F. G. JAHN.

MAIL SORTING AND STACKING MACHINE.

APPLICATION FILED OCT. 23, 1912.

1,100,570.

Patented June 16, 1914.

2 SHEETS—SHEET 1.

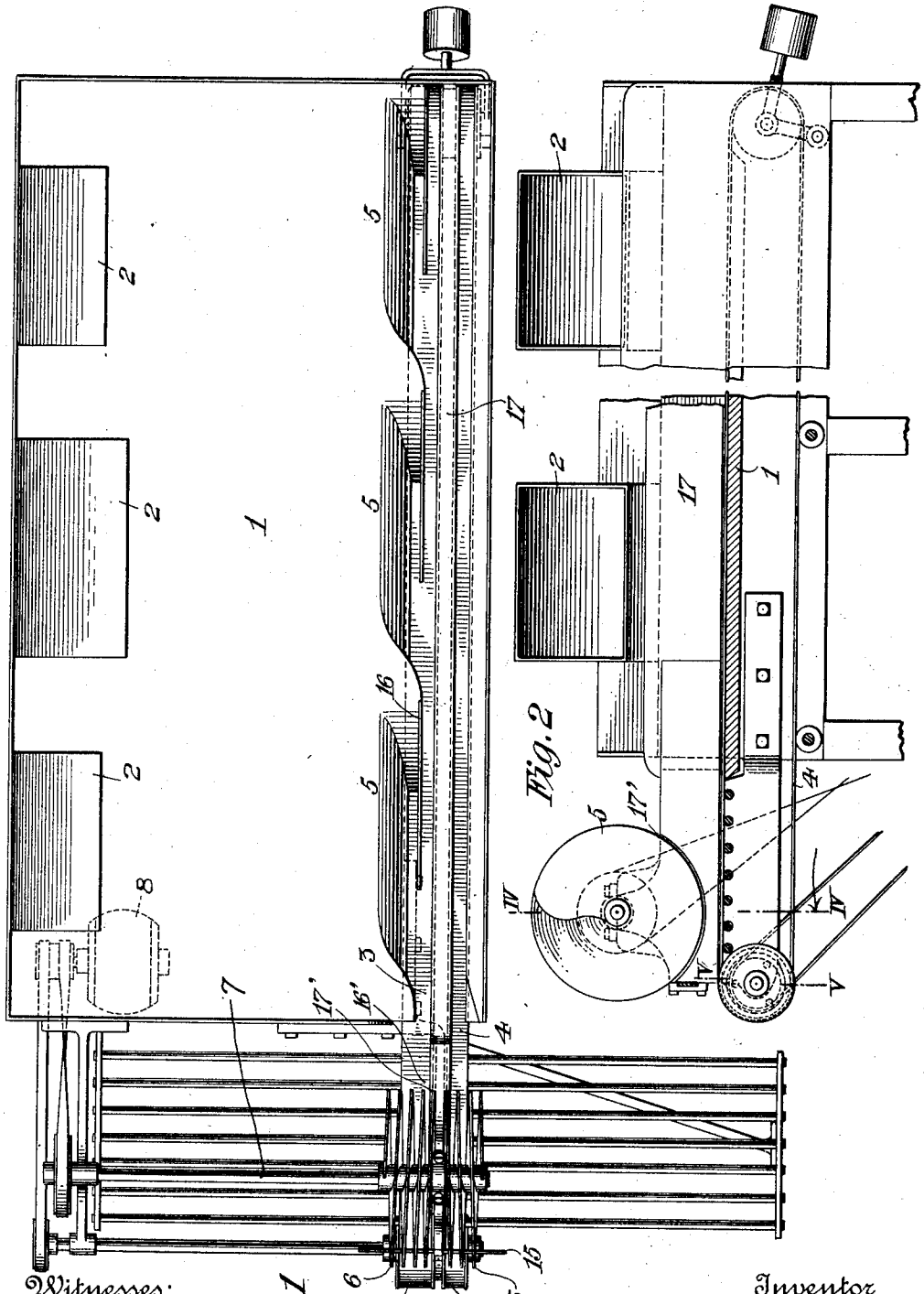


Fig. 1

Fig. 2

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2 SHEETS—SHEET 2.

