

No. 796,520.

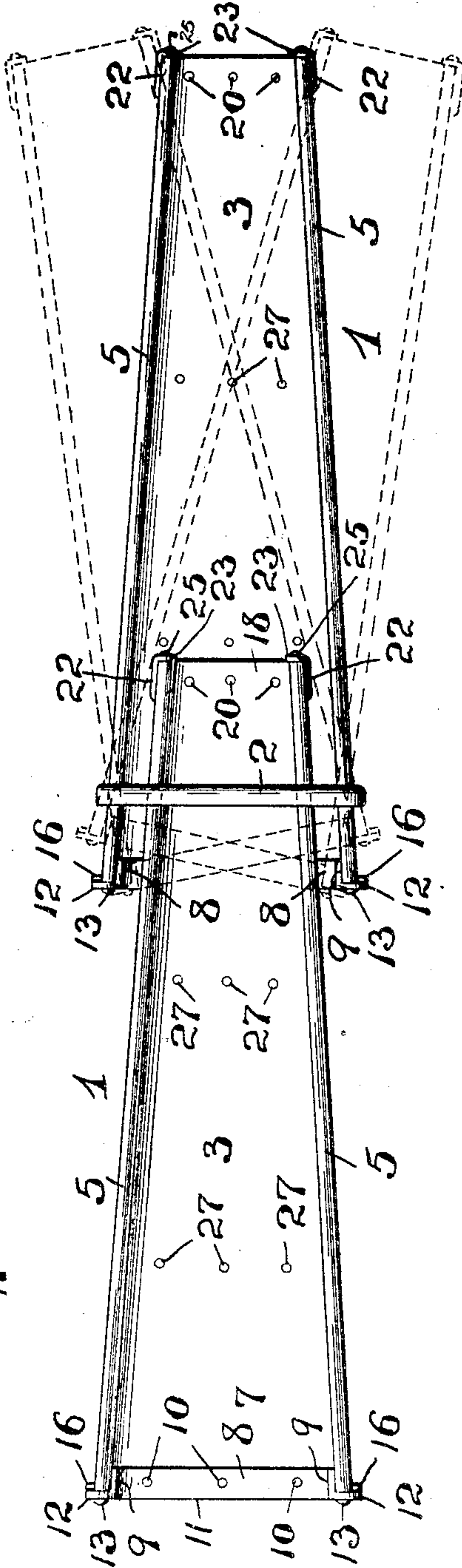
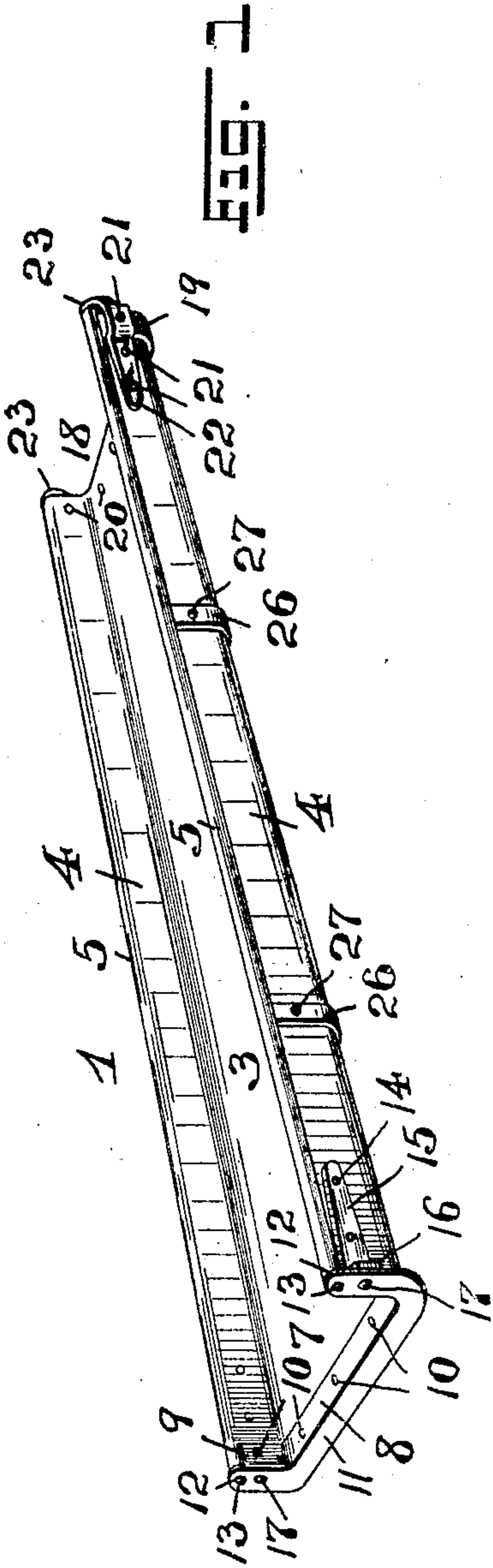
PATENTED AUG. 8, 1905.

J. KOLLER.

CHUTE.

APPLICATION FILED DEC. 15, 1904.

