

(No Model.)

2 Sheets—Sheet 1.

J. TEMPERLEY.
ELEVATED CARRIER.

No. 504,257.

Patented Aug. 29, 1893.

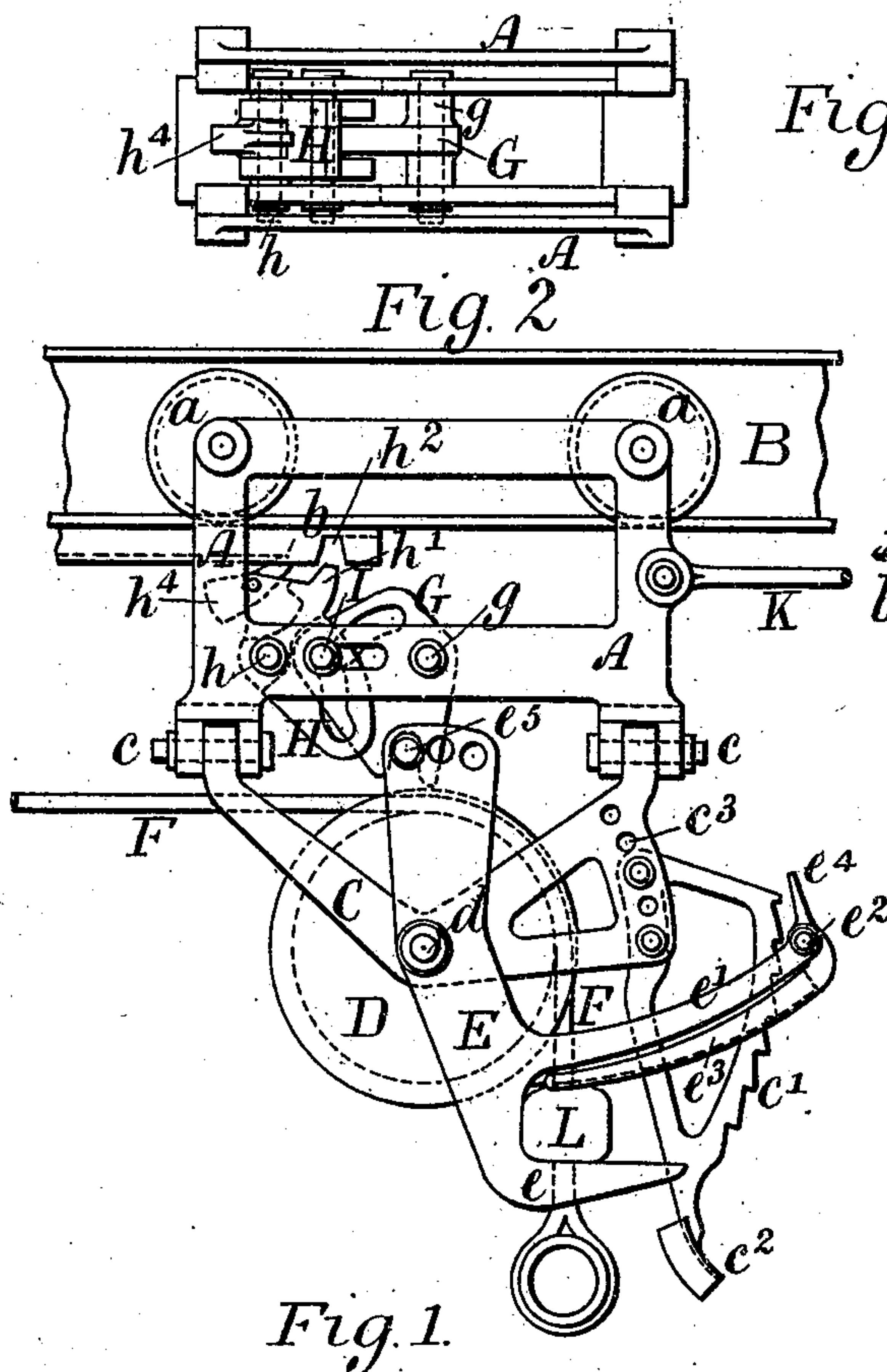


Fig. 1.

