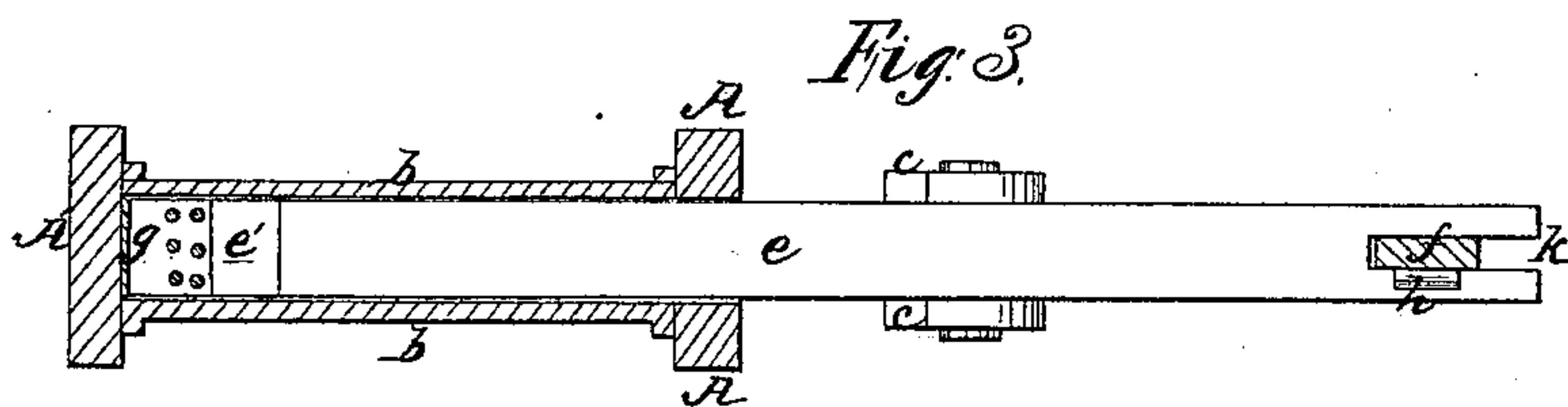
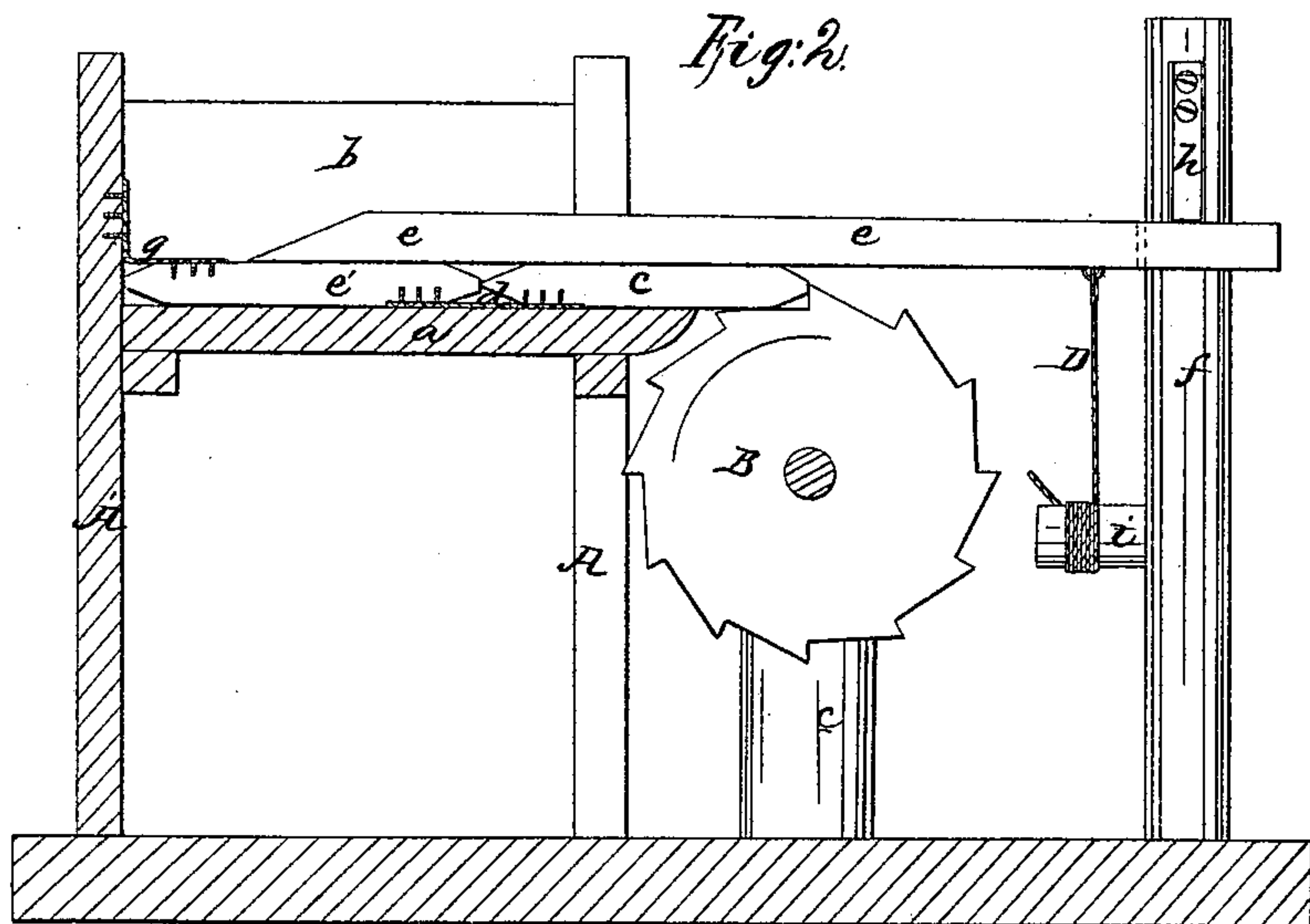
