

No. 696,826.

Patented Apr. 1, 1902.

J. P. LANGE.  
SHUTTLE GUARD FOR LOOMS.

(Application filed May 29, 1901.)

(No Model.)

FIG. 1.

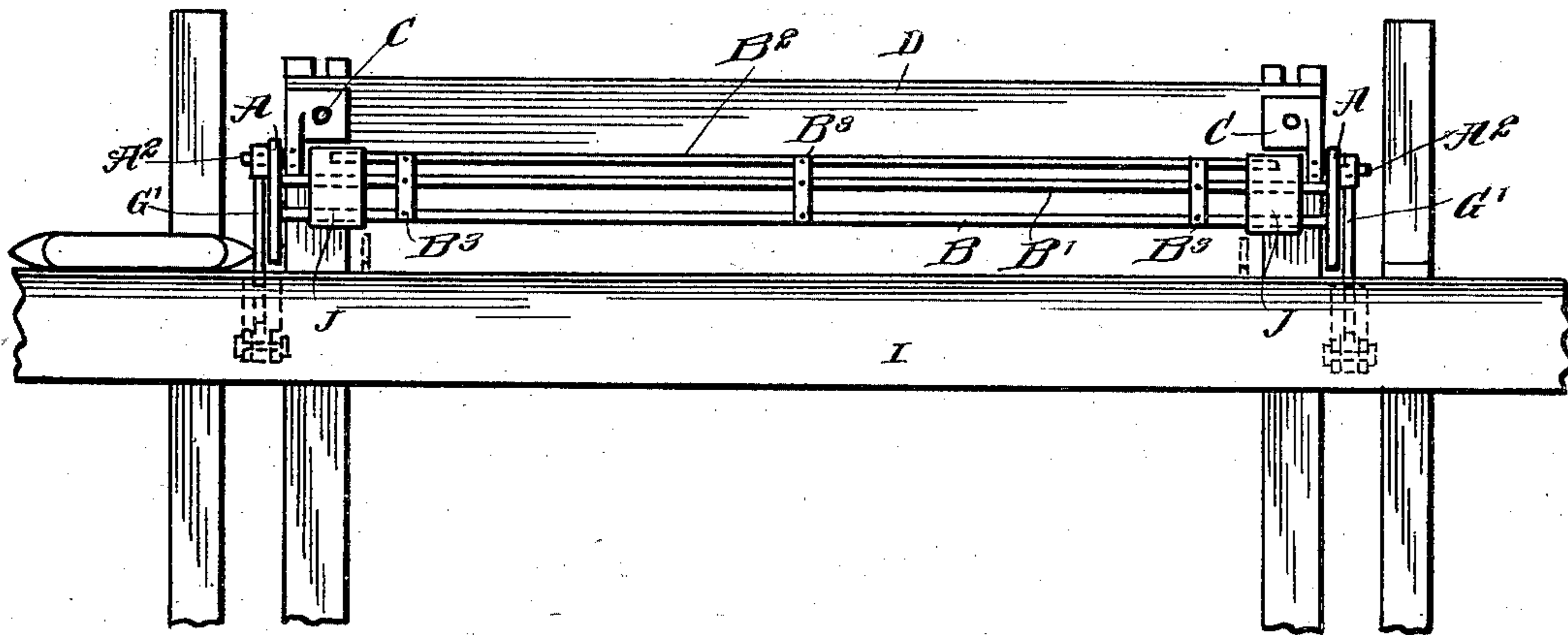


FIG. 2.

