F. M. CAMPBELL.

Adjustable Grain-Spout.

No. 213,278. Patented Mar. 18, 1879.

Fig. 1.

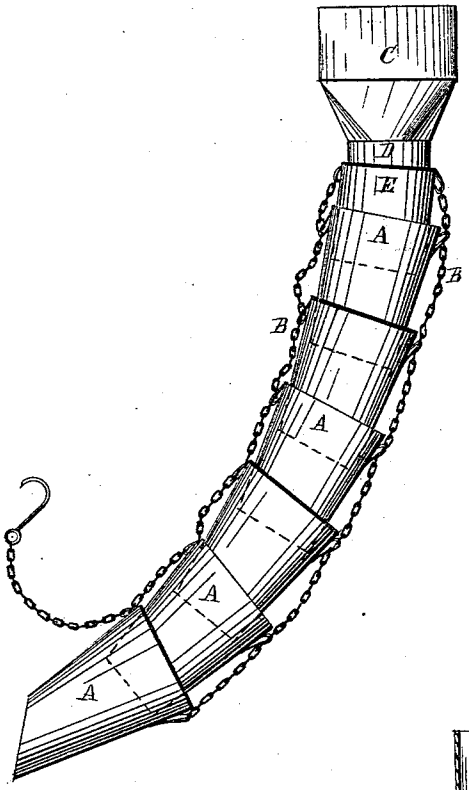



Fig. 2.

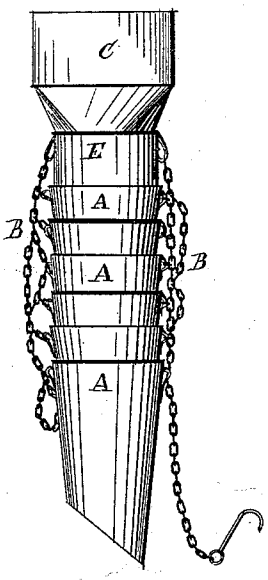
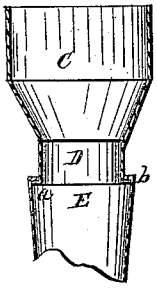



Fig. 3.




Witnesses.

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# UNITED STATES PATENT OFFICE.

FRANK M. CAMPBELL, OF ST. LOUIS, MISSOURI.

## IMPROVEMENT IN ADJUSTABLE GRAIN-SPOUTS.

Specification forming part of Letters Patent No. **213,278**, dated March 18, 1879; application filed December 19, 1878.

*To all whom it may concern:*

Be it known that I, FRANK M. CAMPBELL, of St. Louis, in the county of St. Louis and State of Missouri, have invented a certain new and Improved Adjustable Grain-Spout; and I do hereby declare that the following is a full, clear, and complete description of the same.

The object of this invention is to conduct grain from an elevator into railway-cars and into the holds of vessels, whereby the said grain is distributed evenly into the car and vessel, thus avoiding the shoveling and moving of the grain after being discharged therein.

A full and complete description of the said invention is as follows, reference being had to the accompanying drawings for illustrating the same, in which—

Figure 1 is a side view of the spout extended. Fig. 2 is a view of the spout closed up. Fig. 3 is a detached section.

Like letters of reference refer to like parts in the several views.

The said invention is an improvement on a grain-spout for which a patent was granted to me July 16, 1878.

The grain-spout referred to consists of a series of short tubes, A, which may be more or less in number, according to the required length of the spout. Said tubes are tapering, so that the smaller end of the one will fit loosely in the larger end of the other. The difference in the diameter of the two ends of the tubes thus inserted one in the other is such as to allow considerable play, so that the series of short tubes will form a flexible elongated spout, as shown in Fig. 1, susceptible of being turned sidewise in any direction, and of being shortened up or telescoped, as shown in Fig. 2.

The several sections or short tubes of the spout are connected to each other by a number of short chains, B, one end of which is attached to the larger end of one section of the spout, and the other attached to the larger end of the section, in which the smaller end of the first section is inserted, substantially as shown in the drawings, in which it will be seen that a series of connecting-chains are arranged on the two opposite sides of the spout, thereby linking the whole series of short tubes strongly and securely to each other, at the same time permitting a free movement of the series of tubes for being turned about in either direction and for being shortened up, as shown in Fig. 2. Connecting-chains may be arranged on three sides of the spout, instead of on two sides, in the event the spout be of large size, or even more depending upon the section and size.

C represents the lower end of the grain conductor or chute, to which the flexible spout above described is attached, as follows: Around the outer edge of the tubular end D of the conductor C is formed a narrow flange, *a*, Fig. 3, the diameter of which is sufficient to fit loosely in the collar E of the spout. Around the inner upper edge of the collar is formed a narrow flange, *b*, which, when the two parts are put together, prevents them from being pulled apart, as the two flanges lock the two sections together, as shown in said Fig. 3. This connection of the two parts forms a swivel-joint, so that the series of short tubes connected to the end of the conductor can be turned easily and entirely around.

The collar E may be straight, as shown in Fig. 1, or slightly tapering, as seen in Fig. 3.

My patented grain-spout, above alluded to, consists of a series of tapering tubes or sections like those herein described; but instead of being attached to each other with chains they were connected to each other by pivots, one on each side of the sections. This pivotal joining of the sections together permitted the spout to bend only in two directions, backward and forward from the line of their pivotal connections; hence the spout could distribute the grain in two directions only without turning the entire spout in such other direction for that purpose. This turning of the entire spout required much labor and time, especially when discharging grain. Furthermore, the sections being pivoted to each other, the spouts could not be shortened up by telescoping them, to adapt the spout to the varying height of the place into which the grain was being conducted. These objections are avoided by linking the several sections composing the spout together with sectional

chains, as herein shown and described, which, as will be obvious, allows the spout, either as a whole or sections thereof, to be turned around in any direction, and to be shortened up more or less, as the place into which the grain is being discharged fills up.

What I claim as my invention, and desire to secure by Letters Patent, is—

In grain-spouts for elevators, the tapering sections A, inserted one within the other, and connected together by short sectional chains, arranged in two or more sides thereof, and the said sections attached to the end of the conductor C by a swivel-joint, substantially as herein described, and for the purpose specified.

FRANK M. CAMPBELL.

Witnesses:
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