

E. ROENIUS.
CHUTE.

APPLICATION FILED MAY 29, 1909.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.

1,002,319.

Fig. 5.

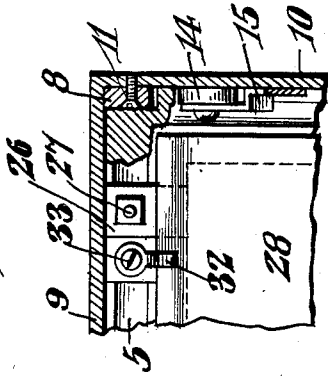


Fig. 6.

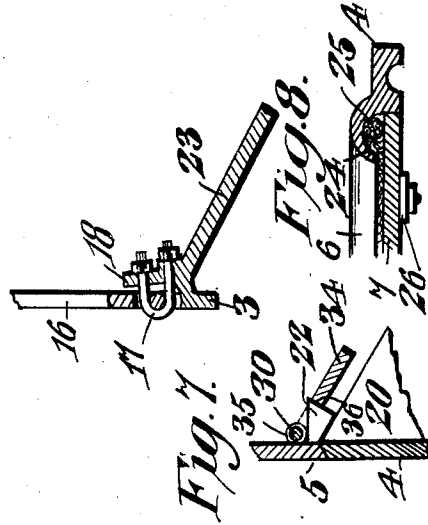


Fig. 7.

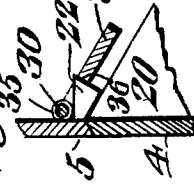
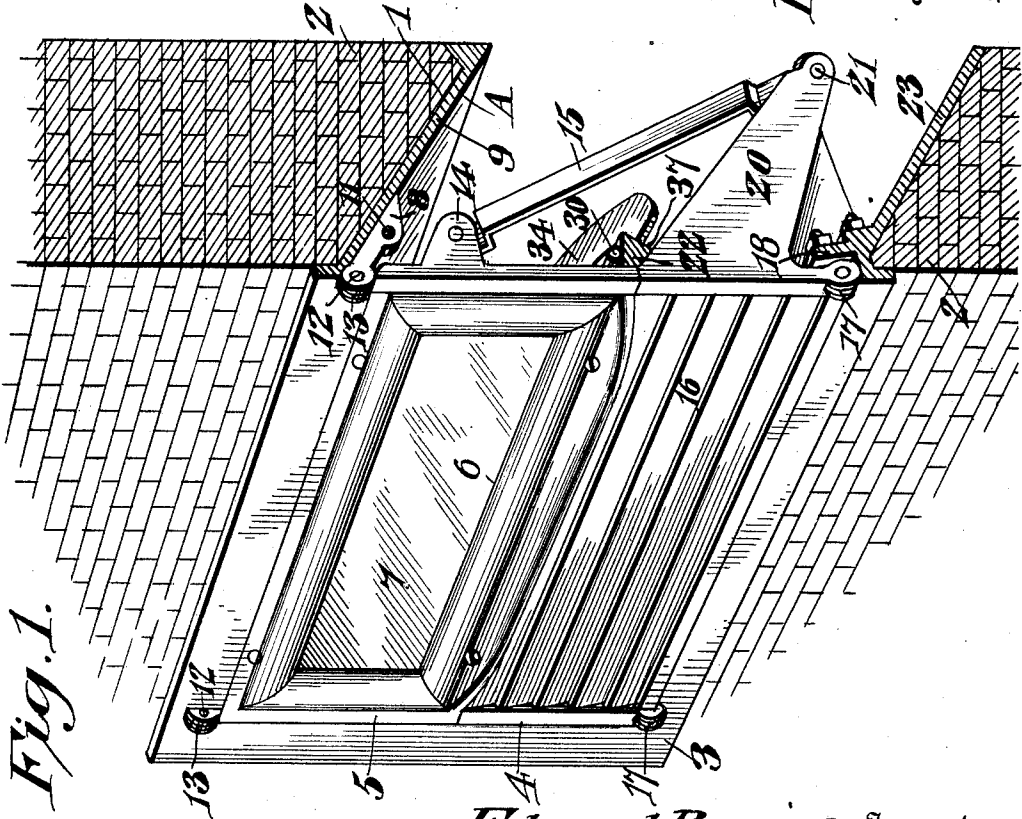


Fig. 8.



