F. STONER.

DEFLECTOR.

APPLICATION FILED JAN. 9, 1909.

968,713. Patented Aug. 30, 1910

Fig. 1.

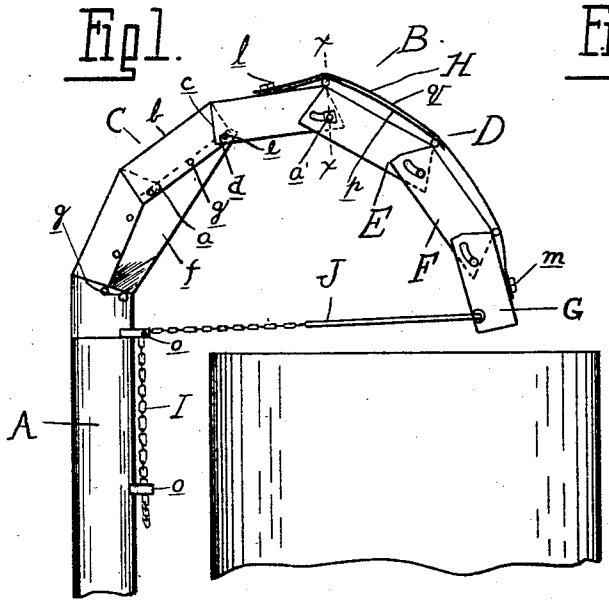


Fig. 2.

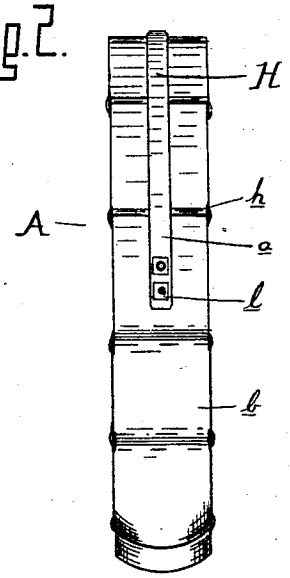
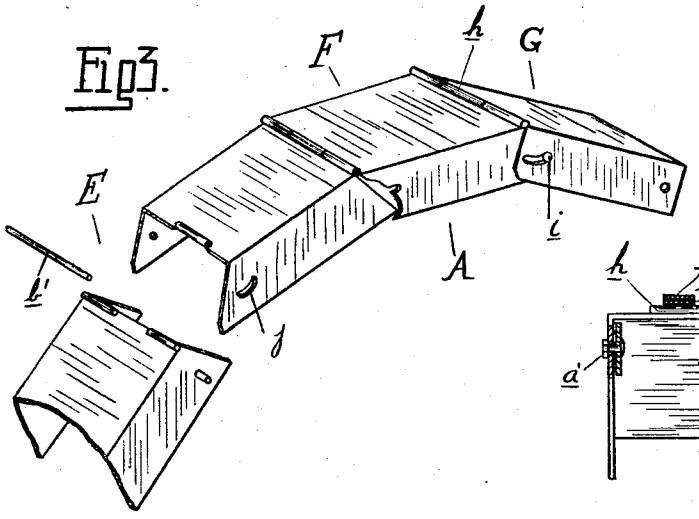


Fig. 3.



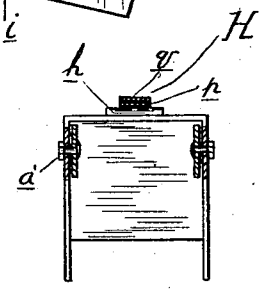


Fig. 4.

Witnesses

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DEFLECTOR.

968,713. Specification of Letters Patent. **Patented Aug. 30, 1910.**

Application filed January 9, 1909. Serial No. 471,485.

To all whom it may concern:

Be it known that I, FRANK STONER, a citizen of the United States of America, residing at Monroe, in the county of Monroe and State of Michigan, have invented certain new and useful Improvements in Deflectors, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to a deflector or hood for pneumatic stackers adapted to direct the discharge of material from the conveyer pipe, and consists in the novel and simple construction of the deflector, in the peculiar arrangement and combination of parts, and in various details of construction, as will be more fully hereinafter set forth.

