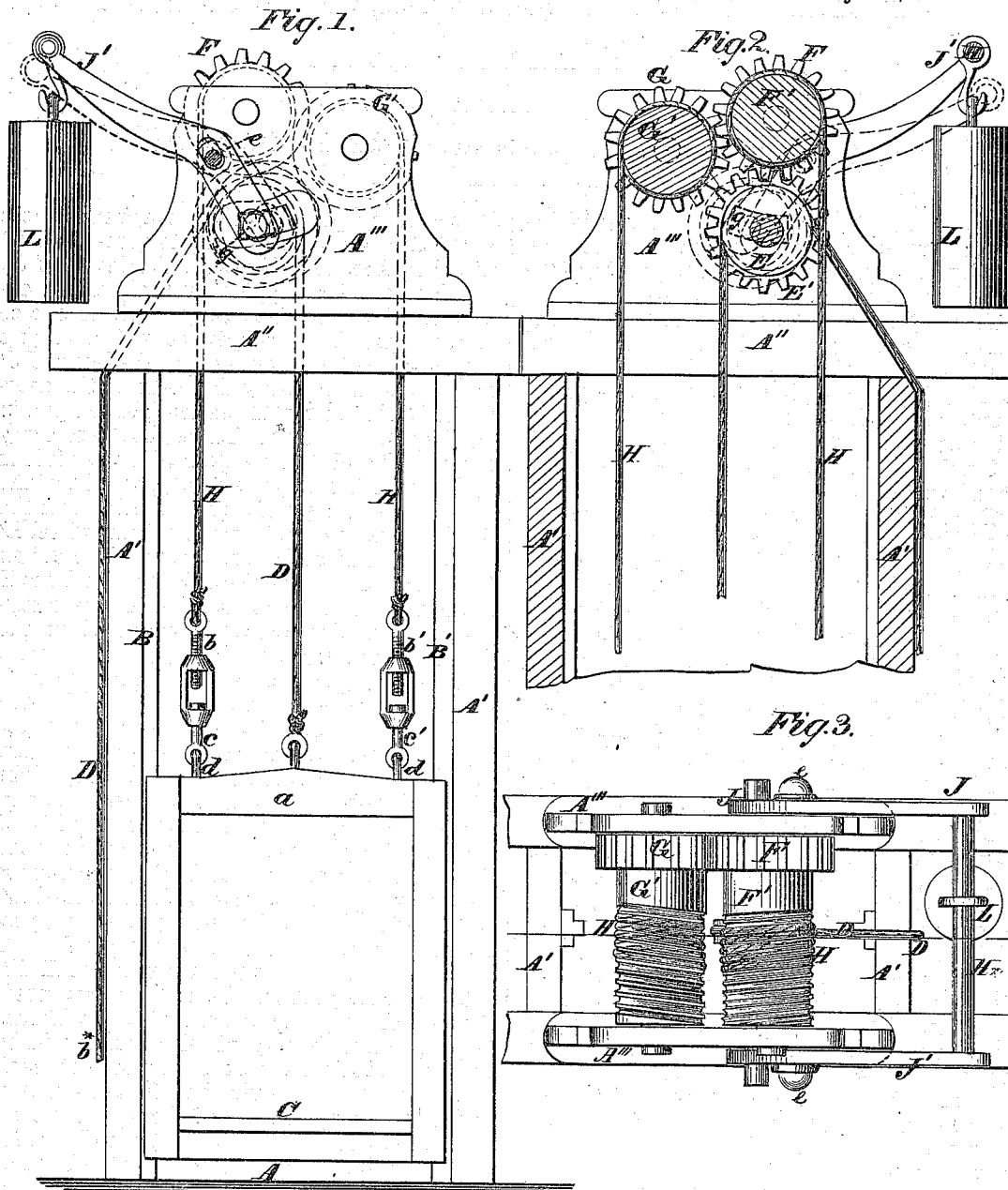


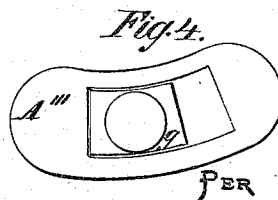
A. B. DARLING & JAMES BONES.
Improvement in Elevators.

No. 126,935.

Patented May 21, 1872.



Witnesses:
John Beecher.
N. A. Graham.



PER

Inventor:
Alfred B. Darling.
James Bones.
Munn & Co.
Attorneys.