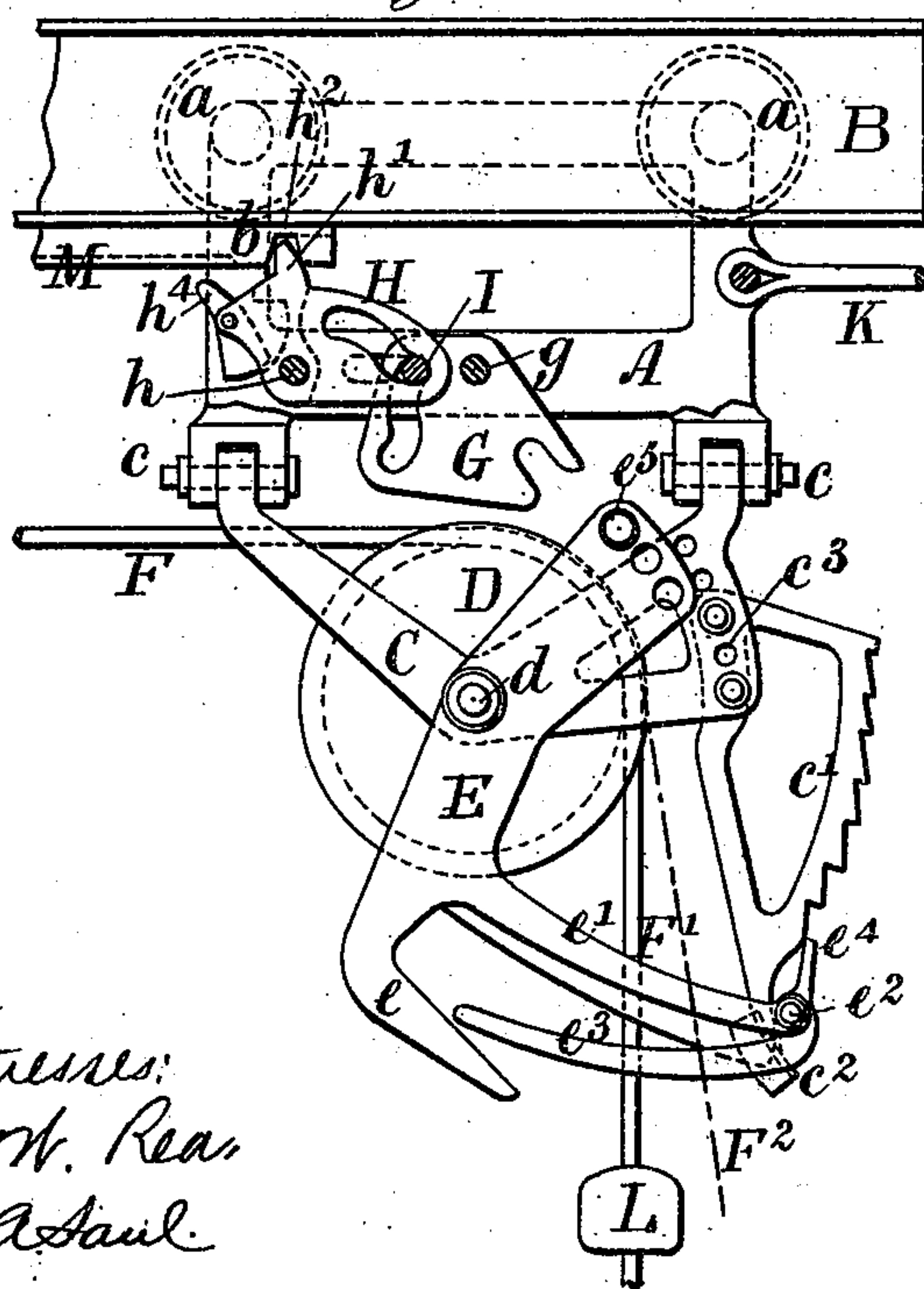


Fig. 2.

