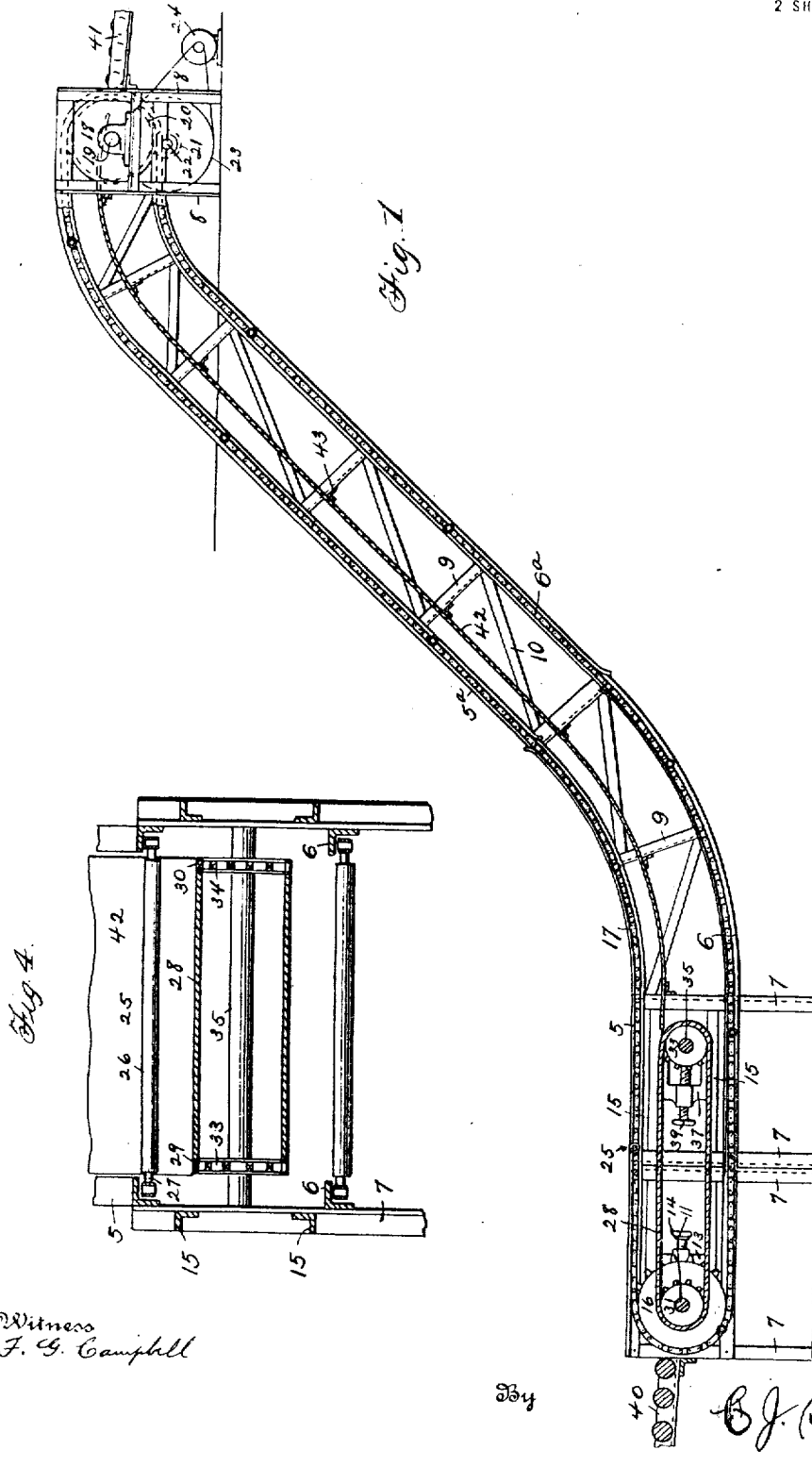


1,268,663.

Patented June 4, 1918.
2 SHEETS—SHEET 1.



