(No Model.)

C. H. PHILLIPS.

ELEVATOR AND CONVEYER.

No. 456,428. Patented July 21, 1891.

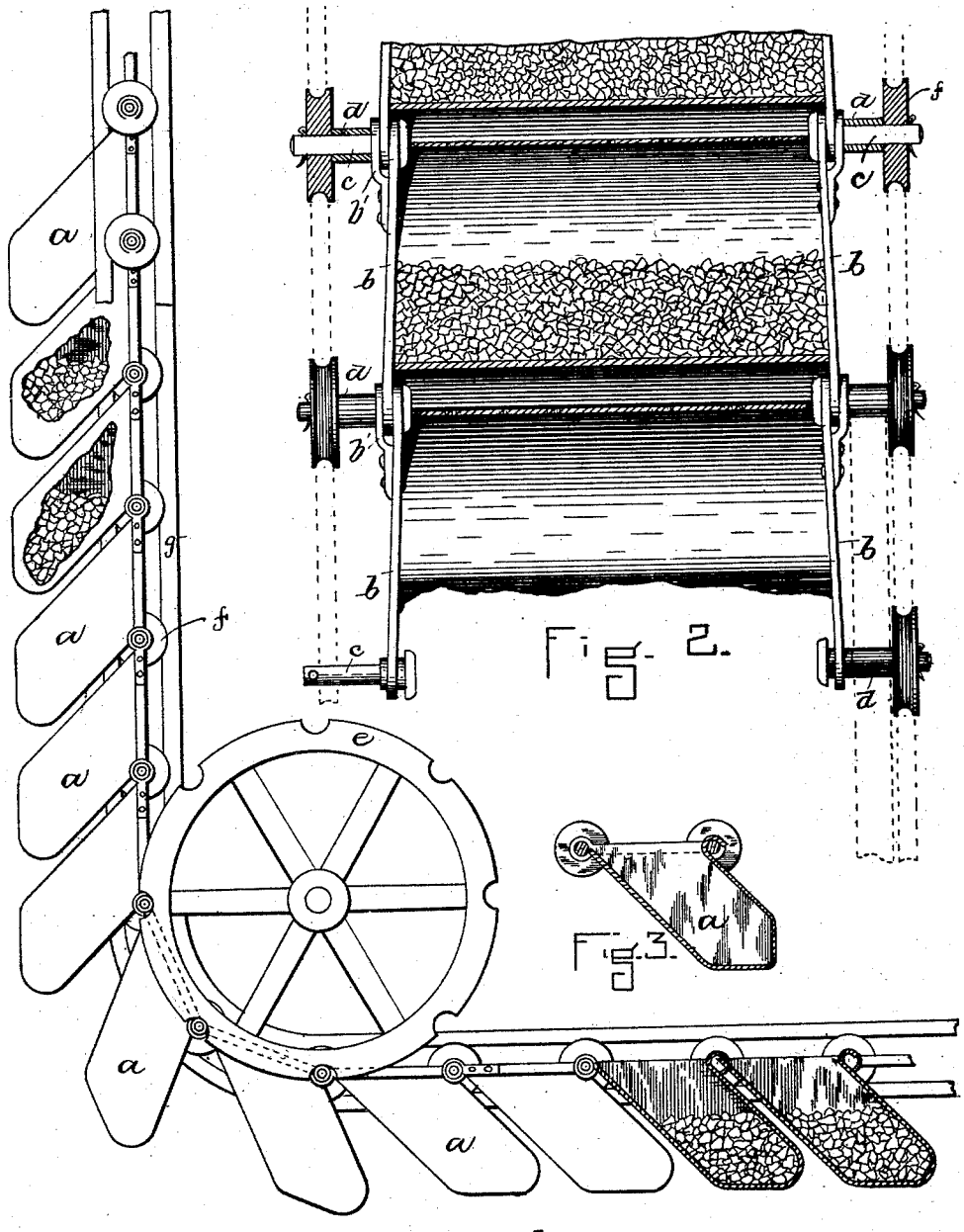

Fig. 2.

Fig. 3.

Fig. 1.

WITNESSES.

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ELEVATOR AND CONVEYER.

SPECIFICATION forming part of Letters Patent No. 456,428, dated July 21, 1891.

Application filed June 5, 1890. Serial No. 354,351. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. PHILLIPS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Elevators and Conveyers, of which the following is a specification.

My invention has reference to elevators and conveyers generally, and particularly to contrivances designed for transferring coal and grain from point to point, as in the loading and unloading of vessels, the loading of cars, wagons, &c., and the changing of the places of storage and transference and delivery of coal and grain when and where it may be desirable to perform such work.

