

No. 674,753.

Patented May 21, 1901.

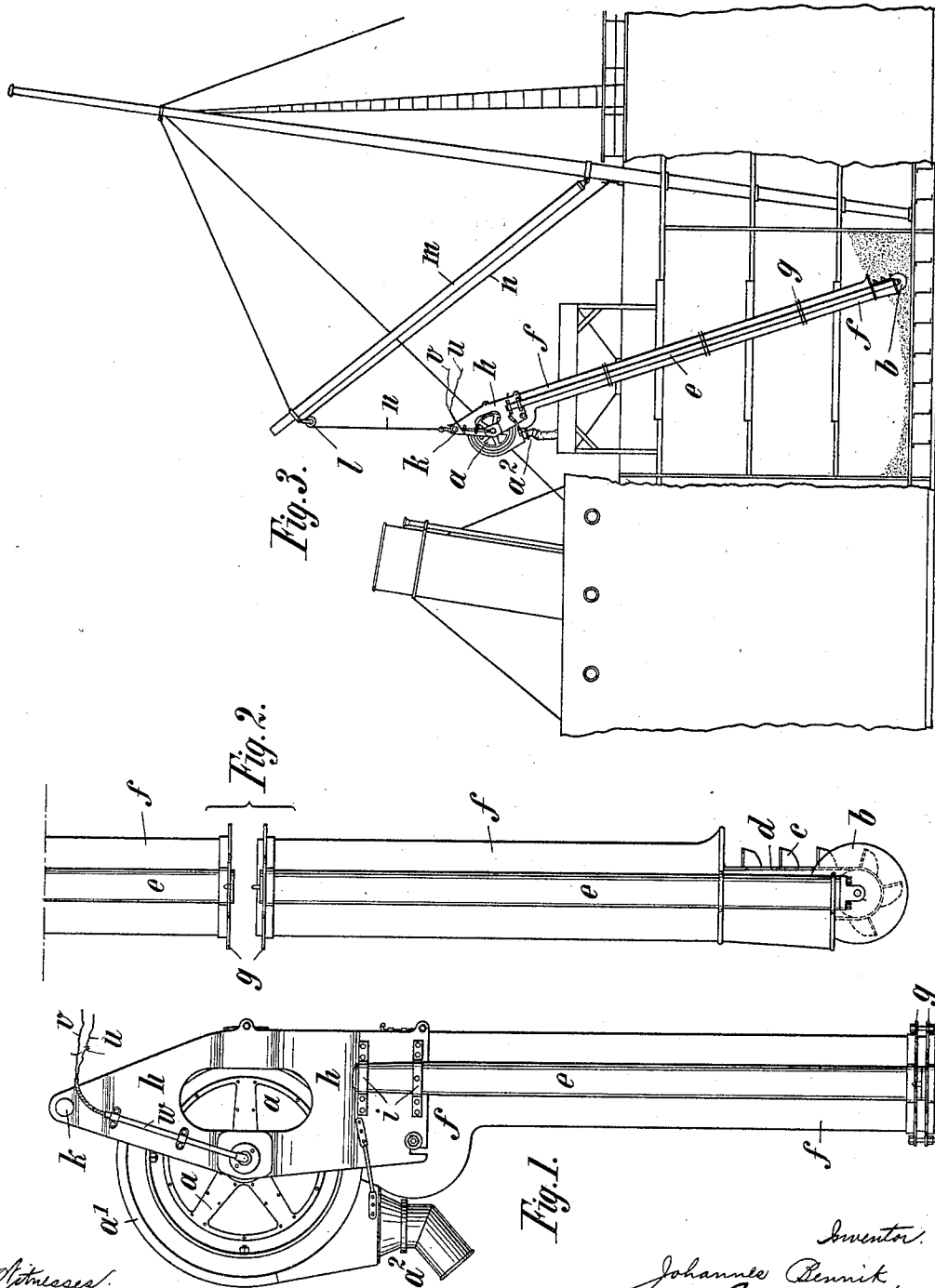
J. BENNIK.

