

No. 776,483.

PATENTED DEC. 6, 1904.

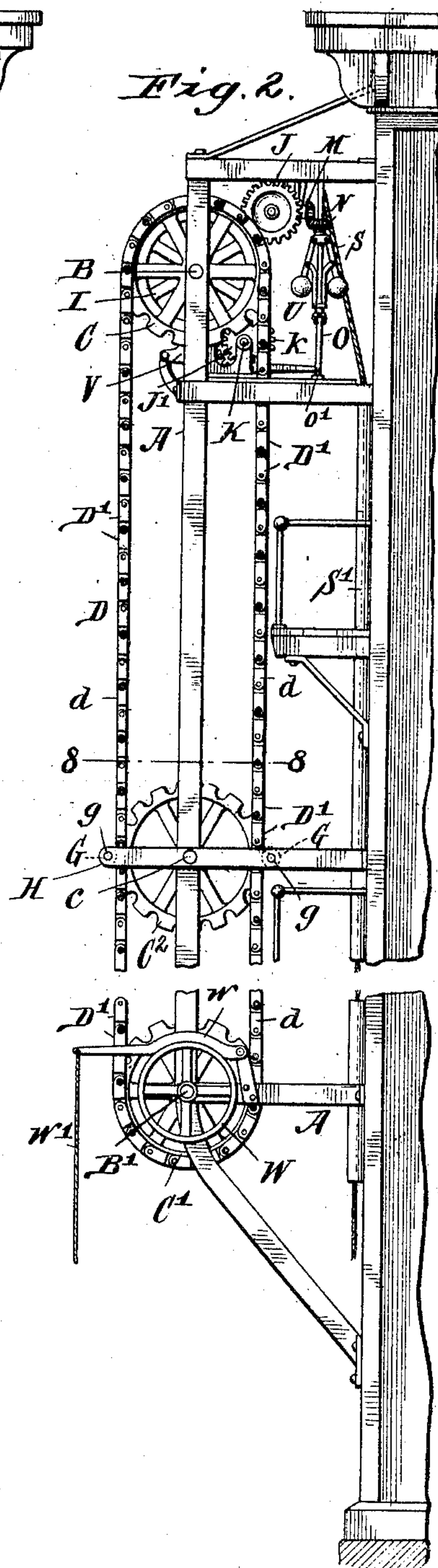
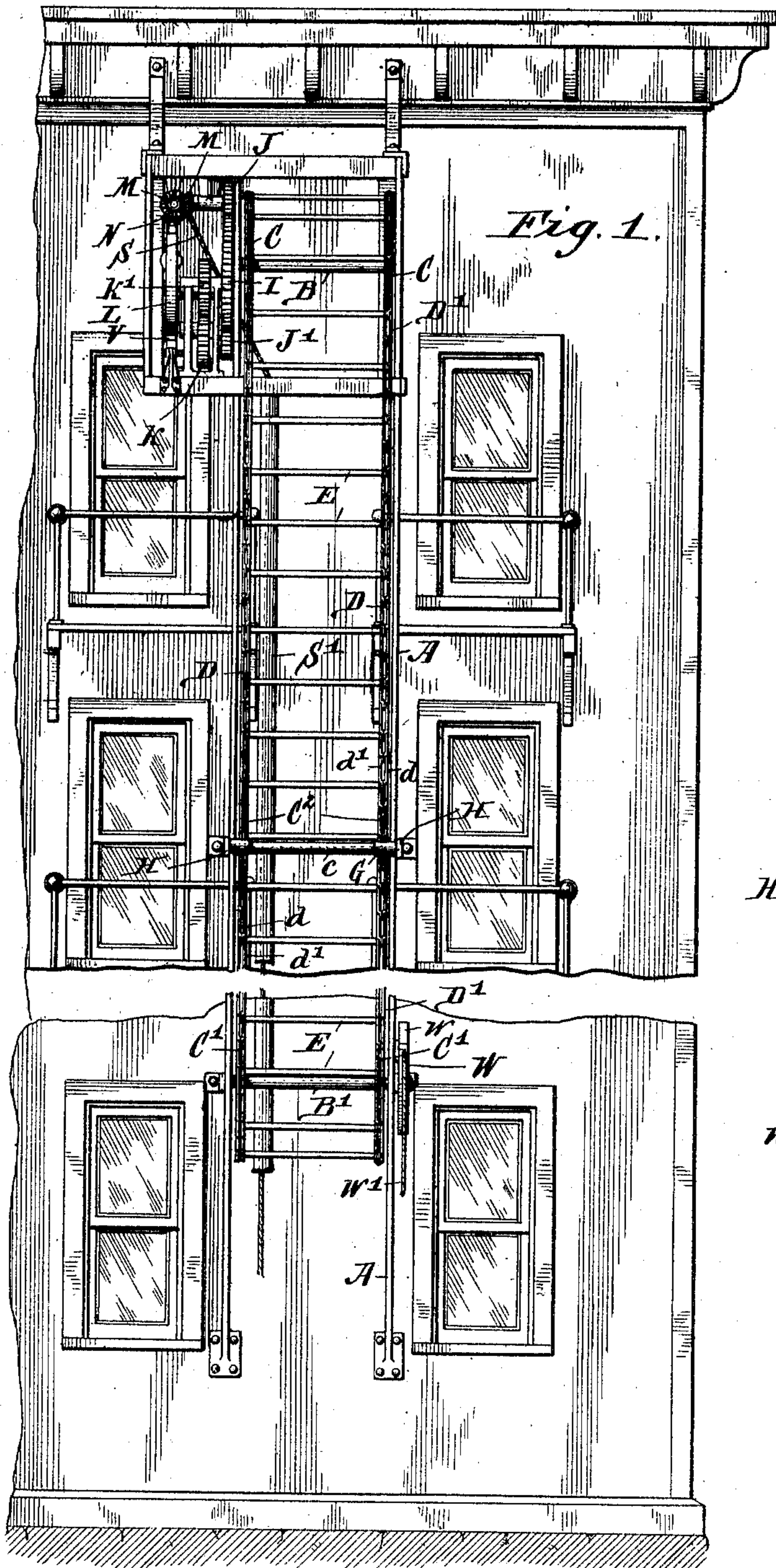
J. S. ANDREWS.

