

No. 621,539.

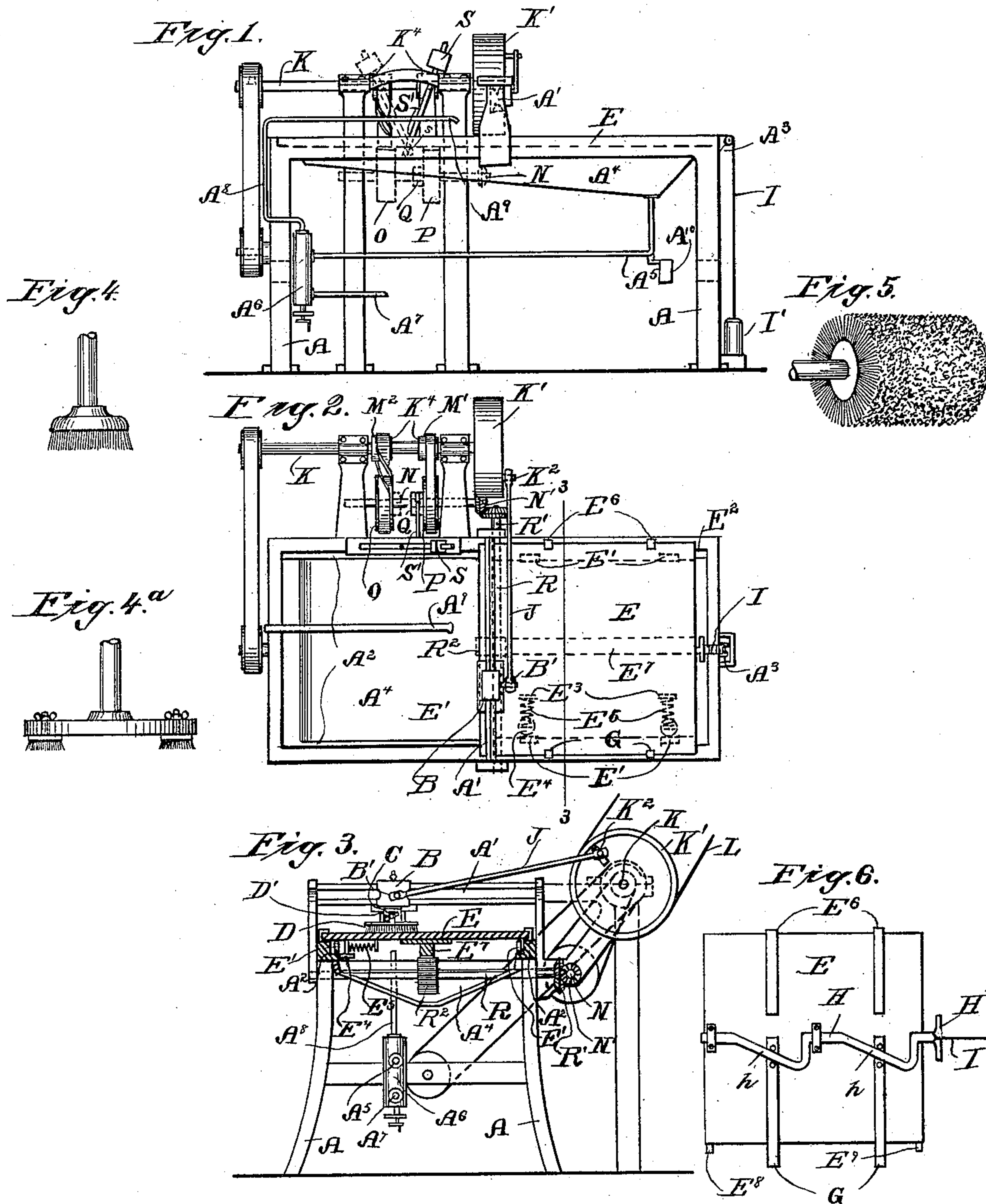
Patented Mar. 21, 1899.

J. J. & T. A. RAISBECK.
APPARATUS FOR CLEANING PLATES.

(Application filed May 17, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 7.

