S. OLSON.

MAIL DISTRIBUTING CONVEYER SYSTEM.

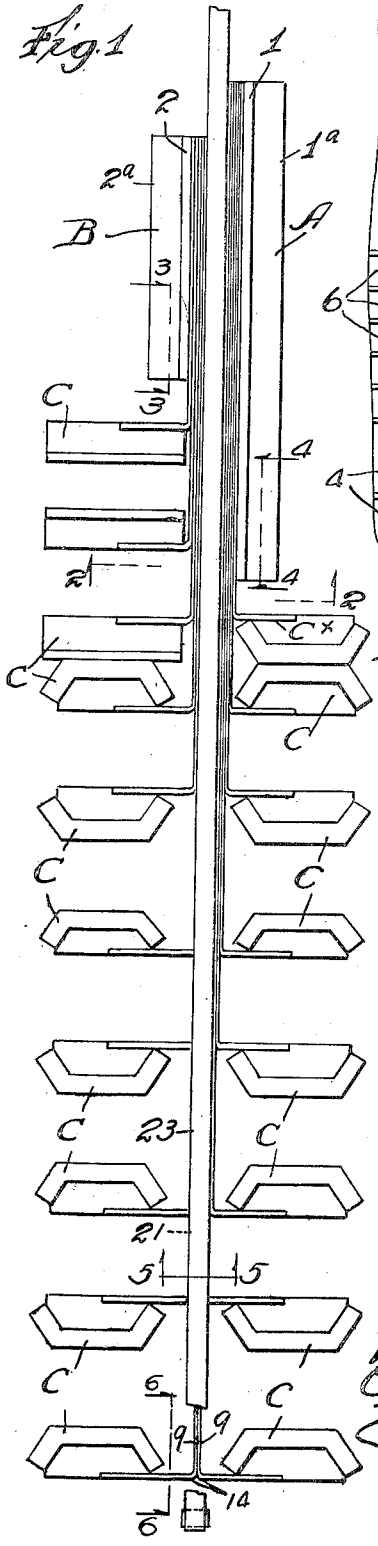
APPLICATION FILED AUG. 14, 1916.

1,332,356.

Patented Mar. 2, 1920.

3 SHEETS—SHEET 1.

Fig. 1



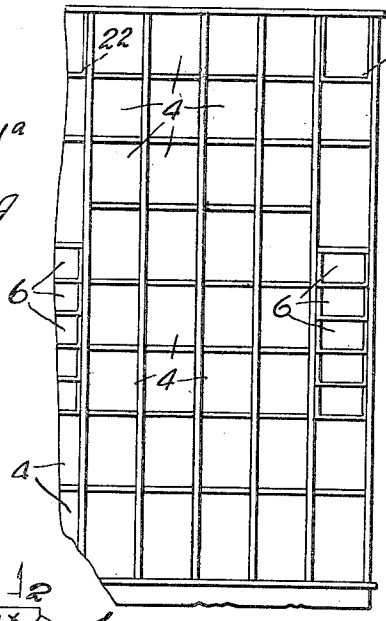


Fig. 3

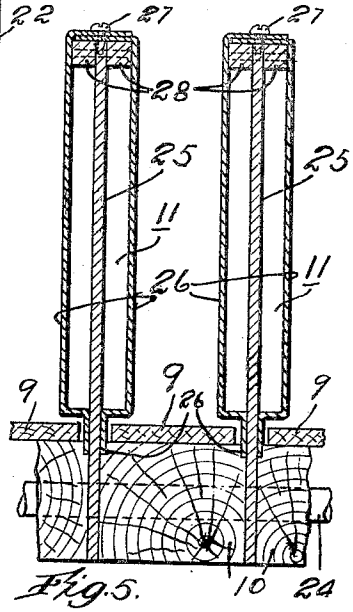


Fig. 5.

