

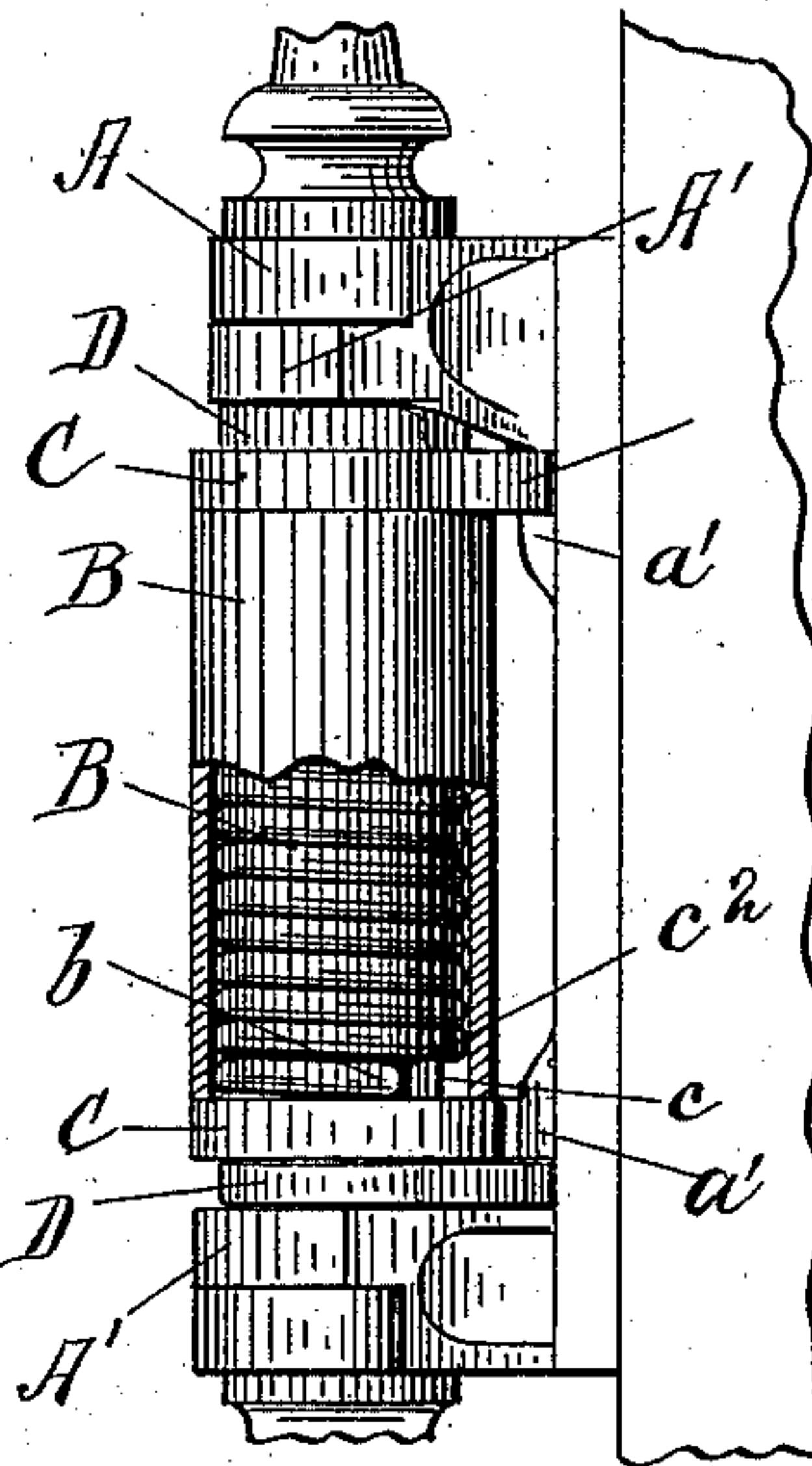
