

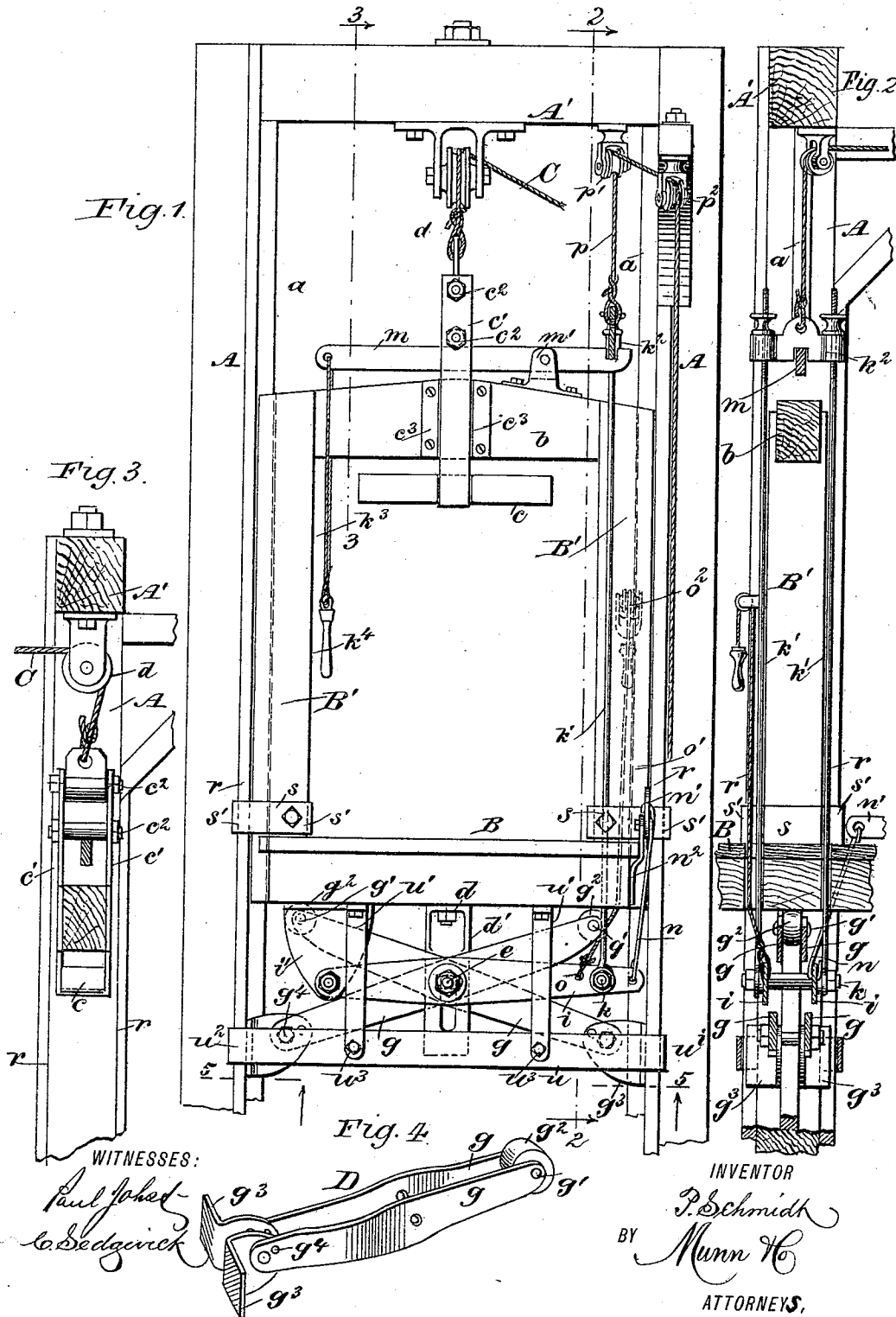
(No Model.)

3 Sheets—Sheet 1.

P. SCHMIDT.
ELEVATOR.

No. 466,188.

Patented Dec. 29, 1891.



(No Model.)

