No. 826,066.

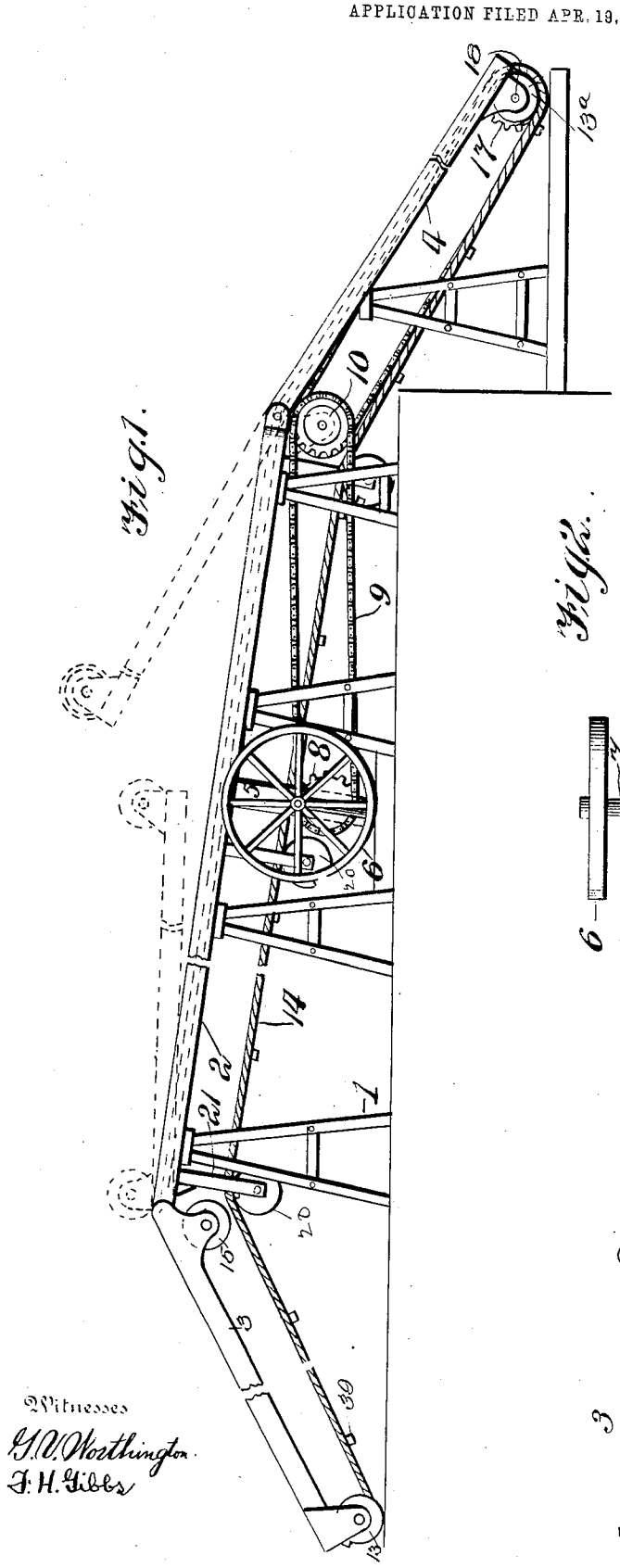
PATENTED JULY 17, 1906.