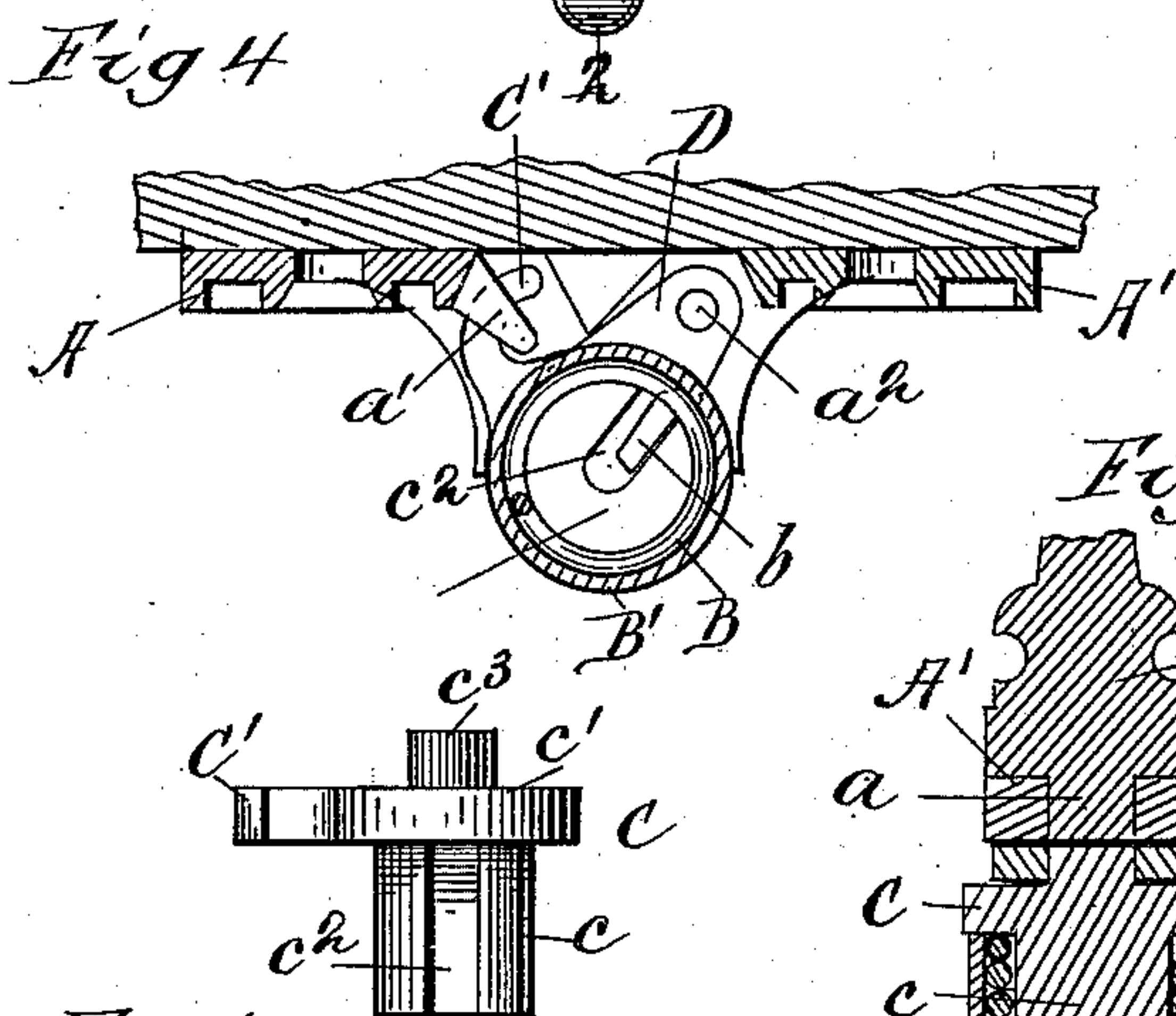