Fig. 3

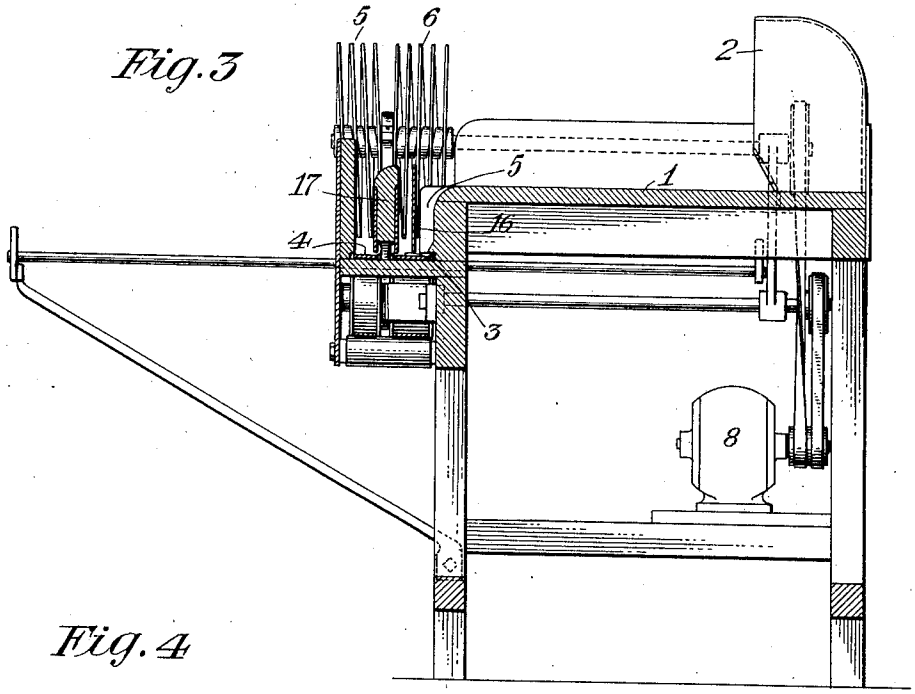


Fig. 4

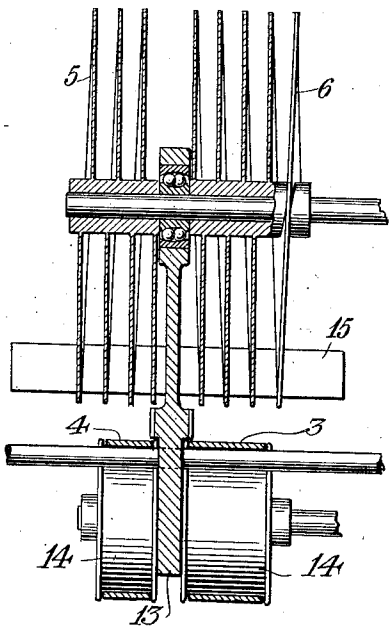
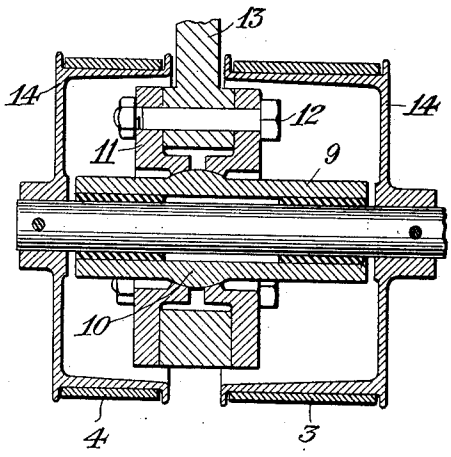


Fig. 5



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UNITED STATES PATENT OFFICE.

