No. 801,252. PATENTED OCT. 10, 1905.

J. KOLLER.

CHUTE.

APPLICATION FILED DEC. 15, 1904.

3 SHEETS—SHEET 1.

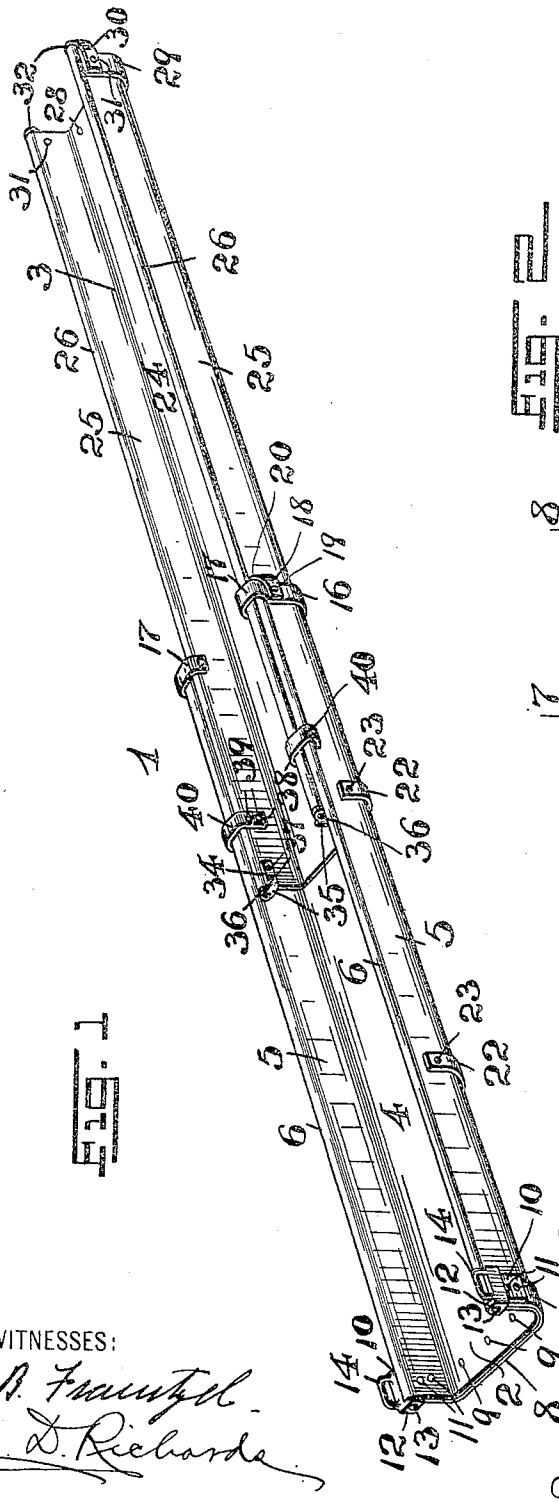


Fig. 1

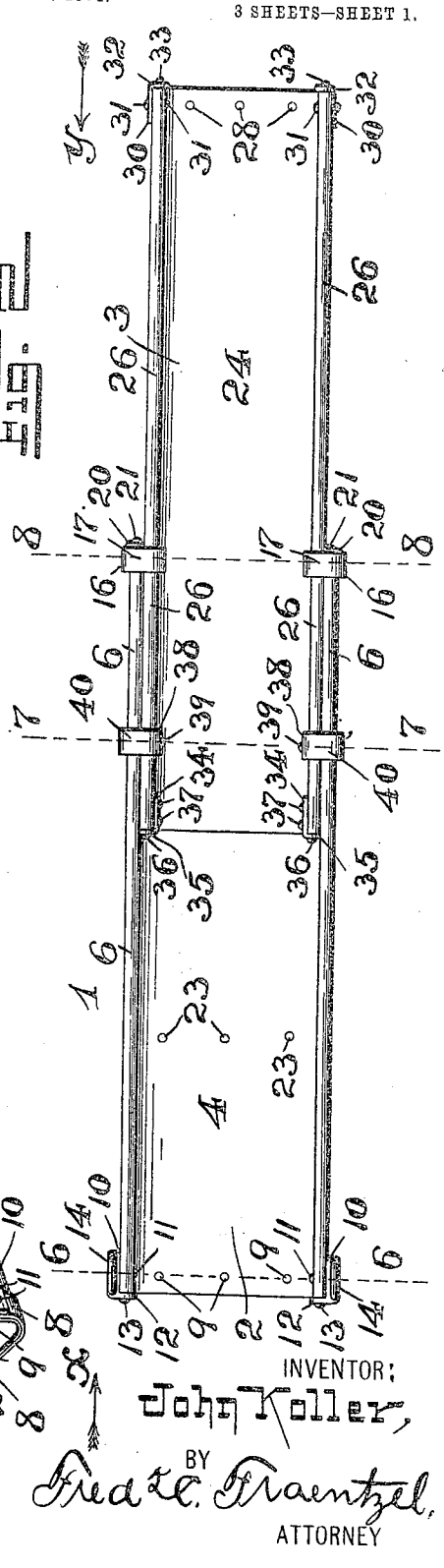


Fig. 2

