

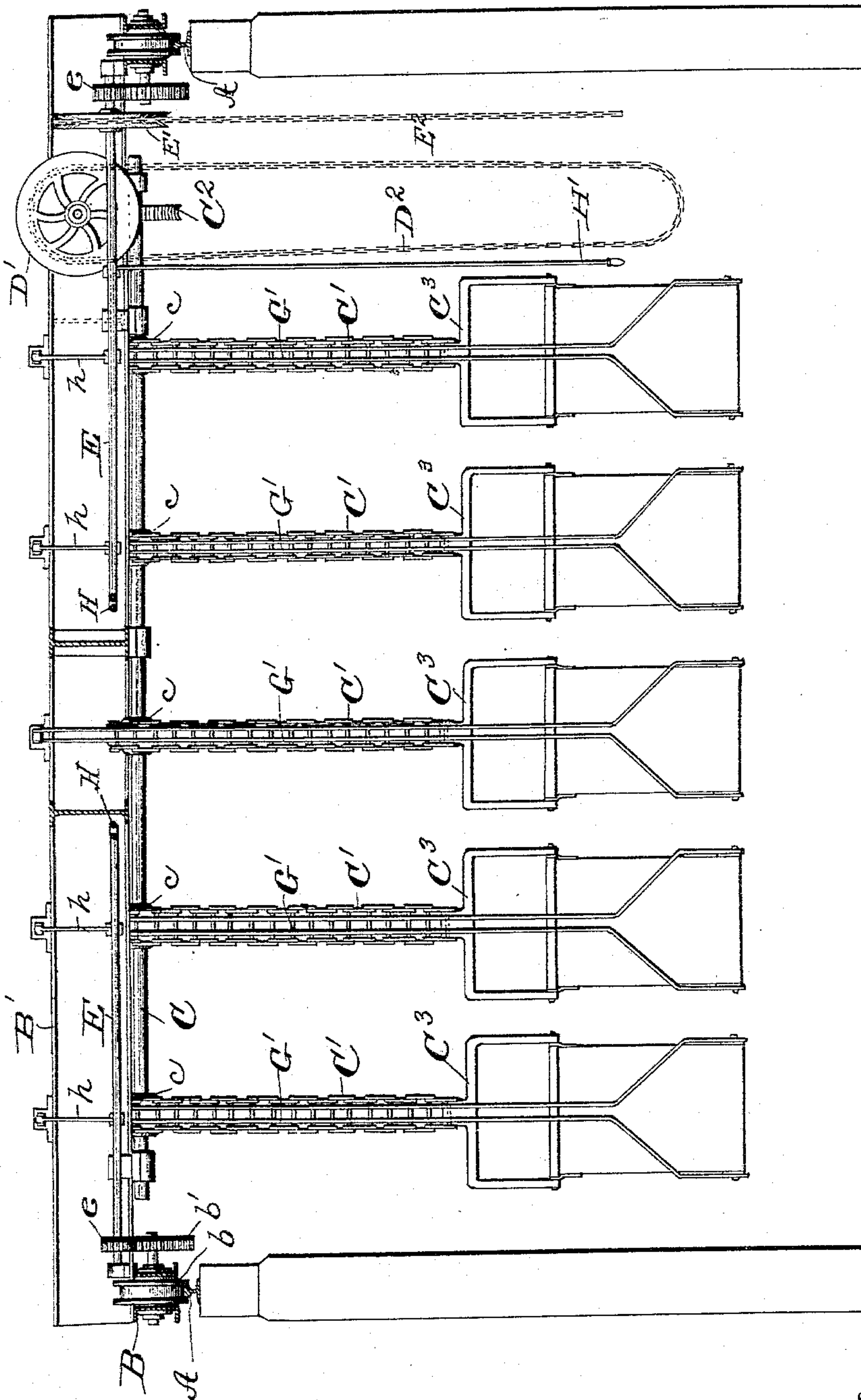
(No Model.)

4 Sheets—Sheet 1.

J. McCOY.
TRAVELING CRANE.

No. 546,426.

Patented Sept. 17, 1895.



Witnesses
G. A. Pauberschmidt.
J. D. Knigsberg.

Inventor
James McCoy
By
Whitaker & Trowest
Attorneys.

