

No. 800,887.

PATENTED OCT. 3, 1905.

H. J. VALENTINE.

HINGE.

APPLICATION FILED AUG. 16, 1904

Fig. 1.

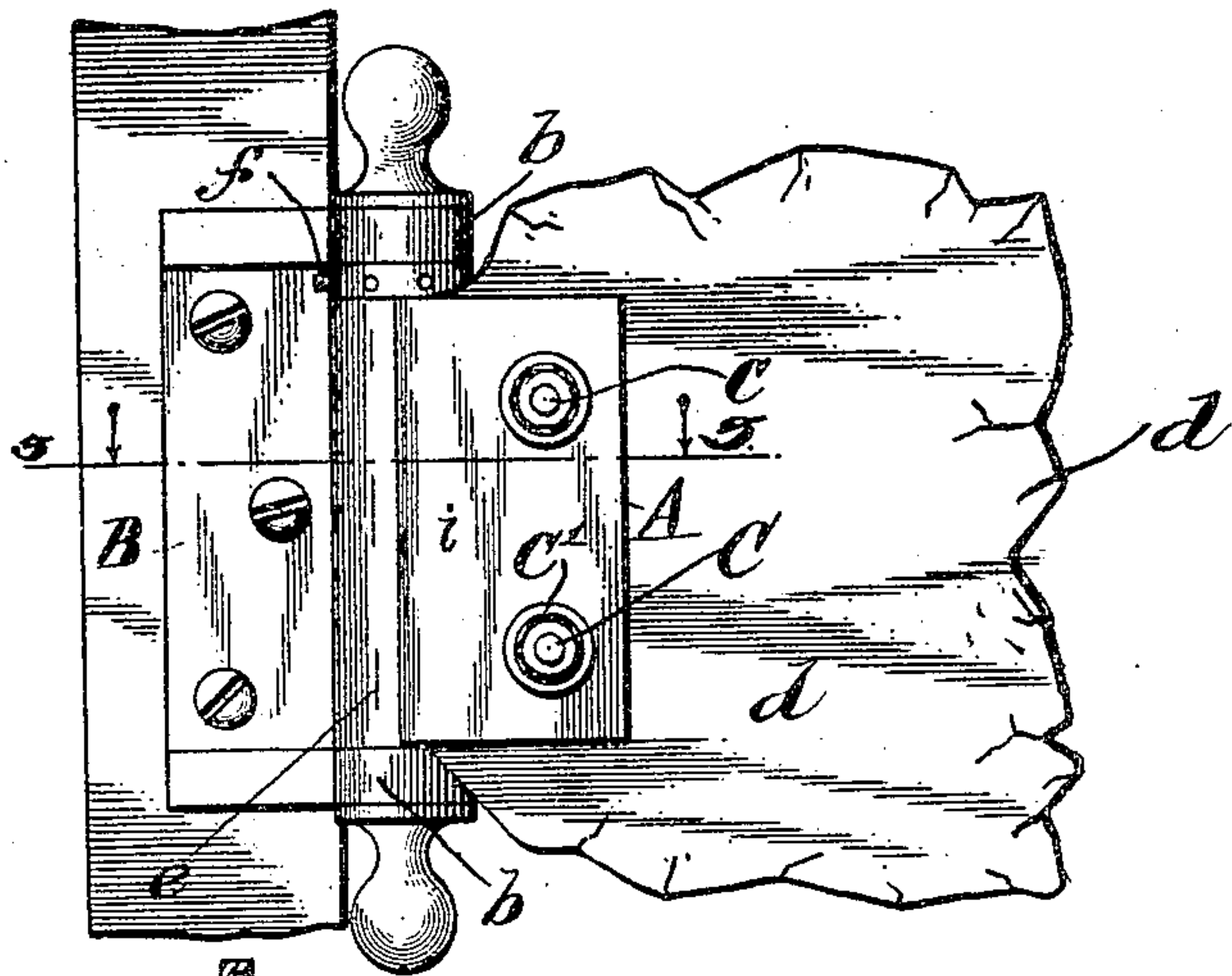


Fig. 5.