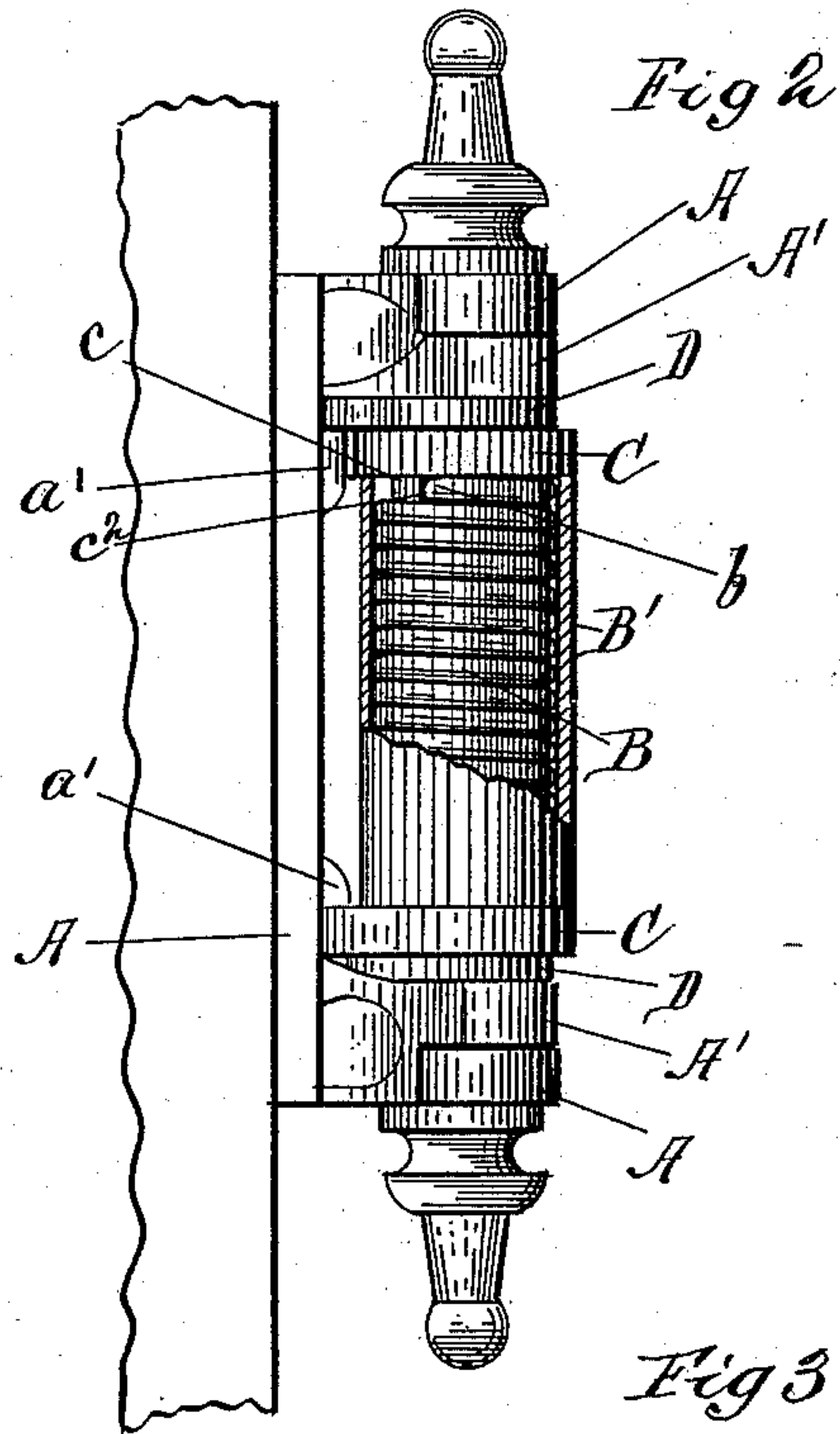
