

No. 897,703.

PATENTED SEPT. 1, 1908.

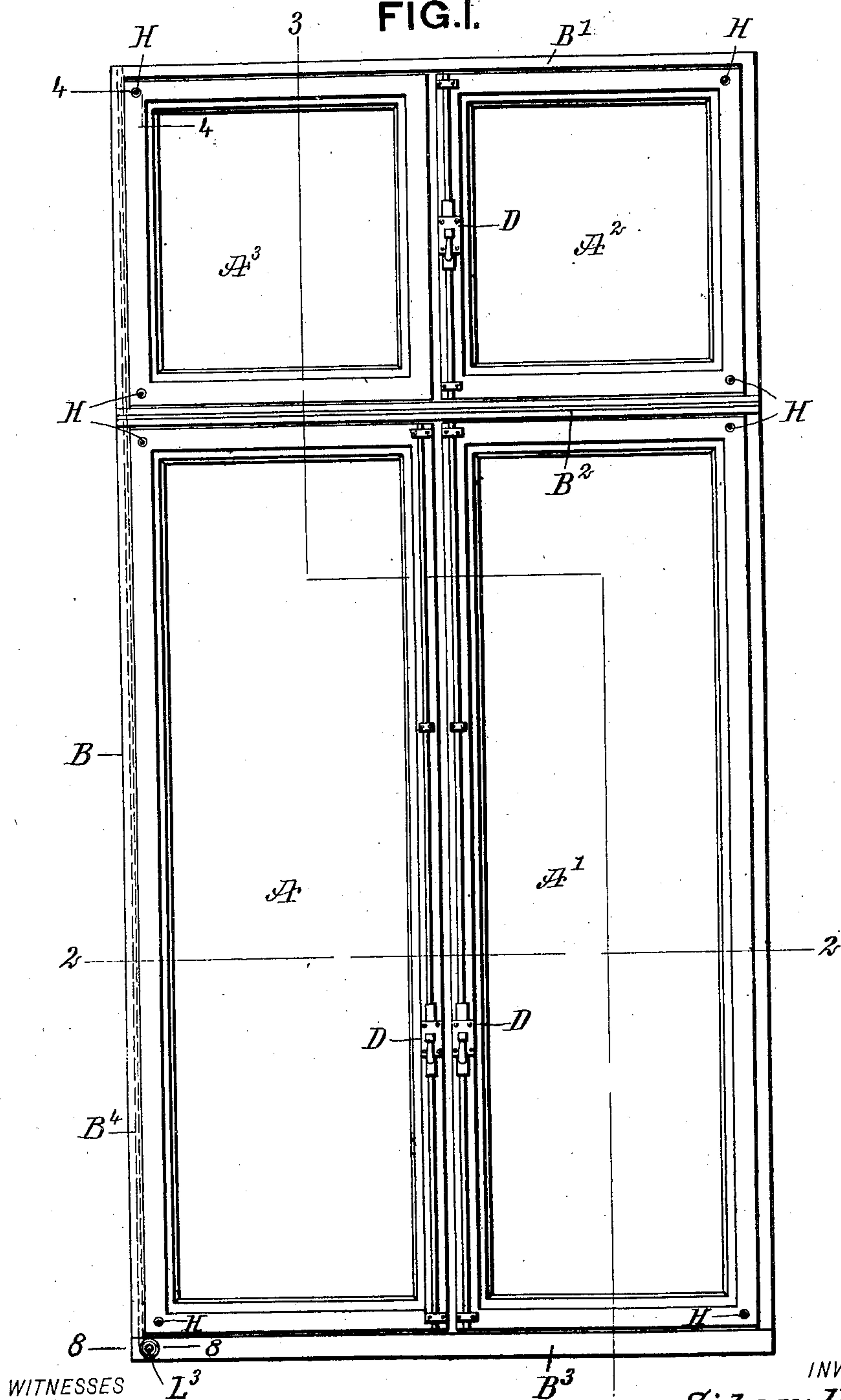
S. U. BARR.

WINDOW.

APPLICATION FILED MAR. 27, 1907.

4 SHEETS—SHEET 1.

FIG. I.



WITNESSES

H. G. Dietrich
Wm. G. Hooker

INVENTOR

Sidney U. Barr

BY *Mumma & Co*

ATTORNEYS

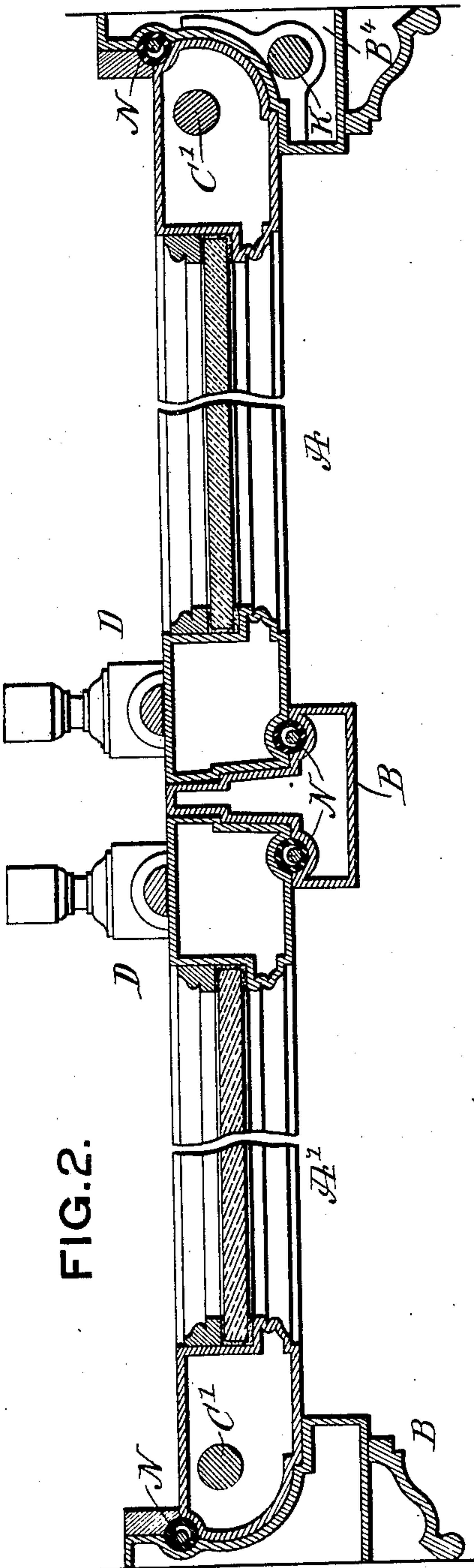


FIG. 2.

WITNESSES

H. G. Dieterich
Rev. G. H. Foster

FIG. 4.

