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GEORGE W. MANSON.

Improvement in Motor for Sewing Machines.

No. 121,638.

Patented Dec. 5, 1871.

Fig: 1.

Fig: 2.

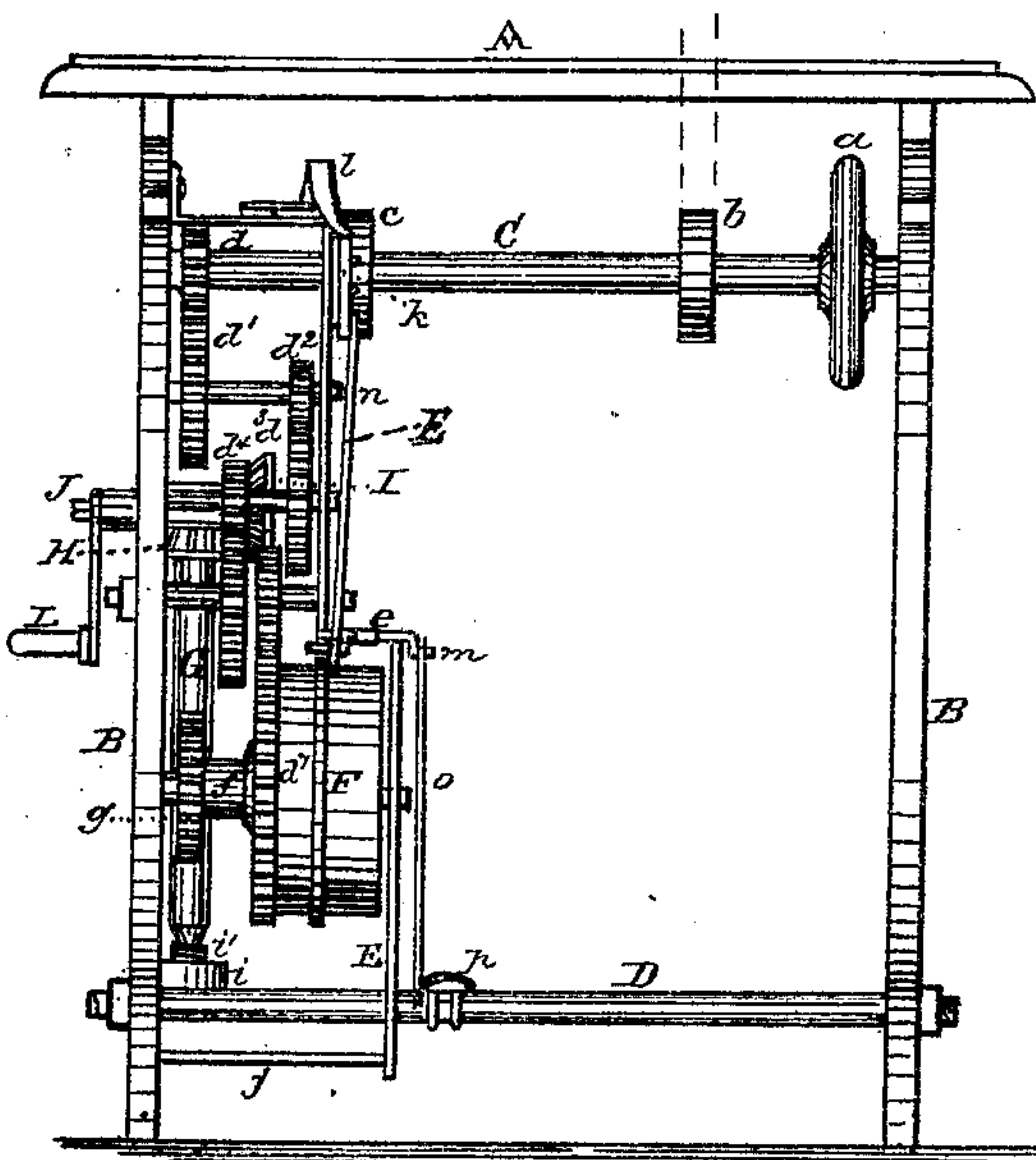
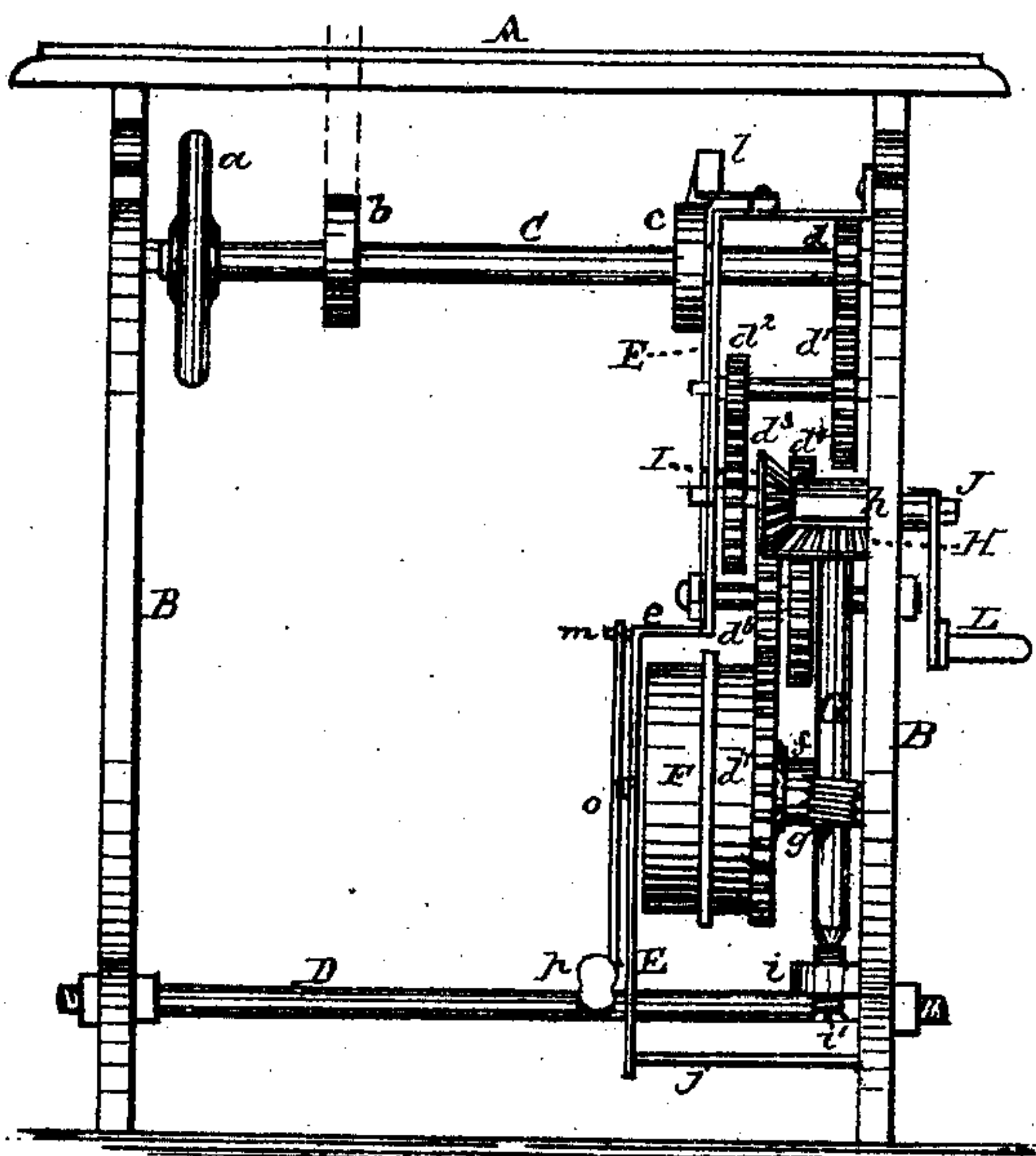