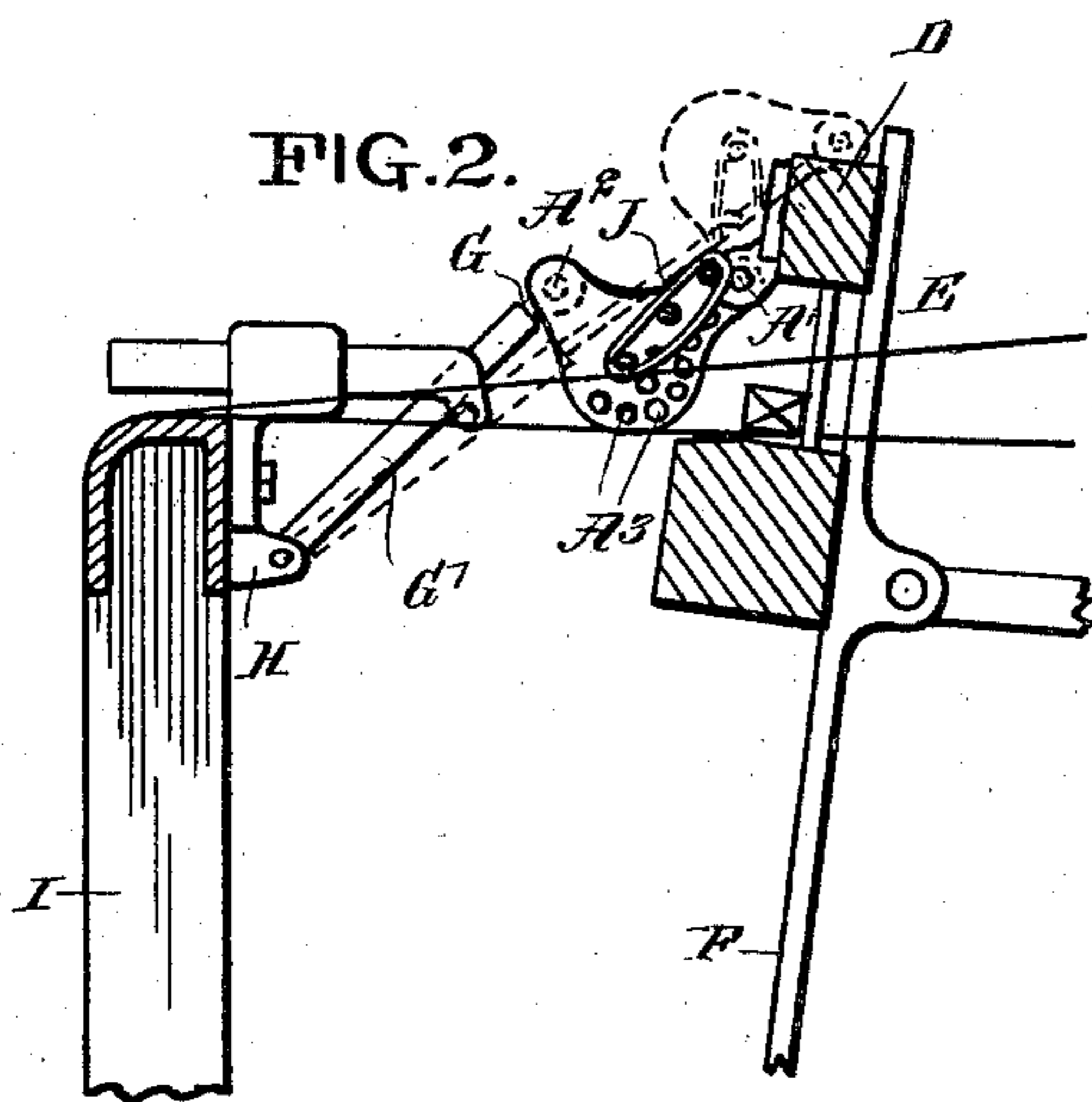


FIG. 3.

