

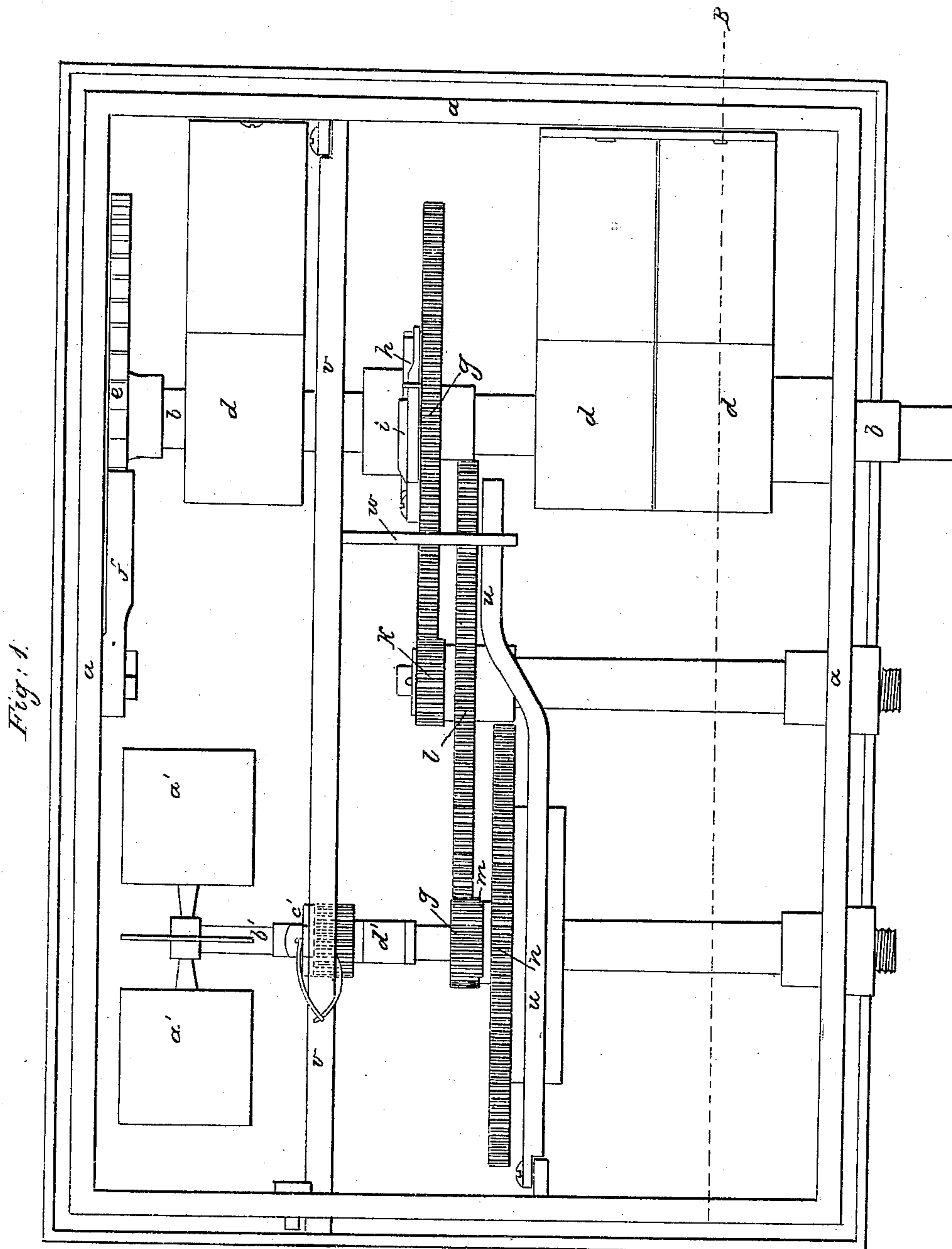
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3 Sheets—Sheet 1.

Sewing Machine.

No. 16,315.

Patented Dec. 23, 1856.



