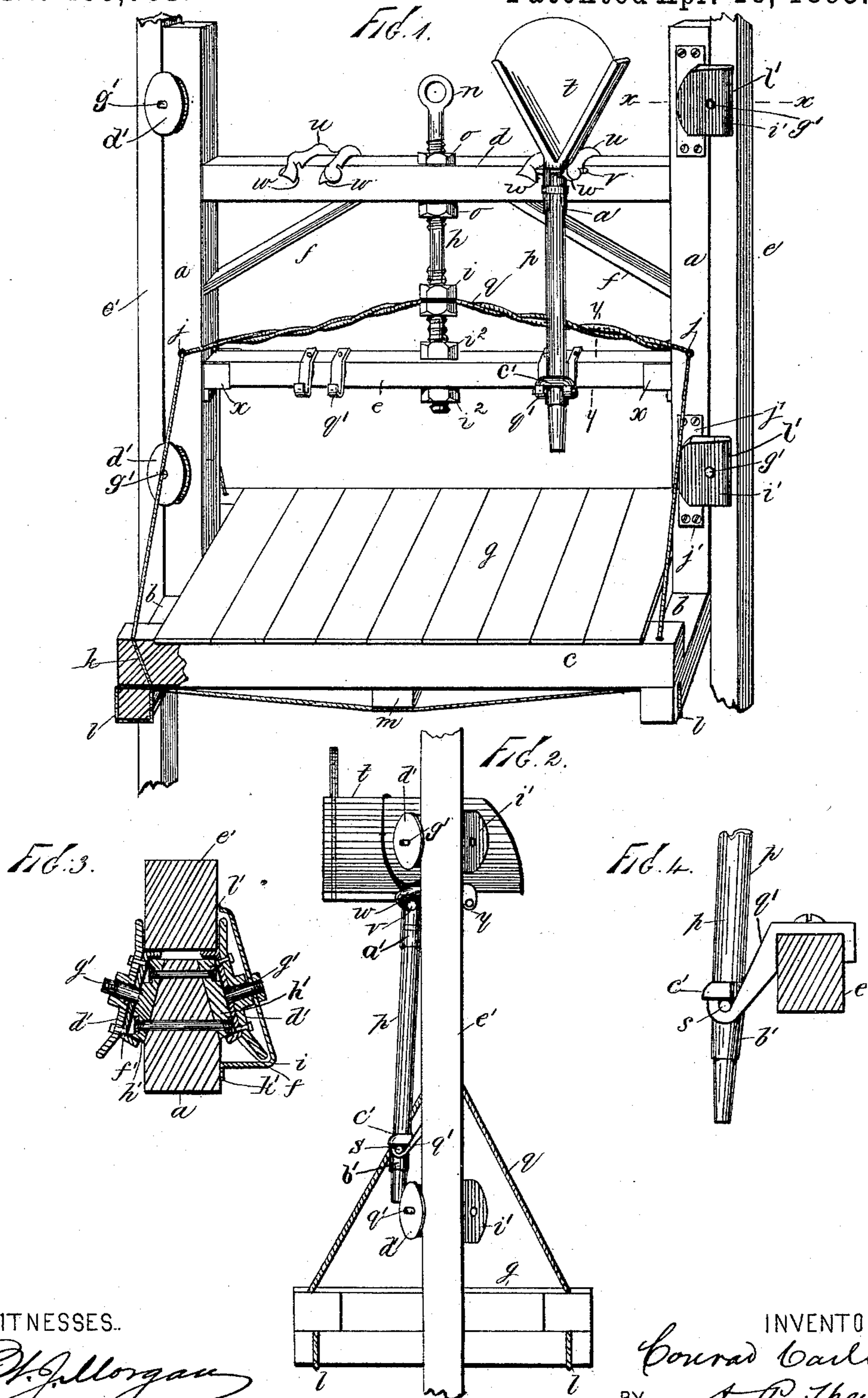


3 Sheets—Sheet 1.

No. 495,781.

Patented Apr. 18, 1893.



WITNESSES..

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INVENTOR:

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(No Model.)

3 Sheets—Sheet 2.

C. CARLSON.  
HOD ELEVATOR.

No. 495,781.

Patented Apr. 18, 1893.

Fig. 5.