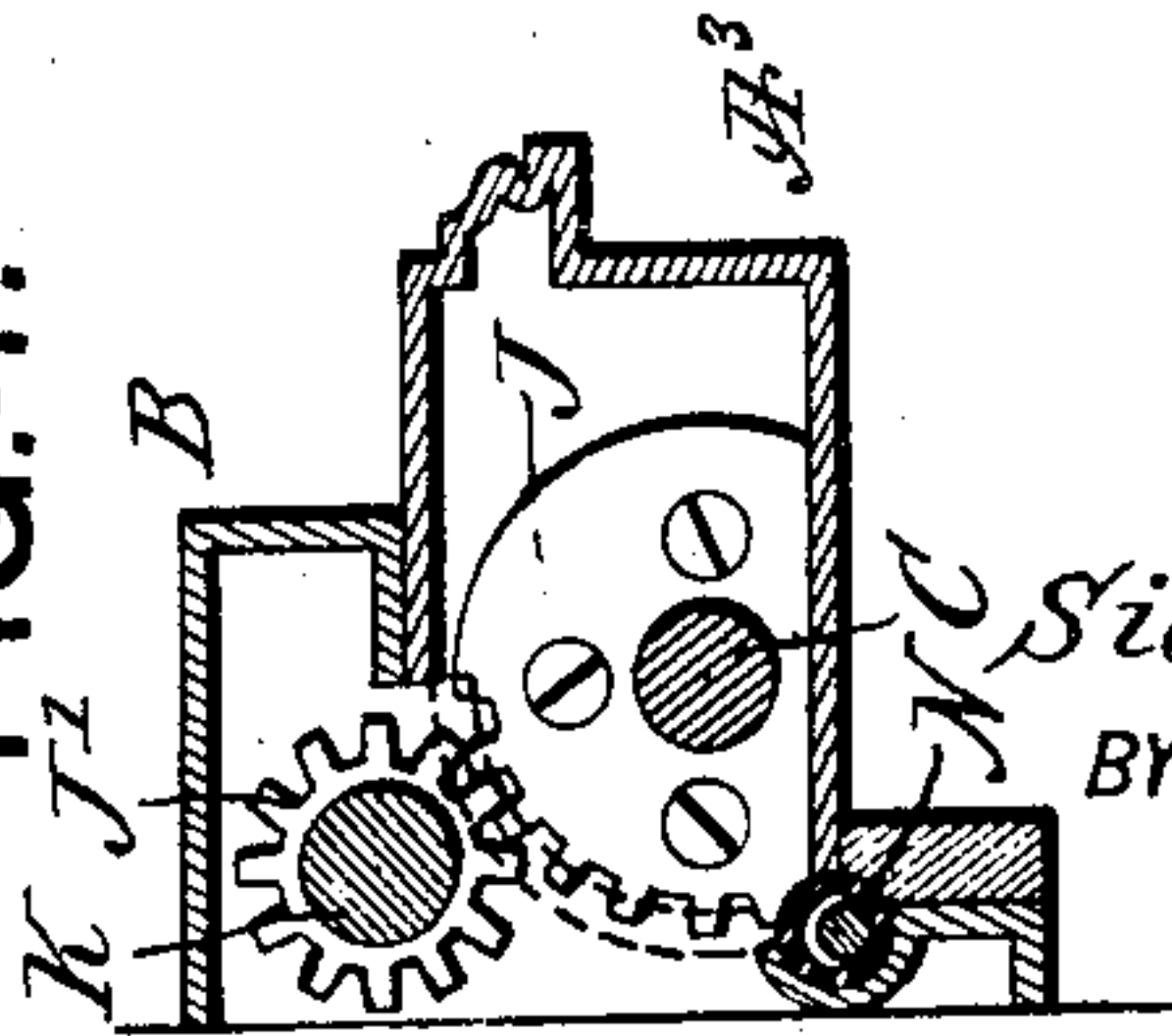


FIG. 5.

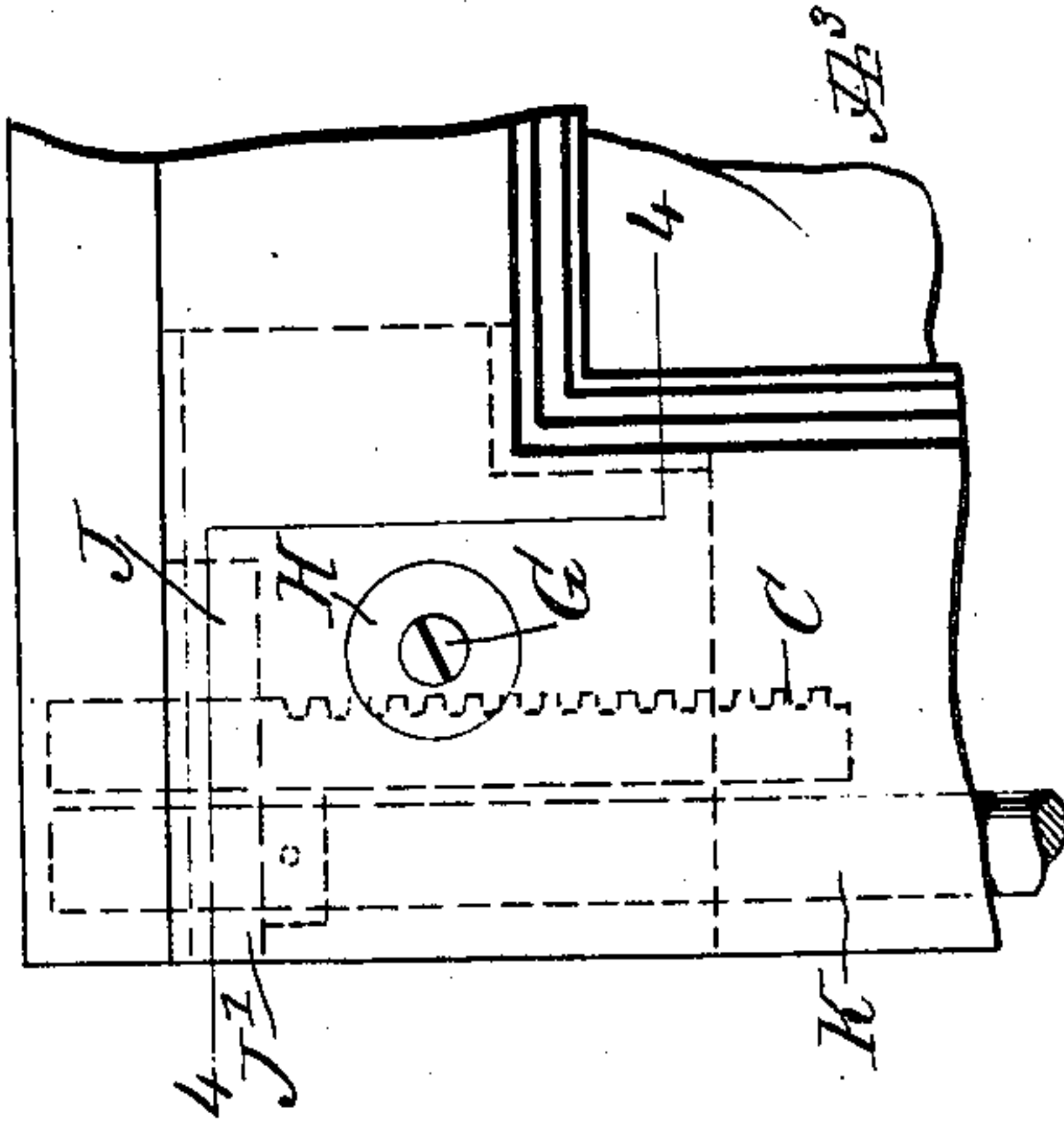


FIG. 6.

