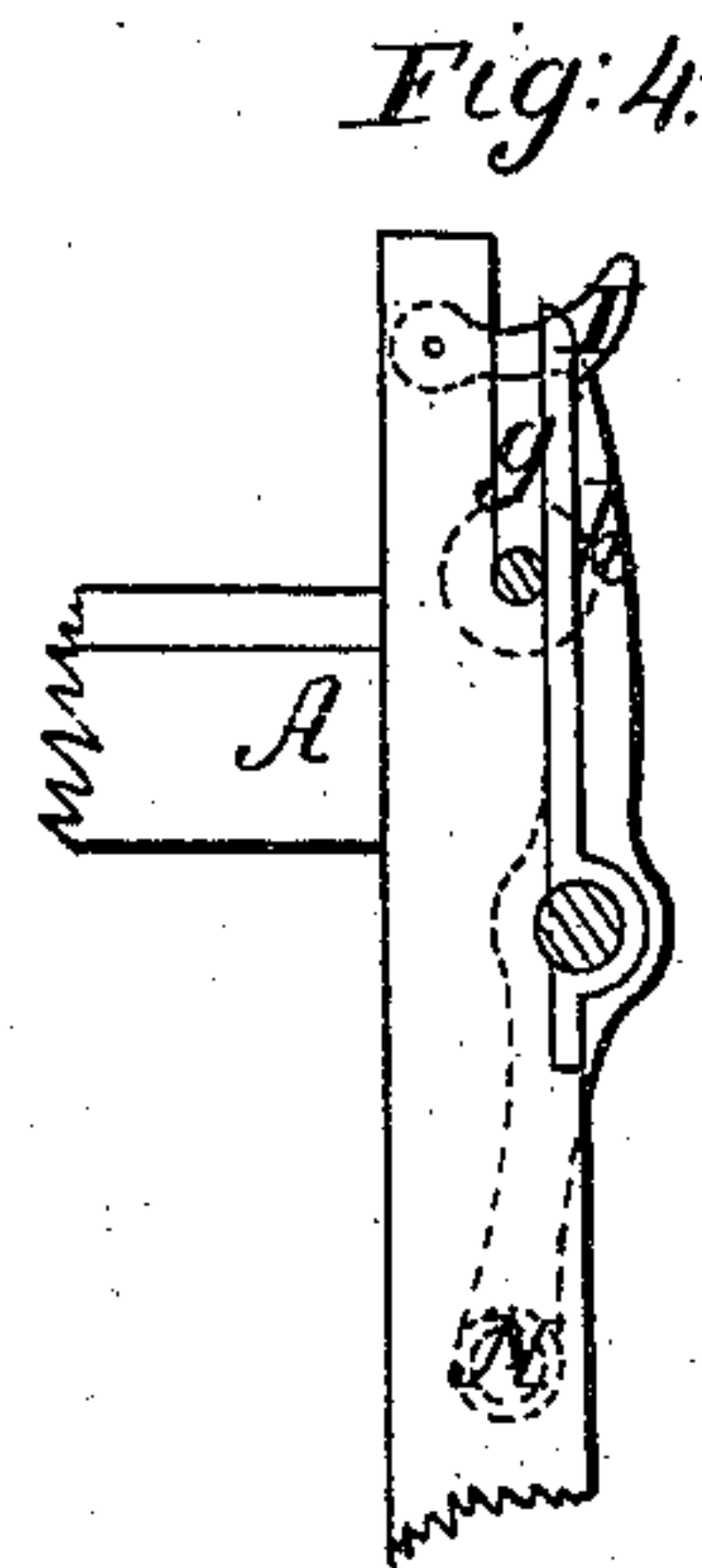
