May 29, 1923. 1,456,545

H. M. GLEASON

OVERFLOW MECHANISM FOR CHUTES

Filed July 21, 1922 2 Sheets-Sheet 1

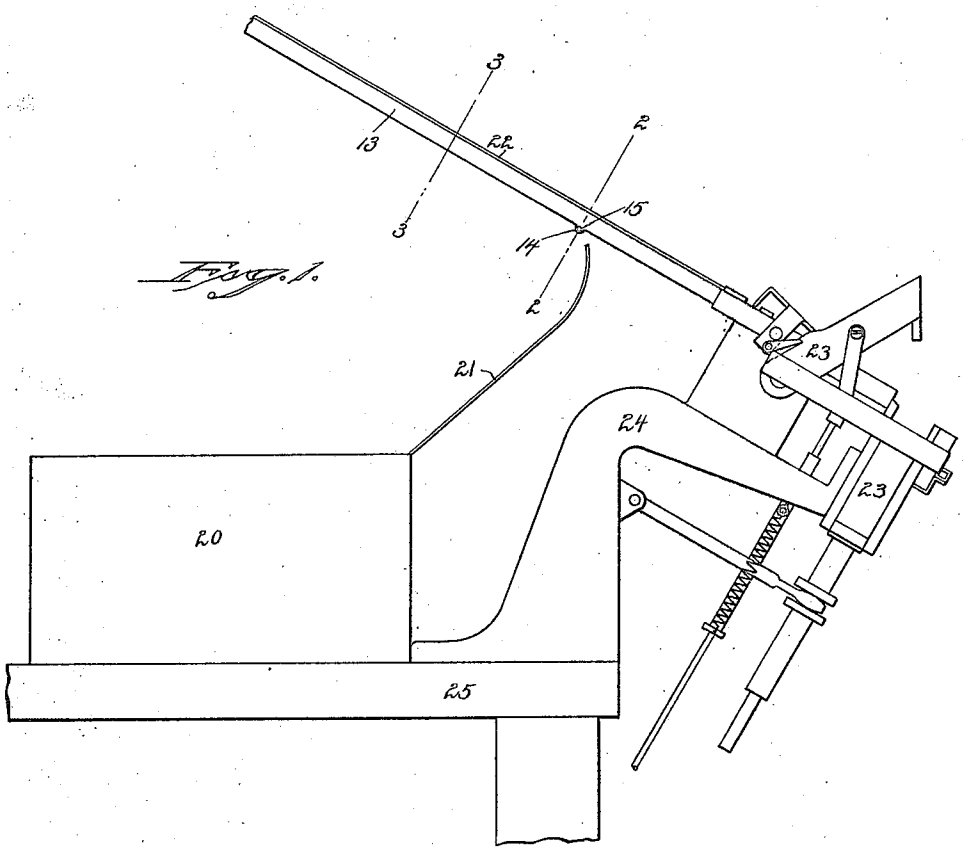


Fig. 1.

Fig. 2.

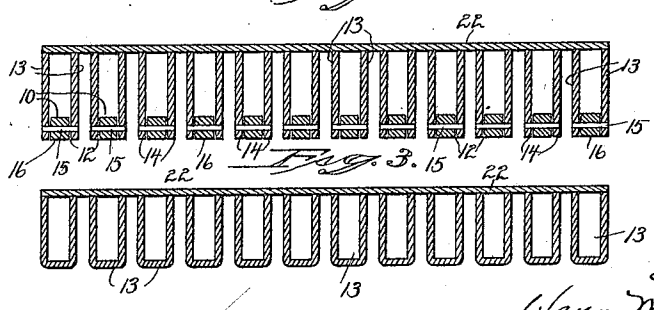


Fig. 3.