MOVABLY SUSPENDED MOTOR ELEVATOR.

(Application filed Nov. 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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Johannes Bennik,
by *[Signature]*
Att'y

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2 Sheets—Sheet 2.

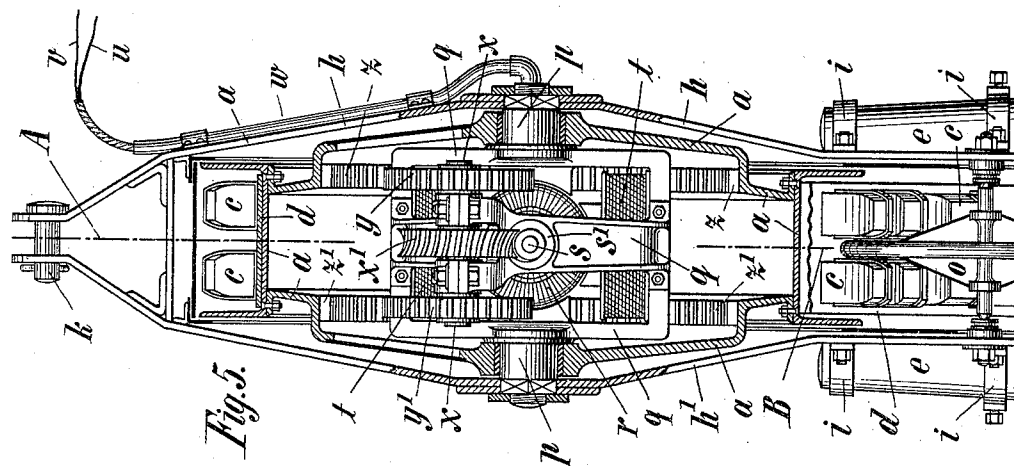


Fig. 5.

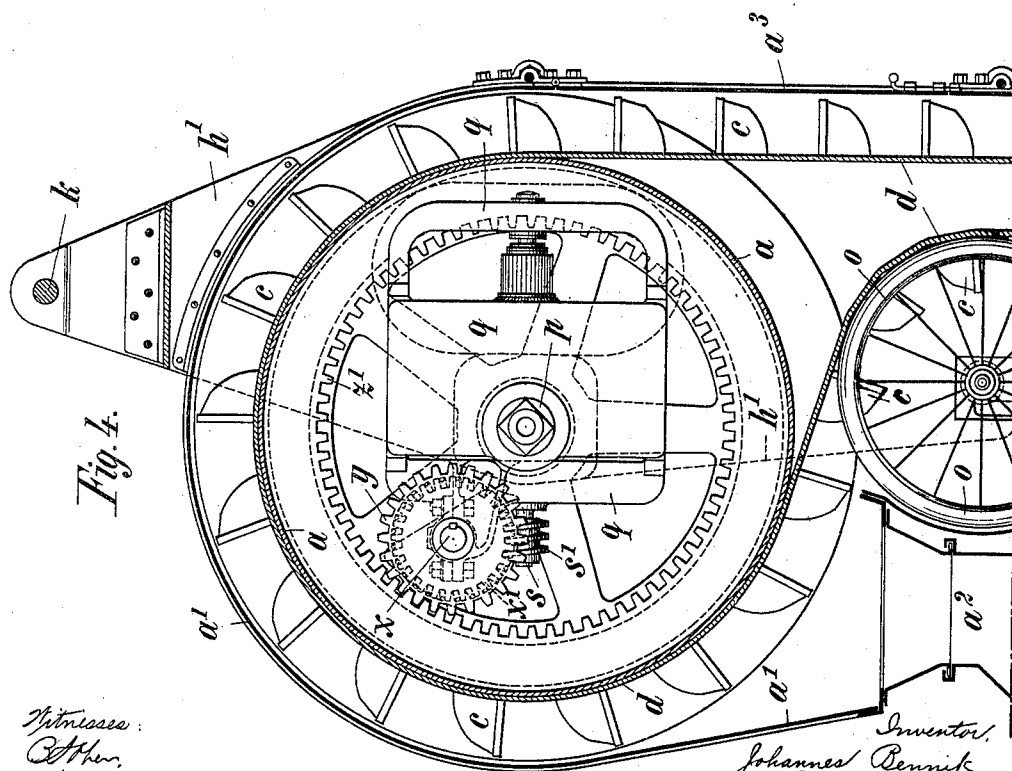


Fig. 4.

