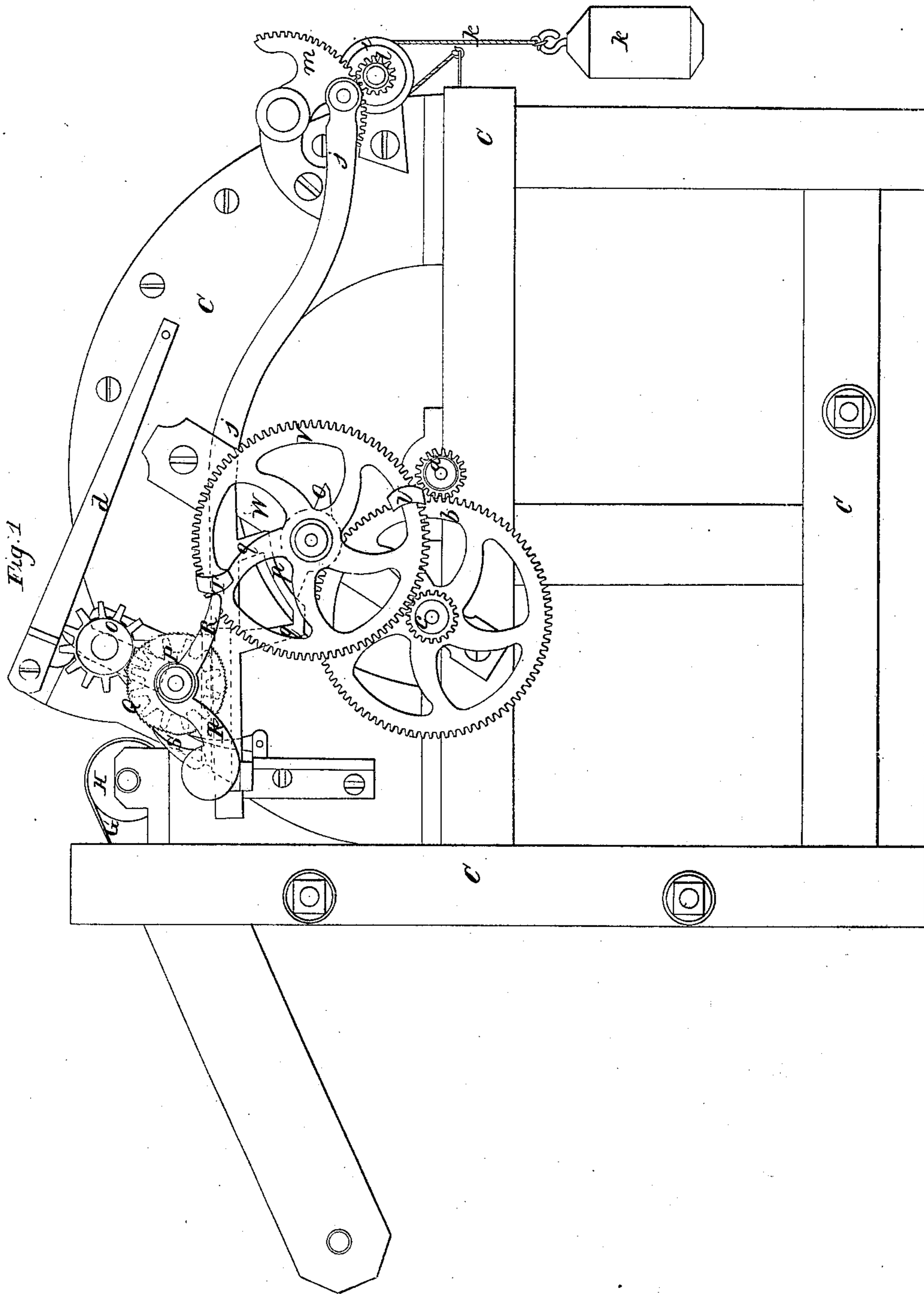


F. A. Calvert.
Picker.

Nº 9670.