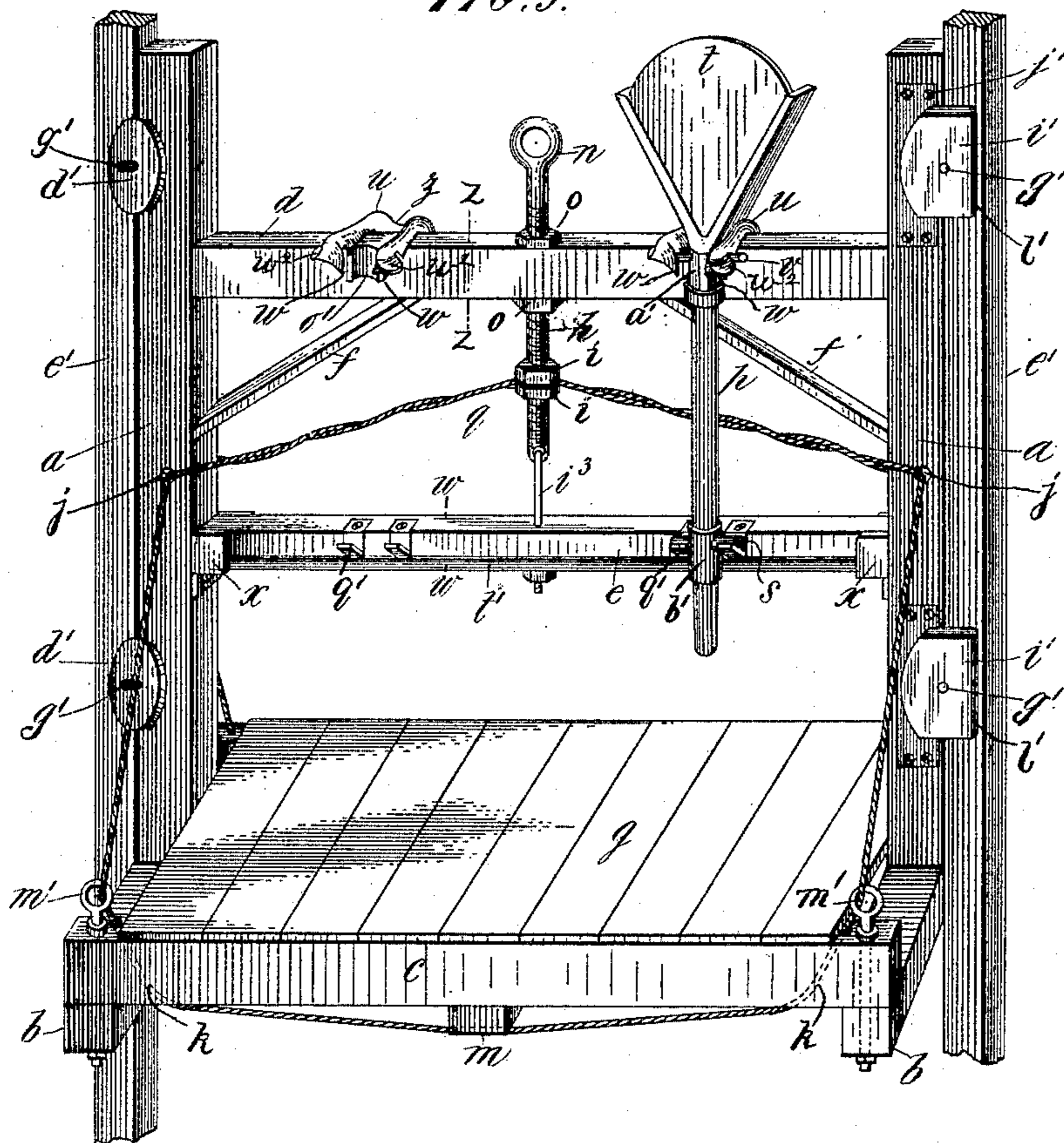


Fig. 6.