Witnesses:
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Inventor,
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by Henry Oth *Att*

UNITED STATES PATENT OFFICE.

JOHANNES BENNIK, OF HAMBURG, GERMANY, ASSIGNOR TO ADOLF CARL HEINBERT TIEDEMANN, OF SAME PLACE.

MOVABLY-SUSPENDED MOTOR-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 674,753, dated May 21, 1901.

Application filed November 9, 1899. Serial No. 736,403. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES BENNIK, a subject of the Queen of the Netherlands, and a resident of No. 7 Tunnelstrasse, in the city of Hamburg and German Empire, have invented certain new and useful Improvements in Movably-Suspended Motor-Elevators, of which the following is a specification.

This invention has relation to elevators, and more particularly to bucket and similar elevators ordinarily employed in handling coal, grain, and like substances and more especially adapted for transferring such substance from the hold of a vessel to a storage building or to a vehicle.

The object of my invention lies, primarily, in the general construction of the elevator with a view to economy in space, facility in handling, reduction in weight, and adaptability to its being stored in a compact form either on board ship or elsewhere.

To these ends the invention consists in locating the prime mover within the upper driving-pulley of the elevator, whereby the necessary transmission devices from such prime mover are dispensed with, together with the usual platform at the head of the elevator and from which such prime mover has heretofore been supported, thus saving not only a large amount of space necessarily occupied by such platform, but materially reducing the weight and enabling me to provide means for connecting the elevator to a block and tackle on board ship, whereby the shifting of the elevator from point to point and the raising and lowering thereof are materially facilitated, dispensing with the usual mechanical appliances for moving the elevator longitudinally or giving it the proper angle relatively to the cargo to be transferred.

The invention further consists in structural features and combinations of coöperative parts; but that my invention may be fully understood I will describe the same in detail, reference being had to the accompanying drawings, in which—

Figures 1 and 2 are elevations of the upper and lower parts of my improved bucket elevator. Fig. 3 is a like view illustrating the same as suspended from block and tackle on board ship, the latter being partly broken

away to show the elevator passing through the hatches into the lower hold. Fig. 4 is a section of the elevator-head, taken on line A B of Fig. 5, which latter is a section taken at right angles to said line A B.

The elevator-head comprises a hood or shield constructed with a discharge-spout a^2 and provided diametrically opposite said spout, or substantially so, with a gate a^3 , through which ready access is had to the parts covered by said hood or shield. Cheek-plates h and h' are secured to either side of the aforesaid hood and are provided with bearings, in which are secured journals $p p$, on which the bucket-chain drive-wheel a revolves and which serve as supports for a framing q , that carries the prime mover, which, as shown in the drawings, is an electric motor, $t t$ indicating the field-magnets, and r the armature, mounted on shaft s , intersecting the axes of the journals $p p$ and having its bearings in the aforesaid frame q . One end of the shaft s is provided with worm-teeth or may carry a worm s' in gear with a worm-wheel x' on a spindle which has its bearings in bracket-arms on frame q above the shaft s and parallel with the journals $p p$, said spindle carrying two spur-wheels $y y'$, gearing with internal gears $z z'$ of the driving-pulley a . Power is supplied to the electric motor through insulated wires $u v$, contained in a sheath or tube w , of insulating material, said wires being carried to the motor through one of the pulley-journals p and connected up in any well-known manner. The upper attenuated ends of the cheek-plates $h h'$ are connected together by a bolt k , so that the elevator-head may be readily secured to or suspended from block and tackle l , as shown in Fig. 3.