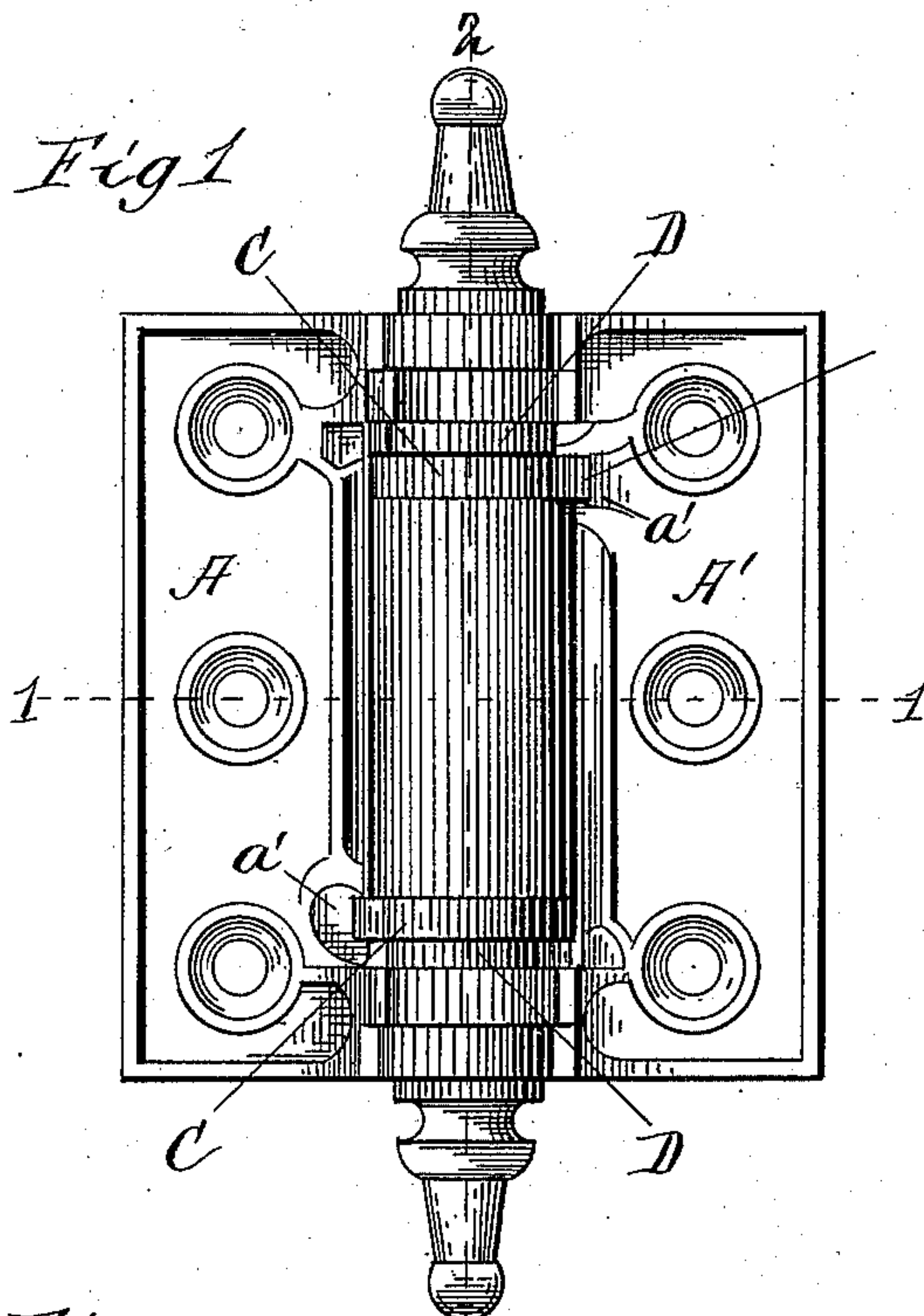
(Model.)