Witnesses:
Joseph Garrett,
Elin Lincoln

Inventors:
A. F. Johnson
D. A. Houghton

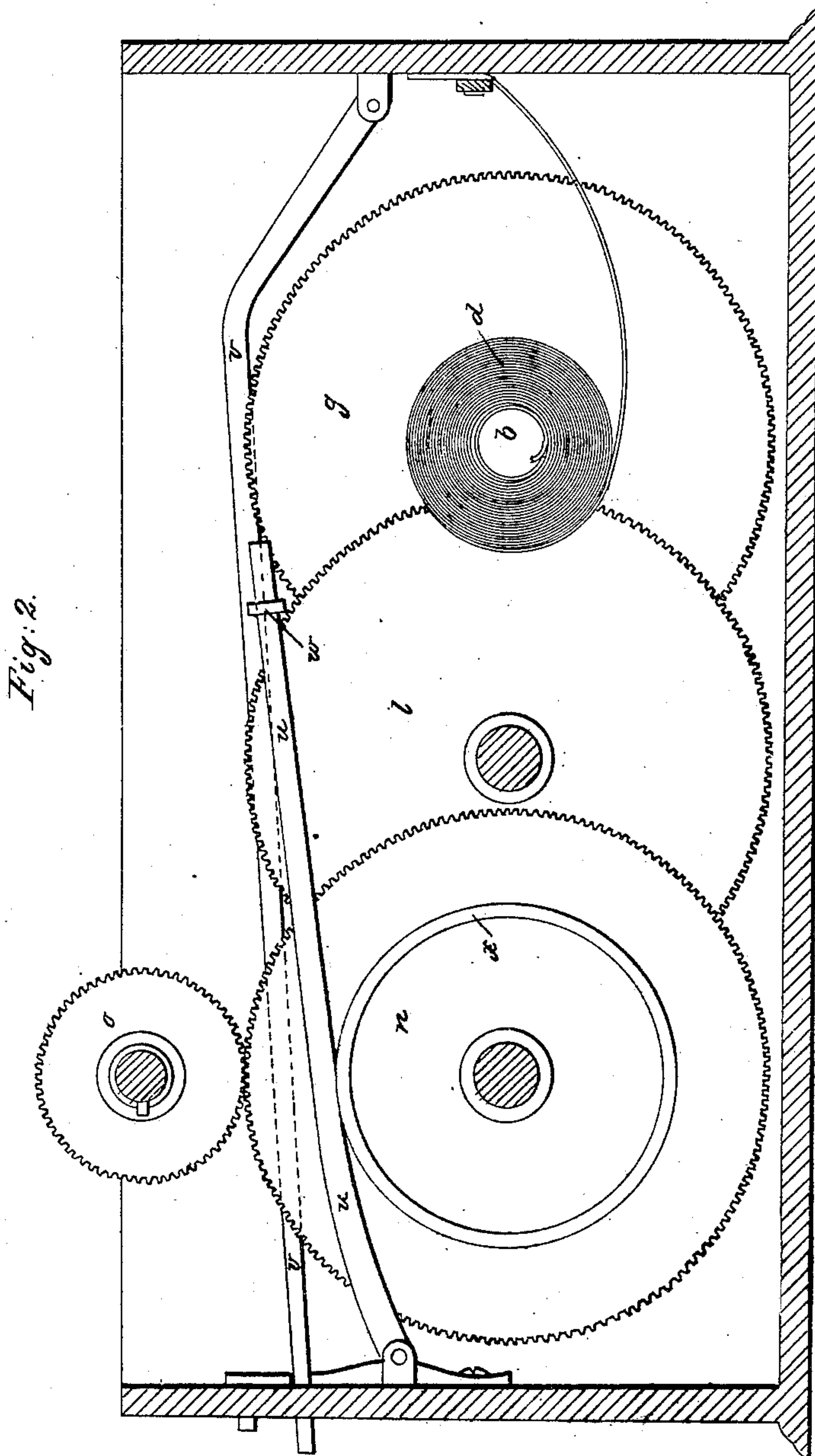
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Sewing Machine.

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Fig: 3.