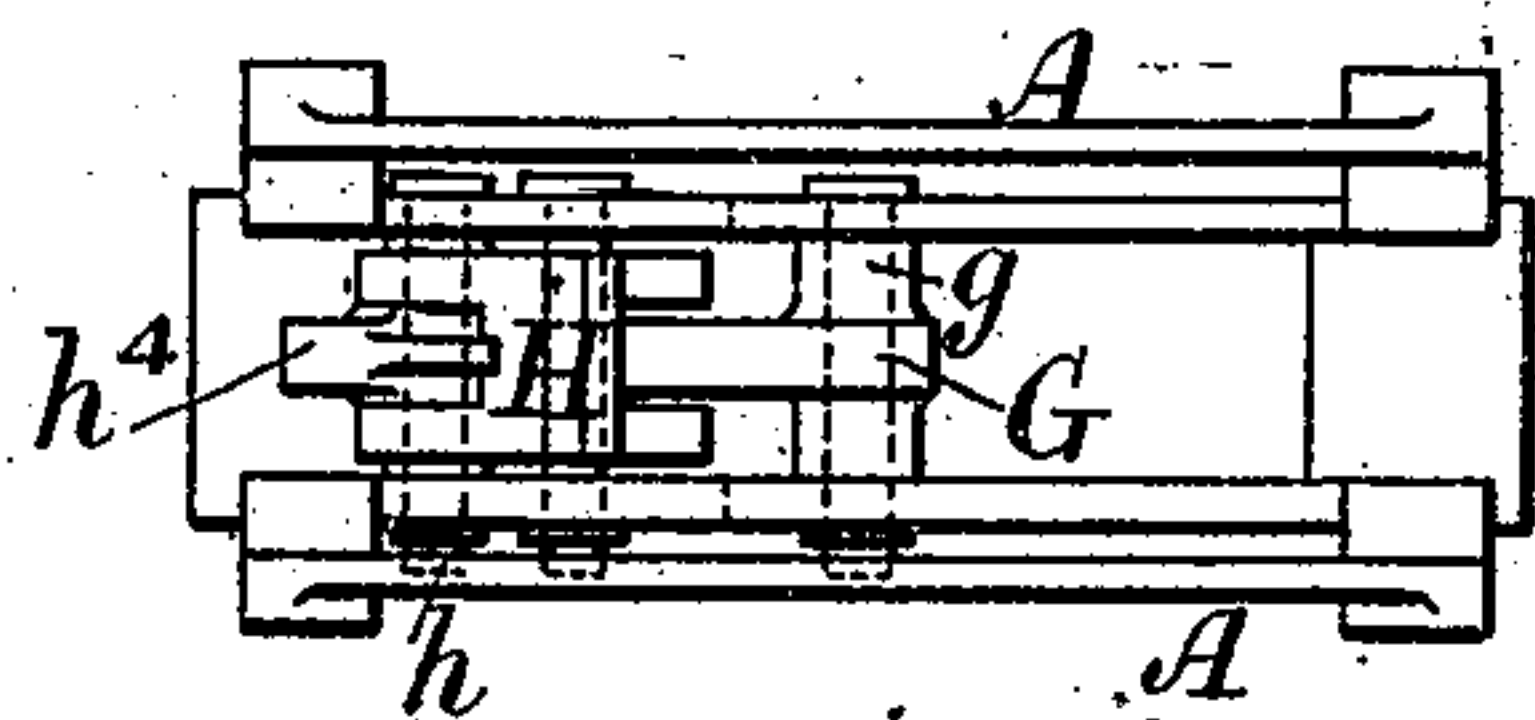


Fig. 3.