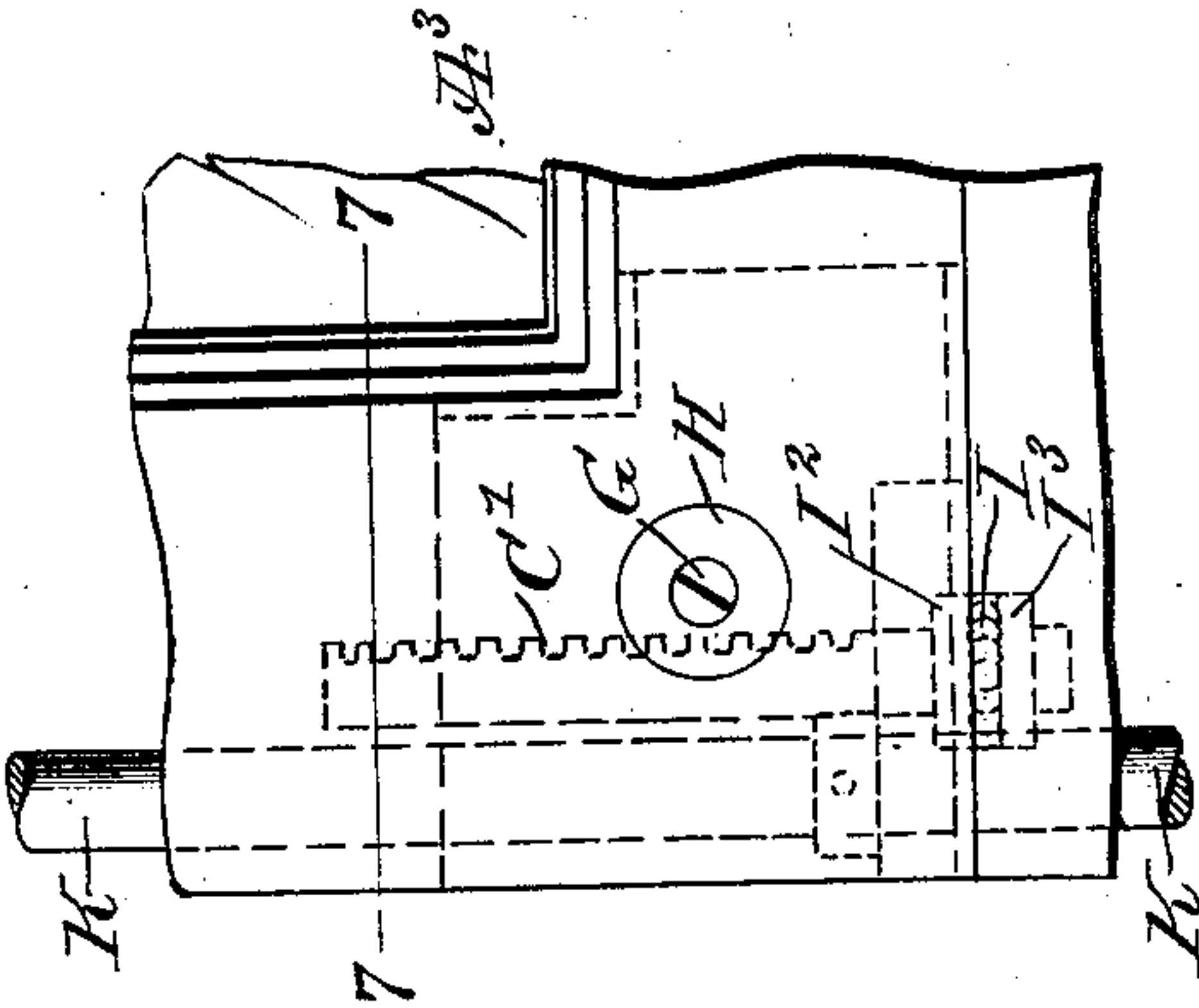
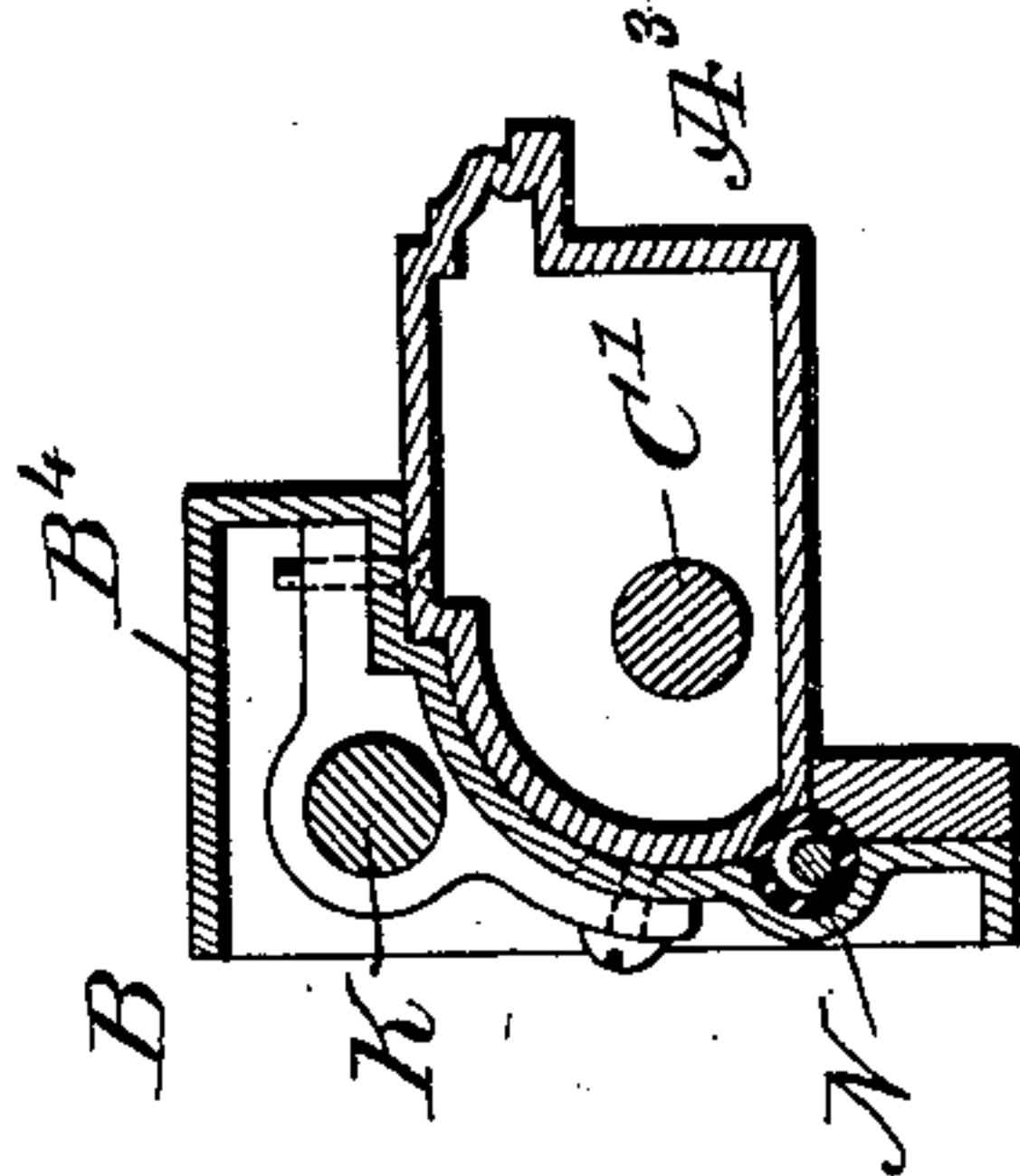


