

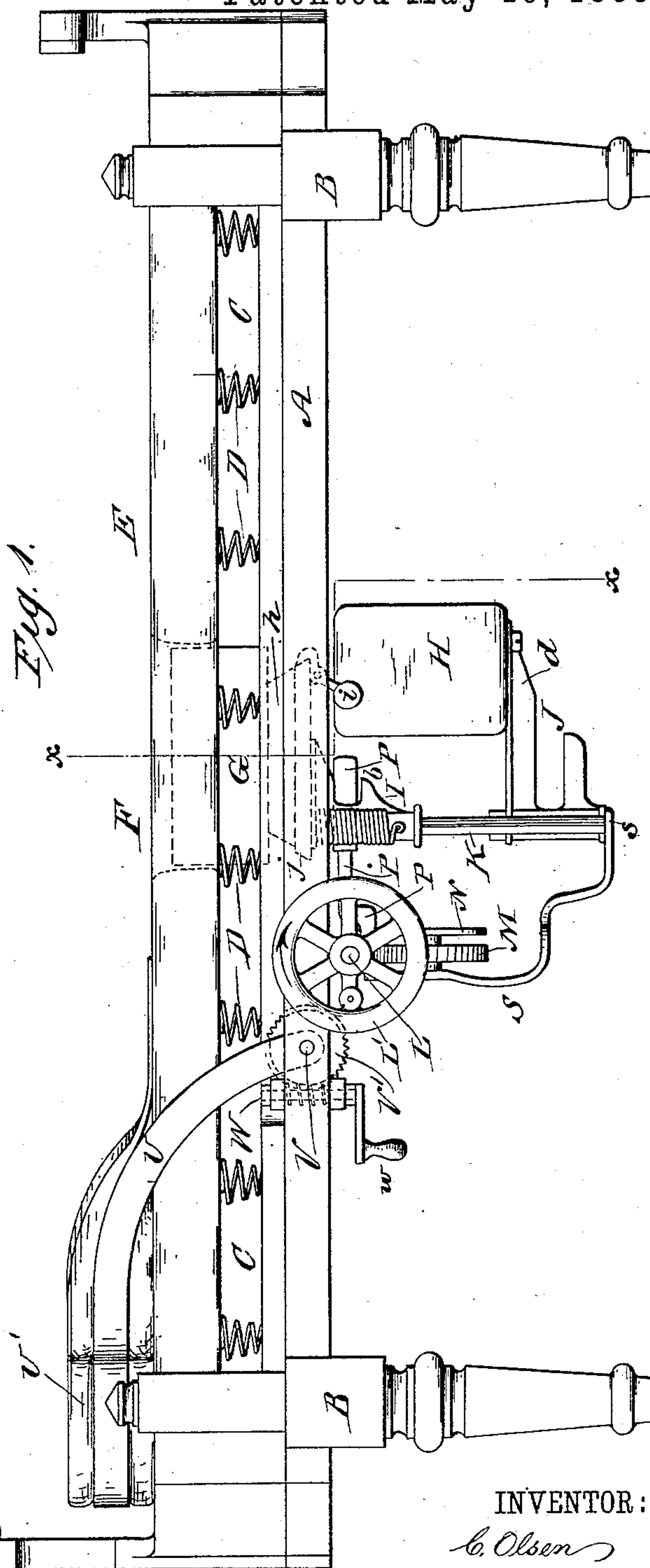
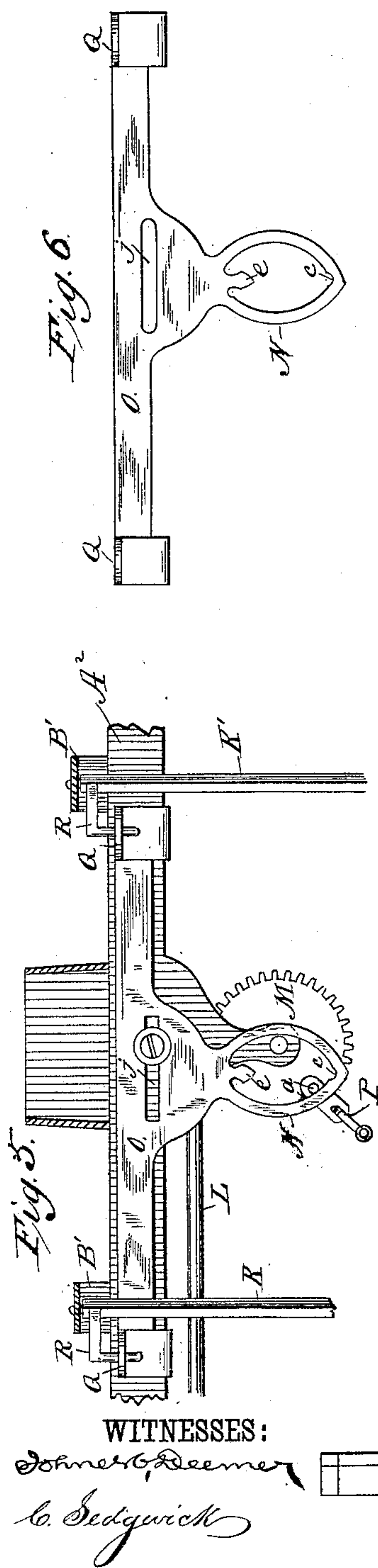
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No. 318,199.