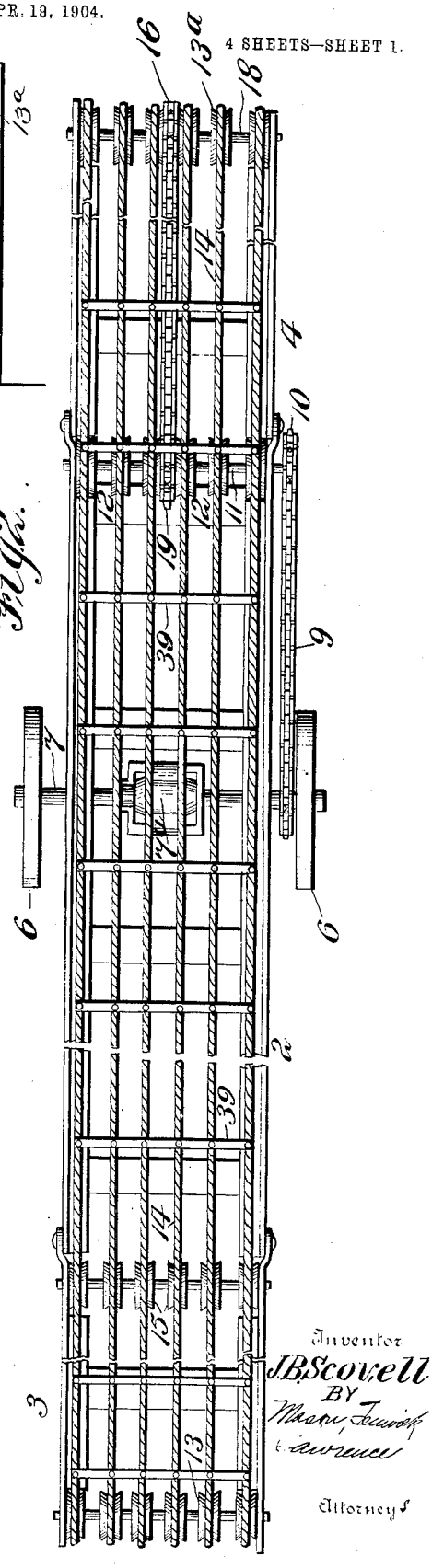
J. B. SCOVELL.

CONVEYER.

APPLICATION FILED APR. 19, 1904.

4 SHEETS—SHEET 1.





Witnesses

G. A. Worthington.

F. H. Gibbs

Inventor

J. B. Scovell

BY

Masury, Lawrence & Lawrence

Attorneys

No. 826,066. PATENTED JULY 17, 1906.

J. B. SCOVELL.

CONVEYER.

APPLICATION FILED APR. 19, 1904.

