(No Model.)

2 Sheets—Sheet 1.

B. N. DEBLIEUX.

ELEVATOR.

No. 438,913. Patented Oct. 21, 1890.

Fig: 1.

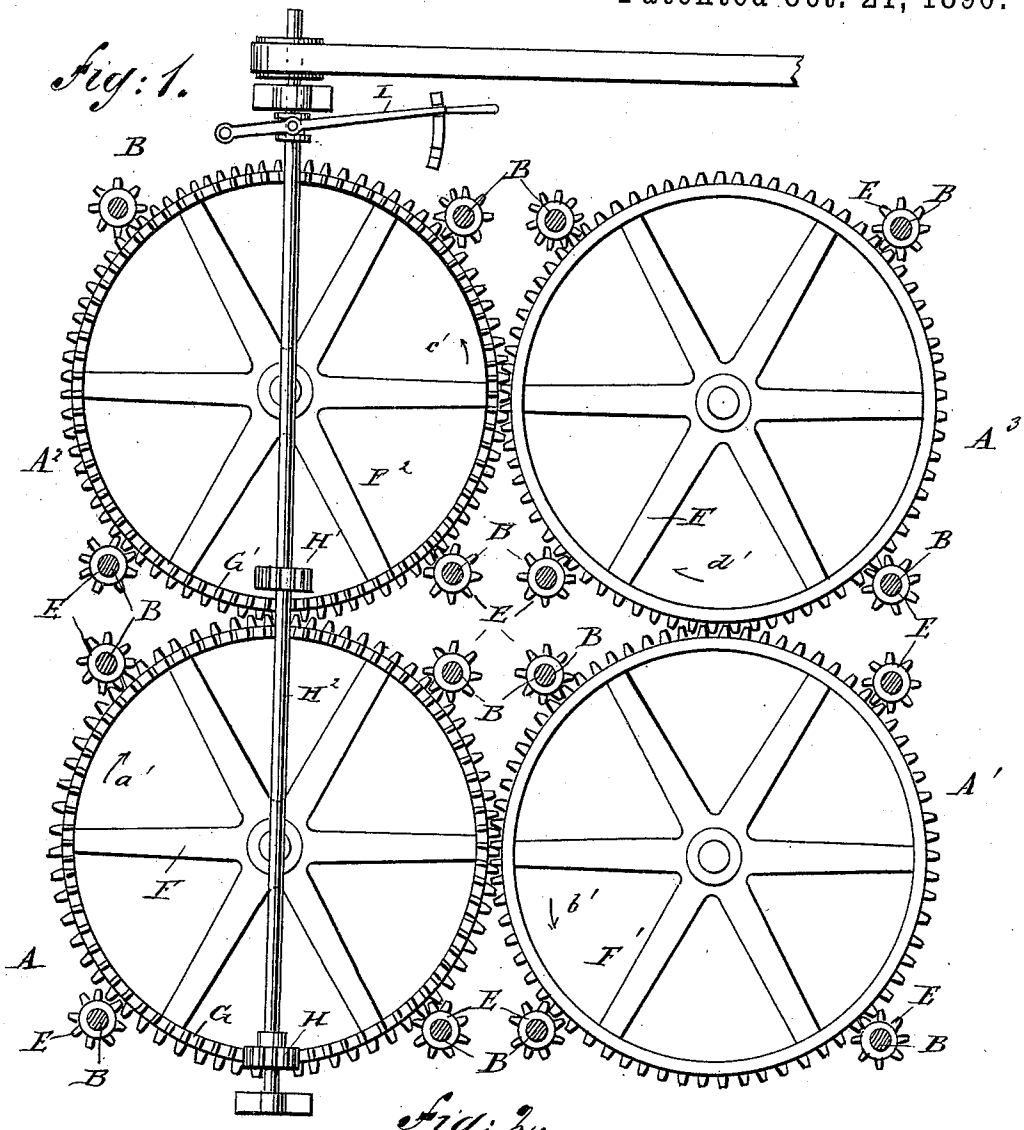
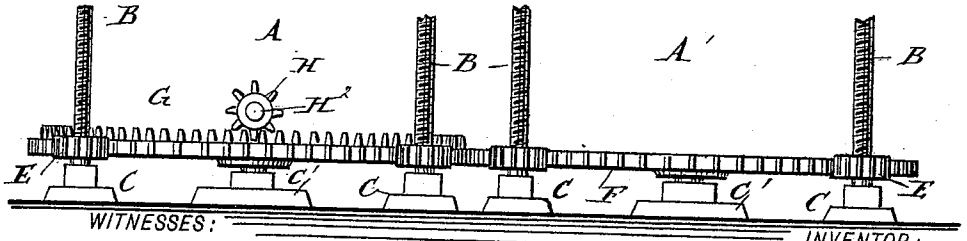


Fig: 2.