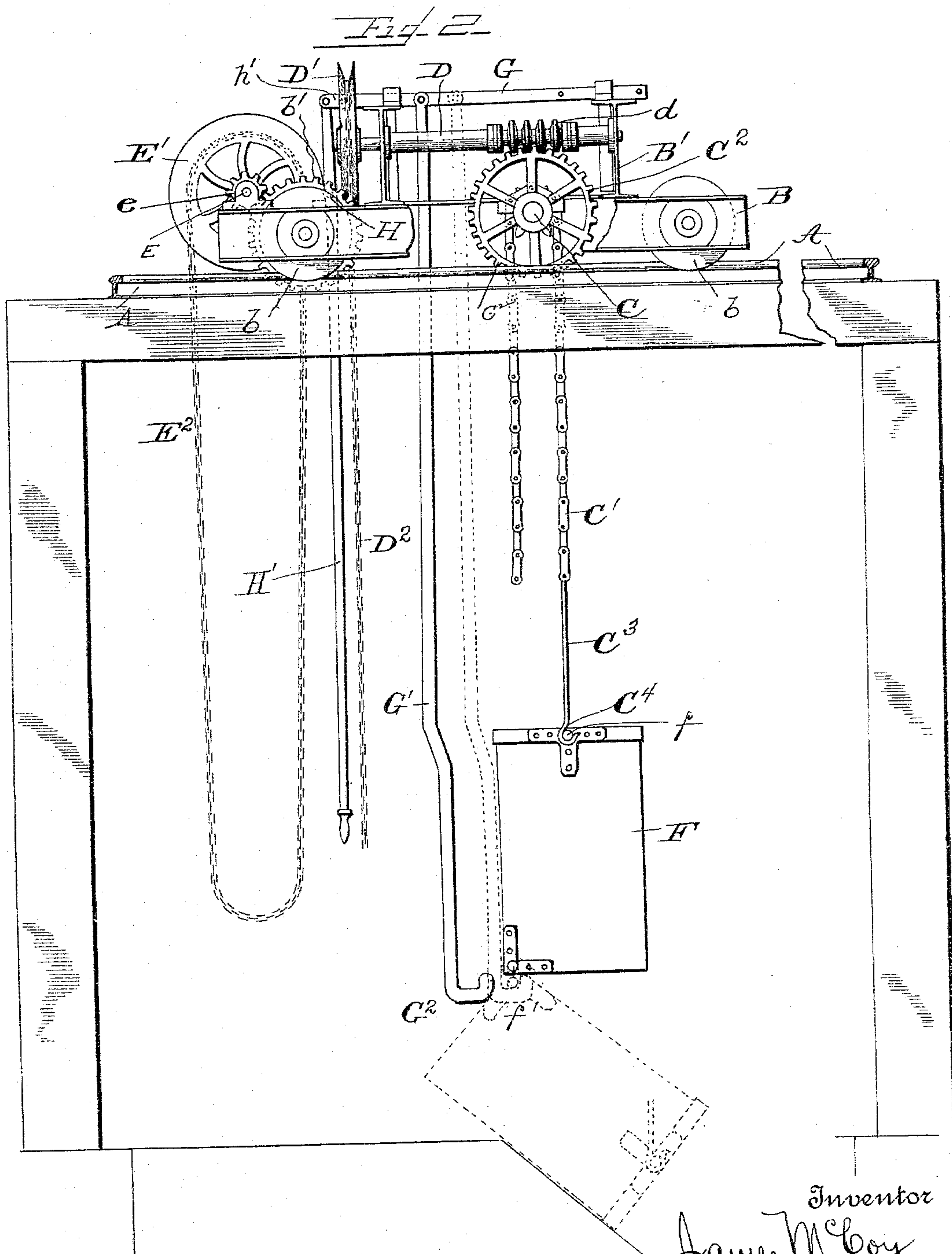
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Witnesses
J. A. Pauberschmitt,
J. D. Kuigoberg.

Inventor
James McCoy
By
Whitaker & Trewort
Attorneys.