3 SHEETS—SHEET 1.



WITNESSES:

Geo. S. Richardson
H. B. Fraentzel

INVENTOR:

John Koller,

Fred C. Fraentzel,
BY
ATTORNEY

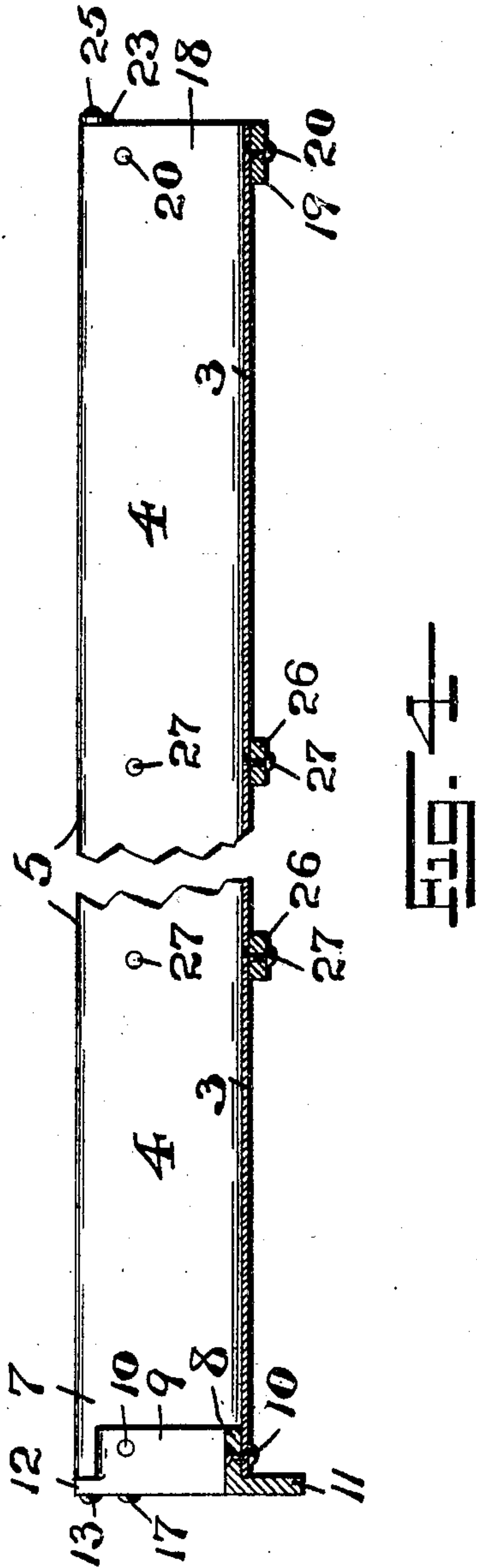
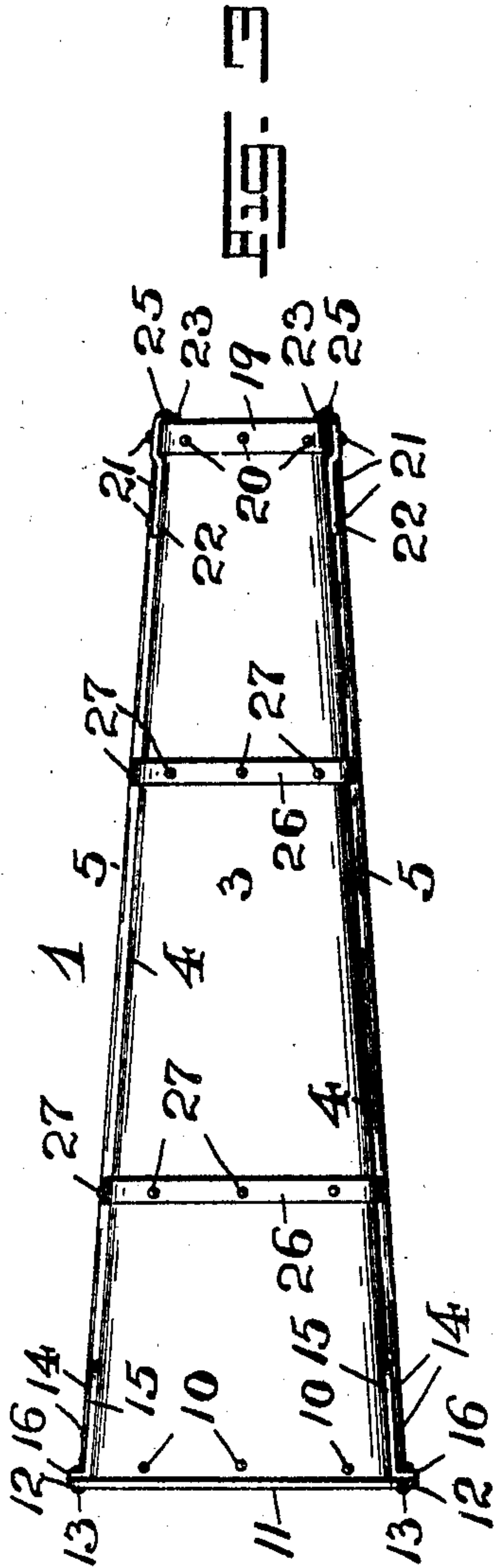
No. 796,520.

PATENTED AUG. 8, 1905.

J. KOLLER.
CHUTE.

APPLICATION FILED DEC. 15, 1904.