Fig. 1.



Edmund Roenius, Inventor

Witnesses

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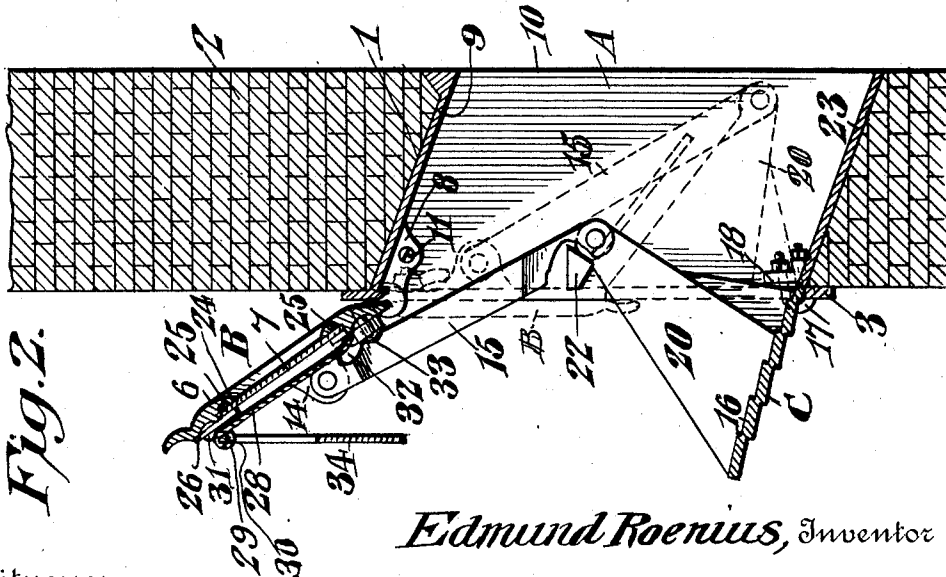
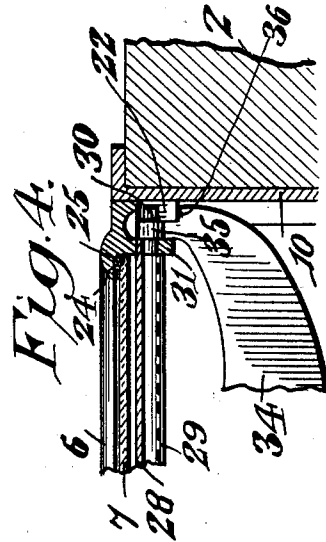
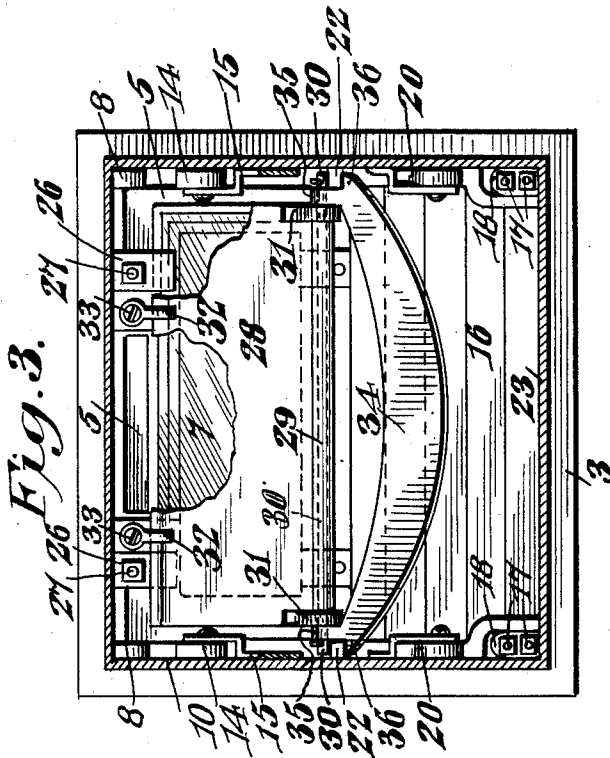
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EDMUND ROENIUS, OF GRAND RAPIDS, WISCONSIN.