Patented May 19, 1885.



(Model.)

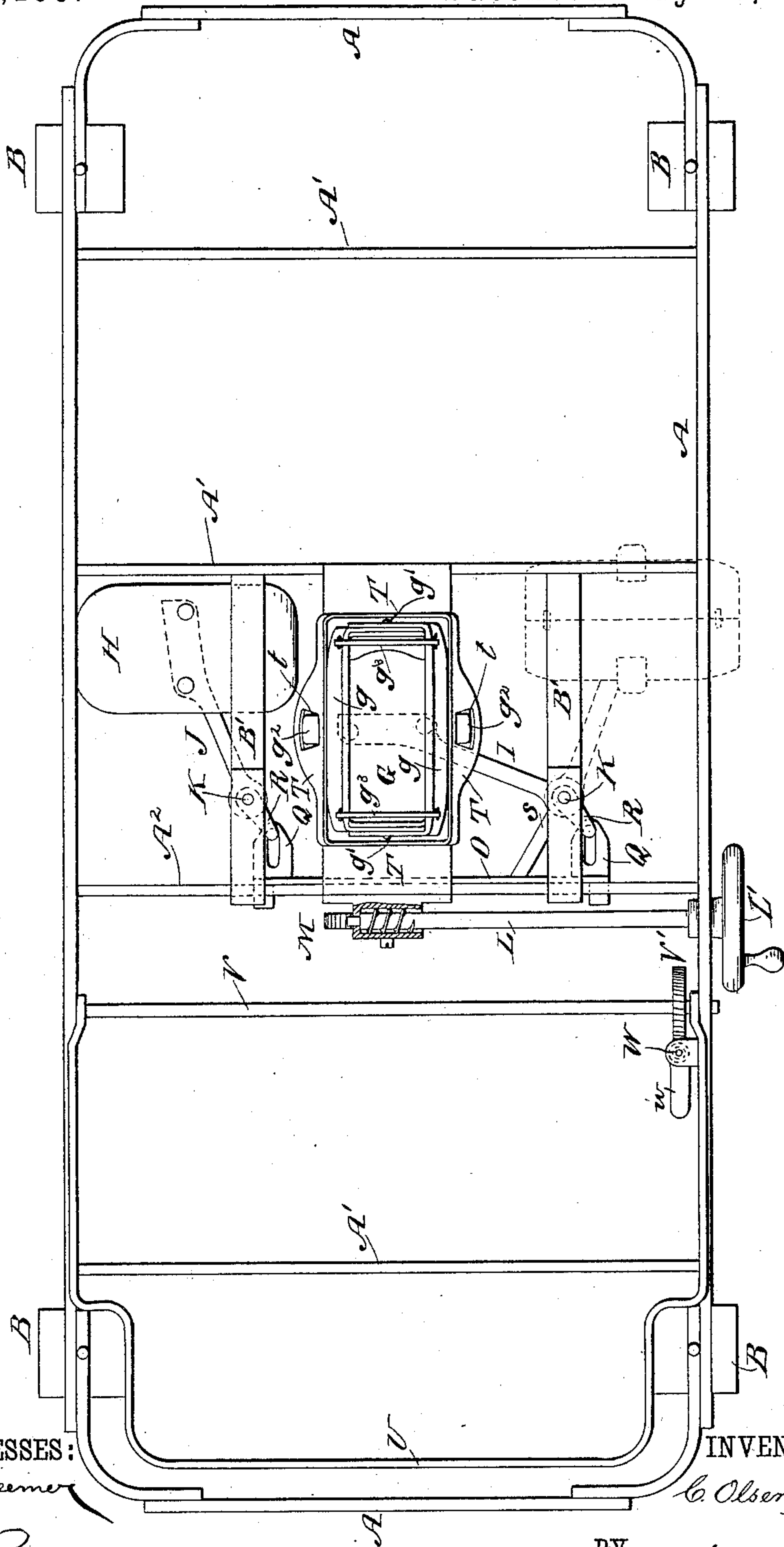
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Fig. 2.



