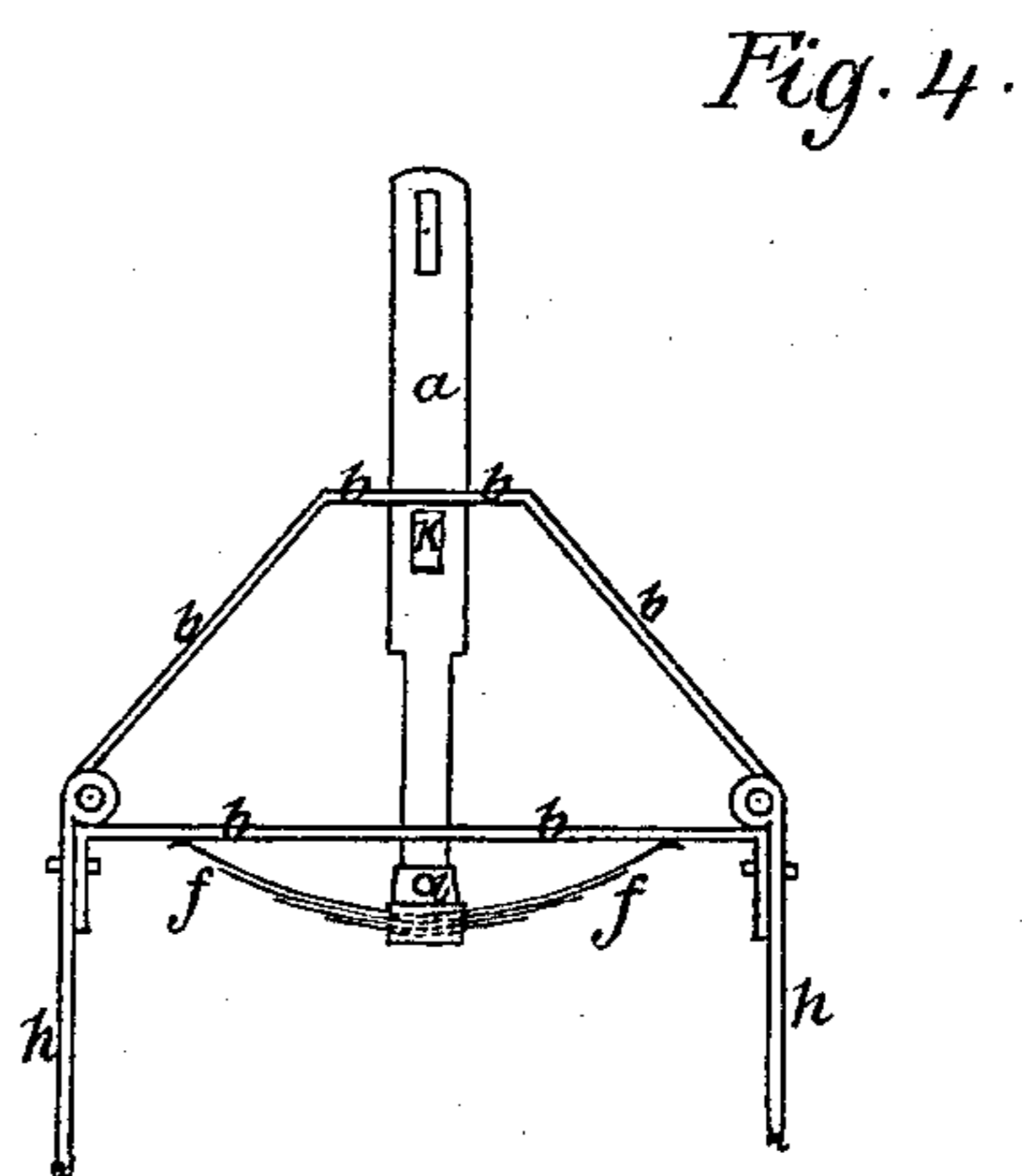