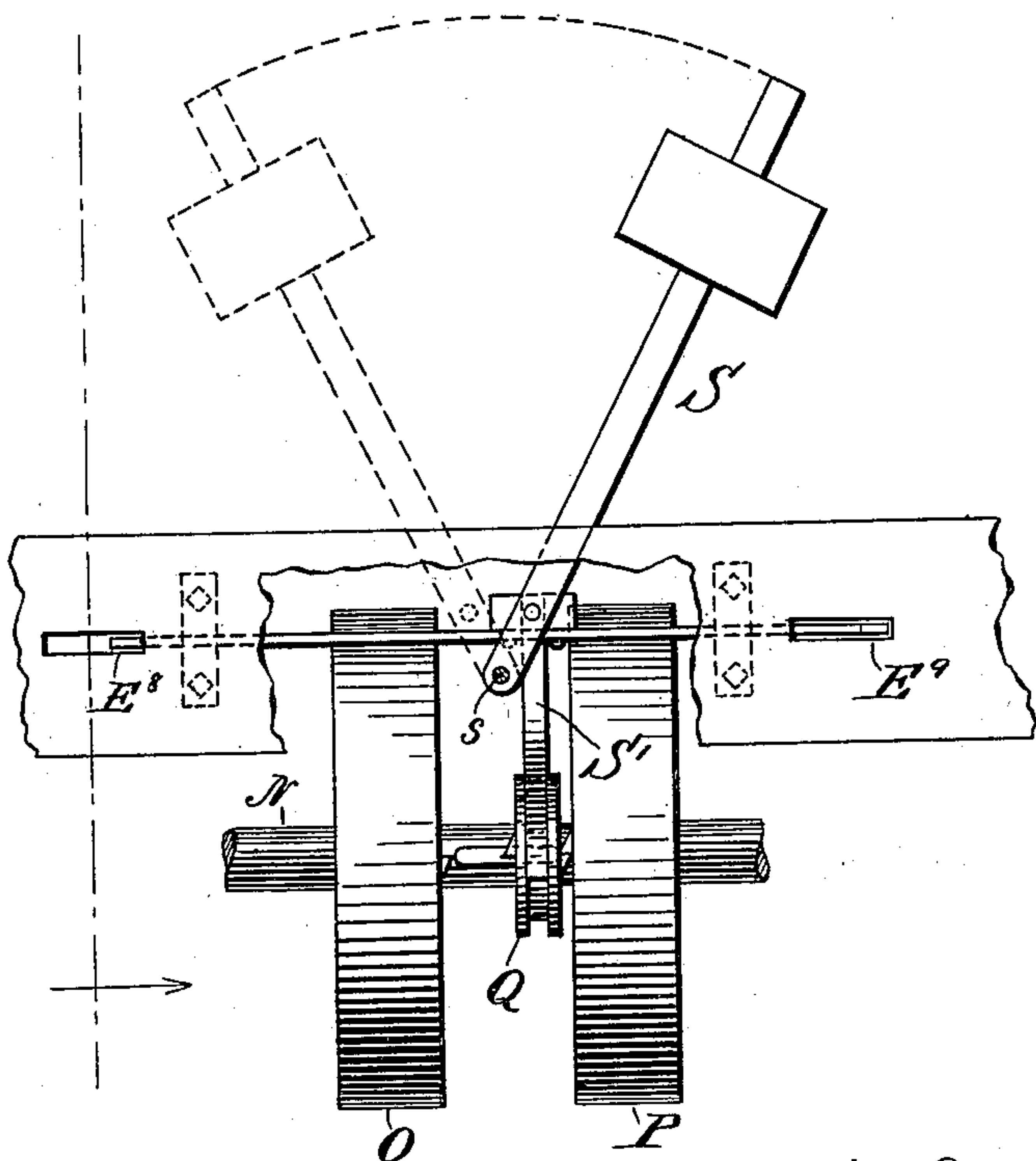


Fig. 8.