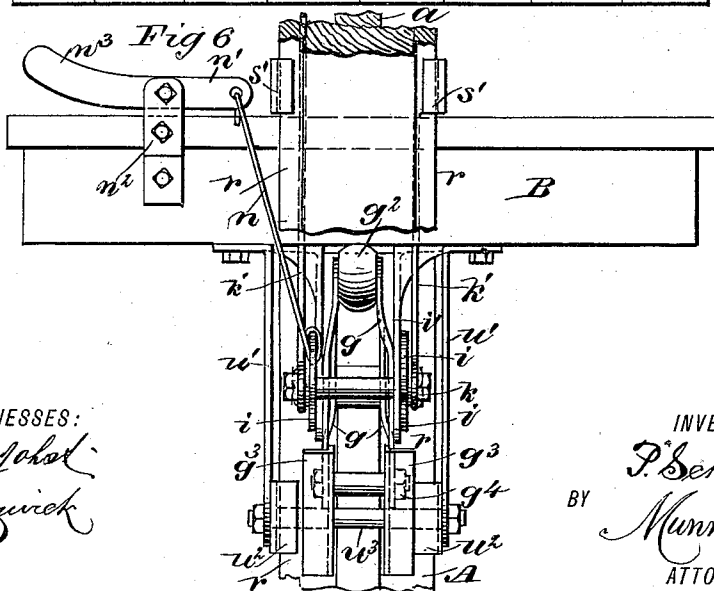
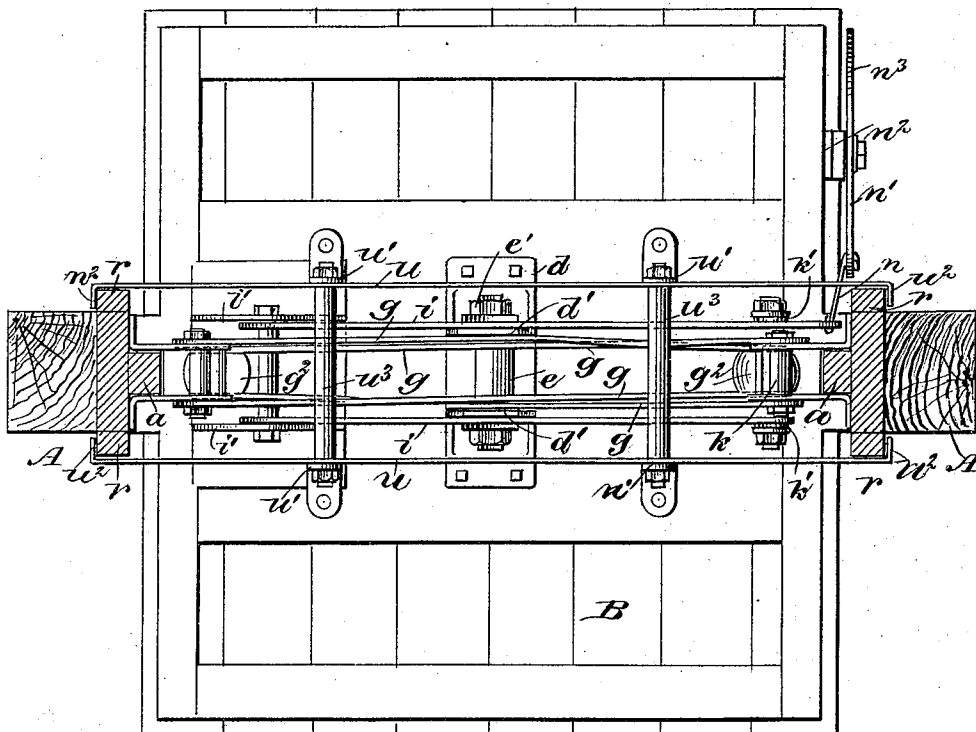
3 Sheets—Sheet 2.

P. SCHMIDT.
ELEVATOR.

No. 466,188.

Patented Dec. 29, 1891.

Fig 5.



WITNESSES:
Paul J. Schmitt
C. Sedgwick

INVENTOR
P. Schmidt
BY
Munn & Co.
ATTORNEYS.

(No Model.)