FIG. 7.



INVENTOR

Sidney U. Barr

BY

Mumma & Co

ATTORNEYS

No. 897,703.

S. U. BARR.
WINDOW.

PATENTED SEPT. 1, 1908.

APPLICATION FILED MAR. 27, 1907.

4 SHEETS—SHEET 3.

FIG. 3.

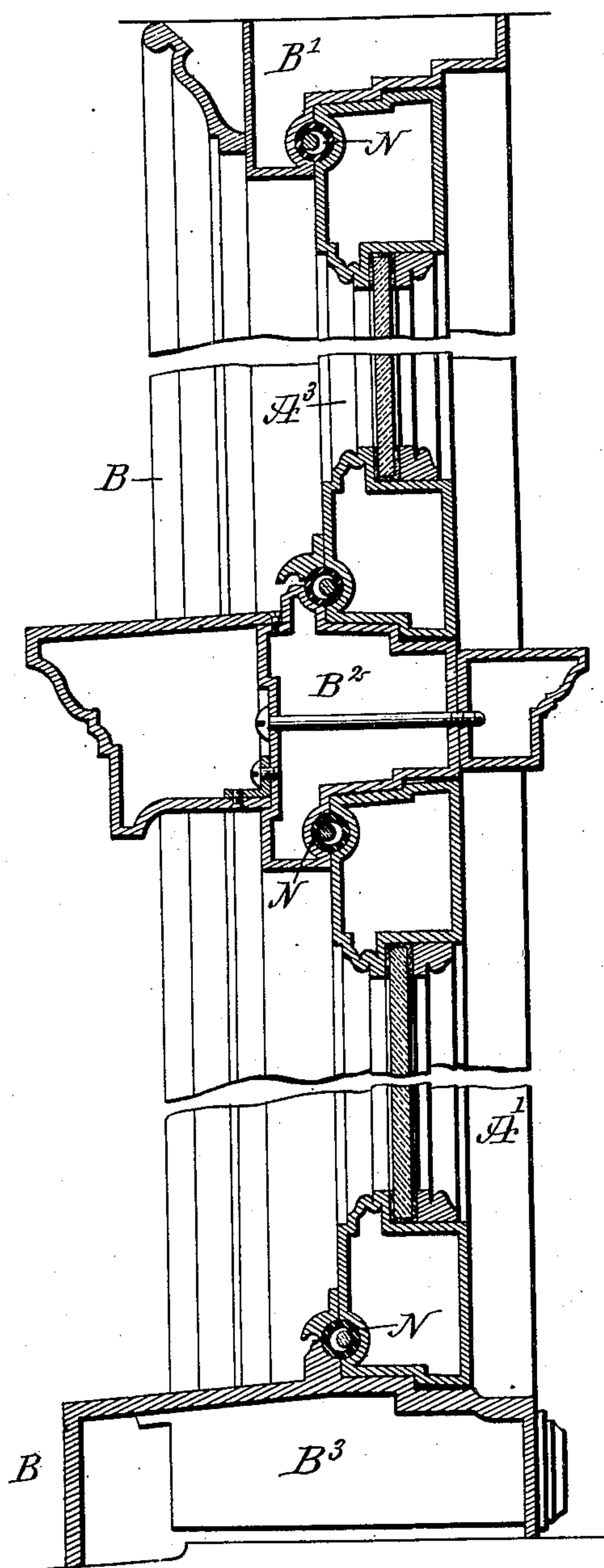


FIG. 8.