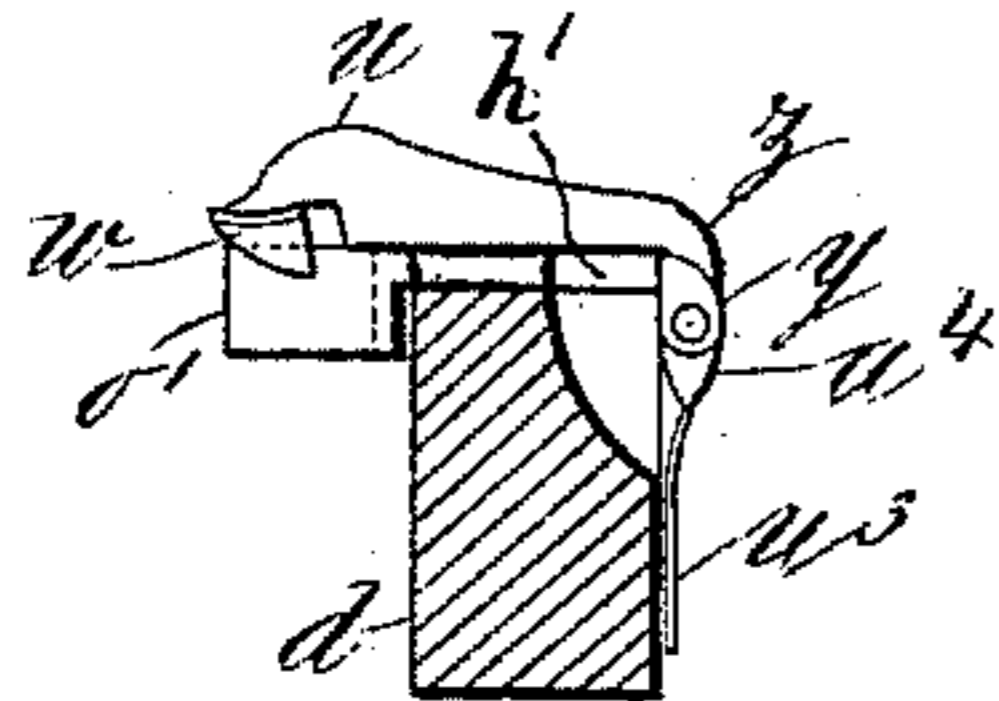


Fig. 8.

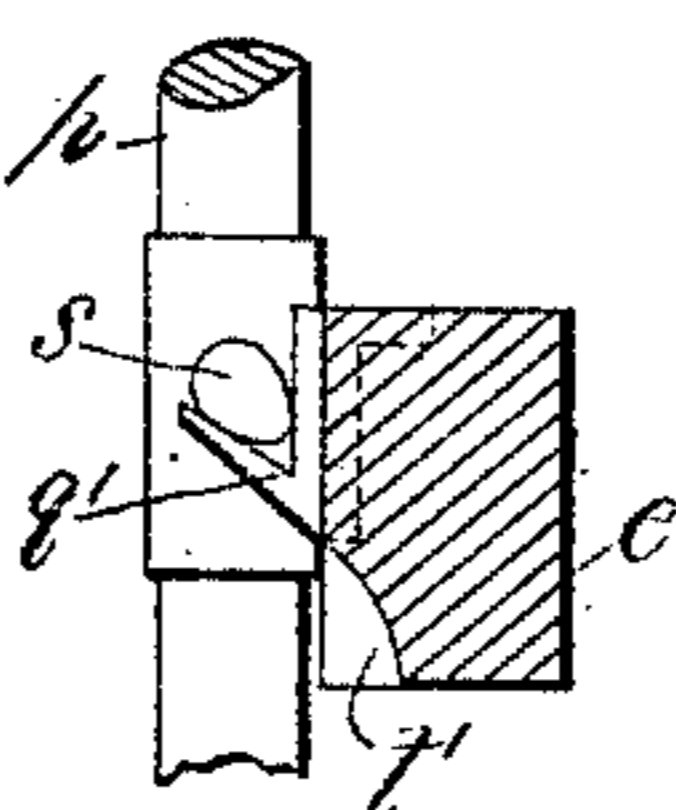


Fig. 10.