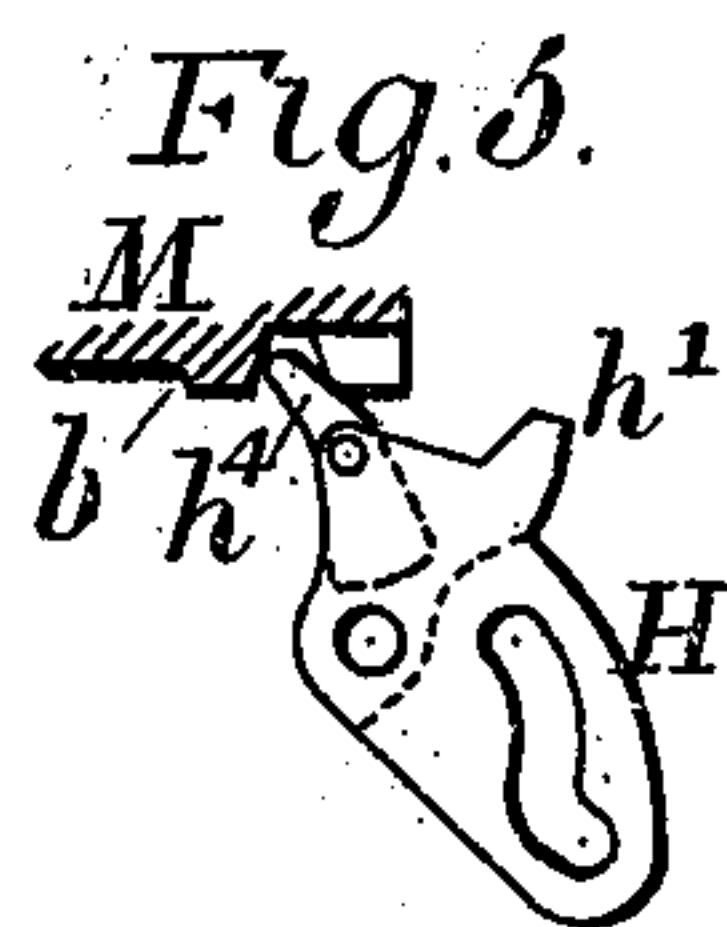


Fig. 4.

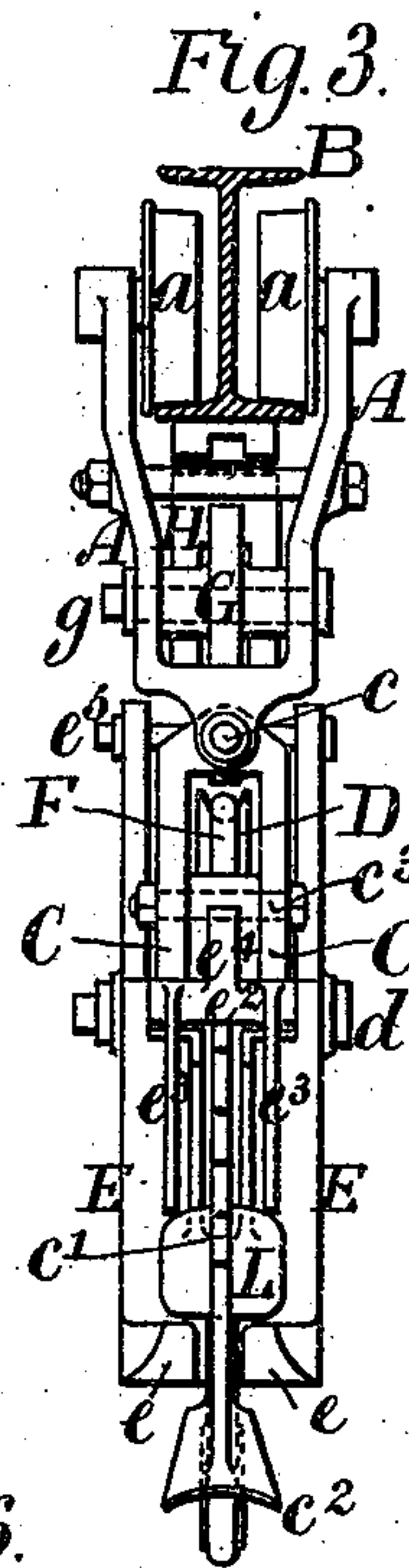


Fig. 5.