Reference is to be had to the annexed drawings, and to the letters of reference marked thereon, forming a part of this specification, the same letters designating the same parts or features, as the case may be, wherever they occur.

In the said drawings, Figure 1 is a side elevation, partially in section and parts being broken out, of so much of a line of elevating and conveying buckets as it is necessary to show in order to illustrate my invention. Fig. 2 is a top plan view, showing some parts in section and others removed, of a portion of the contrivance shown in Fig. 1. Fig. 3 is a sectional detail view showing a modified form of bucket.

In the drawings, *a* designates a series of buckets provided at their upper edges with eye-bars *b*, through the adjacent eye of which bars there is passed a headed stud *c*, provided with a bushing *d*, of steel or other suitable metal, upon which the sprocket-wheel *e* acts in moving the line or chain.

g g designate tracks for supporting and guiding the wheels *f* upon the ends of the studs *c* in the movements of the line or chain.

By the description as thus far given it will be seen that I dispense with the axles for the wheels *f*, which usually extend entirely across the line from opposite wheels, the headed studs *c* extending only to the inside of the sides of the buckets.

The buckets *a* are formed so that the forward edge of the mouth of one will meet the rearward edge of the mouth of the preceding one, while the holding portion or pocket of each bucket, when the line is arranged horizontally in receiving position, will extend beneath or partially beneath the next rearwardly-arranged bucket, the front and rear walls of each bucket being rearwardly inclined, as is best shown in Fig. 1. This construction and arrangement of parts enables me to dispense with the usual bucket-filling pans provided in a line of elevating and conveying devices, since the buckets are adapted in the ascending line to retain the material deposited therein in the receiving line, and at the same time I am enabled to cheapen the cost of the construction of the buckets by making it expedient to form the front and rear walls and bottom of the same of a single piece of sheet metal bent to desired form.

Instead of making the front and rear walls of the buckets to extend in parallel lines or at a single angle with respect to their line of travel, as shown in Fig. 1, I may make the upper portions of said walls to extend rearwardly at an angle, say, of forty-five degrees or less with the line of travel, while the lower portions of said walls in the holding or pocket part of the bucket may extend at or approach a right angle to the line of travel, as shown in Fig. 3. These and other changes may be made in the form and arrangement of parts comprising my improvements without departing from the nature or spirit of the invention.

It is to be particularly observed that the inclined front and rear walls of the buckets afford a construction whereby a quicker dump or discharge of the contents of the buckets may be effected, thus avoiding the difficulties of the slow operation of the "sliding dump," so called.

As is clearly shown in Fig. 2, each eye-bar *b* is provided at its forward end with an auxiliary eye-bar *b'*, secured to the side of the main eye-bar *b*, offset, as at b^2, so as to form a fork, embracing upon the stud *c* and sleeve *d* the rear end of the next forward eye-bar. This construction affords such bearing for the said stud and sleeve as to maintain the same in proper relative position with respect to the buckets.

In another application filed by me of even date herewith, and bearing the serial number

next preceding the serial number of the present application, I have shown, but do not claim, substantially what is pointed out in the first clause of the claim hereto appended.

Having thus explained the nature of my invention and described a way of constructing and using the same, I declare that what I claim is—

1. In a line of elevating and conveying devices, the combination, with the buckets and eye-bars connected therewith, of the headed studs *c*, extending only to the inner sides of the sides of the buckets, bushings *d*, wheels *f*, and sprocket-wheels *e*, as set forth.

2. A series of buckets for elevators, provided on their edges with eye-bars *b*, combined with the headed studs *c*, bushings *d*, wheels *f*, and sprocket-wheels *e*, each eye-bar being provided at its forward end with an auxiliary eye-bar *b'*, secured to the side of the eye-bar *b*, forming a fork, and embracing upon the stud *c* and sleeve *d* the rear end of the next forward eye-bar, as set forth.

3. A series of pivotally-connected buckets for elevators and conveyers, the forward edge of the mouth of each bucket meeting the rearward edge of the mouth of the next bucket in advance, eye-bars connected with the upper edges of said buckets, headed studs *c*, extending only to the inner sides of the sides of the buckets, bushings *d*, wheels *f*, and sprocket-wheels *e*, all combined and operating as and for the purposes set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of May, A. D. 1890.

CHARLES H. PHILLIPS.

Witnesses:
ARTHUR W. CROSSLEY,
A. D. HARRISON.