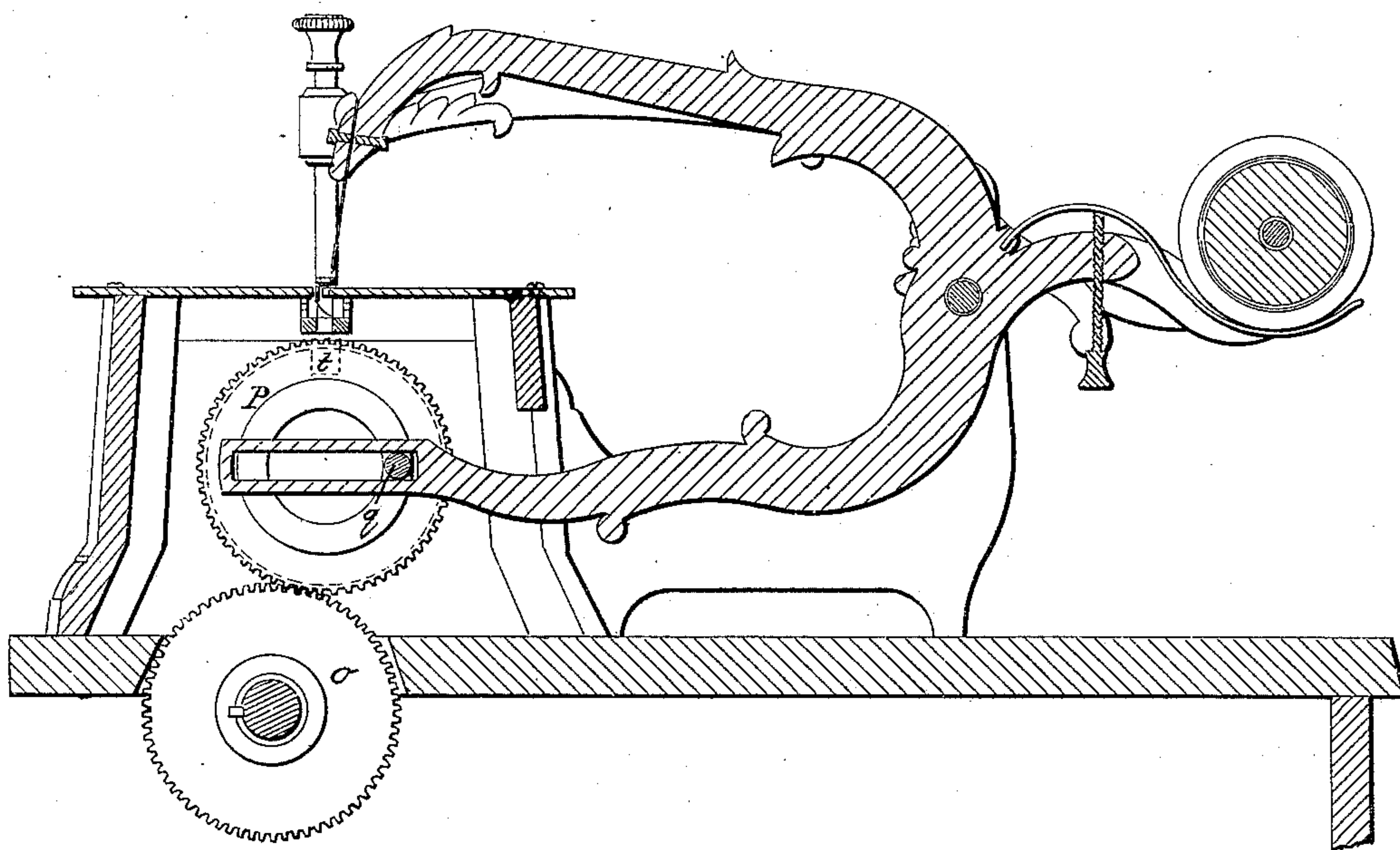
