A. Betteley,

Elevators,

No. 24,923, Patented Aug. 2, 1859.

Fig. 1.

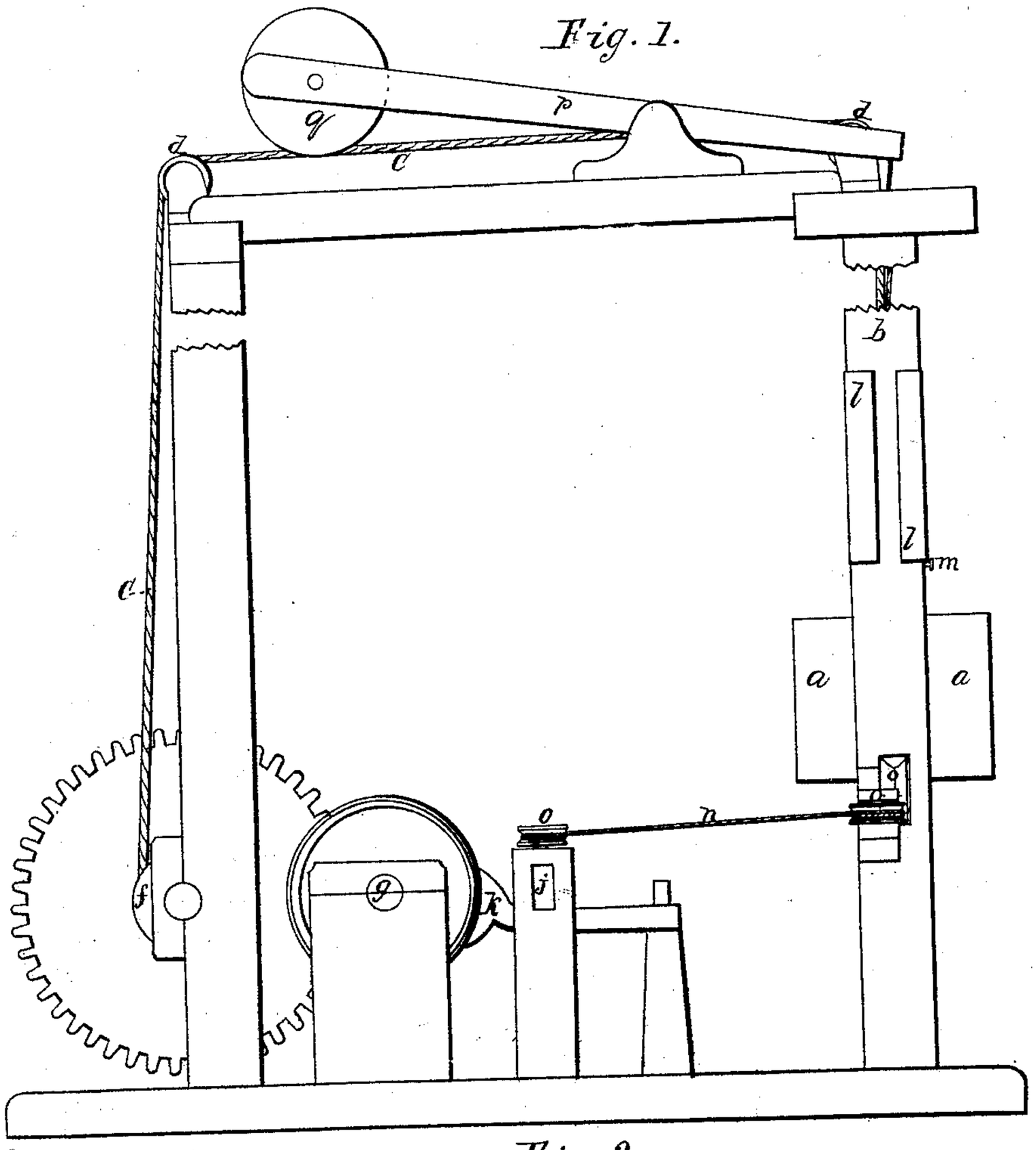
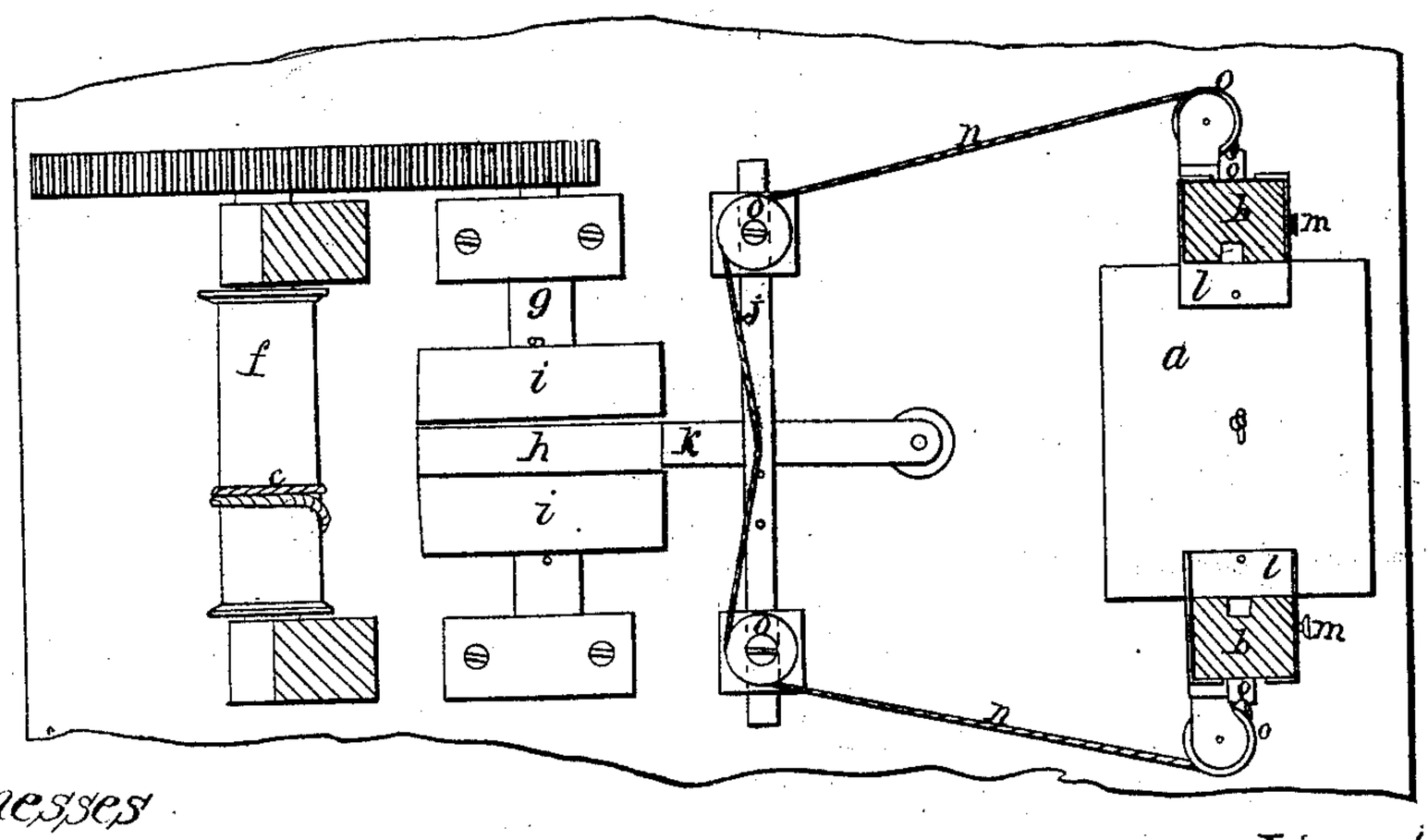