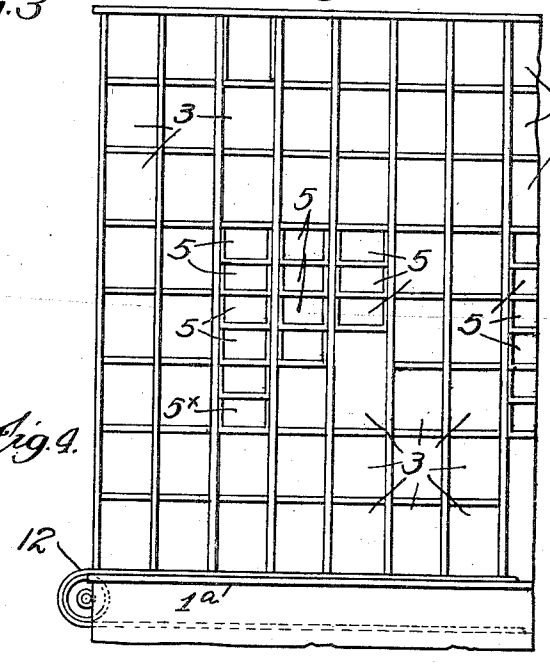


Fig. 4.

Witnesses:

Inventor
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3 SHEETS—SHEET 2.