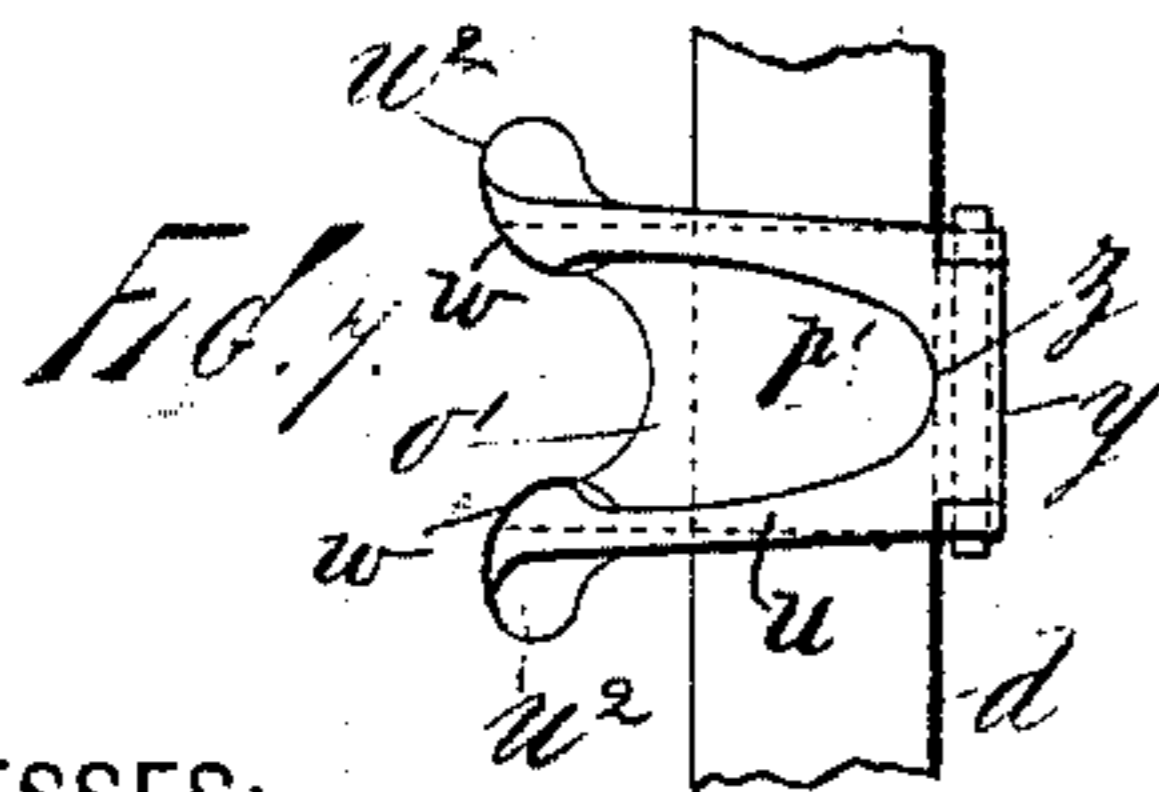
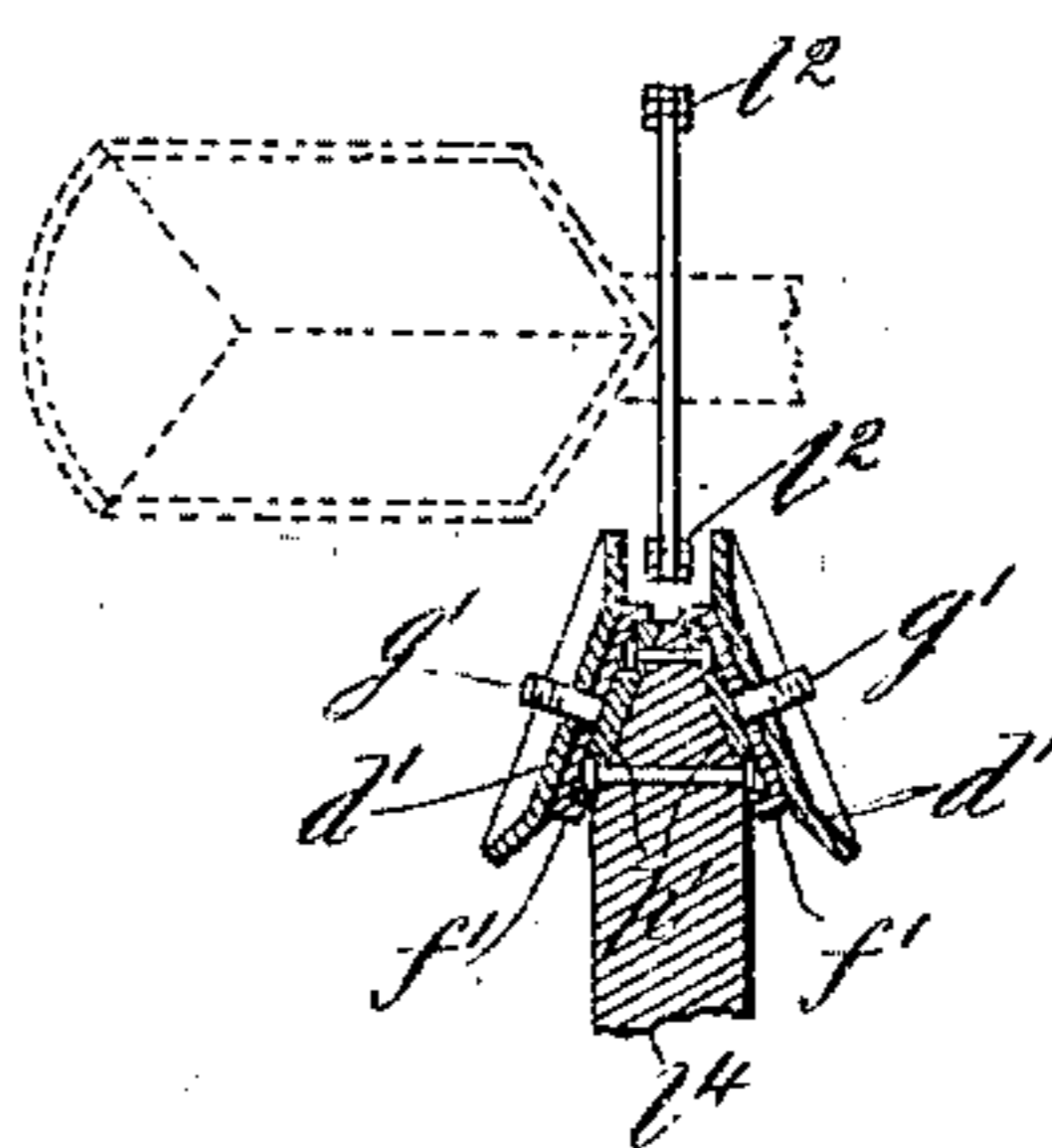
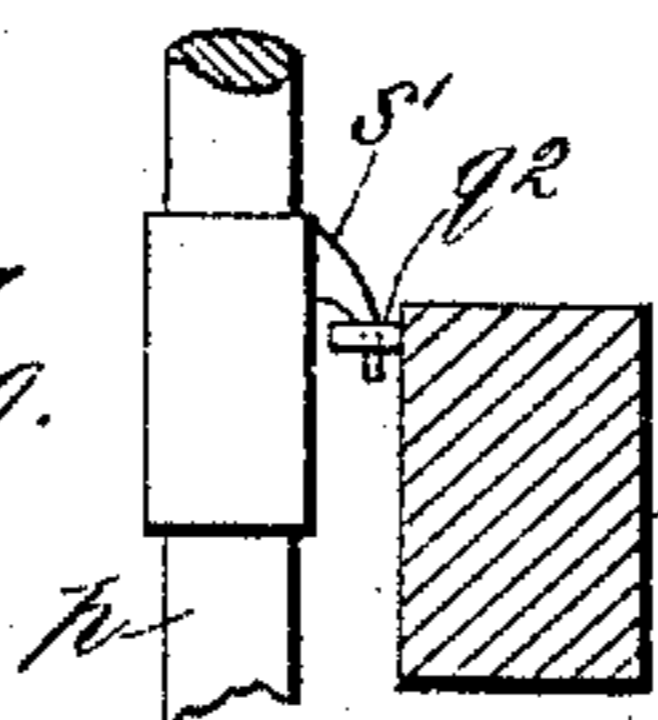