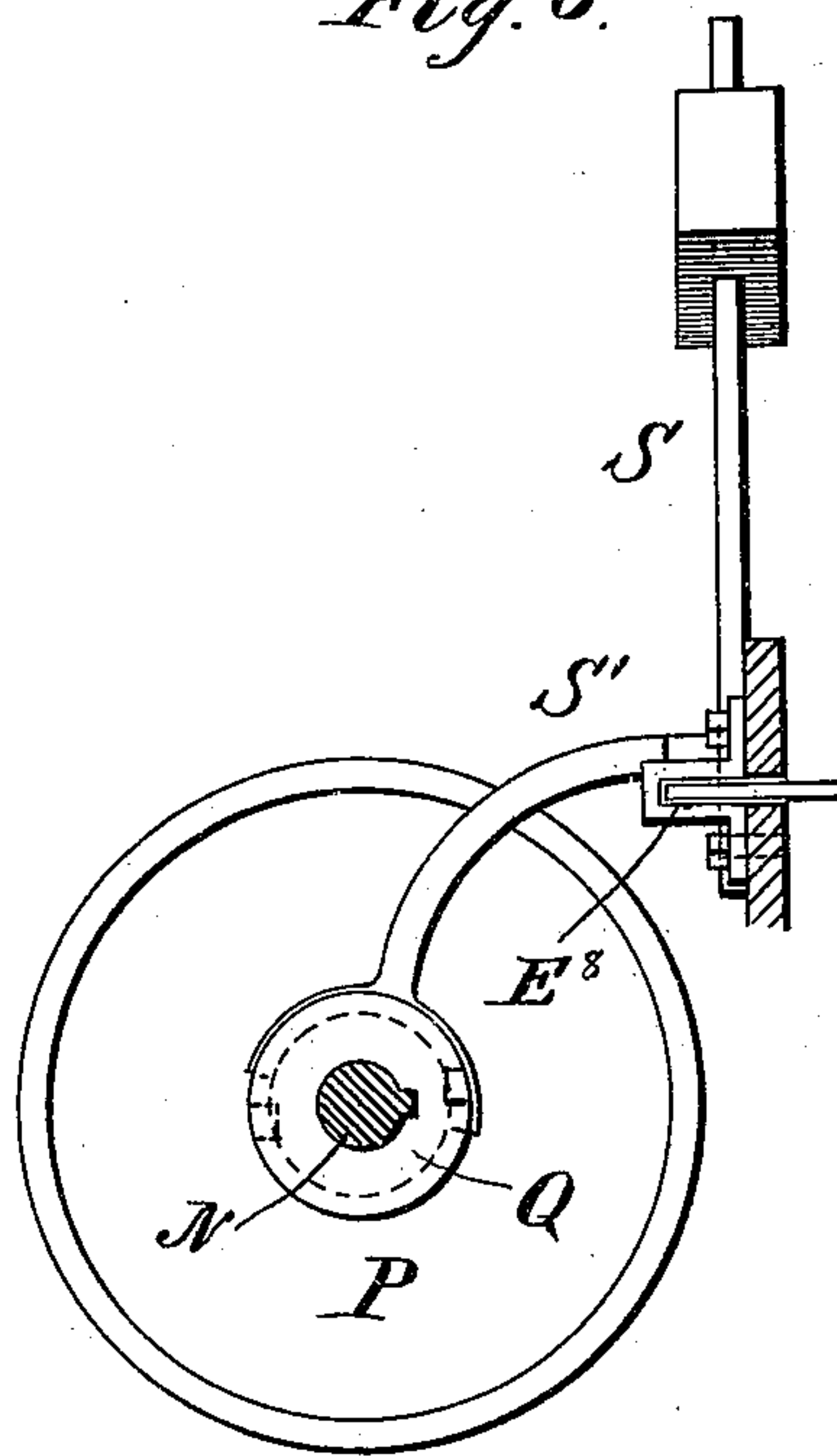


Fig. 9.