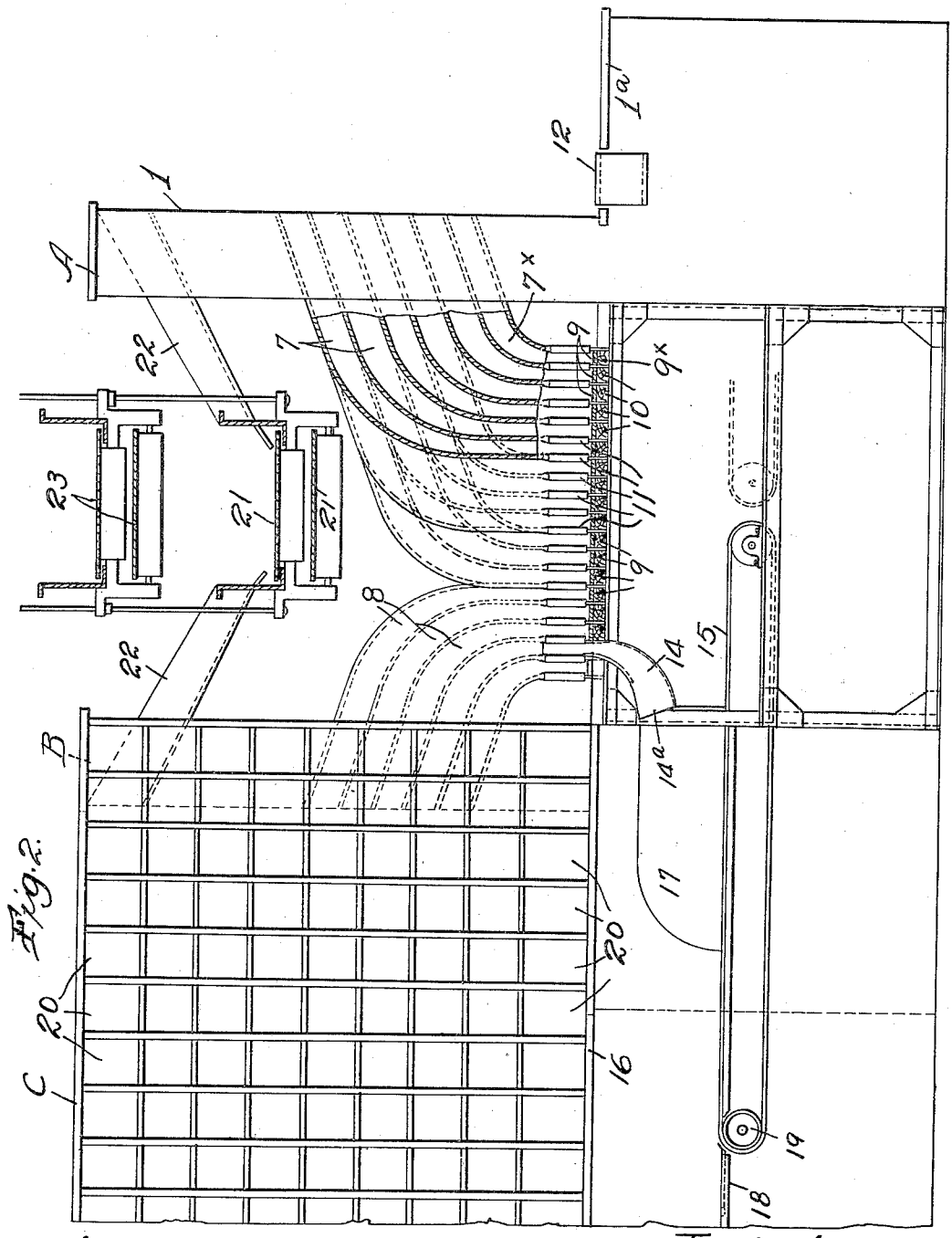


Fig. 2.

Witnesses:

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3 SHEETS—SHEET 3.

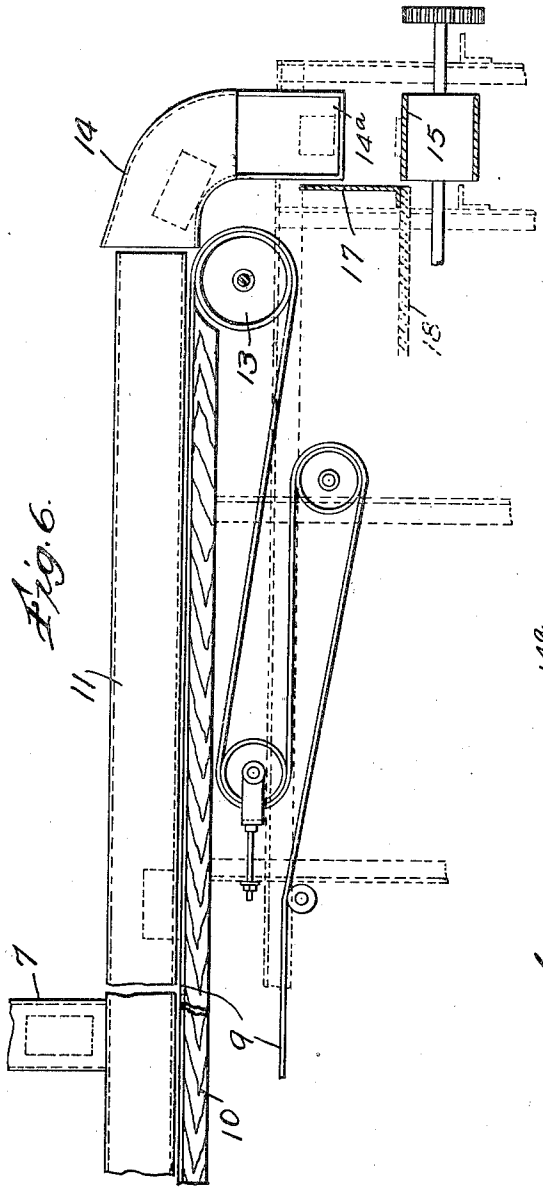


Fig. 6.