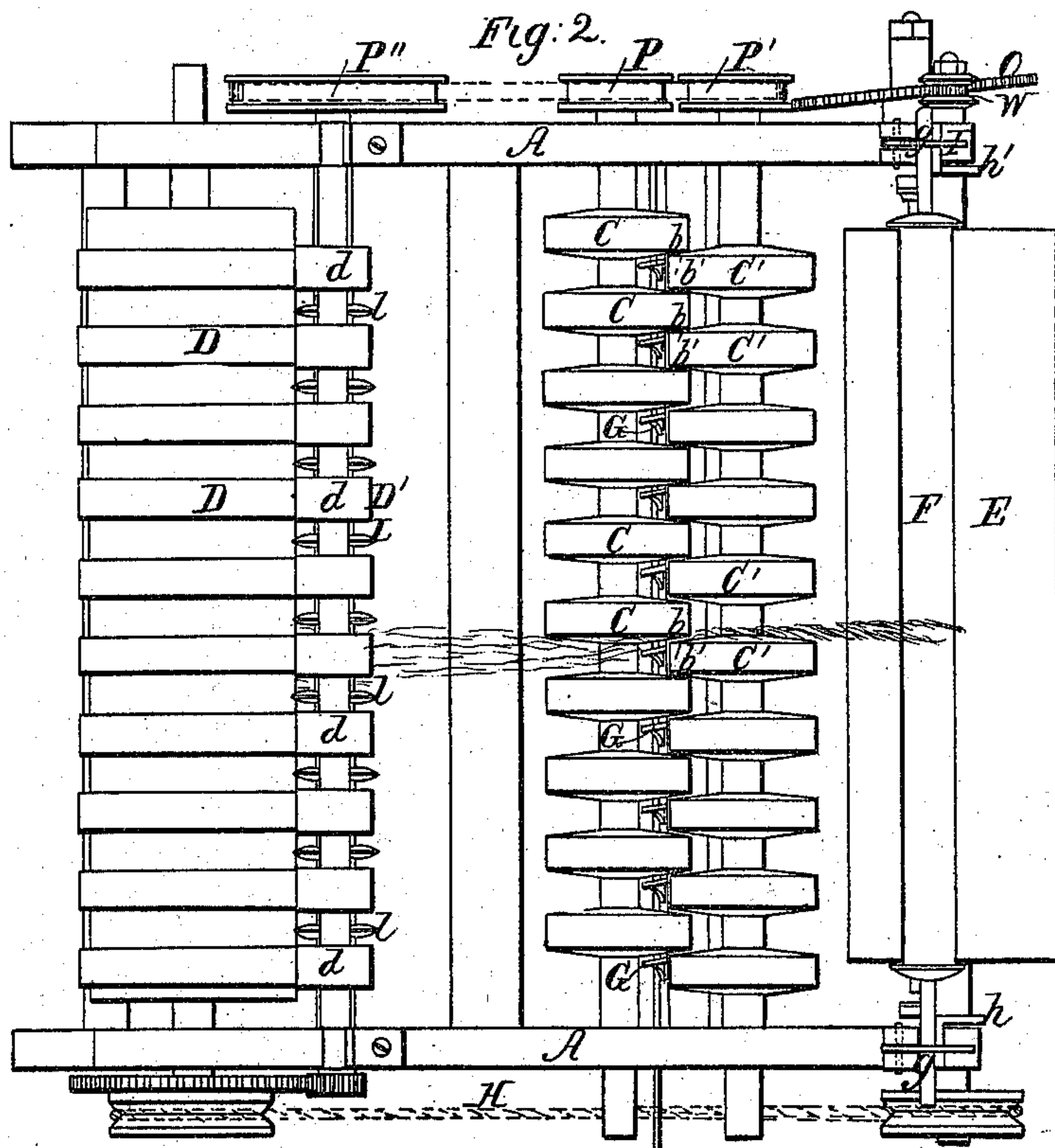
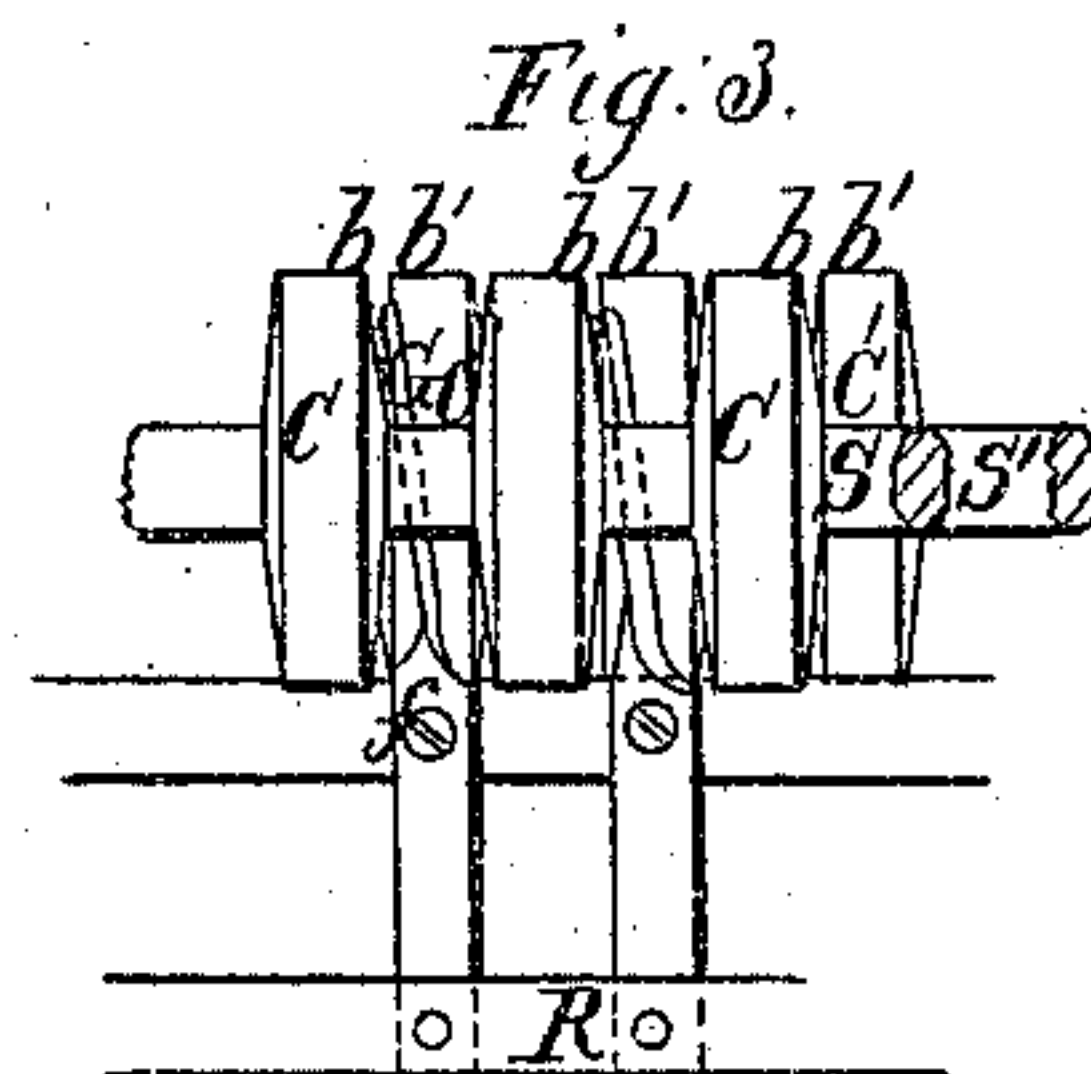