In the drawings,—Figure 1 is a view in side elevation of the deflector applied to the discharge end of the conveyer pipe; Fig. 2 is a top plan view; Fig. 3 is a perspective view of the articulated section of the deflector, showing some of the parts detached; and Fig. 4 is a section taken on line *x*—*x* of Fig. 1.

The deflector herein illustrated is especially designed for use in connection with silo fillers, in which A represents the usual discharge or conveyer pipe, the other parts of the machine not being illustrated, as they form no part of the present invention.

B represents the deflector or hood, which in the preferred form illustrated is composed of a fixed section C mounted upon the discharge end of the conveyer pipe A, and an articulated section D hinged to the fixed section and adapted to be shifted into various positions in order to direct the material from the discharge pipe in such directions as may be desired.

Both the sections referred to are trough-shaped. The section C is preferably made from a single strip of sheet metal, the marginal portions of which are bent into angular relation to the body proper, forming sides *a* and a top or body portion *b*. This section is curved, and to permit of the curvature the sides are slitted, as at *c*, at different points along their length, permitting the inward bending movement of the section, while the overlapping portions of metal at the slits,—indicated by *d*,—are fastened preferably by rivets, as *e*, thereby holding the fixed section in the desired position. The section itself is preferably riveted to the upper or discharge end of the pipe A, and preferably throat plates, as *f*, are employed to reinforce the parts, the plates being suitably fastened to the discharge pipe and to the fixed section by means of the rivet *g*.

The articulated section D is preferably composed of three members E F G, pivoted one to another by suitable hinges, as *h*. Each member is similar in form to the fixed section, the sides of adjoining members overlapping, and the relative sliding movement between the members is limited by cooperating means carried by said members. In the construction illustrated in Fig. 3, the coöperating means comprise headed studs *i* upon the sides of the members E F and the outer end member of the fixed section C, and slots *j* formed in the sides of the members adjoining those carrying the studs. The slots are of a length and curvature to permit the articulated section to be moved inwardly or outwardly as may be desired in relation to the conveyer pipe.

Means are provided for normally holding the articulated section in its straightened or substantially transverse position in relation to the conveyer pipe; the preferred means is a leaf spring H arranged upon the tops of the fixed and articulated sections, as indicated in Fig. 2. The spring at its inner end is detachably connected to the fixed section by suitable bolts *l*, and is connected at its outer end at *m* to the end portion of the member G.

To adjust the section D against the tension of its spring, a suitable cable I may be employed passing over suitable sheaves *o* upon the pipe, which connects with a bail J upon the end of the articulated section. It will be obvious from the construction described that the direction of discharge from the conveyer pipe may be changed at will by either releasing the cable, allowing the spring to straighten the articulated section, or by curving said section against the tension of its spring.

To facilitate the adjustment of the articulated section, the spring is so constructed that the tension will remain practically constant regardless of the amount of tension under which it is put. To attain this result, the spring is composed preferably of two

leaves, an inner member p extending from its point of attachment on the fixed section C to substantially the middle of the articulated section, and an outer member q extending beyond the inner member to substantially the extreme outer end of the section D. As thus formed, the entire spring operates to lift the articulated section in its entirety into a transverse or extended position, while upon inward movement of the deflector the inward curving of the end sections is effected only against the longer member of the spring. Thus, the entire force of the spring is utilized for lifting the entire section, while the tension of only a portion of the spring need be overcome in drawing the deflector into its extreme inward position.

In some instances, the desired direction of discharge of the material from the conveyer pipe may be effected without the articulated section, and I have therefore provided for the detachment of said section in such cases. To permit of the parts being separated, bolts a' form the pivot-pins between the side portions of the inner member E of the articulated section and the adjoining sides of the fixed section, the hinged pivot b' at the juncture of the fixed and articulated sections is made removable, and the leaf spring,—through the agency of the bolts l,—is detachable from the fixed section.