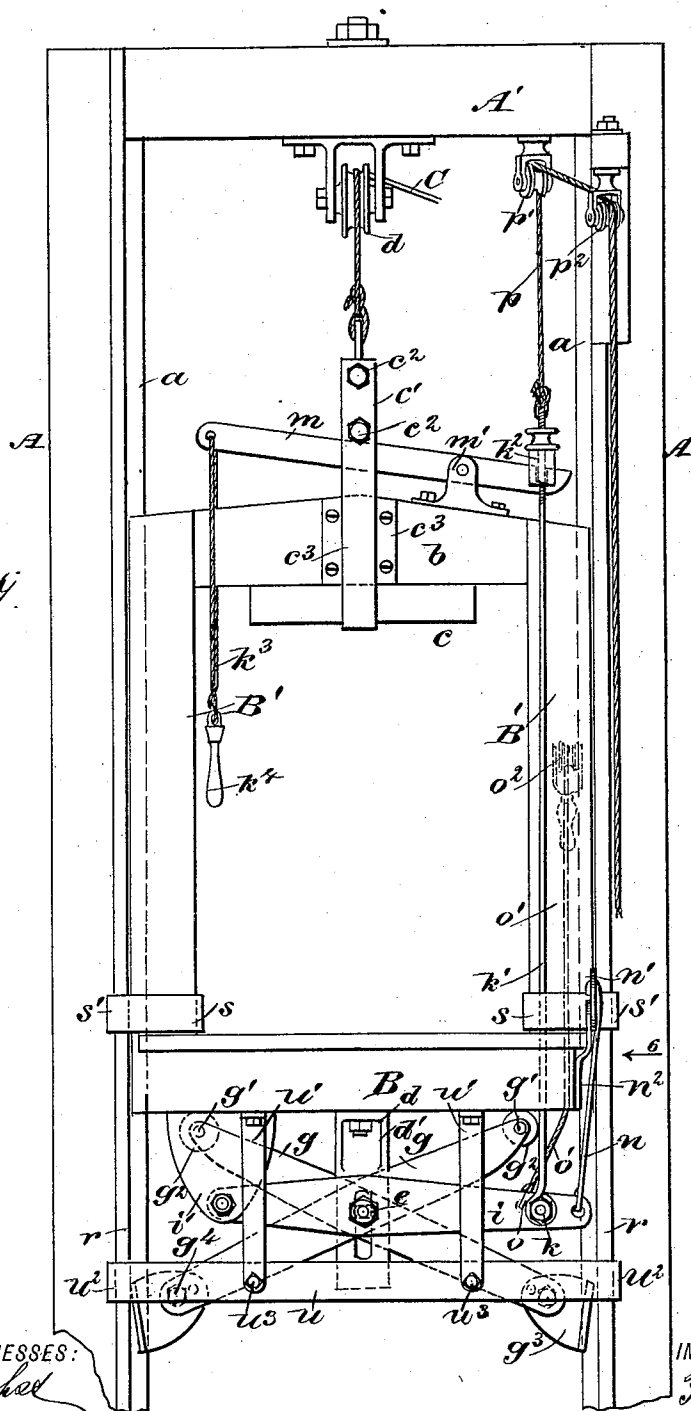
3 Sheets—Sheet 3.

P. SCHMIDT.
ELEVATOR.

No. 466,188.

Patented Dec. 29, 1891.

Fig 4.



WITNESSES:
Paul J. Fox
W. Sedgwick

INVENTOR
P. Schmidt
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

PHILIPP SCHMIDT, OF LA CROSSE, WISCONSIN.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 466,188, dated December 29, 1891.

Application filed August 4, 1891. Serial No. 401,683. (No model.)

To all whom it may concern:

Be it known that I, PHILIPP SCHMIDT, of La Crosse, in the county of La Crosse and State of Wisconsin, have invented new and useful

Improvements in Elevators, of which the following is a full, clear, and exact description.

This invention relates to improvements in passenger and freight elevators, and has for its object to further improve the construction of the elevator patented by me July 15, 1890, No. 432,443, whereby said device is rendered safer and stronger, as well as more convenient to control. Said additional improvements consist in the provision of safety-clamps which prevent the frame from spreading; in improved locking-arms that retain the platform or cage at any desired point of elevation and which from their form of construction are adapted to be made of metal cheaply; and they furthermore consist in the provision of a safety-brake for the platform or cage which is designed to be operated by foot-pressure and enable the operator to instantly arrest the elevator-platform, the invention further consisting in the construction of parts and their combination with previously-patented features, as is hereinafter described, and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a broken front elevation of the elevator with the parts adjusted to retain the platform in locked condition. Fig. 2 is a partly-broken vertical section on the line 2 2 in Fig. 1. Fig. 3 is a vertical section of the upper portion of the elevator-frame and also of parts attached to the elevator-platform, taken on the line 3 3 in Fig. 1. Fig. 4 is a detached perspective view of a composite locking-arm which is one of the features of the present invention. Fig. 5 is a reversed plan view, partly in section, taken on the line 5 5 in Fig. 1. Fig. 6 is a view of one side of the rectangular elevator-platform, parts attached thereto, and a frame-stanchion shown broken, taken opposite the arrow 6 in Fig. 7; and Fig. 7 is a broken front elevation of the device similar to Fig. 1, showing the platform and its controlling mechanism in unlocked adjustment.