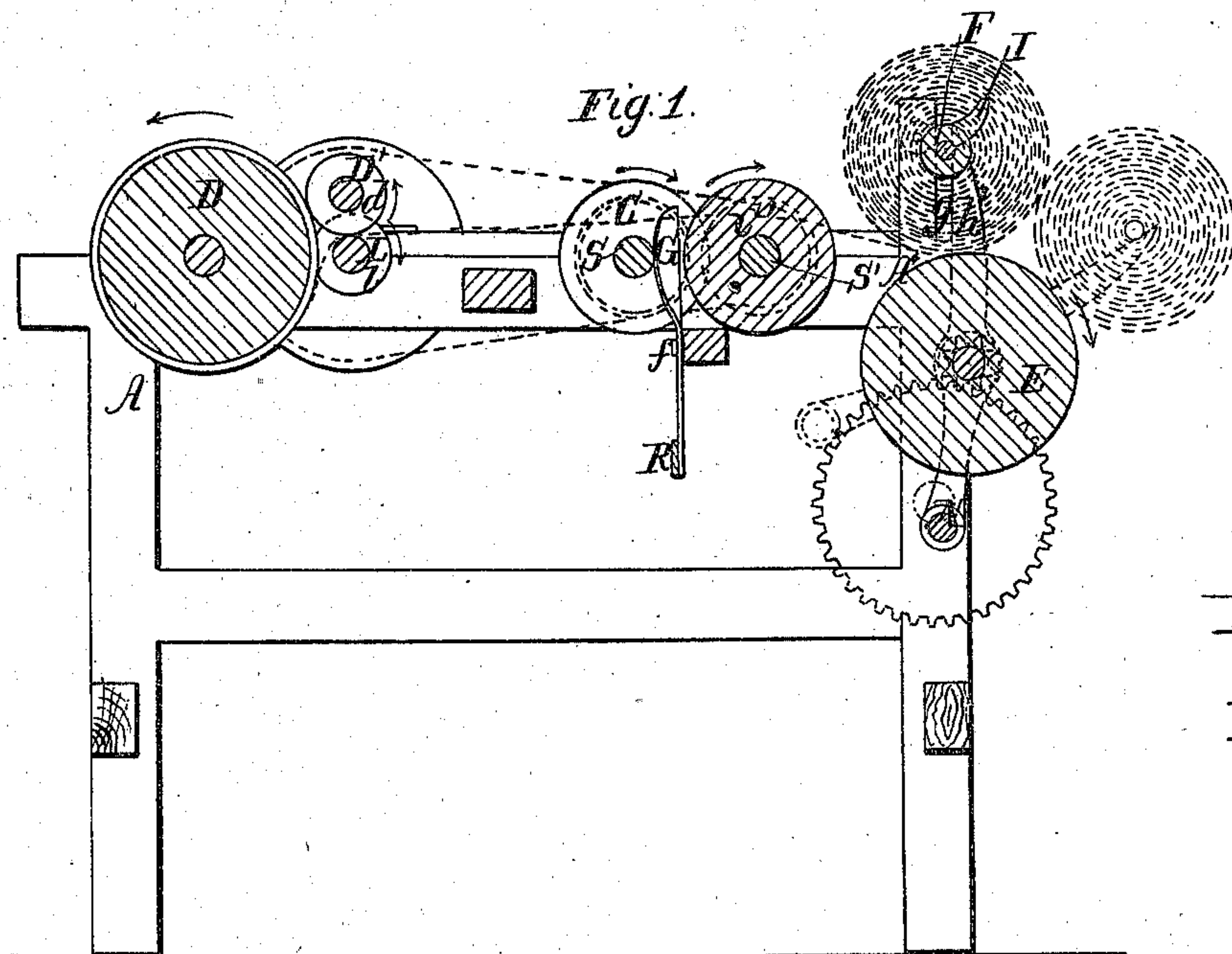