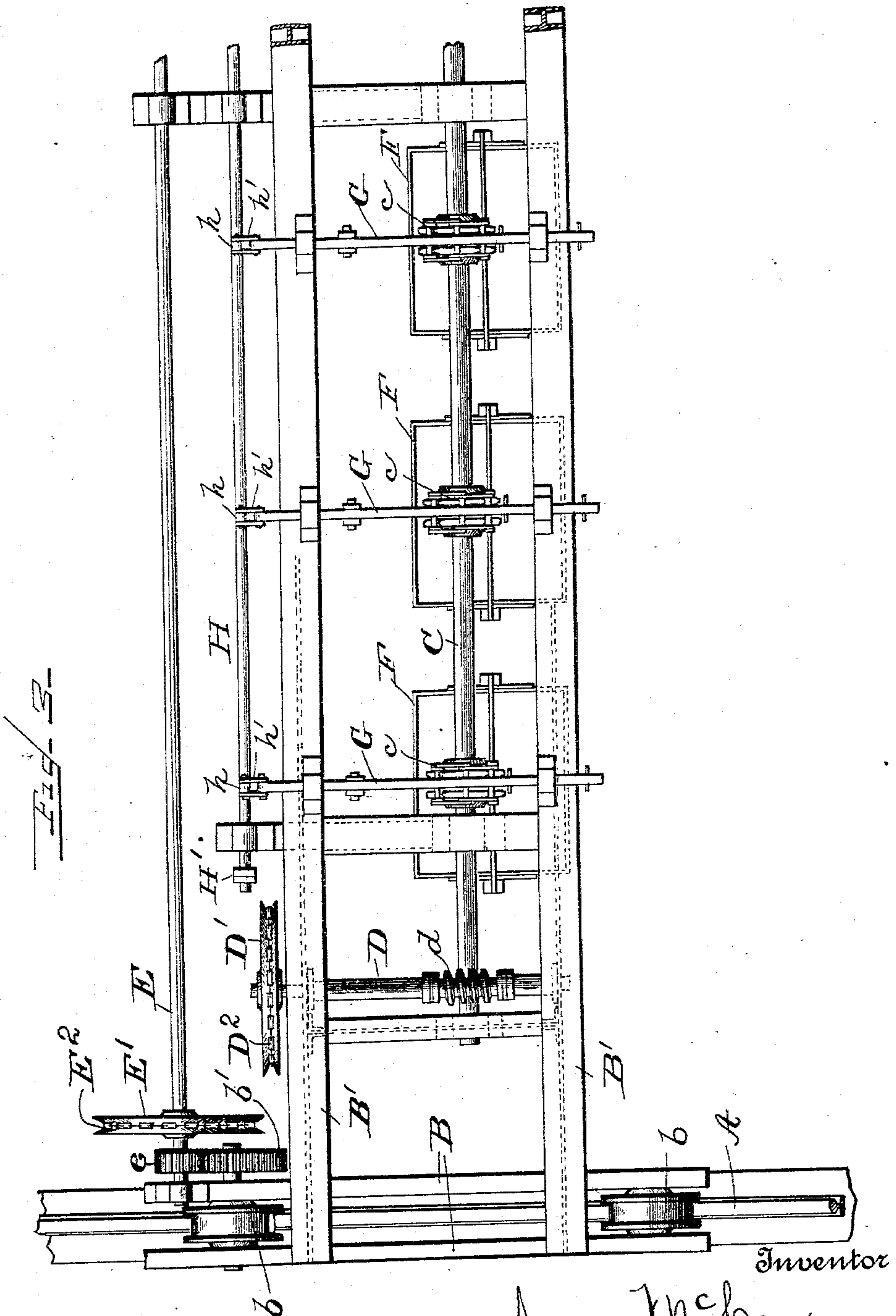
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4 Sheets—Sheet 3.

J. McCOY.
TRAVELING CRANE.

No. 546,426.

Patented Sept. 17, 1895.



Witnesses
J. A. Fauschmidt.
J. D. Kuegberg.