4 SHEETS—SHEET 2.

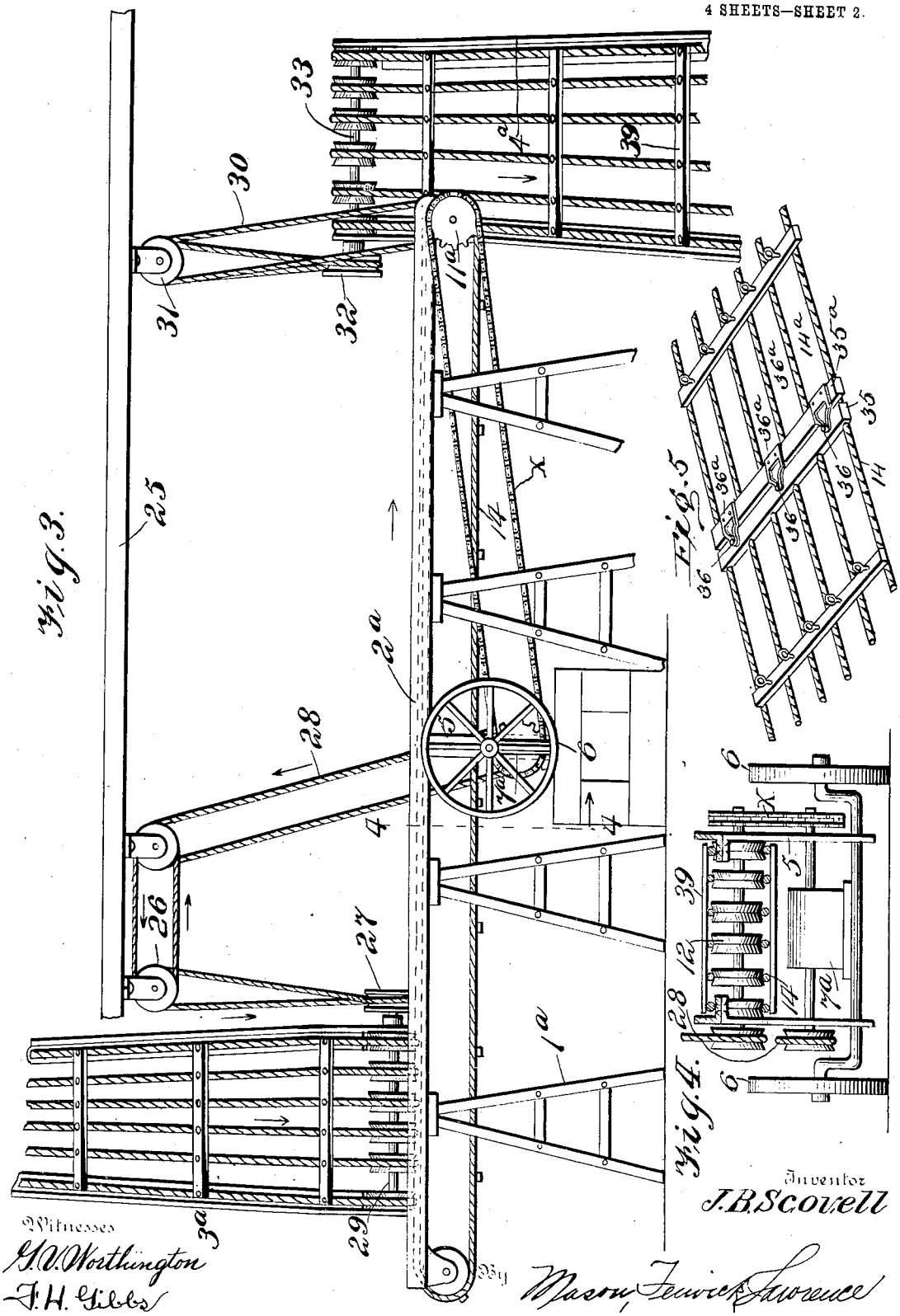


Fig. 3.

Fig. 5.

Fig. 4.

Witnesses
G. O. Worthington
F. H. Gibbs

Inventor
J. B. Scovell

By Mason, Fenwick & Lawrence

Attorneys.

No. 826,066. PATENTED JULY 17, 1906.

J. B. SCOVELL.

CONVEYER.

APPLICATION FILED APR. 19, 1904.

4 SHEETS—SHEET 3.

Fig. 8.

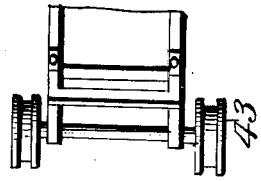


Fig. 6.