Fig: 3.

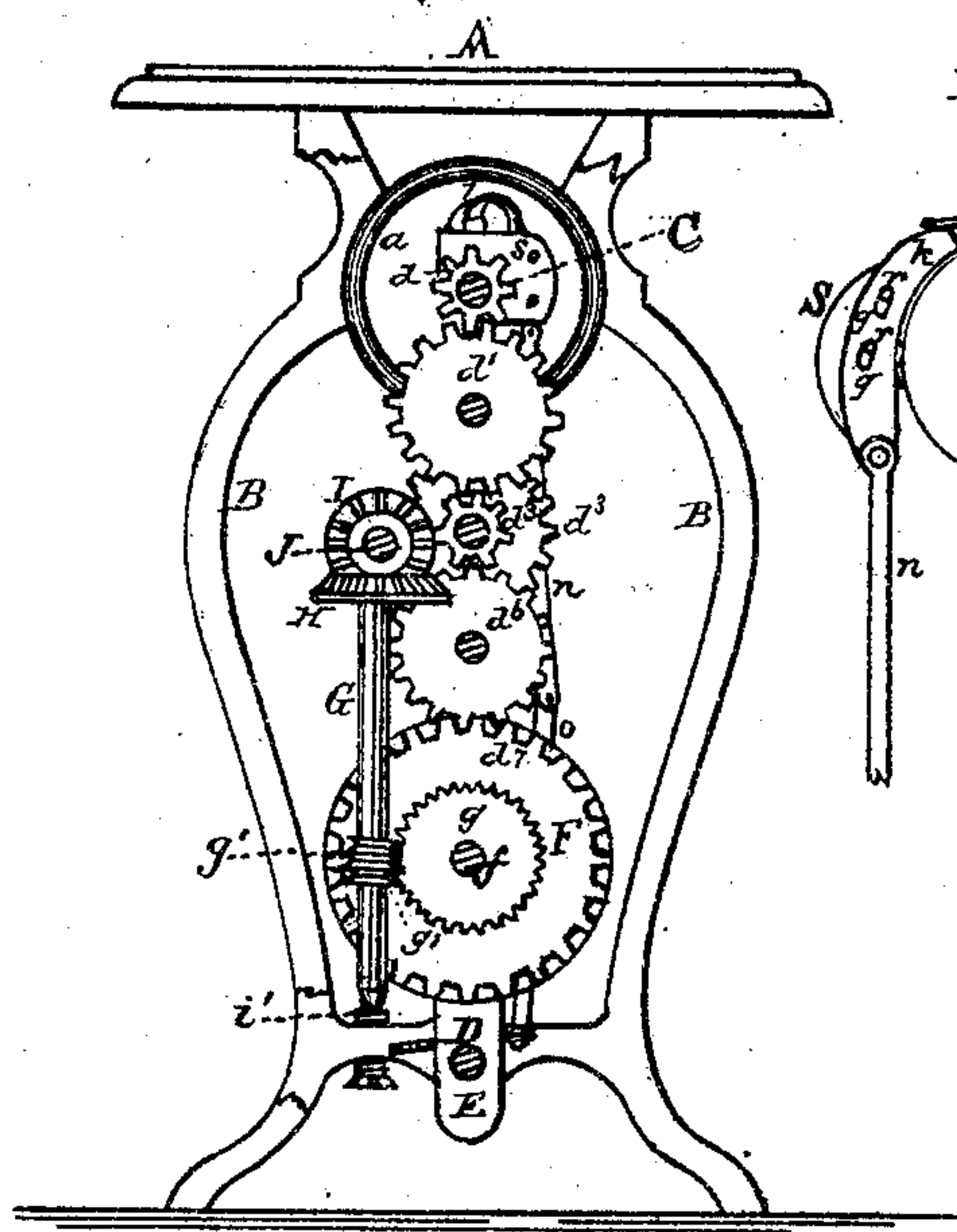


Fig: 5.