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Geo. D. Richards.

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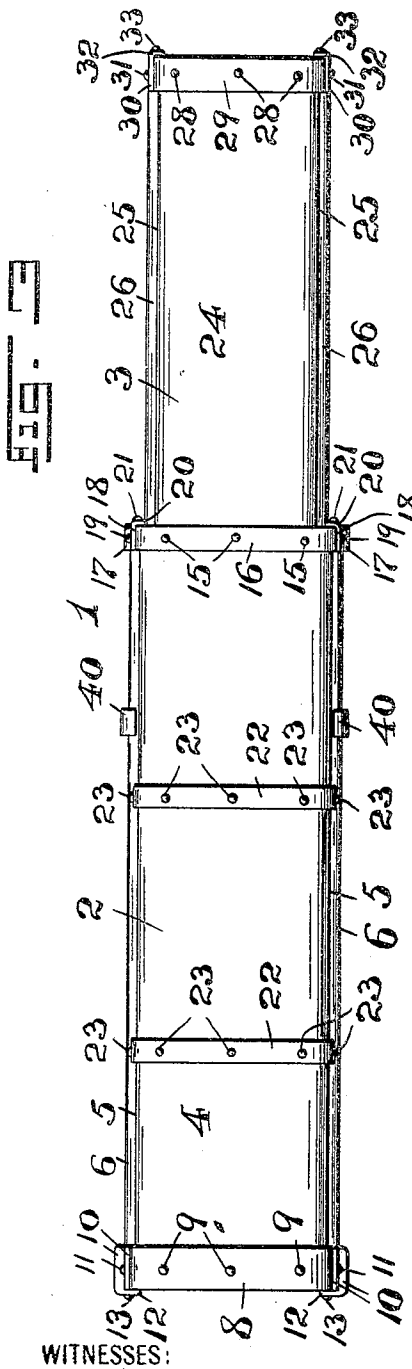


Fig. 3.

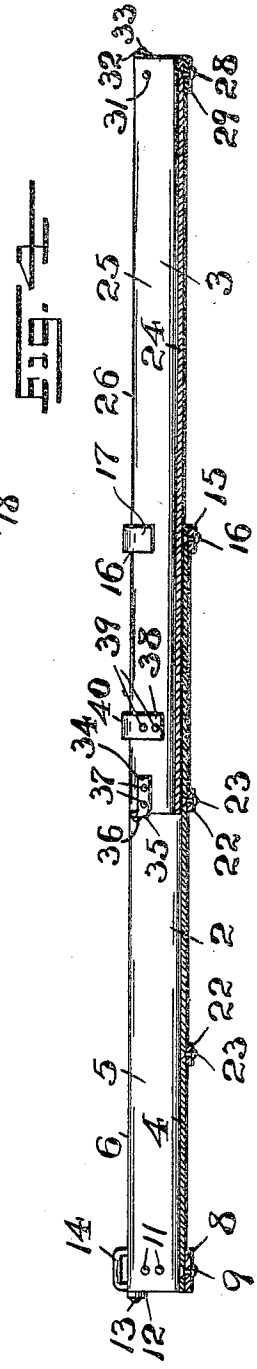


Fig. 4.