By James McCoy
Whitaker & Preston
Attorneys

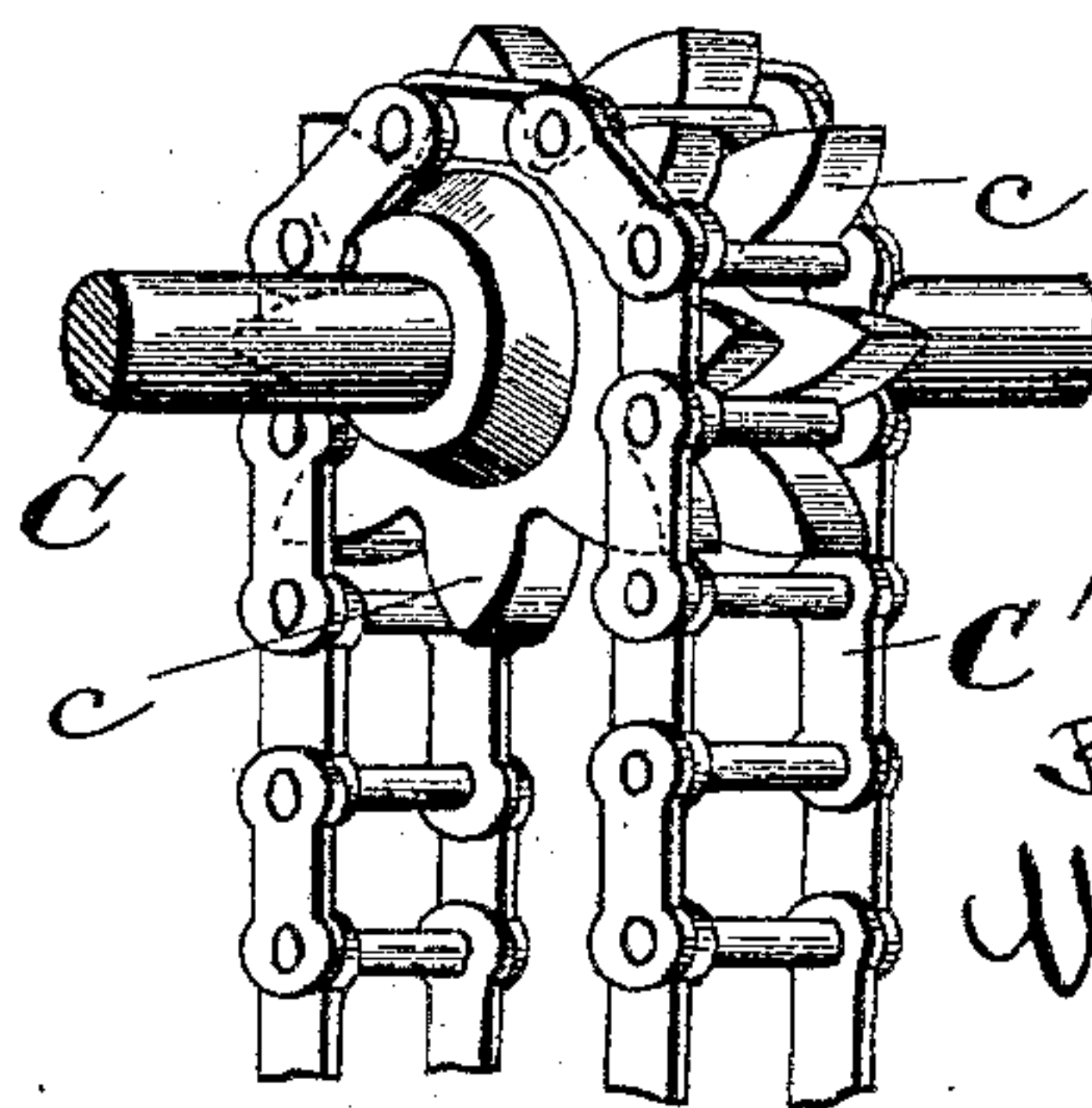
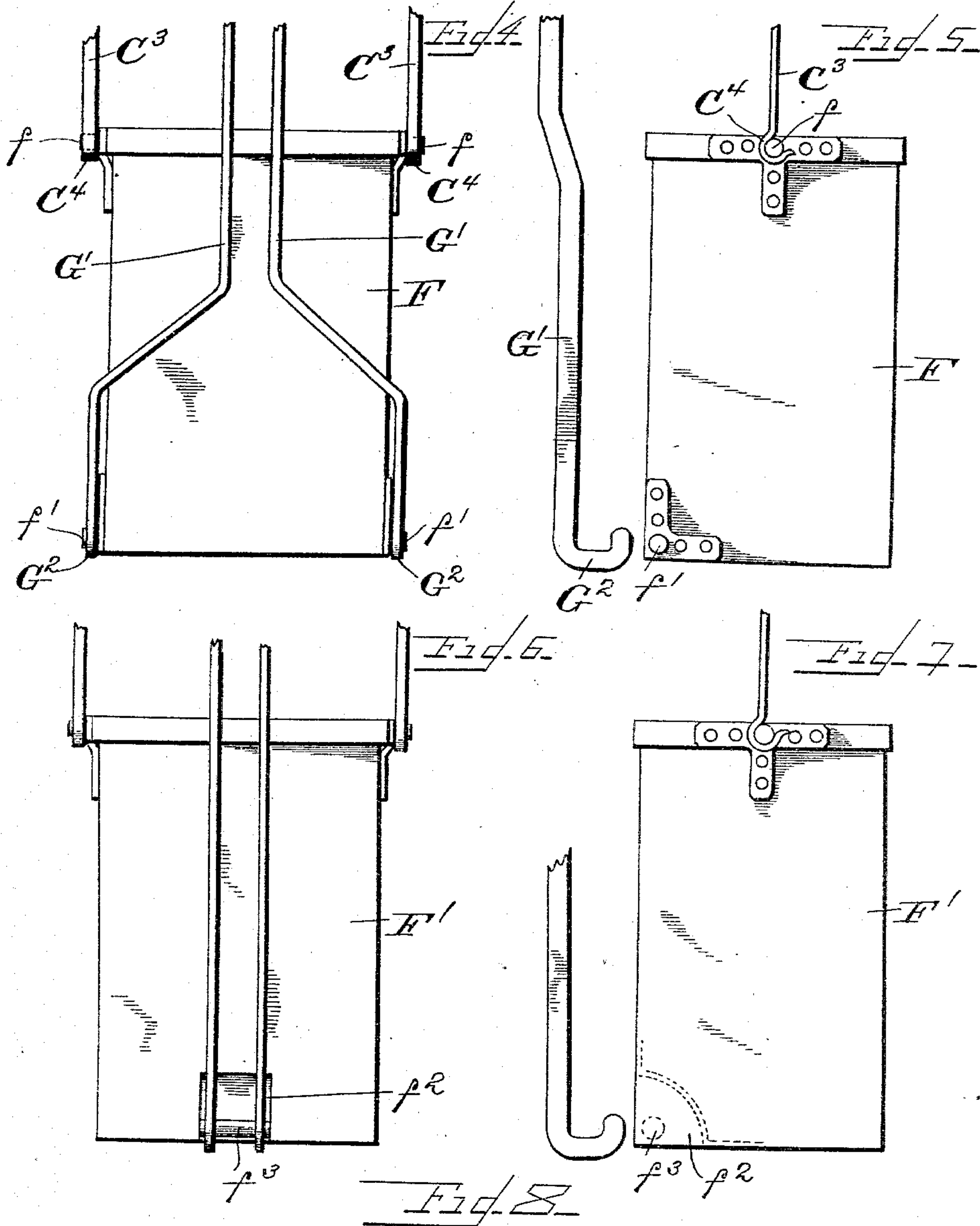
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4 Sheets—Sheet 4.