3 SHEETS—SHEET 2.



WITNESSES:

Geo. D. Richards

W. B. Fraentzel

INVENTOR:

John Koller

BY

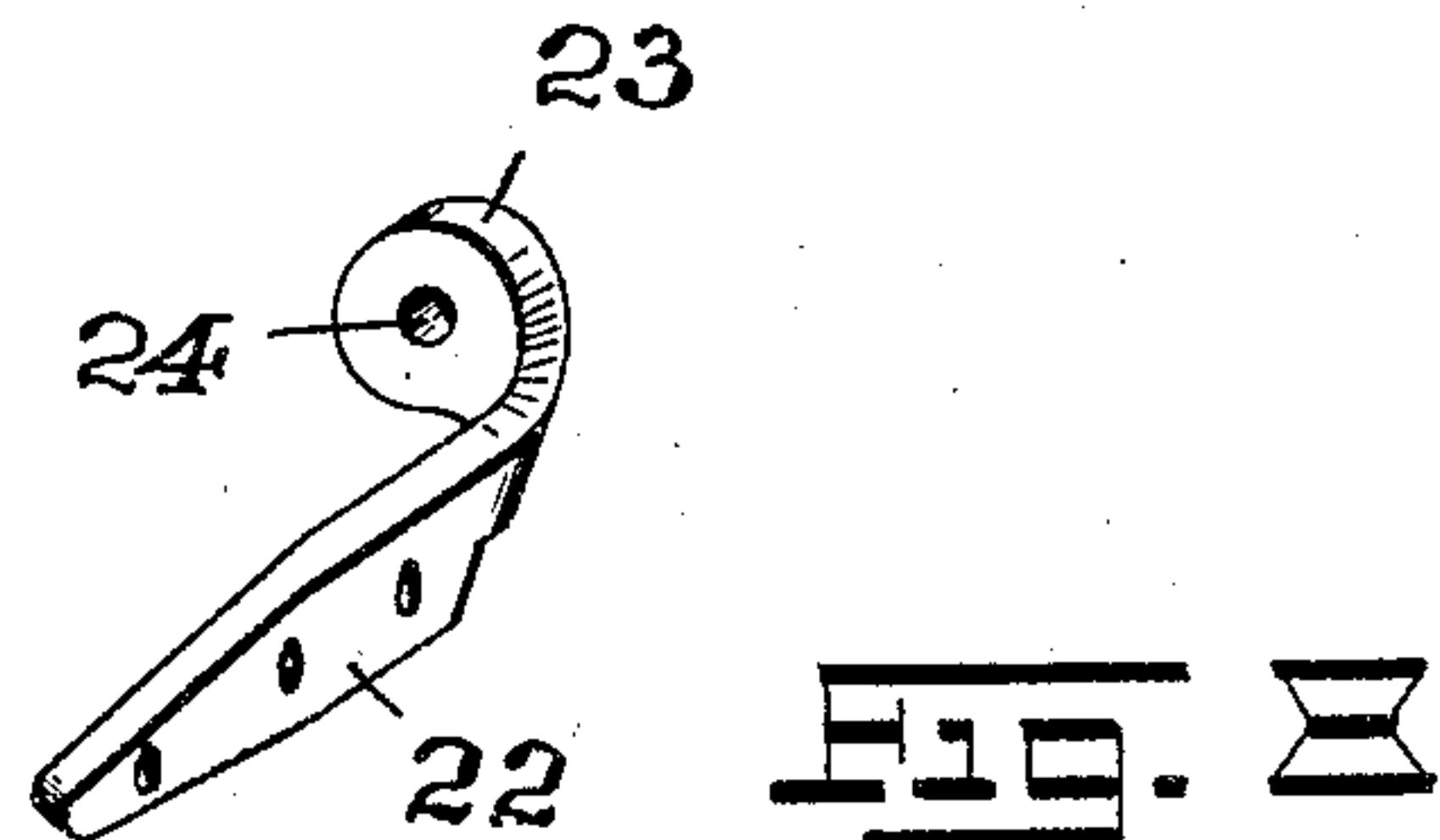
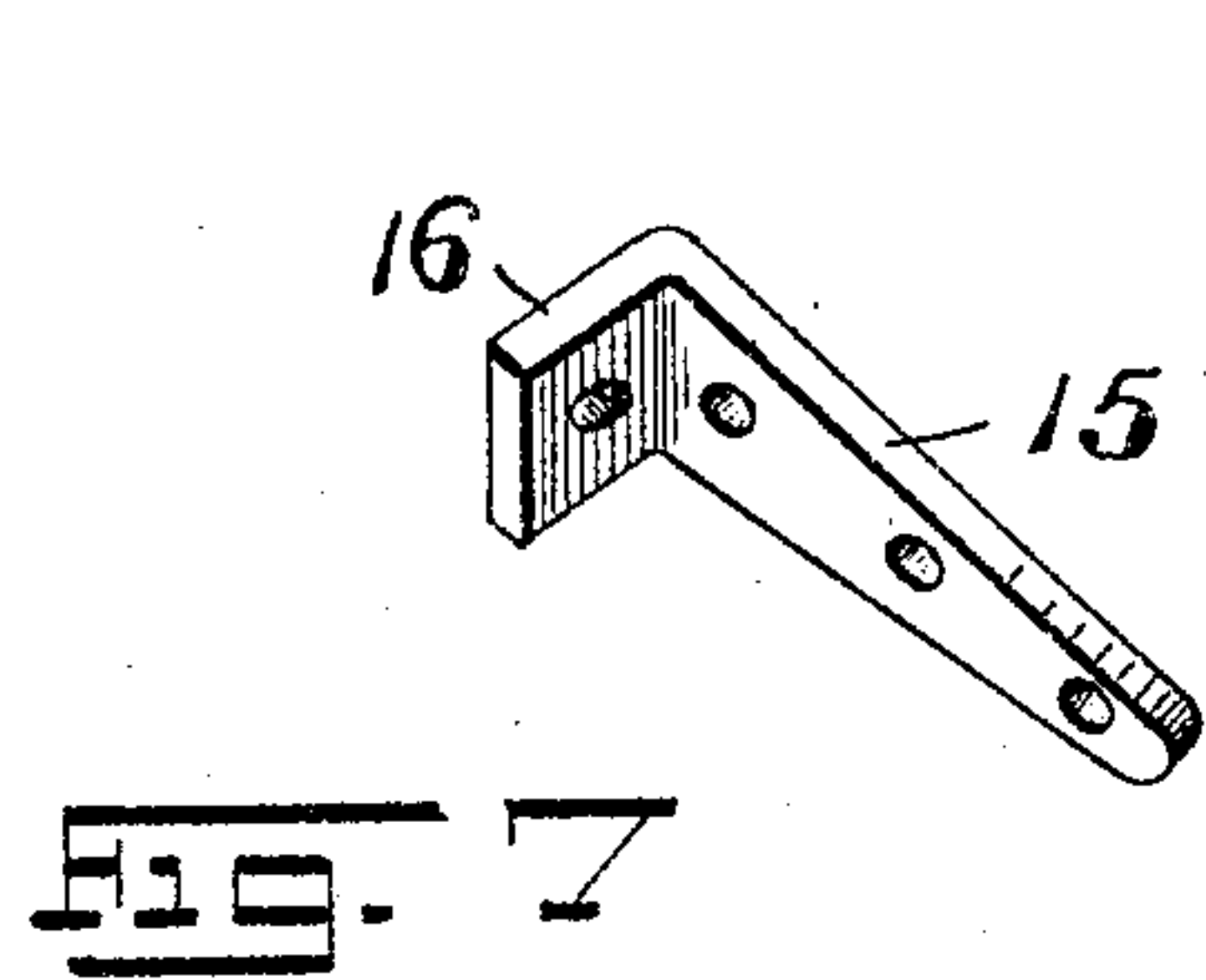