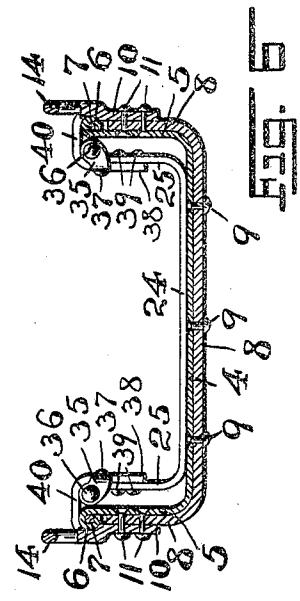


Fig. 6.

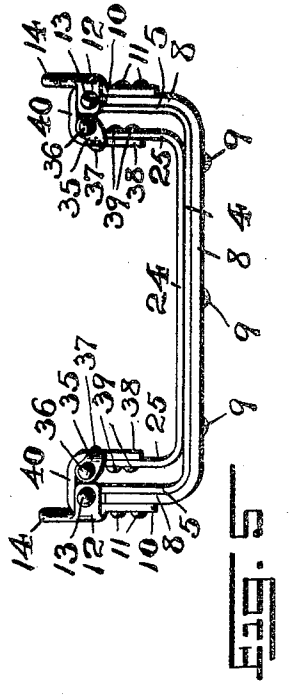


Fig. 5.

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3 SHEETS—SHEET 3.

