(No Model.) 2 Sheets—Sheet 1.

H. BORUP.

COAL CHUTE AND VAULT COVER.

No. 308,742. Patented Dec. 2, 1884.

FIG. I.

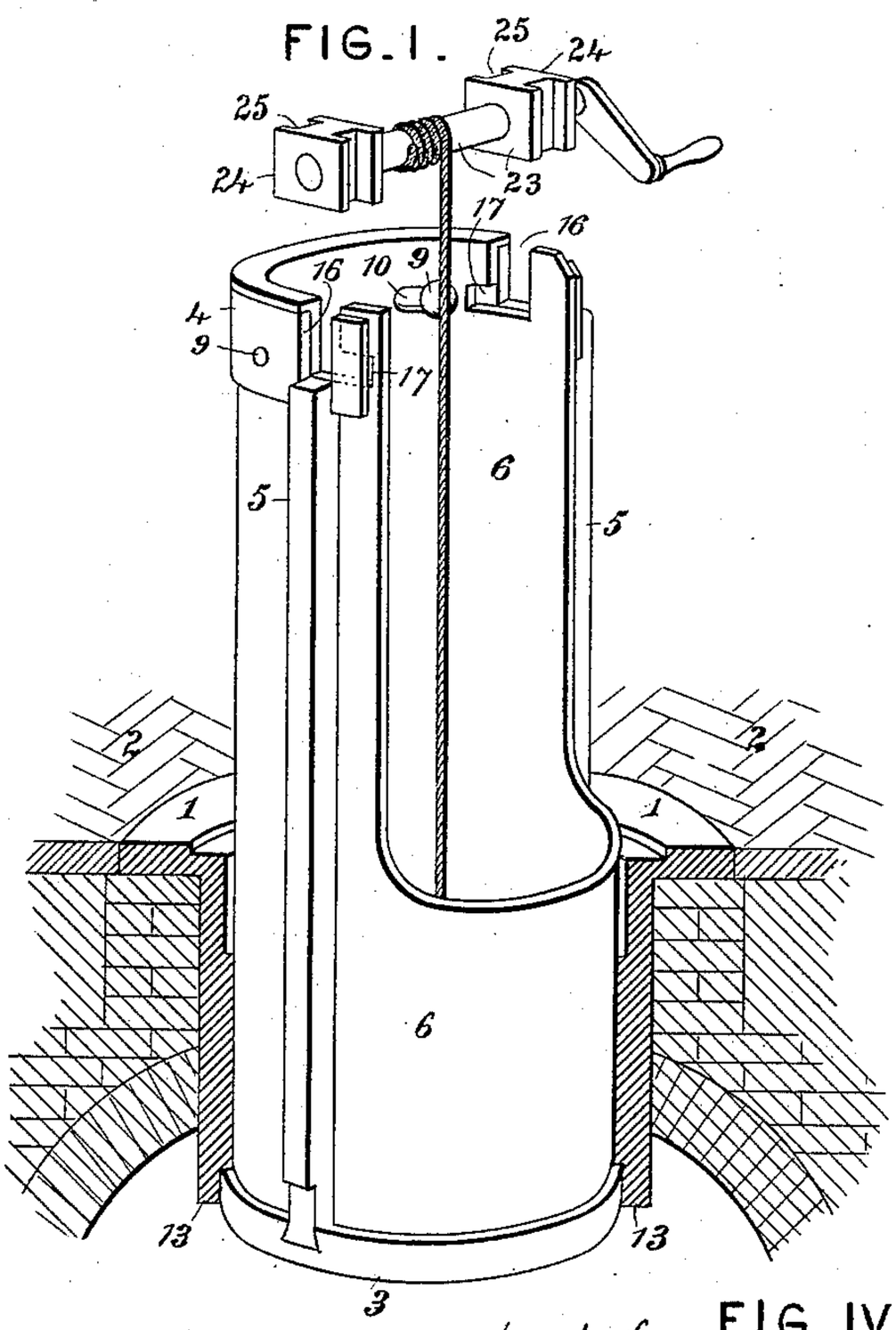


FIG. II.