WITNESSES:

Chas. Nida.

C. Sedgwick

INVENTOR:

B. N. Deblieux

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

2 Sheets—Sheet 2.

B. N. DEBLIEUX.

ELEVATOR.

No. 438,913. Patented Oct. 21, 1890.

Fig: 3.

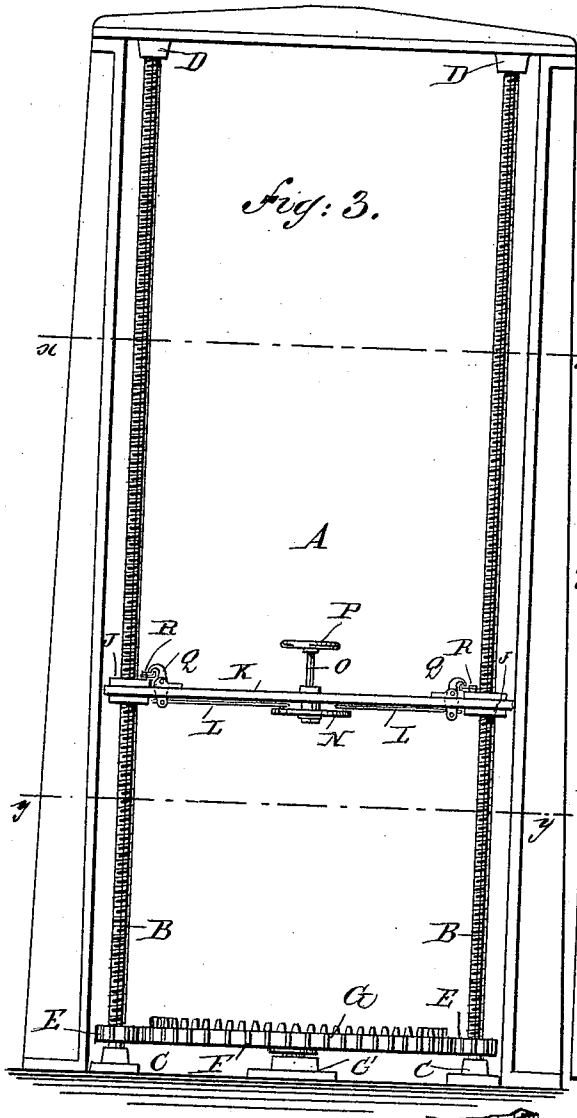


Fig: 4.

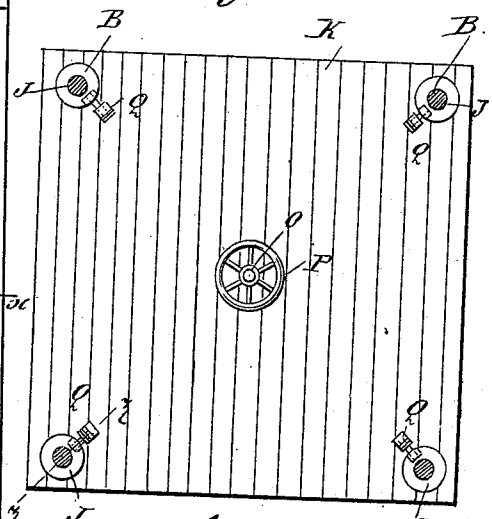


Fig: 5.

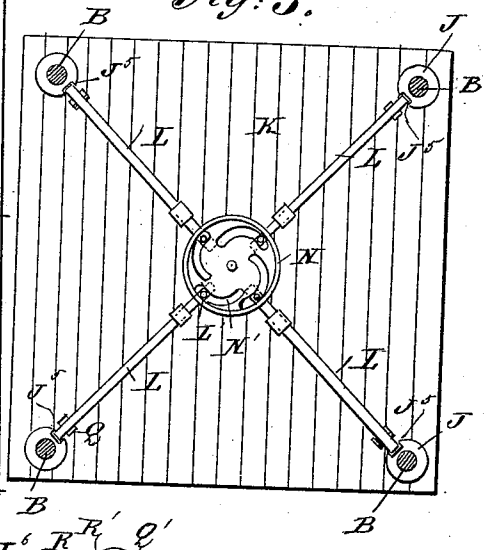
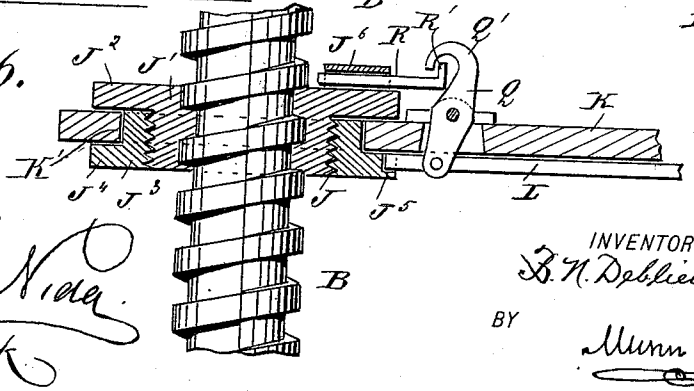


Fig: 6.