FIRE ESCAPE.

APPLICATION FILED MAR. 21, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Bert Wilson
Edwin Maier

Josiah S. Andrews, Inventor.
By Neuhart & Burkhardt
Attorneys.

J. S. ANDREWS.

FIRE ESCAPE.

APPLICATION FILED MAR. 21, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

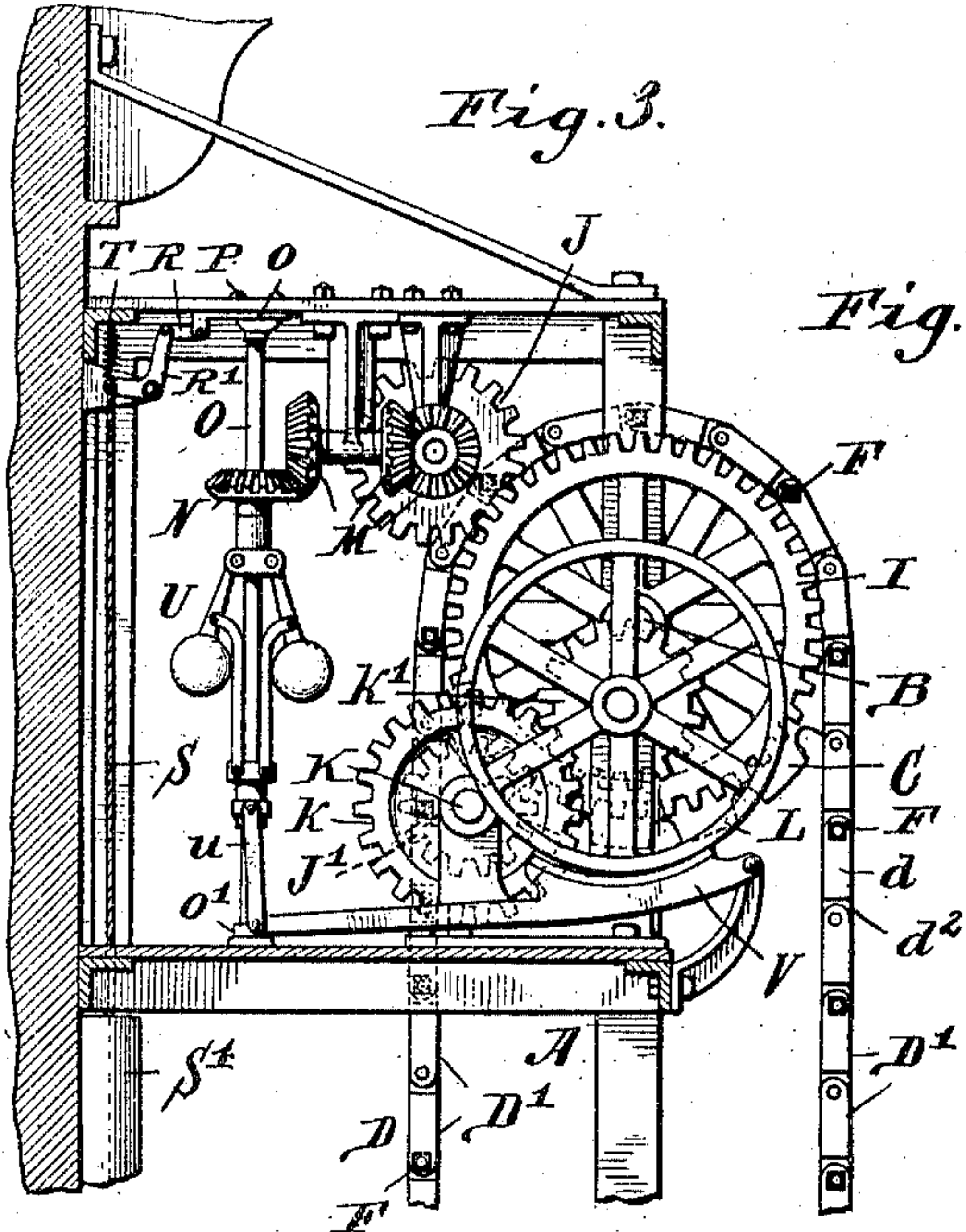


Fig. 5.