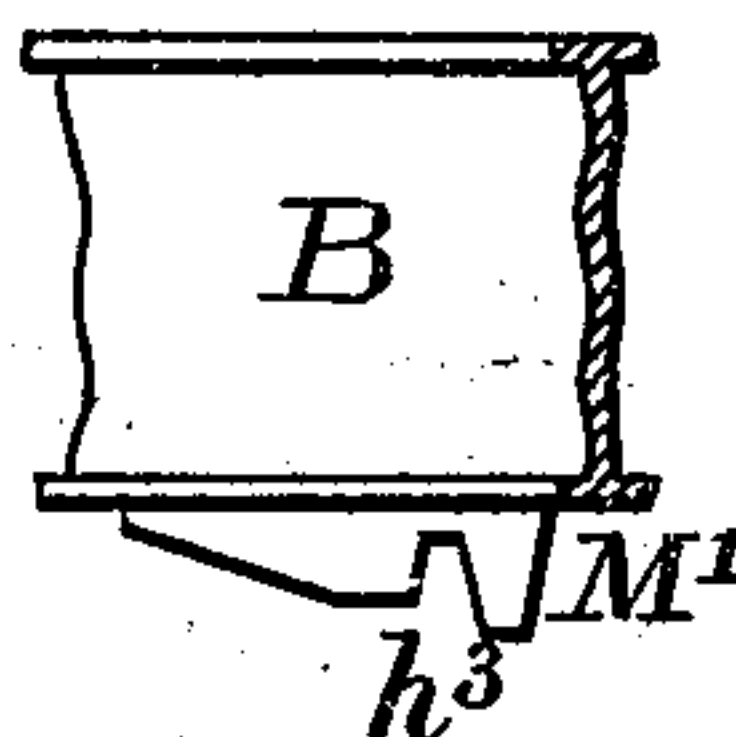


Fig. 6.

Witnesses:
G. H. Rea,
J. A. Saul.

Inventor:
Joseph Temperley
By James L. Norris
att'y.

(No Model.)