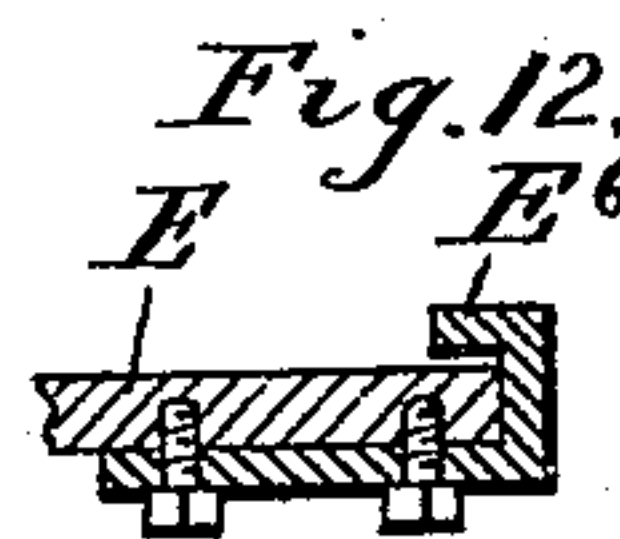
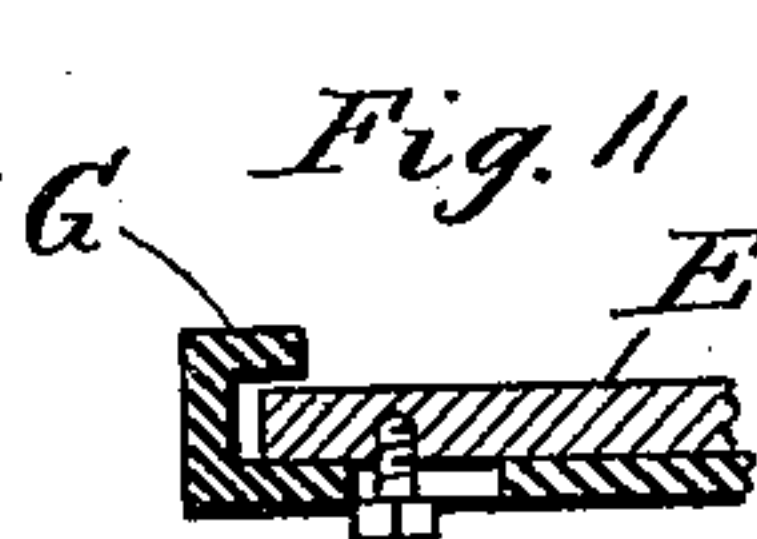