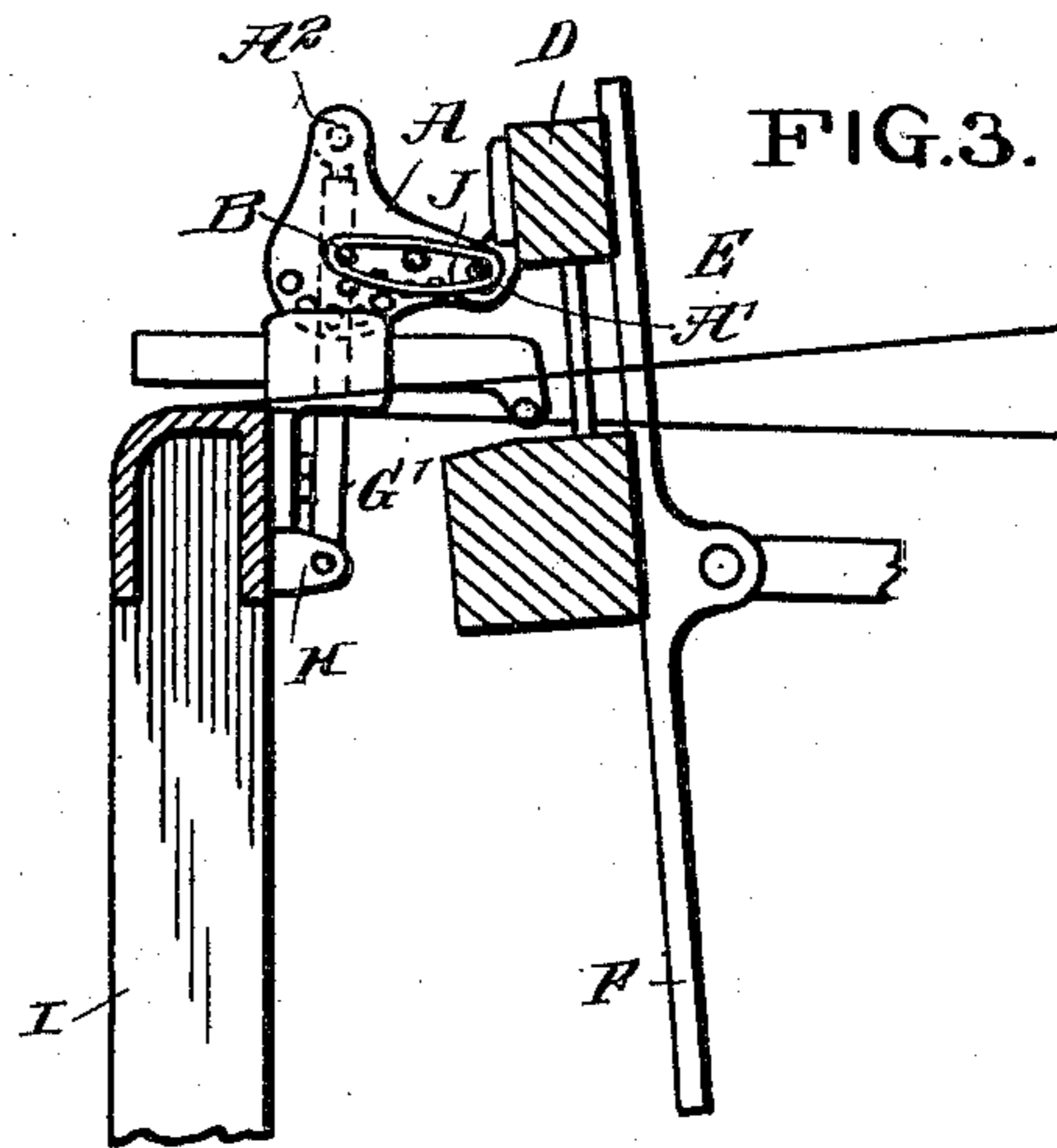


FIG. 4.

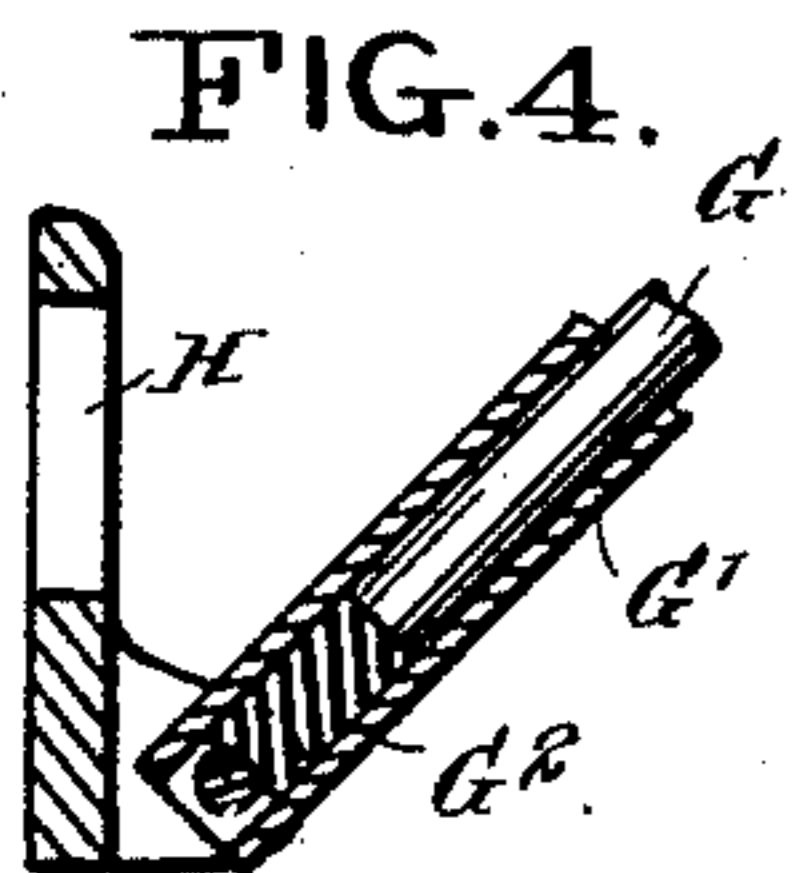


FIG. 5.