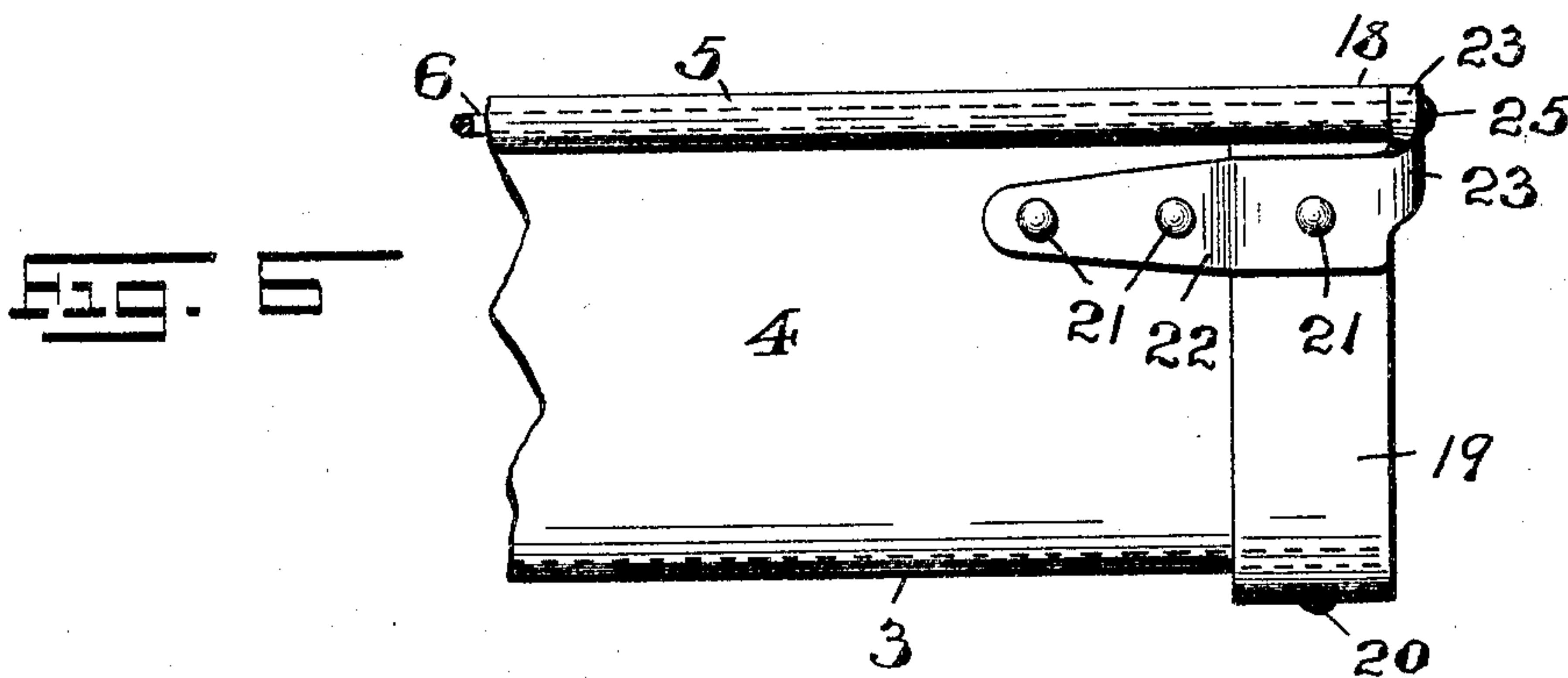
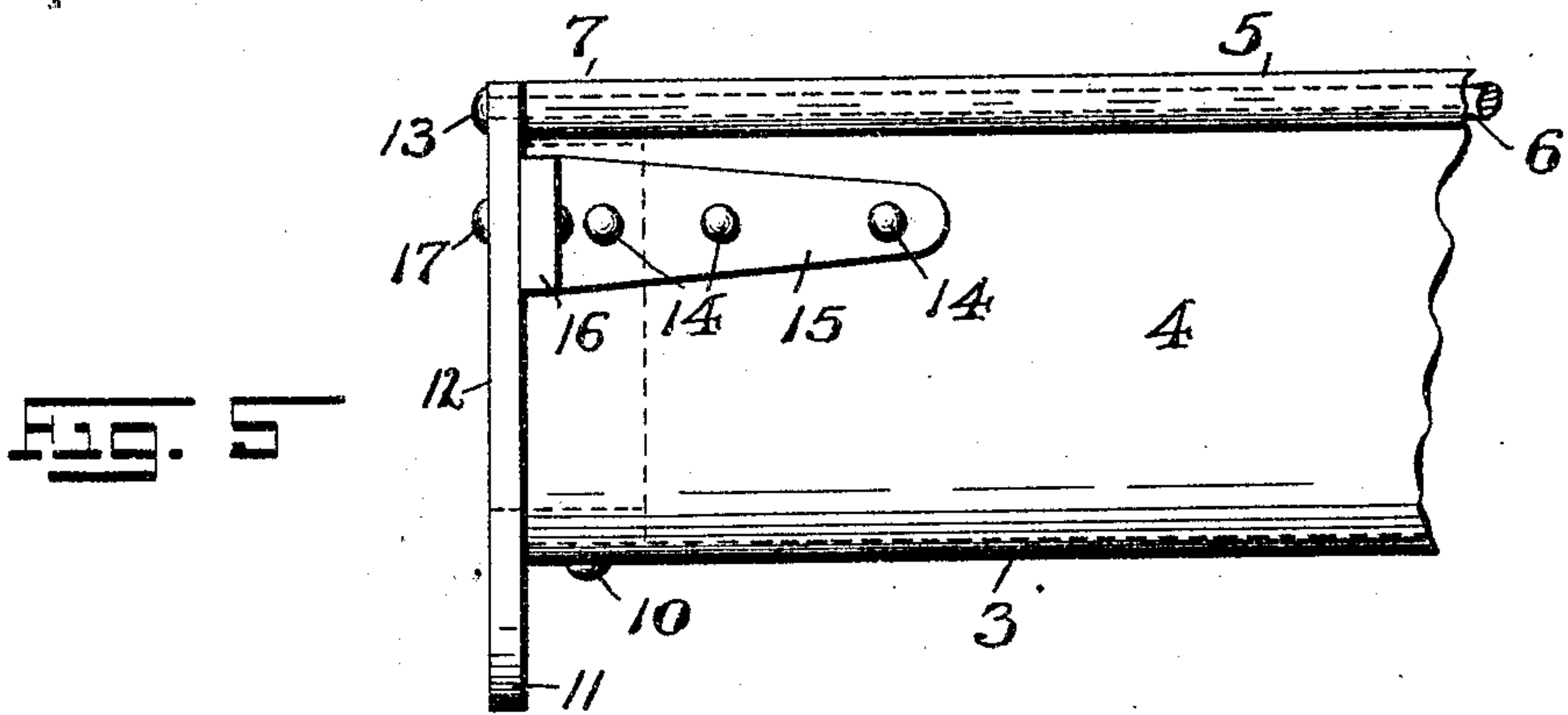
Fred C. Fraentzel