CHUTE.

1,002,319.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed May 29, 1909. Serial No. 499,128.

To all whom it may concern:

Be it known that I, EDMUND ROENIUS, a citizen of the United States, residing at Grand Rapids, in the county of Wood and State of Wisconsin, have invented a new and useful Chute, of which the following is a specification.

This invention relates to coal, wood and merchandise chutes intended to be used in basements or other walls through which articles can be passed.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use, and readily manipulated.

Another object of the invention is the provision of an improved closing means for the chute composed of operatively connected upwardly and downwardly swinging sections so as to open or close together, one of the sections being glazed to serve as a window, while the other constitutes a hopper, there being improved means for locking the sections in closed position.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a sectional perspective view of the chute shown in place in a wall, the closure sections being in closed position. Fig. 2 is a vertical section of the chute with the closure sections open by full lines, and closed by dotted lines. Fig. 3 is a rear elevation with the casing in section. Fig. 4 is an enlarged detail sectional view, showing the latch device for locking the closure sections or doors closed. Fig. 5 is an enlarged detail sectional view, showing one of the hinges for the upper closure section. Fig. 6 is a detail sectional view, showing one of the hinges for the lower closure section. Fig. 7 is a detail view of the latch or locking device for the closure sections. Fig. 8 is an enlarged detail sectional view of the means for securing the glass plate in the upper section.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the casing of the chute, which may be of any approved construction, size or shape, and which is set into an opening 1 in a basement or other wall 2, the casing being provided with a marginal outer flange 3 which bears against the outer face of the wall. The chute has a rectangular or other opening 4 at its outer end which is normally closed by closures or door sections designated generally by B and C respectively, operatively connected with each other and mounted on the casing of the chute in such a manner that they open or close simultaneously, the lower section C forming a hopper, while the upper section may serve as a shield for preventing coal, wood or other articles from striking the wall above the chute and marking the same, as when the sections are in open position, as shown in Fig. 2.

The upper section B is preferably a rectangular frame 5 having an opening 6 that is closed by a glass or other transparent plate 7, the frame 5 being of such size as to substantially cover half the outer end of the chute. Arranged within the chute are bearing blocks 8 fitted against the top and end walls 9 and 10 of the casing and secured to the latter by screws or other fastenings 11, the said bearing blocks projecting forwardly out of the chute. These projecting ends form lugs which are apertured to receive horizontal pintles 12 that are carried by lugs 13 formed on the upper door section frame 5, so that the said door section will be suspended from the top. On the ends of the door section are inwardly laterally-projecting ears 14 to which are connected links 15 disposed in close proximity to the end walls of the casing so as to be out of the way of the articles delivered through the chute, the said links being connected with the lower door section so that the two sections will move together.

The lower door section C consists of a plate 16 so proportioned as to close the space left uncovered by the upper door section, and this plate is pivoted at its bottom to the casing A by means of U-shaped clips 17 fastened in upstanding lugs 18 at the lower corners of the casing A, the said clips en-

gaging around pintles on the plate 16, as clearly shown in Fig. 6. By mounting the plate 16 of the lower door section in this manner, the same will swing open in an outward and downward direction. On the ends of the plate 16 are right-angularly disposed arms or end walls 20 that coöperate with the plate 16 to form a hopper-shaped structure, said arms projecting rearwardly from the plate to move in and out of the chute. The lower ends of the links 15 are connected by pivots 21 to the rear extremities of the arms 20 to swing the lower door outwardly and downwardly as the upper door section is swung outwardly and upwardly. Adjacent the front end of the casing A and arranged on the end walls 10 thereof are inwardly-extending projections 22 constituting stops with which the arms 20 engage for limiting the opening movement of the door sections, the projections being located in such position as to engage the bottom of the upper door section when in closed position so as to limit the inward or closing movement of the door sections. When the lower door section is opened, the plate 16 will be approximately in the same plane with the bottom 23 of the chute casing so as to form a continuation thereof, as shown in Fig. 2. The weight of the lower door section will be such as to maintain the upper door section in raised position above the chute so as to protect the wall from damage and also conduct the articles that might strike the upper section, into the chute. In other words, the upper and lower door sections constitute an inwardly-contracting mouth for the chute.