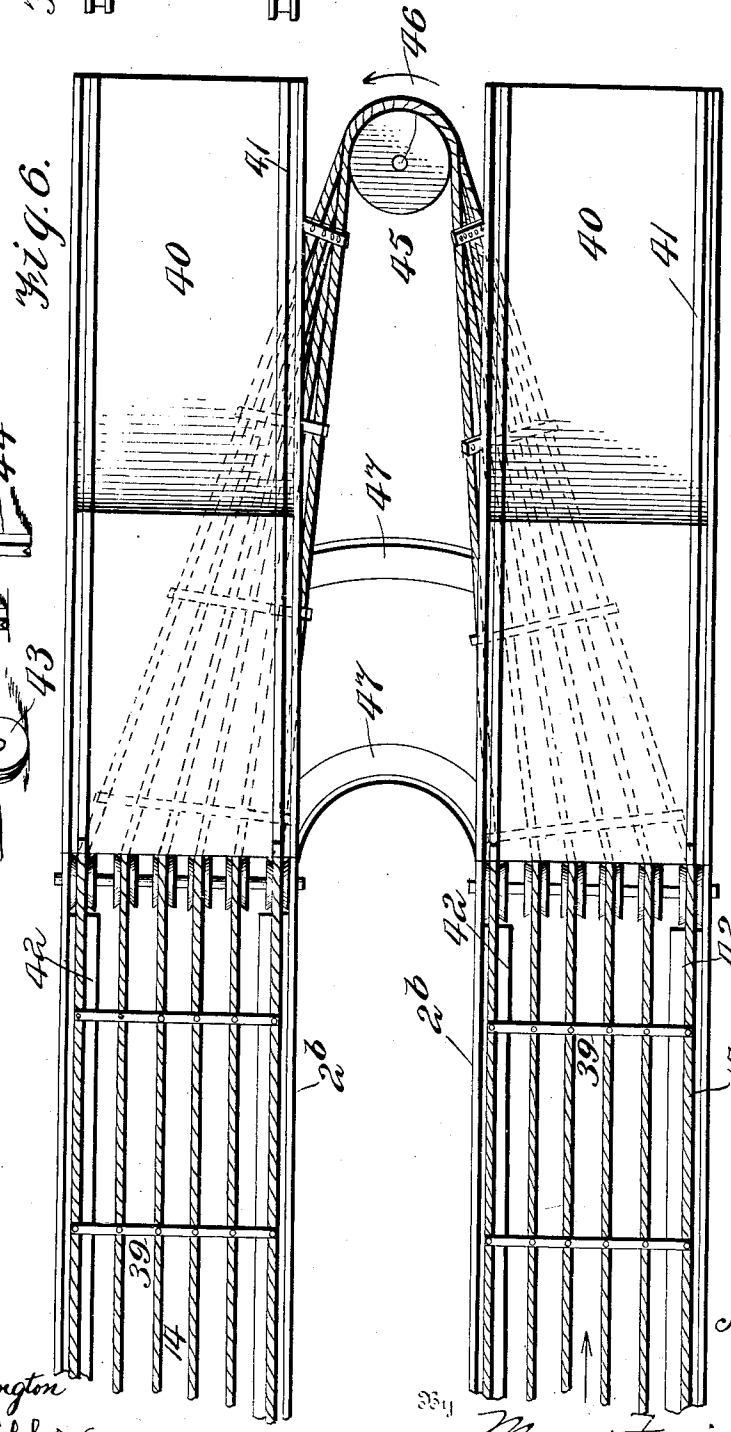


Fig. 7.

Witnesses
G. D. Worthington
J. H. Gibbs

Inventor
J. B. Scovell

By Mason, Fenwick & Lawrence
Attorneys.

No. 826,066.

PATENTED JULY 17, 1906.

J. B. SCOVELL.

CONVEYER.

APPLICATION FILED APR. 19, 1904.

