No. 654,901. Patented July 31, 1900.

C. W. LANPHER.

CHUTE.

(Application filed Nov. 27, 1899.)

(No Model.)

Fig. 1.

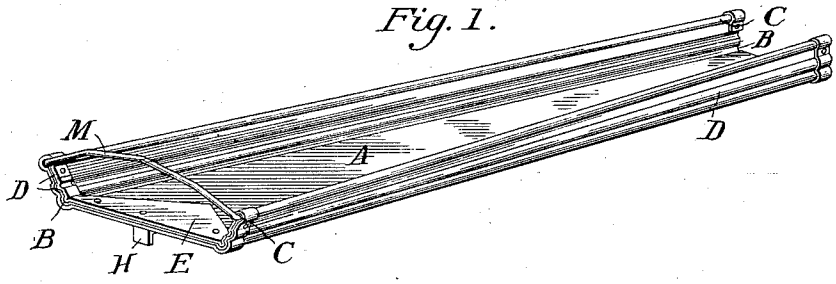


Fig. 2.

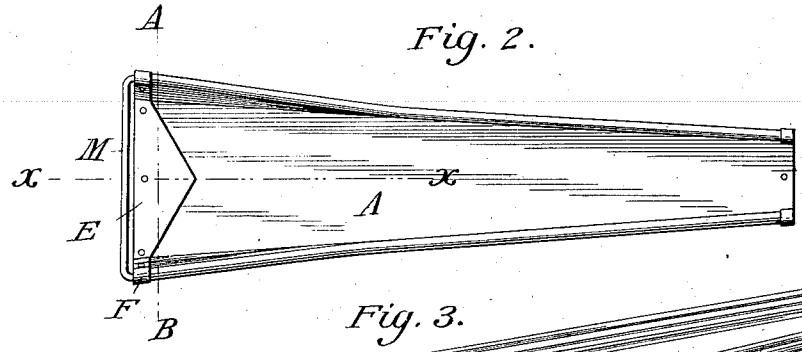


Fig. 3.

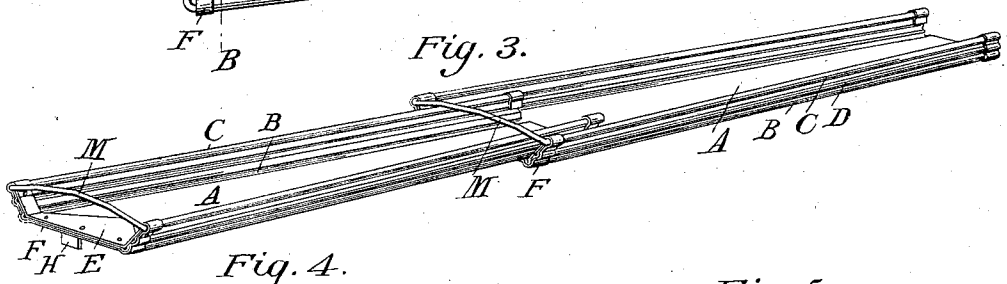


Fig. 4.

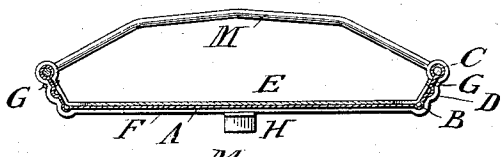


Fig. 5.

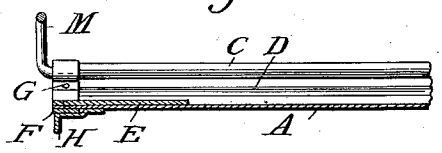


Fig. 6.

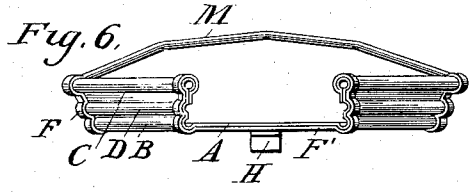
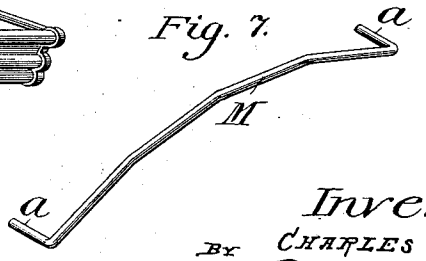


Fig. 7.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES W. LANPHER, OF NORWICH, NEW YORK.

CHUTE.

SPECIFICATION forming part of Letters Patent No. 654,901, dated July 31, 1900.

Application filed November 27, 1899. Serial No. 738,365. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. LANPHER, a citizen of the United States of America, and a resident of Norwich, Chenango county, New York, have invented certain new and useful Improvements in Chutes, of which the following is a specification.

My invention relates to an improvement in a chute for grain, coal, &c.; and I do declare that the following specification, in connection with the drawings thereto attached, presents a full, clear, and exact description thereof, such as to enable others skilled in the art to make and use the same.

In the drawings like letters refer to like parts in the various figures.

Figure 1 is a perspective view of a single section of my improved chute. Fig. 2 presents a top view of the same. Fig. 3 presents a view of two sections so connected by the means provided in my construction as to form an extension-chute. Fig. 4 is a cross-sectional view on line A A, Fig. 2, of the head or wider end of my chute with a bend or loop inserted. Fig. 5 is a longitudinal section on line *x x* of Fig. 2. Fig. 6 is an end view from the lower or smaller end of my chute. Fig. 7 shows a perspective view of the hoop or bail shown in other figures attached to the head of the chute.