What I claim as my invention is,—

1. In combination with a conveyer pipe for pneumatic stackers, of a deflector therefor comprising a curved inverted trough-shaped section fixedly secured to the discharge end of the pipe, and a similar articulated section hinged to the fixed section, a leaf spring connecting the two sections, throat plates for the fixed section rigidly attached thereto and to the conveyer pipe, a bail upon the free end of the articulated section, a cable connected to the bail, and guides upon the conveyer pipe through which the cable passes.

2. A deflector for conveyer pipes, comprising a fixed section, an articulated section hinged thereto composed of a plurality of hinged trough-shaped members, a leaf spring comprising a plurality of leaves of different lengths, one of said leaves having its ends secured respectively to the outermost member of the articulated section and to the fixed section, and having a bearing upon the intermediate members of the articulated section.

3. A deflector for conveyer pipes, comprising a fixed section, an articulated section hinged thereto composed of a plurality of trough-shaped members and a pair of superimposed leaf springs of different lengths, each having its inner end secured to the fixed section, the shorter of said springs having its outer end engaging an intermediate member of the articulated section and the outer end of the longer member being in engagement with the end member of the articulated section.

4. A deflector for conveyer pipes, comprising a fixed section, an articulated section hinged thereto composed of a plurality of trough-shaped members hinged at the top by transverse hinges, and a pair of superimposed leaf springs of different lengths, each having its inner end secured to the fixed section, the shorter of said springs having its outer end in engagement with a hinge of an intermediate member of the articulated section, and the longer of said springs having its outer end secured to the end member of the articulated section.

5. A deflector for conveyer pipes, comprising a fixed section, an articulated section composed of three trough-shaped members, said trough-shaped members being hinged to each other and one of said members being hinged to the fixed section at the top by transverse hinges projecting thereabove, and a pair of leaf springs of different lengths, each having its inner end secured to the fixed section, the shorter of said members extending over the hinge connecting the fixed and the articulated section and having its outer end in engagement with the hinge connecting the first two members of said last-mentioned section, the longer of said springs extending over the hinges of all of said sections and having its outer end connected to the outermost member of the articulated section.

6. A deflector for conveyer pipes, comprising a fixed section, an articulated section hinged thereto composed of a plurality of trough-shaped members hinged at the top by transverse hinges, the sides of each member projecting beyond the end of the top portion of said members and the projecting sides overlapping, a pin-and-slot engagement between the overlapping portions of adjacent members for limiting their relative movement, and a pair of superimposed leaf springs of different lengths, each having its inner end secured to the fixed section, the shorter of said springs having its outer end in engagement with a hinge of an intermediate member of the articulated section, and the longer of said springs having its outer end secured to the end member of the articulated section.

7. A deflector for conveyer pipes, comprising a fixed section, an articulated deflecting section hinged thereto composed of a plurality of trough-shaped members hinged one to another at their upper edges, and a leaf spring having its ends connected respectively to the fixed section and to the outer end member of the articulated section, and constructed to bear on the inward movement of the deflector on the hinges of the articulated section.

8. A deflector for conveyer pipes, comprising a fixed section and an articulated section hinged thereto composed of a plurality of trough-shaped members hinged one to another at their tops by transverse hinges, the sides of the members being each of greater length than the top and projecting beyond the top ends, whereby the side portions of adjacent members overlap, and a pin-and-slot engagement between the overlapping portions serving to limit their relative movement.

9. A deflector for conveyer pipes, comprising a fixed section and an articulated section hinged thereto composed of a plurality of trough-shaped members hinged one to another at their tops by transverse hinges, the sides of the members being each of greater length than the top and projecting beyond the top ends whereby the side portions of the adjacent members overlap, a pin and slot engagement between the overlapping portions serving to limit their relative movement, and a leaf spring having its ends connected respectively to the fixed section and to the outer end member of the articulated section and adapted to bear on the inward movement of the deflector on the hinges of the articulated section.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK STONER.

Witnesses:
E. S. WILDER,
JESSE H. ROOT.