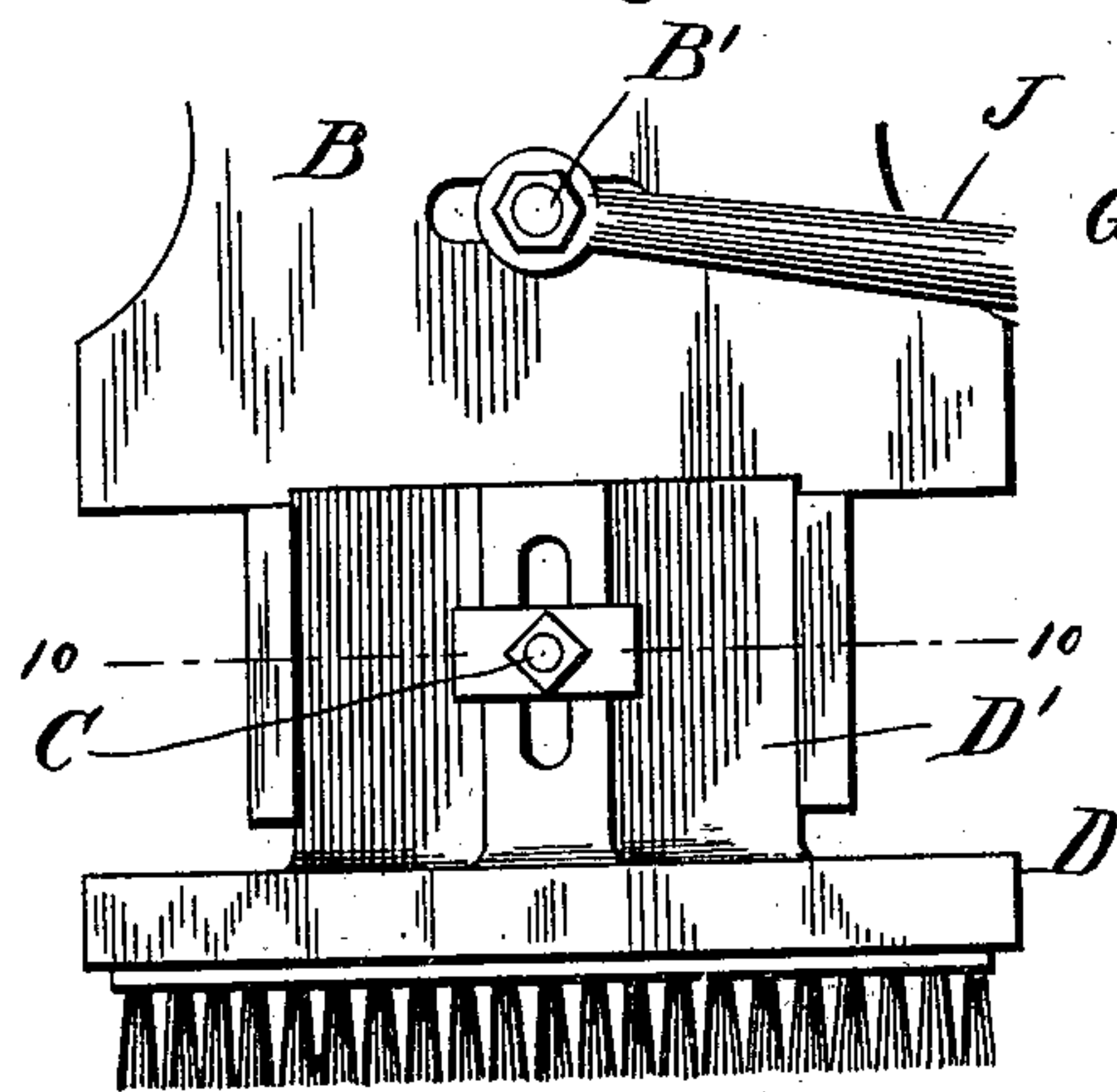
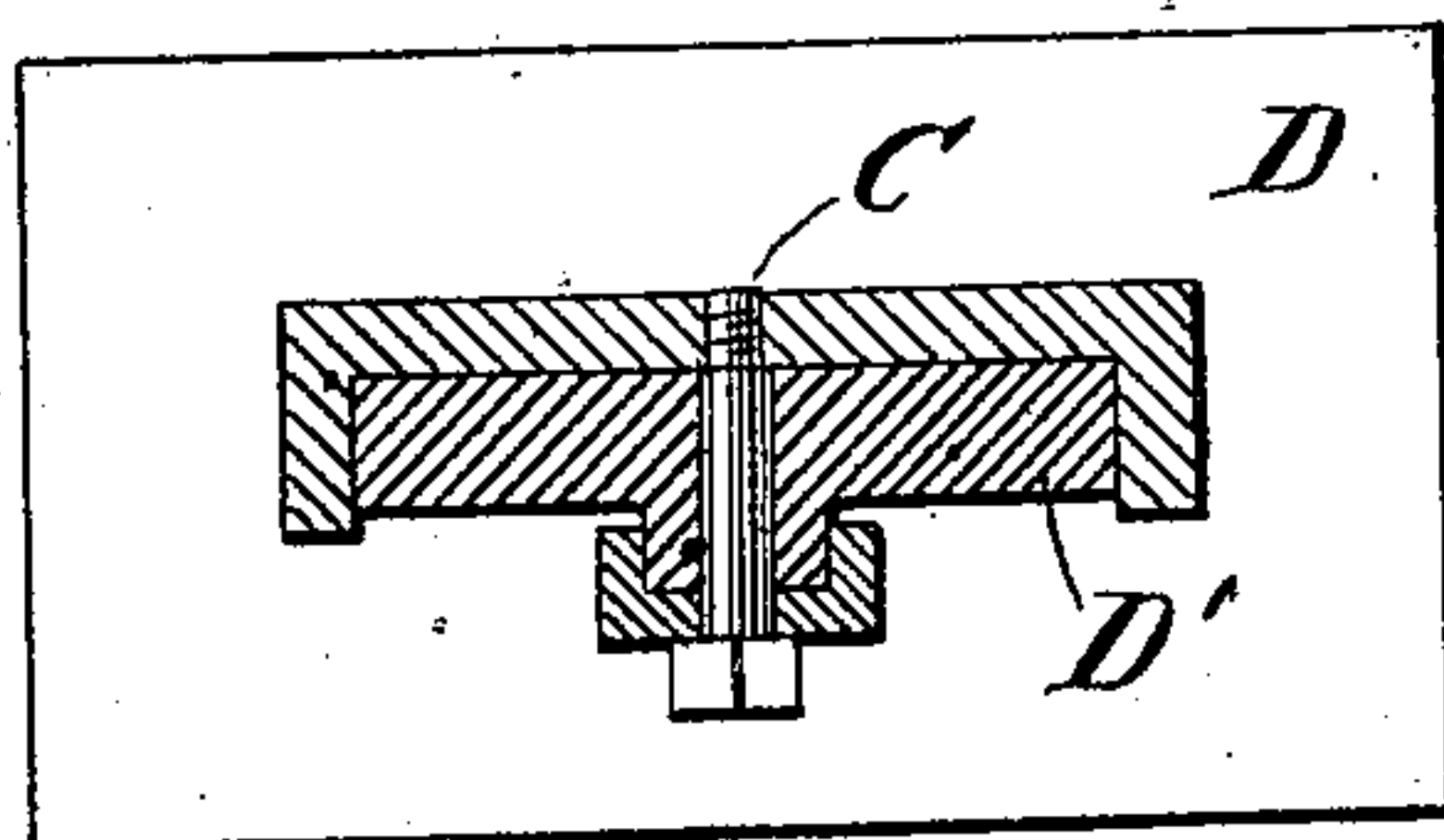