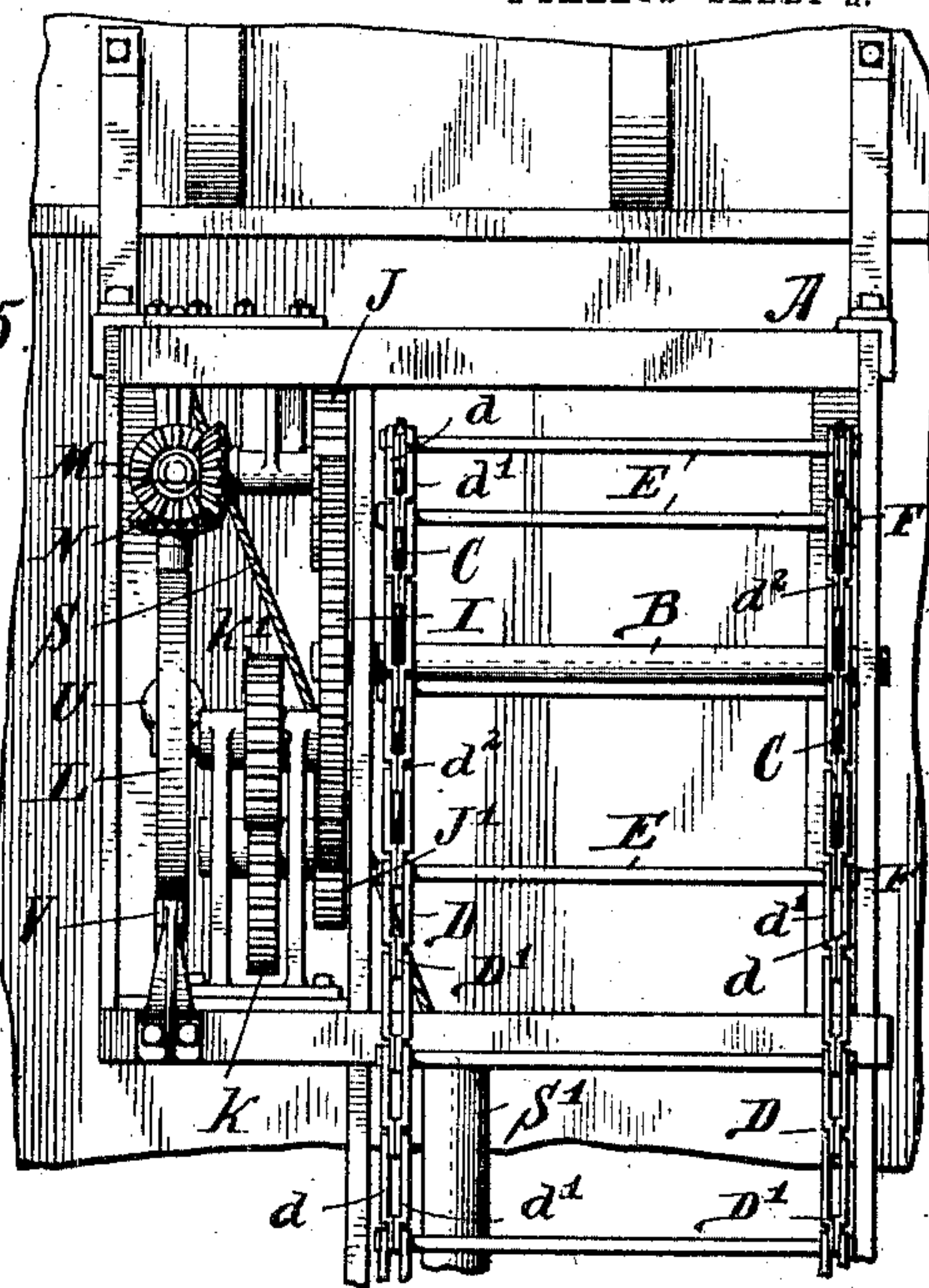


Fig. 6.