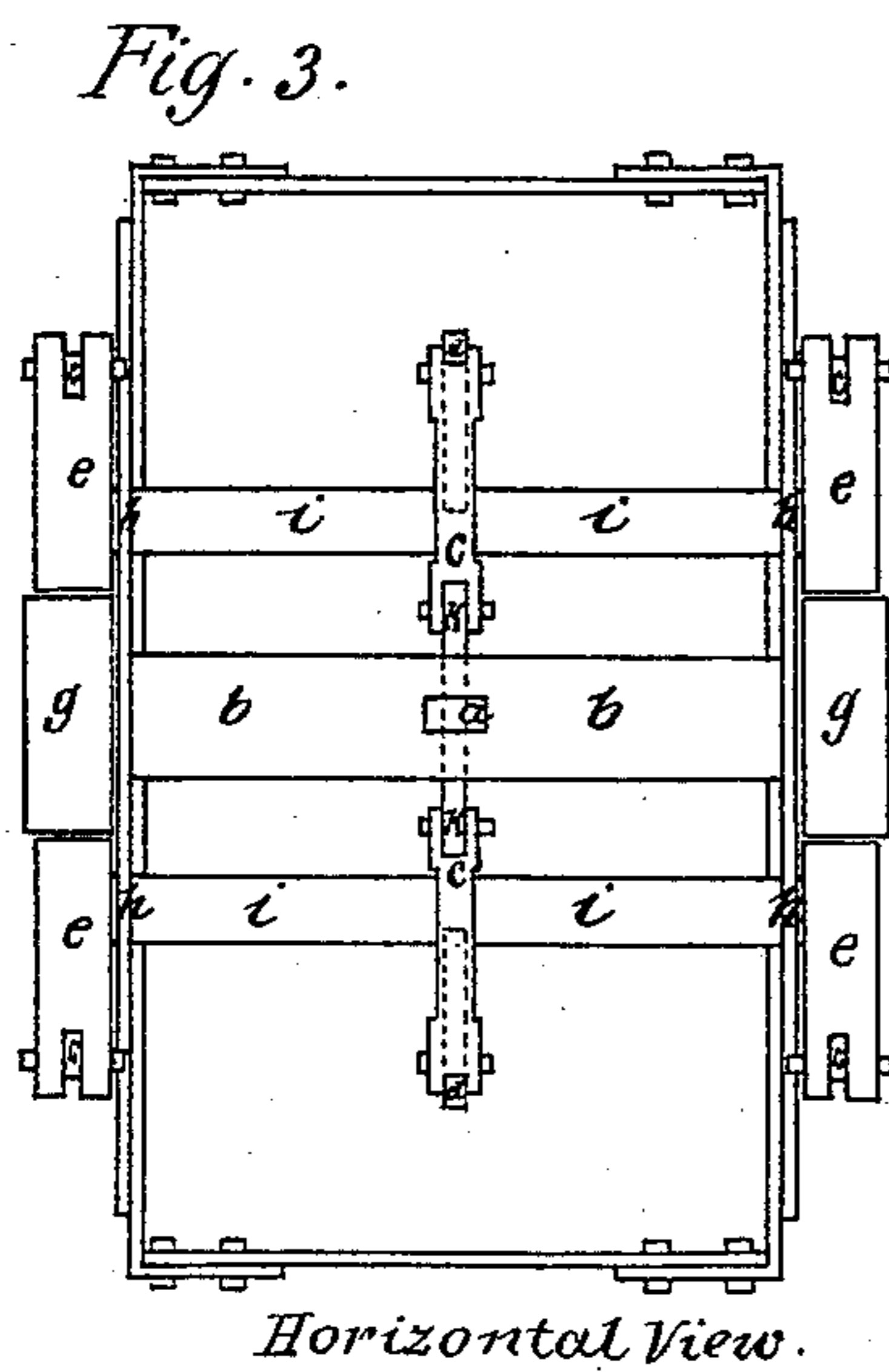
