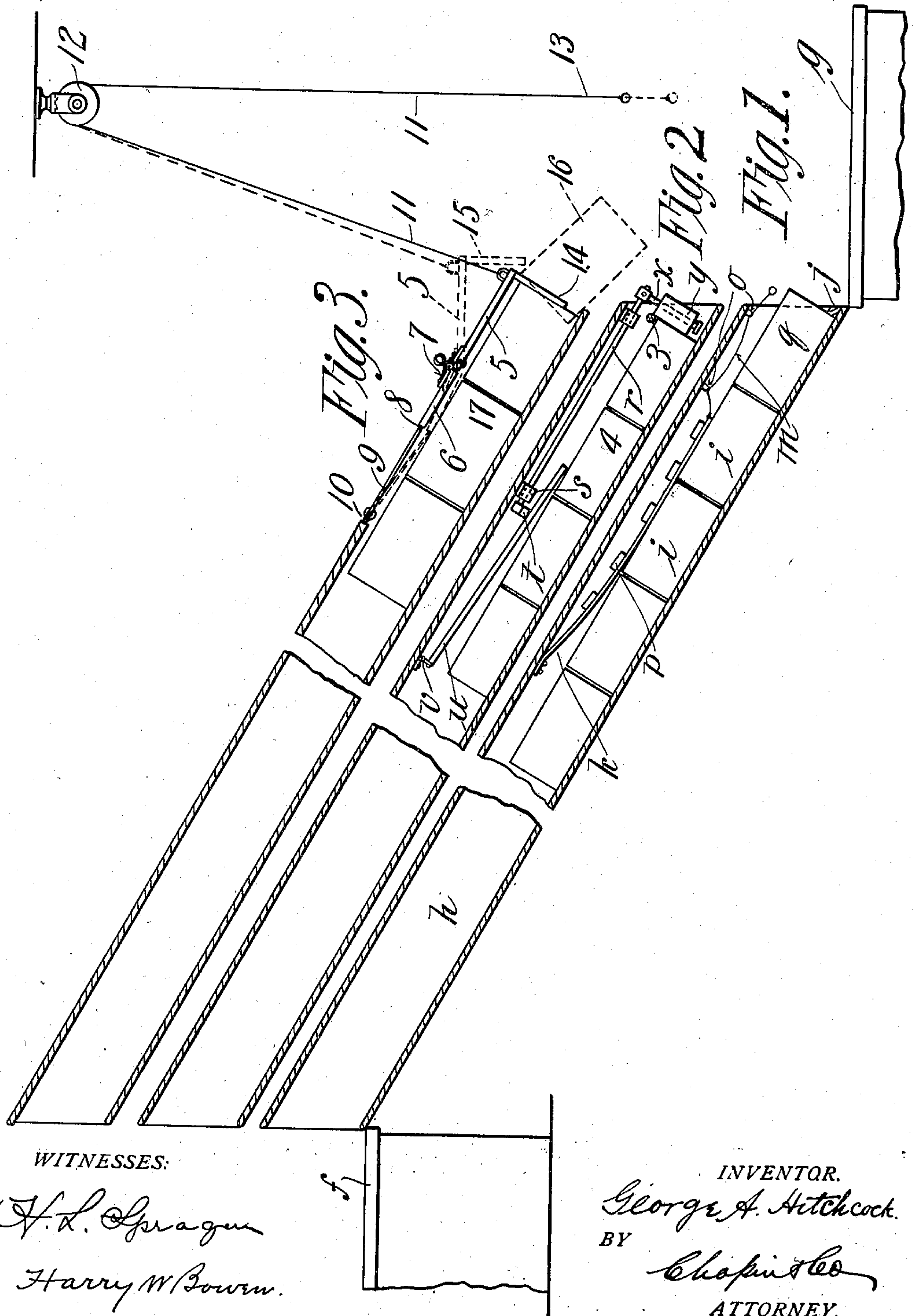


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DELIVERY CHUTE.  
APPLICATION FILED NOV. 24, 1908.

924,351.

Patented June 8, 1909.  
2 SHEETS—SHEET 1.