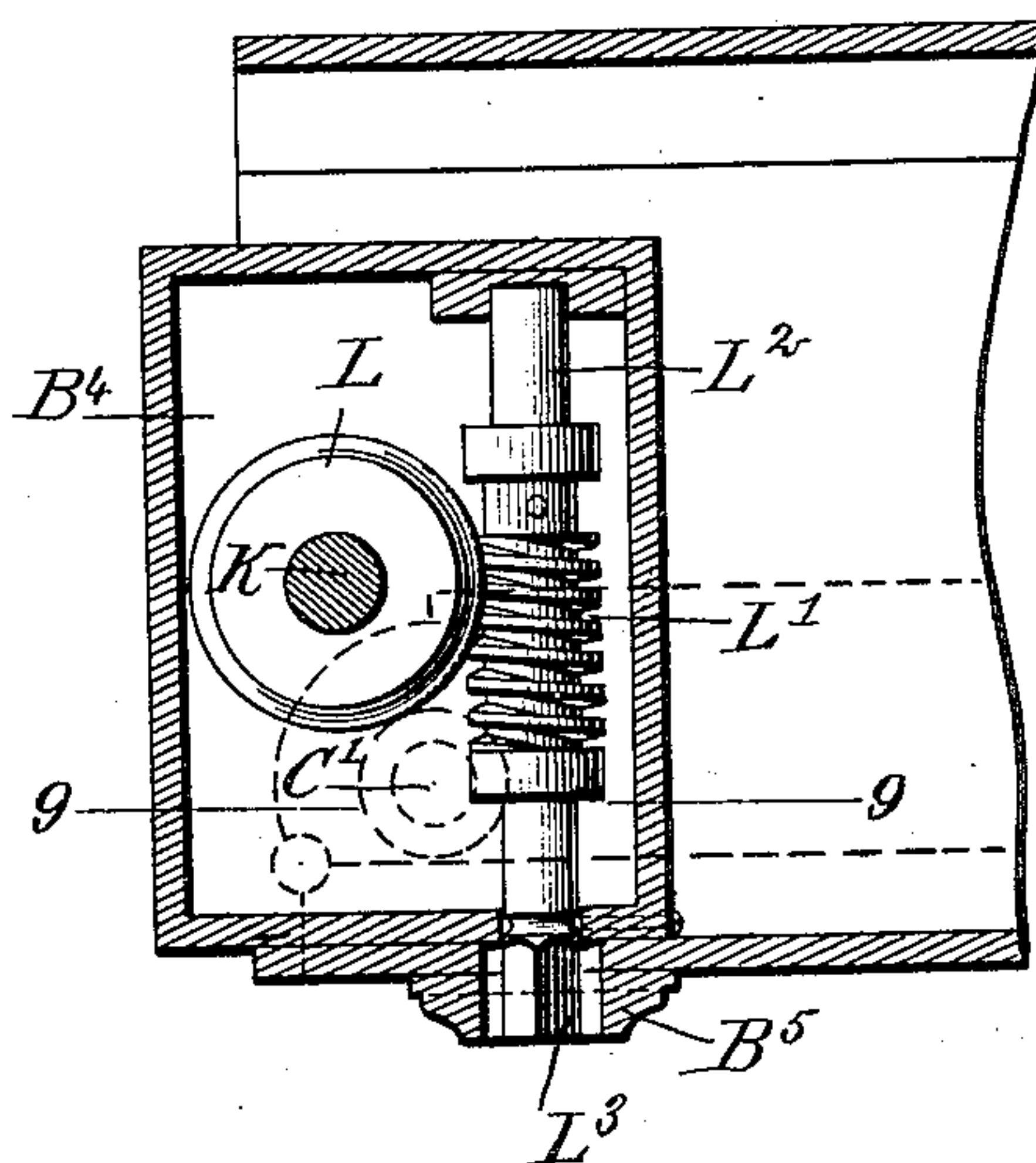
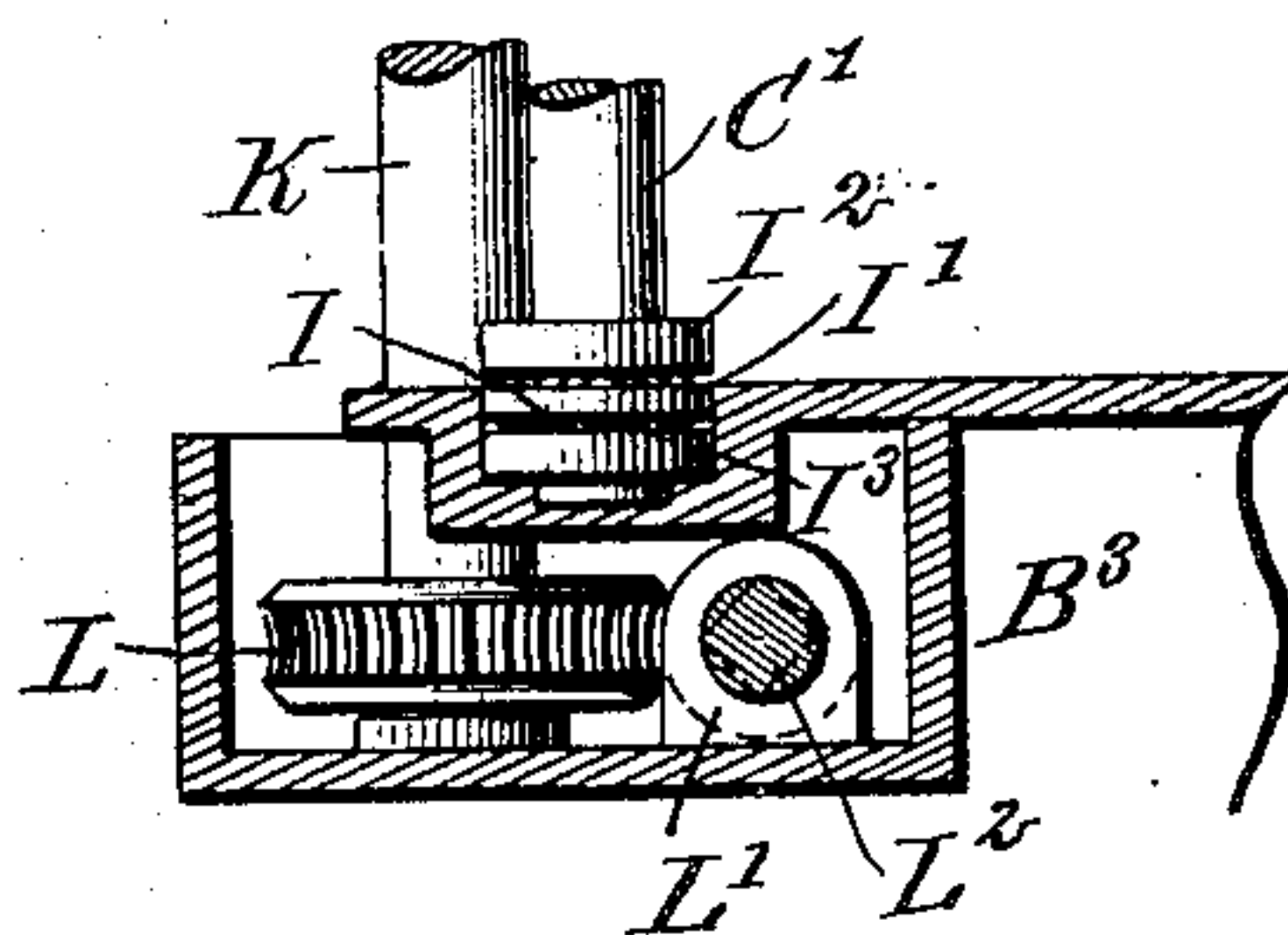


FIG. 9



WITNESSES

H. G. Dieterich
Wm. G. Hooker

INVENTOR

Sidney U. Barr

BY

Mumma

ATTORNEYS

No. 897,703.

S. U. BARR.
WINDOW.

PATENTED SEPT. 1, 1908.

APPLICATION FILED MAR. 27, 1907.

4 SHEETS—SHEET 4.

FIG.10.