Fig. 9.



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(No Model.)

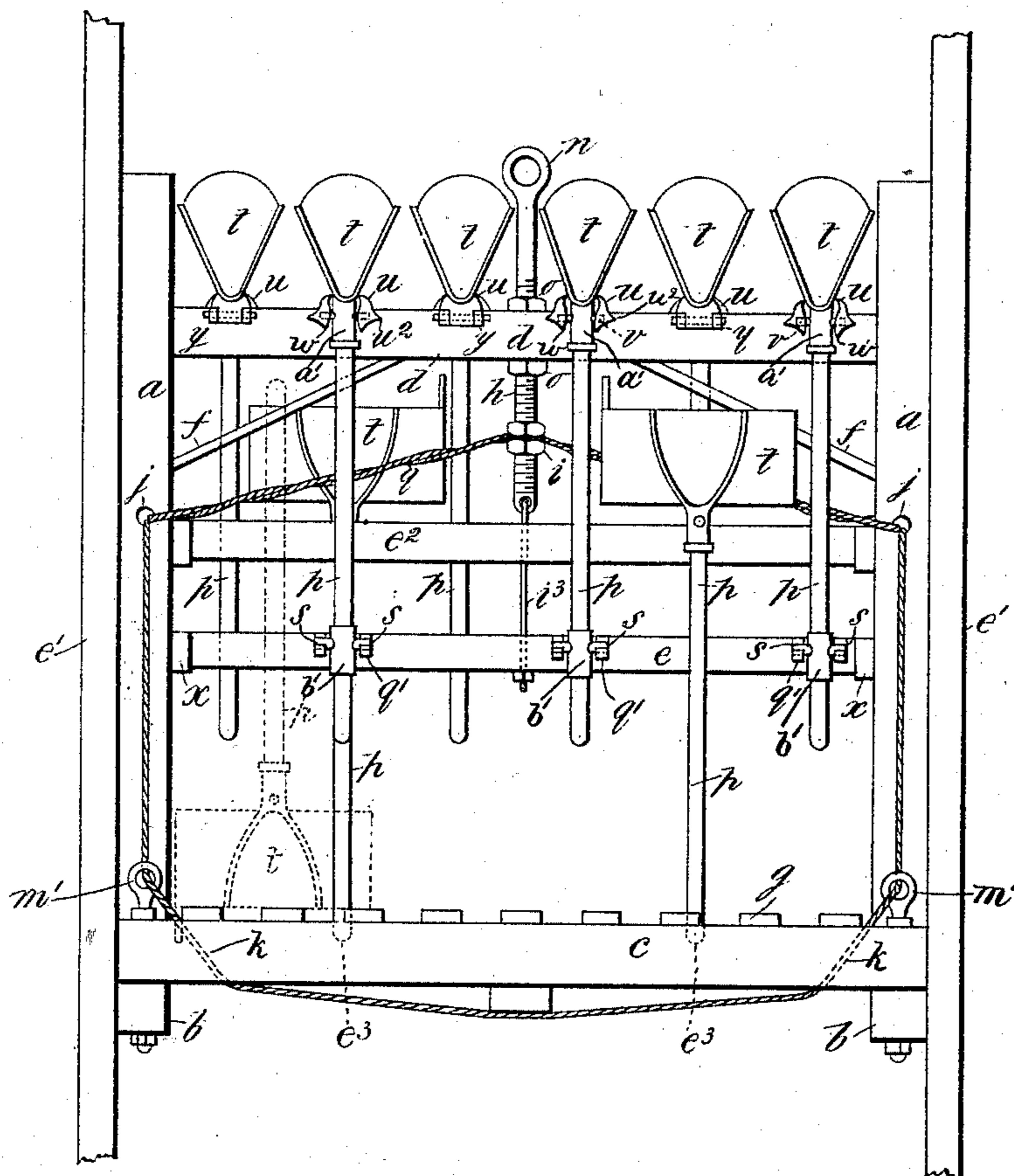
3 Sheets—Sheet 3.