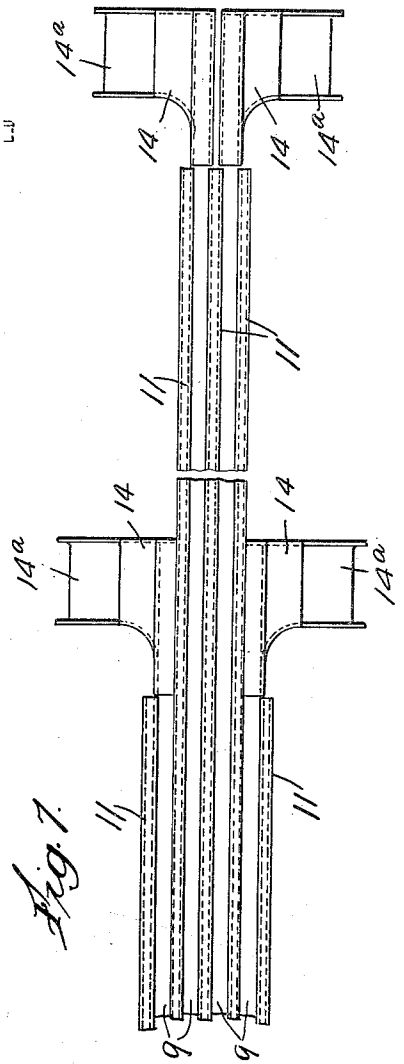


Fig. 7.

Witnesses:

Inventor
Samuel Olson

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UNITED STATES PATENT OFFICE.

SAMUEL OLSON, OF CHICAGO, ILLINOIS.

MAIL-DISTRIBUTING CONVEYER SYSTEM.

1,332,356. Specification of Letters Patent. Patented Mar. 2, 1920.

Application filed August 14, 1916. Serial No. 114,713.

To all whom it may concern:

Be it known that I, SAMUEL OLSON, 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 Mail-Distributing Conveyer Systems, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

This invention relates to conveying mechanism and associated devices designed for saving time and labor in the sorting of mail or in analogous operations. It consists of the features and elements and their combination described and shown in the drawings as indicated by the claims.

In the drawings:—

Figure 1 is a plan view showing an arrangement of conveyers and associated devices embodying this invention.

Fig. 2 is a transverse vertical section on a larger scale and taken at line 2—2 on Fig. 1.

Fig. 3 is a vertical detail section taken as indicated at line 3—3 on Fig. 1.

Fig. 4 is a vertical detail section taken as indicated at line 4—4 on Fig. 1.

Fig. 5 is a detail section illustrating constructional features and taken as indicated at line 5—5 on Fig. 1.

Fig. 6 is a detail elevation of the delivery means taken as a section at line 6—6 on Fig. 1.

Fig. 7 is a top plan view of the parts illustrated in Fig. 6.

The system embodying this invention is shown applied to what may be termed the primary and secondary distribution of mail in a post-office. The primary distribution or sorting of the letter mail is accomplished at the desks or counters designated on Fig. 1 as A and B, while the secondary distribution is carried on at the desk, C. By the present invention the distributing desks or stations, A and B, are connected with the desks or stations, C, by means of continuously-traveling conveyers, so that the employment of messengers is obviated and the clerks are able to remain at their respective desks continuously instead of walking about the room for delivering or receiving their various packages of letters.

It may be understood that before arriving at the distributing stations, A and B, the first-class letter mail is customarily sorted into short letters and long letters simply for mechanical convenience of handling, and the shorter letters which are usually in the majority are delivered to station, A, for distribution, while the long letters are distributed at station, B. Except for this slight difference stations, A and B, are functionally and constructionally similar. Both are provided with sorting racks consisting of sets of pigeon-holes, 1 and 2, respectively. As suggested in the detail views of Figs. 3 and 4 these pigeon-holes are arranged in several similar groups for the use of a number of operatives, and these views each show only a single typical group. To receive letters which for one reason or another are to be held at stations, A and B, even after they have been sorted out from the original mass of letters, there are provided pigeon-holes, 3 and 4, respectively, made in the usual manner with open fronts and closed backs. In addition to these, however, there are special receiving pockets, 5 and 6, which lead to inclined chutes, 7 and 8, respectively, discharging downwardly in the space between the opposing backs of sorting racks, A and B.

In this space between the racks, A and B, there are disposed a plurality of horizontally traveling conveyer belts, 9, each of which is comparatively narrow, that is, not exceeding one or two inches in width. These belts, 9, travel over a suitable support, 10, and are separated by partitions, 11, which are preferably of a height approximating the width of an ordinary mailing envelop, say four to five inches, so that an envelop standing on edge upon one of the belts, 9, will be maintained in approximately vertical position and will be prevented from contacting with similarly disposed envelops carried upon adjacent belts.