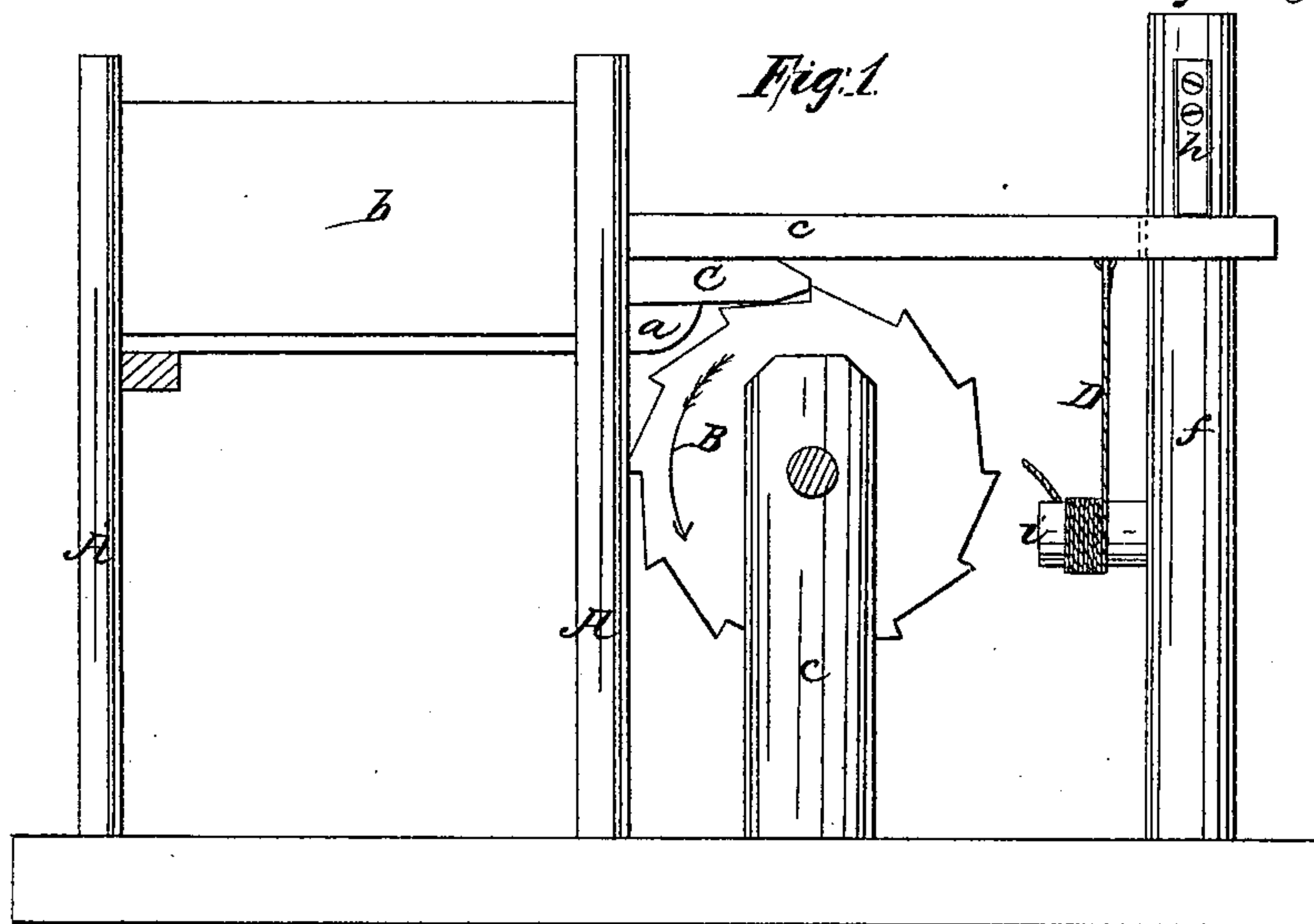