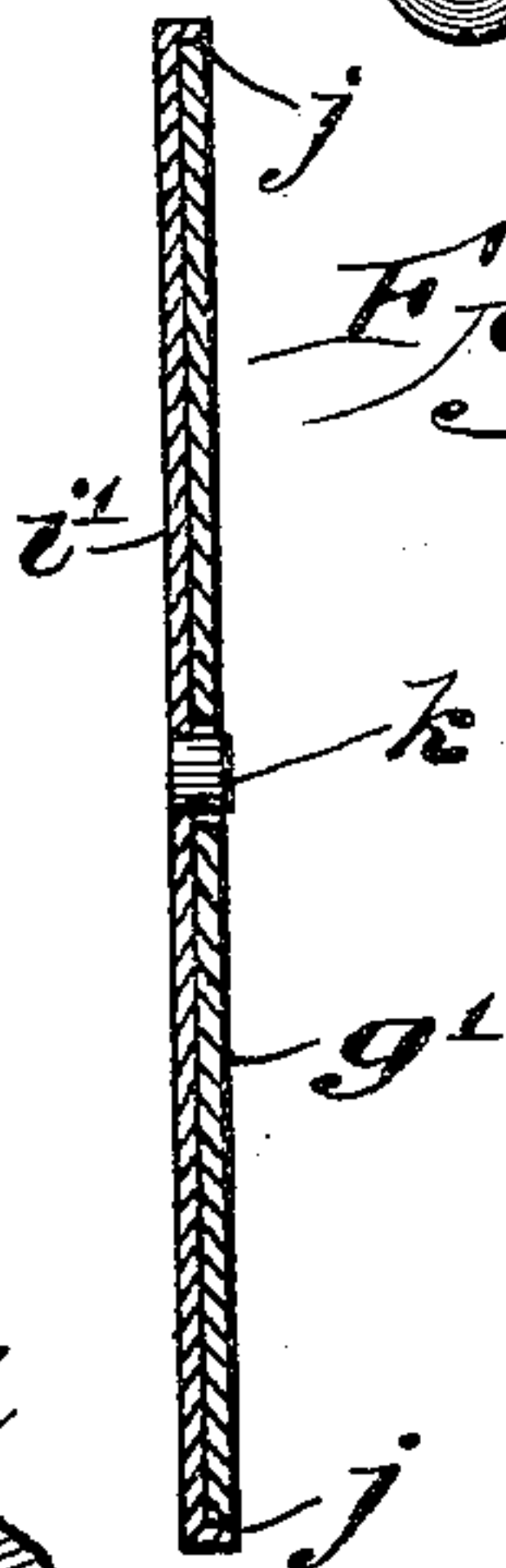


Fig. 2.