WITNESSES:

Chas. Nida.

C. Sedgwick

INVENTOR:

B. N. Deblieux

BY

Munn & Co

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN N. DEBLIEUX, OF BAY ST. LOUIS, MISSISSIPPI.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 438,913, dated October 21, 1890.

Application filed February 25, 1890. Serial No. 341,670. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN N. DEBLIEUX, of Bay St. Louis, in the county of Hancock, and State of Mississippi, have invented a new and Improved Elevator, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved elevator which is simple and durable in construction and very effective in operation, insuring complete safety and a rapid and uniform movement of the cages or platforms, both in ascending and descending.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out 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 sectional plan view of the improvement as arranged for four elevators operated simultaneously. Fig. 2 is a side elevation of the same in part. Fig. 3 is a side elevation of a single elevator. Fig. 4 is a sectional plan view of the same on the line x x of Fig. 3. Fig. 5 is an inverted sectional plan view of the same on the line y y of Fig. 3, and Fig. 6 is an enlarged side elevation of part of the improvement on the line z z of Fig. 4.

The elevator may be constructed single, as shown in Fig. 3, or in sets of two, three, four, or more, as shown in Figs. 1 and 2, in which latter case they are all driven simultaneously from a common source of power. Each elevator is provided with a series of screw-rods B, preferably four in number, as shown in the drawings, held vertically and extending throughout the height of the building in which the elevator is to be used. The screw-rods B are mounted to turn in suitable bottom and top bearings C and D, respectively arranged in suitable frame-work or foundations located in the building. (See Fig. 3.)

On each of the screw-rods B, at or near its lower end, is secured a pinion E, meshing into a gear-wheel F, mounted to turn in suitable bearings C′, held between the screw-rods B, so that the several pinions mesh into the gear-wheel F. The latter is also in mesh with a gear-wheel F′, similar to the gear-wheel F, and forming the driving-wheel of the second elevator A′. The gear-wheel F also meshes into the driving-gear F^2 of the elevator A^2, and the two gear-wheels F′ and F^2 are in mesh with the gear F^3 of the fourth elevator A^3, as is shown in Fig. 1. Each of the gear-wheels F, F′, F^2, and F^3 meshes into the sets of pinions E, secured on the sets of screw-rods B of the several elevators, as is plainly shown in the said Figs. 1 and 2.

On the top of the horizontally-arranged gear-wheels F and F^2 are formed the bevel gear-wheels G and G′, adapted to mesh into pinions H and H′, secured on a transversely-extending shaft H^2, mounted to turn in suitable bearings set on the foundation of the elevators. The gear-wheels H and H′ are so arranged on the shaft H^2 that when one is in mesh with its respective gear-wheel the other is out of mesh, and vice versa. In order to accomplish this the shaft H^2 can be shifted laterally by a suitable shifting mechanism I, which throws one pinion in mesh with its gear-wheel and the other out of mesh, and vice versa, on reversing the said shifting mechanism. It will be seen that when the shaft H^2 is rotated and the pinion H is in mesh with its bevel gear-wheel G, then the latter is rotated in one direction—say, in the direction of the arrow a'—so that the other gear-wheels F′, F^2, and F^3 are turned simultaneously in the direction of the arrows b', c', and d', respectively. (See Fig. 1.) Now when the shaft H^2 is shifted the pinion H is thrown out of mesh with the gear-wheel G and the pinion H′ is thrown in mesh with the pinion G′. The rotary motion of the several gear-wheels F, F′, F^2, and F^3 is then reversed and the screw-rods B are turned in an opposite direction.