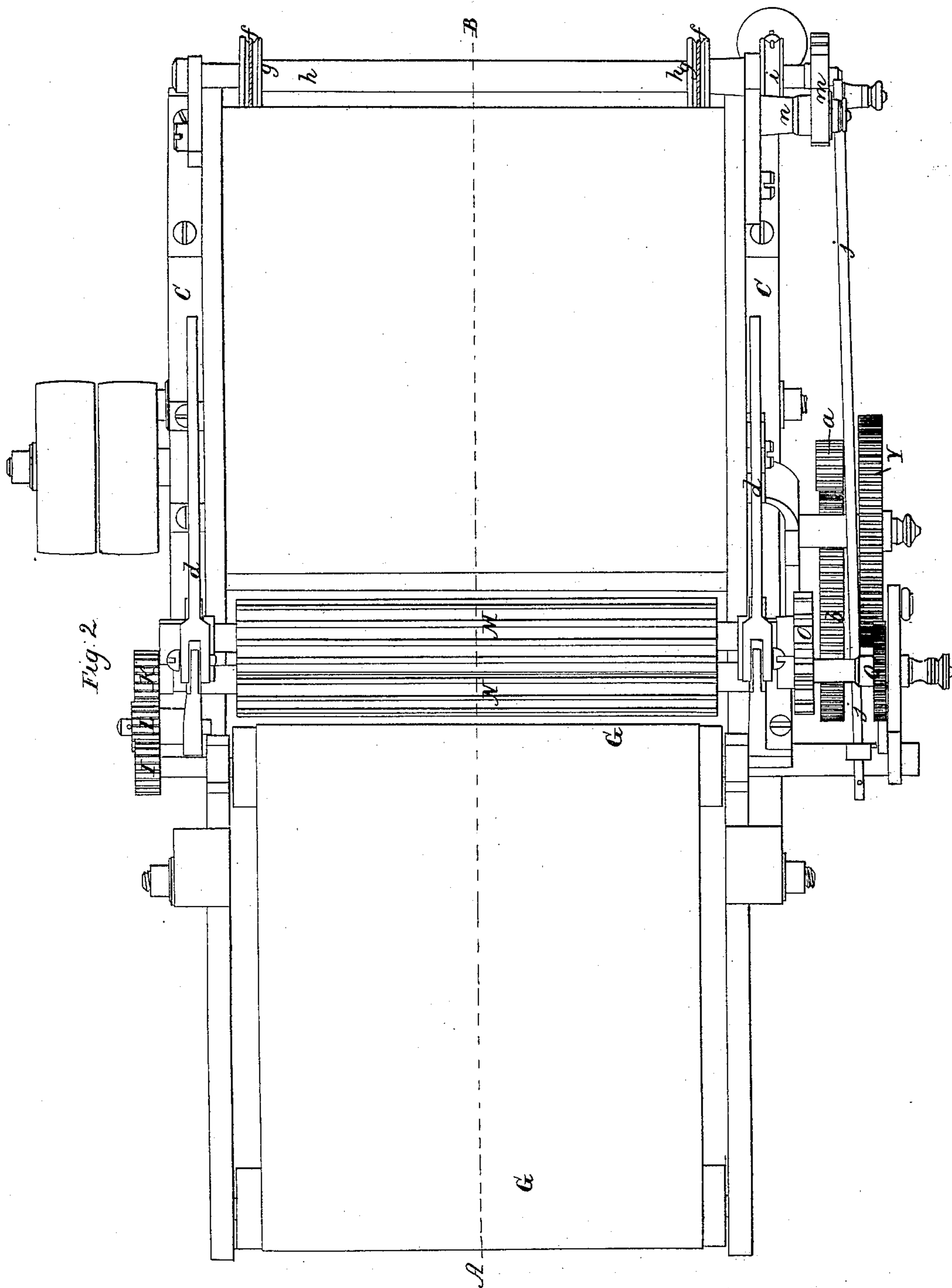
Patented Apr. 19, 1853.



F. A. Calvert.
Picker.

N^o 9,670.

Patented Apr. 19, 1853.