W. H. Howard.
Carding Mach.

No 12,863.

Patented May 15, 1855.



UNITED STATES PATENT OFFICE.

WILLIAM H. HOWARD, OF PHILADELPHIA, PENNSYLVANIA.

CONDENSER FOR FIBROUS MATERIALS.

Specification of Letters Patent No. 12,863, dated May 15, 1855.

To all whom it may concern:

Be it known that I, WILLIAM H. HOWARD, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and improved condenser to be applied in carding-engines used in carding wool and other fibrous substances for the purpose of condensing the slivers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming part of this specification, in which—

Figure 1, is a longitudinal section of the condenser, shown applied only to the upper doffer. Fig. 2, is a top view of the same. Fig. 3, is a back view of some of what I call the condensing disks, and one of the guide plates. Fig. 4, is a side elevation of the apparatus which receives the condensed material.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in a certain combination of parts for conducting and condensing the fibrous material from the doffer of a carding engine to the spool.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operations.

D, represents the doffer of the carding engine, which, with all the other mechanism represented, is supported on a framing A, A, which is supposed to be all a part or continuation of the framing of the carding engine.

D', is a roll, termed the doff roll, and L, another roll, termed the lower roll, the latter receiving motion by spur wheels *a*, *a'*, from the doffer, and giving motion to the former by friction. The doff roll is made in sections *d*, *d*, corresponding with the rings of card upon the doffer, and works in contact with the doffer. The lower roll is divided into sections by disks *l*, *l*, which stand opposite the centers of the spaces between the sections of the doff roll.