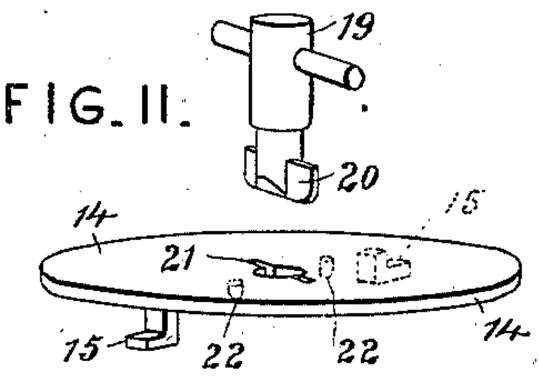


FIG. III.

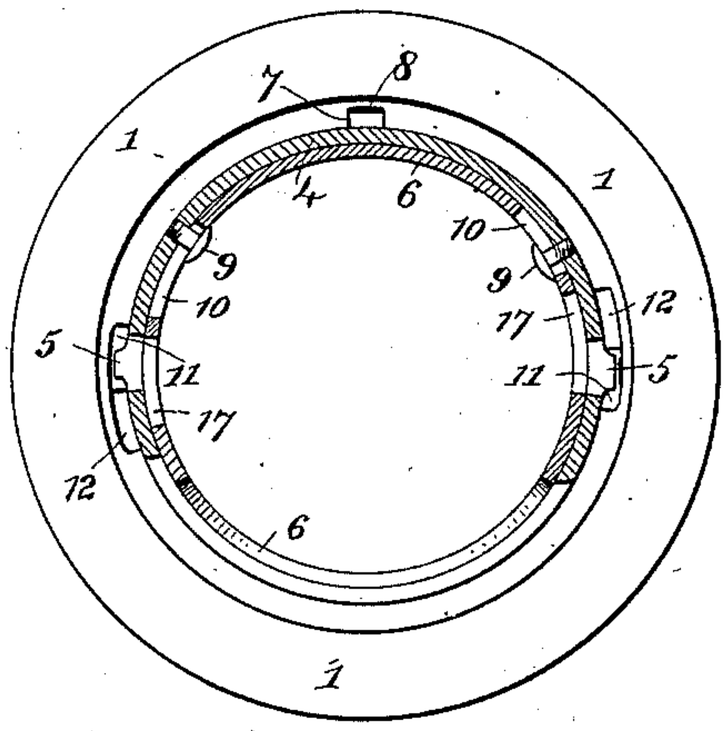
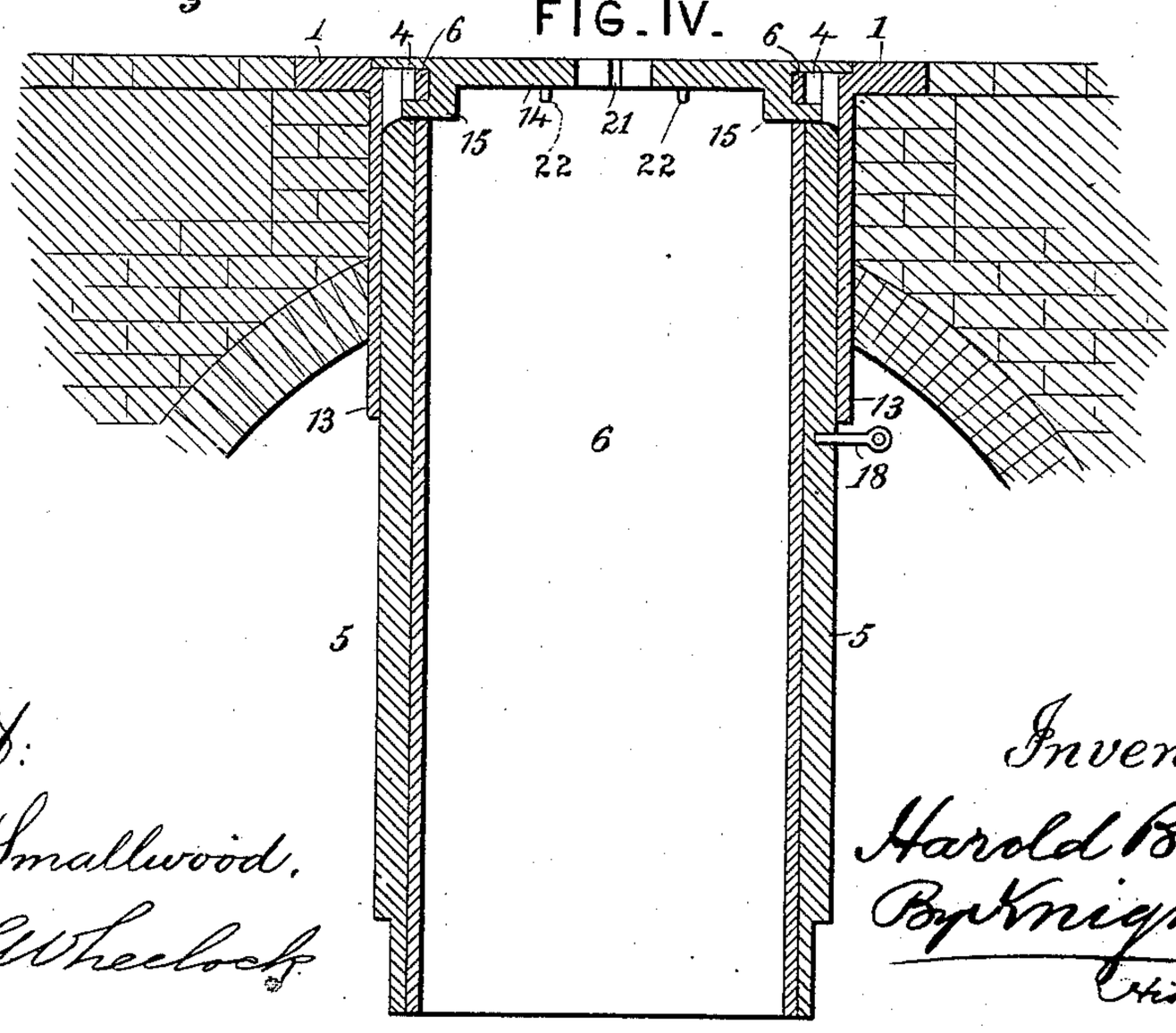


