



# UNITED STATES PATENT OFFICE.

FRED KUSER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO RAYMOND L. WARD, OF SAME PLACE.

## GRAIN-CHUTE.

SPECIFICATION forming part of Letters Patent No. 610,066, dated August 30, 1898.

Application filed February 17, 1898. Serial No. 670,636. (No model.)

*To all whom it may concern:*

Be it known that I, FRED KUSER, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Grain-Chutes and Similar Devices, of which the following is a specification.

My invention relates to improvements in grain-chutes and similar conduits for transmitting grain, sand, plaster, and other materials either under the action of gravity or when propelled by air-blasts or otherwise. When angles occur in such conduits as they have been heretofore constructed, the impact of the transmitted material against the wall or walls of the conduit by which the change in direction is secured speedily wears them away and after a time cuts a hole entirely through them. To avoid this, the conduits at such angles have heretofore been reinforced in some manner, sometimes by lining them at those places with a plate of metal of special hardness and weight and sometimes by putting in at the angles a section of the conduit made of much heavier or thicker material than the other parts for the purpose of resisting the wear longer. These expedients have been somewhat expensive, and in any event merely delay the necessity for repairs.

By my invention the conduits are freed from any more wear at the angles than at other places. Indeed, they have not so much wear as the straight portions, and I also supply means whereby they may be opened at such angles for clearing out any objectionable matter that may at any time occur in them.

The drawing hereof illustrates an elevation, partly in section, of a grain or similar chute disconnected from other parts.

A, B, and C illustrate three sections of a conduit, A and C being shown as vertical and B set at an inclination to them and connecting with them, so as to produce the two angles at D and E. At each of these places the upper sections of the conduit, respectively, are extended beyond the point of intersection with them of the adjacent section, thus forming pockets or receptacles F and G, so located and arranged that the transmitted material which first passes through the con-

duit will fill up the pockets until it attains a height which may be approximately represented by the lines H and I, respectively, and when the pockets are thus filled it is evident that the material thereafter passing through the conduit will cushion or strike against that already in the pockets and that all the impact thereof will be taken up or neutralized by it as a sort of buffer and none of the wear will come upon the conduit, and that consequently, instead of their being excessive wear at the angles, they are protected against even so much as is applied to the straight portions. With some classes of material—as, for instance, grain—fermentation or other undesirable changes may occur after a lapse of time in the quantity thereof held in the pockets; also, nails, stones, and other impurities will be caught and held in these pockets, particularly since by their weight they force themselves into the material already in the pockets and are there permanently held. This separation of injurious impurities is a valuable feature of my invention. In order that such impurities may be emptied from the pockets, I close their ends by removable caps J, which may be attached to the pockets in any preferred manner—as, for instance, by a bayonet-slot joint and pin, as shown at K. Any other preferred means may be employed.

It will be understood that the conduits may be of any size, shape, and material, and used for transmitting any substance adapted to such means, and that the details of construction shown may be considerably departed from and still the essential features of the improvement be present, and particularly that when any agency except gravity is employed to propel the material that then the pockets will or may be differently arranged, the essence of the invention being to so dispose the pocket or pockets at the intersection of adjoining portions of the conduit which lie at an angle relative to each other and at the end of the section through which the material first passes, so that in its transit it shall first fill the pockets, and that thereafter the contents of the pockets shall act as a buffer to take the wear of the succeeding material.

It will also be observed that the pockets are



in effect chambers or receptacles extended or built on beyond the line of the chute proper, and that they are disconnected from the chute excepting at their upper ends, so that the pockets may be conveniently and quickly opened or removed for the disposition of the material caught in them without in any manner interfering with the chute proper and without danger that the material caught in them shall become mixed with the good grain; also, that there is an unobstructed passage-way the full size of the chute for the material to pass above that which lodges in the pockets.

I claim—

1. A continuous-closed chute for transmitting grain or like material, composed of sections which lie at angles relative to each other, a pocket adapted to catch and hold some of the material and located intermediate and just beyond the intersection of such continuous-angling sections and at the end of the section through which the material first

passes, and a removable cap for closing or opening said pocket and adapted to be removed without disturbing the chute, for the purposes set forth.

2. A continuous-closed chute for transmitting grain or like material, composed of a plurality of sections, each succeeding section connecting with the side of the preceding one some distance above its end, the projecting end of the preceding section being closed to form a pocket adapted to catch and hold some of the material, said pocket being disconnected from any chute except at its upper end, there being also an unobstructed passage-way for the material over that which is held in the pocket, for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 16th day of February, A. D. 1898.

FRED KUSER.

Witnesses:

PHILLIPS ABBOTT,  
D. SOLIS RUTTERBAND.