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Patented Mar. 25, 1902.

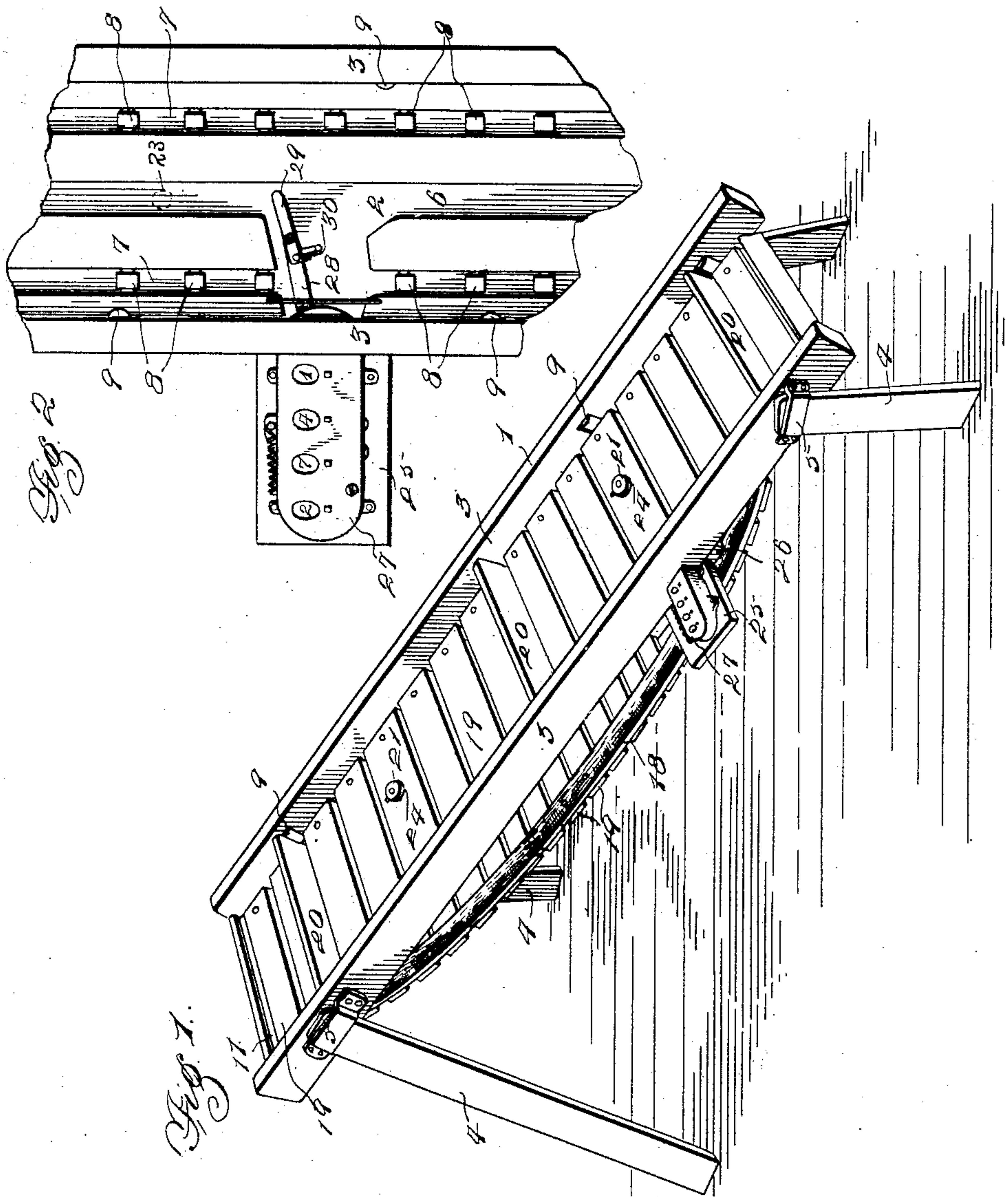
C. H. SPENCE.