FREDERICK G. JAHN, OF BROOKLYN, NEW YORK, ASSIGNOR TO INTERNATIONAL POSTAL SUPPLY COMPANY OF NEW YORK, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MAIL SORTING AND STACKING MACHINE.

1,100,570. Specification of Letters Patent. **Patented June 16, 1914.**

Application filed October 23, 1912. Serial No. 727,383.

To all whom it may concern:

Be it known that I, FREDERICK G. JAHN, a citizen of the United States, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Mail Sorting and Stacking Machines, of which the following is a specification.

This invention relates to pick-up tables for sorting and stacking mail matter. It is the practice in canceling mail matter to dump the mails on a sorting table, the sorting hands standing at the table and taking the dumped letters and giving them a rough arrangement and classification. That is to say the third and fourth class matter is separated from the first class matter and the latter is divided roughly according to the length of the envelops. For convenience the letters are dropped on conveyers of any suitable or desired character, there being the ordinary pockets used with conveyer systems to facilitate the forwarding of the mail matter by such a conveyer belt. An extra conveyer belt takes the long letters, but as there are few of these it is not necessary to provide the pockets which usually form part of conveyer systems, for this latter conveyer, it being sufficient to merely drop the letters directly on the belt between suitable guiding walls. The circulars etc. are thrown into chutes. With an apparatus of this class operators work very rapidly, so that the letters do not pass forward singly and separated by a space or interval, but the letters come overlapping and even in groups of half a dozen at a time. Under these circumstances any usual stacker of the ordinary form depending on recurrent pushes against the mail matter in a lateral direction will not serve the requirements, because although such a mechanism will do the work where letters do not come along in bunches, the arrival of a group of letters will prevent any such mechanism from stacking the mail in a uniform pile. Therefore it has been the custom to add a complete feed or rotary separator mechanism whose purpose is to shoot the letters forward with high velocity to the stacker, one at a time, so that there is sure to be a space or interval between successive letters. By the use of such a separator or feeding mechanism, which operates with great rapidity, it is possible to separate out the groups of letters, and feed them individually, and yet with such rapidity that the machine is not choked up by the supply from the conveyer belts. The objection to this mechanism is that it is expensive and complicated, since a feeding apparatus and separator are necessarily quite intricate in their construction, requiring attention and being liable to get out of order. It is the purpose of my invention to provide an apparatus avoiding these difficulties, and having all the advantages first described.

With these objects in view the invention consists in the improved pick-up table as hereinafter set forth.

In the drawings:—Figure 1 is a plan view of a pick-up table embodying the principles of this invention. Fig. 2 is a longitudinal sectional view of the same partly broken away. Fig. 3 is a transverse sectional view. Fig. 4 is a detail sectional view on the line IV—IV of Fig. 2. Fig. 5 is a detail sectional view on the line V—V of Fig. 2.

Constructions embodying the invention will of course include a sorting table 1, the usual chutes 2 for third and fourth class matter, and conveyer belts 3, 4 conveniently located to forward mail matter placed upon them. There will also be the usual pockets 5 employed with conveyer systems or belts, by means of which the placing of the small letters on the conveyer belt 3 is facilitated. With this apparatus the letters travel forward singly or in groups and are not given any further attention by the operators. The stacking mechanism is required to do the work of putting the letters in proper stacks for the canceling machines. I have found that by the use of a large rapidly spinning helicoid having a pitch of perhaps half an inch and an axial depth considerably greater than the width of the largest letters, the same being spun on an axis well above the tops of the letters and rotating on its lower half or side in the direction of their travel, that the letters will be properly taken care of even although they come in groups of three or four or more at a time. The rapid rotation of the helicoid in the direction stated and under the circumstances stated, produces an engagement with the upper corner of the letters first, so that the letter is held against falling over sidewise, and also from being crowded up in the air away from

