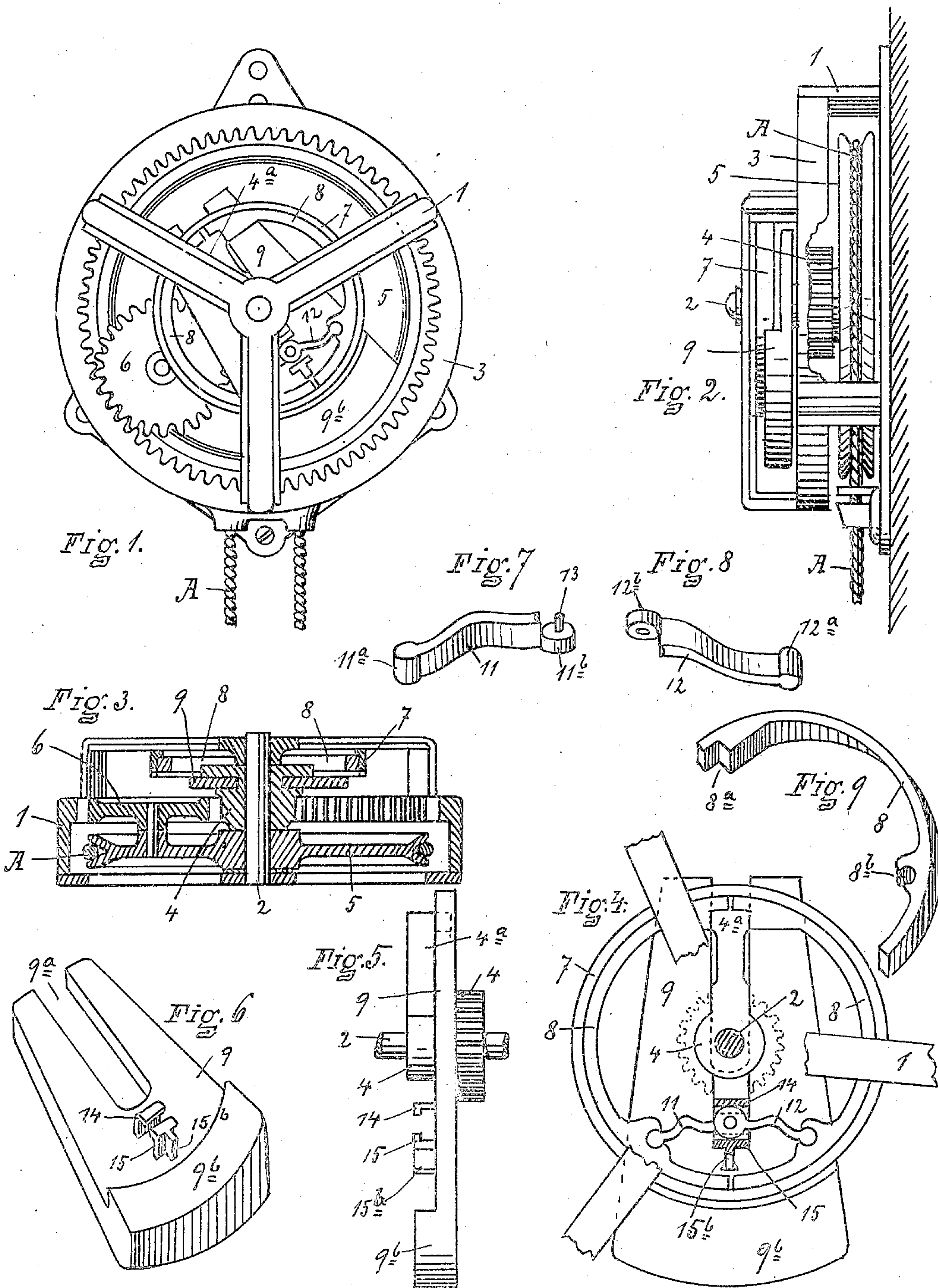


No. 818,526.

PATENTED APR. 24, 1906.

C. F. DAVY.
FIRE ESCAPE.

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WITNESSES
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FIRE-ESCAPE.

No. 818,526.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES F. DAVY, of Mohawk, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form part of this specification.

The object of my invention is to provide an improvement in the friction or governing mechanism for a fire-escape, which is simple and compact in construction and very efficient and sensitive in operation and which may be cheaply constructed and easily assembled.

In the drawings, Figure 1 shows what may be termed a "face" view of a fire-escape embodying the features of my improvement, the inclosing casing usually provided in connection therewith being removed. Fig. 2 shows a side elevation of the same, a small portion being broken out to better illustrate the construction. Fig. 3 shows a section through the center of the machine. Fig. 4 shows a partial plan view, parts being broken off and removed and some of the details shown in section. Fig. 5 shows an edge view of the brake or friction actuating weight, together with other details. Fig. 6 shows a perspective view of the friction-actuating weight. Figs. 7 and 8 show in perspective two toggle-joint levers employed in the construction. Fig. 9 shows in perspective one of the semicircular friction-shoes employed in the construction.