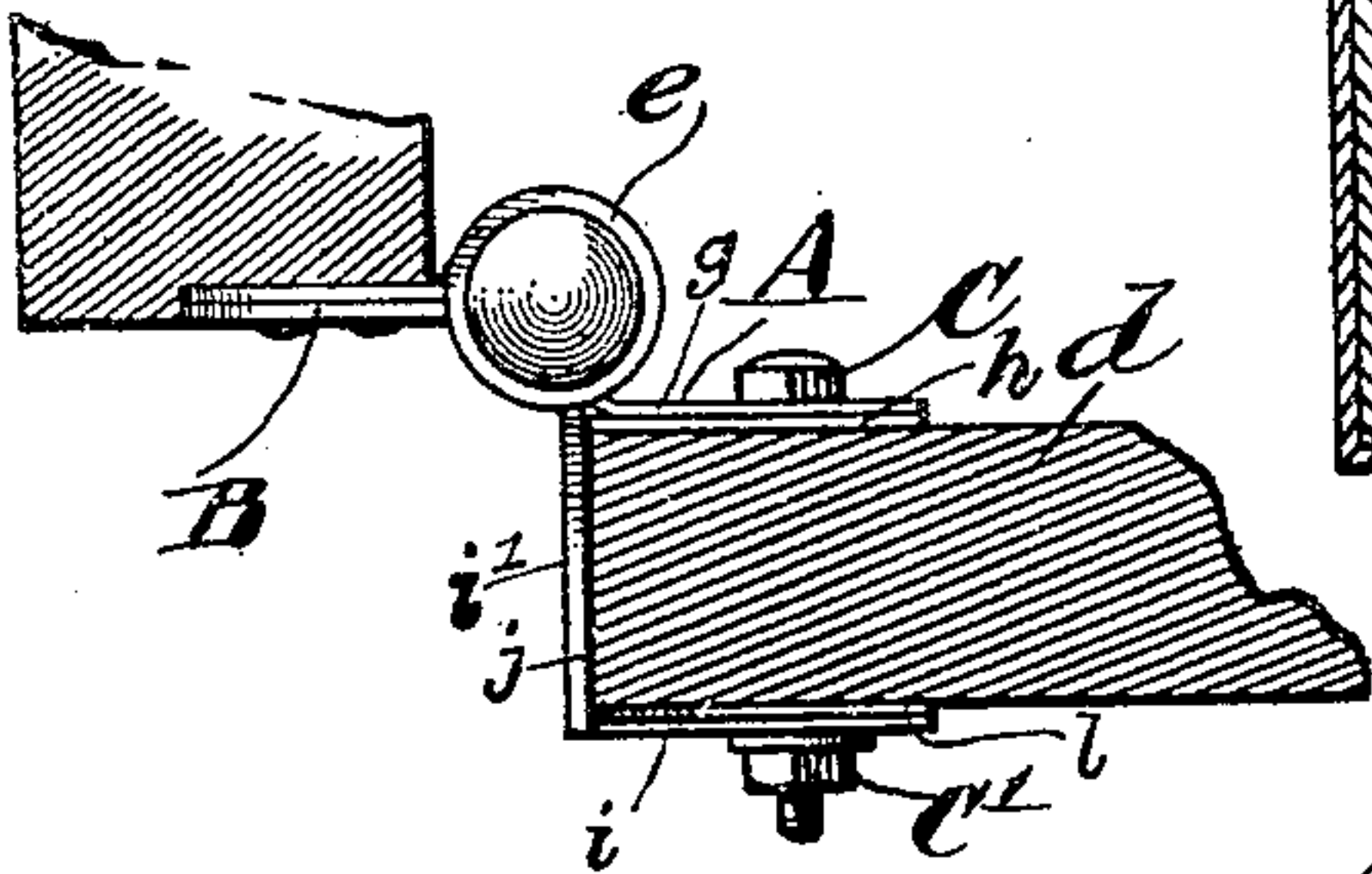


Fig. 3.