J. McCOY.
TRAVELING CRANE.

No. 546,426.

Patented Sept. 17, 1895.



Witnesses
D. A. Vachschmitt
J. D. Kingsbury

Inventor
James McCoy
By
Whitaker & Drewett
Attorneys.

UNITED STATES PATENT OFFICE

JAMES MCCOY, OF BALTIMORE, MARYLAND.

TRAVELING CRANE.

SPECIFICATION forming part of Letters Patent No. 546,426, dated September 17, 1895.

Application filed March 18, 1895. Serial No. 542,220. (No model.)

To all whom it may concern:

Be it known that I, JAMES MCCOY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Traveling Cranes; 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.

My invention consists in the novel features of construction and combination of parts hereinafter fully described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying my invention, and said invention is fully disclosed in the following description and claims.

Referring to the said drawings, Figure 1 represents an elevation of my improved crane, partly in section. Fig. 2 represents an end view of the same, parts being broken away. Fig. 3 represents a top plan view of a portion of the machine slightly enlarged. Fig. 4 is a detail rear view of an ice-holding can, showing the bail and tilting support. Fig. 5 is a side view of the same. Figs. 6 and 7 are views similar to Figs. 4 and 5, showing a slightly-modified form of can and tilting support. Fig. 8 is a detail perspective view of one of the elevating-sprockets and elevating-chain.

The object of my invention is to provide a crane for harvesting ice in ice-plants by the use of which a large number of ice-cans may be lifted out of the freezing-vat simultaneously, carried to the dumping-place, emptied, and returned to their normal positions, thus greatly facilitating the progress of harvesting and cheapening the cost of making ice. It will be obvious, however, that my improved crane can be used for any other purpose for which it will be convenient or desirable.