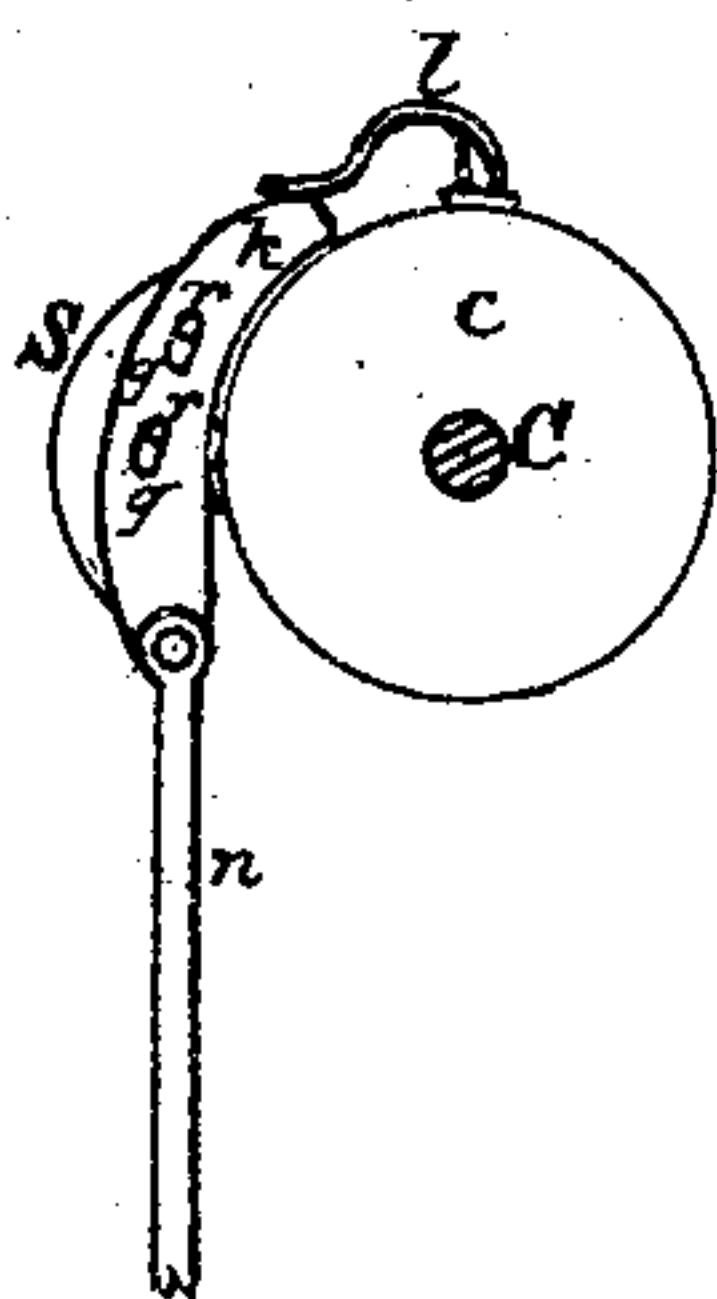
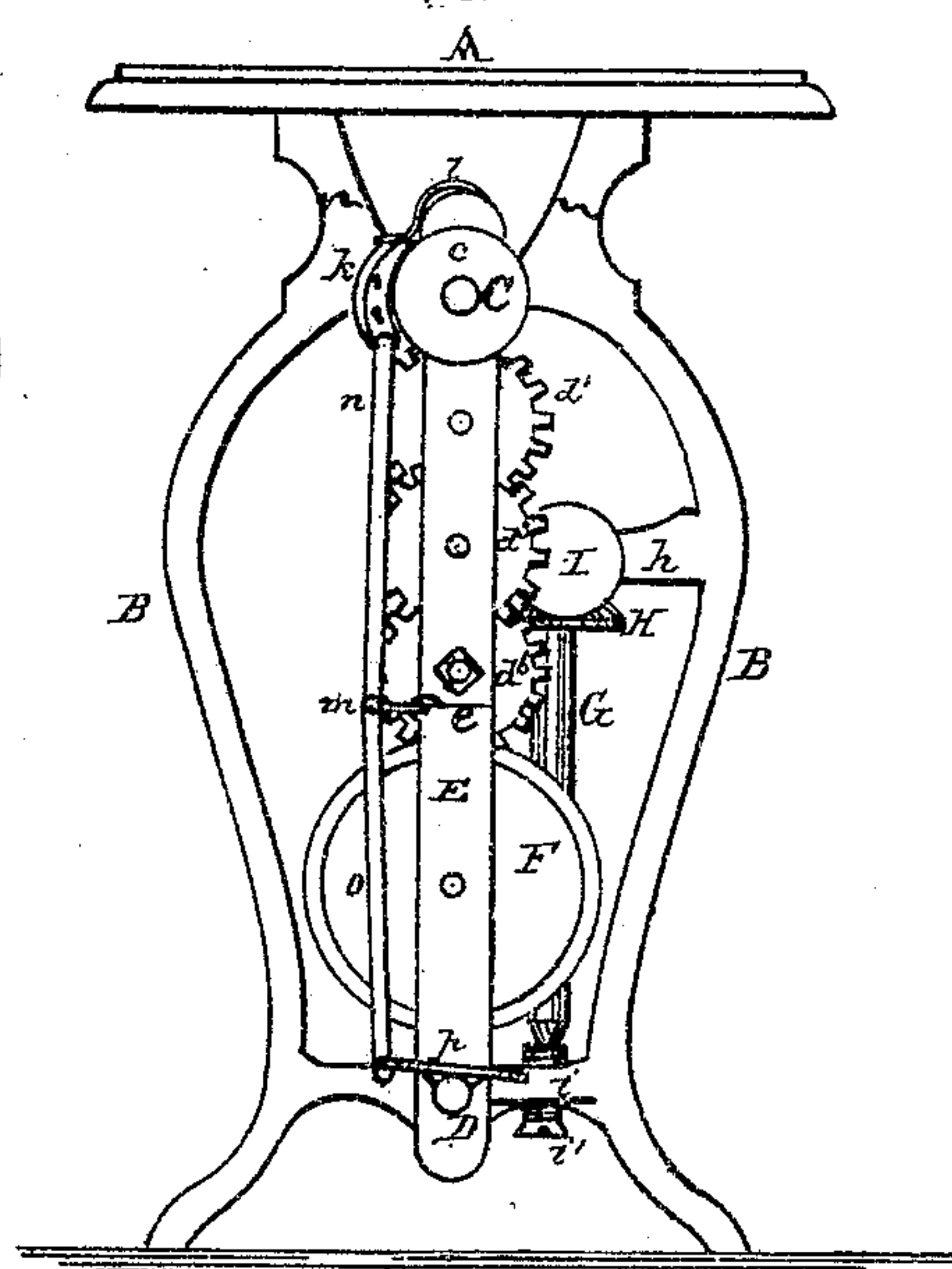