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Fig. 3.

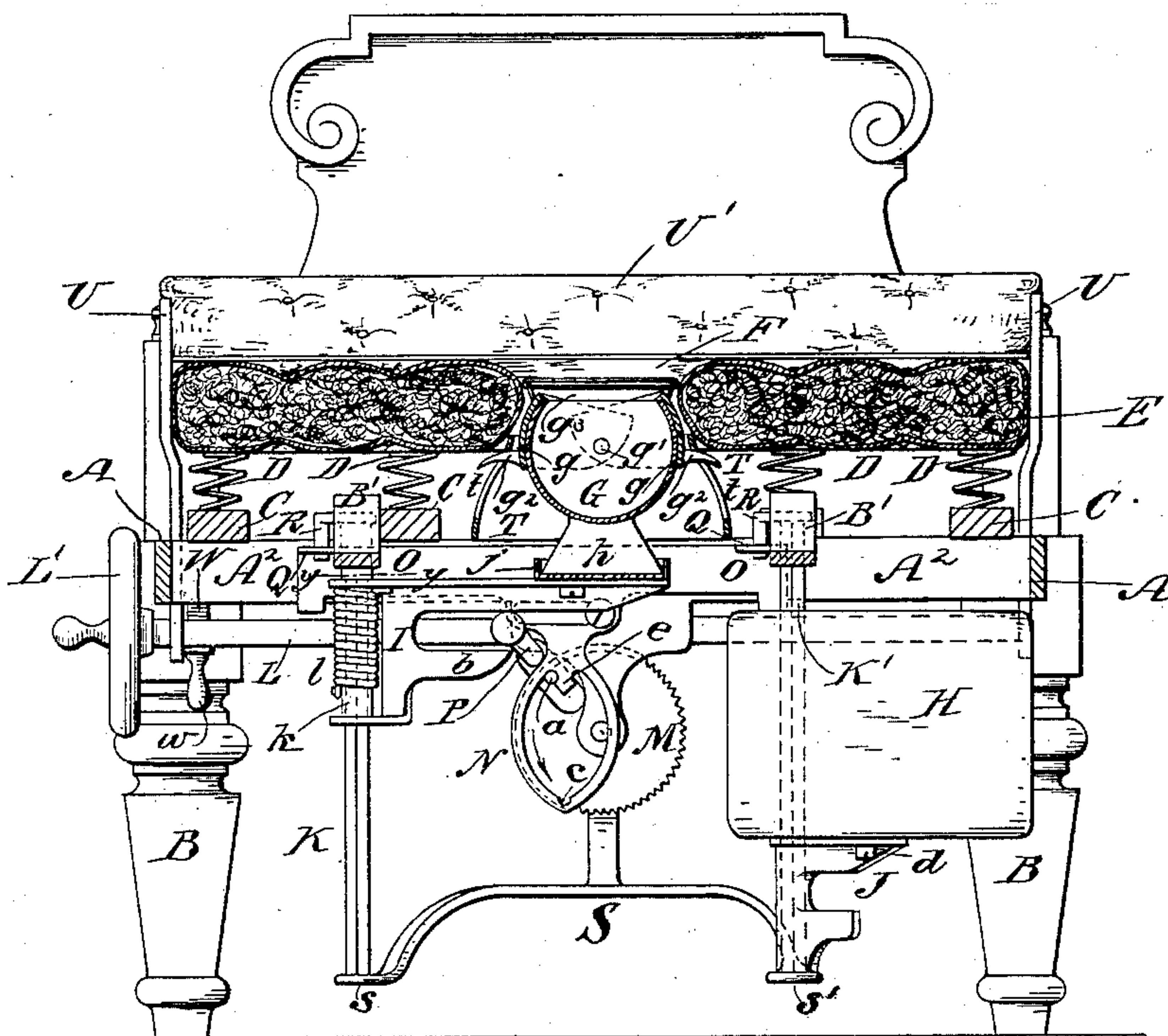
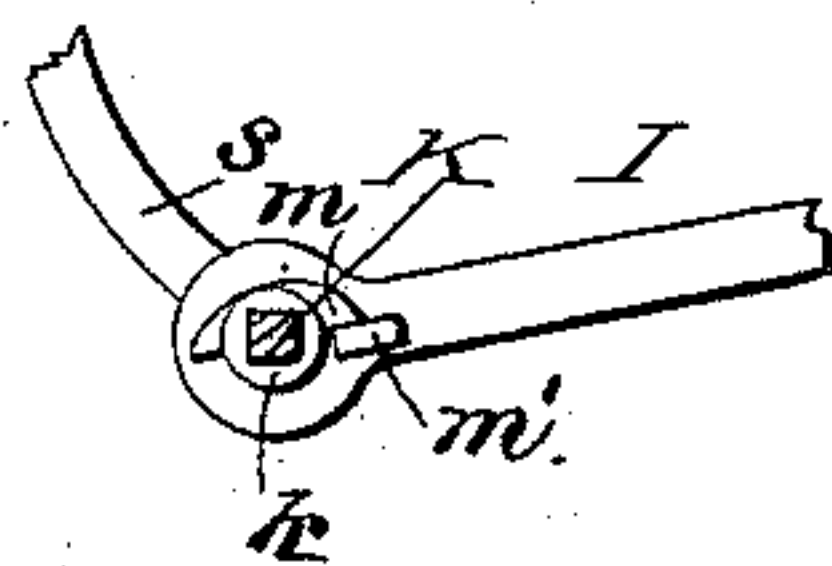