As the letters are sorted at stations, A and B, those which are intended for any of the stations, C, are thrown into the proper pockets, 5 and 6, and slide immediately down the chute connected with said pockets and leading for downward discharge upon the corresponding conveyer belts, 9, of which there may be one corresponding to each of the stations, C, and to each of which one of the pockets, 5 or 6, corresponds and is connected by its chute, 7 or 8. For example, a letter inserted in the pocket, 5^x, (see Fig. 4), will slide immediately down the chute, 7^x, (see Fig. 2), arriving on end on the belt, 9^x. The

motion of the belt, 9^x, in the direction of the station, C, will at once rotate the letter through about 90° bringing its lateral edge onto the belt, 9^x, and it will then be carried by the belt, 9^x, and delivered to the station, C^x, (see Fig. 1), for which it was intended. In a similar way each of the pockets, 5, leads to a particular one of the belts, 9, which in turn leads to a particular one of the stations, C; the pockets, 6, of the distributing rack, 2, are similarly connected with certain of the stations, C.

At the stations, A and B, for originally delivering letters to the several operatives there may be provided continuously-traveling conveyer belts, 12, (see Fig. 2), running flat upon the surface of the tables, 1^a and 2^a, which are associated with the respective sorting racks, 1 and 2. The means by which the letters are delivered from the belts, 9, to the stations, C, is shown in Figs. 2, 6 and 7, principally in Fig. 6. This shows one of the belts, 9, passing around a head pulley, 13, at the end of its run, and positioned to receive the letters from the belt as it rounds the pulley, 13, is a curved tube, 14, of rectangular cross section formed to guide the letter first downwardly and then to discharge it laterally with respect to its direction of travel on the belt, 9, as will be clear upon considering the end view of the tube, 14, in Fig. 2. Upon emerging from the lateral mouth, 14^a, of the tube, 14, the letter drops flat upon a transversely traveling belt, 15, running under or below the level of the sorting table or counter, 16, of the distributing desk, C, and provided with a lateral guard or flange, 17, for preventing the letters from ever falling off the belt, 16, into an inaccessible position. The belt, 15, traveling away from the assembly of conveyer belts, 9, and toward the distributing desk, C, runs rather slowly and ultimately delivers its accumulation of letters onto the stationary surface or shelf, 18, extending in the plane of the belt, 15, just beyond its head wheel, 19. From this position the accumulation can be periodically removed by the clerk and either held in the hand or laid upon the desk or counter, 16, for final distribution into the pigeon-holes, 20, of his sorting rack.

It will be evident that for primary distributing stations, A and B, by reason of the fact that the letters do not accumulate in the pockets, 5 and 6, these pockets can be smaller than the ordinary pigeon-holes, 3 and 4, and the clerk can work much faster because he always has an open and empty pocket to throw the letters into instead of finding it necessary to use one hand for packing down an accumulation to permit the insertion of additional letters as is often necessary with the plain pigeon-holes. In this connection it may be noted that Fig. 2 shows an overhead conveyer belt, 21, with chutes, 22, leading to it from stations, A and B. These chutes, 22, are for "special delivery" letters and permit them to be fed onto the belt, 21, as soon as they appear in the process of sorting and distribution, and will be carried immediately to the "special delivery" department so that to a certain extent the "special delivery" service may be speeded up more than if the letters were allowed to accumulate in special pigeon-holes of the sorting racks, 1 and 2. At the final distributing stations, C, as soon as any one of the pigeon-holes, 20, is pretty well filled the packet of letters is tied up with a tape or string and tossed onto the overhead conveyer belt, 23, seen in Figs. 1 and 2, by which it is carried to the proper department for final disposal in the railway mail pouches or in the carriers' sacks, as the case may be. That is to say, the herein-described distribution system is not applicable alone to outgoing mail but also to incoming mail which is to be distributed for local delivery.