Fig. 10.



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APPARATUS FOR CLEANING PLATES.

SPECIFICATION forming part of Letters Patent No. 621,539, dated March 21, 1899.

Application filed May 17, 1898. Serial No. 680,924. (No model.)

To all whom it may concern:

Be it known that we, JAMES J. RAISBECK, residing in the borough of Bronx, in the city and State of New York, and THOMAS A. RAISBECK, residing at Bloomfield, Essex county, in the State of New Jersey, have invented a certain new and useful Improvement in Apparatus for Cleaning Plates, of which the following is a specification.

The invention is intended more particularly for cleaning electrotypes-plates by removing the molding material, some of which remains on the face of the electrotypes-plates after their removal from the waxy molds on which they have been electrolytically deposited. We will describe the invention as thus applied.

We subject the face of the plate to a current of benzin or other suitable solvent or detergent simultaneously with a gentle friction. We accomplish this by a machine which moves the plate to be cleaned several times forward and backward in contact with a moving brush of the proper soft material adjusted sufficiently near to act in all interstices. In the most complete form of the invention the brush is caused to reverse its motion on the plate, and thereby to act more effectively in the recesses. We have devised various details of importance, as will be fully set forth farther on.

The accompanying drawings form a part of this specification and represent what we consider the best means for carrying out the invention.

Figure 1 is a longitudinal elevation, Fig. 2 a plan view, and Fig. 3 an end view, showing the entire machine on a small scale. Figs. 4 and 5 show modified forms of the brushing device. Fig. 6 is an inverted plan view of a portion. Fig. 4^a corresponds to Fig. 4, with the addition that provisions are made for detaching the brushes from the revolving disk. Fig. 7 is a view showing, on an enlarged scale, the devices for effecting the opposite travel of the table. Fig. 8 is a vertical sectional view taken in the plane of one of the tappet-slots and looking in the direction of the arrow, Fig. 7, the pulley O being omitted. Fig. 9 is an enlarged front view illustrating the adjustable connection of the brush-tenon with

the carriage-socket. Fig. 10 is a transverse horizontal section through the brush-tenon and carriage-socket, the view being taken in the plane indicated in the dotted line 10 10, Fig. 9. Figs. 11 and 12 are also fragmentary views illustrating transverse sections of the movable and fixed clamps carried by the table.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A indicates the fixed parts, of cast-iron or other suitable material, supernumerals being used to indicate special portions when necessary.