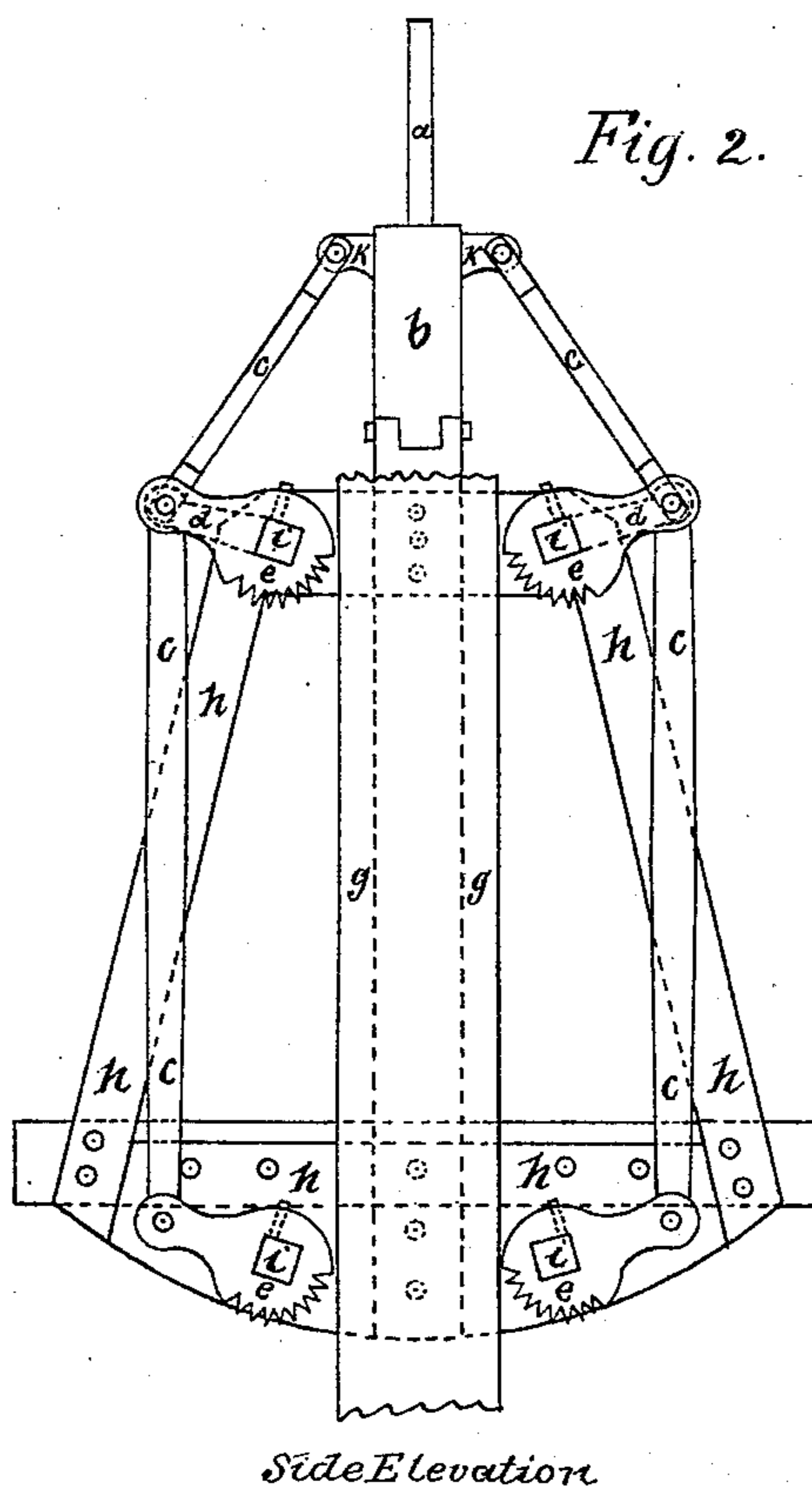