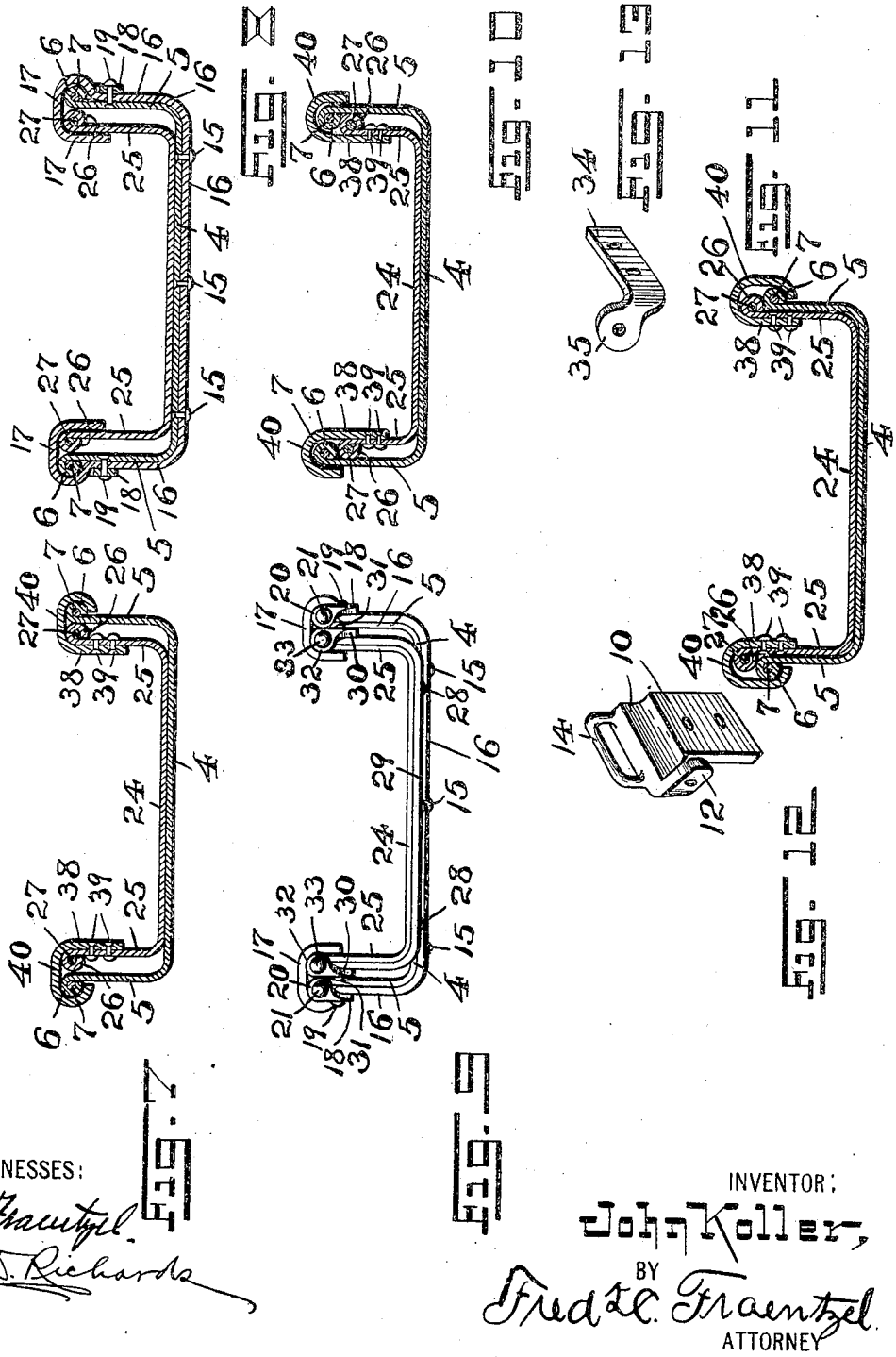


Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Fig. 13

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UNITED STATES PATENT OFFICE.

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CHUTE.

No. 801,252. Specification of Letters Patent. Patented Oct. 10, 1905.

Application filed December 15, 1904. Serial No. 236,908.

To all whom it may concern:

Be it known that I, JOHN KOLLER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Chutes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention has reference to improvements in that class of chutes known in the art as "sectional" or "sliding" chutes and comprising two or more telescopically-arranged sliding chute-sections which may be closed upon each other or may be extended to considerably lengthen the entire chute to any desired and suitable length.

The present invention has for its principal objects to provide a sectional or sliding chute of a simple, cheap, and durable, as well as operative, construction, which can be conveniently carried upon a wagon, can be easily handled, and is always ready for use.

Other objects of this invention not at this time more particularly mentioned will be clearly understood from the following detailed description of the invention.

With the various objects of my present invention in view the same consists in the novel sectional chute hereinafter more particularly set forth; and, furthermore, the invention consists in the arrangements and combinations of devices and parts, as well as in the details of the construction of the same, with a view of providing the chute-sections with suitable and operative means which will prevent the bending and jamming of the parts and also to provide means which will limit the sliding movements of the several chute-sections with relation to each other.

The invention consists, furthermore, in the novel arrangement of two or more slidably and adjustably connected chute-sections, each section comprising an open-top body and longitudinally-extending sides, the said sides being bounded by marginal beads or curls inclosing strengthening rods or wires the ends of which project from the end portions of the said beads or curls and are secured or riveted fast to reinforcing and strengthening devices or plates secured to the sides of the chute-sections, all substantially in the manner to be hereinafter more fully specified.