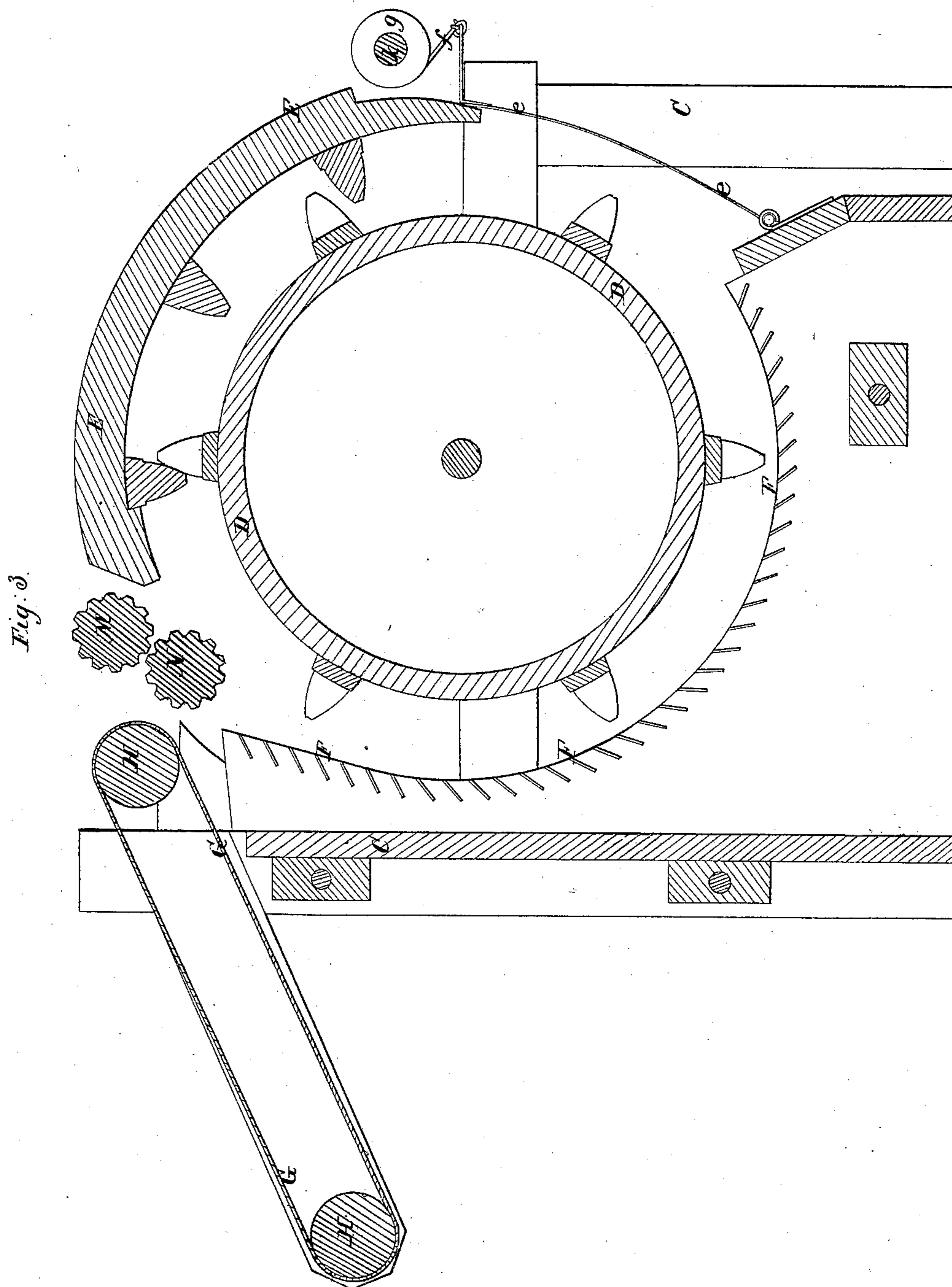


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N^o 9,670.

Patented Apr. 19, 1853.



UNITED STATES PATENT OFFICE.

FRANCIS A. CALVERT, OF LOWELL, MASSACHUSETTS.

FEED-MOTION IN WILLOWERS.

Specification of Letters Patent No. 9,670, dated April 19, 1853.

To all whom it may concern:

Be it known that I, FRANCIS A. CALVERT, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Willowers, and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

The figures of the accompanying plates of drawings, represent my improvements.

In Plate 1, Figure 1 is a side elevation of my improved willower. In Plate 2, Fig. 2 is a plan of my machine and Fig. 3 is a longitudinal vertical section of the same taken in the plane of the A B Fig. 2, Pl. 2.

The distinguishing feature of my improvements consists in using in connection with what is usually known as the Oldham willower, a set of feed rollers to which an intermittent motion is imparted, so as to feed the cotton to the cleaning cylinder in allotted quantities, from time to time, and distribute it evenly over the said cylinder, by which it becomes more quickly and thoroughly cleaned than when the said allotted quantities are fed in by hand in the way now practised. Where the cotton is fed to the machine in the manner last suggested by hand, it is apt to keep in lumps or knots, and the action of the teeth of the cylinder and the standing teeth over the same, has the effect to string or nib the fiber, as it is termed.