Fig. 4.



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UNITED STATES PATENT OFFICE.

CARL OLSEN, OF LONG ISLAND CITY, NEW YORK.

INVALID-BED.

SPECIFICATION forming part of Letters Patent No. 318,199, dated May 19, 1885.

Application filed January 17, 1884. (Model.)

To all whom it may concern:

Be it known that I, CARL OLSEN, of Long Island City, in the county of Queens and State of New York, have invented a new and Improved Invalid-Bed, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my invention ready for use, the commode being shown in broken lines. Fig. 2 is a plan view of the same, the mattress and bolster being removed. Fig. 3 is a transverse sectional elevation taken on the line *x x* of Fig. 1, and Fig. 4 is a detailed sectional plan view taken on the line *y y* of Fig. 3. Fig. 5 is a detail sectional view. Fig. 6 is a detail of the cam and the sliding plate to which it is attached.

The invention will first be described in connection with the drawings, and then pointed out in the claims.

The frame A and cross-bars A' A² of the bedstead are by preference made of iron, and supported by the legs B in any ordinary manner. The slats C, springs D, and mattress E are of ordinary construction, except that the mattress E has formed through it the opening F, and that one or more of the slats C are cut away immediately below the opening F to admit the passage up through the slats of the commode G and cushion H, the latter serving to close the opening F when the commode G is not in use, the ends of the slats cut away being supported by cross-bars secured to the underside of the slats. The commode G and cushion H are supported, respectively, upon the bifurcated arms I J, which are placed loosely upon the upright square rods K K', and are adapted to be raised and lowered on said rods by mechanism operated by the worm-shaft L, for alternately raising and lowering the commode G and cushion H into and out of the passage F. The commode G and cushion H, when they reach the lowest positions, are swung outward, alternately, toward opposite edges of the bed by said mechanism acting on arms I J, as illustrated in full and dotted lines in Fig. 2, the upright rods K K'