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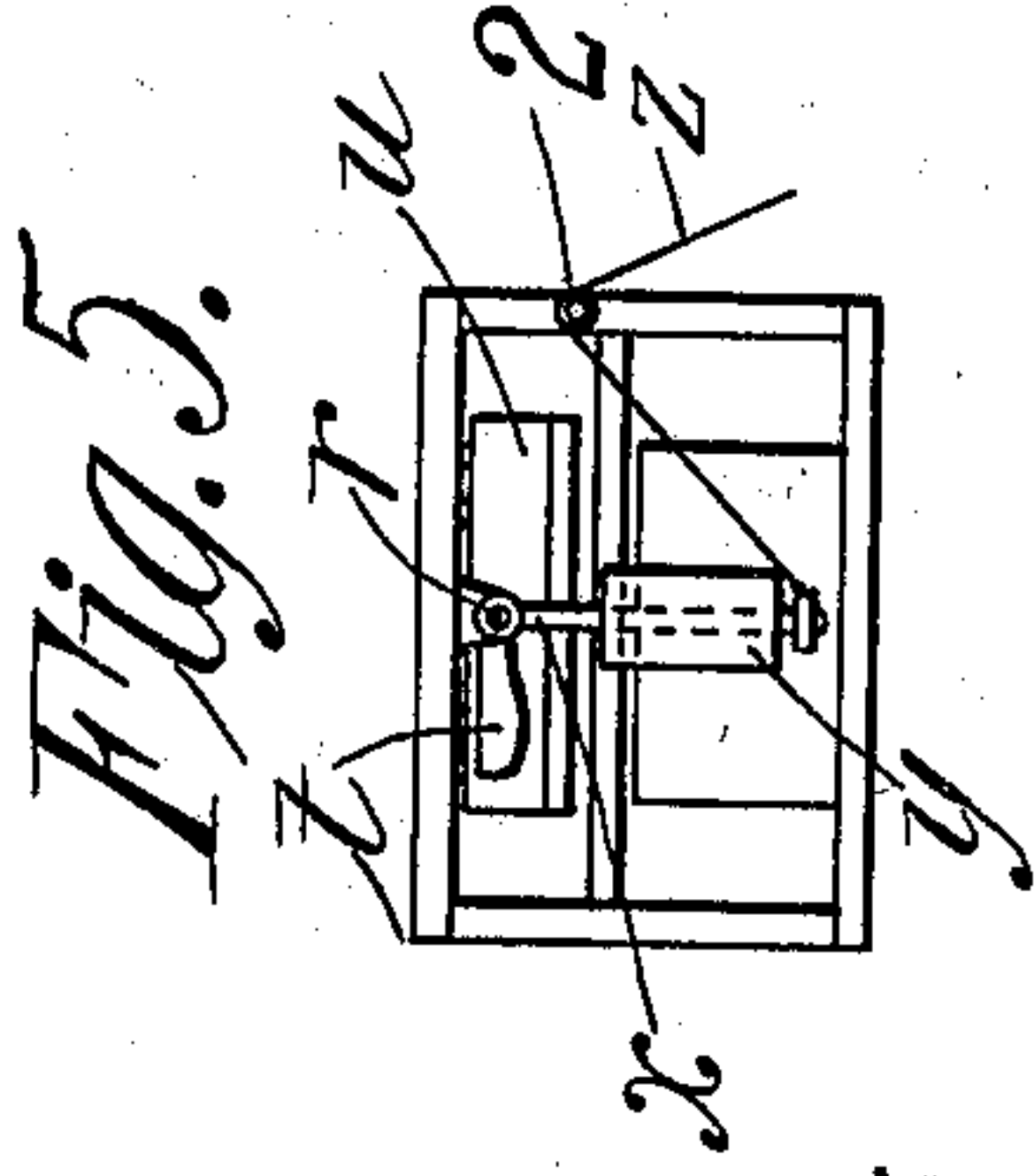
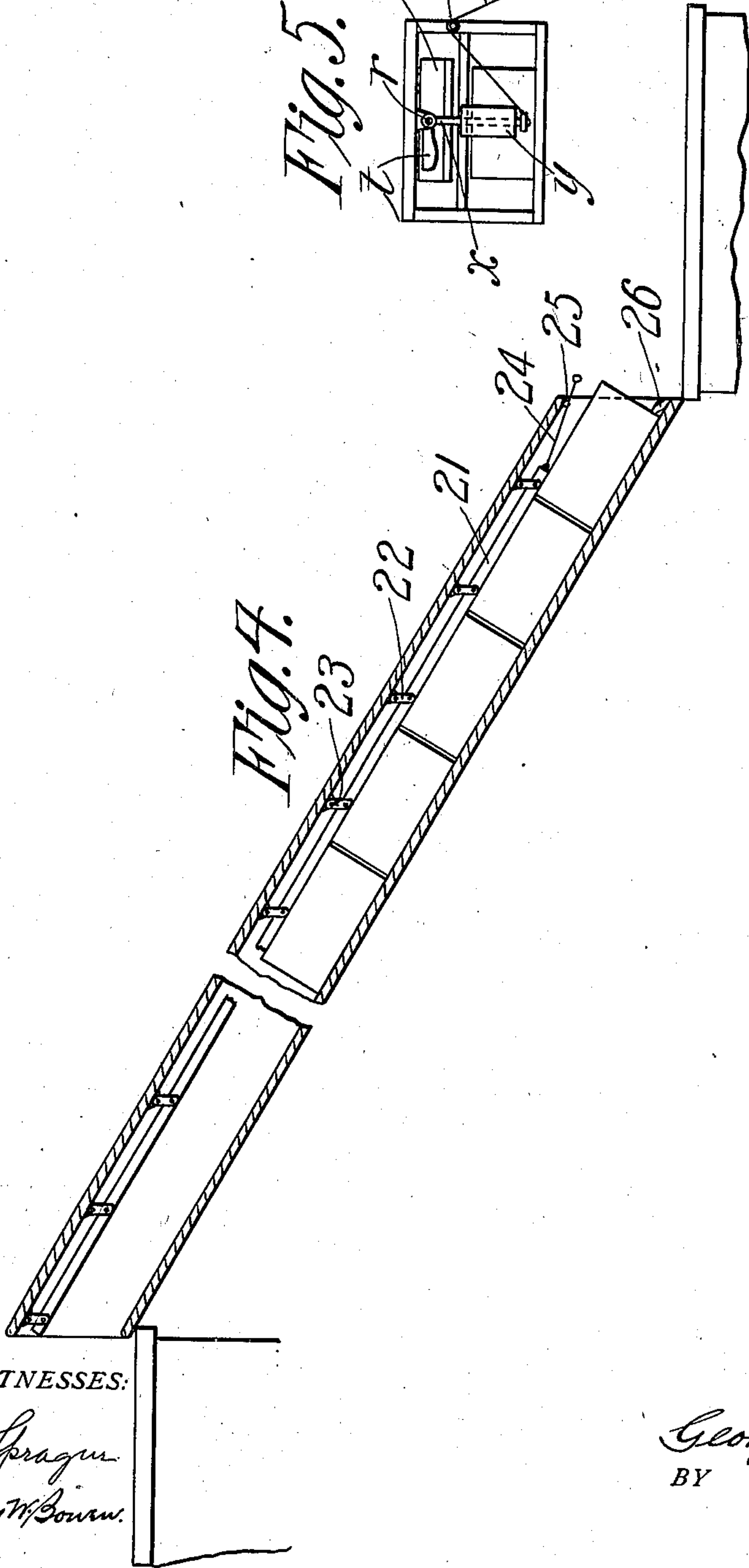