ATTORNEY

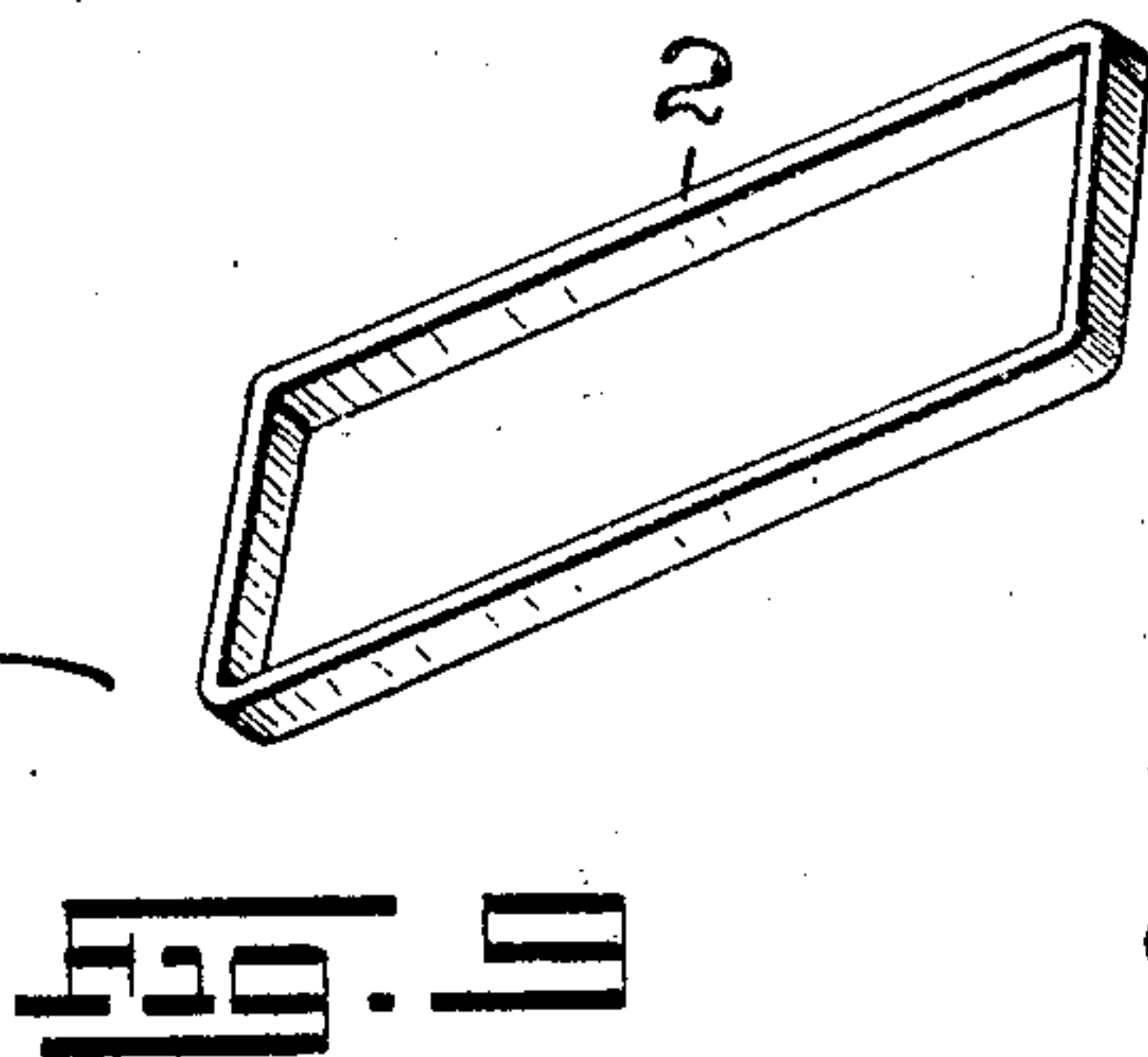
J. KOLLER.
CHUTE.

APPLICATION FILED DEC. 15, 1904.

3 SHEETS—SHEET 3.



WITNESSES:
Geo. D. Richards,
H. B. Fraentzel.



INVENTOR:
John Koller,
BY
Fred C. Fraentzel,
ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN KOLLER, OF NEWARK, NEW JERSEY.

CHUTE.

No. 796,520.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed December 15, 1904. Serial No. 236,907.

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.

My present invention has reference to that class of chutes adapted to be carried on a wagon and to be used with the delivery of coal and the like; and this invention has for its principal objects to provide a strong, durable, and serviceable coal-chute formed with auxiliary strengthening means or devices which prevent the opening out at their ends of the longitudinally-extending beaded or rolled upper marginal edges of the chute, and, furthermore, which prevent the separation of the riveted end portions of the wire rods used with the chute from their fastened relation with the respective end portions of the chute, consequent of the rough handling of the chutes by those who use the chutes.

A further object of this invention is to provide a strengthening means for coal-chutes, preferably in the form of a reinforcing-band at either or both ends of the chute, said means being of such construction that a positively strong and rigid end portion of the chute is provided, which is not readily battered out of shape by the rough handling of the chute.

A still further object of this invention is to provide an open-top chute having upwardly-projecting and longitudinally-extending sides, each side being bounded by a marginal bead or curl to provide stiffness and rigidity, so that the sides of the chute are not liable of being distorted and battered out of shape while the chute is in use.

It has been found in practice that the drivers of coal-wagons in handling the chutes throw them about in a rough manner and in such a way that the chute generally lands upon one of corners of the longitudinally-extending edges of the sides of the chute, whereby, especially when these edges are beaded or curled and are provided with a rod or wire, the said rod or wire within the said beaded or turned-over edge soon becomes loosened and often entirely displaced from its strengthening posi-

tion within the said beaded or curled-over edges of the chute. To overcome these serious objections now existing, I have constructed a chute of the character hereinafter more particularly specified, which, however, may be departed from in its general construction without departing from the general scope of the present invention.

This invention consists, therefore, in the novel construction of coal-chute hereinafter set forth; and, furthermore, this invention consists in the novel arrangements and combinations of the devices and parts, all of which will be more fully described in the following specification and then finally embodied in the clauses of the claim, which are appended to and form an essential part of this specification.