A' is a cross-bridge or a straight transverse way held at a proper height above the main body, which is finished to serve as a guide for a carriage B, to which is adjustably, but stiffly, attached a brush D, which may be of the size and material ordinarily used when this cleaning operation is effected by hand. A tenon D', extending upward from the brush, is received in a socket in the front of the carriage B and when adjusted at the proper height is secured by a pinching-screw C.

A horizontal table E, of rectangular form, is supported on four wheels E', which run on horizontal ways A² A², extending longitudinally at the sides. The edges of the ways A² are also planed. One receives a corresponding plain vertical guiding-lip E³. The other is traversed by horizontal wheels E⁴, provided under the table and pressed outward away from the center line by sufficiently stout spiral springs E⁵, as shown in Figs. 2 and 3, said springs being carried by the table.

We will use the term "pan" in the sense in which it is generally or frequently used in the trade to indicate the electrotypes-plate after it has been tinned and backed. These extended rectangular sheets of type-metal, with the copper face presenting the finely-wrought surfaces for the printing, are usually made of uniform size. We adapt the width of our table E therefor.

The upper face of the table is provided with horizontal clamping-lips E⁶ near one edge and with movable clamps G near the opposite edge. These clamps G extend under the table and are actuated by a longitudinally-movable

bar H, which is carried in supports under the table and projects at the front and is equipped with a convenient cross-bar H', serving as a handle by which it may be readily drawn forward or thrust backward. It is also provided with inclined surfaces *h*, which act on the clamps to draw them inward when the handle H' is pulled. This bar H H' *h* will usually retain its position by friction, but we provide for insuring its retention in the closed position during the main portion of its travel by a cord I, attached to the bar and running over a pulley A³ at the front end of the machine and carrying a weight I'. This cord is adjusted to allow the weight to strike the floor, or there may be a stop specially provided, if required, at each forward traverse of the table E.

The machine is never stopped to remove a pan and introduce another except when the table is near its extreme forward movement. At this period the cord I is slacked, and the attendant, thrusting on the rod H, opens the clamps. The pan which has been treated is then lifted and placed on its edge and a new pan introduced and the operation resumed. If the attendant neglects to pull the bar H, it will be pulled by the cord I, and the clamp thus closed will remain closed during the several traverses of the table; but at the completion of each forward movement of the table the bar H is relieved from the tension of the cord I. On thrusting the bar H backward when in this position it will remain back with the clamps open.

The reciprocating movement of the carriage B is quite rapid and is effected by a pitman J, engaging a pin B' on the front of the carriage with a crank K² on the overhanging end of a shaft K, extending longitudinally of the machine on one side at a higher level. This shaft is supported by brackets from the main framing and also by supports which extend directly to the floor. The shaft receives motion through a pulley K' from a belt L, driven by a steam-engine or other suitable power. Pulleys K⁴ on this shaft carry two belts M' M², the belt M² being crossed. These engage with pulleys O and P, running loosely on a shaft N, extending longitudinally of the machine a little below the level of the table E. A clutch-piece Q, feathered on this shaft N and adapted to engage with clutch-surfaces presented toward it by the wheels O and P, revolving in opposite directions, controls the rotation of this shaft N. A bevel gear-wheel N' on the front end of this shaft engages with a corresponding bevel gear-wheel R' on a shaft R, extending across the machine below the table. A spur gear-wheel R² on this shaft engages with a rack E⁷, which extends longitudinally along the under face of the table E.

S is a tumbling-bob turning on a fixed center *s* and carrying a lateral arm S', which engages with the clutch-piece Q. The table E moves adjacent to the part S and is armed with two projections E⁸ E⁹, which as the table

traverses successively strike the devices J and throw the table by the aid of gravity into the opposite position, thus reversing the rotation of the shaft R, giving the required reciprocations to the table.

In the supporting-frame below the traverse of the table is an extended tank A⁴, which is kept always partially filled with a solution of potash or other liquid, which when properly warmed will under the gentle but active friction imparted by the brush rapidly remove the "dirt," composed of the relics of the waxy mold, remaining on the face of the electro-type-plate.