FIG. IV.



Attest:
Geo. T. Smallwood.
Geo. L. Wheelock.

Inventor:
Harold Borup
By Knight Bros.
His attorneys.

(No Model.) 2 Sheets—Sheet 2.

H. BORUP.

COAL CHUTE AND VAULT COVER.

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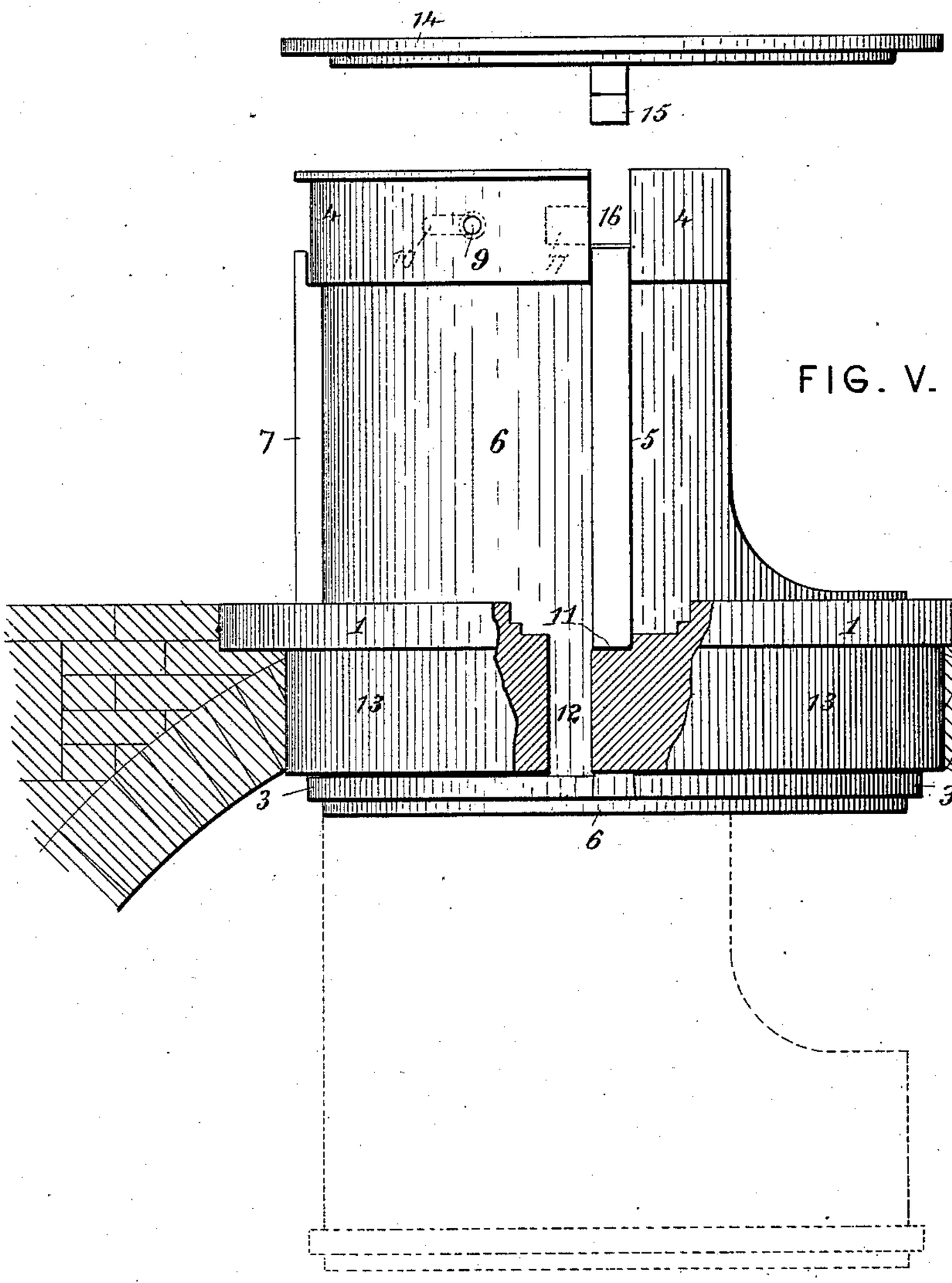

FIG. V.

Attest.

Geo. T. Smallwood.

Geo. L. Wheelock

Inventor:

Harold Borup

By Knight Bros

His attorneys

UNITED STATES PATENT OFFICE.

HAROLD BORUP, OF ST. PAUL, MINNESOTA, ASSIGNOR TO MRS. JULIA B. HARTLEY, OF SAME PLACE.

COAL-CHUTE AND VAULT-COVER.

SPECIFICATION forming part of Letters Patent No. 308,742, dated December 2, 1884.

Application filed October 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, HAROLD BORUP, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and Improved Coal-Chute and Vault-Cover, of which the following is a specification.

My invention relates to a coal-chute for pavements and other places. The chute proper slides vertically, and is adapted, when lowered, to prevent the removal of its cover, and when elevated to permit the removal of the cover and afford facility for dumping the coal into the vault or cellar. The device is also well adapted for the purposes of a man-hole and ventilator for vaults under sidewalks, and serves, when elevated, as an effectual guard for pedestrians. It can also be used to good advantage in connection with an ordinary elevator in stores, warehouses, or the like, or for the reception of a windlass for taking out ashes, rubbish, &c.

In the accompanying drawings, Figure I is a sectional perspective view of the device, showing the chute elevated and the windlass ready for application. Fig. II is a detached view of the cover and of the key employed for rotating the cover and raising the chute. Fig. III is a horizontal section through the upper part of the chute. Fig. IV is a vertical section showing the chute and cover lowered and closed. Fig. V is a side view showing my improved chute and its curb in the proportions preferred for pavement-vaults.