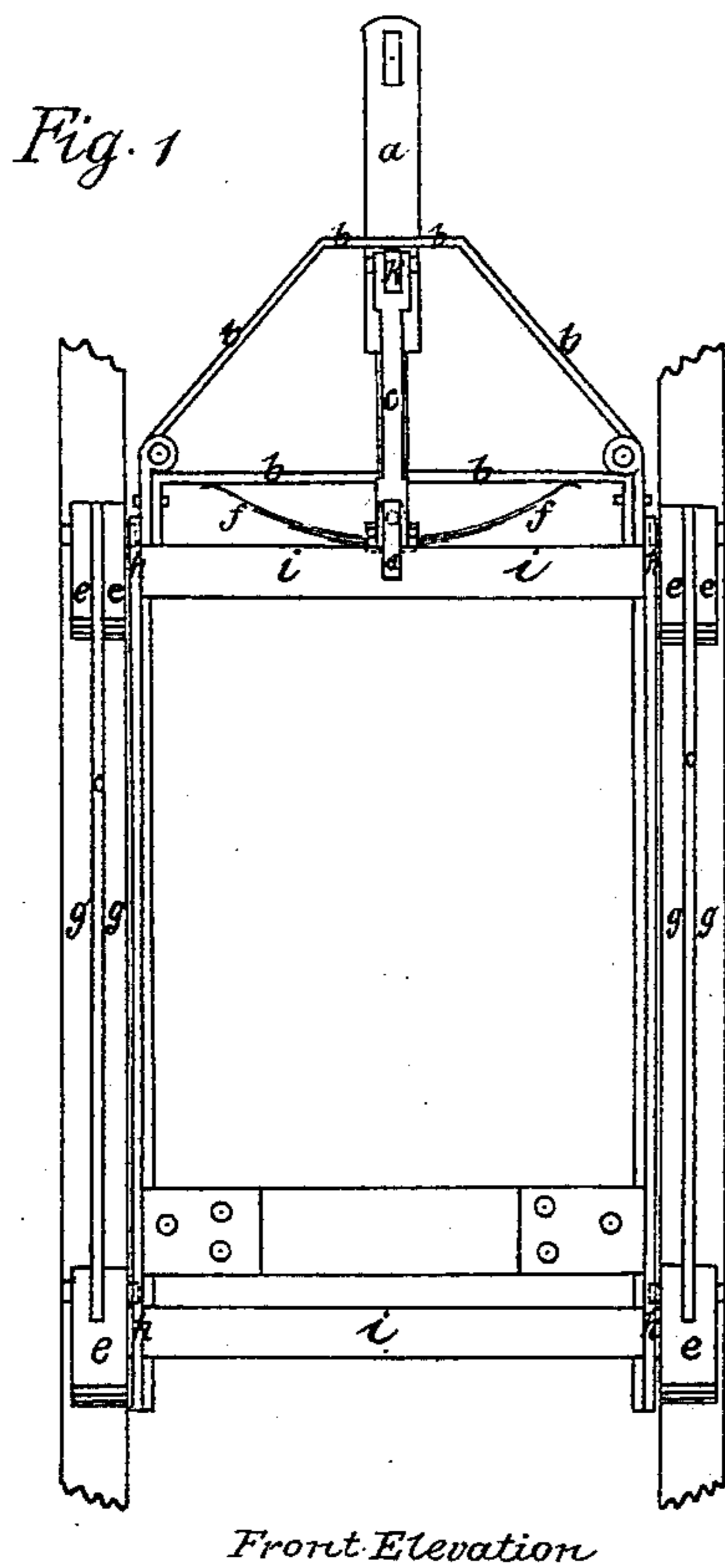


