions.

MARTIN C. SCHWAB.

Witnesses:

GUSTAV F. JEDLIČKA,
E. V. STACK.