Fig. 2.



Witnesses
W. B. Gibson

Inventor
Albert Betteley

UNITED STATES PATENT OFFICE.

ALBERT BETTELEY, OF BOSTON, MASSACHUSETTS.

ELEVATOR FOR WAREHOUSES, FACTORIES, MINES, &c.

Specification of Letters Patent No. 24,923, dated August 2, 1859.

To all whom it may concern:

Be it known that I, ALBERT BETTELEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Elevators such as are used in warehouses, factories, mines, &c., for raising and lowering persons, merchandise, ores, &c., designed to increase the safety of such apparatus by preventing overwinding and unnecessary and detrimental unwinding of the wire or the rope or chain by which the car is upheld; and I do hereby declare that the following, taken in connection with the accompanying drawings, which form a part of this specification, is a description thereof so full and exact as to enable those skilled in the art to practice my invention.

My invention is applicable in that part which I have mentioned as preventing overwinding but which may be more definitely defined as preventing the car from attaining an altitude beyond the limits of the mechanism where rupture would ensue and the fall of the car or other accident would be the result to elevators in which the car is raised by any mechanical means. The other part of my invention, which prevents superfluous unwinding, is applicable only to those elevators where a rope or its equivalent is used to raise and lower the car. The first part of my invention is rendered useful because of defect of material and workmanship which render accidents and casualties liable to happen to the apparatus of whatever nature used to change the direction of movement of the car or which stops its altogether, and which is usually known as the shipper apparatus, and because also of the carelessness or ignorance of those who operate such mechanism, for by my automatic auxiliary shipper the non-operation of the one designed for constant use is rendered harmless. The usefulness of the second part of my invention is found in preventing the elevation of the car which would ensue upon the continued rotation of the machinery in one direction and which, as it would be the result of oversight, might give rise to accident.

Figure 1 is a side elevation and Fig. 2 a plan of an elevator mechanism embodying my invention.

The car (*a*) is guided in its movement by the posts (*b*) and is elevated and lowered by the rope or chain (*c*) passing over the guide sheaves (*d*) to the windlass (*f*) which is connected by gearing to the shaft (*g*) to which is affixed the tight pulley (*h*) and on which the pulleys (*i*, *i*,) are free to rotate. The arrangement of belts, tight and loose pulleys (*h*) and (*i*, *i*), shipper bar (*j*) and pins is well known and was described in the patent granted to me May 31st, 1859. The shipper bar (*j*) is moved to adjust the belts on the pulleys and to control the car by the action and position of the brake (*k*) by a shipper rope or chain which is not represented in the drawings because its general arrangement and connection with the shipper bar (*j*) is common and well known. Two weights (*l*, *l*,) are arranged to slide freely guided by the posts (*b*) and so as to rest upon supports (*m*) when not called into use. The shipper cords (*n*, *n*,) are secured by their ends to the weights (*l*, *l*,) and to the shipper bar (*j*), being guided by the sheaves (*o*, *o*, *o*, *o*,) in such a manner that when the weights rest on their supports (*m*) each cord (*n*) will alternately be loose or taut as the brake (*k*) is opposite one or the other of the loose pulleys (*i*, *i*,) and so also that when the weights are raised by the too great elevation of the car the brake is drawn by the cords (*n*, *n*,) into a central position between the loose pulleys and so that it acts to check and stop the rotation of the tight pulley and consequently further elevation of the car. Thus any accident is prevented from overwinding, and the car remains suspended until the shipper ropes (*n*, *n*) are purposely loosened so that the shipper can be operated by hand in such a manner as to lower the car to any desired place.

It will be obvious that no strain is ever brought upon the described automatic auxiliary safety shipping apparatus except in the event of such an accident to the usual shipper cords as would prevent stopping the rotation of the winding gear and the too great elevation of the car.

The lever (*p*) is pivoted to the upper part of the frame work, bearing at one end a weight (*q*) which rests upon the rope (*c*) while to the other end of the lever the weights (*l*, *l*,) are connected by a continuation of the cords (*n*.) It is evident that while the rope (*c*) is kept taut between the windlass and the car, the weight (*q*) and lever (*p*) will remain in the position shown in Fig. 1 and it will be obvious that when

the car rests upon any obstruction to its downward movement further unwinding of the rope (*c*) will cause it to slack so that the weighted end of the lever (*p*) will fall, elevating the weights (*l*), and by means of the cords (*n*) operate the brake, bringing it upon the pulley (*h*) thereby stopping the further rotation of the windless, which if continued would unwind the coils of rope from its barrel and wind them up again reversed, thereby elevating the car. Although this might not result in accident, owing to the provision first described, yet it would result in a loss of time and power. It is therefore desirable to prevent the possibility of such an occurrence.

It will be seen that the manner of connecting the movable pieces (*l*) and the weighted lever (*p*) to the shipper bar (*j*) may be varied without departing from the spirit of my invention.

Having described my invention, what I claim therein as new, and desire to secure by Letters Patent of the United States is—

1. The combination of an automatic safety shipper and brake apparatus with an elevator, substantially as described, arranged to operate only to prevent an elevation of the car beyond a fixed limit.

2. The combination of the weight (*q*) flexible rope or chain (*c*) with the shipping and brake controlling mechanism, substantially in the manner and for the purpose set forth.

ALBERT BETTELEY.

Witnesses:
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W. B. GLEASON.