In order to prevent breakage of the glass plate 7, the frame 5 of the upper door section is formed with an inwardly-extending flange 24 which has its inner surface undercut to form a channel or seat for the reception of a cord 25 that constitutes a cushion against which the glass plate bears, the glass plate being secured in place by clamping members 26 that are secured to the frame 5 by bolts 27. By this arrangement, the glass plate is prevented from being broken by jars or ordinary shocks. The glass plate is protected by a shutter 28 in the form of a metal plate which has its normally lower edge formed into a bead 29 through which passes a pintle rod 30 mounted in lugs 31 on the rear side of the frame 5. This swinging shutter or protecting plate is held in closed position by turn buttons 32 pivoted on screws 33 fastened to the frame 5. When delivering articles through the chute, the shutter will be held in closed position as shown in Fig. 2, so as to prevent articles from striking the glass plate and breaking the same. When the door sections are closed and it is desired to admit light

to the cellar or basement, the shutter can be opened by releasing the turn buttons 32, whereupon the shutter swings inwardly and downwardly.

A locking means is provided for fastening the door sections in closed position. In the present instance, the locking means consists of a swinging latch 34 having its extremities formed into eyes 35 which engage the extremities of the pintle rod 30, the said extremities projecting laterally from the lugs 31 on the frame 5, as clearly shown in Figs. 3 and 4. This latch has terminal projections 36 so arranged as to engage behind the stops 22 on the casing A of the chute, the rear or inner surfaces 37 of these stops being beveled as shown in Figs. 1, 2 and 7, so that the latch will have a positive locking engagement therewith. The weight of the latch will maintain the projections 36 in engagement with the stop, and while thus engaged, the upper door section will bear against the front sides of the stops, so that it is impossible to open the upper section and thereby the lower door section. In order to release the latch, it is merely necessary to swing the same upwardly on its hinges so as to disengage the projections 36 thereof from the stops, whereupon the door sections can be swung open, the latch being permitted to hang loosely on the upper door section when in open position. The lower edge of the frame 5 is formed with an outwardly and downwardly curved flange which laps over the upper edge of the lower door section to form means for shedding the water and also to constitute a convenient means for gripping the door section in opening the same.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

So far as I am aware, I am the first to provide a door for coal chutes composed of two sections which are mounted so as to swing in opposite directions, one upwardly above the plane of the chute and the other downwardly to a point where it forms a continuation of the chute casing, the upper door section being provided with a glass plate, whereby when the door sections are in their normally closed position, the glass plate permits light to enter the chute and thus the interior is illuminated.

Having thus described the invention, what I claim is new, and desire to secure by Letters Patent, is:—

1. The combination of a chute casing adapted to be fitted in a wall and having an opening, with a closure for the outer end of the opening consisting of two sections, one section being in the form of a plate having laterally extending arms at the ends thereof cooperating with the plate to form a hopper, said section having a hinge connection with the bottom wall of the chute casing thereby forming a continuation thereof when swung downwardly, and the other section being hinged to the upper wall of the chute casing, and means connecting the laterally-extending arms of the first-mentioned section with the last-mentioned section to cause the former to swing downwardly when the latter is swung upwardly, said sections meeting at their free edges when closed, and said meeting edges being at a point intermediate of the top and bottom walls of the chute casing.

2. The combination with a chute casing, of a vertically-disposed closure therefor consisting of two sections mounted on the casing at the top and bottom thereof and together closing the same and movable simultaneously outwardly and away from each other to open position or inwardly toward each other to closed position, one section being hinged to the top of the casing and swinging completely above the casing and forming a guard, and the other section hinged to the bottom of the casing and swinging in a line with said bottom and forming a continuation thereof and a hopper for the chute when in the open position.