Fig. 4.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE A. HITCHCOCK, OF WARE, MASSACHUSETTS

## DELIVERY-CHUTE.

No. 924,351.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed November 24, 1908. Serial No. 464,255.

*To all whom it may concern:*

Be it known that I, GEORGE A. HITCHCOCK, a citizen of the United States of America, residing at Ware, in the county of Hampshire and State of Massachusetts, have invented new and useful Improvements in Delivery-Chutes, of which the following is a specification.

This invention relates to improvements in store service apparatus, particularly to that used in grocery stores, and the object of the invention is to provide convenient means for delivering different kinds of goods to a central point in the distributing or delivery part of the store, as for example where the goods or merchandise are stored in bulk on one floor of a building and it is desired to deliver the same in package or sack form, or canned goods, to the delivery order counter on another floor below the store-room.

The invention broadly consists in providing chutes inclined at a suitable angle to the horizontal and extending from the wrapping or assembling counter to the delivery or order counter, the lower end of the same being provided with a suitable stop device for retaining the packages in place in the chute, and at the same time permitting the lowermost package to be conveniently removed from the chute by the operator.

The simplest form of stop in my device is a fixed or immovable one, other forms being provided, as will be described in the body of the specification, for accomplishing the same results.

By employing a plurality of chutes, I am enabled to arrange for temporary storage, packages of merchandise of different materials, as salt, beans, canned goods, sugar, etc., the chutes being refilled as the demands of trade require, from time to time.

In the drawings forming part of this application,—Figure 1 is a structure showing a retarding device located near the lower end of the chute in addition to the fixed stop. Fig. 2 is a modification of the retarding device and shows additional means for permitting the delivery of a single package from the chute, and at the same time retaining the others in position in the chute against movement. Fig. 3 is a further modification showing the means for permitting the discharge of the lowermost package and at the same time holding back against movement the remaining packages, this form being designed for use where the end of the chute is out of the

reach of the operator. Fig. 4 is a modification for placing a frictional drag or retardation on several of the packages at one time, this form being used where it is desirable to have a chute that is inclined its entire length, and Fig. 5 is an end view of the outlet end of Fig. 4.

Referring to the drawings in detail the structure shown in Fig. 1 of the drawings in which the chute *h* is arranged in an inclined position from end to end, that is from the assembling counter *g* to the ordering and distributing counter *f*. The packages therein are indicated by *i*. This chute is provided with a fixed stop *j*, and in addition a retarding device is employed which consists of a piece of flexible material *k*, as canvas or leather, that is attached by its upper end to the upper wall of the chute, its lower end having connected thereto a pull-cord *m* that extends through eyelets *o*.