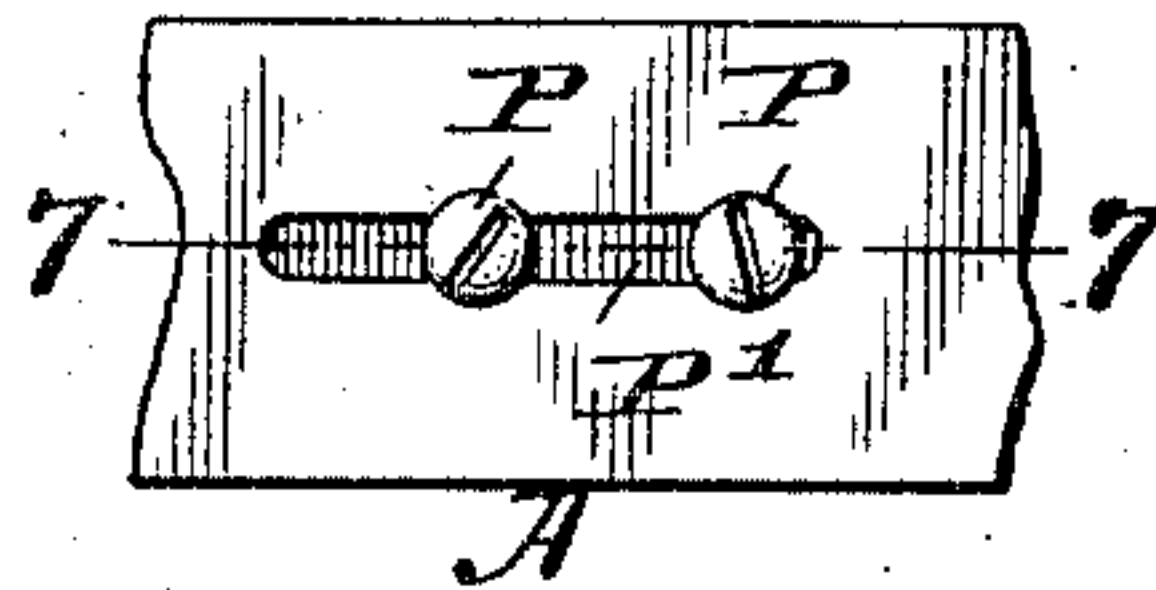


Fig. 7.

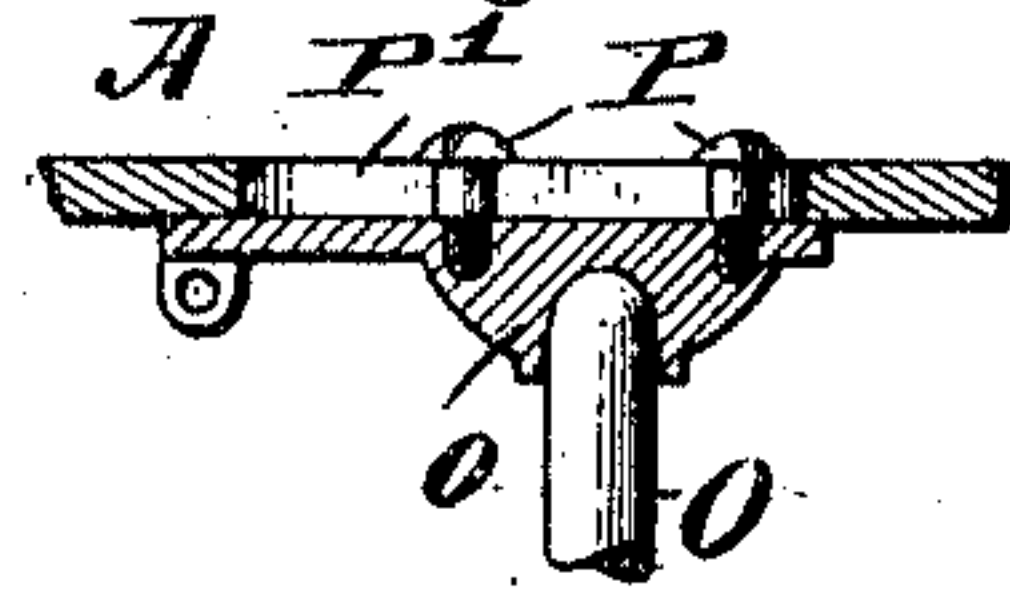


Fig. 4.