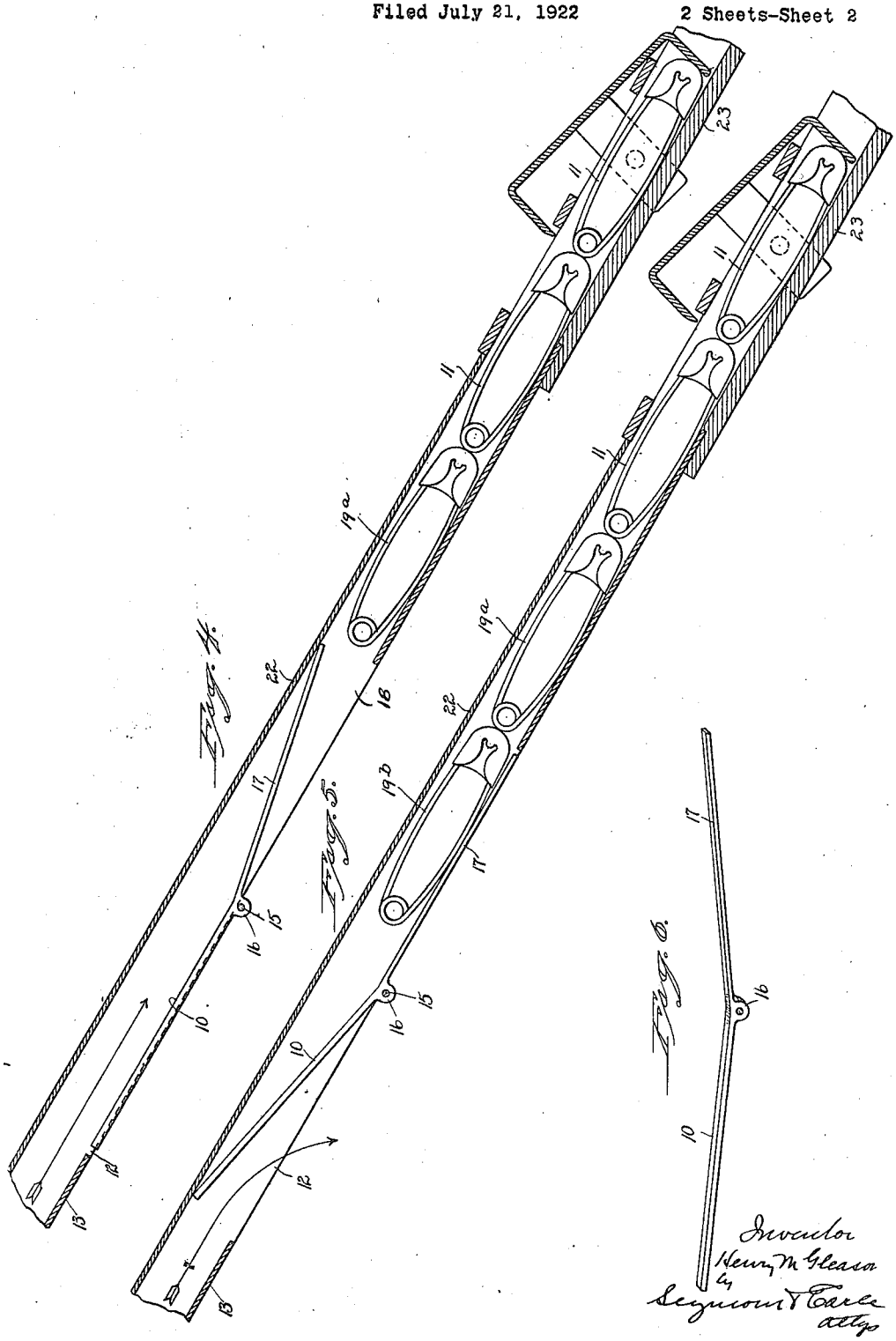
Inventor
Henry M. Gleason
by Seymour & Coree
attys

May 29, 1923. 1,456,545

H. M. GLEASON

OVERFLOW MECHANISM FOR CHUTES

Filed July 21, 1922 2 Sheets-Sheet 2



Patented May 29, 1923. 1,456,545

UNITED STATES PATENT OFFICE.

HENRY M. GLEASON, OF WATERBURY, CONNECTICUT, ASSIGNOR TO CHASE COMPANIES, OF WATERBURY, CONNECTICUT, A CORPORATION.

OVERFLOW MECHANISM FOR CHUTES.

Application filed July 21, 1922. Serial No. 576,487.

To all whom it may concern:

Be it known that I, HENRY M. GLEASON, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Overflow Mechanisms for Chutes; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Fig. 1 a broken view, in side elevation, of a machine for carding safety-pins, provided with my improved chutes.

Fig. 2 an enlarged sectional view thereof on the line 2—2 of Fig. 1.

Fig. 3 a corresponding view on the line 3—3 of Fig. 1.

Fig. 4 a view in longitudinal vertical section of one of the chutes, showing the normal or feeding position of its overflow gate.

Fig. 5 a corresponding view, showing the overflow gate in its overflow or discharging position.

Fig. 6 a detached perspective view of the gates.

My invention relates to an improvement in chutes primarily designed for use in machines for carding safety-pins, but also available for use in other situations in which it is desirable to prevent the "backing up" of the articles being handled, due to the failure, from whatever cause, of the machine to which they are being delivered, to receive and handle them, the object of my invention being to provide a simple and reliable chute having an automatic overflow function, whereby "backing up" and its attendant train of problems is avoided.

With these ends in view, my invention consists in a chute provided with a gate over which the objects carried are normally fed and which rocks to discharge them by gravity when their predecessors "back up" beyond a predetermined limit.

My invention further consists in an overflow device for chutes, having certain details of construction as will be hereinafter described and particularly pointed out in the claims.