In the drawings, A A represent elevated tracks or rails supported, preferably, along opposite sides of the freezing-room of an ice-plant at a convenient or desirable distance above the vat. Upon these rails the main frame of the crane is supported, the said frame comprising a truck B at each end of the same, supported by grooved wheels *bb*, which rest upon the elevated track A, the said

trucks being connected by the main supporting-trusses B' B' of the crane in any usual or preferred manner.

Supported by the main frame is the elevating-shaft C, which extends longitudinally of the frame and is provided at suitable intervals with double sprocket-wheels *c c*, over which pass broad elevating sprocket-chains C' C', as shown in Figs. 1, 2, 3, and 8. I prefer to employ a very broad sprocket-chain, as shown, and to use a double sprocket-wheel, as shown best in Fig. 8, which consists of two heavy sprockets secured to the shaft and to each other at such a distance apart that the recesses between their teeth will engage the cross-rods of the chain adjacent to the side plates of the links, thus giving great strength and durability and at the same time making it impossible for the chain to twist as it depends from the sprocket. In Fig. 1 for want of space I have shown a crane provided with five of these elevating-chains; but it is obvious that any desired number may be employed, and ordinarily they will be built with a larger number than is herein shown.

At one end the lifting-shaft C is provided with a suitable elevating mechanism, which may be operated by a steam-engine carried upon the crane or by an electric motor or by hand, as preferred. In this instance I have shown a hand-power mechanism, which consists of a worm-wheel C² on the lifting-shaft C, which is engaged by a worm *d* on a worm-shaft D, which is also provided with a grooved driving-pulley D', over which passes an endless drive-chain D², which depends to a point where it can be reached by the operator.

I also provide the crane with a suitable power mechanism for moving it along the rails A A in either direction. This mechanism may also be operated by steam-power, electric power, or hand-power carried by the crane, and I have shown in this instance a hand-power mechanism for the purpose. The shaft of one of the supporting-rollers of each truck in line with each other is produced beyond the frame of the truck on the inner side of the same and provided with a driving-gear *b'*. These gears *b' b'* are in mesh with driving-pinions *e e* on a driving-shaft E, extending from one truck to the other, the said driving-shaft being also provided with a grooved driving-

pulley E' and a driving-chain E^2 , which depends to a position within convenient reach of the operator.

Each of the lifting-chains C' is provided at one end with a bail C^3 , having its arms provided with hooks C^4 for engaging trunnions f, f' , which project from opposite sides of each of the freezing-cans F , adjacent to its upper edge above its center of gravity. I also provide means for dumping the cans while they are supported by the crane. To this end I provide a number of sliding horizontal bars G, G' , mounted in suitable guides upon the top of the main frame of the crane, one directly over each of the lifting-chains, as shown in Figs. 1 and 3. From each of these bars depends what I term a "tilting support," which in this instance consists of two parallel rods G', G' , having their lower ends bent into the form of a hook G^2 , as shown best in Figs. 1 and 2. I prefer to form each of these devices of two rods connected at suitable points throughout their length to prevent the possibility of their twisting laterally. Upon the main frame of the crane, preferably somewhat below the plane of the sliding bars G, G' , I provide a rock-shaft H , extending longitudinally of the frame of the crane and provided with a series of arms h , connected by links h' or in any other suitable manner with the sliding bars G, G' . I also provide the rock-shaft H with an operating-lever H' , extending downwardly to a point within reach of the operator. By reference to Fig. 2 it will be seen that by moving the lever H' in one direction or the other all the tilting supports will be moved simultaneously toward or from the lifting-chains. Each of the freezing-cans is provided with devices adapted to be engaged by the said tilting supports.

In Figs. 2, 4, and 5 I have shown one form of can in which a dumping projection or trunnion f', f' is provided on each side adjacent to one of its lower edges below and to one side of the center of gravity of the can. In this case the lower ends of the parallel rods G' , forming the tilting support, will be spread apart, as shown in Figs. 1 and 4, so as to allow the hook portions G^2 to engage the dumping projections f', f' .

In Figs. 6 and 7 I have shown a slightly-modified form of can F' , in which a recess f^2 is formed in the can at one of its lower edges, and a horizontal dumping-bar f^3 or projection is provided within this recess. In this case the ends of the rods G', G' will be brought down parallel throughout their length and the hooked portion G^2 will be adapted to enter the recess f^2 and engage the bar or projection f^3 , as shown in these figures. In this construction there are no projections around the lower part of the cans.