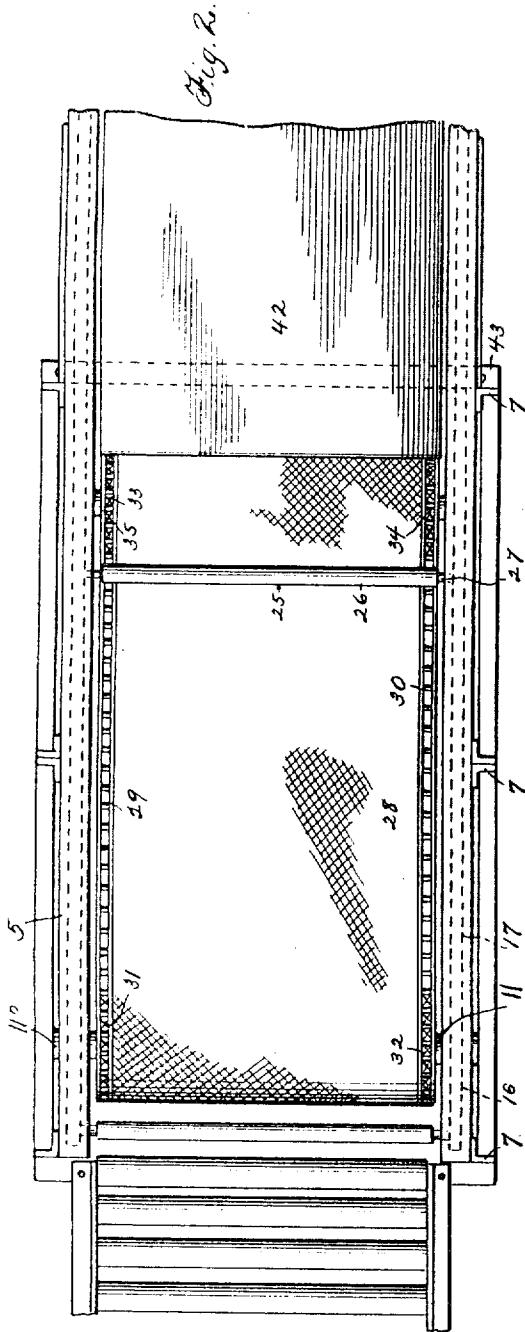
Witness
F. G. Campbell

Inventor
John M. Alvey,

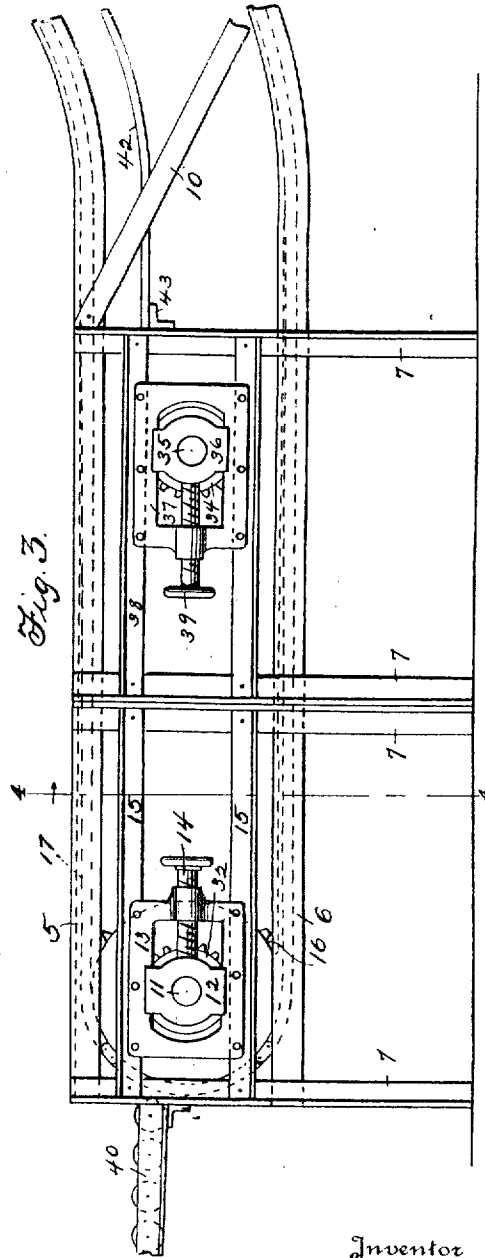
B. J. Stockman
Attorney

1,268,663.

Patented June 4, 1918.
2 SHEETS—SHEET 2.



Witness
F. G. Campbell.



Inventor
John M. Alvey

By *C. J. Stockman*
Attorney

UNITED STATES PATENT OFFICE.

JOHN M. ALVEY, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE ALVEY-FERGUSON COMPANY, OF OAKLEY, CINCINNATI, OHIO, A CORPORATION OF OHIO.