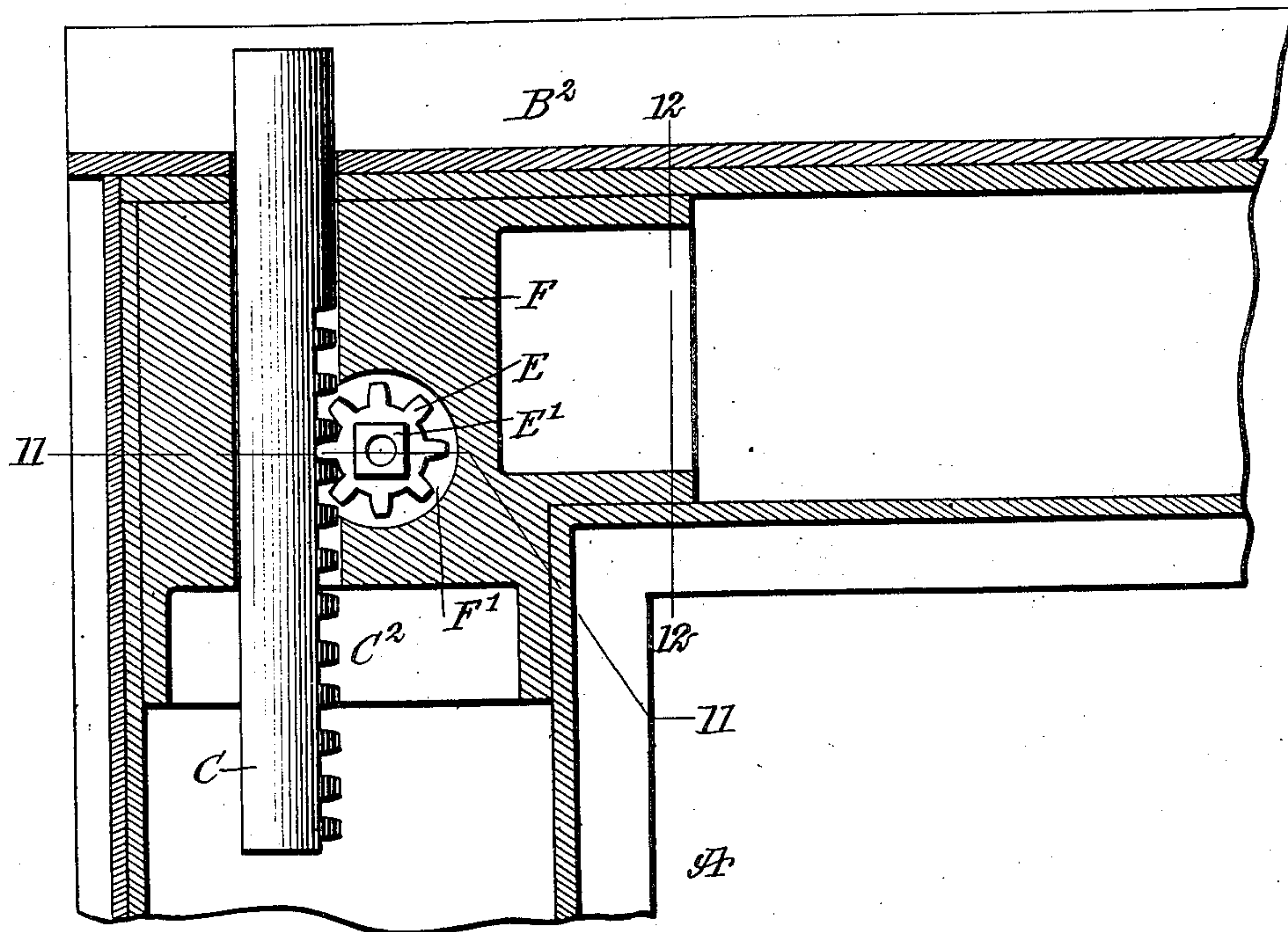
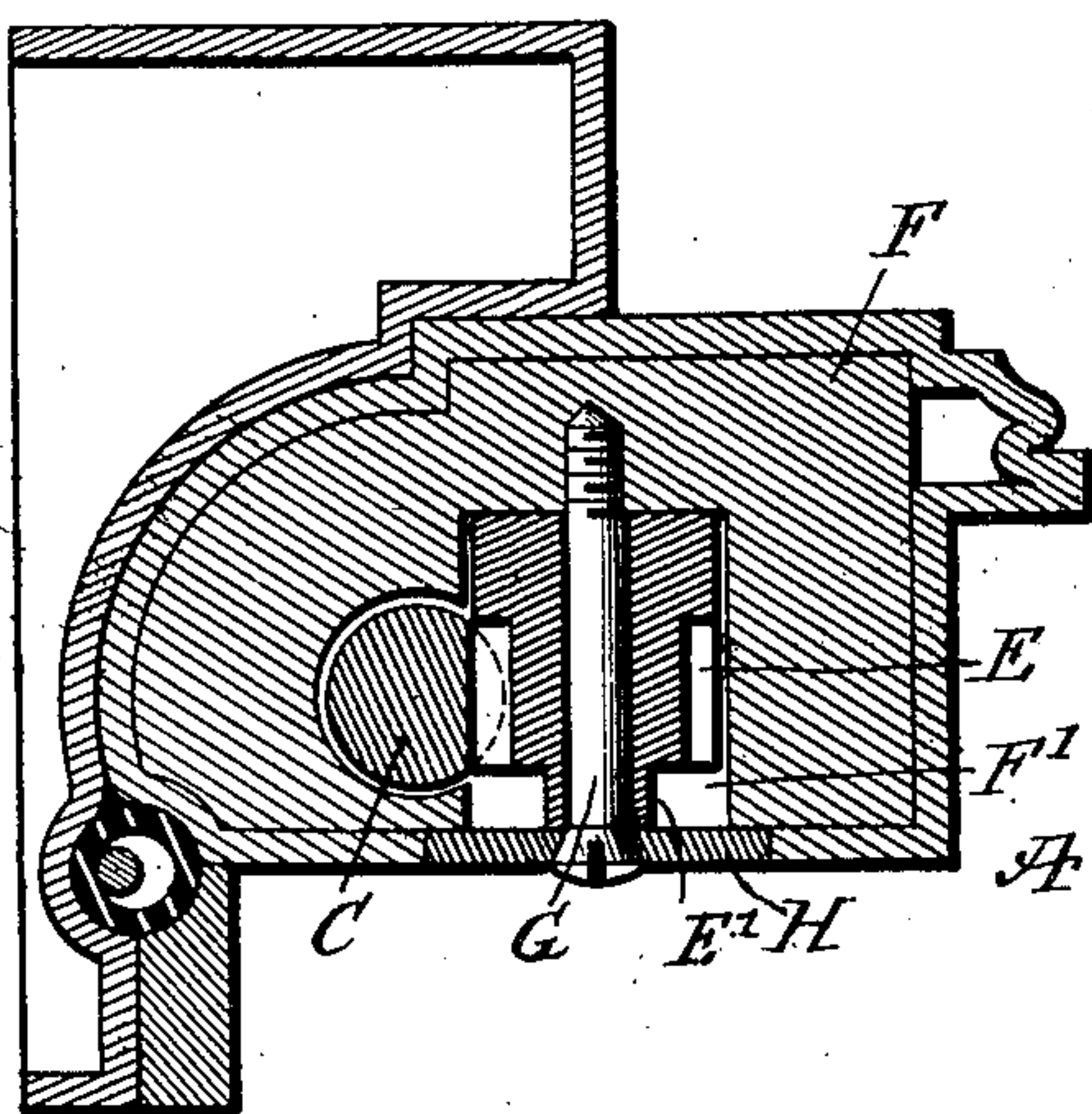