The hood or shield a' at its lower end is of tubular form and somewhat enlarged immediately below the driving-pulley to accommodate a guide and deflecting pulley o , so mounted on a suitable spindle as to guide the descending part of the bucket-band d laterally toward and into close proximity to the ascending part of said band, c indicating the buckets, whereby a considerable amount of space is saved in so far as the leg of the elevator is concerned.

The leg of the elevator is constructed in

sections *f*, each section having bolt-flanges *g g*, by means of which they are detachably secured together and to the tubular portion of the elevator-head.

5 For the purpose of stiffening the elevator-leg the side plates and leg-sections are provided with straps *i* for the reception of the ends of bracing or stiffening bars *e*, which latter are preferably made of wood to reduce
10 the weight as much as possible. The lower leg-section has bearings for the lower bucket-band pulley *b*, as shown in Fig. 2, which, as usual, is rotated by the travel of said band.

Of course it will be understood that the
15 endless bucket-band *d* is made of sections detachably secured together by means of any well-known and commonly-used detachable fastening devices, which I have deemed unnecessary to illustrate, so that said band may
20 be lengthened or shortened in accordance with the lengthening or shortening of the elevator-leg.

From the above description the objects of my invention as well as the operation and
25 mode of using and handling the elevator will be clearly understood and will therefore need no further elucidation.

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

1. A pendulous bucket elevator, comprising a head and leg, a bucket-band pulley in said head, a like pulley at the lower end of the leg, a motor for the pulley in said head
35 and means for supplying motive power thereto from a source distant therefrom, said elevator-head provided with means for suspending the same from a flexible support, for the purpose set forth.

40 2. A portable bucket elevator comprising a head and leg composed of separable sections, bucket-band pulleys in said head and at the end of the lower leg-section, a bucket-band mounted on said pulleys to travel through the
45 leg and discharge into a spout at the head, means for driving the band-pulley, in the elevator-head, and means for detachably connecting the latter to a suitable support, substantially as and for the purpose set forth.

50 3. A bucket elevator, comprising a head and leg, a bucket-band pulley in said head and a like pulley at the lower end of said leg, a bucket-band on said pulleys, traveling through the leg and discharging into a spout
55 on said head, and means for driving the band-pulley in the elevator-head by power supplied from a source distant therefrom, said head provided with means for suspending the elevator from hoisting-tackle so as to swing

freely in all directions, for the purpose set forth.

4. A portable bucket elevator, comprising a head and leg composed of separable sections, bucket-band pulleys mounted in said head and at the lower end section of the leg respectively, a motor within and organized to
65 drive the band-pulley in said head, means for supplying motive power to the motor from a source distant therefrom, and a bucket-band mounted on said pulleys to travel in said leg
70 and discharge through a spout in said head, the latter provided with means for suspending the elevator from hoisting-tackle so as to swing freely in all directions, substantially as set forth.

75 5. A bucket elevator comprising a head and leg, a bucket-band pulley in said head and a like pulley at the lower end of said leg, a bucket-band mounted on said pulleys traveling through the leg and discharging into a
80 spout in the head, an electric motor within the upper band-pulley, gearing connecting the latter with the motor, and flexible conductors for supplying current to the motor from a source distant therefrom; in combination
85 with means at the elevator-head for suspending the same from a hoisting-tackle so as to swing freely in all directions, substantially as and for the purpose set forth.

90 6. A bucket elevator comprising a head and leg, a band-pulley in said head and a like pulley at the lower end of the leg, a bucket-band having its buckets secured to one and the same face of said band, the latter mounted on said pulleys to travel through said leg
95 and discharge into a spout on said head, and means for driving the upper pulley; in combination with a deflecting-pulley below the driving-pulley organized to deflect the bucket-band as it leaves said driving-pulley
100 to bring the back of the descending portion of the band close to the back of the ascending portion of said band, for the purpose set forth.

105 7. The combination with the head of a bucket elevator having side plates provided with journal-bearings; of a framing having journals secured in said bearings, a driving-pulley loosely mounted on said journals, an
110 electric motor carried by the framing, gearing connecting the motor-shaft with the pulley and means for supplying current to the motor, for the purpose set forth.

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