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HOD ELEVATOR.

No. 495,781.

Patented Apr. 18, 1893.

FIG. 11.



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# UNITED STATES PATENT OFFICE.

CONRAD CARLSON, OF BROOKLYN, NEW YORK.

## HOD-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 495,781, dated April 18, 1893.

Application filed November 23, 1891. Serial No. 412,886. (No model.)

*To all whom it may concern:*

Be it known that I, CONRAD CARLSON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Hod-Elevators, of which the following is a specification.

My invention consists in improvements in the construction of the car and in means of mounting the hods thereon so that they may be readily applied and removed, and will be securely held while on the car all as herein-after fully described reference being made to the accompanying drawings in which:—

Figure 1, is a perspective view of a car adapted for two hods but having only one on it, with parts of the ways on which the elevator runs, also with a part in section and also with the guards for the guide rolls of one side omitted. Fig. 2, is a side elevation of the same, also with some of the guards for the guide rolls omitted. Fig. 3, is a detail in horizontal section on line *xx*, Fig. 1. Fig. 4, is a detail in section on line *yy*, Fig. 1. Fig. 5, is a perspective view of the car and ways showing modifications. Fig. 6, is a detail in section on line *zz*, Fig. 5, showing an additional upper supporting device for the hod staffs. Fig. 7, is a plan of the same. Fig. 8, is a detail in section on line *ww*, Fig. 5, showing a modified arrangement of the lower staff supporting hooks. Fig. 9, is a detail showing another modification of the lower staff supporting hooks. Fig. 10 is a detail showing the application of the guide rolls to chain hod elevators, and Fig. 11, is a front elevation of an elevator contrived for mounting the hods on it so as to economize space.

The car frame consists of the uprights *a*, projecting upward from the T sills *b*, parallel to each other and connected at their ends respectively by the beams *c*, placed above the sills, the cross-head beam *d*, near the upper ends of the uprights and connecting them, and the intermediate cross-bar *e*, extending from one to the other of the uprights with braces *f*, staying the uprights and cross head, and with floor boards *g*, laid over the beams *c*, with which car thus constructed I combine a rope binder *q*, and an adjusting device consisting of rod *h*, and adjusting nuts *i*, for

stiffening the car and tightening it up from time to time. The rope is preferably double and thereby composed of two members which are twisted together a few turns each side of where they are connected to the adjusting device, and they are connected thereto by inserting the rod *h*, between the two members at the middle of the twisted portion and screwing the clamping nuts *i*, firmly on the rope. From the tightener the rope is extended each way to the uprights where the two members are passed through the holes *j* in said uprights in opposite directions and thence to the end of the beams *c*, respectively, through which they pass diagonally as at *k*, thence around the sills *b*, as at *l*, Fig. 1, and thence along under beam *c*, and the cross bar *m* at the middle of the sills to the opposite sills respectively constituting an endless double rope which can be strained taut to stiffen the car by adjusting the nuts *i*, upward on the rod *h*, which is an extension of the eye bolt *n*, by which the hoisting rope is to be attached, said eye bolt being attached to the cross-head *d*, wherein it is adjustable by the nuts *o*. But I may in some cases connect sills *B*. and beams *C*. by the eye-bolts *m'* Figs. 5 and 11 extend the binder through beams *C*. only in which arrangement the binder will draw more freely for tightening. The rod *h*, is also connected to the intermediate cross-bar *e*, to prevent it sagging at the middle, the connection may be by the extension of rod *h*, directly through the cross bar, with the adjusting nuts *i*<sup>2</sup> as in Fig. 1, or by the rod *i*<sup>3</sup>, hooked into a hole in the lower end of the shorter rod *n*, as in Figs. 5 and 11, said rod *i*<sup>3</sup> extending through the cross-bar with a nut below; the purpose of this cross-bar is to secure the lower ends of the hod staffs *p*, and to support the weight of the hods by the hooks *q'*, or equivalent devices as staples *q*<sup>2</sup>, attached to the bar and by suitable projections on the staff as the ends of a pin *s*, or studs projecting from the staff, or by a hook *s'*, while the box *t*, of the hod swings over the cross-head and is secured in that position by and between the prongs of the gravitating yoke shaped hook *u*, engaging the ends of another pin or stud *v*, projecting from the staff said hooks adapted for being automatically raised by the