3. The combination with a chute casing, of oppositely-movable upper and lower closure sections independently mounted on the casing, the upper section being hinged to the top of the casing and the lower section being hinged to the bottom of the casing and forming a hopper therefor, and means operatively connecting the sections to cause them to move simultaneously to open or closed positions, the weight of the lower section being greater than that of the upper section to hold the latter in raised open position.

4. The combination with a chute casing, of separate upper and lower closure sections independently mounted on the casing for permitting the upper section to swing upwardly and the lower section to swing downwardly, the lower section consisting of a plate having laterally-extending arms at the sides and constituting a hopper, a link pivotally connected with both sections to move them simultaneously, and a stop device mounted in a fixed position on the casing to contact with the arms of the lower section and limit the movement of the sections, whereby the lower section, when the stop is engaged by the arms, is caused to assume

a position with its plate on a line with the bottom of the casing, while the upper section is swung above the top of the casing.

5. The combination with a chute casing, of separate upper and lower closure sections independently mounted on the casing for permitting the upper section to swing upwardly and the lower section to swing downwardly, the lower section consisting of a plate having laterally-extending arms at the sides and constituting a hopper, means for connecting the sections to cause them to move simultaneously, a stop device mounted in a fixed position on the casing to contact with the arms of the lower section and limit the movement of the sections, whereby the lower section, when the stop is engaged by the arms, is caused to assume a position with its plate on a line with the bottom of the casing, while the upper section is swung above the top of the casing, and a swinging latch carried by the upper section and adapted to engage the stop device when the said section is moved to its closed position.

6. The combination with a chute casing, of a closure therefor consisting of upwardly and downwardly swinging sections, the upwardly swinging section being hinged to the top of the casing and the downwardly swinging section being hinged to the bottom of the casing, both sections when in closed position meeting at an intermediate point between the top and the bottom of the casing, means for limiting the opening movement of the sections, and connections between the sections to cause them to move simultaneously through arcs of different lengths, whereby the lower section will assume an outstanding position substantially in the plane of the bottom of the chute, so as to form a continuation thereof, and the upper section will assume a position wholly above the top of the chute.

7. The combination of a chute casing open at the outer end, a closure for said outer end composed of two sections, the upper one being hinged to the top of the casing and swinging upwardly, and the lower one being hinged to the bottom of the casing and swinging downwardly, said lower section being composed of a plate with arms at the sides forming a hopper, a stop device on the casing to limit the swinging movement of the lower section to a point where the plate of said lower section is in line with and forms a continuation of the bottom of the casing, the lower or hopper section closing a portion of the open outer end of the casing, and the upper section closing the remaining portion of the same open end, both sections meeting when in closed position at a point intermediate of the top and bottom of the chute casing.