To clearly distinguish the features of additional improvement from those embodied in Patent No. 432,443, a brief description of the latter will be given.

The frame of the elevator consists of two vertical stanchions A, that are spaced apart to admit the free travel between them of the elevator-platform B, said uprights being held together above by a cross-beam A'. Opposite tongues *a* are formed on or secured to the inner faces of the vertical stanchions A, which are engaged loosely by two grooved uprights B' of the rectangular platform B, which are held parallel and separated by a transverse bar *b*. A heavy weight *c* is suspended from the loose pulley *d* by a rope C, that hoists the platform B. Two plates *c'*, which are fastened to the weight at their lower ends, loosely embrace the cross-bar *b* and have their upper ends held spaced apart by transverse bolts *c''*, to one of which the rope C is secured, so that a draft on the rope will first elevate the weight until it engages the lower side of the cross-bar before the platform is raised, the plates *c'* being guided by the pieces *c''*, that are affixed to the cross-bar *b*. At the center below the platform B a bracket-frame *d*, having two parallel depending limbs *d'* in plate form, is secured thereto, said limbs being vertically slotted a short distance to receive a transverse bolt *e*, which latter is the fulcrum and connection of two composite locking-bars D. The peculiar construction of the locking-bars mentioned is one of the features of the present invention, and, as shown, each consists of two metal plates *g*, that are held spaced apart at one end by the pivot-bolt *g'* of a loose anti-friction roller *g''* and at the other end by a presser-foot that is composed of two angle-plates *g''*, secured between the ends of plates *g* and together by transverse bolts or rivets *g'''*. (See Fig. 4.) The locking-bars D have one member *g* of each inserted between the pair composing the other bar, and when in position, as shown in Fig. 1, are pivoted about midway between their ends upon the fulcrum-bolt *e*, the rollers *g''* bearing upon the lower surface of the platform B. The locking-bars D are sustained in position by two parallel bars *i*, that are pivoted at one end of each to the hanger-brackets *i'*. These bars lapping upon the exterior faces of the de-

pending limbs d' are oppositely and longitudinally slotted where they have contact with said limbs, so as to permit the fulcrum-bolt e to be inserted through them and loosely retain the parallel bars, locking-bars, and hanger-limbs connected when a nut e' is placed on the threaded end of the bolt e . A spacing-bolt k (shown in Fig. 2) retains the opposite ends of the parallel bars i properly separated, and at this end of the joined bars two suspension-rods k' are attached loosely to the spacing-bolt k , which rods extend vertically, having sufficient length to project above the cross-bar b , their upper terminals being connected by a transverse yoke k^2 . A tripping-lever m , which is pivoted to rock upon a block m' at a point about midway between the hanger-plates c' and yoke k^2 , has its upper edge loosely engaged with the yoke's lower edge, the opposite end of the lever having a pendent cord k^3 attached thereto, and on the lower end of this cord a weight k^4 is hung. The lever m passes between the hanger-plates c' and has its top edge in contact with the lower transverse bolt c^2 , so that the weight c will be adapted to rock the lever on the block m' and elevate the parallel bars i at their ends where the rods k' are attached to them. The overweight of the ends of the locking-bars D , whereon the presser-feet are affixed, causes these ends to be depressed by gravity when the hoisting-rope C is drawn upon, the inclination of said bars removing the presser-feet from contact with the inner surfaces of the stanchions A , whereon they bear forcibly when the rope is slackened or broken, and the weight c falls into the position shown in Fig. 1.

The manner of connecting the composite metallic locking-bars D with the tripping-lever m by providing the suspension-rods k' and yoke k^2 is a new feature of construction. Upon one of the parallel bars i , near its free end, an upwardly-extending link n is loosely attached by its lower end, the upper end of which link hooks fast to an end of a brake-lever n' , that is pivoted upon an arm n^2 on the edge of the platform B , as represented clearly in Fig. 6, so that a depression of the end n^3 of the brake-lever will vibrate the parallel bars i upwardly and cause the locking-bars D to engage their presser-feet with the stanchions A . This brake mechanism is also a feature of additional improvement for the elevator. At o an upwardly-extending cord o' is attached to one of the parallel bars i , which cord passes through the platform B and over a pulley o^2 , terminating (see Figs. 1 and 7) in a handle, which when pulled will vibrate the bars i and stop the platform. There is a rope p attached to the center of the yoke k^2 and extended upwardly to engage a sheave p' at the top of the elevator-frame, and thence to a pulley p^2 on a stanchion A of the frame, thence downwardly to the lower portion of the elevator, said rope being provided to afford means for arresting the platform B by

draft strain upon it, which may be produced exterior of the platform.