*p* designates suitable weights that are attached to the flexible element *k* and serve to exert a downward pressure on several of the packages at one time. These weights and the canvas thus provide a frictional resistance or drag against the downward movement of the column of the packages above, but when it is desired to remove the lowermost package, as indicated at *q*, it is only necessary to disengage the same from the stop *j* and lift the package through the opening above the stop and the roof of the chute, and then by pulling the cord *m*, the frictional drag of the weights may be removed from the lower end of the column, when the succeeding package will be moved by the force of gravity downward against the stop *j*. By employing this frictional drag or retarding device the lowermost package is prevented from being injured by the weight of the other packages above.

In the construction shown in Figs. 2 and 5, in which another form of retarding device is employed for holding back the column of packages, and yet permitting the easy removal of the lowermost package, *r* designates a rotatable rod longitudinally arranged in the upper portion of the chute in suitable retaining devices, as shown at *s*, which may be termed the bearing boxes, the upper end of the rod being provided with a finger or offset portion *t*, which normally rests upon a strip or board *u* that is hinged at one end to the upper portion of the chute, as shown at *v*. The lower end of the rod *r* is provided



with a depending arm  $x$  on which is mounted a roller  $y$ . Attached to the lower end of the arm  $x$  is the cord  $z$  which passes over a second roller 2. 3 designates a stop extending transversely across the end of the chute but high enough from the bottom to permit a package to pass thereunder. The operation of this form of my invention is as follows: When the cord  $z$  is pulled downward, the roller  $y$  is withdrawn away from the lowermost package, the stop 3 preventing the roller  $y$  from lifting the package upward; at the same time the finger  $t$  forces the strip or board  $u$  downward against the package immediately above the lower one, as indicated at 4, thus holding the column of packages against downward movement. Upon releasing the downward pull on the cord  $z$  the action of the retarding device is withdrawn permitting the column of packages to slide downward against the roller  $y$ , it being understood that when the roller  $y$  moves out of the path of the package, the same will readily fall onto the counter  $g$  or other suitable receiving device, or it can be taken from the chute by the operator.

Referring to the construction shown in Fig. 3, for retarding the downward movement of the packages, when it is desired to remove the lowermost one: 5 designates a right angle element that is hinged at its upper end to a second element 6 by means of a spring-hinge 7 which normally holds the elements 5 and 6 in a straight line. The upper end of the element 6 is pivotally connected at 8 to a board or rod 9 which, in turn, is pivoted to the upper portion of the chute at 10. A cord 11 passes over a pulley or other antifriction device having one end attached to the part 5 and its other end depending in front or over the counter  $g$  or extending to any other convenient point as occasion may require, so that when the lower end 13 of the cord is pulled downward the depending portion 14 will be lifted to the dotted line position 15 permitting the package 16 to fall out from the lower end of the chute, and at the same time forcing the rod 9 and the upper end of the element 6, by reason of the spring-hinge 7, into contact with the upper surface of the succeeding package 17, and temporarily holding the column backward against downward movement. As soon as the pull on the cord 11 is released, the spring-hinge 7 will snap or move the parts 5, 6, and 9 back to the full line position which will remove the retarding effect and allow the column to slide

downward against the depending element 14. This modification is designed to be used where the end of the chute is out of the reach of the operator.

Referring to the modification shown in Fig. 4, in which a retarding device is employed: 21 designates a rod or bar extending over the tops of several packages and is pivotally connected to a series of links 22 which are, in turn, pivotally connected to the roof of the chute at 23. Attached to the lower end of the rod or bar 21 is a wire or cord 24 which extends through an eye 25, the lower end of the same being within easy reach of the operator. The operation of this device acts normally to hold back the downward movement of the packages but at the same time permits the operator to remove the lowermost package from the chute. A stop 26 is provided, as in the other forms, for checking the downward movement of the packages. When the cord 24 is pulled, the frictional drag of the bar 21 is removed, permitting the column of packages to slide downward against the stop 26. The bar, like the rod 18, may extend the entire length of the chute and be operable from the upper as well as the lower end.

It is to be particularly understood that I do not limit myself to the employment of my invention in grocery stores, but the same is readily adapted for widely different uses, and for different kinds of merchandise, nor do I limit myself to the particular form in cross section of my chutes, as the same may be made in shapes other than rectangular.

What I claim, is:—

1. A package delivering and storage device comprising a chute arranged in an inclined position, the same being provided with means for retarding the movement of a column of packages, as described, said means including a frictional drag arranged in the roof portion of the chute and operable from the delivery end of the chute.

2. In a delivery device for packages, the combination, with a chute, a fixed stop element located at the delivery end of the chute, and means located in the roof portion of the chute for simultaneously exerting a frictional drag on a column of packages.

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Witnesses:

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H. W. BOWEN.