C C C C in the several drawings represents the framework and casing of the machine which incloses the cleaning cylinder. D D Fig. 3 Pl. 2, constructed in the usual way with rows of opening teeth stretching across the cylinder, which teeth work with the rows of standing teeth on the underside of the curved top piece or plate E E, in the ordinary manner as in the Oldham willower hereinbefore referred to. The curved metallic grating F F F Fig. 3 is also arranged in a substantially similar way to the gratings in the machines now in common use.

The cotton to be cleaned is placed on an inclined feeding table, consisting of an endless apron G G G stretched around the

rollers H, H, as shown in Fig. 3 Pl. 2, which apron is driven by means of a gear wheel I fixed on one journal of the inner roller, H, that connects with a gear wheel K on one journal of the lower feeding roll, through the medium of the gear pinion L properly arranged between the said gear wheels I and K.

M, N are the upper and lower fluted feed rollers which receive the cotton from the apron G G G and deliver it intermittently in certain quantities to the cylinder D D. The intermittent motion is imparted to these feed rollers by the following described combination of mechanical contrivances. The two rollers are geared so as to turn together properly by means of the gear wheels O, P fixed on their journals as shown in Fig. 1 Pl. 1, the latter wheel being represented therein by dotted lines. On the extension of one journal of the lower feed roll N, is fixed a ratchet wheel Q, which is turned a certain distance at proper intervals, by means of a curved lever R R and pawl S attached to and operating with said lever. This lever and pawl are moved or turned from time to time, so as to turn said ratchet wheel and feed rollers, by means of the two cams T, U placed on the side of the large gear wheel V, at proper distances apart to produce the desired effect. This wheel V revolves on a short shaft which has proper bearings in a metallic bracket W Fig. 1 Pl. 1, secured to the side of the framework. The motions of this wheel V are connected to those of the cleaning cylinders D D by means of a small gear pinion *a*, on one journal of said cylinder and the connecting gear wheel *b* and pinion *c* on the same shaft with said wheel *b*, the teeth of which pinion *c* engage with those of the wheel V and give it its proper proportionate motion relatively to the motion of the cleaning cylinder, in a manner which will be readily understood by inspection of Fig. 1 Pl. 1. Pressure is produced upon the feeding rollers, by means of the levers *d d*, arranged in the usual way, so as to be weighted, as shown in Fig. 1 Pl. 1 and Fig. 2 Pl. 2.

By the above described arrangement of the feeding rollers with the cleaning cylinder, it will be seen that while and after the said rollers are introducing and have delivered a quantity of cotton to the said cylinder, it will revolve a number of times before another quantity is delivered, and clean the

portion first delivered as aforesaid, which is then ready to be discharged from the machine, and a discharging gate *e e*, at the back part of the machine, is opened and closed 5 intermittently for this purpose, by the following arrangement of mechanical devices. The gate is properly hinged at the bottom and is drawn up and kept in a closed position, by means of cords *f f—f f* connected to 10 the top of said gate and passing around the grooved pulleys *g, g*, on the cross shaft *h h* (having proper bearings projecting from the framework of the machine), and the exterior grooved pulley *i*, also fixed on said 15 shaft *h h*, and having a cord and weight *k k* so arranged as that when the said shaft is free to revolve in its bearings, said weight shall turn it so as to wind up the cords *f f—f f* and close the gate, in a manner 20 which will be readily understood. The opening of the said gate is effected through the medium of the gear pinion *l* on one end of the shaft *h h*, which with said shaft is turned so as to raise the weight *k* and thereby open 25 the gate by means of the vibrating gear segment *m*, properly suspended from the short shaft *n*, projecting from the framework as shown in Fig. 2, Pl. 2. The swinging or

vibrating of this gear segment is produced by the crooked sliding bar *j j*, which is 30 moved backward by a cam *o* on the wheel *V* that abuts against the curved face *p* of a projection *q* from the underside of said rod, and winds the weight *k* up and opens the gate as aforesaid, and when the cam ceases 35 to bear on said projection, the weight turns the shaft *h h* and closes the gate as hereinbefore described. The opening and closing of this gate may be effected by other combinations of mechanical contrivances, as will 40 be readily understood by mechanics, but this is one successful method which I have adopted.

Having thus described my improved willower I shall state my claim as follows. 45

What I claim as my invention and desire to have secured to me by Letters Patent is,

The combination of a set of feeding rollers and endless feeding apron, having an intermittent motion imparted to them, for the 50 purpose herein above set forth, with the cleaning cylinder of a willower.

FRANCIS A. CALVERT.

Witnesses:

EZRA LINCOLN,
GEO. P. SANGER.