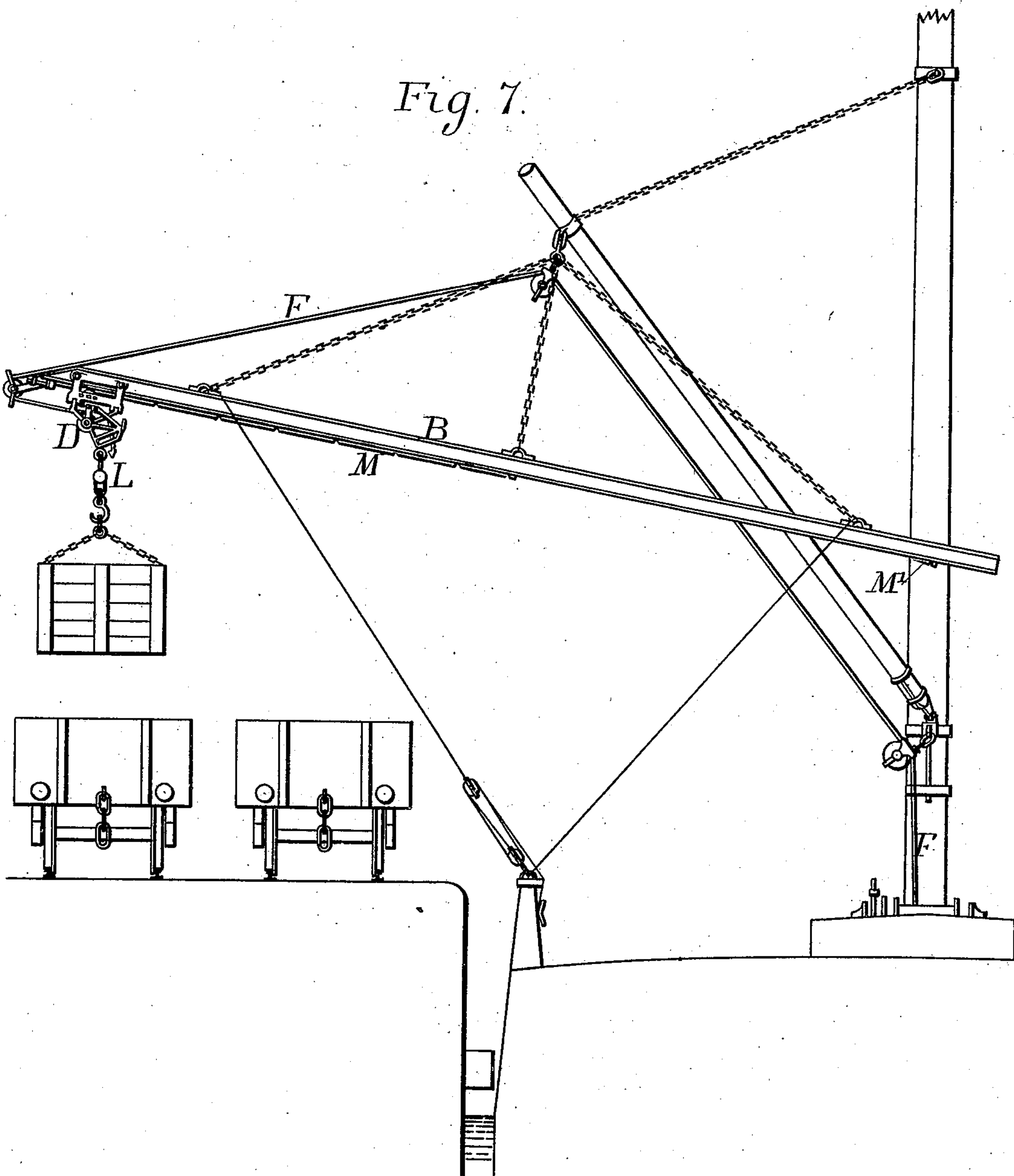
2 Sheets—Sheet 2.

J. TEMPERLEY.
ELEVATED CARRIER.

No. 504,257.

Patented Aug. 29, 1893.

Fig. 7.



Witnesses;
G. W. Rea.
J. A. Saul.

Inventor,
Joseph Temperley
By James L. Norris
attys.

UNITED STATES PATENT OFFICE.

JOSEPH TEMPERLEY, OF REIGATE, ENGLAND.

ELEVATED CARRIER.

SPECIFICATION forming part of Letters Patent No. 504,257, dated August 29, 1893.

Application filed March 28, 1893. Serial No. 468,009. (No model.) Patented in France March 17, 1893, No. 228,713; in Belgium March 18, 1893, No. 103,897, and in Italy June 23, 1893, LXVII, 118.

To all whom it may concern:

Be it known that I, JOSEPH TEMPERLEY, ship-owner, a citizen of England, residing at Wray Lodge, Reigate, in the county of Surrey, England, have invented a certain new and useful Traveling Pulley-Carriage for Raising, Lowering, and Traversing Loads, (for which I have obtained Letters Patent in France, dated March 17, 1893, No. 228,713; in Belgium, dated March 18, 1893, No. 103,897, and in Italy, dated June 23, 1893, Vol. LXVII, 118,) of which the following is a specification.

For the purpose of raising, lowering and traversing loads as from the hold of a vessel to a quay or barge or conversely, or from one part to another of a warehouse, factory, wharf, railway or other yard, an overhead track is often provided, having a winch, or crab arranged to travel along it. Certain inconveniences attend this arrangement, resulting from the necessary weight of the winch and the difficulty of applying power to it.