Fig. 4.



Witnesses:

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Inventor:

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by
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his Attorneys

*Received Aug. 20th 1872.
In C. Division.*

121,638

UNITED STATES PATENT OFFICE.

GEORGE W. MANSON, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF HIS
RIGHT TO SAMUEL KEEFER, OF EAST ORANGE, NEW JERSEY.

IMPROVEMENT IN MOTORS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 121,638, dated December 5, 1871.

To all whom it may concern:

Be it known that I, GEORGE W. MANSON, of the city, county, and State of New York, have invented a new and useful Improvement in Operating Sewing-Machines, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a front elevation of a sewing-machine table and frame with my improvement attached thereto. Fig. 2 is a rear elevation of the same. Fig. 3 is an end view of the same, one end of the frame being removed. Fig. 4 is a similar view from the opposite end, and Fig. 5 is a detached enlarged view of the brake.

My invention consists of a novel way and means of winding up the coiled spring from which, through suitable gearing, motion is imparted to the machine, rendering this operation of winding more simple, perfect, and certain; and, further, in an improvement in the construction of the brake, whereby a much finer adjustment of its operation is attained.

Between the two frames or standards B of a sewing-machine table, A, and at a suitable distance below said table, revolves, in suitable bearings, the shaft C, carrying the hand, belt, and brake-wheels *a b c*, respectively, and the gear-wheel *d*. The frames B, at their lower ends, are held together by a bar or rod, D, which supports an additional standard, E, through the upper end of which the shaft C passes, and which, a little above the shaft C, is bent at right angles, and is then secured to the standard B. This standard E is bent at *e* at right angles, so that its lower portion is further away from the nearest standard B than its upper portion, whereby space is obtained for the spring-case and gear-wheel at the lower portion, without a consequent lengthening of the shafts of the gear-wheels *d¹, d², d³, d⁴, d⁵*, and *d⁶*, through which gear-wheels, and the gear-wheel *d* on shaft C, motion is imparted to the latter from the spring-case F, which carries or has formed on its outer edge a gear-wheel, *d⁷*. The coiled spring is attached by its outer end to the inner periphery of the case F, and with its inner end to the shaft *f*, on which the case F revolves freely. On the shaft *f*, outside of the case, and between it and the standard B, is keyed or otherwise secured a worm gear-wheel, *g*, gearing with a worm, *g'*, on a vertical shaft, G, which stepped in bearings *h i* formed or secured to