G. W. WARNER.

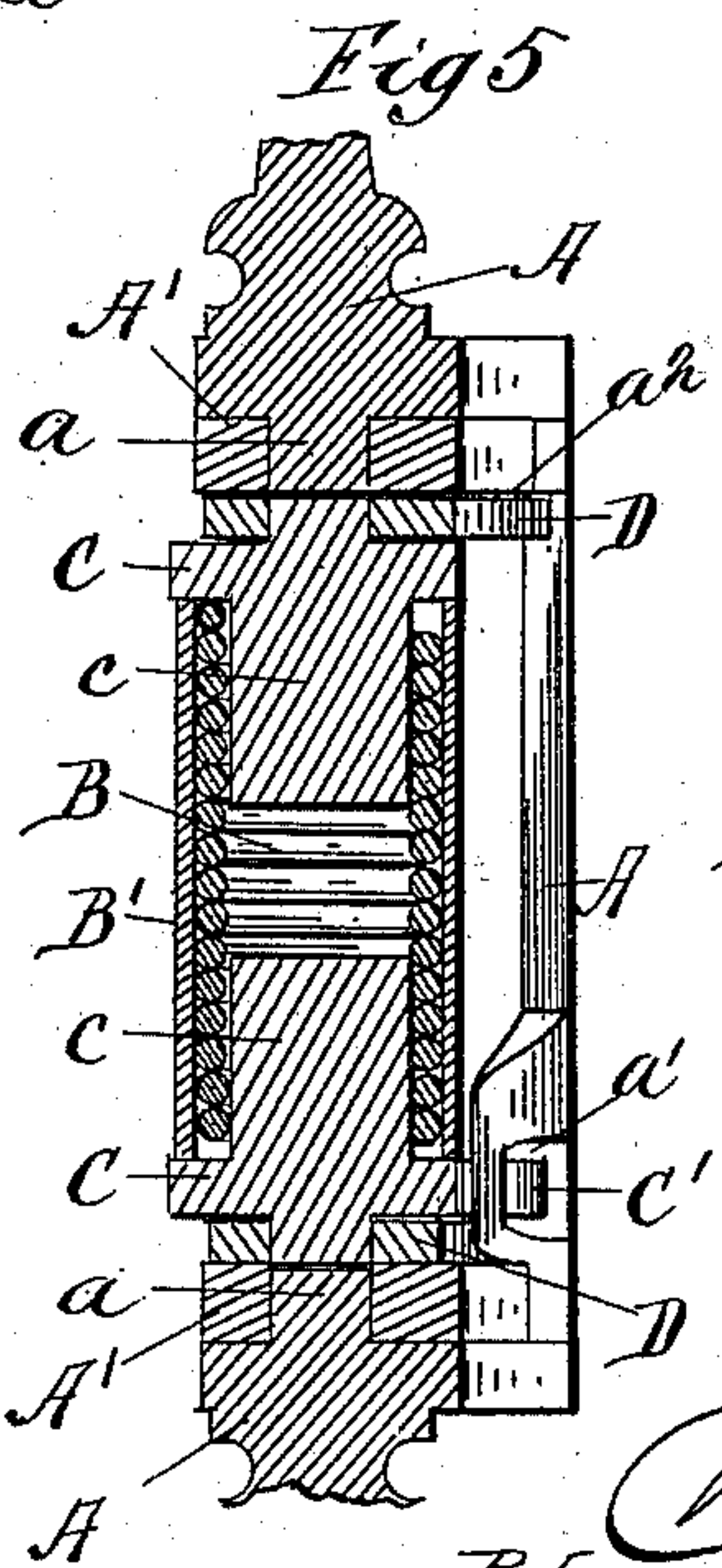
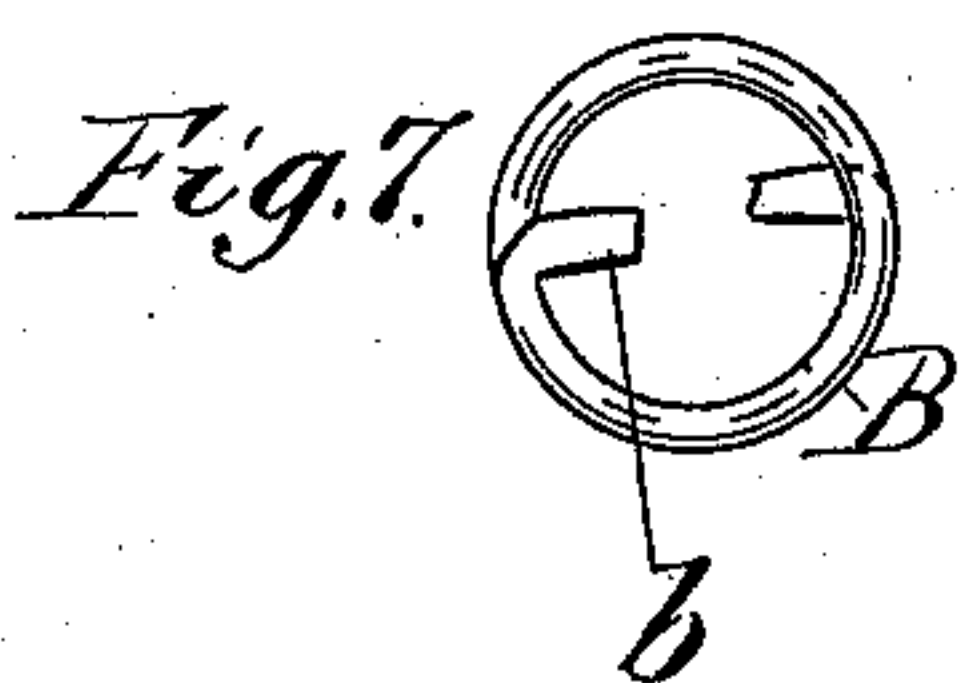
SPRING HINGE.

