

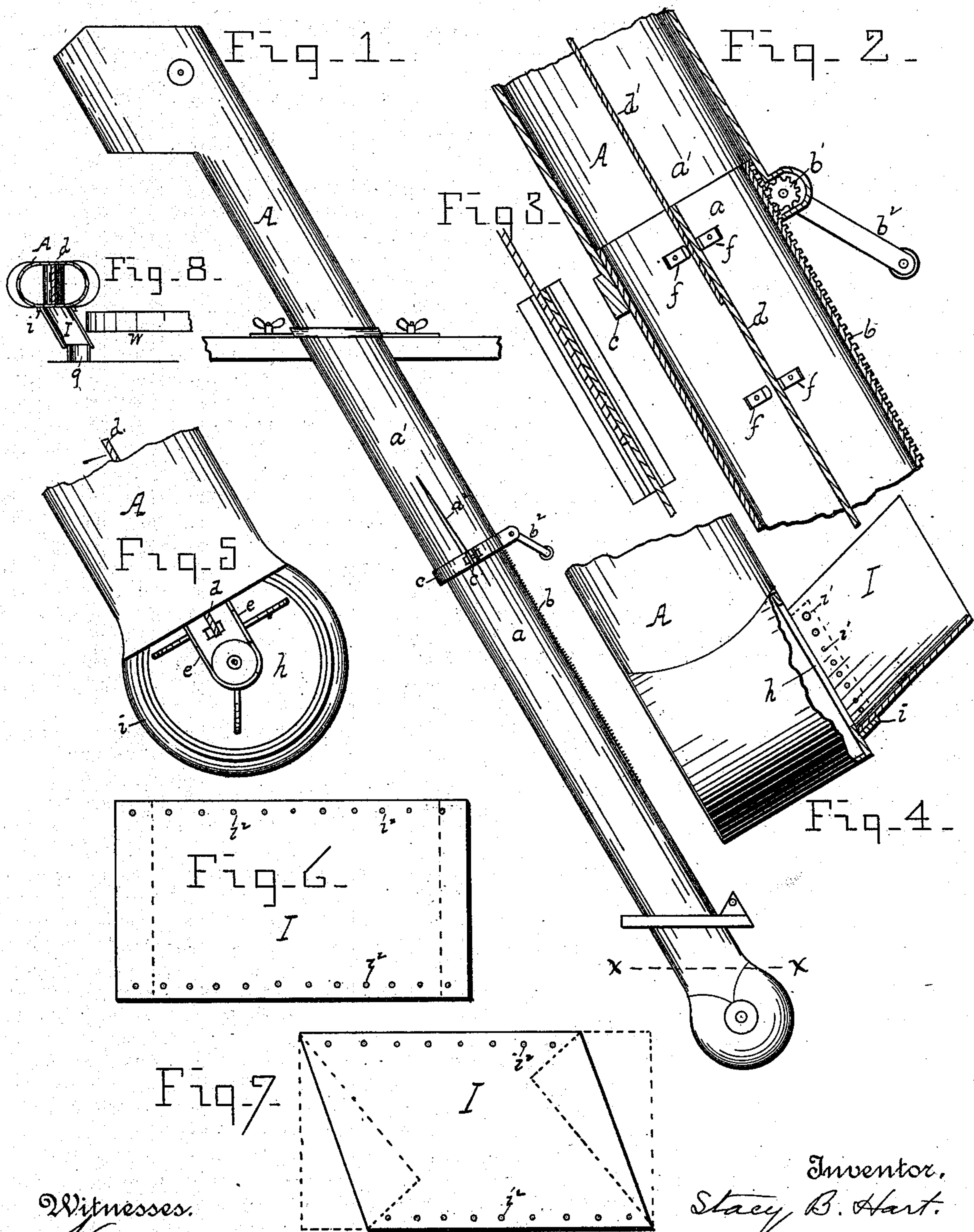
(No Model.)

S. B. HART.

ELEVATOR FOR GRAIN SEPARATORS.

No. 402,522.

Patented Apr. 30, 1889.