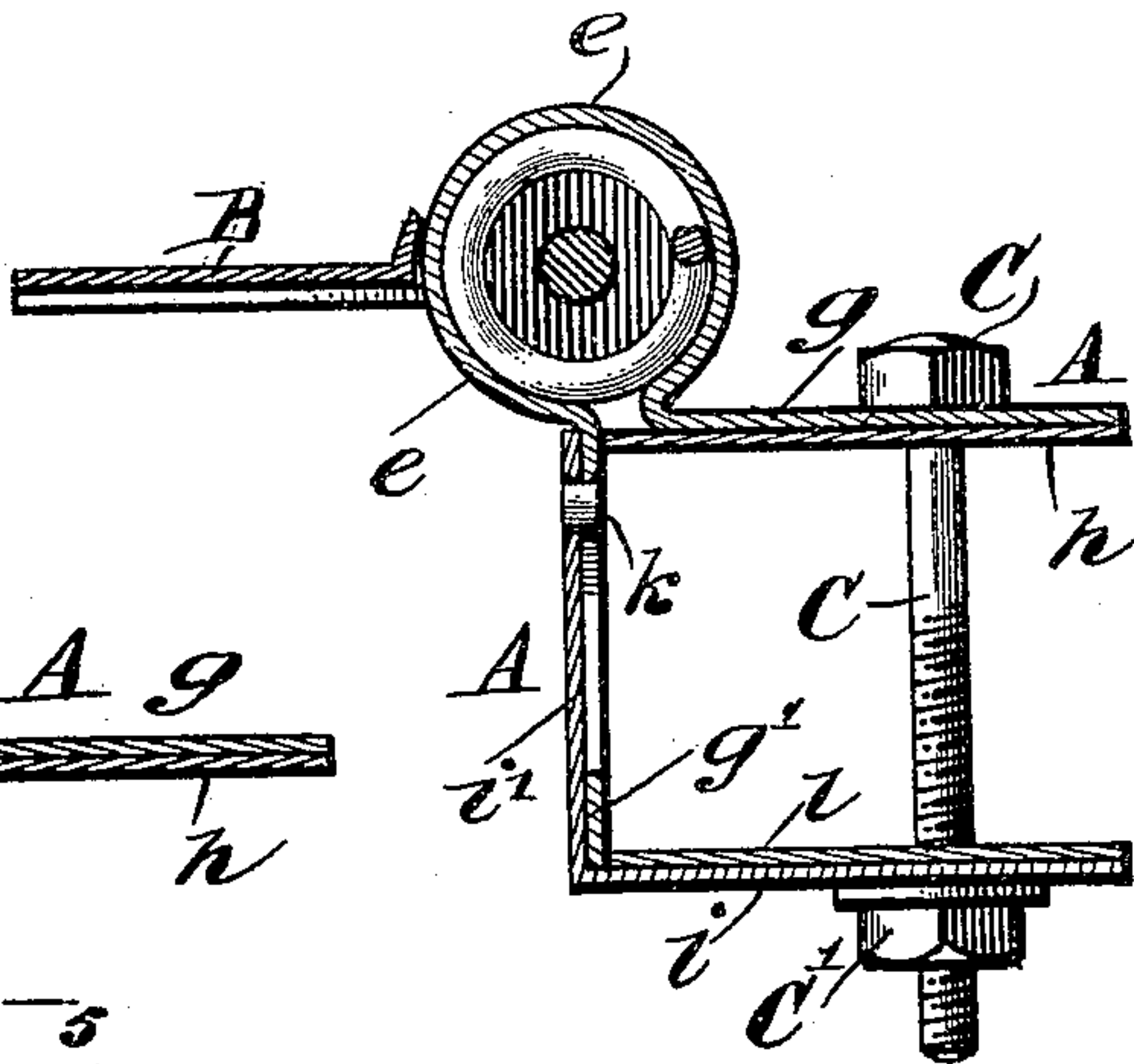
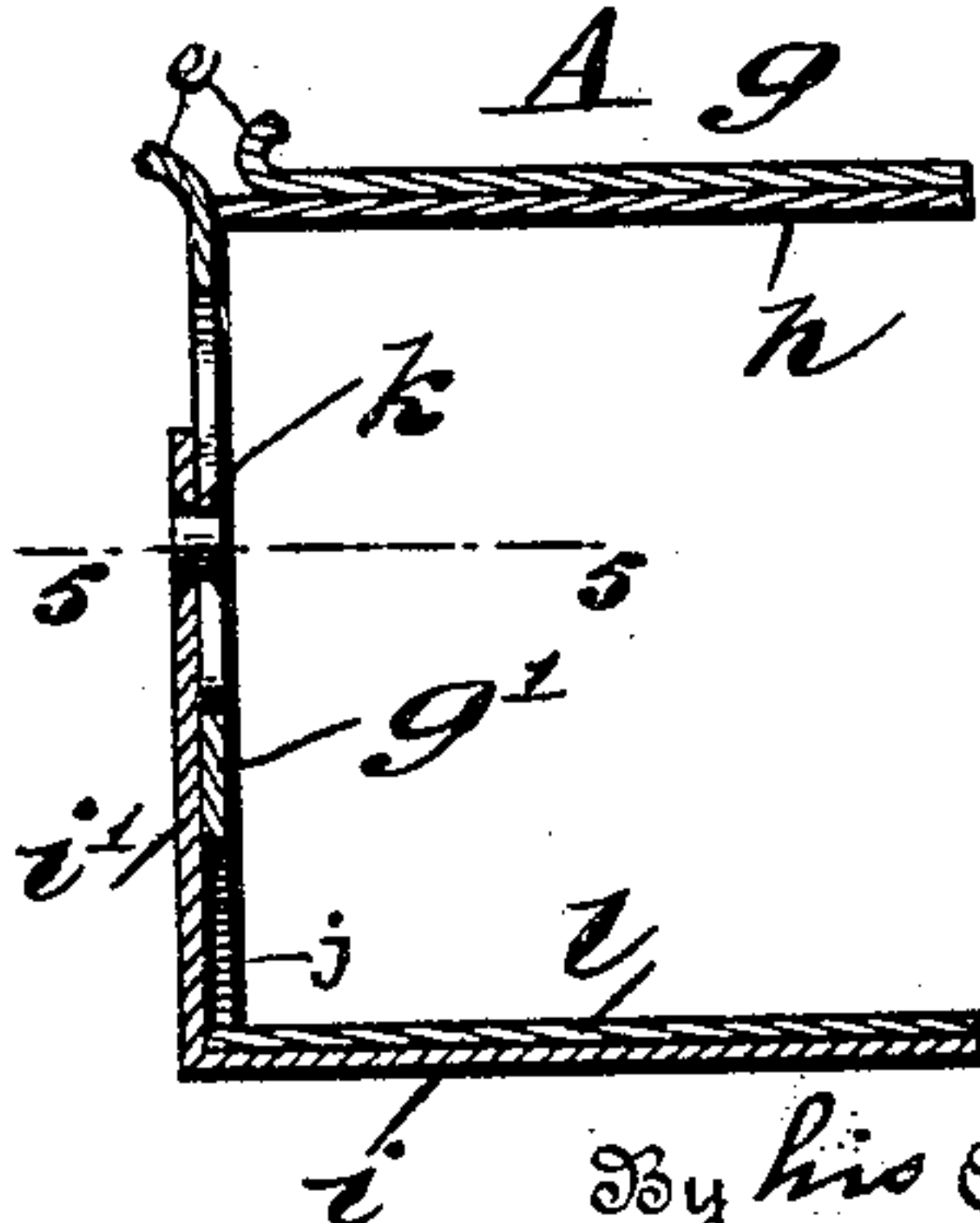