being pivoted at their lower ends in the ends *s s'* of the divided brace S and at their upper ends in the bars B' B' (shown clearly in Fig. 3) for that purpose; and the arms I J are so arranged that while the arm J is being moved outward, carrying the cushion H toward the edge of the bed, the arm I will be moved inward, carrying the commode under the passage F, and vice versa. At the time the commode is being raised up to and lowered from the passage F the cushion H remains at rest, and at the time the cushion is raised and lowered the commode in turn remains at rest. The mechanism for accomplishing these movements of the commode G and cushion H consists of the said worm-shaft L, which is adapted to be revolved at one side of the bed by the crank or hand wheel L', the worm-wheel M, arranged to be revolved by the worm on shaft L, the elliptical cam N, attached to the plate O, arranged to slide upon the cross-bar A² of the frame of the bedstead, the stud *a*, attached to the worm-wheel M and running within the cam N, and the long arm or crank P, attached to the said worm-wheel so as to move outside of the cam N, and adapted in its revolution to come alternately between the prongs of the bifurcated arms I J. The sliding plate O is formed or provided at its ends with the slotted horizontal lugs or plates Q Q. (Shown clearly in Fig. 2.) In the slots of these plates Q Q are fitted the cranks R R, which are rigidly secured to the upright rods K K', for turning the said rods alternately in opposite directions as the plate O is moved backward and forward upon the cross-bar A².

The operation is as follows: The commode G being elevated into the opening F, as shown in Fig. 3, the crank-wheel L' will be turned to the right in the direction of the arrow shown in Fig. 1. This will turn the worm-shaft L, the worm of which will slowly turn the worm-wheel M in the direction of the arrow shown in Fig. 3, which will cause the arm or crank P (which is practically a part of the worm-wheel) to come upon the upper edge of the lower prong, *b*, of the bifurcated arm I and slowly slide or permit the arm I to slide by its own weight and that of the commode G downward upon the rod K, accordingly as the crank P is

carried downward by the turning of the worm-wheel M. When the crank P approaches its lowest point in its revolution, it will move off from the prong *b*, and at this time the arm I and commode G will have reached the lowest point, the arm J resting upon the end *s'* of the bifurcated brace S. At this time, also, the stud *a* will enter the notch *c* made at the lower end of the elliptical cam N, and as the worm-wheel M continues to revolve will carry the cam N and plate O, to which the cam is rigidly attached, to the right, the plate O sliding upon the cross-bar A² of the frame of the bedstead. This movement of the plate O will cause the slotted lugs Q Q to carry the outer ends of the cranks R R to the right, which will turn the rods K K' in their bearings, and carry the arm I and commode G to the edge of the bed to the position shown in dotted lines in Fig. 2, and at the same time swinging the arm J and cushion H toward the center of the bed under the opening F. At this time the stud *a* will pass the notch *c*, and the crank P will come against the lower edge of the upper prong, *d*, of the bifurcated arm J, and will slide the arm J, as the worm-wheel M continues to revolve, upward upon the rod K', thus lifting the cushion H into the opening F, closing the same, making the mattress complete, as though no opening F were made in it. At the upper part of the cam N is formed the stop *e*, which prevents the worm-wheel M from being turned too far in either direction, as will be understood from Fig. 3.

Upon reversing the direction of revolution of the crank-wheel L' the reverse of the operation just described will take place—that is, the worm-wheel M will be turned in the direction opposite to that indicated by the arrow in Fig. 3, which will first cause arm P to lower the arm J and cushion H to the end *s'* of the brace S. Then the stud *a* will enter notch *c* and move the cam N and plate O to the left, which will, through lugs Q Q and the levers R R, swing the arm J and cushion H to the position shown in all of the figures of the drawings, and at the same time swing the arm I and commode G to the center of the bed immediately under the opening F, and then the arm or crank P will lift the arm I and commode G to the position shown in all the figures, with the commode G filling the opening F.

The commode G is made with the covers *g* *g* pivoted to the body of the commode by pivots *g'* at the ends of the body. The covers *g* *g* are each formed or provided with an arm, *g*², and the covers are adapted to be drawn together for closing the commode, in this instance by the rubber cords *g*³ *g*³, attached to them, as shown in Fig. 2. The arms *g*² *g*² are for automatically opening the commode at the time the commode enters the opening F in the mattress, and for this purpose I attach to the cross-bars A' A² of the frame of the bedstead the frame T, having inclined walls, which are slot-