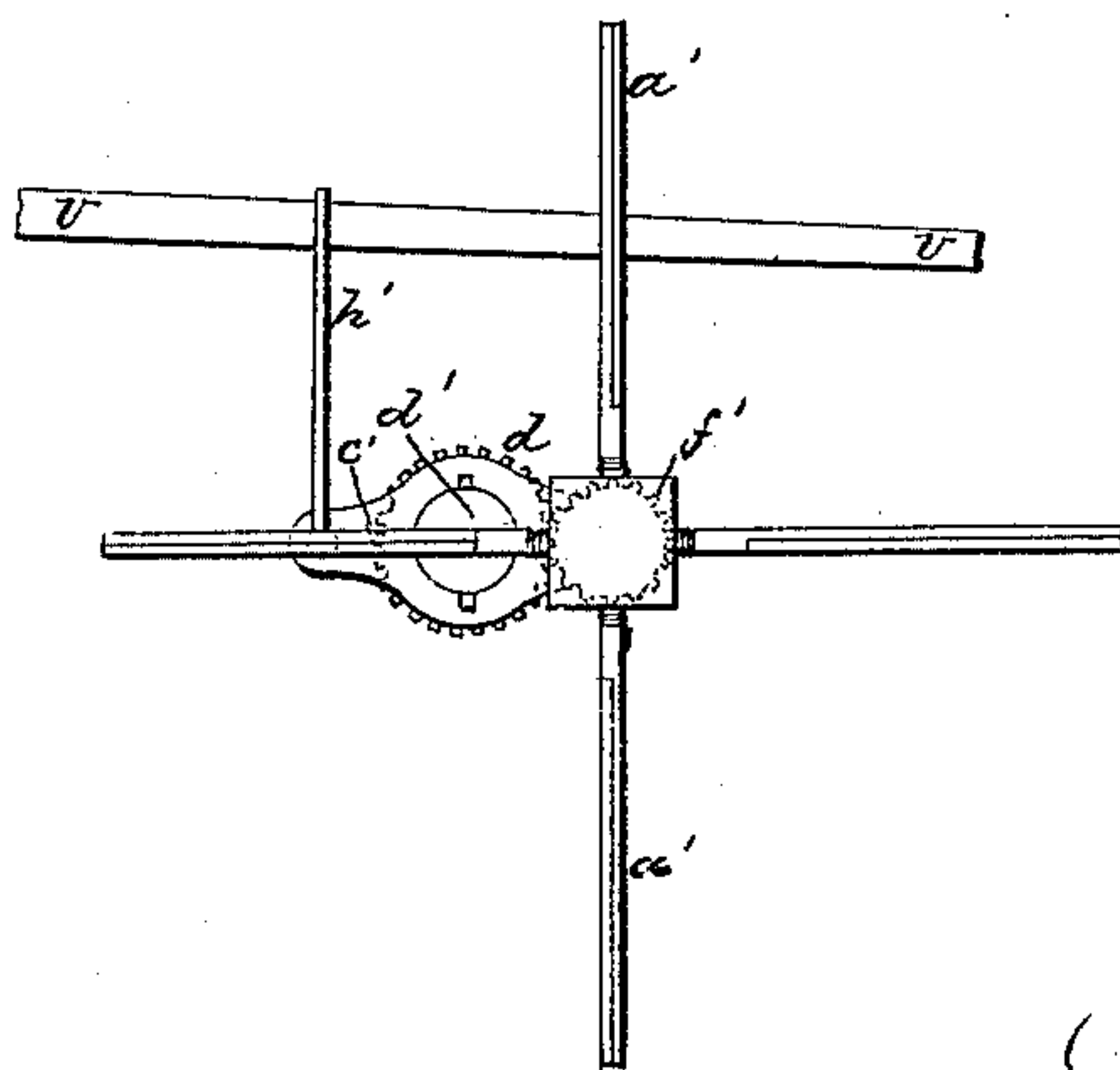