Witnesses.
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ELEVATOR FOR GRAIN-SEPARATORS.

SPECIFICATION forming part of Letters Patent No. 402,522, dated April 30, 1889.

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To all whom it may concern:

Be it known that I, STACY B. HART, a citizen of the United States of America, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Elevators for Grain-Separators, of which the following is a specification.

Referring to the accompanying drawings, in which similar reference-letters indicate the same or corresponding parts, Figure 1 is a side elevation of the elevator-tube; Fig. 2, a partial longitudinal section of the same; Fig. 3, a partial section showing a constructional modification; Fig. 4, a side elevation of the lower end of the elevator-tube with a portion broken away to show the mode in which the adjustable grain-chute is applied; Fig. 5, a side elevation of the same, showing in plan the feed-opening and the flange around it; Fig. 6, a plan of the metal sheet employed for the grain-chute; Fig. 7, a view of said sheet with its corner folded or removed to adapt it to be applied so as to adjust the lateral inclination of the chute; and Fig. 8, a horizontal section in line *xx* of Fig. 1, illustrating the oblique application of the chute.

This invention relates more particularly to the construction of the elevator-tube as distinguished from that of the mechanism operating to raise the grain through said tube; and it consists in certain improvements, substantially as hereinafter described and claimed, designed to enable the elevator to be adjusted to the height of the separator, and, further, in improved means for connecting the elevator with the grain-spout of the separator.

In the elevators which are employed in connection with the combined thrashing and screening machines termed "grain-separators" the tube through which the grain is raised is almost necessarily extended several feet above the top of the separator-frame, in order to properly deliver the elevated grain into the transverse conveyer or the weighing attachment.

Grain-separators varying in the height of their frames and in the relative dimensions and arrangement of their parts are constructed and sold in large numbers by different manufacturers without being provided with an elevator or

weighing attachment, and, on the other hand, large numbers of the latter are made and sold to be applied by farmers to their old separators already in use. In consequence of these facts two serious practical difficulties arise—to wit, first, the varying height of the separator-frames renders it impossible to adopt any fixed standard of length for the elevator-tubes necessary to be used with the weighing attachments, but tubes of different length have to be provided to suit the different separators, and thus the manufacturer or dealer is obliged to carry a large stock to meet the requirements of the trade, and, secondly, in many separators on the market the discharge end of the grain-spout is so near to one of the supporting-wheels of the machine that there is not sufficient room between them to accommodate the lower end of the elevator-tube, which in such case must be arranged out of the way of the wheel and connected to the grain-spout by an oblique or laterally-inclined connecting-chute.

Here, again, the construction varies so much in the different separators that no one standard form of connecting-chute can be employed for all cases, and in consequence the manufacturing establishment with which I am connected has been obliged to provide seven different patterns of connecting-chutes for the purposes of its trade. Another difficulty common to all cases, even where the separators and elevators are made together or fitted to each other in the manufacturers' shops, arises from the fact that the elevator-tubes project so far above the separator-frame when on the machine as to be liable to come in contact with the top of the covered bridges or of the barn doorway, rendering it impossible to get the machine through without removing the elevator.

The object of my present invention is to remedy these several difficulties by providing an elevator-tube which can be made of one standard size and pattern and easily adjusted to fit any of the separators in use, and which can be readily lowered to permit the combined machine to pass through bridgeways or doorways without obstruction, whenever occasion arises therefor.

In the drawings, A is the elevator-tube constructed in two or more sections, *a a'*, capable

of sliding or "telescoping" one in another. I prefer to construct these sections of sheet-iron in round tubular form, and to adapt the form of the elevator-buckets thereto. The
 5 lower section, *a*, is intended to be fixed, and the section *a'* above to slide up and down on it, a suitable power device—for example, a rack, *b*, and pinion *b'* operated by a crank, *b²*, attached, respectively, to the lower and
 10 upper sections, as shown in Figs. 1 2—being provided to enable the upper section to be readily and easily slid up and down on the lower one. In attaching the device to a separator the lower section is to be first secured
 15 in place and the upper section then slid up or down to the required extent and fastened in its adjusted position.