S. S. Walley,

Pawl for Ratchet Wheels.

N^o 6,705.

Patented Sep. 11, 1849.



UNITED STATES PATENT OFFICE.

SAMUEL S. WALLEY, OF PHILADELPHIA, PENNSYLVANIA.

JOINTED PAWL.

Specification of Letters Patent No. 6,705, dated September 11, 1849.

To all whom it may concern:

Be it known that I, SAMUEL S. WALLEY, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and Improved Pawl for Ratchet-Wheels, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is an elevation of a common ratchet wheel—the pawl being represented as engaged therewith, and supported in a suitable frame. Fig. 2, is a vertical longitudinal section of the same. Fig. 3, is a top view of ditto.

Similar letters in the figures refer to corresponding parts.

It frequently happens that pawls have to bear against powerful pressure which consequently produces great friction in their disengagement, and which without my invention can only be overcome by employing long leverage, or a series of compound levers, or a complex arrangement of wheels to gain power by diminishing velocity, all of which means are slow and uncertain in their action and liable to get out of repair.

My improvement is designed to obviate these objections, and is a simple and generally applicable mechanical invention costing but little, and being quick and easy in its operation.

The distinguishing characteristic of this improved jointed pawl is obviating the friction in its disengagement from the ratchet wheel by substituting the bearing surface of a pivot or sharp edge, for the rubbing or abrasion resulting from the contact of flat surfaces, this result being produced by means of a joint in the middle of the pawl; and in connection with this the use of the cord or rope and spring catch or dog for holding the lever down.

A are upright timbers secured permanently at their lower ends and connected together above by a horizontal cross piece and to another upright timber A' by a horizontal timber (a) resting on the connecting piece between the uprights A, and two side planks (b) arranged parallel to each other on either side of the horizontal timber and extending from the uprights A to the upright A'.