the surface of the table. Furthermore on account of the large diameter of the helicoid and its rapid rotation in the direction stated, there is a drawing action or forwarding action on the letters, which in connection with the conveyer belts causes them to be carried into the helicoid with certainty, even although they are in a group. If the group is too numerous to go between two juxtaposed blades of the helicoid, part of the letters will pass between the next adjacent blades, and stacking will be done as well as if all the letters went between two juxtaposed blades.

The rotation of the helicoid has the effect of shifting the letters laterally very quickly and they are pressed against a follower, or in other words stacked, as rapidly as they come along. This is due to their being shifted sidewise by the spirals of the helicoid. Two helicoids 5 and 6 may be used on a horizontal shaft or axis 7, having oppositely directed spiral pitches. One helicoid 5 receives the long letters and the other 6 the short letters. In this way the long letters will be stacked on one side and the short letters on the other, and neither will interfere with the stacking of the other. Of course any suitable followers may be used. An electric motor 8 is illustrated for driving the helicoids.

In Fig. 5 a detail is illustrated showing the means for driving the conveyer belts. These conveyer belts should run in close proximity to one another and their guiding pulley should be rigidly supported. A bearing or journal block 9 has a rounded portion 10 received between cheeks 11 which are held together by bolts 12 passed through a frame piece 13. By this means the journal or bearing block 9 can take any alinement required to suit the other bearing for the conveyer pulley shaft. Furthermore, the bearing is protected from dust and the pulleys 14 are rigidly supported directly at the location of the strain upon them. It will be observed that each helicoid is located directly above one of the conveyer belts, each conveyer belt in fact passing wholly across the diameter of the helicoid beneath the same. There is however a stop plate 15 beyond the helicoids, and projecting to a suitable height limited only by the rounding periphery of the helicoid. This stop definitely arrests the mail matter while it is being transferred laterally or stacked by the rotation of the helicoids. This plan of carrying the mail matter entirely across the underside of the helicoid and beneath the horizontal shaft or axis 7 thereof, is advantageous because the first engagement of the helicoid with the mail matter tends to hold the mail down on the belts and prevent it from lifting at the forward corner. Moreover the fact that the axis is substantially above the top edge of the mail matter makes a definite force present at all times to carry the mail matter forward or onward, thereby assisting the belts beneath. When the mail matter arrives in bunches it is important that it be held in place and prevented from tilting upward, and it is furthermore important that every possible force be exerted to carry the letters quickly out of the way of those that follow. It will further be observed that the restraining walls 16, 17 of the grooves beneath which the conveyer belt travels are interrupted on one side 16′ at the location of the helicoids, and in the best constructions the helicoid will be countersunk into the wall 17 on the other side at 17′.

What is claimed is:—

1. A machine for sorting and stacking mail matter comprising a table having pockets, a conveyer belt beneath said pockets and traveling beyond the end of said table, a shaft or axis above the conveyer belt and separated therefrom by a substantial distance, a helicoid rotating beyond the table above said belt and on said shaft or axis with its lower half in the direction of the movement of the belt, and a stop on the farther side of said helicoid beyond the table, whereby mail matter passes beneath said shaft or axis, and through the coils of the helicoid, until it engages said stop.

2. A machine for sorting and stacking mail matter comprising a table having pockets, a conveyer belt beneath said pockets and traveling beyond the end of said table, a second conveyer belt, a pair of reversely arranged co-axial helicoids rotating beyond the table and above the belt, and in the direction of movement of the belt on their lower halves, and stops on the farther side of said helicoids beyond the table.

Signed at New York in the county of New York and State of New York this 21st day of October A. D. 1912.

FREDERICK G. JAHN.

Witnesses:
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ALFRED W. PROCTOR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."