Any suitable fastening device may be employed for this purpose; but I prefer to slit
 20 the outer section at and near its end, as shown at *a²*, and to provide it with a simple strap or band, *c*, passing around its end and having a clamp-screw, *c'*, which may be loosened to permit the two sections to be con-
 25 nected or adjusted and then tightened to clamp them firmly together.

The interior of the elevator-tube is divided by a longitudinal partition, *d d'*, arranged between the ascending and descending portions
 30 of the drive chain or belt *e*. The partition, like the tube, must be made in two sections, as shown, and in order to admit of the requisite adjustment they must be capable of overlapping or sliding by each other, and for this
 35 purpose I confine the upper end of the lower section, *d*, loosely between cleats *f*, which also permit the introduction and sliding movement of the projecting lower end of the upper section, *d'*, as shown in Figs. 2 and 3. An
 40 elevator-tube thus constructed can be easily adjusted to fit the frames of all the different separators in use, and its upper end can readily be lowered out of the way when the machine is to be taken through a low passage-
 45 way. The drive-chain, when of the ordinary constructions now in use, can be easily adapted to the adjusted tube by inserting or removing one or more links, and can be tightened up by a slight additional adjustment of
 50 the tube-sections, this ability to adjust the tension of the chain at any time constituting another valuable advantage arising out of my improvement.

In this class of machines the grain-spout *g*
 55 delivers the screened grain from the separator to the elevator through an opening, *h*, in the side of the elevator-tube at or near its lower end. Where, in attempting to apply an elevator to an old separator, it is found
 60 that the supporting-wheel *w* of the latter renders it impracticable to arrange the opening *h* of the elevator-tube directly in line with the grain-spout *g*, the tube must be arranged in the most available position, and an ob-
 65 lique or diagonally-arranged chute must be

interposed between the spout *g* and the opening *h* to direct the grain from the former to the latter. Heretofore such chutes have been made of cast-iron in patterns to suit the different machines on the market and provided
 70 with a flange or flanges, by which they may be attached at the ends to the elevator-tube and the grain-spout. In lieu thereof I construct a projecting semi-annular flange, *i*, around the lower part of the opening *h* out-
 75 side of the elevator-tube, and provide it with a series of rivet-holes or screw-holes, *i'*, as shown in Figs. 4, 5, and 8, and I furnish to dealers or users, in connection with each elevator, a rectangular piece of sheet metal, *I*, Fig.
 80 6, preferably provided with rivet-holes *i²*, corresponding to those in flange *i*.

If the separator upon which the elevator is to be used is such as to permit the opening *h* to come directly in line with the grain-spout,
 85 then the ends of the sheet *I* are to be folded on its body, as indicated by the dotted lines in Fig. 6, and it is simply bent to fit the concave side of the flange *i* and riveted to the latter and to the grain-spout. If the open-
 90 ing *h* does not come in line with the spout, then the ends of the sheet are to be folded diagonally upon its body, as shown by the dotted lines in Fig. 7, after which it is bent to fit the flange *i* and extend obliquely there-
 95 from to the grain-spout, as represented in Fig. 8.

By this simple device I enable the elevator to be readily applied to any separator, and dispense with the necessity for carrying in
 100 stock a large quantity of specially-constructed chutes of different patterns.

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

1. An elevator-tube, *A*, made in sections *a a'*, adapted to telescope, in combination with a contained partition made in overlapping sections *d d'* and with means by which the sections *a a'* and *d d'* may be fastened in
 110 their adjusted positions with relation to each other, substantially as described.

2. An elevator-tube, *A*, having a semi-annular flange, *i*, around the lower edge of the grain-receiving opening *h*, provided with
 115 holes *i'* to receive the screws or rivets by which the grain-chute is attached to the elevator, substantially as described.

3. The combination of the elevator-tube *A*, having the semi-annular flange *i* arranged
 120 around the lower edge of the grain-opening *h*, provided with holes *i'* and permanently connected to the elevator-tube, and a rectangular piece of sheet metal adapted to be folded and applied, substantially as and for the purpose
 125 described.

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