Fig. 5 indicates the preferred detail construction of the partition, 11, disposed between the parallel traveling conveyer belts, 9. The support for the belts, 9, is made up of longitudinal rails, 10, one under each belt, 9, these rails being tied together transversely by tie rods, 24, and having secured between them vertically extending metal plates, 25, and also the lower edges, 26^a, of sheet metal side walls which are off-set from the plates, 25, at lines just above the belts, 9, so that their vertical guiding surfaces are carried overhanging the margin of the belts, 9, to prevent any of the letters from being caught between the partitions and these margins of the belts. No other securement is necessary at the lower edges of the wall, 26, because their upper edges are bent over and detachably secured to the top of the plates, 25, as by means of screws, 27, shown in Fig. 5; thus the lower edges, 26^a, are held in the grooves of the supports, 10, without the use of any securing means which might come in contact with the letters carried on the belts, 9, and the walls, 26, present only smooth unbroken surfaces for contact with the letters on said belts. Preferably the upper edges of the plates, 25, are made T-shaped in cross section by applying facing rails, 28, to both sides of each plate, 25, and these rails also serve to strengthen the plates, 25, at the points where they are drilled and tapped for receiving the screws, 27. It will be evident that this construction also facilitates the removal of the guide walls, 26, if this should be necessary for renewal or repair.

I claim:—

1. In combination with an unobstructed passage formed with parallel side walls and a traveling belt constituting its bottom, a

fixed, unobstructed tubular chute opening directly into said passage and having its opposite walls connecting respectively with the upper edges of said side walls of the passage.

2. Conveying apparatns comprising, in combination with an unobstructed passage formed with narrowly spaced vertical side walls and a traveling belt constituting its bottom, a loading station disposed laterally of said belt provided with a tubular feed chute whose receiving portion extends transversely of the direction of travel of the belt and is formed with upper and lower walls both extending downwardly into curves terminating in substantially vertical planes at the discharge end, and registering respectively with the upper edges of opposite side walls of the passage.

3. In the combination set forth in claim 2, said upper and lower walls of the tubular chute converging gradually from a maximum separation at the receiving end to a minimum spacing at the discharge end of the chute.

4. In conveying apparatus adapted to conduct flat packages such as cards or letters along a horizontal path resting on edge in substantially upright position, a receiving chute comprising a laterally flattened tube having a vertically extended receiving mouth disposed at the end of such horizontal path to admit the packages, said tube being formed as an elbow curving downwardy from such receiving mouth and connecting with a laterally curving elbow discharging transversely of the direction from which the packages enter the said receiving mouth.

5. In a conveyer system comprising a belt and a support over which it runs, a fixed lateral guide consisting of an upright member laterally adjacent the support and a guide wall of sheet material engaging the top of said upright and smoothly depending therefrom, overhanging the belt margin at a line slightly above said belt, then extending beyond said margin to the upright and downwardly between said upright and the belt support.

6. In a conveyer system comprising a conveyer belt, a support over which it runs, and fixed lateral guides comprising vertical members secured in the support and extending above the supporting surface thereof, said surface having grooves running parallel with the belt at each margin thereof, guide walls of sheet material mounted with their lower edges in said grooves but off-set from the vertical plane thereof at lines just above the belt for overhanging the edges of said belt, the upper edges of said walls being bent over and secured to the tops of said vertical members whereby smooth unbroken surfaces are presented by the guide walls for contact with articles carried on the belt.

7. In a conveyer system comprising a plurality of conveyer belts, a support over which they run composed of members slightly wider than each of the belts positioned side by side with means tying them together transversely, and fixed partitions between adjacent belts each comprising a plate secured between adjacent supporting members and extending above their supporting surface, and side walls of sheet metal having their lower edges secured with each plate between adjacent supporting members but off-set from the plate at a line just above the belt on the support for overhanging the edges of such belt, said plate having a T-head for spacing said walls at the top, and the upper edges of the walls being bent over and detachably secured to the top surface of said T-head.

In testimony whereof I have hereunto set my hand at Chicago, Illinois, this 11th day of August, 1916.

SAMUEL OLSON.