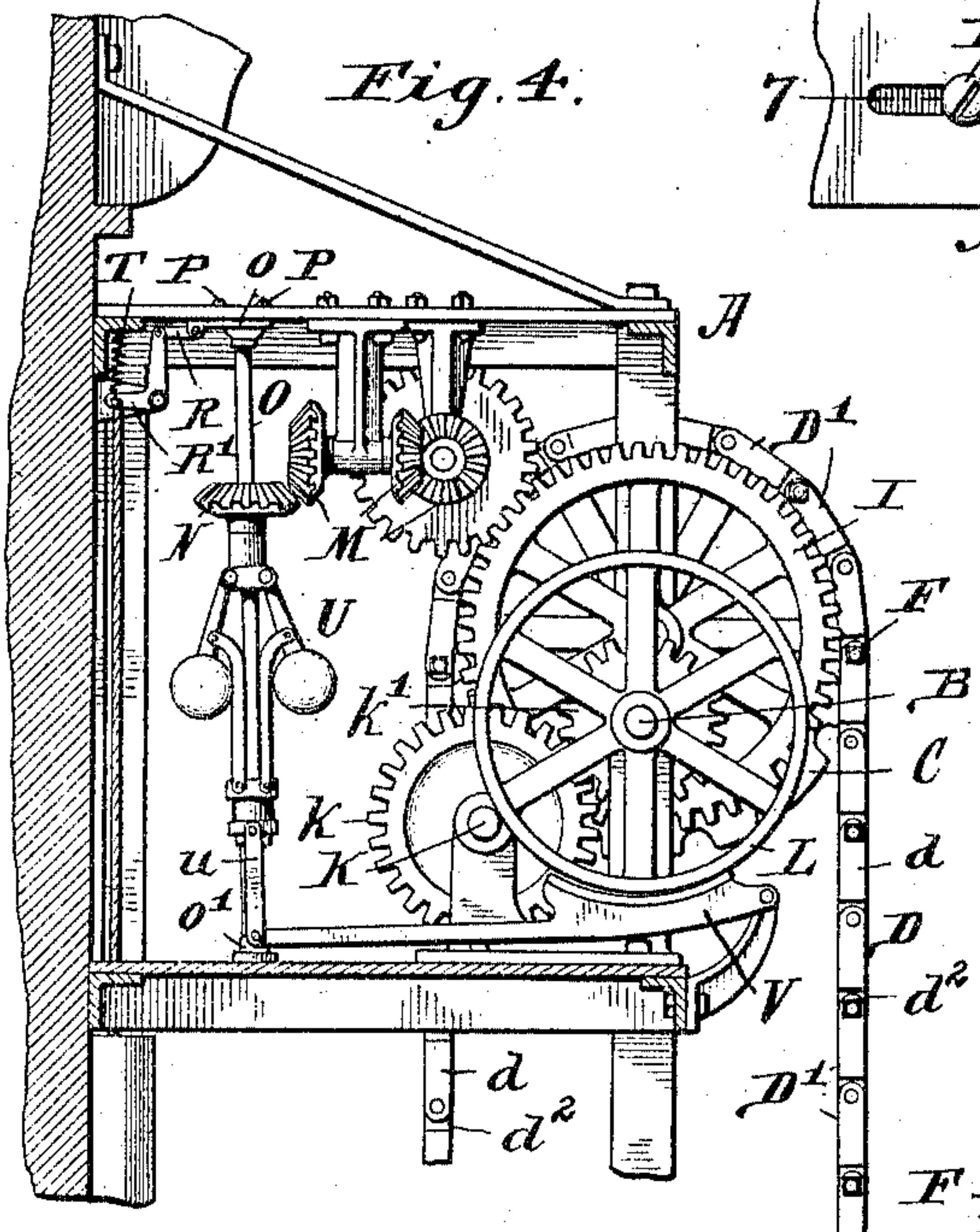


Fig. 8.

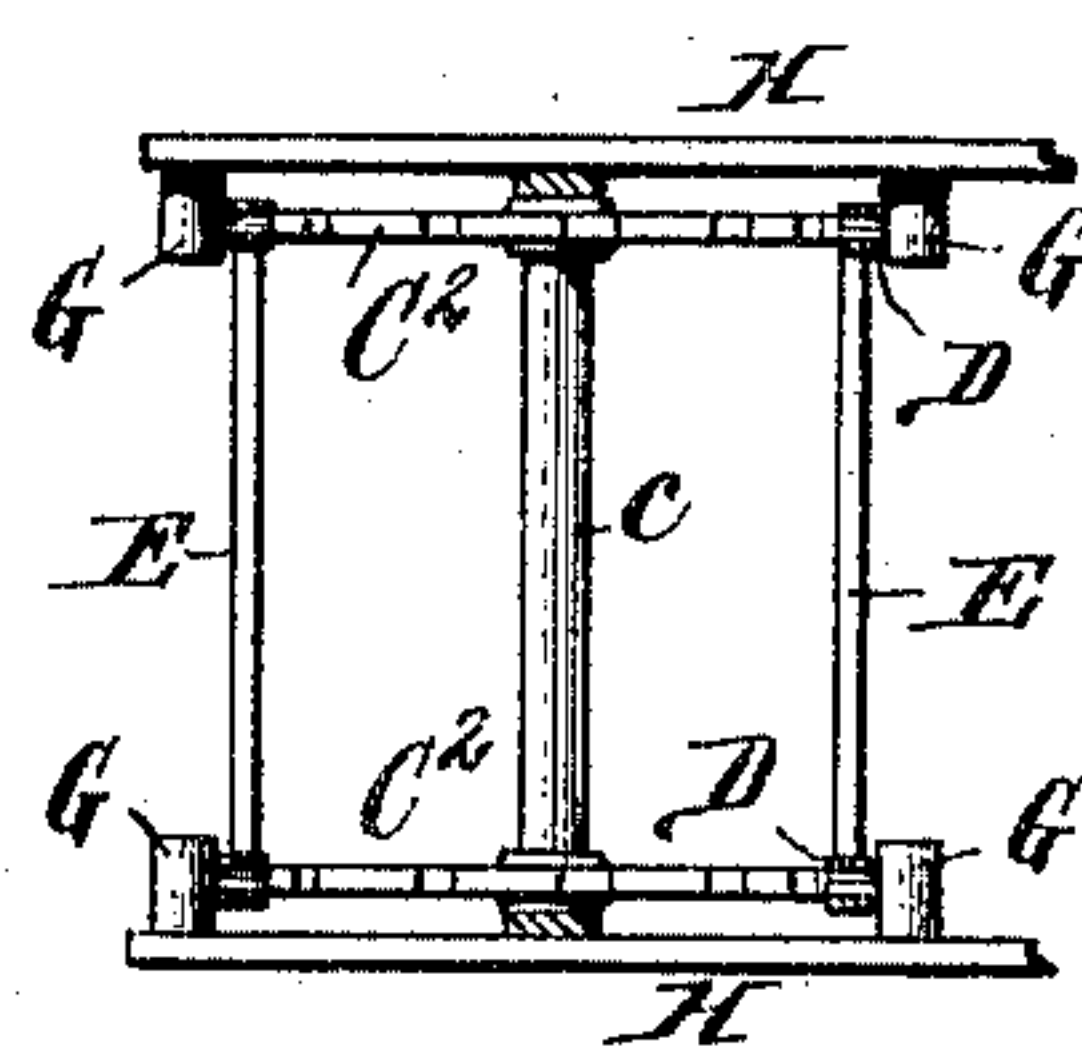


Fig. 9.