4 SHEETS—SHEET 4.

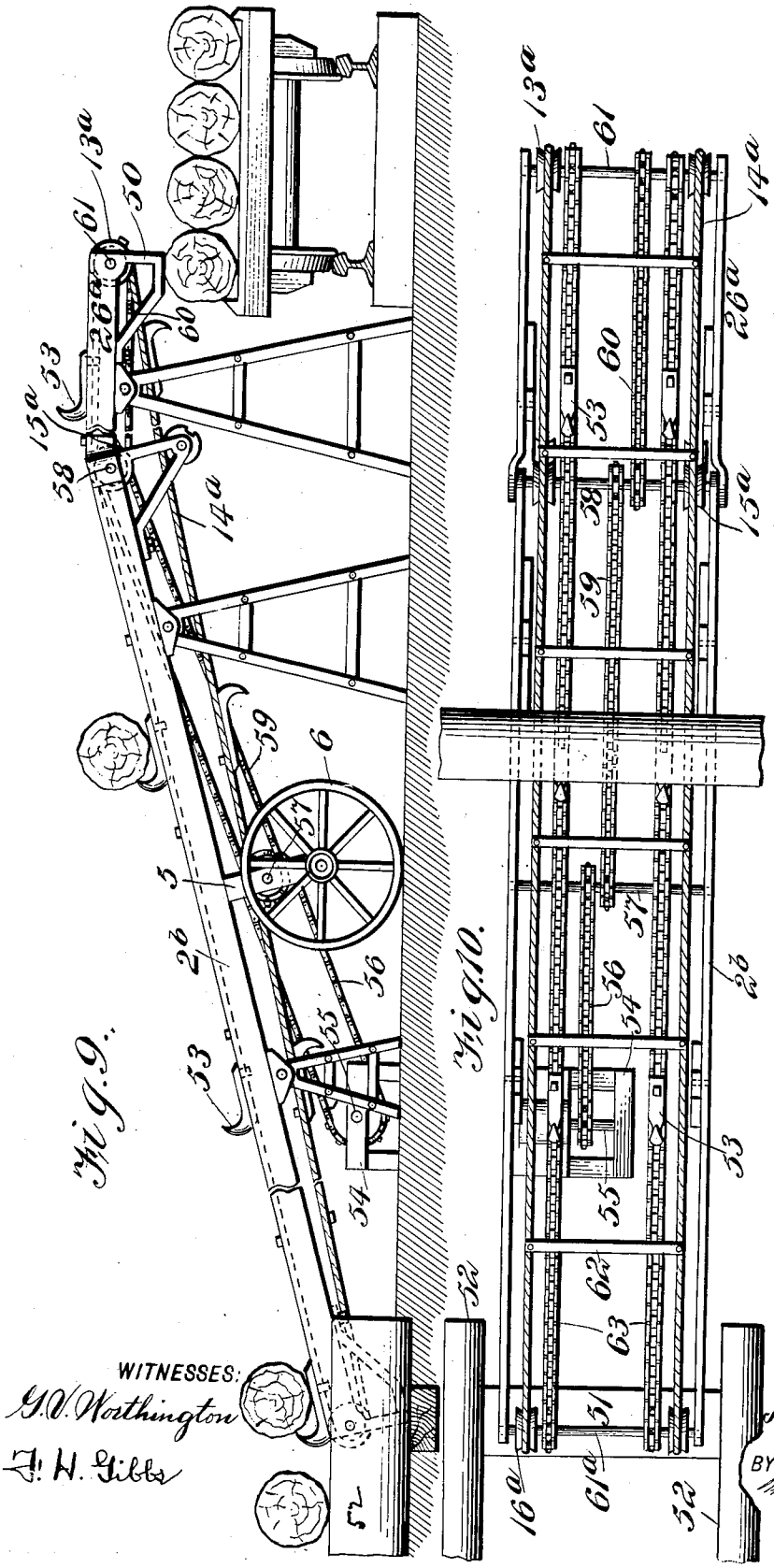


Fig. 9.

Fig. 10.

WITNESSES:

G. V. Worthington

F. H. Gibbs

INVENTOR

Josiah B. Scovell

BY Mason, Fenwick & Lawrence

ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSIAH B. SCOVELL, OF DULUTH, MINNESOTA, ASSIGNOR TO NAOMI E. SCOVELL, OF DULUTH, MINNESOTA.

CONVEYER.

No. 826,066. Specification of Letters Patent. Patented July 17, 1906.

Application filed April 19, 1904. Serial No. 203,905.

To all whom it may concern:

Be it known that I, JOSIAH B. SCOVELL, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in 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.

This invention relates to new and useful improvements in portable conveyers adapted to be used in storehouses and the like for unloading cars or vehicles and for conveying material to the different portions of the storehouse, the object of the invention being to provide an apparatus for the purpose which will be collapsible, so as to occupy a minimum space when folded, and which may be transported from place to place upon suitable carrying wheels or rollers connected therewith, at the same time carrying a suitable motor for actuating the conveyers while in use, the whole comprising a compact and light apparatus for the purpose intended, which is readily adaptable to various purposes in connection with large shipping and storehouse enterprises.

Referring to the drawings, Figure 1 is a side elevational view of my improved conveyer assembled as for use. Fig. 2 is a top plan view of the same. Fig. 3 is an elevational view of a slightly-modified form of conveyer, comprising a plurality of conveyer-frames angularly disposed. Fig. 4 is a transverse section on the line 4 4 of Fig. 3. Fig. 5 is a fragmentary detail illustrating a method of connecting the conveyer-cables. Fig. 6 is a top plan view of another modification of my improved conveying apparatus. Figs. 7 and 8 are details, respectively, of a truck especially designed for use in connection with the apparatus disclosed in Fig. 6. Fig. 9 is a side elevational view of my conveyer adapted for use as a log-loader, and Fig. 10 is a top plan view of the structure of Fig. 9.