SELF REGISTERING CONVEYER CHUTE.

(Application filed Sept. 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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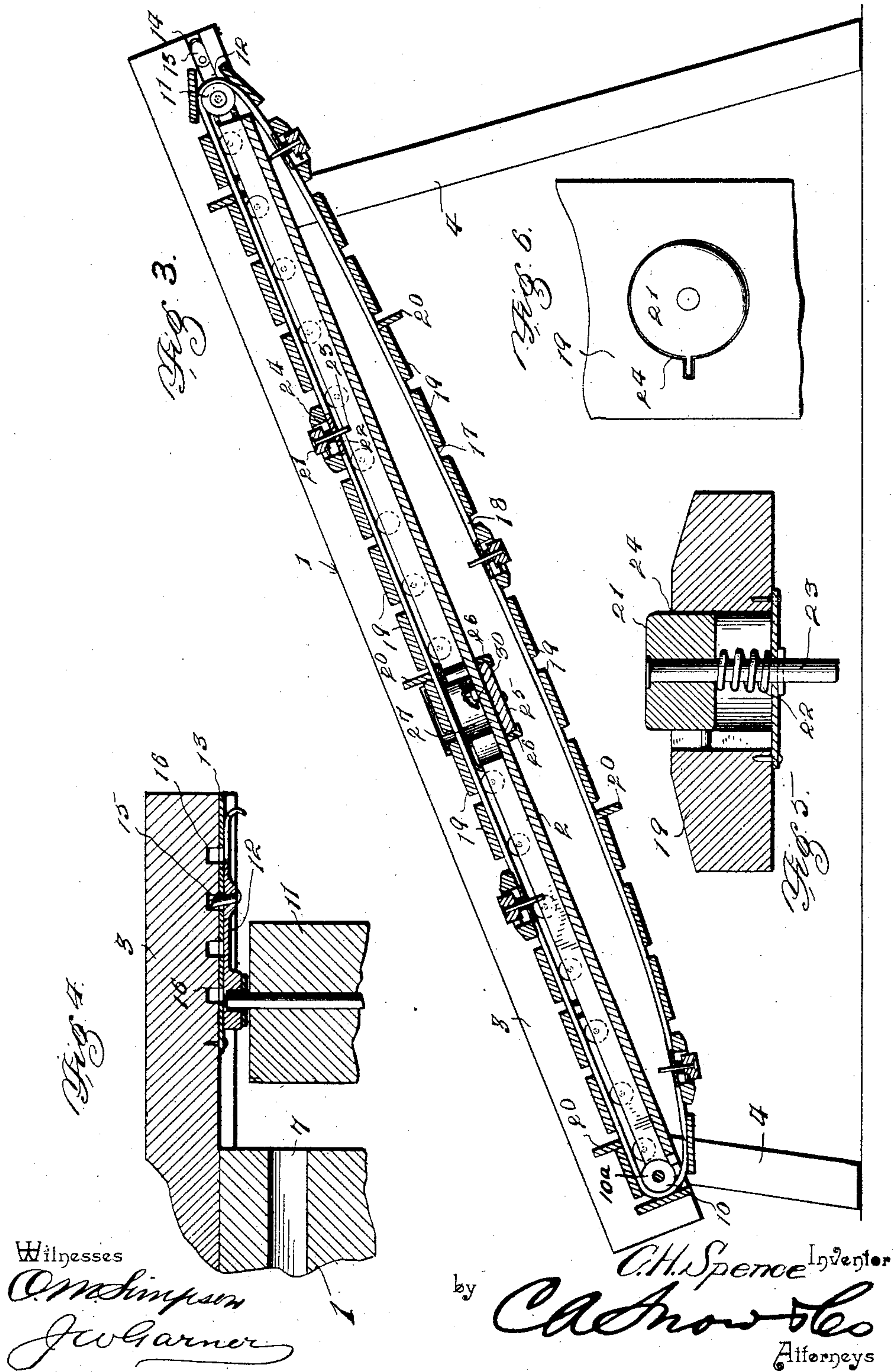
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2 Sheets—Sheet 2.