The invention is clearly illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a sectional sliding chute comprising a pair of chute-sections embodying the principles of this invention. Fig. 2 is a top or plan view, and Fig. 3 a bottom view, of the same. Fig. 4 is a central longitudinal vertical section of the said chute. Fig. 5 is an end view of the chute looking in the direction of the arrow *x* in said Fig. 2. Fig. 6 is a transverse vertical section taken on line 6 6 in said Fig. 2. Fig. 7 is a transverse vertical section taken on line 7 7 in said Fig. 2, and Fig. 8 is a similar section taken on line 8 8 in said Fig. 2. Fig. 9 is an end view of the chute looking in the direction of the arrow *y* in said Fig. 2. Figs. 10 and 11 are transverse vertical sections of a pair of chute-sections provided with a modified arrangement of the marginal stiffening beads or curls, and Figs. 12 and 13 are perspective views of a pair of the reinforcing devices or plates to which the end portions of the rods or wires in said beads or curls are to be secured or riveted.

Similar characters of reference are employed in the above-described views to indicate corresponding parts.

Referring now to the several figures of the drawings, the reference character 1 indicates a complete sectional chute comprising two chute-sections 2 and 3, which are slidably or telescopically arranged with relation to each other so as to be closed over each other to provide a short chute or may be extended to form a long chute, as will be clearly understood from the following detailed description of this invention. Of course it will be understood that the chute may consist of three or more chute-sections, if desired. The said chute-section 2 consists, essentially, of a flat bottom 4 and the two parallel sides 5, extending upwardly at right angles, or approximately so, from the said bottom 4, and each side 5 is formed at its upper marginal edge with the outwardly-extending bead or curl 6. Each bead or curl 6 is provided within its tubular portion with a strengthening or stiffening rod or wire 7, the respective ends of the said rods or wires 7 extending beyond the end portions of the said beads or curls 6

of the said chute-section 2. The said chute-section 2 has secured at its one end and upon the outer surfaces of its bottom 4 and sides 5 by means of suitable rivets 9 or other fastening means an end band 8. Reinforcing devices or plates 10 may be secured upon and near each upper end portion of said band 8 by means of rivets 11 or other fastening means, each device or plate 10 having a right-angled and perforated retaining-lug 12, in which the end of a rod or wire 7 is arranged and permanently secured by a rivet-head 13, formed upon the end of the rod or wire. The said devices or plates 10 may also be provided with suitably-arranged and suitably-constructed handles 14, as shown. The said chute-section 2 has secured at its other end and upon the outer faces of the bottom 4 and its sides 5 by means of rivets 15 or other suitable means an end plate 16, the said plate being made at its free ends with guide portions or members 17, extending in inward directions above and over the marginal beads or curls 6 of the chute-section 2, substantially in the manner shown and for the purposes to be hereinafter more fully described. Suitably secured upon each upwardly-extending portion of the said end plate 16 by means of rivets 19 or other suitable fastening means is a reinforcing device or plate 18, each device or plate 18 having a right-angled and perforated lug or ear 20, in which is arranged the projecting end of a rod or wire 7 and firmly secured thereto by means of the rivet-head 21 on each rod or wire, substantially as illustrated in Fig. 9 of the drawings. The said chute-section 2 may also have secured upon its outer faces of the bottom 4 and sides 5 reinforcing ribs or bands 22, securely held in postion by means of rivets 23 or other suitable fastening means. It will thus be seen that in this manner a very strong and serviceable chute-section has been produced and one in which the sides have been considerably stiffened by the use of the marginal beads or curls, and the rod or wire in each bead or curl has its ends firmly secured against displacement caused by the usual rough handling of chutes.