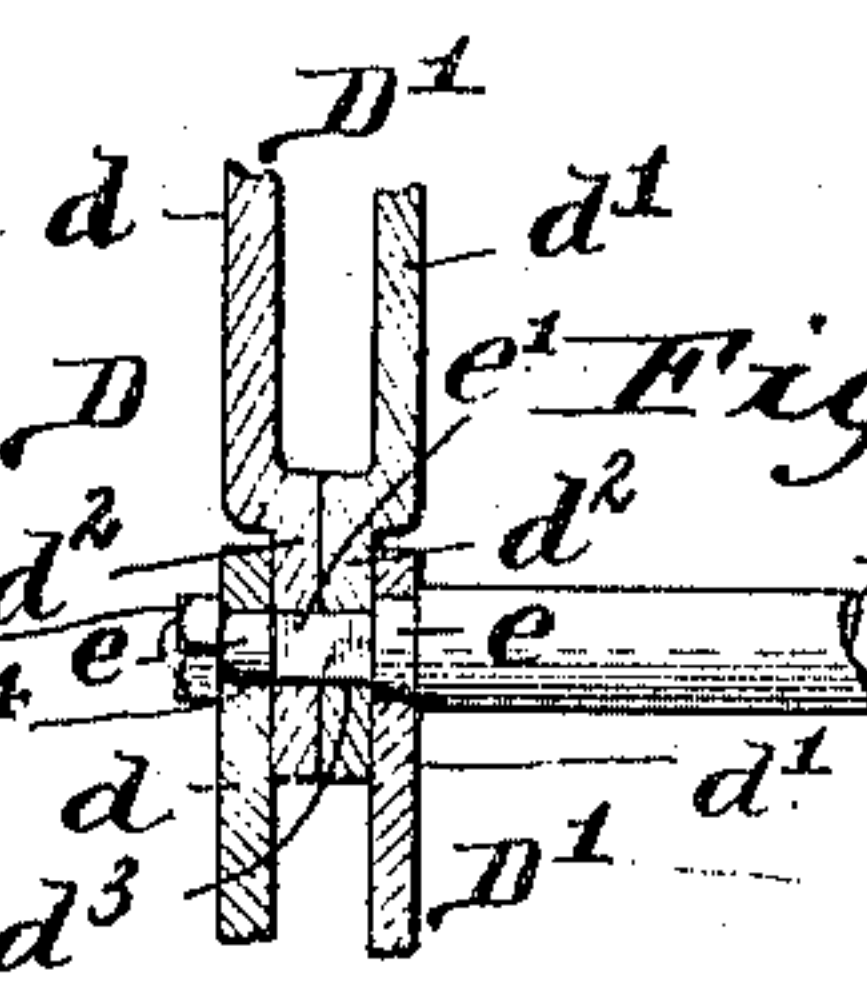
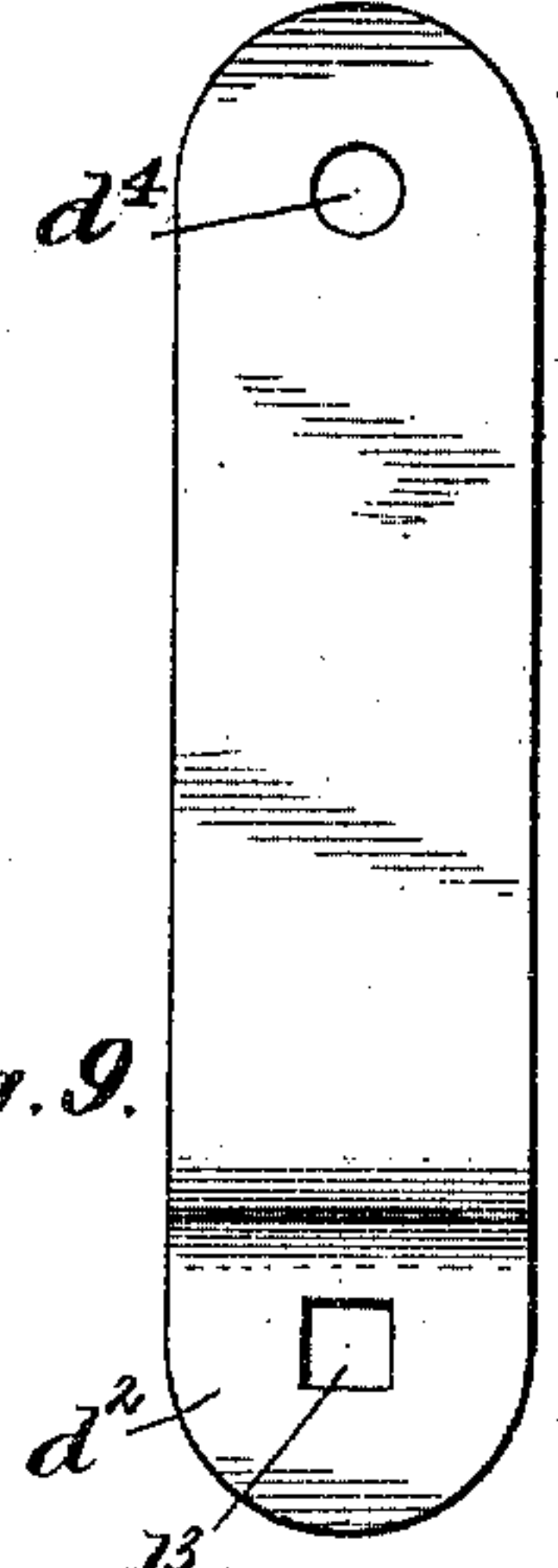
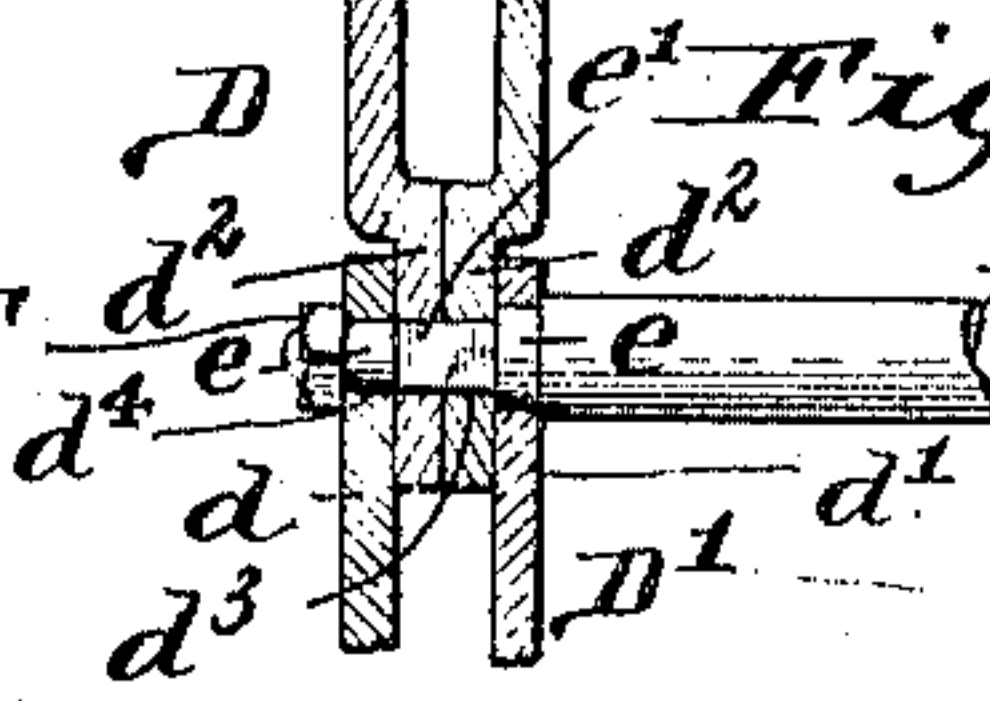