Referring to the figures more in detail, A represents a sheet of metal or other suitable material of proper strength and dimensions, forming the bottom of my chute. Its edges are formed integral therewith by bending the material from the plane of the bottom of the chute to the desired angle to form the sides. In bending the material to form such angle I cause the same to take a circular form, as shown at B, more especially in Fig. 4. I then continue the sides at the desired angle to the bottom and to the desired distance therefrom, so as to form suitable sides to the chute. At the termination of these sides or upper edges I cause the metal to be bent outwardly from the line of the length of the chute and to take a circular form and to come nearly, if not quite, to the point of its deflection, thereby making the upper edge tubular in the line of the length of the chute, as shown at C. The metal may be bent first inwardly and then outwardly in a circle without in any wise departing from the spirit of my invention. By this means I am enabled to add strength and rigidity to the chute and to each section thereof. In forming the sides, however, and for the purpose of adding greater strength and rigidity to them I cause the metal to be bent so as to form small corrugations in the line of the length of the chute, as shown at D. At the head of the chute I cause an extra plate E to be firmly secured by rivets or bolts to the inside bottom of the chute and band F, thus adding strength and providing for unusual wear at that point.

At the head or broader end of the chute I place the metal band F, so bent as to conform to the shape of the chute, to pass from the top inner edge of one of the sides around the chute, underneath its body, and to a like position on the other side, the same being suitably secured to the chute by bolts or rivets, the band being returned upon itself sufficiently to permit of the bolt G being passed through both folds of the band and clasp between themselves the body of the chute. Underneath the head of the chute is placed the clip or hook H to hold the same in position as desired. Likewise at the smaller end of the chute I provide a band F, securely fastened thereto on either side.

The chutes are formed with their sides converging, as appears from the drawings, so that the smaller end of one section of the complete chute may rest upon and within the larger end of another section. In order to hold these in position, as may be desired, I provide a hoop M of like general form, as shown in Fig. 7, its ends *a* being bent in a plane substantially at right angles to the length of the bar or hoop. The ends of this bar or hoop are thus bent, as shown, for the purpose of being inserted and are inserted in the ends of the tubular upper edges of the chute at the upper or wider end thereof. In combining one section with another, so as to make an extended or complete chute, the bar is placed in position at the larger end of one section of the chute, and the smaller end of another section is placed under the bar, so as to rest upon the bottom of the section which holds the bar. By this means I am able to form a chute which can be extended to various lengths by the joining of sections and

still retain ample strength in the extended structure. In ordinary cases extension-chutes used for the handling of coal are made with parallel sides, with the ends of each section adapted to fit with greater or less regularity into the ends of similar sections to form a continuous chute; but in practice these soon become useless and incapable of connection through wear.

In the chute which I have invented the various sections are of the same dimensions and are interchangeable one with the other and can be extended in series to any desired length.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A chute having sides converging in the line of its length, the sides integral with the base, the angle between each side and the base presenting a curved outline, the sides longitudinally corrugated, and their upper edges turned to form a substantially-complete circle, substantially as and for the purposes stated.

2. A chute having sides converging in the line of its length, the sides integral with the base, the angle between each side and the base presenting a curved outline, the sides longitudinally corrugated, their upper edges turned to form a substantially-complete circle, a transverse band securely attached at the wider end supporting the base, and, with the upper edges of the sides and the return of the band upon itself, forming sockets, and an upwardly arching or bent rod having each end bent and fitted to its corresponding socket, in combination substantially as and for the purposes set forth.

3. A chute having sides converging in the line of its length, a band or bands securely attached to the sides at the wider end forming sockets, an upwardly arching or bent rod having each end bent and fitted to the corresponding socket, in combination, substantially as set forth.

4. A chute having sides integral with the bottom, the angle between the bottom and each side being formed on the outline of a circle, a band securely fastened at one end of the chute to the bottom and to the sides, each end of the band being returned upon itself forming a socket or loop, an arched hoop or rod having each end bent to fit the corresponding socket, and a plate fixedly attached to the inside bottom at the wider end of the chute, as and for the purposes substantially as set forth.

5. A chute formed of a series of members each having its sides converging in the line of its length, the narrow end of one resting in and upon the wide end of the first succeeding section in series, an upwardly arched or bent rod connecting the sides of each section except the uppermost at its wider end, the arch passing over the smaller end of the adjacent section inserted in and resting upon the wider end of the section having the arch hoop, in combination, substantially as set forth.

6. A chute having its sides converging in the line of its length, each end bound with a band passing from the upper edge of one side underneath the body of the chute to the upper edge of the other side, the said bands and a reinforcing-plate riveted to the inner surface of the wider end of the chute, in combination, substantially as set forth.

7. In a chute formed with its sides converging in the line of its length, a plate secured to the inner surface of the wider end forming a reinforcing-plate, and a band on the opposite side of the chute secured to the chute and to the reinforcing-plate, substantially as set forth.

8. A chute having corrugated sides converging in the line of its length, a band or bands securely attached to its sides at the wider end forming sockets, a plate fixedly attached to the inside bottom of the chute, and an upwardly-bent hoop at its wider end, in combination, substantially as set forth.

Signed by me at Norwich, New York, this 18th day of November, 1899.

CHARLES W. LANPHER.

Witnesses:
EDWARD L. NASH,
VICTOR J. HAYNES.