projecting portions of the pin or studs  $v$ , striking the bevel noses  $w$ , of the hook when the hod-staff being rested in the hooks  $q'$ , as it is lowered from the shoulder of the carrier the box is so swung over the cross-head. These hooks have laterally projecting flange studs  $w^2$ , for lifting them readily by hand by the carriers who take the hods away after being elevated to the place for delivering the contents.

The bar  $e$ , is fixed in its position detachably so that it can be readily taken out when it may be required to elevate barrels or other materials which would be obstructed by the bar. For this purpose metal sockets  $x$ , are attached to the sides of the uprights  $a$ , suitable for the purpose, but any approved means of detachable connection may be employed.

The yoke hooks  $u$ , are pivoted to the cross-head at the rear side as indicated at  $y$ , so as to lie on the top of said cross-head with the hook ends projecting forward a suitable distance to engage studs or pins  $v$ . They have a depression  $z$ , in the upper side of the bow at the rear side of the cross-head in which the lower edge of the box  $t$ , rests whereby together with the staff confined between the prongs of the hook at the front and also confined in the lower hooks  $q'$ , the hods are effectually prevented from swinging out of place and being thrust off as they are liable to be by the jerks and shocks to which they are subject. But as the latter stress of this service is rather trying on the joints of the yoke-hooks, I provide the notched guards  $o'$ , on the front of the cross-head coincident with the hook and with these I prefer to provide the flange  $p'$ , extending over the top of the cross-head and carrying the pivots for the yoke hooks. I also provide the hooks  $u$ , with a stop lug  $u^4$ , Fig. 6, to prevent by contact with beam  $d$ , the hooks from being thrust up too high, and I may employ a spring  $u^3$ , to cause the hooks to fall and engage the pins or studs  $v$ , quickly.

The pins  $v$ , may be fitted through the metal sockets,  $a'$ , by which the box and the staff are connected, or they may consist of integral studs of the socket. A socket  $b'$ , is also, provided for like security of the lower pin  $s$ , in Fig. 1, made with the lug  $c'$ , projecting over the pin and also over the points of the hooks  $q'$ , in such a manner that in case a hod fails of being engaged by the hooks  $u$ , or happens to escape therefrom after being engaged and falls over forward said lugs bearing on the ends of said hooks cause the pins to rise up out of the hooks and escape over the end free and clear of the hooks, and the bar  $e$ , between which the staff would otherwise be caught in a way liable to cause serious damage. In Figs. 8 and 11, I have arranged these lugs to serve the purpose of the pins also, and have arranged the hooks  $q'$ , on a larger angle and the lugs in a form adapted to roll out of the hooks, in case the hod falls as above stated. In this case also I locate the hooks closer to the bar  $c$ , and make

a notch  $t'$ , in the lower corner for space allowing for the staff to swing back and to some extent allow the lugs to thus roll out of the hooks.

I employ guide rolls on the car to run along the guide ways  $e'$ , for an antifriction device, which guide rolls I construct of two flanged disks  $d'$ , and  $f'$ , riveted together side by side and suitably perforated at the center to rotate on pivot studs  $g'$ , attached to the uprights  $a$ , in any approved way as by the head plates  $h'$ , applied thereto obliquely for mounting the rolls obliquely to the guide ways  $e'$ , so that the grooved faces thereof produced by the flanges of the disks will run on the angles of the guide ways. Over the guide rolls I apply the pan shaped metallic guards or hoods  $i'$ , suitably shaped to inclose the wheels and protect them from mortar, brick chips and the like, and also being suitably flanged as at  $j'$ , and  $k'$ , to fit on and be fastened to the uprights  $a$ , with the part  $l'$ , overlapping the guide ways gaged closely thereto but so as to run free and avoid friction. These guide rolls are also adapted for guiding the chains  $l^2$ , of the endless chain "ladders" in common use for elevating hods as in Fig. 10, the rolls being in this case mounted on a stationary support as a floor beam  $l^4$ .