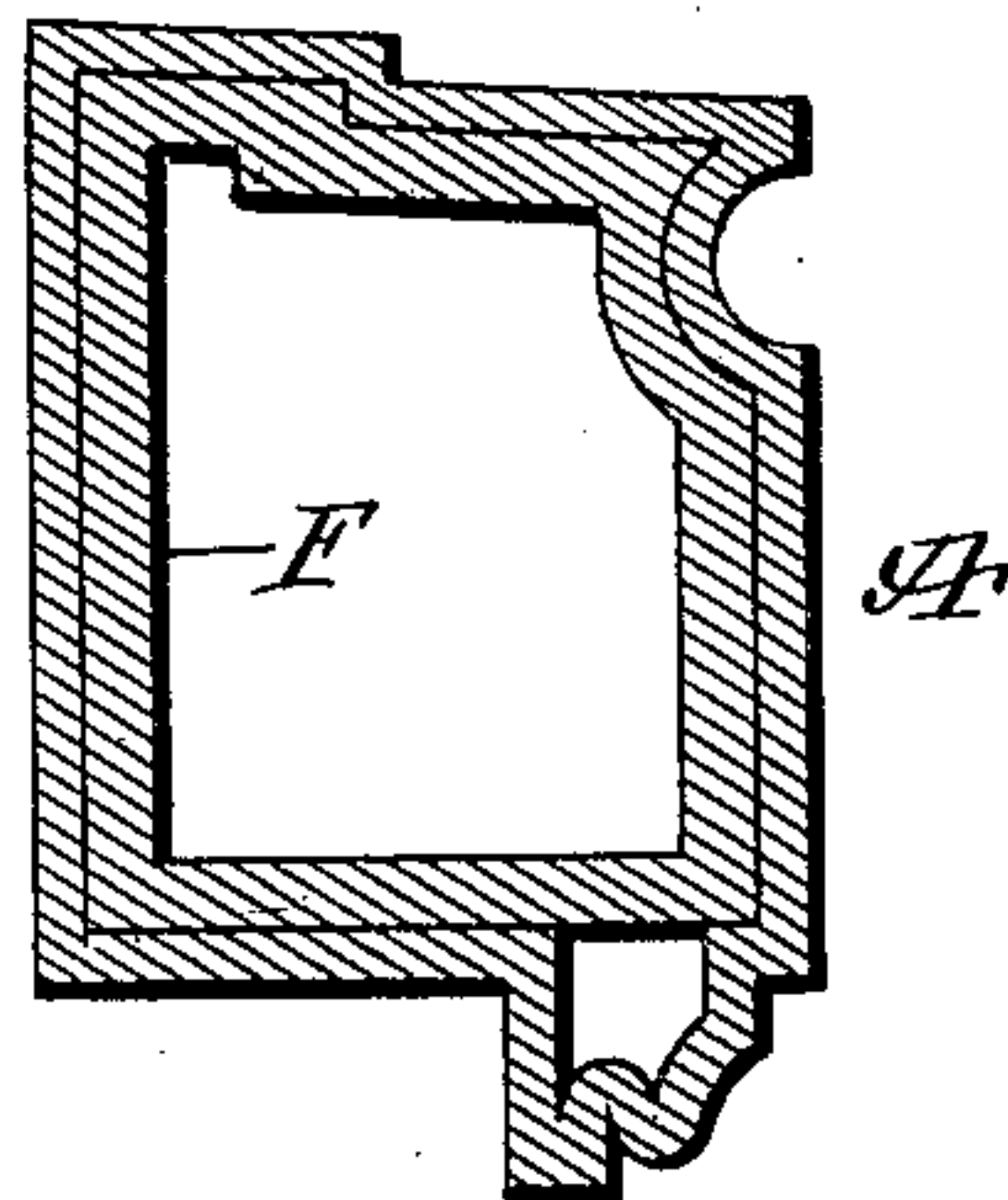
FIG.11.



WITNESSES

H. G. Dietrich
Geo. G. Haskins

FIG.12.



INVENTOR

Sidney U. Barr

BY

Mumford

ATTORNEYS

UNITED STATES PATENT OFFICE.

SIDNEY U. BARR, OF NEW YORK, N. Y.

WINDOW.

No. 897,703.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed March 27, 1907. Serial No. 364,782.

To all whom it may concern:

Be it known that I, SIDNEY U. BARR, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Window, of which the following is a full, clear, and exact description.

The invention relates to windows such as shown and described in the Letters Patent of the United States, No. 797,835, granted to me on August 2, 1905.

The object of the present invention is to provide a new and improved window, which is completely dust proof and air tight, and arranged to permit of opening and closing a sash, and to lock it in place in whatever position it is left, that is, open, partly open or closed, and to allow of conveniently and quickly placing a sash in position in the window frame or removing it therefrom for repairs or other purposes.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an inner face view of the window; Fig. 2 is an enlarged sectional plan view of the same on the line 2—2 of Fig. 1; Fig. 3 is an enlarged transverse section of the same on the line 3—3 of Fig. 1; Fig. 4 is an enlarged sectional plan view of the gearing for imparting a swinging motion to a sash, the section being on the lines 4—4 of Figs. 1 and 5; Fig. 5 is an inner face view of the upper corner of the swing sash and the gearing for operating the same; Fig. 6 is a like view of the lower corner of the swing sash; Fig. 7 is a sectional plan view of the same on the line 7—7 of Fig. 6; Fig. 8 is an enlarged sectional plan view of the operating mechanism for the sash gearing, the section being on the line 8—8 of Fig. 1; Fig. 9 is a sectional side elevation of the same on the line 9—9 of Fig. 8; Fig. 10 is an enlarged sectional side elevation of one of the upper retractable sash pivots, shown in position on the reinforced sash frame and window frame; Fig. 11 is a sectional plan view of the same on the line 11—11 of Fig. 10, and Fig. 12 is a transverse

section of a reinforced sash frame, the section being on the line 12—12 of Fig. 10.

The window illustrated in Fig. 1 is provided with the sashes A, A', A² and A³, which are mounted to swing in the window frame B by the use of a pair of vertically alined retractable top and bottom pivots C, C', and the sashes A, A' and A² are adapted to be locked on the top and bottom against accidental opening by manually controlled bolts D of the extension or Cremorne type. The sash A³ is adapted to be opened and closed by a special manually controlled actuating device, arranged to lock the sash A³ in either an opened, partly opened or closed position, as hereinafter more fully described.