Like figures of reference indicate corresponding parts in all the drawings.

Referring to Figs. 1 and 2, 1 represents supporting frames or horses, upon which are mounted the conveyer-frame sections 2, 3, and 4, said frame-sections being pivotally connected, and 3 and 4 adapted to be folded over onto section 2, as indicated by the dotted lines in Fig. 1, though it will be obvious that the actuating-chain running from the motor, hereinafter described, connected to the frame-section 4, may be detached to permit being folded into position. Supported from the central frame-section 2 by means of brackets 5 are carrying-wheels 6 upon the shaft or axle 7, upon which wheels 6 the apparatus may be transported from place to place, as may be desired, said axle 7 being dropped centrally, or, in other words, made yoke-shaped for inclosing motor 7^a. The motor 7^a is preferably of the electric type and rests upon the axles 7, and is thus carried by the brackets 5, which carry axle 7, and are carried by the framework 2 when the conveyer is in operation. The relation of the parts are of course reversed when the wheels 6 are employed as carrying-wheels, so that during transportation of the framework 2 the axle 7 and motor 7^a are supported directly by the wheels 6, the brackets 5, carried by axle 7, and the framework 2, supported on brackets 5. The shaft of motor 7^a carries a sprocket-wheel 8, fixed thereto, said sprocket-wheel engaging a chain 9, extending thence to the sprocket 10 at the forward end of frame-section 2, said sprocket 10 being carried upon the shaft 11, supported below the forward end of said section 2 and driving the shaft 11, upon which are carried grooved rollers 12, about which rollers and extending from thence to the rollers 13 and 13^a at the opposite ends of frame-sections 3 and 4 are cables 14, which also pass over suitable supporting-rollers 15, held in the forward end of said frame-section 3, said cables forming a substantially continuous conveyer from the forward end of section 4 to the rear end of section 3 and is actuated by the sprocket-chain 9 and wheel 10 on the shaft 11 and also by the chains 16, passing over the sprockets 17 on the shaft 18, and over the sprocket 19 on said shaft 11. Suitable supporting-rollers 20 are suspended in brackets 21 from the central frame-section 2, so as to prevent undue sagging of said conveyer 14, and thereby preventing injury to the motor 7^a and the other parts suspended below the platform. It will be obvious that the particular arrangement of the motor and location thereof, as well as the location and number of the driving-chains running therefrom and actuated

thereby, is entirely within the discretion of the engineer designing the particular apparatus to be built and may be multiplied or diminished at will, according to the particular requirement of each apparatus. Hence I do not wish to be limited to the specific arrangement thereof herein shown nor to the mechanical equivalent of this particular device, the general feature of invention connected with which is the collapsibility and partibility of the apparatus as a whole.