CONVEYER.

1,268,663.

Specification of Letters Patent.

Patented June 4, 1918.

Application filed February 15, 1918. Serial No. 217,423.

To all whom it may concern:

Be it known that I, JOHN M. ALVEY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to elevators of a type adapted to receive packages from a gravity conveyer and to conduct said packages to a different level. Some elevators of this character comprise traveling chains carrying transverse flights which engage behind the packages and, if the packages are to be elevated, force the packages along over the bed of the elevator while if the packages are to be lowered the flights retard the movement of the packages, preventing the packages from moving any faster than the flights and insuring that the packages will be safely and gently conducted to a lower level.

The present invention relates particularly to improved means for causing the packages to move on to the elevator and into position to be properly engaged by the transverse flights before the inclined part of the bed of the elevator is reached. To secure this result I provide at the entrance end of the elevator a short section of positively driven belt conveyer which preferably lies entirely in a straight, horizontal portion of the elevator and which has its upper flight disposed substantially in the plane of the upper surface of the gravity conveyer serving the same. Consequently packages may move gently and without shock or jar on to said belt conveyer and be moved thereby to a point beyond the point where the transverse flights move upwardly from the lower to the upper portions of their runs. Thus, engagement of said flights with the bottoms of the packages and the consequent bodily lifting of said packages by said flights will be largely avoided and packages will be positively moved to a position where the flights may engage behind their rear ends, when the packages are to be elevated, and positively propel said packages over the bed of the elevator.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings,

Figure 1 is a view partly in longitudinal section and partly in side elevation of an ele-

vator constructed in accordance with the invention.

Fig. 2 is a plan view thereof.

Fig. 3 is a side elevation of the lower part of the elevator and

Fig. 4 is a transverse section upon line 4-4 of Fig. 3.

Referring to the drawing it will be seen that the elevator is of general S shape and that it comprises upper side frame angles of L shape in cross section designated 5, 5^a and lower side frame angles of L shape in cross section, designated 6, 6^a. The angles 5^a are reversed with respect to the angles 5, that is the angles 5^a have their horizontal portions disposed downwardly while the angles 5 have their horizontal portions disposed upwardly. The same thing is true with respect to the angles 6 and 6^a. Thus these angles are caused to act as guides for the flight carrying chains hereinafter described, said guides causing the chains to conform to the general S shape of the elevator. Vertical angles 7 constitute supports for the lower end of the elevator and vertical angles 8 constitute supports for the upper end of the elevator. Upright angles 9 extend between the angles 5, 5^a and 6, 6^a at intervals, and in connection with oblique braces 10 complete the main frame of the elevator. A transverse shaft 11 at the lower end of the elevator is mounted in sliding bearings 12, (only one of which is shown.) These bearings may be longitudinally adjusted upon guide ways 13, by screws 14, these guide ways being secured to angles 15, which are in turn secured to the vertical angles 7. The shaft 11 carries sprocket wheels 16 over which sprocket chains 17 pass. At the upper end of the elevator these sprocket chains pass over sprocket wheels 18 that are mounted upon a transverse shaft 19. This shaft is driven by a gear wheel 20, pinion 21, shaft 22, and pulley 23 from a motor 24.

The chains 17 carry transversely extending flights 25 and these flights are preferably roller flights. That is they comprise tubular members 26 which rotate upon fixed members 27 that are secured to the chains 17. So far as described the parts are of usual and well known construction, the novel features constituting the present invention residing in the provision of a positively driven conveyer section at the entrance end

of the elevator and in the correlation of this positively driven conveyer section with the bed of the elevator.

In the particular embodiment of the invention herein shown and described the positively driven conveyer section referred to comprises an apron 28 which is secured to and is carried by sprocket chains 29 and 30. These sprocket chains pass over sprocket wheels 31 and 32 upon the shaft 11, and they also pass over sprocket wheels 33 and 34 upon a shaft 35. This shaft is journaled in a sliding bearing 36 which is mounted upon guides 37, the latter being secured to angles 38 that are supported by legs 7. Screws 39 provide means for adjusting the bearings 36 to adjust the tension of the chains 29 and 30 and the apron 28 while the screws 14 provide means for adjusting the tension of the main conveyer chains 17.