8. The combination of a chute casing, and

- a closure therefor consisting of oppositely-movable separate sections, the upper section being in the form of a frame, a glass plate mounted in the frame to form a window, and a shutter carried by the inside of the frame to form a shield for the said plate when the section is in its raised position, said upper section being hinged at its inner edge to the top of the chute casing and capable of swinging upwardly above the chute casing in which position the shutter faces outwardly in front of the glass plate, said sections each closing a portion of the chute casing when in normally closed position.
9. The combination with a chute casing, and a closure therefor, consisting of oppositely-movable separate sections, the upper section being in the form of a frame, a glass plate mounted in the frame to form a window, and a shutter carried by the inside of the frame to form a shield for the said plate when the section is in its raised position, said upper section being hinged at its inner edge to the top of the chute casing and capable of swinging upwardly above the chute casing in which position the shutter faces outwardly in front of the glass plate, said sections each closing a portion of the chute casing when in normally closed position, said shutter being hinged so as to swing away from the glass plate, when the sections are closed, and permit the chute casing to be illuminated by light passing through the glass plate.
10. The combination of a chute casing, an upwardly and outwardly swinging closure section therefor in the form of a frame hinged to the top of the casing, a glass plate mounted on the frame, an internal shutter pivotally mounted on the frame, means to lock the shutter in place to form a shield for the said plate when the closure section is in open position, a downwardly-swinging closure section forming a hopper for the chute casing, and means for supporting the closure sections in open position, said shutter being releasable and caused to swing downwardly away from the glass plate when the sections are closed.
11. The combination of a chute casing, a closure section hinged at its lower edge to the bottom of the casing, a second closure section hinged at its upper edge to the top of the casing, arms extending from the rear side of the lower section, stops on the casing at each side with which the arms engage for limiting the opening movement of the sections, and a pivoted latch plate mounted on the inside of the second section and transversely disposed and arranged to engage the said stops at each end of the plate for holding the said sections in closed position.
12. The combination of a chute casing, oppositely-swinging closure sections independently mounted thereon, one section being hinged to the bottom of the casing and the other to the top thereof, an arm mounted on the lower section and movable into and out of the casing, a stop arranged on the inside of the casing to be engaged by said arm when the lower section is in open position, and to be engaged by the upper section when it is in closed position, and a gravity locking plate carried by the upper section and arranged transversely across the same on the inside, to engage said stop and hold said section in closed position.
13. The combination of a chute casing, a closure therefor consisting of an open frame, a glass plate therein, a pintle rod on the inner side of the frame, a shutter for the opening of the frame hung on said pintle rod, a latch device also mounted on the pintle rod, and means on the casing with which the latch engages for holding the closure in closed position.
14. The combination of a chute casing, an upwardly swinging closure frame having an opening, a glass plate therein, a downwardly swinging shutter mounted on the frame at one side of the plate, a support for the shutter, a swinging latch device mounted on the said shutter support, and means on the chute casing with which the latch device cooperates for locking the closure frame in closed position.
15. The combination of a chute casing, a downwardly swinging closure section in the form of a plate having laterally extending arms at the ends thereof to cooperate with the plate to form a hopper, a second movable closure section, and a pair of links arranged within the casing at opposite sides thereof and pivotally connected with the said arms and the second-mentioned section.
16. The combination of a chute casing, a downwardly swinging closure section in the form of a plate having laterally extending arms at the ends thereof to cooperate with the plate to form a hopper, a second movable closure section, a pair of links arranged within the casing at opposite sides thereof and pivotally connected with the said arms and the second-mentioned section, and stops on the casing with which the arms engage for limiting the opening movement of the sections and with which stops the second-mentioned section engages for limiting the closing movement of the sections.
17. The combination of a chute casing, a downwardly swinging closure section in the form of a plate having laterally extending arms at the ends thereof to cooperate with the plate to form a hopper, a second movable closure section, a pair of links arranged within the casing at opposite sides thereof and pivotally connected with the said arms and the second-mentioned section, stops on the casing with which the arms engage for

limiting the opening movement of the sections and with which stops the second-mentioned section engages for limiting the closing movement of the sections, and a latch device carried by the second-mentioned section and arranged to engage the stops for locking the sections in closed position.

18. In combination with the chute casing, a closure for one open end thereof comprising two sections both hinged to the casing and swinging in opposite directions, one constituting a hopper for the casing and the other a guard, said guard being made with a transparent portion so as to illuminate the casing when the sections are in closed position.

19. In combination with the chute casing, a closure for one open end thereof comprising two sections both hinged to and carried by the casing and swinging in opposite directions and assuming a substantially vertical position when closed, one constituting a hopper for the casing and the other a guard, said guard section being made with a glass plate so as to illuminate the casing when the sections are in closed position, and swinging to a position above the casing when in its

raised position with the inner side of the section facing outwardly, and a shutter mounted on the said section at the inner side to protect said plate.

20. In combination with the chute casing, a closure for one open end thereof comprising two sections both hinged to the casing and swinging in opposite directions upwardly and downwardly, said sections each closing a portion of the open end of the casing, and one constituting a hopper for the casing and the other a guard, said guard section being made with a transparent portion so as to illuminate the casing when the sections are in closed position, means for connecting said sections to cause them to swing in arcs of different lengths, whereby the guard section will be disposed above the plane of the chute casing when in its raised position.

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

EDMUND ROENIUS.

Witnesses:

E. A. TENNANT,
J. A. GAYNOR.