In carrying out my invention, as herein shown, it is applied to a machine for carding safety-pins. This machine has twelve chutes, but since all are alike, the description of one will suffice for all. As herein shown, then, I employ a narrow gate 10 somewhat longer than the safety-pins 11 and adapted in length and width to close a narrow discharge-opening 12 formed in the bottom of the chute 13, which is provided at a point adjacent to the lower end of the said opening with two downwardly projecting lugs 14 receiving the ends of a pivot 15 passing through a transverse rib 16 formed at the lower end of the gate upon the lower face thereof. As thus constructed, the gate normally forms a continuation of the bottom of the chute, and the pins ride over it, as over any portion of the bottom of the chute. At its lower end the gate is provided with a tripping-arm 17, corresponding to it in width and approximately corresponding to it in length, but upwardly inclined at an obtuse angle, so as to rise within the chute in the path of the pins, as they travel through it, the normal or feeding positions of the said gate and arm being shown in Fig. 4. As shown, the arm 17, when depressed by the passage through the chute of a pin, temporarily enters a clearance-slot 18 formed in the chute and virtually consisting of an extension of the discharge-opening 12 thereof. As thus constructed, the arm 17 also functions as a part of the floor of the chute each time the device is tripped, which will be as often as a pin is fed over it and into that portion of the chute lying below the device. For maintaining the gate 10 in its normal or feeding position, it is made enough heavier than its arm 17 to have the effect of being counterweighted, though the same effect could be secured by employing a light spring to hold it in its normal position. The employment of such a spring is too obvious to call for illustration or further description.

The weight of the gate and its tripping-arm will be adjusted to the weight of the safety-pins, or whatever the articles being fed may be, so that, when they descend through the chute, they will engage with the tripping-arm of the gate and depress and pass the same, the gate being meanwhile idly lifted into its overflow position in which the discharge-opening 12 is opened, but the instant the article passes over the

arm 17, the weight of the gate restores it to its normal position, in time to close the discharge-opening and provide a surface for the next succeeding article to ride over, preparatory to impingement against the tripping-arm. The gate will, in this way, be idly operated by every safety-pin or other article descending through the chute.

In case, however, the articles are not fed out of the chute with predetermined promptitude, and "back up" therein, the gate will immediately begin to perform its safety or overflow function of discharging the incoming pins from the chute. Fig. 4 illustrates such a "backing up" incident. The upper pin 19^a (Fig. 4), having for some reason or other, no matter what, been delayed in its transit through the chute, "backs up" therein. In other words, it does not get out of the way of the next succeeding pin 19^b, which engages with it, as shown in Fig. 5. The pin 19^a, therefore, prevents the pin 19^b from riding over the tripping-arm 17 and thus, in effect, locks the gate in its elevated or overflow position, in which it leaves the overflow slot 12 open. As long as the gate remains in this position, the pins fed downward through the chute, will be discharged therefrom and caught in the receptacle 20, into which they are deflected by the fender 21. The moment, however, that the pins begin to be fed out of the lower end of the chute, the pin 19^a will descend therein and make way for the descent therein for the pin 19^b, which, when it rides over the tripping-arm 17 of the gate, will permit the same to be automatically restored into its normal position of closing the discharge-opening, whereby the overflow or safety function of the gate will be suspended. Thereafter, the gate will be operated idly by every descending pin, but will not permit any pin to be discharged from the chute until it is again held open in the manner described by the "backing up" of pins in the lower end of the chute, in such a manner as to prevent the regular clearance of the tripping-arm of the gate. Without my improved gate, the pins would, as will readily be understood, be stacked up throughout the entire length of the chute, resulting in their accumulation in a mass at the inlet thereof and endangering the breakage of the selecting mechanism employed or the deformation of the articles themselves, depending upon the character of such mechanism and the character of the articles.

As shown, all of the chutes are closed by a plate or cover 22 and discharge into a carding mechanism generally designated by the numeral 23 and mounted upon a bracket 24 secured to the bench 25 upon which the box 20 for the reception of the overflow pins is located.

While my improved chute was primarily designed for use in conjunction with machines for carding safety-pins, as stated, it is equally applicable to machines handling other small articles which are fed through chutes. In such other applications of my invention, the forms of the chutes and the gates will conform to the shapes of the articles. I do not, therefore, limit myself to the particular construction shown and described, my invention broadly covering a chute having an automatic overflow device to prevent the backing up of the articles being fed through the chute.

I claim:

1. A chute having an overflow-opening, and a gate normally closing the said opening and furnished with a tripping-arm normally intersecting the path of travel through the chute.

2. A chute having an overflow-opening in its bottom, and an overflow gate therefor, the said gate having a tripping-arm normally intersecting the path of travel through the chute, and engaged, when "backing up" occurs, by the articles being fed through the chute, to hold the gate open.

3. The combination with a chute having an overflow-opening in its bottom, of a pivotally mounted overflow gate normally closing the said opening and having a tripping arm normally intersecting the path of travel through the chute.

4. The combination with a chute having an overflow-opening in its bottom, of a counterweighted gate pivotally mounted so as to normally close the said opening and provided with an operating-member rising into the chute, so as to intersect the path of travel therein, whereby articles fed into the chute are carried over the said gate, which is tripped by the said arm, by which the gate is held in its elevated or open position by an article passing through the chute in case a "back up" occurs therein.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

HENRY M. GLEASON.

Witnesses:

MALCOLM P. NICHOLS,

GEORGE D. SEYMOUR.