The other chute-section 3 consists, essentially, of a flat bottom 24 and the two parallel sides 25, extending upwardly at right angles, or approximately so, from the said bottom 24. Each side 25 is formed at its upper marginal edge with an outwardly-extending bead or curl 26, the said beads or curls 26 having arranged in their tubular portions the strengthening or stiffening rods or wires 27, with the respective end portions of the said rods or wires 27 extending beyond the end portions of the said beads or curls 26, substantially as and for the purposes to be presently more fully set forth. The said chute-section 3 has secured at its one and outer end and upon the outer surfaces of its bottom and sides by means of rivets 28 or other suitable fastening means an end plate or band 29, and secured upon the upper portions of the said end plate or band 29 by means of rivets 31 or other means are reinforcing devices or plates 30. Each reinforcing device or plate 30 has a right-angled and perforated lug or projection 32, in which an end of a rod or wire 27 is arranged and firmly secured by a rivet-head 33, formed upon the free end of the rod or wire. The opposite end portion of the chute-section 3 being slidably arranged upon the chute-section 2, no end band is secured thereto that no obstruction to the sliding movements of the chute-sections may be provided; but secured to the inner faces of the sides 25 of the chute-section 3 are reinforcing devices or plates 34, each device or plate 34 having a perforated and right-angled receiving lug or tongue 35, in which an end portion of a rod or wire 27 is arranged and secured by means of a rivet-head 36, formed upon the free end of the said rod or wire, substantially as illustrated. The said devices or plates 34 are secured in position by means of rivets 37 or other suitable fastening devices. The chute-section 3 is also provided near its inner end with upwardly-extending members 38, which are secured to the inner faces of the sides 25 by means of rivets 39 or other suitable fastening means, each member 38 being provided with an outwardly and slightly downwardly extending retaining-guide or holding portion 40, substantially as illustrated.

From an inspection of Figs. 5 to 9, inclusive, it will be seen that each chute-section 2 and 3 has the beaded or curled marginal edge portions of their sides 5 and 25, respectively, extending in opposite outward directions, the sides 25 of the chute-section 3 being narrower than the sides 5 of the chute-section 2, whereby the beads or curls are arranged side by side, as shown, with the respective guides 17 and 40 in their retaining engagement with the said beads or curls to permit of the longitudinal adjustment of the said chute-sections, and, furthermore, to prevent the separation of the chute-sections when adjusted to their fullest extent by contact of the guides 17 with the guides 40, as will be clearly understood. If desired, however, the beads or curls of the respective chute-sections may be arranged in the manner shown in Figs. 10 and 11, the guides 17 and 40 of course being formed accordingly and as clearly represented in the said figures of the drawings.

From the foregoing description of my present invention it will be clearly understood that I have devised a strong, durable, and cheap construction of sectional chute which can be easily and quickly adjusted to various lengths to meet the requirements presented.

It will be obvious that changes may be made in the arrangements and combinations of the various devices and parts, as well as in the details of the construction of the same, without departing from the scope of this invention. Hence I do not limit my invention to the exact arrangements and combinations of the devices and parts as described in the foregoing specification and as illustrated in the accompanying drawings, nor do I confine myself to the exact details of the construction of any of the said parts.

Having thus described my invention, what I claim is—

1. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, and a bead formed along the upper edge of each side, a wire or rod in each bead, and retaining-lugs in engagement with the ends of said rods or wires to prevent longitudinal movement of the same, substantially as and for the purposes set forth.

2. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, and a rod or wire in each bead, and perforated means connected with the end portions of the respective chute-sections and with the ends of each rod or wire to prevent said rods or wires from moving longitudinally within said beads, substantially as and for the purposes set forth.

3. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, retaining devices at the respective ends of the said chute-sections, each device being provided with a perforated member in which an end of a rod or wire extends, and a rivet-head on the end of each rod or wire for permanently securing such end of each rod or wire to a retaining device, substantially as and for the purposes set forth.

4. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a bead formed along the upper edge of each side, a wire or rod in each bead, and retaining-lugs in engagement with the ends of said rods or wires to prevent longitudinal movement of the same, and means connected with the said chute-sections arranged and constructed to limit the sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

5. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, and perforated means connected with the end portions of the respective chute-sections and with the ends of each rod or wire to prevent said rods or wires from moving longitudinally within said beads, and means connected with the said chute-sections arranged and constructed to limit the sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

6. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, retaining devices at the respective ends of the said chute-sections, each device being provided with a perforated member in which an end of a rod or wire extends, a rivet-head on the end of each rod or wire for permanently securing such end of each rod or wire to a retaining device, and means connected with the said chute-sections arranged and constructed to limit the sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

7. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a bead formed along the upper edge of each side, and retaining-guides connected with the respective chute-sections having guiding members extending over and around the beads of the said chute-sections, all arranged and constructed to limit the sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

8. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, and retaining-guides connected with the respective chute-sections having guiding members extending over and around the beads of the said chute-sections, all arranged and constructed to limit the sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

9. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section con-

sisting of a body and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, retaining devices at the respective ends of the said chute-sections, each device being provided with a perforated member in which an end of a rod or wire extends, a rivet-head on the end of each rod or wire for permanently securing such end of each rod or wire to a retaining device, and retaining-guides connected with the respective chute-sections having guiding members extending over and around the beads of the said chute-sections, all arranged and constructed to limit the sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

10. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, strengthening end plates secured to the outer surfaces of the body and sides of the chute-sections, and a bead formed along the upper edge of each side, a wire or rod in each bead, and retaining-lugs in engagement with the ends of said rods or wires to prevent longitudinal movement of the same, substantially as and for the purposes set forth.

11. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, strengthening end plates secured to the outer surfaces of the body and sides of the chute-sections, a tubular bead formed along the upper edge of each side, and a rod or wire in each bead, and perforated means connected with the end portions of the respective chute-sections and with the ends of each rod or wire to prevent said rods or wires from moving longitudinally within said beads, substantially as and for the purposes set forth.

12. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, strengthening end plates secured to the outer surfaces of the body and sides of the chute-sections, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, retaining devices at the respective ends of the said chute-sections, each device being provided with a perforated member in which an end of a rod or wire extends, and a rivet-head on the end of each rod or wire for permanently securing such end to a retaining device, substantially as and for the purposes set forth.

13. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, strengthening end plates secured to the outer surfaces of the body and sides of the chute-sections, a bead formed along the upper edge of each side, a wire or rod in each bead, and retaining-lugs in engagement with the ends of said rods or wires to prevent longitudinal movement of the same, and means connected with the said chute-sections arranged and constructed to limit their sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

14. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, strengthening end plates secured to the outer surfaces of the body and sides of the chute-sections, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, and perforated means connected with the end portions of the respective chute-sections and with the ends of each rod or wire to prevent said rods or wires from moving longitudinally within said beads, and means connected with the said chute-sections arranged and constructed to limit their sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

15. A sectional chute comprising sliding sections adapted to slide one over the other to close or extend the chute, each section consisting of a body and longitudinally-extending sides, strengthening end plates secured to the outer surfaces of the body and sides of the chute-sections, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, retaining devices at the respective ends of the said chute-sections, each device being provided with a perforated member in which an end of a rod or wire extends, a rivet-head on the end of each rod or wire for permanently securing such end to a retaining device, and means connected with the said chute-sections arranged and constructed to limit their sliding movement and also to prevent the separation of the said chute-sections, substantially as and for the purposes set forth.

16. In a chute comprising an open-top body, a stiffening end plate or band secured to the outer face of the bottom and sides of said body, and a set of handles connected with said plate or band, said handles extending above the longitudinal edges of the chute and being in alinement vertically with the vertical planes of the sides of the chute, substantially as and for the purposes set forth.

17. In a chute comprising an open-top body, consisting, essentially, of a bottom and longitudinally-extending sides, a tubular bead formed along the upper edge of each side, a rod or wire in each bead, retaining devices at the ends of the said sides, each device being provided with a perforated member in which an

end of a rod or wire extends, a rivet-head on the end of each rod or wire for permanently securing such end to a retaining device, and handles connected with some of said retaining devices, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 12th day of December, 1904.

JOHN KOLLER.

Witnesses:
FREDK. C. FRAENTZEL,
GEO. D. RICHARDS.