On the screw-rods for each elevator A, A′, A^2, and A^3 are fitted to screw the nuts J, supporting the platform or cage K, extending between the several screw-rods of each elevator. Each of the nuts J is constructed in such a manner as to turn in the platform or cage, and it is adapted to turn with its screw-rod B when the platform is to be held stationary at a landing. For this purpose each nut J is made of two parts J′ and J^3, screw-

ing one in the other, and of which the part J′ is provided with a thread engaging the thread of the screw-rod B. The part J′ is also provided on its top with an annular flange J^2, resting on top of the platform K, and the other part J^3 of the nut J is provided with a flange J^4, engaging the under side of the said platform. The opening K′ in the platform K is adapted to receive the exterior of the part J^3, so that the latter, and consequently the entire nut J, is free to turn in the platform in case the nut is clamped to its screw-rod. When this is not the case, the turning of the screw-rods B causes an up or down movement of the several nuts J, to thereby raise and lower the platform K, according to the direction in which the screw-rods B′ are revolved, as previously described.

In order to lock the nuts J on each platform K to the latter, a recess J^5 is formed in the periphery of the flange J^4, and this recess is adapted to be engaged by a rod L, mounted to slide in suitable bearings in the under side of the platform K, and carrying at its inner end a pin L′, engaging a cam-groove N′, formed on a disk N, secured on a vertically-extending shaft O, mounted to turn in suitable bearings in the center of the platform K and extending to the top of the latter.

On the upper end of the shaft O is arranged a hand-wheel P, operated by the elevator-attendant to turn the cam-disk N so as to move the several rods L outward or inward to engage or disengage the several recesses J^5 in the nut J of the elevator. When the rods L are in the position shown in Figs. 5 and 6, they engage with their outer ends the recesses J^5 in the nuts J, thus locking the nuts to the elevator-platform K, whereby the platform K ascends and descends with the nuts screwing on the revolving screw-rods B.

Each outer end of the rods L is pivotally connected with a lever Q, passed upward through an aperture in the platform K and provided at its upper end with a hook Q′, adapted to engage a lug R′, formed on a bolt R, held to slide in a bearing J^6, formed on top of the flange J^2 of the nut part J′. The free end of the bolt R is adapted to engage the respective screw-rod B, and is pressed in contact with the said screw-rod by the lever Q, when the rods L are caused to slide inward and out of the recesses J^5 in the nut J. Thus when the operator desires to stop ascending or descending the platform at any of the landings he turns the hand-wheel P so as to cause the rods L to slide inward, thereby withdrawing the said rods from the recesses J^5 in the several nuts J, and at the same time the inward movement of the said rods actuates the several levers Q, which thereby swing outward at their upper ends and abut against the bolts R, which are thus forced in frictional contact with the revolving screw-rods B, thereby holding the nuts J to said screw-rods. The platform K now remains at a standstill, while the screw-rods B continue to rotate as the nuts J revolve in the said platforms with the screw-rods B. When the operator again desires to start the platform up or down, according to the direction in which the screw-rods are running, he turns the hand-wheel P so that the cam-disk N forces the rods L outward, whereby the latter engage with their free ends the several recesses J^5 in the nuts J, which in revolving bring those recesses opposite the said rods L to be engaged. The outward sliding movement of the said rods causes the inward swinging movement of the upper parts of the levers Q, which, by their hooks Q′, pull on the lugs R′ of the bolts R, thus withdrawing the latter from the screw-rods B. As the nuts J are now again locked to the platform K by the rods L, they rise or fall and move the platform in the same direction, according to the direction in which the screw-rods B are running. When several elevators are geared together, as is shown in Fig. 1, the attendant reverses the movement of the elevators at the proper time. The platforms of the several elevators, however, can be stopped or started independently of each other by their respective attendants in the manner above described.

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

1. In an elevator, the combination, with a series of screw-rods mounted to turn in unison, of nuts engaged by the said screw-rods, a platform supported by the said nuts and in which the latter are mounted to turn loosely, and a mechanism held on the said platform and adapted to lock the said nuts to the said platform, substantially as shown and described.

2. In an elevator, the combination, with a platform, of a series of flanged nuts mounted to turn loosely on and supporting the said platform and each provided with a recess in its periphery, rods mounted to slide on the said platform and adapted to engage recesses in the said nuts, and a cam-disk mounted to turn on the said elevator and adapted to actuate the said rods to move the latter in and out of contact with the recesses in the said nuts, substantially as shown and described.

3. In an elevator, the combination, with a series of screw-rods, of a platform extending between the said screw-rods, flanged nuts mounted to turn loosely in and supporting said platform, rods mounted to slide on the said platform, a cam-disk for simultaneously actuating the said rods, levers pivoted on the said rods, and sliding bolts mounted on the said nuts and actuated by the said levers to cause the said nuts to revolve with the said screw-rods, substantially as shown and described.

BENJAMIN N. DEBLIEUX.

Witnesses:
E. H. HOFFMANN,
G. W. ELLIS,
JOSEPH F. CAZENEUVE.