Fig: 4.



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UNITED STATES PATENT OFFICE.

A. F. JOHNSON AND F. A. HOUGHTON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 16,315, dated December 23, 1856.

To all whom it may concern:

Be it known that we, A. F. JOHNSON and F. A. HOUGHTON, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Self-Acting and Self-Regulating Sewing-Machine; and we do hereby declare that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein we have set forth the nature and principles of our said invention, by which it may be distinguished from others of a similar class, together with such parts as we claim and desire to have secured to us by Letters Patent.

The figures of the accompanying plate of drawings represent our improvements.

Figure 1 is a plan or top view of our improved machine, with the top portion removed. Fig. 2 is a longitudinal vertical section of the same, taken in the plane of the line A B, Fig. 1. Fig. 3 is a vertical section, showing the needle-arm and the devices for actuating it. Fig. 4 is a detail view, to be hereinafter referred to.

An organized sewing-machine which shall be self-acting and self-regulating forms the subject of the present invention, a reservoir of power consisting of spiral springs being so applied to produce the required motions of the needle-arm, &c., as to operate the machine a sufficient length of time for ordinary purposes, and a uniform speed kept up in the machine by a self-regulating device. The device for regulating the speed consists of a fan-wheel set in motion by gears, the revolution of which fan-wheel applies pressure to a brake and checks the speed by friction; or the friction may be applied by means of an ordinary governor or other self-regulating device.

a a a a in the drawings represent the framework or box in which the operative parts of the machine are placed.

b b is the main shaft, upon which are coiled three springs, *d d*, &c. The springs are held as fast as wound up by means of a ratchet-wheel, *e*, and pawl *f*.

g is a gear that is loose on the shaft *b b*, but has a motion in common with the said shaft when revolving by means of a small ratchet-wheel, *h*, fixed to the shaft *b b*, and a pawl, *i*,

fastened to the gear *g*. By disengaging the pawl *f* from the ratchet *e*, the uncoiling of the springs will revolve the gear *g*, and through a series of gears and pinions, *k l m n o*, will give motion to a gear, *p*, Fig. 3. A stud, *q*, placed eccentrically upon the gear *p*, works in the slotted end of the needle-arm *r r*, turning on a fulcrum at *s*, and thereby imparts a vibratory or up-and-down motion to the needle-arm. The feed motion is obtained by means of a cam on the same shaft with the gear *p*, in the groove of which cam a stud, *t*, (shown by dotted lines in Fig. 3,) attached to the feed-ing-bar, works and gives the required motion.

The devices for regulating the speed are represented in Figs. 1 and 4. *u u* is a brake to which pressure is applied through the arms *v v w*, so as to produce friction upon a wheel, *x*, as follows: *a' a'* is a fan-wheel attached to a short shaft, *b'*, that passes loose through a lever-arm, *c'*, Fig. 4, having a fulcrum on the shaft *d'*. The shaft *b'* has on the end opposite the fan-wheel *a' a'* a pinion, *e'*, that engages with a second pinion, *f'*, fixed to the shaft *d'*, upon the opposite end of which is a pinion, *g'*, that engages with the pinion *m*, before referred to. From this description it will be seen that motion will be imparted to the fan-wheel, causing it to revolve with its shaft *b'*. As the speed of the fan-wheel increases beyond the rate desired the pinion *e'* will travel round on the pinion *f'*, carrying one end of the lever-arm *c'* up and the other down, thereby drawing upon a strap *h'*, one end of which is attached to the lever-arm *c'* and the other end to the brake *v v*, thus through the brake *u u* producing the required friction upon the wheel *x* and keeping the speed at a uniform rate.

Having thus described our improved sewing-machine, we shall state our claims as follows.

We do not intend in the present application to make any claim to the manner of vibrating the needle-arm by means of an eccentric stud working in the slotted arm, as we may make this the subject of an application hereafter; but

What we do claim as our invention, and desire to have secured to us by Letters Patent, is—

1. The within-described arrangement of

parts of a spring-power mechanism, when combined with a sewing-machine and located in a box forming the pedestal of said machine.

2. The device by which the machine is made self-regulating as to speed, consisting of the lever *v* and brake *u*, in combination with the fan-wheel *a'*, attached to the loose collar

c', in the manner described, and operating as set forth.

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