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

Figure 1 is a perspective view of a chute embodying the principles of this invention; and Fig. 2 shows a top or plan view of two connected chutes, illustrating in dotted lines various angular positions of the two adjustably-connected chutes. Fig. 3 is a bottom view of the chute; and Fig. 4 is a longitudinal vertical section of a chute, with the central portion of the chute represented as being broken away. Figs. 5 and 6 are side views, on an enlarged scale, of the respective ends of a chute provided with the strengthening and reinforcing devices of the present invention. Figs. 7 and 8 are perspective views of the two forms of strengthening or reinforcing devices employed, and Fig. 9 is a similar view of a ring or bail which may be used with the chute.

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

Referring now to the said drawings, the reference character 1 indicates the complete chute, which is preferably made of sheet metal and is also preferably of the tapered construction shown in the several figures of the drawings, that the narrow end portion of one chute can be arranged within the wide end portion of another chute and the two chutes adjustably and movably connected in the manner indicated in Fig. 2 of the drawings by means of a separate ring or bail 2, adapted to be slipped over the connected end portions of the two chutes, substantially as shown. The chute consists, essentially, of a flat bottom 3 and two longitudinal sides 4, extending upwardly at right angles from the said bottom, or approximately so, and all arranged to provide

an open part or mouth at each end of the chute, as clearly illustrated. To provide for proper strength and rigidity of the said sides 4, each side is made along its upper marginal edge with a tubular bead or curl 5, in which is arranged, at each side of the chute, a reinforcing or strengthening rod or wire 6, each rod or wire 6 having its end portions projecting beyond the respective end portions of the said beads or curls 5, substantially in the manner and for the purposes to be presently described.

Suitably secured to the one end portion, as 7, of the chute 1 is a metal band or angle-iron 8 of a Γ -shaped cross-section, the said band or angle-iron being formed with the upwardly-extending end members or arms 9. The main body of the said band is made to conform to the inner configuration of the said end portion 7 of the chute and is secured upon the inner face of the bottom 3 and the sides 4, preferably by means of rivets 10, a right-angled member or flange 11 of the said main body and similar right-angled members or flanges 12 of the said arms 9 all being arranged against the end of the chute and extending beyond the outer faces of the bottom and sides of the chute, as shown. In the upper portion of each member of flange 12 is a perforation, through which an end of a rod 6 extends and is provided with a rivet-head 13 for securely connecting the said band or angle-iron 8 with the end portion 7 of the chute. It will thus be seen that the thin-metal edge portion of the chute is thoroughly protected from hard knocks and the like, the band 8 acting also as a strengthening and stiffening means and its right-angled member or flange 11 serving as a shoulder for retaining the chute in its operative position upon the upper edge of a side or the tail-board of a wagon during its use in the delivery of coal or the like. To exclude the possibility of the rivet-heads 13 of the respective rods or wires 6 working loose from their holding relation with the right-angled members or flanges 12, I prefer to secure to the outer faces of the sides 4 of the chute by means of rivets 14 or other means suitable reinforcing devices or plates 15, each device or plate 15 being provided with a right-angled and perforated holding member or ear 16, placed against the back of the right-angled member or flange 12 and firmly secured thereto by means of rivets 17 or other suitable fastening means. In this manner this end of the chute is provided with a strong and doubly-secured protection or reinforcing means which fully protects the end of the chute against wear and damage from rough usage and provides a means which is fully secured against its parts working loose and becoming displaced. These devices or plates 15, however, are not an absolute necessity and may be dispensed with, if desired. The chute is also provided at its other end portion, as 18, with a strengthening-band 19,

secured upon the outer surfaces of the bottom 3 and the sides 4 by means of rivets 20 or other suitable fastening means. Suitably secured to said band 19 and upon the outer faces of the sides 4 of the chute by means of rivets 21 or other fastening means upon each side of the chute are reinforcing devices or plates 22, each plate being provided with a right-angled and upwardly-extending ear or lug 23, provided with a perforation 24, as shown in Fig. 8 of the drawings, in which an end of a rod or wire 6 is arranged and secured in place against movement by means of a rivet-head 25, formed upon the end of the rod or wire, as clearly represented in the several figures of the drawings. Other strengthening-bands 26 may be secured by means of rivets 27 or the like to the outer surfaces of the bottom 3 and sides 4 of the chute, as shown in Figs. 1, 3, and 4 of the drawings.

From the foregoing description it will be seen that I have devised a strong and durable chute which has both of its ends protected against damage due to hard and rough usage, and a chute is the result in which the reinforcing bands or means are secured against displacement by the arrangement of extra holding devices which are secured in place substantially in the manner previously described.

By the use of the ring or bail 2 two chutes can be detachably connected or coupled together and adjusted as to their length, as clearly illustrated in Fig. 2 of the drawings.

Of course it will be understood that changes may be made in the arrangements and combinations of the 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 the said parts.

Having thus described my invention, what I claim is—

1. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, having its ends projecting beyond the ends of the beaded portions of the sides of the chute, and an end band having upwardly-extending arms, means for securing said band in position, said band and its arms having right-angled flanges, and the flanges of said arms being provided with perforations into which the ends of said rods extend, and rivet-heads upon the said rods for securing said rods to said flanges, substantially as and for the purposes set forth.

2. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, having its ends projecting beyond the ends of the beaded portions of the sides of the chute, and an end band hav-

ing upwardly-extending arms, means for securing said band in position, said band and its arms having right-angled flanges, and the flanges of said arms being provided with perforations into which the ends of said rods extend, rivet-heads upon the said rods for securing said rods to said flanges, and reinforcing retaining devices secured upon the outer faces of the sides of the chute and to the flanges of said arms, substantially as and for the purposes set forth.

3. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, having its ends projecting beyond the ends of the beaded portions of the sides of the chute, and an end band having upwardly-extending arms, means for securing said band in position, said band and its arms having right-angled flanges, and the flanges of said arms being provided with perforations into which the ends of said rods extend, rivet-heads upon the said rods for securing said rods to said flanges, and reinforcing retaining devices secured upon the outer faces of the sides of the chute and to the flanges of said arms, consisting, essentially, of plates 15 secured to the sides of the chute, and an angular holding member on each plate secured to the flange of an arm of said end band, substantially as and for the purposes set forth.

4. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, said rods projecting beyond the ends of the beaded portions of the sides of the chute, an end band 19 upon the outer surfaces of the bottom and sides of the chute, means for securing said band in position, reinforcing-plates secured upon the outer surfaces of the sides of the chute and upon portions of said end band, a right-angled and perforated ear extending from each reinforcing-plate provided with a perforation in which the end portion of a rod is arranged, and a rivet-head on each rod for securing said rods to said reinforcing-plates, substantially as and for the purposes set forth.

5. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, said rods having their ends projecting beyond the end portions of said beads, an end band at one end of said chute, upwardly-extending arms on said band, means for securing said band in position, said band and arms having right-angled flanges, and the flanges of said arms having perforations into which the one set of ends of said rods extend, rivet-heads on said rods for securing said rods to said flanges, and an end band 19 at the other end of the chute and upon the outer surfaces of the bottom and sides of the chute, means for securing said end band in position, reinforcing-plates secured upon the outer surfaces of the sides of the chute and upon portions of said end band, a right-angled ear extending from each reinforcing-

plate provided with a perforation in which the end portions of said rods are arranged, and a rivet-head on each rod for securing said rods to said reinforcing-plates, substantially as and for the purposes set forth.

6. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, said rods having their ends projecting beyond the end portions of said beads, an end band at one end of said chute, upwardly-extending arms on said band, means for securing said band in position, said band and arms having right-angled flanges, and the flanges of said arms having perforations into which the one set of ends of said rods extend, rivet-heads on said rods for securing said rods to said flanges, and reinforcing retaining devices secured upon the outer faces of the sides of the chute and to the flanges of said arms, an end band 19 at the other end of the chute and upon the outer surfaces of the bottom and sides of the chute, means for securing said band in position, reinforcing-plates secured upon the outer surfaces of the sides of the chute and upon portions of said end band, a right-angled ear extending from each reinforcing-plate provided with a perforation in which the end portions of said rods are arranged, and a rivet-head on each rod for securing said rods to said reinforcing-plates, substantially as and for the purposes set forth.

7. A chute comprising an open-top body having sides, and a bead on each side, a rod in the bead of each side, said rods having their ends projecting beyond the end portions of said beads, an end band at one end of said chute, upwardly-extending arms on said band, means for securing said band in position, said band and arms having right-angled flanges, and the flanges of said arms having perforations into which the one set of ends of said rods extend, rivet-heads on said rods for securing said rods to said flanges, and reinforcing retaining devices secured upon the outer faces of the sides of the chute and to the flanges of said arms, consisting, essentially, of plates 15 secured to the sides of the chute, and an angular holding member on each plate secured to the flange of an arm, an end band 19 at the other end of the chute and upon the outer surfaces of the bottom and sides of the chute, means for securing said band in position, reinforcing-plates secured upon the outer surfaces of the sides of the chute and upon portions of said end band, a right-angled ear extending from each reinforcing-plate provided with a perforation in which the end portions of said rods are arranged, and a rivet-head on each rod for securing said rods to said reinforcing-plates, substantially as and for the purposes set forth.

8. In an open-end chute, the combination, with an open-top body and sides, of an end plate arranged directly against the end edges of said body and sides, and means for secur-

ing said end plate in position against and upon the said end edges of the chute, substantially as and for the purposes set forth.

9. In an open-end chute, the combination, with an open-top body and sides, of an end plate arranged directly against the end edges of said body and sides, and means for securing said end plates in position against and upon the said end edges of the chute, consisting of reinforcing-plates secured against the outer surface of each side of the chute, and an angular holding member on each plate secured to said end band or plate, substantially as and for the purposes set forth.

10. In an open-end chute, the combination, with an open-top body and sides, of an end plate arranged directly against the end edges of said body and sides, comprising a body and end arms arranged upon the inner surfaces of the chute-body and its sides, and a continuous right-angled flange extending from the body and arms of said end plate, said flange being arranged directly against the end edges of the body and sides of the chute, and means for securing said end plate in position, substantially as and for the purposes set forth.

11. In an open-end chute, the combination, with an open-top body and sides, of an end

plate arranged directly against the end edges of said body and sides, comprising a body and end arms arranged upon the inner surfaces of the chute-body and its sides, and a continuous right-angled flange extending from the body and arms of said end plate, said flange being arranged directly against the end edges of the body and sides of the chute, and means for securing said end plate in position, consisting of reinforcing-plates secured against the outer surface of each side of the chute, and an angular member on each plate secured to said end plate, substantially as and for the purposes set forth.

12. In a chute, comprising an open-top body and its sides, the combination, with an end band, of a reinforcing-plate secured to the said chute, and a right-angled holding means connected with said reinforcing-plate, 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.