J. BERNHARD.
Elevators.

No. 148,802.

Patented March 24, 1874.



Witnesses;
Horace B. M. Cool
John F. Carroll.

Inventor;
John Bernhard
per Sol Foster Jr. Atty

UNITED STATES PATENT OFFICE.

JOHN BERNHARD, OF SHENANDOAH, PENNSYLVANIA.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. 148,802, dated March 21, 1874; application filed February 20, 1874.

To all whom it may concern:

Be it known that I, JOHN BERNHARD, of Shenandoah, in the county of Schuylkill and State of Pennsylvania, have invented a new and valuable Improvement in Elevator Safety-Cages; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 is a front elevation, showing the working of the lifting-bar *a*, the spring *f*, the connecting-bar *c*, and the arms or cranks *d d*. Fig. 2 is a side elevation, showing the working of the bar *a*, the connecting-bars *c c*, the toothed eccentric wheels *e e*, together with the frames *b h*, and the columns or guides *g*. Fig. 3 is a horizontal view, showing the lifting-bar *a*, the connecting bars *c c*, the arms or cranks *d d*, the pivots or joints at *k* and *d*, the shafts or spindles *i i*, the columns or guides *g g*, the toothed eccentric wheels *e e*, and the frame *h* in part or sectional view. Fig. 4 is a view showing a portion of the working parts in a part of the frame *b* and *h*, and a view of the lifting-bar *a*.

a is a lifting-bar, of iron or other metal, to which is to be attached the rope or chain which is to hoist or lower the cage. *b* is a portion of the frame-work of the cage, and, in connection with *h*, forms the frame or body of the cage. *c c* are connecting-bars, which connect the lifting-bar *a* with the arms or cranks *d d*, and which also connect the toothed eccentric wheels *e e* with each other. *d d* are arms or cranks fastened to the shafts or spindles *i i*. *e e* are toothed eccentric wheels fastened to the shafts or spindles *i i*, and operated by the connecting-bars *c c*. *f* is a spring fastened by the sleeve *l*, and working against the frame *b*. *g g* are columns or guides, of wood or other suitable material, against which the toothed eccentric wheels work. *h h* is a part of the frame, and, with *b b*, forms the frame or body of the cage. *i i* are shafts or spindles, working in

bearings in the frame *h h*, and to which the toothed eccentric wheels *e e* and connecting-bars *c c* are fastened. *k* is a shoulder and pivot or joint connecting the lifting-bar *a* to the connecting-bars *c c*. *l* is a movable sleeve, securing the spring *f* to the lifting-bar *a* by means of a key or pin, and also forming a shoulder.

When a hoisting power is applied by means of a rope or chain, or any other means, to the lifting-bar *a*, the lifting-bar *a* rises as far as the shoulders, (shown at the points *k* and *l*,) when the lifting strain comes on the frame or cage proper *b* and *h*.

Should the rope or chain break by any accident or in any way whatever, the spring *f* will draw down the lifting-bar *a*, and, through the means of the connecting-bars *c c*, as shown in Fig. 2, will force the toothed eccentric wheels *e e* in and against the columns or guides *g g*, as shown in the same figure, thereby holding and fastening the cage in a firm and stationary position, and preventing it from falling or sliding down. As soon as the rope or chain draws the lifting-bar *a* up, the toothed eccentric wheels become released through the working of the connecting-bars *c c*, which are connected by pivoted or jointed connections with the lifting-bar *a*.

So long as this rope or chain remains unbroken, the cage will work up and down with perfect ease and freedom; but if it breaks, then the cage will stop instantaneously, as before described.

Having thus described my invention, I desire to claim—

The lifting-bar *a*, with the connecting-bars *c c*, the arms or cranks *d d*, the toothed eccentric wheels *e e*, the spring *f*, the columns or guides *g g*, the shafts or spindles *i i*, the shoulder *k*, the movable sleeve and shoulder *l*, and the frame *b* and *h*, all combined substantially as and for the purpose hereinbefore set forth.

JOHN BERNHARD.

Witnesses:

J. J. MURPHY,

HORACE B. MCCOOL.