Fig. 10.



Witnesses:
Burt Mason
Edwin Maier

Josiah S. Andrews, Inventor.
By Heikart Burkhardt
Attorneys.

UNITED STATES PATENT OFFICE.

JOSIAH S. ANDREWS, OF BUFFALO, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 776,483, dated December 6, 1904.

Application filed March 21, 1904. Serial No. 199,103. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH S. ANDREWS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

This invention relates to fire-escapes, and more particularly to that class in which an endless ladder is operated by the weight of a person thereon. Its object is to provide means whereby a governing device may be quickly thrown into or out of action and to effect certain other improvements whereby a high degree of safety is attained.

These ends are accomplished in the structures and combinations hereinafter described, and illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation of the fire-escape attached to a building. Fig. 2 is a side elevation of the same. Fig. 3 is a sectional elevation, on an enlarged scale, of the upper end of the fire-escape, showing the automatic controlling mechanism held in engagement with the ladder. Fig. 4 is a view similar to Fig. 3, the governing mechanism being disengaged. Fig. 5 is a front elevation of the upper end of the fire-escape on an enlarged scale. Fig. 6 is a top plan view of a portion of the frame, showing means to allow disengagement of the governing mechanism. Fig. 7 is a section taken on line 7 7, Fig. 6. Fig. 8 is an enlarged horizontal section taken on line 8 8, Fig. 2. Fig. 9 is an enlarged side elevation of one of the link members forming the sides of the ladder. Fig. 10 is an enlarged section through the connected ends of two links, showing one end of one of the rungs as the means of connection of said links.

The fire-escape is mounted in a frame A, which is suitably supported and braced. Shafts B and B', mounted, respectively, at the upper and lower ends of a frame, bear two pairs of carriers or sprocket-wheels C C'. A pair of idle sprocket-wheels C² intermediate the last two pairs is borne on a shaft c, also mounted in the frame. The wheels of each pair are sufficiently spaced with reference to

the width of the carrier, which will now be described.

In this instance the carrier is an endless ladder whose sides comprise endless chains D, which engage with the sprocket-wheels and are formed of links D', each of which comprises two link members d and d'. (See Figs. 5 and 10.) Each link member is provided at one end with an offset or depressed portion d², which has a square aperture d³. The opposite ends of the members are also apertured, as shown in Fig. 9, each link member having circular holes d⁴ at this point. Rungs E are provided at their ends with cylindrical portions e, adapted to fit loosely within the circular apertures described, and with a squared portion e' of such size as to fill the square holes in the depressed portions of the link members. The links and rungs are assembled as shown in Fig. 10, the offset ends of each pair of link members being in contact with each other and between the straight ends of the adjoining link members. The links so formed are bifurcated, with the tongue of each standing within the open end of the adjoining link. The rung is now passed through the registering apertures until the squared portion rests within the square apertures formed in the offset ends of the link members. The whole is preferably secured by a nut F fitting over the end of the rung, which may be screw-threaded for this purpose. The links between the rungs may be secured together in any suitable manner. This ladder construction is of considerable importance in a fire-escape, as the square apertures of the link members and the squared portion of the rung prevent rotation of the latter, while the circular apertures of the adjacent link and the cylindrical portions e of the rung allow a free turning of the links with respect to each other. In order further to insure the steadiness of the ladder, I provide guide-rolls G, bearing against the chains on either side of wheels C². These rolls are borne on stub-shafts g, projecting inward from a cross-piece H of the frame.