UNITED STATES PATENT OFFICE

ALFRED B. DARLING AND JAMES BONES, OF NEW YORK, N. Y.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. 126,935, dated May 21, 1872.

Specification describing a new and useful Improvement in Safety-Elevators, invented by ALFRED B. DARLING and JAMES BONES, of the city, county, and State of New York.

Figure 1 is a side elevation of an elevator, showing our improvements in position for operation. Fig. 2 is a sectional elevation of the same. Fig. 3 is a plan view of our improvement. Fig. 4 is an enlarged elevation of the windlass-bearing.

Similar letters of reference indicate corresponding parts.

The object of this improvement is to prevent the falling of the elevator-platform in case of the breakage of the main lifting-rope.

A A' A'' A''', frame of the elevator; B B', guide-ribs, between which the platform C, which is of ordinary construction, rises and falls in the usual manner. The platform is operated by a central or main lifting-rope, D, connected to the cross-bar *a* of the platform C. This rope D passes one or more times over the main driving-windlass E; thence down behind or outside of the rib B, over a pulley to be placed at *b**; thence to a steam or manual windlass, from which the operating power for working the elevator is to be derived. E' is a gear-wheel upon the windlass E, said wheel being always in gear with a pinion, F, which is attached to a safety-windlass, F', and the pinion F is always in gear with another pinion, G, which is attached to another safety-windlass, G'. Safety-ropes H H' are wound, respectively, upon the windlasses F' G', and extend to the cross-bar *a* of the platform, the said ropes being attached to adjustable screw-bolts *b b'*, which form parts of the swivel-hooks *c c'*, which hook into eyes *d d'* on the cross-bar *a*, as shown. By turning the screw-bolts *b b'* the ropes H H' may be readily adjusted. The pinions F G and their windlasses have their bearings in the frame-pieces A''', which rest on the frame-pieces A''. The revolution of the gear-wheel E' operates the pinions F G, and thus causes the ropes H H' to wind or unwind, according to the direction in which the windlasses F' G' are operated by the wheel E'. The windlass E forms a locking device, and operates, as will be now described, so as to lock the safety-windlasses F G on breakage of the main lifting-rope. The bearings of windlass E and its gear-wheel E' are set in the ends of levers J

J', which are pivoted at *e* to the frame-pieces A'''. The windlass E and its gear-wheel E' are, therefore, movable with the levers J J'. The latter are connected at their upper extremities by a cross-bar, H, on which one or more weights, L, are suspended, which weights tend to press the lower ends of the levers J J' upward, so as to carry the teeth of the gear-wheel E' into gear with the teeth of the pinion G. This tendency of the weights L to carry the gear-wheel E' into gear with the pinions G is counteracted by the greater weight of the platform C on rope D, which holds down the windlass E, and so takes the gear-wheel E' away from and out of contact with the pinion G. When the gear-wheel E' and windlass E are thus pressed down their bearings are supported in sliding blocks *g* arranged in the frame-pieces A''', in slotted openings therein, which openings are of such form as to permit a rising movement of the said blocks. Should the rope D suddenly break, the safety-ropes H H' then receive the weight of the platform, and, the windlass E being relieved of the weight of the platform, the weights H then act upon the levers J J', which lift the windlass E and carry up its gear-wheel E' into contact with the pinion G, and thus both of the pinions F G are brought into gear with the wheel E', which effectually locks the pinions F G, preventing their rotation, while the platform C remains supported by the safety-ropes H H', the fall of the platform being thus prevented. As here shown, only one end of each windlass is provided with gear-wheels; but it will be readily understood that both ends of each windlass may be provided with gear-wheels, and that the operation will be the same as described. Instead of the weights H and levers J, springs may be applied at the back of the blocks *g* to move the windlass E, as herein described.

We do not limit or confine ourselves to the precise forms or arrangements of the parts herein described, as they may be varied without departing from our invention.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the safety-windlasses and their ropes, of the locking device and its rope, operating substantially as herein

described, so as to lock the said windlasses on breakage of the main lifting-rope, as set forth.

2. The combination, with the movable windlass and its rope, of the weighted levers J, or equivalent devices for moving the said windlass into lock with the windlasses on which the safety-ropes are wound, substantially as herein described.

3. The combination of the lifting-rope with the movable windlass and the platform, in the

manner substantially as described, so that said rope will operate the windlass and platform and at the same time keep the windlass out of lock with the safety-windlasses, as set forth.

ALFRED B. DARLING.
JAMES BONES.

Witnesses:

S. B. CHAFFEE,
E. R. PEASE.