In elevators having stanchions A , as herein described, it has been found that such portions of the elevator-frame, if of considerable height, are liable to be spread apart when a heavy weight is imposed upon the platform B . To avoid this contingency, side strips r are affixed oppositely on the stanchions near their inner faces, which strips extend the entire height of the stanchion from their lower ends. The vertical strips r afford locking-ribs, which are loosely engaged by the hooked ends s' of the safety-clamps s , which are bent around the stanchions and also embrace the grooved uprights B' , to which they are affixed. These clamps, which are normally free to slide on the ribs r , will engage therewith if the stanchions are inclined to spread apart, and thus serve to prevent accidents that might result if the guiding connection between the platform and elevator-frame was destroyed by the swerving of the stanchions. The safety-clamps s , which are located above the platform B , are supplemented in their service by other safety-clamps u , that are hung from the platform by hanger-bars u' , and thus supported horizontally below it, their ends having lateral hooks produced on them, as at u^2 in Fig. 5, which hooks loosely bear upon the outer edges of the vertical ribs r , while the stanchions A are vertical and parallel. There are transverse stay-bolts u^3 introduced between the horizontal safety-clamps u at a proper distance apart and from their hooked ends u^2 , whereby the clamps are retained from lateral displacement and the connected parts rendered substantial without objectionable weight.

The safety clamping devices just described constitute another feature of the present improvement, which materially increases the safety of the elevator.

In service the breaking of the hoisting-rope C , which is attached to supports of the weight c , will release said weight, and its speedy fall will vibrate the tripping-lever m and cause the locking-bars D to be spread apart and engage with the stanchions A , as before explained, the supplemental weight k^4 assisting the vibration of the lever m , from which it is suspended.

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

1. In an elevator, the combination, with parallel locking-bars pivoted below the elevator-platform and adapted when spread apart to lock the platform fast to its upright supports and parallel vibratable bars controlling the divergence of the locking-bars, of a brake-lever located on the elevator-platform and connected to said parallel bars, substantially as described.

2. In an elevator, the combination, with parallel vertical stanchions, a vertically-movable platform having a hoisting-rope, parallel

composite locking-bars, each having a pivoted roller at one end and a presser-foot at the opposite end, parallel vibratable bars pivoted at one end to brackets secured to the under side of the elevator-platform, and a transverse fulcrum-bolt for said bars, of a brake-lever pivoted on the elevator-platform and a link connecting one end of said lever with one end of said parallel bar, substantially as described.

3. In an elevator, duplicate locking-bars adapted to secure the elevator-platform to an upright supporting-frame and release it, as required, each bar consisting of two metallic plates held spaced apart at one end by the pivot-bolt of a roller and at the other end by a presser-foot composed of two angle-plates fastened to the main plates by spacing-bolts, substantially as described.

4. In an elevator, the combination, with pivoted locking-levers below the elevator-platform, vibrating bars controlling the locking-bars, and a pivoted tripping-lever, of the suspension-rods k' , having their lower ends secured to the vibrating bars, the yoke k^2 , secured to the upper ends of the rods and adapted to be engaged by the tripping-lever,

and a rope p , secured to the said yoke and passed over guide-pulleys and thence down to the lower portion of the elevator, substantially as herein shown and described.

5. In an elevator having a vertically-movable platform or cage and parallel vertical stanchions joined together at the top, a safety clamping device comprising two upper clamping-plates on the frame of the elevator-cage, adapted to hook onto vertical ribs on the stanchions, and two lower clamping-bars hung from the platform of said cage and also adapted to hook onto said ribs, substantially as described.

6. In an elevator, the combination, with parallel stanchions and a vertically-movable platform or cage, of the clamp-bars u' , suspended from the platform and provided with hooks at their ends engaging the stanchions, and stay-bolts u^3 , secured to and connecting the clamp-bars, substantially as herein shown and described.

PHILIPP SCHMIDT.

Witnesses:

T. J. BARNEY,
PETER RIENHOLZ.