C, C', are two series of disks by which the condensing of the slivers is effected; these disks may be made of wood or metal. Their shafts S, S', are parallel, and arranged some distance in front of the rolls D', L. The front series of disks C', C', and the back series C, C, are of equal diameter, and large enough for those of one series, to enter a considerable distance into the spaces between those of the other series. Both series

have similar convex sides. Each pair C, C', is so arranged that the adjacent sides *b*, *b'*, are nearly in contact. The shafts S, S', carry pulleys P, P', which receive rotary motion from a pulley P'', on the shaft of the roller, L. The slivers, shown in red color in the drawing, are conducted from the rolls, D', L, each between a pair of condensing disks. The slivers, in passing between the disks will have a tendency to move upward, as there is more room between the upper parts of the adjacent faces, than between the lower parts, which will be understood by reference to Fig. 3.

In order to keep the sliver down in contact with such portion of the faces as is necessary to produce the desired degree of condensation, the guide plates G, G, are used. These plates are attached to a series of levers, which work on fixed fulcrums *f*, *f*, all in one line, and are all connected at their lower ends to a bar R, so that all will move together, and bear the same relation to their respective disks C, C, of the back series. The plates G, G, are bent to fit to the sides *b*, *b*, of the disks C, C, and it will be understood by reference to Fig. 3, that when they are in contact with the slivers, their curved form tends to prevent the slivers rising between the disks, and causes them to work down till they find a free place to move in. By moving the bar R, to the right or left, so as to give the guide plates G, G, a greater or less inclination, the tendency of the sliver to rise is increased or diminished, and the condensation regulated. From the condensing disks, the slivers pass on to the spool F, which rests upon the spool drum E, but is provided with journals which work in vertical guides *g*, *g*, on the framing. The spool receives motion by friction from the drum E, which receives rotary motion through a band H, from the doffer, and a traversing motion through a toothed wheel W, on the shaft, gearing with an oblique toothed wheel O, on a stud secured to one side of the framing. As the spool receives the slivers, it keeps rising, and its journals keep working up in the guides *g*, *g*, until they leave the fixed part of the said guides and come in contact with the upper part of two levers *h*, *h'*, which form movable continuations of the front parts of the said guides. These levers are hung loosely upon the shaft of the drum E, and have a bar N, attached to their lower ends, whose weight tends to keep them in an

upright position, as shown in black outline in Figs. 1 and 4. The upper ends of one h' , of the levers, while the spool is in its place above the drum E, is secured by a catch I, 5 but as soon as the sliver on the spool increases to such a diameter, as to raise the journals of the spool W, high enough to lift the catch I, the levers are left free, and the spool is then caused to roll down the drum 10 E, by the motion of the latter, until it balances the bar N, as shown in dotted outline in Fig. 1, when an empty spool is dropped into the fixed or lower part of the guides g, g . The revolution of the empty spool 15 with the drum E, at once commences, and the full spool is then raised by hand and held over the empty one, around which the slivers will soon lap, and then the full one may be taken away without disturbing the 20 slivers or making any waste whatever.

What I claim as my invention, and desire to secure by Letters Patent, is:—

1. The combination of the several parts herein before described for conducting and 25 condensing the fibrous material from the

doffer of a carding engine to the spool, to wit.

2. The two sectional rolls working in contact with each other, and the upper one in contact with the doffer, for doffing and conducting the sliver from the doffer. 30

3. The two series of convex disks mounted upon shafts in front of and parallel to the said rolls, with the guide plates to govern the position of the slivers between the said disks, for twisting and condensing the slivers as they are conducted from the doffer to the spool, substantially as herein set forth. 35

4. The manner of constructing the upper part of the guides g, g , of the journals of the spool F, to wit:—making the outside portion thereof form parts of levers h, h' , whose operation is controlled by a bar or weight N, and a catch I, substantially in the manner herein described, for the purpose set forth. 40 45

WM. H. HOWARD.

Witnesses:

H. THOMPSON,
JOHN THOMPSON.