the standard B. The step *i'* of shaft G, in the lower bearing *i*, is made to screw up or down, so as to allow of a ready removal of the shaft for the purpose of cleaning it and the worm, or to facilitate the access to the other parts. The shaft G, at its upper end, carries a horizontal beveled cog-wheel, H, gearing with a vertical beveled cog-wheel, I, secured on the end of a shaft, J, which, passing through, and having its bearings in the cross-piece *h* of the standard B, is provided with a crank-handle, L. Additional rigidity is given to the standard E by means of a rod, *j*, connecting the lower end, which extends below rod *d*, to the lower end of the standard B. The shafts of the gear-wheels *d¹ d² d³ d⁴ d⁵ d⁶* have their bearings in the standards B and E, and are arranged above each other at proper distances to allow of the free revolution of the gear-wheels with the least amount of friction. In its normal condition the brake *k* is held against the brake-wheel *c* on shaft C by means of a spring, *l*, one end of which is secured on standard E, while its free end forcibly presses the brake *k* into a frictional contact with wheel *c*. This brake is pivoted with its lower end to a rod, *n*, the lower end of which is again pivoted to one branch of a double rock-arm, *m*, pivoted to the bent part *e* of standard E, and the other arm of which has its bearing in the upper end of a rod *o*, the lower end of which is pivoted to a treadle, *p*, made to vibrate on the rod D. The brake *k* is provided with one or two inclined slots *q*, through which pass pins *r* from an arm, *s*, of standard E; and as the brake is moved up and down these pins *r* move it against or from the brake-wheel *c*. These slots are so arranged in relation to the face of the brake and the periphery of the brake-wheel *c* that the elevation of the brake does not suddenly but only gradually relieve the friction of the brake on the wheel. Thus it will be seen that, by pressing the treadle down at the heel, the brake will be raised against its spring and away from the brake-wheel, and will remain off as long as and while the treadle is pressed down, and the brake will be put on and the machine stopped whenever the foot is removed from the treadle.

The operation of my improved winding apparatus is as follows: The small crank-handle L is placed in position on its short shaft J and operated, thereby revolving the vertical shaft G,

and through the worm g' on the latter, and the worm gear-wheel g on the shaft f , and winding upon this shaft the coiled spring. If it is not desired to wind up the spring to its full capacity the winding may be arrested at any time, and as the worm gear-wheel g cannot operate the worm g' on the shaft G , neither ratchet nor pawl are required to hold the parts at any point of the winding, thus rendering the operation of winding the spring entirely noiseless, the brake being on during this operation, and holding through the several gear-wheels the case F , thus preventing the latter from revolving while the spring is being wound up. This having been accomplished, the crank-handle L is removed and put away, and the machinery may be operated by pressing down the treadle and thus removing the pressure of the brake. The coiled spring is then free to operate the case, and through it the gear-wheels revolve the shaft C and operate the machine. As the handle L can be removed whenever the spring has been coiled and placed out of the way, no lever or equivalent device for the operation of the spring is on the outside of the frame or above the table of the machine, while all the operating mechanism is confined to one end of the frame. In machines standing on cases with doors and drawers, the drawers may be on one side and the operating mechanism on the other, leaving sufficient room for the limbs of the operator and for the brake. The brake being susceptible of a very fine adjustment in regard

to its frictional operation on the brake-wheel c enables the operator to regulate the speed of the motion of the needle-bar without any loss of power or the necessity of interrupting the operation of the machine; and although this result, by great practice, might be obtained by means of any friction-brake, yet the peculiar construction by which this fine adjustment is attained renders it almost a matter of intuition to operate the brake in relation to the speed of the needle-bar.

Having described my invention, I claim—

1. The combination, with the coiled spring-case F and the train of gears to operate a sewing-machine, of the worm gear-wheel g and worm g' on the vertical shaft G , the latter being operated by a removable crank-handle L and short gear-shaft J , the parts being arranged and operating substantially as described.

2. The brake k , provided with inclined slots q , spring l , and the arm s of the standard E having pins r , in combination with the brake-wheel c on the shaft C , arranged and operating substantially as and for the purpose described.

3. In combination with the brake k , arranged as described, the spring l and brake-wheel c , the rods n o , double rock-arm m , and treadle p , all arranged to operate as herein described and shown.

GEORGE W. MANSON.

Witnesses:

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JOHN HAWKINS.

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