Referring now to Figs. 3 and 4, 2^a, 3^a, and 4^a indicate conveyer-frames angularly disposed with relation to each other, which frames may be arranged, if desired, so that material may be carried down on the conveyer-frame 3^a to and across 2^a, from which it may be carried to the conveyer-frame 4^a, and form thence to any suitable place of deposit below, or, if desired, a slight shift of the relative positions of the conveyers is permissible and an opposite line of travel established, first, over 4^a, then across 2^a and up 3^a, if desired. This is permissible by reason of the fact that the cable conveyers of this apparatus are synchronized in their movement by means of flexible cable-actuating means connected outside of the sections herein illustrated, said means comprising the shiftable supporting-bar 25, which may be suspended from any convenient means in the ceiling of the warehouse or from posts or other supports outside thereof, said bar 25 supporting pulleys 26, over which pass cables 28 for the purpose of actuating the driving-rollers 27 upon the shaft 29 of the section 3^a. The shaft 33 is driven by the cable 30, extending from the shaft 11^a in the forward end section 2^a and rising thence to the grooved pulley 31, from which it extends to and over the driving-pulley 32 on the shaft 33 in section 4^a. In this instance, as in the structure previously described, the sections 2^a, 3^a, and 4^a are adapted to be supported upon movable horses 1^a, which are shown only under the section 2^a for convenience of illustration. Thus it will be seen that by reason of the flexibility of the connections established between the cable-sections 2^a, 3^a, and 4^a the contiguous end portions of said sections may be shifted to a greater or less extent and the conveyers thereof remain under control of the actuating-motor 7^a, which is carried on the said frame 2^a. As best seen in Fig. 4, the parts are arranged similarly to the arrangement described with respect to Figs. 1 and 2. The supporting-wheel 6 carries a yoke-shaped axle, upon which rests a motor 7^a, said axle supporting the brackets 5, carrying the section of framework 2^a, and it will be observed that this particular arrangement of parts makes possible the ready transportation of the section of framework supported by the carrying-wheels 6, the weight of the motor 7^a being taken up by the axle of said wheels, and the weight of the section of framework being balanced upon said axle, so that the conveyer may be moved about the warehouse after the manner of a truck, the supply-wires to the motor 7^a being readily connected and disconnected whenever necessary for the purpose of transportation of the conveyer. The flexibility of the means for transmitting power from the motor 7^a to the laterally-disposed conveyer-sections 3^a and 4^a makes possible the adjustment of said sections to various inclinations and angles with respect to the section 2^a, the said sections 3^a and 4^a being capable of assuming a horizontal position or any desired degree of incline and also capable of assuming positions not only at right angles but at practically any desired acute angle with respect to the section 2^a. I have illustrated herein the particular method of cable connection of the several parts shown in Fig. 3 merely for convenience of illustration, though it will be obvious that any means of flexible connection between the actuating-motor and the conveyers thereon which will permit of the adjustment of the sections 3^a and 4^a with respect to their inclination, and their angle with relation to section 2^a will be within the scope of my invention, and I have no idea of limiting myself to the specific form of arrangement herein shown.

From the foregoing it will be observed that the section 2^a may be considered the main conveyer, and the sections 3^a and 4^a auxiliary conveyers, and the framework of each of said connections 3^a and 4^a may be considered auxiliary to the main framework constituting section 2^a.

In connection with the cable conveyer illustrated I have shown at Fig. 5 a method of connecting meeting ends of said conveyer-cable comprising a bar 35, secured to one cable-section 14 and having radially-projecting studs 36, a similar bar 35^a being carried by the opposite cable-section 14^a and provided with plates 36^a, formed with key-hole-slots designed to receive studs 36 for detachably connecting said cable-sections.

Cables have been heretofore referred as comprising the conveyers; but it will be apparent that said cables may be connected by means of the usual transversely-extending connecting-slats 39, and in some instances a canvas covering may be spread over the whole for the purpose of affording a more secure support for small packages and articles which are to be carried by the conveyer. Hence I do not wish to be limited to any specific form of conveyer.

In Fig. 6 is illustrated a further modification of my invention, comprising, essentially, a truck-conveyer, in which frame-sections extending in approximately parallel planes are shown, said sections being provided with chutes 40, upon which are track-rails 41, terminating at the upper end of the incline.

Supported beneath the side rails 2^b of the conveyer-frames are angles 42, which angles are disposed vertically below the outer cables 14, and said angles are adapted to serve as a substantial support for said outer cables and also for anything which may be carried thereby. The object of this angle is to provide a suitable supporting means for loaded trucks which it is desired to transport by means of the conveyers illustrated in Fig. 6, said trucks being illustrated in Figs. 7 and 8 and having the grooved wheels 43 and grooved legs 44, whereby the trucks may be run up the incline 40 on the rails 41, thence to the cables 14, and when the slats 39 are projected into contact with the legs 44 of the trucks said trucks are thereby carried along the conveyer to a suitable place of deposit at the opposite end. To utilize the same cables or conveyers for loaded and unloaded trucks, I provide substantially parallel frames 2^b, between which is arranged the vertical guide-roller 45, turning on the shaft 46, around which roller 45 the cable conveyer is projected and upon which it turns, so that instead of running in one direction above a single frame and returning below that frame it is carried aboye both frames, but in opposite directions. A similar roller may be positioned near the opposite end for the other end of the conveyer. Angles 47 extend from one frame 2^b to the other frame and serve to hold the same apart under the strain of the cables passing around said pulley 45.