The letter I designates a gear-wheel mounted on the shaft B to one side of the carrier-

wheels C, said gear-wheel meshing with gears J and J'. The second of these gears is on a counter-shaft K, which carries, in addition, an intermediate gear k , meshing with another wheel k' , which is mounted rigid with the brake-wheel L, the object being to provide a train such that a small amount of braking will effectually reduce the speed of the ladder. Wheel J, through intermediate bevel-gears M, operates bevel-gear N on the upright governor-shaft O, which is mounted in step-bearings o and o' . The lower of these bearings, o' , is fixed, while the bearing o is in the form of a slide, operating by means of guide-screws P in slot P' in the upper portion of the frame. By means of a link R and bell-crank R' bearing o is connected with a cord S, which passes downward through a tube S'. A spring T, secured to the bell-crank, tends to hold the parts as shown in Fig. 3.

As will be readily understood, governor U ordinarily acts, through link u , brake-shoe V, and brake-wheel L, to reduce the speed of the ladder when it becomes excessive. However, should there be need of greater haste a pull on cord S will shift bearing o and the upper end of the governor-shaft to one side, separating gears M and N and throwing governor U and brake V out of action. A second brake-wheel W is mounted on lower shaft b' and is actuated by brake w and depending cord w' .

Having thus described my invention, what I claim as new is—

1. In a fire-escape, the combination with carrier-wheels and a carrier mounted thereon; of a brake mechanism, a governor-shaft, a fixed bearing at one end of said shaft and a slidable bearing at the other end, a governor mounted on the shaft, connection between said carrier-wheels and governor, and means for shifting the slidable bearing, thereby disconnecting said carrier-wheels and governor.

2. In a fire-escape, the combination with a frame having a slot, wheels mounted in said frame, and a carrier mounted on said wheels; of a brake mechanism, an upright governor-shaft, a fixed bearing at the lower end thereof and a slidable bearing at its upper end, said bearing having guide-screws engaging with the sides of the slot in the frame, a governor mounted on the shaft, connection between said wheels and governor, and means for shifting the slidable bearing laterally, thereby disconnecting the wheels and governor.

3. In a fire-escape, a carrier comprising an endless ladder consisting of endless chains formed of bifurcated links having tongues at one end, the tongue ends being provided with square apertures, and the bifurcated ends inclosing the tongue ends of the adjacent links and having circular apertures registering with the apertures of said adjacent links combined with rungs having cylindrical portions fitting

loosely within the circular apertures and squared portions filling said square apertures. 65

4. In a fire-escape, a carrier comprising an endless ladder consisting of endless chains formed of bifurcated links, each link comprising two members having offset ends forming a tongue and provided with square apertures, and straight ends provided with circular apertures combined with rungs having cylindrical portions fitting loosely within the circular apertures of the straight ends and being further provided with squared portions filling the square apertures of the tongue ends. 75

5. In a fire-escape, the combination with a frame, carrier-wheels mounted therein, and an endless ladder carried thereon, of a brake-wheel, a train of gears between said brake-wheel and the carrier-wheels, a brake adjacent the periphery of the brake-wheel, an upright governor-shaft, a governor mounted thereon and connected with said brake, gearing between the governor and carrier-wheels located at the upper end of the governor-shaft, a slidable step-bearing for this end of the shaft, a depending operating-cord, and connection between said cord and step-bearing. 85

6. In a fire-escape, the combination with a frame, carrier-wheels mounted therein, and an endless ladder carried thereon, of a brake-wheel, a train of gears between said brake-wheel and the carrier-wheels, a brake adjacent the periphery of the brake-wheel, an upright governor-shaft, a governor mounted thereon and connected with said brake, gearing between the governor and carrier-wheels located at the upper end of the governor-shaft, a slidable step-bearing for this end of the shaft, a bell-crank lever pivotally attached to the frame, a link connecting said lever with the slidable step-bearing, a depending operating-cord attached to the free arm of said lever, and a spring tending to hold said slidable bearing in its normal position. 100 105

7. In a fire-escape, a carrier comprising an endless ladder consisting of endless chains formed of bifurcated links having tongues at one end, the tongue ends fitting within the bifurcated ends of the adjacent links, the links being provided with square apertures at one of their ends and circular apertures at their other ends held in registration with the square apertures of adjacent links, combined with rungs having cylindrical portions fitting loosely within the circular apertures and squared portions filling said square apertures. 110 115

In testimony whereof I have affixed my signature in the presence of two subscribing witnesses. 120

JOSIAH S. ANDREWS.

Witnesses:

CHAS. F. BURKHART,
M. SEWERT.