The alined pair of pivots C, C' for each sash A, A', A² and A³ are at the sides thereof, and each of the pivots C and C' is constructed as follows, special reference being had to Figs. 10 and 11 for the upper pivots C, and to Figs. 6 and 9 for the lower pivots C'. Each of the pivots C and C' is provided at one side with rack teeth C² in mesh with a gear wheel E extending within a recess F' formed in the solid portion of a reinforcing piece F for the corresponding sash frame, and the said gear wheel E is mounted to turn on a clamping bolt G screwing in the reinforcing piece F and having its head engaging a clamping disk H fitted in a recess in the inner face of the sash frame. The inner face of the disk H abuts against the outer end of the hub E' of the gear wheel E, and the rear end of the said gear wheel E abuts against the back of the recess F', and consequently when the bolt G is screwed up firmly, then the gear wheel E is clamped securely in position by the disk H and the back of the recess F', to hold the gear wheel E against turning. Now when the pivot C or C' is in position, the upper end of the pivot C extends into a suitable bearing formed in the corresponding cross bar B' or B² of the window frame B (see Figs. 5 and 10), and the lower end of the bottom pivot C' engages a corresponding bearing in the cross bar B² or the sill B³ (see Figs. 6 and 9).

When it is desired to remove a sash from the window frame for repairs or other purposes, then it is only necessary for the operator to unscrew the bolt G and to remove the latter together with the disk H, so that access is had to the polygonal hub E' of the gear wheel E, and the operator by a suitable crank arm or other tool applied to the said

hub E' can now turn the gear wheel E, so as to cause the corresponding top pivot C to slide downward out of engagement with its bearing in the cross bar B' or B², and to cause the lower pivot C' to slide upward out of engagement with the cross bar B² or the sill B³. When this has been done and the pivots C and C' have been retracted then they can be locked in this position by replacing the bolts G and the disks H, to lock the gear wheels E against movement, as previously explained. When the pivots C and C' of a sash are retracted in the manner described then the sash can be removed from the window frame for repairs or other purposes.

When it is desired to replace the sash, it is placed in position in the window frame and locked therein by the Cremorne bolt or otherwise held in position, and then the bolts G and disks H are removed, to allow the operator to turn the gear wheel E so as to extend the pivots C and C', that is, to engage the same with their bearings in the window frame. When this has been done, the bolts G and disks H are replaced with a view to lock the gear wheels E and consequently the pivots C and C' in the extended positions.

In order to insure an easy swinging of each sash A, A', A² and A³, the pivotal end of the sash rests and travels on a ball bearing (see Figs. 6 and 9), consisting of a ring I in which are held balls I' projecting beyond the top and bottom faces of the ring I, the balls being engaged at the top by a ring-shaped bearing I² fitting in a recess in the under side of the sash frame and secured to the latter by screws or the like (not shown), and the lower surfaces of the balls I' rest on ring-shaped bearings I³ seated in a recess in the cross bar B² or the sill B³, as indicated in Figs. 6 and 9, the said recess being sufficiently deep to also contain the ball bearing.

By reference to Figs. 6 and 9 it will be seen that the ring I and the bearings I² and I³ are concentric with the pivot pin C', and the latter when raised passes out of the bearing I³ and ring I, to allow of removing the sash as previously explained, that is, when the pivot C is disengaged from its bearing in the window frame and the pivot C' is raised out of engagement with the bearing I³ and the ring I. In order to turn the sash A³ on its pivots C and C', a segmental gear wheel J is secured to the frame of the sash concentric with the upper pivot C, as illustrated in Figs. 4 and 5. The segmental gear wheel J is in mesh with a pinion J' attached to the upper end of a vertically disposed shaft K journaled in suitable bearings arranged in the side bar B⁴ of the window frame B, and on the lower end of the shaft K (see Figs. 8 and 9) is secured a worm wheel L in mesh with a worm L' having its shaft L² arranged transversely and journaled in suitable bearings in the sill B³ of the

window frame B. The inner end L³ of the worm shaft L² is made polygonal and extends into an opening B⁵ formed in the sill B³, to permit the operator to apply a crank arm or other suitable tool to the end L³ with a view to turn the worm shaft L². Now when the worm shaft L² is turned by the operator, the worm L' rotates the worm wheel L, thus turning the shaft K, which by means of the gear wheel J' in mesh with the segmental gear wheel J causes a turning of the latter, and as the segmental gear wheel J is fixed to the frame of the window sash A³ it is evident that the sash A³ is swung into an open, partly open or a closed position according to the direction in which the operator turns the worm shaft L². Thus the operator standing inside of the room and applying a crank to the end L³ of the worm shaft L² and turning the same can readily cause a turning of the sash A³ with a view to open, partly open or close the same. By having the shaft K connected with the shaft L² by the worm wheel L and worm L', it is evident that in whatever position the sash A³ is left it is securely locked in place against accidental closing or opening movement. Each of the sashes A, A', A² is rendered air tight and dust proof when closed by the use of suitable packings N, each packing being tubular and preferably made of a piece of rubber tubing, through which extends a rod or core, which is more fully described and shown in the Letters Patent of the United States above referred to, so that further description of this packing is not deemed necessary.

Although I have shown the parts of the sash frames and window frame of tubular metal, it is evident that I do not limit myself to the use of metal, as wood or other materials may be substituted. When the sash frames, however, are made of tubular metal, the reinforcing angular pieces F greatly strengthen the corners of each sash frame, thus rendering the sashes exceedingly strong and durable. The corner reinforcing pieces F are preferably made of cast metal and fitted in and soldered or otherwise fastened to the corresponding ends of the stile and cross bar of the sash frame.

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

1. A window comprising a window frame, a sash, slidable pivots on which the sash is hung in the window frame, each pivot being provided with rack teeth, a manually controlled gear wheel in mesh with the said rack teeth and journaled in the sash, and means for locking the said gear wheel against movement.

2. A window comprising a window frame, a sash, slidable pivots on which the sash is hung in the window frame, a gear wheel, a bolt on which the gear wheel is mounted,

and a clamping plate engaged by the said bolt and engaging the said gear wheel to clamp the latter in place.

3. A window provided with a sash having 5 pivots for the sash to swing on, reinforcing corner pieces each fitting into adjacent ends of a stile and cross bar of the sash frame, the corner piece forming a bearing for a pivot, and manually controlled means arranged in 10 the corner piece for imparting a sliding motion to the pivot.

4. A window provided with a sash having pivots for the sash to swing on, reinforcing corner pieces each fitting into adjacent ends

of a stile and cross bar of the sash frame, the 15 corner piece forming a bearing for a pivot, a gear wheel mounted to turn in a recess in the said corner piece and in mesh with rack teeth on the said pivot, and means for locking the said gear wheel against turning in the said 20 recess.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIDNEY U. BARR.

Witnesses:

THEO. G. HOSTER,

EVERARD B. MARSHALL.