A. J. SMITH.

GRAIN ELEVATOR.

No. 184,552. Patented Nov. 21, 1876.

Fig. 1.

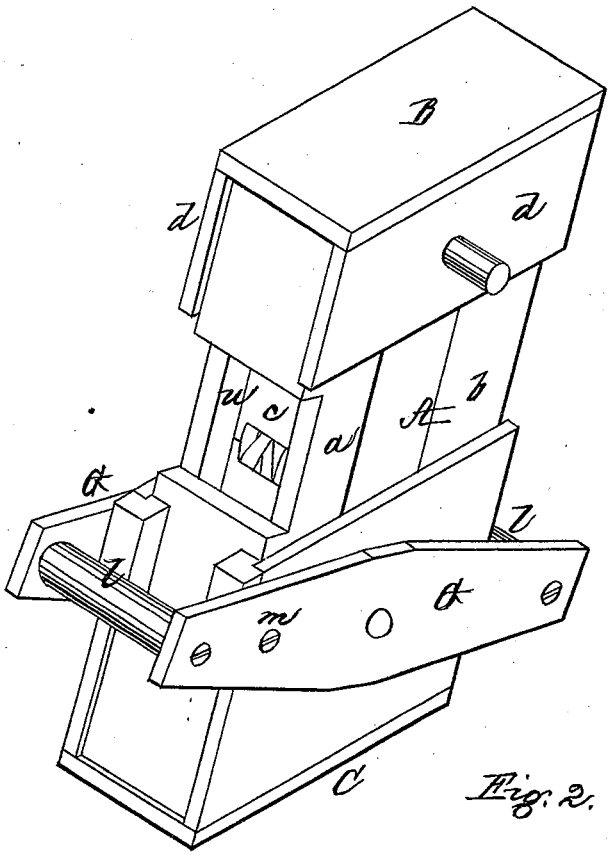


Fig. 3.

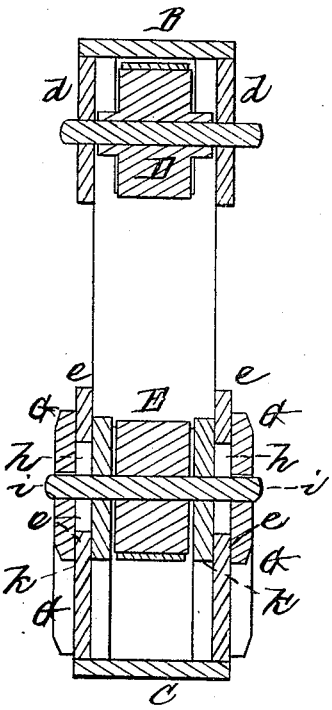
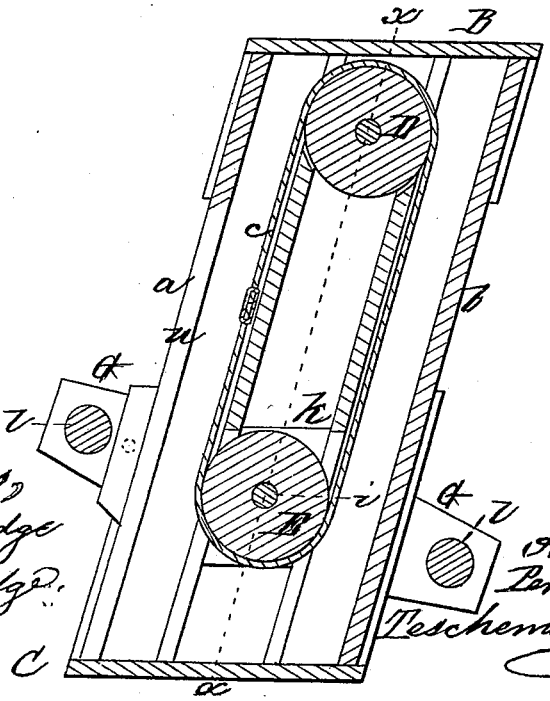


Fig. 2.



Witnesses,
W. A. Cambridge
J. E. Cambridge.

Inventor,
Andrew J. Smith,
Per his Attorneys,
Teschemacher & Bearns

UNITED STATES PATENT OFFICE.

ANDREW J. SMITH, OF MOUNT VERNON, MAINE.