A⁵ is a pipe leading the cleaning fluid downward from the tank.

A⁶ is the casing of an ejector, which may be in all respects, as set forth in the patent to Nathan Cope, dated January 27, 1863, No. 37,542, operating by a current of steam received through a pipe A⁷, and A⁸ is a pipe through which the liquid is driven by the force of the jet of steam and is delivered in a continuous and sufficiently powerful stream upon the work through the nozzle A⁹.

There may be other ordinary and suitable attachments. We construct the main portions of the frame in separate pieces bolted together. We apply a removable hood to cover the cross-bridge A' with its rapidly-reciprocating carriage and attached brush.

A¹⁰ is a removable pocket arranged to receive matter which shall drop down from the tank A⁴, as semisolid particles of wax or other deposit in the liquid. Sometimes this may collect denser material, as bits of type-metal. It can be detached at intervals and emptied. The tank should be kept liberally supplied with the cleansing liquid. When benzin is used, the evaporation is rapid. Our experiments indicate that the small amount of fresh liquid supplied at the termination to rinse the face of each plate if added to the benzin in the tank will just about maintain the supply.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. We can make various changes in the proportions of the framing and other parts. We can use a pump to supply the stream of detergent through the pipe A⁸ instead of the injector A⁶. The figures show pulleys and a belt arranged for running a rotary pump, so that the machine is adapted to serve with either. A pump is preferable when a volatile liquid, as benzin, is used for the detergent fluid. In using a solution of potash or other alkali in water the heat due to the accession of steam in the injector is of advantage. In the use of benzin such heat would be objectionable by the increased evaporation it would make.

Parts of the invention may be used without the whole. We have shown the brush reciprocated rapidly across in straight lines, which as the table, with the plate attached, reciprocates slowly in the longitudinal path

acts upon the plate in a series of oblique lines. Such brush may be revolved on an upright axis, as shown in Fig. 4, or on a horizontal axis D², as shown in Fig. 5. It is preferable to reverse about as we have shown. We attach importance to the reversing, because it not only keeps the brush fibers straight and lively, but also in each act of reversing gives a rolling or gouging action with the several fibers peculiarly effective in searching the recesses in the plate.

The extent of the transverse reciprocations of the brush may be varied by adjusting the position of the crank-pin outward and inward from the center, so as to vary the throw of the crank.

We claim as our invention—

1. In a machine for cleaning plates, a brush and means for moving it alternately in reverse directions without disengaging it from the plate, to produce gentle friction and exert a gouging action, in combination with a reciprocating table E and clamps G, with means for presenting liquid detergent in a stream, and means for receiving and storing such detergent after each use and repeating its application, all substantially as herein specified.

2. In a machine for cleaning plates, a brush and means for reciprocating it to act alternately in reverse directions, in combination with the carrying-table E and clamps G, and with means for presenting liquid detergent in a stream, and means for receiving and storing such detergent after each use, and repeating its application, and with provision for adjusting the pressure and the extent of the motion of the brush, all substantially as herein specified.

3. In a machine for cleaning plates, a brush and means for moving it to produce gentle friction, in combination with means for presenting liquid detergent in a stream, and means for receiving and storing such detergent after each use, and repeating its application, and with a moving table E and means for reciprocating it, and with clamps G for holding the plates successively on such table, and with means as the sliding bar H with its inclined surfaces *h* for controlling such clamps at will, all substantially as herein specified.

4. In a machine for cleaning plates, a brush and means for moving it to produce gentle friction, in combination with means for presenting liquid detergent in a stream, and means for receiving and storing such detergent after each use and repeating its application, and with a moving table E and means for reciprocating it, and with clamps G for holding the plates successively on such table, means as the sliding bar H with its inclined surfaces *h* for controlling such clamps at will, means as the cord I and weight I', for exerting a gentle force to hold the clamps closed, and means for automatically relaxing such force at regular intervals to facilitate exchanging the plates, all substantially as herein specified.

In testimony that we claim the invention above set forth we affix our signatures in presence of two witnesses.

JAMES J. RAISBECK.
THOMAS A. RAISBECK.

Witnesses:

EDWARD A. RAISBECK,
M. F. BOYLE.