Fig. 4.



Witnesses
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W. D. D. D.

Inventor
H. J. Valentine
By his Attorney *Geo. L. Whelock*

UNITED STATES PATENT OFFICE.

HARRY J. VALENTINE, OF CLEVELAND, OHIO, ASSIGNOR TO COLUMBIAN
HARDWARE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF
OHIO.

HINGE.

No. 800,887.

Specification of Letters Patent.

Patented Oct. 3, 1905.

Application filed August 16, 1904. Serial No. 220,952.

To all whom it may concern:

Be it known that I, HARRY J. VALENTINE, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Hinges, of which the following is a specification.

This invention relates to hinges, and more particularly to spring-hinges, whether double or single acting, of the class which are used in lavatories, and are applied to marble or other stone slabs or the like for the purpose of supporting a door to be swung relatively thereto.

Evidently the invention hereinafter described may be used for doors other than lavatory-doors.

Among the objects of the invention I aim to attain simplicity, strength, and efficiency; and a specific object of the invention is to obtain a strong box-leaf usually applied to the marble or other slab or partition, which box-leaf has adjustable members having a simple affixing medium, as no means other than the bolts connecting the adjustable members is required.

A further object of the invention is to provide a construction whereby ample room within the spring-barrel for a strong spring is provided without requiring that the extra thickness which the box-leaf proper may have extend into the barrel itself.

A construction embodying my invention is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a spring-hinge embodying the invention and which is shown as applied to a door and a slab or partition. Fig. 2 is an end elevation of the hinge, shown as applied to a door and partition or slab. Fig. 3 is an enlarged transverse section on the line 3 3, Fig. 1. In this figure the box-leaf is shown as adjusted for its smallest capacity. Fig. 4 is an enlarged transverse section, showing most of the parts illustrated in Fig. 3 and in which the members of the box-leaf are shown as adjusted outwardly to take in a wider partition or slab; and Fig. 5 is a detail section at right angles to the section, Fig. 4, and taken on the line 5 5 of said figure.

Referring to the drawings, the leaves A and B are here shown, respectively, as a box-leaf and a second or plain leaf, the box-leaf being

stationarily fixed to the edge of the slab or partition to which the door is to be applied so as to swing, while the second leaf B is screwed to the door. Preferably the box-leaf A is secured to the slab or partition *d* by means of bolts and nuts, such as C C'. The box-leaf A, as shown, is provided with a spring-barrel or cylindrical casing *e*, while the second leaf is provided with eyes or loops *b*, the said eyes being applied to the ends of the spring-barrel *e* in the usual manner. Separating one of the eyes or loops is the usual capstan-nut or spring-tightening device *f*.