A main object of my invention is to avoid these inconveniences by placing the winch stationary in any convenient position and arranging simply a pulley carriage to travel along the overhead track, this carriage being provided with automatic locking and unlocking mechanism such that it can be stopped at any desired part of its travel and will remain stationary while the load is raised or lowered by the rope or chain passing over the pulley from the winch. This pulley carriage when the pulley is locked is drawn along the track in the one direction by the winch rope or chain; it is drawn in the opposite direction by a counterweight, or, in cases where the track can be conveniently inclined, it may run down by gravity. A convenient form of track for such a pulley carriage is a flanged girder, the carriage having wheels which roll on the flanges of the girder. I shall therefore describe a pulley carriage according to my invention arranged to run along such a girder referring to the accompanying drawings.

Figure 1 is a vertical section of the carriage in condition for raising or lowering, without traveling. Fig. 2 is a side elevation showing

the carriage in condition for traveling along the track without raising or lowering the load. Fig. 3 is a front elevation. Fig. 4 is a plan the girder and wheels being removed to show the cams below. Figs. 5 and 6 show details. Fig. 7 illustrates the application of the apparatus for loading or unloading at a wharf.

In these figures similar letters denote like parts.

The upper part of the carriage consists of a frame having two side cheeks A A with four wheels *a*, to roll on the flanges of the girder B two on each side of its web.

To the frame A is jointed at *c c* the under frame of the carriage, having two side cheeks C C between which is mounted the pulley D free to turn upon a pin *d* on which is also mounted, free to turn, a lever frame having two side cheeks E E between which passes the rope F carrying the load. The lower part of the lever frame E E is formed as a fork at *e e*. A pair of arms *e' e'* projecting from E E have pivoted to them at *e²* a pawl lever having a pair of long arms *e³* between which the rope F passes and a pawl *e⁴* which can engage with one or other of a set of ratchet teeth on a segment *c'* which is fixed between the cheeks C C and which forms at its lower end at *c²* a rest for *e' e'*. The cheeks E E are connected by a bolt *e⁵* in such a position that when the cheeks move round the pin *d* this bolt can enter the gab of a cam G pivoted on a bolt *g* between the cheeks A A. Another cam H is in like manner pivoted on a bolt *h* between the cheeks A A. The cam H is wider than G and has a groove to receive G. Both the cams G and H have curved slots through which passes a bolt I, this bolt also passing through horizontal slots in the side cheeks A A. The cam H has also a projecting horn *h'* which can engage in a notch *h²* or *h³* in a piece or pieces M M' fixed where desired to the under side of the girder B, and in a groove of H is pivoted a pawl *h⁴* having a heavy lower arm. The curvatures of the cams G and H have portions at their lower ends radial.

To the cheeks A A is attached a rope or chain K which passes over a pulley at the ex-

treme end of the track and has attached to it a weight sufficient to draw the carriage and load to the right when the rope F is slacked out. On this rope F, at any desired part of it is fixed a block L. This apparatus works in the following manner: When it is in the condition shown in Fig. 1 the horn h' of the cam H being engaged in the notch h^2 or it might be in a notch h^3 at another part of the girder, the carriage cannot move because the bolt I is in the radial part of the slot of H preventing H from turning in either direction so as to disengage itself from the notch h^2 or h^3 . The load can then be lowered by slacking out the rope F or raised by hauling it by a winch or otherwise. In raising the load, the rope F passes between the cheeks e' and if it should rub against either of them it might tend to raise them with it. This is prevented by the pawl e^4 engaging with a tooth of c' . When the load is so far raised that the block L on the rope F comes up to the lever arms e^5 between which the block cannot pass, it raises these arms throwing the pawl e^4 away from the teeth of c' , and the block L still rising moves the lever frame E E round to the position shown in Fig. 2. During this movement the bolt e^5 entering the gab of G moves G partly round causing the bolt I to slide along the horizontal slots in A A and so far along the slot of H that H can be turned by its horn h' disengaging itself from the notch h^2 or h^3 , this movement of H moving the bolt I still farther along the horizontal slots of A A and along the slot of G to the terminal part which is radial G being thus held stationary and holding the lever frame E E in the position shown in Fig. 2. In this position the block L being over the forks e is held stationary locking the pulley D, and now h' being disengaged the whole carriage can be pulled to the left by hauling F or allowed to be drawn to the right on slacking out F, the load being thus carried along without being raised or lowered. While H moves round as above described to the position shown in Fig. 2 its pawl h^4 is turned into the notch h^2 as shown in Fig. 5, but as that notch has its right side slotted the pawl can pass through the slot when the carriage travels to the right. When however the carriage is pulled to the left, the pawl h^4 is turned over into the position shown in Fig. 2, and then when the carriage travels to the right the pawl is stopped by a shoulder at b , so that H is again turned to the position shown in Fig. 1, turning G so as to release e^5 and thus allowing the lever frame to be carried down by the block L when the rope F is slacked out. The carriage now being held as before by the engagement of h' in the notch, the load can be lowered or the end of the rope F can be lowered to take up a load which can be raised, the carriage remaining stationary until the block L again releases it and locks the pulley D. Pieces M each having a notch h^2 and a shoul-