In the modification shown in Figs. 9 and 10 the conveyer-frame 2^b is provided at each end with supporting-brackets 50, upon which the ends may rest when desired. The lower end of the conveyer-frame 2^b has its bracket 50 resting on the blocks 51, and extending longitudinally away from said lower end are log-supporting skids 52, which extend to the plane of the upper edge of said lower end, so that logs may be rolled upon said skids to bring them into position for engagement with the hook 53, carried by the conveyer-cables 14^b. Said cables pass over the usual supporting-pulleys. The bracket 5 and supporting-wheels 6 are used in this type of conveyer for the purpose of convenience in transporting the structure from place to place. In this structure, however, a stand 54 is provided, which stand carries the driving-motor. Driven by the motor is a shaft 55, which, through chain 56, drives the shaft 57, which in turn drives shaft 58, on which are grooved pulleys 15^a through chains 59, and a chain 60 drives the end shaft 61 through the usual wheels. On shaft 61 are grooved pulleys 13^a, over which the conveyer-cables 14^a pass, thence over pulleys 15^a and around end pulleys 13^b, said cables being connected by transversely-extending slats 62. Traveling with cables 14^a are chains 63, which run over and engage sprocket-wheels on shafts 61 and 61^a and, if desired, upon shaft 58. Thus the driving-motor will cause said chains to be driven. When logs are rolled onto the skids 52, the hooks 53, carried by chains 63, will engage the logs and carry them up the incline along the horizontal position 26^a, and thence to a suitable place of deposit, as the car X. (Shown in the drawing Fig. 9.) The carrying-wheels 6 will support the structure when the horses are removed, and upon disconnecting the chain 56 the conveyer may be transported from place to place upon wheels 6. The supporting-horses are used with this type of conveyer and may be shifted to cause greater or less elevation of the ends, and when desired horses of greater height may be employed for causing one of the ends to extend up to the highest deck of a vessel. The sections of which the conveyer is formed facilitate the employment of horses of different heights, so that the take-on or discharge end may be elevated to any degree desired.

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

1. In a mechanism of the class described, the combination with a main conveyer, of an auxiliary conveyer adjustable in a plurality of directions, a rotatably-mounted shaft, a plurality of pulleys carried thereby, a belt engaging one of said pulleys and actuated by said main conveyer, and a belt engaging the other of said pulleys for receiving movement from the main conveyer and engaging the auxiliary conveyer for actuating the same.

2. In an apparatus of the character described, a plurality of portable cable-frames, supporting-rollers therein, an actuating-motor supported by one of said frames, supporting-wheels on said frame, and means actuated by said motor for synchronizing the conveying means carried by said frames.

3. In an apparatus of the character described, a supporting-frame, a plurality of frames at an angle thereto, continuous cable conveyers in each of said frames, a motor carried by one of said frames, and means connecting therewith for synchronizing the travel of said cable conveyers.

4. In an apparatus of the character described, a plurality of supporting-frames angularly disposed, a conveyer movable in each of said frames, a motor carried by one of said frames, and means connected therewith for synchronizing the travel of a plurality of said conveyers.

5. In a mechanism of the class described, the combination with a main conveyer, of an auxiliary conveyer movable with respect to the main conveyer, a motor for driving said main conveyer, a cable actuated by said motor, a shaft driven by said cable, a second cable driven by said shaft, a second shaft driven by the second-mentioned cable, and a

third cable driven by the second-mentioned shaft and engaging said auxiliary conveyer for actuating the same.

6. In a conveyer, the combination with a framework, of a conveyer-belt, a bar carried by each end of said belt, lugs projecting from one of said bars, and plates carried by the other of said bars formed with keyhole-slots adapted to detachably engage said lugs for locking the ends of said belt together.

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

JOSIAH B. SCOVELL.

Witnesses:

C. E. BOSTWICK,

G. L. GORTON.