1 represents a flanged curb or casing, which may be made of cast-iron, and is permanently fixed in the pavement or sidewalk 2. Within this a skeleton frame slides vertically, being formed of a lower ring, 3, and an upper segment, 4, connected by any necessary number of vertical bars, 5, two of such bars being shown in the present illustration.

Within the sliding frame 3 4 5 is the chute 6, provided at back with a vertical rib or bar, 7, which slides in an internal groove, 8, at the back of the curb 1, so as to guide the chute vertically and prevent its rotation within the curb. The upper ring, 4, of the vertically-sliding frame is connected with the chute 6 by bolts or rivets 9, working in horizontal slots 10 in the chute, so as to permit a limited horizontal movement of the frame 3 4 5 around the chute 6 within the curb 1, the upper internal flange of the curb being formed with notches or recesses 11 of sufficient length to permit this movement. In sliding up and down the bars 5 are guided by grooves 12 in the internal face of the curb 1, with the top of which grooves the horizontal recesses 11 communicate. When the vertically-sliding chute and frame are in their highest position, a slight rotation of the frame 3 4 5 turns the bars 5 out of coincidence with the grooves 12 and causes them to rest on the flange 13 of the curb, so as to support the frame and chute in elevated position. The cover 14 is provided on its under side with L-shaped lugs 15, engaging in vertical notches 16 in the upper segment, 4, of the frame, and with L-shaped notches or slots 17 in the chute 6, these parts being so formed and connected that when the frame 3 4 5 is turned so as to bring the bars or ribs 5 out of register with the grooves 12 in the inside of the curb the vertical notches 16 of the segment 4 will coincide with the vertical portion of the L-shaped notches or slots 17 of the curb so as to permit the escape of the lugs 15 and the removal of the cover 14. When the frame is rotated in the other direction, so as to bring the vertical bars 5 into coincidence with the grooves 12, the lugs 15 pass into the horizontal recesses of the L-shaped slots 17, so as to lock the cover to the chute and prevent its removal.

From the above description it will be apparent that when the connected chute, frame, and cover are lowered, so as to close the vault, the frame is prevented from rotating by the notches 12, and hence the cover 14 cannot be removed, excepting when the chute is raised to its highest position. The chute may be fastened down within the vault by a bolt, 18, or any other suitable device, when desired, so as to prevent the cover and chute being raised from the outside. The raising of the chute and the subsequent rotation of the frame and removal of the cover are all effected by means of a key, 19, formed with a thin bit, 20, projecting horizontally in both directions from its shaft, and adapted to pass down through a

thin slot, 21, in the cover 14, and when turned nearly at right angles to be stopped by pins 22 on the under side of the cover, so as to be in position for drawing up the chute, and for rotating the same by rotary pressure on the key to lock the chute in its elevated position. The cover being then removed, the chute is now in position for dumping or shoveling coal into the vault. When desired, a windlass, 23, is placed across the chute by inserting its bearings or boxes 24 in the notches 16, the said boxes being formed with grooves 25 on their edges to adapt them to slide within said notches, and to be secured thereby in position for use.

The following is claimed as new in the above-described invention:

1. The vertically-sliding chute and cover secured together, substantially as herein set forth, so as to prevent the removal of the cover while the chute is down.

2. The combination, with the curb 1, of the chute 6, guided vertically therein, and the frame 3 4 5, capable of limited horizontal movement around the chute to secure it in its elevated position.

3. The combination of the curb 1, vertically-sliding chute 6, frame 3 4 5, and the cover 14, provided with lugs 15, locking it to the chute when the latter is depressed and permitting its removal when elevated, as explained.

4. The combination, with the chute and cover, of the T-shaped key 19, constructed and operated substantially as described.

5. The combination, with the chute, of the removable windlass 23 and its boxes 24, constructed and operating substantially as herein set forth.

HAROLD BORUP.

Witnesses:
E. J. BORUP,
J. W. CROSSON.