(No Model.)

E. McCONNELL.

PNEUMATIC CONVEYER.

No. 477,692. Patented June 28, 1892.

Fig 1

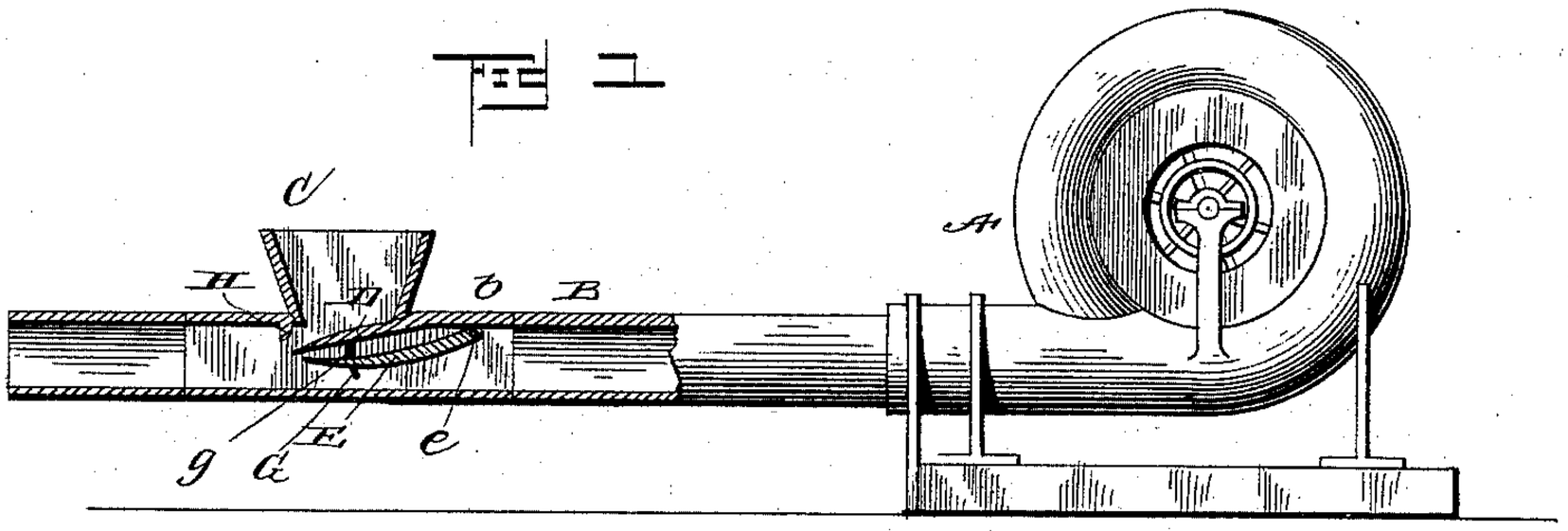


Fig 2

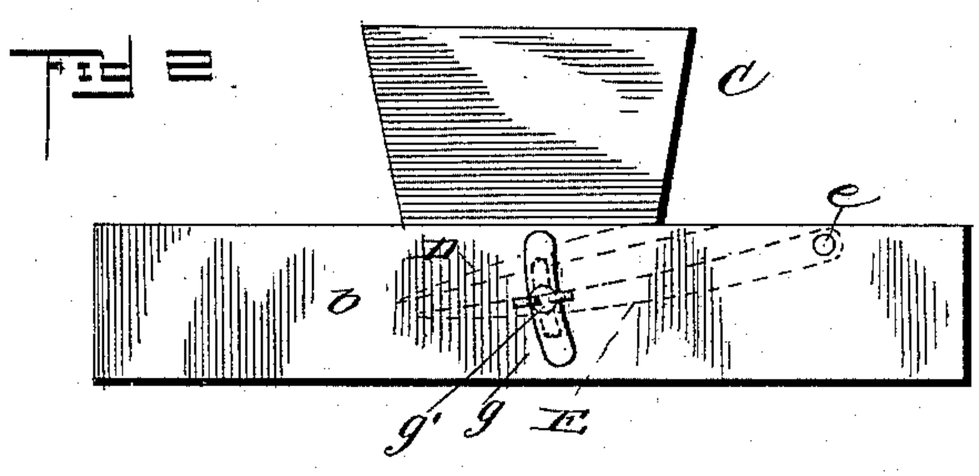


Fig 3

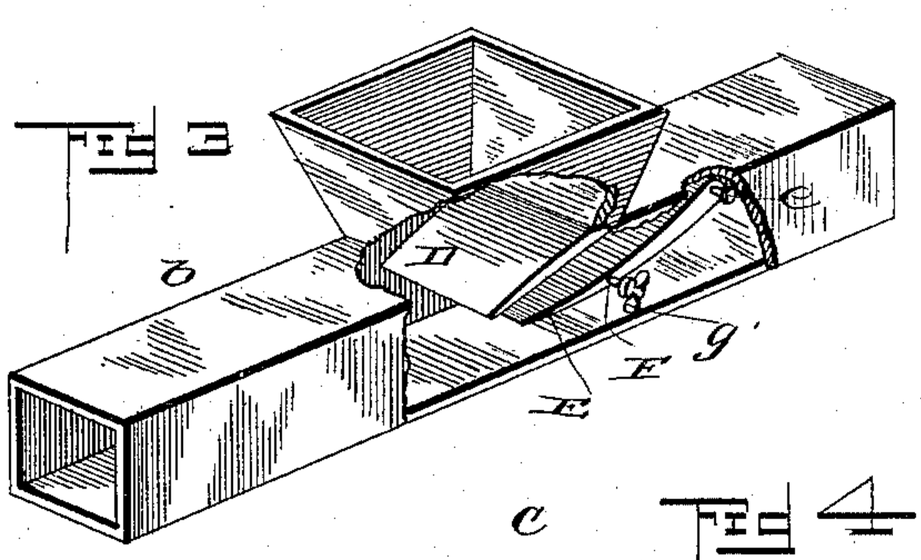
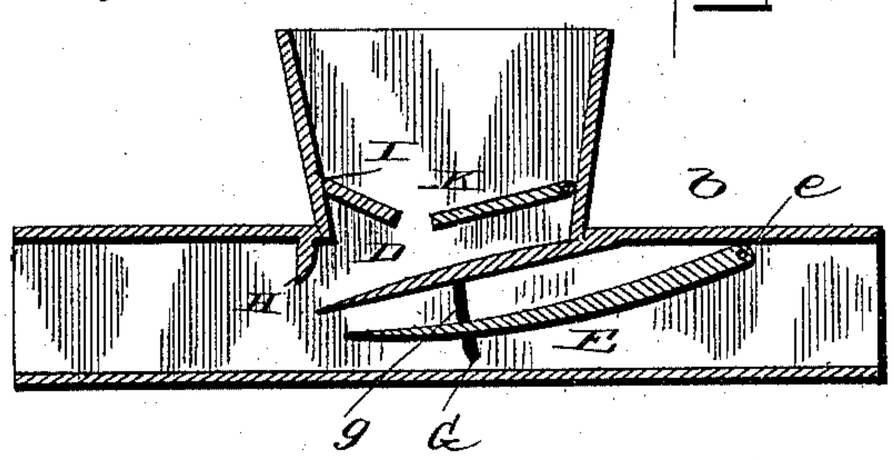


Fig 4



Witnesses

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EPHRAIM McCONNELL, OF DALEVILLE, INDIANA.

PNEUMATIC CONVEYER.

SPECIFICATION forming part of Letters Patent No. 477,692, dated June 28, 1892.

Application filed July 2, 1891. Serial No. 398,293. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM MCCONNELL, a citizen of the United States, residing at Daleville, in the county of Delaware and State of Indiana, have invented certain new and useful Improvements in Pneumatic Conveyers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in pneumatic conveyers for sawdust, grain, and similar granular materials; and it consists in the novel construction and arrangement of parts hereinafter fully described, and afterwards pointed out in the claims, due reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a vertical longitudinal section of my pneumatic elevator, the blower being shown in outline; Fig. 2, a side elevation of a portion thereof; Fig. 3, a perspective view of a similar portion, one side of the tube being removed; and Fig. 4, a vertical section of a modification.