# UNITED STATES PATENT OFFICE.

CHARLES HENRY SPENCE, OF ST. PAUL, MINNESOTA.

## SELF-REGISTERING CONVEYER-CHUTE.

SPECIFICATION forming part of Letters Patent No. 695,957, dated March 25, 1902.

Application filed September 28, 1901. Serial No. 76,911. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES HENRY SPENCE, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Self-Registering Chute, of which the following is a specification.

My invention is an improved self-registering conveyer-chute for automatically numbering sacks of grain or other commodities conveyed through the chute; and it consists in the peculiar construction and combination of devices hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a self-registering conveyer-chute constructed in accordance with my invention. Fig. 2 is a detail view showing the construction of the floor of the trough or frame and the construction of the pivoted spring-pressed tappet-arm on the operating-bar of the registering mechanism, the endless traveling conveyer element being removed. Fig. 3 is a vertical longitudinal sectional view of my improved self-registering conveyer-chute. Fig. 4 is a detail view, being a section taken on a plane indicated by the line *a* of Fig. 3, showing means for shifting the roller at the upper end of the trough or frame for tightening the endless traveling conveyer element. Fig. 5 is a detail sectional view through the center of one of the straw-slats of the carrier, showing the spring-pressed button in the same. Fig. 6 is a detail top plan view of the same.

The inclined trough or chute 1 comprises the bottom 2 and the sides 3. As here shown, the chute is supported by standards 4, the upper ends of which are fitted in keepers 5 on the sides of the chute; but the latter may be supported by any suitable means and at any desired inclination. On the upper side of the bottom of the chute is a centrally-disposed longitudinal channel 6. Channels 7 are formed in the bottom of the chute on opposite sides of the channel 6, and antifriction-rollers 8 are disposed and mounted for revolution in the said channels 7, the upper sides of the said antifriction-rollers extending slightly above the bottom 2. In the sides of the chute at suitable distances apart are mounted antifriction-rollers 9, which are

adapted to revolve. At the lower ends of the channels 7 and the lower end of the bottom 2 are mounted rollers 10. A roller 11 is mounted in adjustable bearings 12, each of which has a spring-arm 13. The said adjustable bearings are fitted in guide-grooves 14 in the sides of the chute, at the upper end of the latter, and are movable longitudinally in the said guide-grooves to shift the roller 11, as will be understood. The said spring-arms 13 of the said adjustable bearings are each provided with a stop-stud 15, and the sides of the chute are provided with adjusting-openings 16 to be engaged by said stop-studs to secure the said bearings, and hence the said roller 11, at any desired adjustment.

In connection with my improved conveyer-chute I employ an endless traveling carrier or conveyer element 17, which is here shown as composed of a pair of endless belts 18 and transverse slats 19, which connect the said belts together. The said belts travel on the rollers 8, 10, and 11, and the outer edges of the belts are engaged by the antifriction-rollers 9 to prevent friction between the sides of the said endless traveling conveyer and the sides of the chute. Certain of the slats 19 at suitable regular distances apart are provided with butt-boards 20, which project outwardly therefrom and serve to divide the endless traveling carrier into compartments, each of suitable size to receive a sack of grain, a bale, box, barrel, or other object to be conveyed by the chute from one point to another. One of the transverse slats in each of the said compartments of the said conveyer is provided with a spring-pressed button 21, which is normally projected outwardly from the said slat, so that when a sack, box, bale, barrel, or other object is placed in the said compartment on the upper side of the said endless traveling conveyer the said button will be depressed against the tension of its spring 22. Each of the said buttons 21 is provided with an inwardly-extending tappet-stud 23, which passes through a suitable guide 24, with which the slat is provided, and the said tappet-studs travel in the channel 6, as shown in Fig. 3.