IMPROVEMENT IN GRAIN-ELEVATORS.

Specification forming part of Letters Patent No. **184,552**, dated November 21, 1876; application filed September 11, 1876.

To all whom it may concern:

Be it known that I, ANDREW J. SMITH, of Mount Vernon, in the county of Kennebec and State of Maine, have invented certain Improvements in Grain-Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a grain-elevator with my improvements applied thereto. Fig. 2 is a vertical section through the center of the same. Fig. 3 is a section on the line *x x* of Fig. 2.

The operation of connecting the ends of and tightening the belts of grain-elevators as ordinarily constructed is attended with considerable inconvenience and delay, owing to the fact of both the upper and lower belt-pulleys being hung in fixed or stationary bearings, by which arrangement, although the ends of the belt may be drawn together and closely united by bringing them through an opening in the outside of the trunk or box inclosing the elevator-buckets, the belt is thereby drawn out of the line tangent with the peripheries of the pulleys, so that when allowed to resume its original position the belt is not drawn as tightly over the pulleys as desired, and constantly slips thereon, which interrupts the continuous uniform ascent of the buckets.

To overcome the above-mentioned difficulties pulleys have been hung in adjustable bearings; but the adjustment necessitated the employment of certain mechanical devices requiring time and labor to manipulate.

My invention obviates all of the aforesaid objections; and consists in an automatic or self-adjusting pivoted frame, with which the shaft of the lower pulley is connected, and by which the shaft is caused to move in slots, in order that thereby the distance between the bearings of the two pulleys may be diminished to sufficiently slacken the belt to render it more easily accessible to properly unite its ends at the required point, after which the frame and pulley hung therein are free to fall or descend by their own weight into a position for drawing the belt taut, as required, by which arrangement the belt is allowed to yield to the influence of the weather, and is always kept stretched, the necessity of frequently suspending the work to take up the slack incident to the common construction being thereby avoided.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents the grain-elevator, consisting of two inclined trunks or elevator-ways, *a b*, extending between the floors B C of a building. These elevator-ways are parallel to each other, and inclose the space in which travels the belt *c*, carrying the buckets or receptacles (not shown) for elevating the flour or other grain to the mouth of an outlet, with which the top of the elevator is intended to be supplied.

In side pieces *d*, near the top of the elevator, are formed the fixed bearings of an upper pulley, D, and near the bottom of the elevator, in side pieces *e*, similar to those *d*, are formed slots *h*, through which project the ends of the shaft *i* of the lower pulley E, the shaft first passing through, and having its bearings in, movable cleats *k*, sliding within the side pieces *e*, the direction of the slots *h* being parallel to the two elevator-ways, so that the shaft of the lower pulley is free to rise and fall in a line passing centrally between them.

G is a frame composed of two blocks, situated near the bottom of and on opposite sides of the elevator, and connected together by transverse rolls or rods *l*. This frame is pivoted at *m* to the elevator, and is provided with circular holes for the passage of the extremities of the shaft *i* through it, the frame, when one of its ends is swung up, serving as a means for readily raising the pulley E, when the belt *c* is to be slackened to admit of uniting its ends through an opening, *u*, cut in the side of the elevator-ways, (see Fig. 1,) the frame also serving as a weight for bringing the pulley down sufficiently to tighten the belt *c* after the ends are united, whereby the buckets are continuously carried up and discharged with a uniform motion, as desired.

From the foregoing it will be seen that the ends of the belt may be united in an extremely convenient and expeditious manner, after which it is automatically and permanently

kept taut by the weight of the pulley and its frame, which are, however, not too heavy to prevent the yielding of the belt when its length is affected by changes of weather, the labor and delay attending the manipulation of a screw or other device being entirely avoided.

My improvements may be readily applied to grain-elevators of the ordinary construction without material change, and at a trifling expense.

It is evident that the method of tightening belts herein described may be applied to other mechanism than grain-elevators without departing from the spirit of my invention.

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

The automatic pivoted frame G, connected with the lower pulley-shaft *i*, having its bearings in movable cleats *k*, sliding in side pieces *e*, in combination with the pulleys E D and belt *c*, operating substantially in the manner and for the purpose set forth.

Witness my hand this 26th day of August, A. D. 1876.

ANDREW J. SMITH.

In presence of—
D. H. THING,
G. S. MCPHERSON.