As shown more clearly in detail in Figs. 3, 4, 5, and particularly in Fig. 3, the spring-barrel *e* is bent into customary cylindrical shape, and there is a wing or plate *g* extending tangentially therefrom, while preferably at right angles to said wing or plate *g* there extends from the barrel *e* a wing or plate *g'*. Riveted or otherwise secured, as by welding, to the wing or extension *g* is an inner facing or reinforcing plate *h*, which is preferably as large, if not larger, than the wing or plate *g* and having its inner edge fitting against the wing or plate *g'*. The plates *g* and *h* may constitute one (the main) member of the box-leaf, and relatively to said member the other member is adjustable. The adjustable member comprises an angle-plate, the portion *i* of which extends parallel with the wing or plate *g* of the main member of the box-leaf, while the other portion *i'* of the angle-plate *i i'* fits, preferably, against the outer face of the radial wing or plate *g'*. The said angle-plate *i i'*, or, in other words, the adjustable member of the box-leaf, has a sliding connection with the plate *g'*, and it is guided thereon in a plane parallel with the axis of the spring-barrel, preferably by means of end flanges *j*, the length of the angle-plate being as much greater than the length of the plate *g'* as the said flanges *j* are thick, so that in consequence the inner walls or surfaces of said flanges *j* ride upon or engage the end edges of the said plate *g'*. This sliding connection between the box members enables the adjustable box member to be adjusted substantially true either inwardly or outwardly. The members of the box-hinge are preferably connected to each other by means of a pin and slot, such as *k*. The portion or wing *i* of the angle-plate *i i'* is reinforced or lined

on its inner surface by means of a facing *l*, which is riveted, welded, or otherwise suitably secured to the portion *i*.

It will be seen that the opposing side portions of the box-leaf A of the hinge are two ply, or, in other words, they are composed of laminæ; but it is evident that the plates may be three or more ply, if desired. Preferably, however, they are two ply. It will also be
 10 seen that the portions at the third side of the box-leaf are two ply or composed of laminæ. By constructing the three sides of the box-leaf with at least two-ply plates considerable strength is insured with a minimum weight
 15 of metal. It will be observed that while the spring-barrel is not, although it may be, two ply, it is preferably but one ply, and is preferably formed, as shown, integrally with portions of the box-leaf proper. By using only
 20 one ply of sheet metal for a spring-barrel instead of continuing the double thickness of the box-leaf into the barrel a larger spring for a given diameter of barrel can be used.

A number of advantages will be evident to
 25 those skilled in the art, and it is also evident that changes may be made in the form and construction of the hinge without departing from the spirit and scope of the invention.

Having thus described my invention, what
 30 I claim is—

1. In a hinge, a box-leaf member comprising a barrel having angularly-disposed wings, formed, in one piece, of metal, the right-angle plate having a wing parallel with one
 35 wing of the barrel and a wing overlapping the other wing of the barrel, and means for adjustably securing the overlapping wings together.

2. In a hinge, a box-leaf member comprising
 40 a barrel, having angularly-disposed wings formed, in one piece, of metal, the right-an-

gle plate having a wing parallel with one wing of the barrel, a wing overlapping the other wing of the barrel, and flanges overlapping the opposite edges of the overlapped
 45 wing, and means for adjustably securing the overlapping wings together.

3. In a hinge, a box-leaf member comprising a barrel having angularly-disposed wings formed, in one piece, of metal, a reinforcing-
 50 plate secured to one of the barrel-wings and having its inner edge fitting against the other wing thereof, the right-angle plate having a wing parallel with one wing of the barrel and a wing overlapping the other wing of the bar-
 55 rel, and means for adjustably securing the overlapping wings together.

4. In a hinge, a box-leaf member comprising a barrel having angularly-disposed wings formed, in one piece, of metal, the right-angle
 60 plate having a wing parallel with one wing of the barrel and a wing overlapping the other wing of the barrel, a reinforcing-plate secured to the parallel wing of the right-angle plate, and means for adjustably secur-
 65 ing the overlapping wings together.

5. In a hinge, a box member comprising a barrel having angularly-disposed wings formed, in one piece, of metal, a reinforcing-
 70 plate secured to one wing of the barrel, the right-angle plate having a wing parallel with one wing of the barrel and a wing overlapping the other wing of the barrel, a reinforcing-plate secured to the parallel wing of the right-angle plate, and means for adjustably secur-
 75 ing the overlapping wings together.

Signed at Cleveland, Ohio, this 8th day of August, 1904.

HARRY J. VALENTINE.

Witnesses:

W. F. DORN,
 M. E. EWING.