der b being fixed to the girder B at various places, the operator can at any of these places lock or release the carriage releasing or locking the pulley; he has only to haul the carriage by F to the left until the end of the pawl h^4 passes the shoulder b . Then on slacking out F, when h^4 meets b the carriage will become locked and the pulley released as in Fig. 1, and will so remain until the ascent of the block L again releases the carriage and locks the pulley. The cheeks C C of the lower part of the carriage might be fixed to the cheeks A A of the upper part. I prefer however to joint the two parts together by pivots $c c$ so that there may be freedom to swing without throwing the wheels a off the track.

As shown in Fig. 7, the girder B is inclined so that when the rope F is slacked out, it can run by gravity to the right. A number of the pieces M are shown on the under side of the girder to allow of locking and unlocking as above described in a number of different places. When an inclined girder is employed as shown in Fig. 7, the vertical line of rope below the pulley, instead of being in the direction shown at F' in Fig. 1, will take a direction relatively inclined as indicated by the dotted line F², the angle made by F² with F' being equal to the inclination of the girder. It is therefore necessary to adjust the segment c' and with it the lever frame E E to this condition. This is done by providing several holes at c^3 to receive the bolts by which the segment c' is fixed to the cheeks C C. Also to allow for the consequent change of position of E E, several holes are provided to receive the bolt e^5 according as the girder is less or more inclined to the horizontal.

Having thus described the nature of my said invention and the best means I know for carrying the same into practical effect, I claim—

1. In a pulley carriage traveling along an overhead track for the raising, lowering and traversing of loads, the combination of a block fixed on the hauling rope a double lever frame pivoted on the pulley axis and carrying a cross bolt, a cam having a gab to receive the said bolt and a curved slot, a second cam having also a curved slot, a bolt engaged in both curved slots and in horizontal slots of the carriage frame, a horn on the second cam and a pawl pivoted thereon and a stationary notched and shouldered piece presented to the horn and pawl, arranged and operating substantially as and for the purpose set forth.

2. In a traveling pulley carriage, in combination with a pair of cheeks between which the pulley is mounted, a toothed segment fixed to the said cheeks and terminating in a rest for a lever frame pivoted on the pulley axis, a double pawl lever pivoted on the said frame, and ends of the frame shaped as a fork engaging over them a block on the hauling rope, substantially as described.

3. The combination with a traveling pulley carriage, of pulley-carrying cheeks C, having

a series of holes c^3 , the segment c' having an adjustable bolt connection with any one of the bolt holes in the cheeks, a cam G, a lever frame E having a series of bolt holes for the
5 adjustment of a bolt which engages the cam, and a pawl lever pivoted to the lever frame for engaging the segment, substantially as described.

In testimony whereof I have signed my
10 name to this specification, in the presence of

two subscribing witnesses, this 9th day of March, A. D. 1893.

JOSEPH TEMPERLEY.

Witnesses:

THOMAS LAKE,

JNO. P. M. MILLARD,

*Clerks to Messrs. Abel & Imray, Consulting
Engineers and Patent Agents, 28 South-
ampton Buildings, London, W. C.*