Referring to the drawings, the letter A indicates a blower of any suitable and ordinary construction and connected to one end of a tube B. I prefer to construct said tube of flexible material or of rigid material provided with joints, whereby the delivery end of the tube may be directed to the point at which it is desired to convey and deposit the sawdust, grain, or other material. That section of the tubing containing the hopper, through which the material is fed, I prefer to construct rectangular in cross-section, as shown at *b*.

C indicates a hopper secured to the section *b* of the tube B and communicating through an orifice therein with the interior of the tube. To the inner and upper side of the section *b*, and immediately in rear of the rear bottom edge of the hopper C, is rigidly secured a downwardly-inclined deflector D, its lower end lying in or about the same vertical plane as the forward bottom edge of the hopper. Within the section *b* and in rear of the deflector D is hinged an adjustable wind-guide E by means of a bolt *e*, passing through the upper end of said wind-guide and through the sides of the section *b*, and so arranged that a slight space will always remain between the upper end of the wind-guide and the top of the section *b*, thus permitting the passage of a light current of air between the wind-guide and the deflector D and keeping the wind-guide clean at all times, whereby all liability of any material collecting between the wind guide and deflector, and thus preventing the free adjustment of said wind-guide, is obviated. From each side of the wind-guide E project bolts or pins F, screw-threaded at their extremities, which pass through elongated slots G, formed in the sides of the section *b*, and said slots are closed against the exit of air from the tube by means of elongated washers *g*, which are perforated and slipped over said bolts F and cover at all times the slots G. Said washers *g* are held in place by means of thumb-screws *g'*, secured upon the threaded ends of the bolts F, which also serve to hold the wind-guide in the position to which it may be adjusted.

To the inner and upper side of the section *b*, and immediately under or in rear of the lower forward edge of the hopper C, is secured a depending lip H, its rear side being preferably curved for the purpose hereinafter described.

The blower being put in operation and sawdust or other granular material being fed into the hopper, the material will drop onto the inclined deflector D, and will be delivered into the tube in a forward direction. The wind-guide is adjusted at the proper point, according to the force of the blast and the nature of the material to be conveyed, to furnish the proper blast of air, and the material will be blown through the tube to its destination. Should the tube B be bent or curved abruptly at any point, and thus tend to retard the passage of the grain, a back-pressure of air would occur in the tube, and it is the purpose of the depending lip H to prevent this back-pressure of air from making its exit through the hopper and to direct the material into the main blast or current.

In Fig. 4 I have shown a modification more especially intended for feeding grain or other weighty granular material. As thus constructed the hopper C has secured to its for-

ward edge, near the bottom, a fixed inclined deflector I and opposite a hinged deflector K, the latter being constructed and made adjustable in precisely the same manner as the wind-guide E, before described. By adjusting the hinged deflector K the quantity of grain or other material fed by the hopper can be readily regulated.

The section *b* of the tube B, embodying all the features of my invention, is adapted to be placed between the source of air-supply and the delivery end of any pneumatic conveyer without regard to the kind of blower employed or any other conditions, the only thing necessary being that a tube and blower be used for the purpose.

Having described my invention, what I claim is—

1. In a pneumatic conveyer, the combination of a tube, a blower connected to one end thereof, a hopper communicating with said tube, a fixed forwardly-inclined deflector arranged beneath said hopper, an adjustable wind-guide arranged in rear of said deflector, and a lip depending from the forward bottom edge of the hopper, substantially as described.

2. The combination, with the blower A, of the tube B, the hopper C, provided with a fixed inclined deflector D and an adjustable wind-guide E, hinged at its upper end within the tube and provided with bolts F, projecting through elongated slots in the sides of the tube and carrying elongated washers covering said slots, and thumb-screw *g'* for holding said wind-guide in its adjusted position, and the lip H, depending from the forward bottom edge of the hopper, substantially as described.

3. The combination, with the tube and blower, of the hopper C, provided with a fixed inclined deflector I and an adjustable inclined deflector K, the lip H, depending from the forward bottom edge of the hopper, the inclined deflector D, arranged beneath said hopper, and the adjustable wind-guide E, hinged in rear of said deflector, all constructed and arranged substantially as shown and described.

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

EPHRAIM McCONNELL.

Witnesses:
MYRTLE SHOEMAKER,
MATTIE KABRICH.