A section of gravity conveyer 40 leads to the entrance end of the elevator and a section of gravity conveyer 41 leads from the discharge end of the elevator. It is apparent that if power derived from the motor 24 be utilized to impart movement to the shaft 19 the chains 17 will be driven and will in turn drive shaft 11. This will result in imparting movement to the chains 29 and 30 and apron 28.

The bed of the elevator consists of a steel plate 42 which is supported upon transverse angles 43. The lower end of this bed terminates close to the discharge end of the apron 28, so that packages may move directly from the apron onto this bed and be forced along said bed by the flights 25 engaged therebehind.

It is apparent that these flights must move from the lower runs of the chains 17 to the upper runs thereof at a point between the discharge end of the gravity conveyer 40 and the adjacent end of the apron and the presence of this apron provides positive means for feeding the packages past this point and for causing them to move over to a position where these flights may engage behind their rear ends, so that by the time that the packages reach the stationary bed 42, preparatory to traveling up the inclined portion of the elevator, said flights will be properly engaged with the packages to propel them along said bed.

So called "elevators" of the type herein shown and described may be, and frequently are, used to lower packages instead of elevating them, it being only necessary to reverse the direction of movement of the chains in order to accomplish this result. Consequently whenever an "elevator" is referred to herein it is to be understood that this term includes structures used for lowering as well as for elevating packages.

It is to be understood that the form of the invention illustrated in the accompany-

ing drawing is merely exemplary and that the invention is not limited to the particular constructions disclosed, for varying changes may be made therein without departure from the invention. It is therefore to be understood that the invention includes within its purview whatever changes fairly come within the spirit of the appended claims.

Having described my invention what I claim is:

1. An elevator comprising a substantially horizontal receiving end portion and an inclined portion, said elevator embodying a transverse shaft at its entrance end, sprocket wheels upon said shaft, chains passing over said sprocket wheels, transverse flights carried by said chains, a bed over which articles are propelled by said flights, said bed terminating short of said shaft, a conveyer apron extending from the termination of said bed to the entrance end of the elevator and means carried by the aforesaid shaft over which said apron passes and by which the apron is driven.

2. An elevator comprising an inclined portion and a substantially horizontal receiving end portion, a transverse shaft at the entrance end of the elevator, sprocket wheels carried by said shaft, sprocket chains passing over said sprocket wheels, transverse flights carried by the sprocket chains, a bed over which articles are propelled by said flights and which bed terminates a material distance short of the entrance end of the elevator, a gravity conveyer leading to the entrance end of the elevator and an endless conveying apron extending from the termination of the bed to the entrance end of the elevator and passing about and being driven from the aforesaid shaft, the upper flight of said apron being substantially in the plane of the upper surface of the gravity conveyer whereby packages may pass directly and uninterruptedly from the gravity conveyer upon said apron.

3. An elevator comprising a substantially horizontal receiving end portion and an inclined portion, said elevator embodying a transverse shaft at its entrance end, traveling flight carrying elements and means upon said shaft by which said flight carrying elements are driven, a bed over which articles are propelled by the flights, which bed terminates short of said shaft, a conveyer apron extending from the termination of said bed to the entrance end of the elevator and means carried by the aforesaid shaft over which said apron passes and by which the apron is driven.

4. An elevator comprising a substantially horizontal receiving end portion and an inclined portion, said elevator embodying a transverse shaft at its entrance end, traveling flight carrying elements and means upon said shaft by which said flight carrying

elements are driven, a bed over which articles are propelled by the flights which terminates short of said shaft, a conveyer apron extending from the termination of said bed to the entrance end of the elevator, means carried by the aforesaid shaft over which said apron passes and by which the apron is driven, and a gravity conveyer leading to the entrance end of the elevator and having its upper surface disposed substantially in the plane of the upper rim of the apron so that packages may pass directly and uninterruptedly from the gravity conveyer to the apron.

5 5. An elevator of substantially S shape comprising an intermediate inclined portion and substantially horizontal end portions, sprocket wheels at the opposite ends of said

elevator, chains passing over said sprocket wheels, flights carried by said chains, a bed over which packages are moved by said flights, a gravity conveyer section leading to one end of said elevator, sprocket wheels on the shaft adjacent said gravity conveyer, sprocket chains passing over said sprocket wheels, additional sprocket wheels over which the last named sprocket chains pass, disposed adjacent the end of the bed and an apron secured to the last named sprocket chains.

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

JOHN M. ALVEY.

Witnesses:

POWELL CRICHTON,
A. F. UPSON.