By suspending the hod staff in the hooks  $q'$ , instead of setting them in, a step as in the customary way I avoid a serious difficulty arising from the filling of the step sockets with mortar brick dust and the like requiring frequent attention for clearing them out, and often neglected, and causing damage frequently by the escape of the staffs from the steps. By the automatic fastening hooks for the upper ends of the staffs I avoid the necessity of fastening the retaining latch by hand as in the present arrangement and by the employment of the stud pins and hooks each side of the staffs the outermost hods are effectually prevented from turning by which they will sometimes catch at the openings in the floors when mounted close to the uprights as they usually are see Fig. 11, and they are unhandy for the carriers who take them from the elevators.

With the duplex gravitating hooks  $u$ , and a pin or stud  $v$  each side of the hod staffs a single hook as  $s'$ , on the staff and a staple  $q^2$ , on the intermediate bar  $e$ , as in Fig. 9, will serve well for the lower support of the staff, and I do not limit myself to the particular arrangement of the hooks  $q$ , and studs  $s$ , in the other figures.

In Fig. 11, I represent the elevator arranged for placing the hods on it with economy of space for applying the greatest number, by arranging the hooks in both sides of beam  $d$ , and bar  $c$ , in alternate order, so as to put hods on both sides, and close together that they can be placed if all placed on one side, and by arranging another cross-bar  $e^2$ , between beam  $d$ , and cross-bar  $e$ , with steps

$e^3$ , in the floor beams C, enabling some hods to be set in said steps and beam  $d$ , sidewise against bar  $e^3$ , below beam  $d$ , and between the staffs of the other hods on the same side which are far enough apart for so placing the hod between them without waste space owing to the alternate arrangement of those suspended from the beam on opposite sides.

The hod represented in dotted lines as in Fig. 11, shows the way of placing the empty hods on the elevator for returning them to be refilled.

I claim—

1. The combination of the intermediate detachable cross-bar and the hod staff supports thereon with the uprights and cross-head of the car, said cross-bar located in the vertical plane of the cross-head, the supports for the boxes of the hods of said cross-head, and the adjusting rod and nuts connecting the cross-bar with the cross-head substantially as described.

2. The combination of the intermediate detachable cross-bar with the uprights and cross-head, said cross-bar located in the vertical plane of the cross-head, the supports for the hod boxes on said cross-head, the hod supporting hooks on said cross-bar, and studs on the hod staffs near the lower end for confining the staffs and supporting the hods substantially as described.

3. The combination, with a platform or car provided with a cross head, and a support for the hod staffs near their lower ends, of the gravitating hook on the cross head and a stud on the hod staff adapted to automatically swing under and lift and be engaged by said hook substantially as described.

4. The combination with a platform or car provided with a cross head and support for hod staffs near their lower ends, of duplex or yoke shaped gravitating hooks pivoted on the cross head and a hod having a stud on each side of its staff adapted to automatically engage said hooks substantially as described.

5. The combination with a platform or car

provided with a cross head and a support for the hod staffs near their lower ends, of duplex or yoke shaped gravitating hooks pivoted on the cross head, and hods having studs on the hod staffs automatically engaging the hooks said hooks having the notch or cavity in the yoke receiving the lower narrow edge of the hod substantially as described.

6. The combination, with the cross-head and the supports for the hod boxes thereon, of the cross-bar, the hooks on the cross-bar, studs on the hod staffs for supporting the hods near the lower ends of the staffs, and the lugs  $c'$  on the staff projecting over the points of the said hooks to raise the studs out of the hooks when the hods fall substantially as described.

7. The combination, with the cross head, automatic yoke hooks and the hod staffs having the studs on the sides to engage said hooks and the support for the hod staff, of the guards on the front of the cross head controlling the hods laterally.

8. The combination with the uprights of the car and the guide ways, of the guide rolls composed of two flanged disks fastened together the flange of one disk being adapted to bear on the face of the guide, and the flange of the other disk on the side of the guide, said rolls mounted diagonally on the uprights and relatively to the angles of the guide ways substantially as described.

9. The combination with the uprights of the car, guide rolls mounted diagonally thereon and the guide ways, of the pan shaped hoods having the attaching flanges secured to the uprights said hoods overlapping the guide ways and inclosing the rolls substantially as described.

Signed at New York, in the county of New York and State of New York, this 30th day of September, A. D. 1891.

CONRAD CARLSON.

Witnesses:

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W. B. EARLL.