The operation of my improved crane is as follows: The cans will be arranged side by side in rows in the freezing-vat, as is customary, the rows running parallel with the longitudinal framework of the crane. The crane

will then be moved by means of its propelling mechanism to a position which will bring the bails C^3 above and slightly in rear of the trunnions of one row of cans, there being preferably as many lifting-chains as there are cans in the row. The lifting mechanism will then be operated to lower the bails into position to engage the trunnions of the cans, and the crane will then be propelled so as to bring the hooks C^4 of all the bails into engagement with the trunnions of the cans. The lifting mechanism will then be operated and all the cans in the row will be simultaneously elevated until their dumping projections are slightly above the hooked portions of the tilting supports, as shown in Fig. 2 in full lines. The crane is then moved by its propelling mechanism to the end of the room or wherever the dumping-point is located, and when the crane has reached this point the operator will move the lever H' so as to bring the tilting supports simultaneously into engagement with the dumping projections of all the cans, as illustrated in dotted lines in Fig. 2. The lifting mechanism will then be operated to lower all the cans, and they will all be tilted upon their dumping projections as pivots until they occupy the position shown in dotted lines, Fig. 2, when the ice can be released by spraying warm water over the cans or in any other desired way. As soon as the ice has been discharged from the cans the cans will be lifted into the position shown in full lines in Fig. 2. The tilting supports will be thrown out of operative position by a movement of the lever H' . The crane is then moved back to a position above the places occupied by the cans originally, the empty cans are lowered into their places, the crane moved backward slightly to disengage the bails, and the next row of cans is then lifted out and emptied in the same manner. If for any reason it is desired not to lift a certain can or cans in a row, this can be accomplished by simply fastening the bail or bails in line with such can or cans up against their chains, so that they will not engage the cans.

It will be seen that by the use of my improved crane a single operator can do the work of many, the cans can be readily and quickly removed, emptied, and replaced, and the process of making ice considerably cheapened and facilitated.

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

1. The combination, with lifting devices provided with means for engaging a receptacle to be lifted, above its center of gravity, of a tilting support provided with means for engaging said receptacle below its center of gravity and supporting the same, whereby said receptacle will be tilted by lowering it into engagement with the tilting support, substantially as described.

2. The combination with lifting devices provided with means for engaging a receptacle to be lifted, above its center of gravity, of a tilt-

ing support provided with means for engaging said receptacle below its center of gravity and supporting the same, and means for moving said tilting support into and out of position to be engaged by said receptacle, substantially as described.

3. In a traveling crane, the combination, with multiple lifting devices each provided with means for engaging a receptacle above its center of gravity, of a tilting support for each as said lifting devices, each provided with means for engaging said receptacle below its center of gravity and means for moving said supports simultaneously into and out of position to be engaged by said receptacles, substantially as described.

4. In a traveling crane, the combination, with lifting devices, of a receptacle having devices above its center of gravity adapted to be engaged by said lifting devices, a tilting support movable toward and from the lifting devices, and devices connected with said receptacle below its center of gravity adapted to engage said tilting support, substantially as described.

5. In a traveling crane, the combination with the multiple lifting devices, of a series of receptacles each having devices above its center of gravity for engaging the lifting devices and a dumping projection below its center of gravity, a series of slidable bars, tilting supports carried by said bars and having devices for engaging the dumping projections on said receptacles, and a shifting device for moving all of said bars and tilting supports into and out of position to be en-

gaged by said dumping devices, substantially as described.

6. In a traveling crane, the combination with the multiple lifting devices, of a series of receptacles each provided with parts above its center of gravity for engaging said lifting devices, and dumping projections below its center of gravity and located at one side of the same, a series of tilting supports having portions for engaging said dumping projections and means for moving said supports into and out of position to be engaged by said dumping projections, substantially as described.

7. In a traveling crane, the combination with the lifting shaft, of multiple lifting devices operatively connected therewith and provided with bails, a series of receptacles each provided with projections above its center of gravity to be engaged by said bails and with dumping projections below its center of gravity, a series of slidable bars, tilting supports depending from said bars, and having hook shaped portions for engaging said dumping projections and means for simultaneously moving said bars and supports into and out of operative position with respect to said lifting devices and receptacles, substantially as described.

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

JAMES MCCOY.

Witnesses:

E. WALTER BREWINGTON,
HENRY S. BREWINGTON.