B is a ratchet wheel of the ordinary form secured on a horizontal shaft turning in suitable boxes in uprights (c) immediately in advance of the uprights A.

C is the pawl made of any suitable material, arranged between the uprights A and side planks (b) and resting on the timber (a) tapered and brought to an edge at one end and slightly tapered at the opposite end which rests against the teeth of the ratchet wheel and connected at its sharpened end by means of a flexible hinge (d) of leather or other material to the enlarged part of a lever (e) slightly tapered near where connected so as to form a shoulder similar in shape to the end of the pawl resting against the ratchet wheel, against which the sharpened end of the pawl rests. The enlarged end of this lever (e) is placed between the side planks (b) and is tapered and brought to an edge and rests upon the timber (a) and against the upright A' to which it is attached by a flexible hinge (g) of any suitable material, and extends forward immediately over the ratchet and contains a slot h at its forward end into which fits an upright (f) having a spring catch or dog (h) secured on its side, bent at its lower edge and so arranged as to project and bear against the upper surface of the lever when the pawl is in contact with the ratchet and prevent the same from raising.

D is a rope secured to the under surface of the lever (e) near the front end of the same, and wound around a horizontal arm (i) projecting from the upright (f).

When it is desired to engage the pawl with the ratchet so as to hold the same, the lever (e) is lowered to a horizontal position and secured by the spring catch or dog (h) and the rope D, or by the spring alone in case the strain on the pawl is not great. The tooth of the ratchet wheel will press against the end of the pawl and the resisting strain will be exerted lengthwise on the pawl and lower portion (e') of the lever and against the upright A'. To disengage the pawl from the ratchet wheel the operator presses the lower end of the spring catch or dog (h) inward and disengages the rope from the arm (i) and elevates the forward end of the lever (e) and by the flexible hinge (d); withdraws the pawl from contact with the ratchet wheels and causes it to assume the position in relation to the same represented in Fig. 2. The difficulty of disengaging the pawl from the ratchet wheel being caused by the friction and pressure against the tooth thereof is prevented and overcome by the turning action of the pivot

or sharp edge of the pawl against the tapered shoulder of the lever (*e*) with which it forms a toggle joint.

5 In case of a great pressure being exerted on the pawl by the ratchet wheel, it may be gradually disengaged from the same by keeping the rope wound around the arm and holding its end and allowing it to gradually slip over the surface of said arm.

10 The pawl may be made to instantaneously throw itself out of gear by fixing the sustaining parts so that the joint formed by the sharpened end of the pawl and the shoulder of the lever (*e*) when resting on the
15 same may have a sufficient elevation above the opposite end of the pawl as to cause the pressure and bearing of the ratchet wheel to elevate the lever when disengaged from the spring and arm and thereby withdraw the
20 pawl from the ratchet wheel. If this instantaneous action is not required the sustaining part must be in a direct line with the line of pressure.

25 The flexible hinges must be adjusted and fixed to the pawl in such a manner as to

cause the full pressure of the ratchet to rest against the tapered ends of the pawl, and tapered end and shoulder of the lever, and ultimately against the upright *A'*.

The hinges and the confining side planks (*b*) are merely appliances to keep the parts of the pawl from displacement. 30

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

The combination of the pawl *C*, with the lever (*e, e'*), resting upon the timber (*a*) and connected to the post *A'*, forming a jointed pivot pawl, arranged and operated in the manner and for the purpose set forth, together with the mode of holding down the lever by a rope as aforesaid as substantially applied to the purposes of a pawl, by which the advantages named are gained. 35 40

In testimony whereof I have hereunto signed my name before two subscribing witnesses. 45

SAMUEL S. WALLEY.

Witnesses:

WM. P. ELLIOT,

A. E. H. JOHNSON.