Referring to the reference letters and figures in a more particular description, 1 indicates a frame which is particularly adapted and intended to be secured in a fixed position on a vertical wall. In this frame is mounted the shaft 2, which may either be held stationary or rotate, as preferred. Encircling the shaft 2 and formed integral with the frame is an internal toothed gear 3, which remains stationary. Mounted on the shaft 2 so as to rotate freely and having its toothed portion in the same plane with the internal gear 3 is a gear-pinion 4. Also mounted on the shaft 2 to rotate freely and independently there is mounted a grooved cable-wheel 5. Pivotally mounted on the wheel 5 is a planet-gear

6, which at the inner side engages with the pinion 4 on the shaft 2 and at the outer side engages with the internal gear 3. Secured in the frame and encircling the shaft 2 there is also provided a stationary friction-ring 7, which ring receives semicircular expandible friction-shoes 8. At adjacent ends these friction-shoes 8 are provided with a notch or recess 8^a, which receives the outer end of an arm 4^a, provided on and integral with the pinion 4 on the shaft 2, so that when the pinion 4 is rotated around the shaft 2 the shoes 8 will be caused to move in a circle around the shaft 2 within the friction-ring 7. In the sides of the pinion 4 and including in part the arm 4^a there are provided grooves which receive the thinner portion of the actuating-weight 9, which weight has a plate-like portion slotted, as indicated at 9^a, to receive that portion of the pinion 4 which lies between the aforesaid grooves. By this arrangement the weight is mounted on the pinion 4 and is free to have a radial movement with reference thereto. It may be noted that the main portion of the weight 9 is in the head 9^b thereof, which is the effective part so far as weight is concerned. The plate-like portion of the weight 9 also serves to support the shoes 8 in their position within the friction-ring 7, or rather prevent displacement from the friction-ring toward the middle of the machine. The weight 9 is connected with the friction-shoes 8 by means of the toggle-joint levers 11 and 12. These levers at their outer ends are provided with substantial cylindrical heads 11^a and 12^a, respectively, which heads are respectively adapted to engage in a suitable recess 8^b, provided in the friction-shoes 8. The engaging ends of the toggle-joint levers 11 and 12 are also provided with cylindrical heads 11^b and 12^b, respectively, which are halved together, as shown, and provided with a pin 13, which prevents relative displacement. The inner ends of the toggle-joint levers 11 and 12 are received between projections 14 and 15 on the weight 9, the upper ends of which projections are preferably hooked inwardly, so as to retain the toggle-joint levers in position against lateral displacement. These toggle-joint levers are also preferably made crooked, as shown, whereby their length can be readily adjusted by straightening them or bending them more, as occasion requires. The projection 15 also preferably includes a projecting portion 15^b, adapted to strike the friction-shoes 8 and prevent the outward movement of the weight 9

to such an extent as to pass the toggle-joint levers by the dead-center or even allow them to come so close to a straight line as to not open with facility when the pressure thereon of the weight is relieved.

In connection with the wheel 5 there is provided a cable A, which will be of sufficient length for the purpose and preferably provided at each end with a sling or some suitable means for attachment to a person. It will be noted that as one run of the cable A is drawn out or paid out the wheel 5 will rotate and with it at a much more rapid speed the pinion 4, the weight 9, and the friction-shoes 8. The centrifugal force acting through the medium of the weight and the toggle-joint levers 11 and 12 serve to expand the friction-shoes 8 within the ring 7, and which act as a brake and serve to retard the rotation of the wheel 5. The radial movement of the weight 9 is very trifling, and it simply serves to expand the shoes 5 with more or less pressure, depending on the speed at which the wheel 5 is rotated, and the arrangement of all the parts is such that it will allow the cable to be paid out at the desired speed with very little regard as to whether a heavy weight or a light weight is attached thereto.

It will be noted that the mechanism runs with equal facility in either direction and that when one run of the cable has been paid out as far as desired a weight may be attached to the other run, which will then reverse the movement of the mechanism.

It is evident that in lieu of the wheel 5 a reel may be provided and the cable wound on the reel instead of extending from the machine in two runs.

Various modifications and changes may be made in the construction without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. A fire - escape comprising a frame, a shaft carried thereby, a wheel journaled upon said shaft, a cable running upon said wheel, a stationary ring about said shaft, a centrifugally-movable weighted member, semicircu-

lar brake-shoes adapted to engage with the stationary ring, a rotatable pinion upon the shaft driving said brake-shoes and carrying said weighted member, gearing connecting the said wheel with said gear-pinion for driving the same, a toggle-joint connecting the said brake-shoes and engaging with the weight, substantially as set forth.

2. A fire-escape comprising a frame and a shaft carried thereby, a wheel mounted upon the shaft within the frame and a cable around the wheel, a stationary friction-ring around said shaft, semicircular expanding brake-shoes within the stationary ring, a gear-pinion mounted on the shaft and engaging with and serving to drive said friction-shoes, a centrifugally-movable weight also mounted upon said gear-pinion, a toggle-joint-lever connection between said semicircular brake-shoes and engaging with the said centrifugally-movable weight to expand the shoes within the friction-ring, a stationary internal gear in said frame surrounding said gear-pinion and a planet-gear on the said wheel engaging both with the said internal gear and the said gear-pinion on the shaft, substantially as set forth.

3. The combination in a fire-escape of an inclosing substantially circular frame, a shaft axially mounted therein, a wheel mounted upon said shaft and inclosed within the frame, a cable around said wheel, a stationary ring surrounding the said shaft, semicircular brake-shoes arranged within said stationary ring, a rotatable pinion provided upon said shaft and engaging with said friction-shoes to drive the same, a centrifugally-movable weight mounted also upon said pinion, a toggle-joint-lever connection between said brake-shoes connected at the knuckle with the said movable weight, and a gearing for driving the said gear-pinion from the said wheel, substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 18th day of January, 1906.

CHARLES F. DAVY.

Witnesses:

LEON L. ARTHUR,
E. S. HESSE.