A bracket 25, which is here shown as a board of suitable dimensions, projects from one side of the chute and is secured at its in-



ner end under the bottom of the chute in keepers 26. On the said brackets on one side of the chute is secured a suitable registering mechanism 27. This registering mechanism is here shown as the Durant register, of which is a projecting operating-bar 28, which is disposed immediately above the bottom of the chute and under the upper lead of the endless traveling conveyer. On the said operating-bar is pivotally mounted a spring-pressed tappet-arm 29, which projects into the channel 6 and is hence in the path of the tappet-studs 23 of such of the buttons 21 as are depressed by the weight of the sacks or other articles in the respective compartments of the upper lead of the conveyer. The weight of the articles placed on the conveyer causes the latter to travel and permit the sacks or other articles to descend on the chute, and as each tappet-stud 23 comes in contact with the arm 29 the operating-bar 28 of the registering-machine is automatically worked, as will be understood, and hence the number of sacks or other articles which descend or traverse the chute will be registered.

The operating-arm 29 is pivotally mounted on the operating-bar 28 and is by the spring 30 retained in operative relation to the said bar 28 in order that a yielding connection may be secured between the operating tappet-arm 29 and the bar 28 to relieve the latter of injurious concussion, which would otherwise result by the contact of the tappet-studs 23 therewith.

By adjusting the roller 11 the endless traveling conveyer may be maintained at all times at the requisite tension to secure the best results in the operation of the chute.

It will be understood that only such tappet-studs 23 as have their buttons 21 depressed by the weight of articles placed upon them will operate the registering mechanism, as the springs 22 normally elevate the said buttons and the said tappet-studs to such an extent that the latter will clear and pass over the tappet-arm 29 unless it has been depressed by a sack or other article which bears on its button 21. The rollers 10 11 have central annular peripheral grooves 10<sup>a</sup> to clear the tappet-studs as the latter pass said rollers.

It will be understood that my improved conveyer-chute is portable and may be readily set up for operation.

Having thus described my invention, I claim—

1. In combination with a chute, an endless traveling carrier having one lead adapted

to operate on the bottom of the chute, said carrier having a plurality of spring-pressed tappets normally projected from the said carrier, and adapted to be depressed by the weight of articles placed on said carrier, and a registering mechanism having an operating element in the path of said spring-pressed tappets and adapted to be operated by the latter when said tappets are depressed, substantially as described.

2. In combination with a chute, an endless traveling carrier divided into compartments, each provided with a spring-pressed tappet normally projected from said carrier and adapted to be depressed by the weight of articles placed on said carrier in said compartments, and a registering mechanism having an operating element in the path of said spring-pressed tappets and adapted to be operated by the latter when said tappets are depressed, substantially as described.

3. In combination with a fixed registering mechanism having a movable operating element, a yieldably-mounted tappet on said operating element, a buffer-spring connecting said yieldably-mounted tappet to said operating element and a movable carrier element having a tappet to engage said yieldably-mounted tappet, as it passes the same and thereby automatically operate said registering mechanism without concussion, substantially as described.

4. In combination with a chute, an endless traveling carrier having one lead disposed for operation on the bottom of the chute, a spring-pressed button normally projected from the upper surface of said carrier, a tappet-stud operated by said button when the latter is depressed, and a fixed registering mechanism having an operating element disposed in the path of said tappet when the latter is depressed, substantially as described.

5. In combination with a fixed registering mechanism having a movable operating element and a spring-pressed yieldably-mounted tappet connected to said operating element, a movable carrier having a tappet to engage said yieldably-mounted tappet, as it passes the same and thereby automatically operate said registering mechanism without concussion, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES HENRY SPENCE.

Witnesses:

MARSHALL INGALLS,  
T. NOUBAM.