No. 384,103.

Patented June 5, 1888.



*Fig 6.*



Witnesses.  
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# UNITED STATES PATENT OFFICE.

GEORGE W. WARNER, OF FREEPORT, ILLINOIS.

## SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 384,103, dated June 5, 1888.

Application filed August 12, 1887. Serial No. 246,807. (Model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. WARNER, a citizen of the United States, and residing at Freeport, in the county of Stephenson and State of Illinois, have invented a certain new and useful Improvement in Spring-Hinges, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of a construction embodying my invention; Fig. 2, a side elevation of the same, the tube or casing being partly in section; Fig. 3, a view similar to Fig. 2, but taken from the opposite side; Fig. 4, a plan section taken on the line 1 1 of Fig. 1; Fig. 5, a longitudinal sectional view taken on the line 2 2 of Fig. 1; Fig. 6, a detail view of one of the plugs or trunnions detached, and Fig. 7 a detail plan view of the spring detached.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to spring-hinges, and has for its object to produce a cheap, simple, and durable hinge, which shall operate to hold the door in either an open or a closed position, as desired; and to these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claim.

In the drawings, A and A' represent the leaves of the hinge connected in the usual manner by pintles *a*. Each leaf is provided at or near its inner edge with a loop, *a'*, and with a pin or stud, *a''*, the one located near one end of the leaf and the other near the other end, and the arrangement on the two leaves being reverse.

B represents a coiled spring arranged in the line of the pintles *a*, between the same, but disconnected therefrom. This coiled spring is surrounded and inclosed by a tube or cylinder, B'. This tube or cylinder is not attached to any of the parts, but is a single continuous tube surrounding the spring B and serving to conceal and protect the same, and also to prevent distortion, while at the same time it does not in any way interfere with the operation of the parts. At each end of the spring and tube is located a plug or trunnion, C, provided with a body portion, *c*, which enters the coiled

spring B and the tube B'. Upon this body portion there is mounted a head or cap, *c'*, provided with a hook, C', which is connected to the loop *a'* of the adjacent leaf A or A', as the case may be, of the hinge. The coiled spring B has its ends connected in any suitable manner to the trunnions C and preferably in the manner shown, in which each trunnion is provided with a groove, *c''*, into which the inwardly-bent end *b* of the spring B enters. The head *c'* of the plug or trunnion C is provided externally with a central stud or pin, *c'''*, and a link, D, serves to connect the said trunnion to the other leaf in the manner shown, the said link being pivoted upon the stud *c'''* and *a''*. The plugs or trunnions and the spring are thus held in line with the pintles, while at the same time they are free to move relatively with the same.

It will of course be understood that the construction is identical at each end of the hinge, the arrangement being, however, reverse.

The operation of my improved hinge will be readily understood from the preceding description. The spring being connected to the plugs or trunnion at its two ends, and the said plugs or trunnions being connected to the respective leaves, it is obvious that the torsional action of the spring will serve to hold the leaves either in the position shown in the drawings, in which they lie in the same plane, or in a position of parallelism to each other. When the hinge is properly connected to a door and its casing, it will be at once seen that the device will serve to hold the door either in a closed or an open position, as may be desired. The links D serve to prevent displacement of the spring and trunnions laterally and to keep the same in line, while the tube or cylinder B serves not only for this same purpose, but also to protect and conceal the spring. By pivoting these links upon the studs or pins at each end they are held firmly, so as to move always in the same plane, thus insuring greater safety from lateral displacement of the spring and trunnions.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a spring-hinge, the combination, with the leaves A and A', having loops *a'* and studs or

pins  $a^2$ , of the coiled spring B, the independent  
tube B', loosely surrounding said spring and  
disconnected from the other parts of the hinge,  
the trunnions C, having body portions  $c$  ex-  
5 tending into the said coiled spring and con-  
nected thereto, the heads  $c'$ , with hooks C',  
connected to the loops  $a'$ , and studs or pins  $c^3$ ,

and the links D, pivoted on the studs or pins  
 $a^2$  and  $c^3$ , substantially as and for the purposes  
specified.

GEORGE W. WARNER.

Witnesses:

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