ted, as shown at *t* *t*, up through which frame the commode G has to pass before entering the opening F. The arms *g*² enter the slots *t* and are carried to the upper ends thereof, where they are retained by the frame T, while the body of the commode is carried farther up, which causes the covers *g* *g* to be opened against the tension of the rubber cords *g*³ *g*³, so that when the commode is carried as far up into the opening F in the mattress as it will go it will be automatically opened ready for use. Upon lowering the commode out of the frame T the rubber cords *g*³ *g*³ will automatically draw the covers *g* *g* together and close the commode. The body of the commode is formed with the flaring base *h*, the lower edge of which is adapted to fit under the converging flanges of the supporting-plate *j*, secured to the arm I, where the commode is securely held by the weighted pawl *i*, as shown clearly in Fig. 1, so that by operating the pawl *i* the commode may be removed from the arm I and replaced at pleasure, and for convenience in removing and replacing the commode, I adapt the arm I to be swung around upon the rod K to bring the plate *j* from under the bed, and for this purpose I employ the sleeve *k*, which fits the square rod K, and on which the arm I is pivoted, and for carrying the arm I back in proper position to be acted upon by the lever P, I place the coiled spring *l* upon the sleeve *k* and attach its upper and lower ends, respectively, to the arm I and sleeve *k* in such manner that the swinging out of the arm I by hand for removing and replacing the commode G will be against the tension of the spring *l*, and in order to stop the arm I at the proper position when swung back under the bed by the action of the spring *l*, I form the sleeve *k* with the shoulder *m*, and the arm I with the stop-lip *m'*, adapted to strike against the shoulder *m*, as will be understood from Fig. 4.

U is a U-shaped bolster-frame, attached at its ends to shaft V, journaled at its ends in the side plates, A A, of the frame of the bedstead, as shown in Figs. 1 and 2, and upon the shaft V is placed the worm-wheel V', which meshes with the short worm-shaft W, so that by turning the crank *w* thereof the bolster-frame U and bolster U', placed therein, may be raised and lowered for raising and lowering the patient, as required.

Constructed as described, it will be seen that the bedstead is complete for its purpose, and the entire mechanism may be worked by the patient occupying the bed by reaching to and operating the crank *w* and hand-wheel L', which may conveniently be done.

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

1. The combination, with a bedstead, of the rods K K', attached to the bottom of the bedstead, the slotted arms I J, loosely mounted on said rods and carrying a commode and

cushion, respectively, a shaft journaled below the bedstead and provided with the crank-arm P, and means for operating said crank-arm, substantially as herein shown and described.

2. The combination, with a bedstead, of the journaled rods K K', having the cranks R R', the arms I J, provided with a commode and cushion, respectively, and loosely mounted on said rods, the plate O, provided with the slotted plates Q, and guides for said plate attached to the bottom of the bedstead, substantially as herein shown and described.

3. The combination, with the worm-shaft L and worm-wheel M, having arm P and stud α secured thereto, of the elliptical cam N, sliding plate O, provided with the slotted plates Q, vertically-sliding arms I J, and pivoted vertical rods K K', provided with cranks R R, engaging the plates Q Q, all arranged to operate substantially as and for the purposes set forth.

4. The combination, with a bedstead, of the rods K K', the bifurcated arms I J, loosely mounted on the said rods, the worm-shaft L, and the worm-wheel M, having the crank-arm P, substantially as herein shown and described.

5. The combination, with a bedstead, of the rod K, the sleeve k, provided with the shoulder m' and mounted on the said rod, the slotted arm I, provided with the stop m' and loosely mounted on the sleeve, the spring l, connecting the arm I to the sleeve, and a shaft journaled below the bottom of the bedstead

and provided with the crank-arm P, substantially as herein shown and described.

6. The combination, with the commode G, of the covers g and the springs g^3 , for automatically closing the commode, substantially as described.

7. The combination, with a bedstead provided with an opening and having stops T, of the commode G, provided with the pivoted and spring-closed covers g , having lips g^2 , a vertical guide secured to the bedstead at one side of said opening, and a support for said commode loosely mounted on said guide, substantially as described.

8. The combination, with a bedstead provided with an opening and having the plates T, provided with the slots t , of the commode G, the pivoted covers g , having lips g^2 , and the spring g^3 , connecting said covers, substantially as herein shown and described.

9. The combination, with a bedstead, of the rods K K', provided with the crank-arms R', the arms I J, mounted loosely on said rods, the worm-wheel M, provided with the crank-arm P and stud α , the sliding plate O, provided with the slotted plates Q, and the elliptical cam N, having notch c , said slotted plates Q being connected to the crank-arms R, substantially as shown and described.

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Witnesses:

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