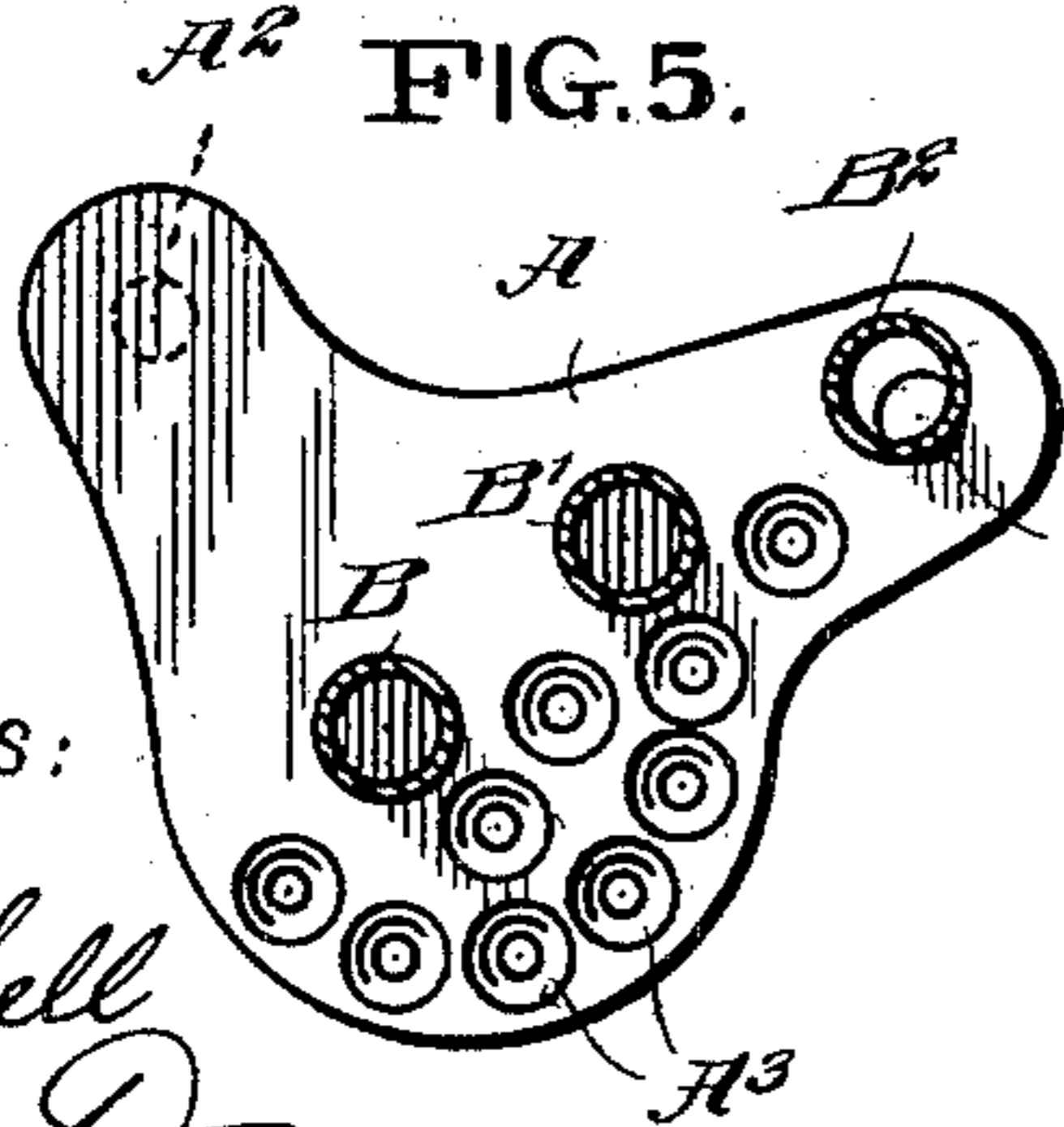
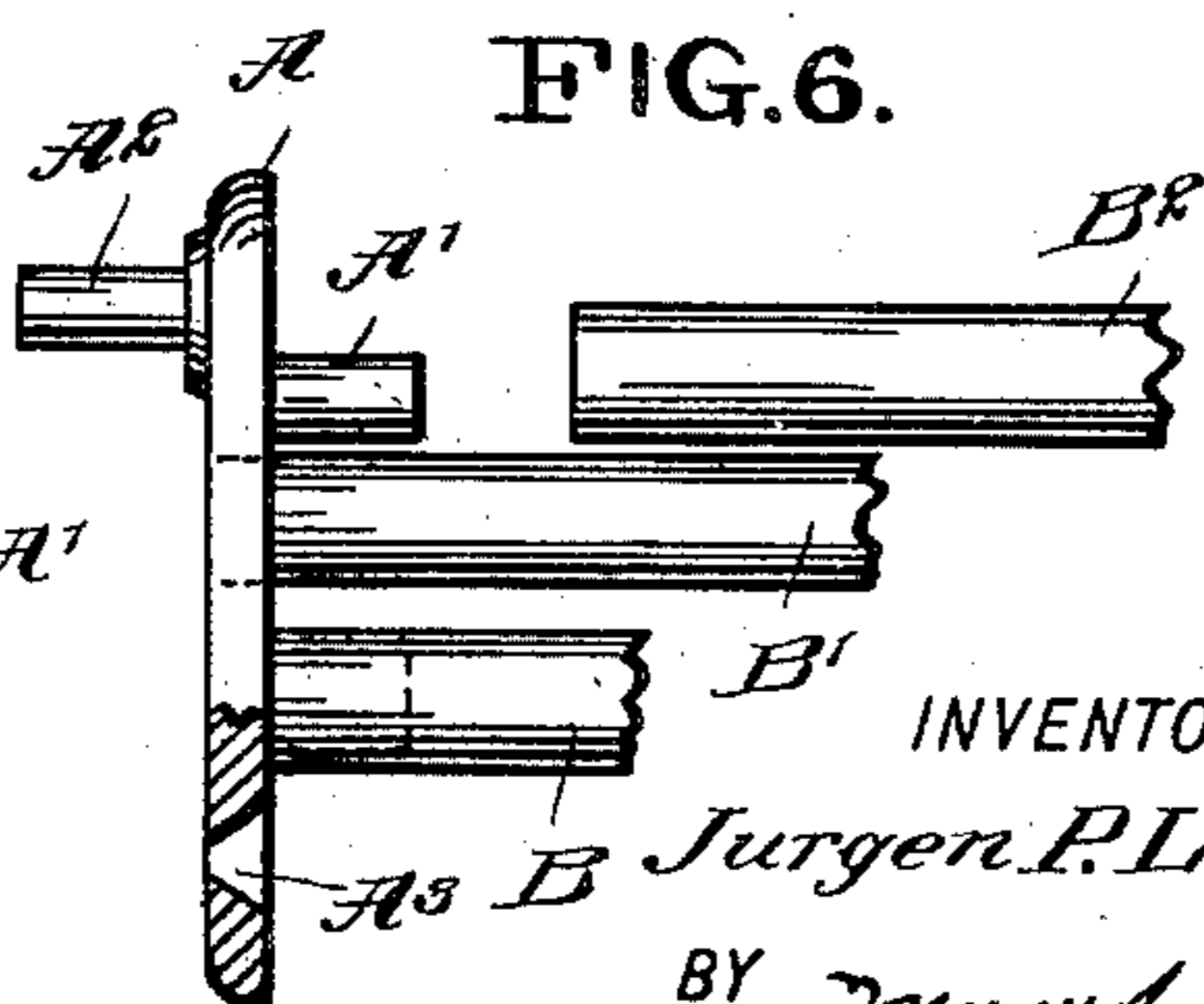


FIG. 6.



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# UNITED STATES PATENT OFFICE.

JURGEN PETER LANGE, OF PASSAIC, NEW JERSEY.

## SHUTTLE-GUARD FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 696,826, dated April 1, 1902.

Application filed May 29, 1901. Serial No. 62,358. (No model.)

*To all whom it may concern:*

Be it known that I, JURGEN PETER LANGE, a citizen of the United States, and a resident of Passaic, in the county of Passaic and State of New Jersey, have invented a new and Improved Shuttle-Guard for Looms, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved shuttle-guard actuated from the lay to move into an active or inactive position, according to the movement of the shuttle, and arranged to effectively prevent a shuttle diverted from its straight course across the ways from flying upward out of the shed, and thereby insure personal safety of an attendant or other person near the loom, the arrangement being such that the weaver at any time can swing the guard out of the way to gain access to the warp-threads and the reed.

The invention consists of novel features and parts and combinations of the same, as will be 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 a front elevation of part of a loom, showing the improvement applied. Fig. 2 is a sectional side elevation of the same with the guard in a lowermost position at the time the shuttle passes through the ways. Fig. 3 is a like view of the same with the guard in an uppermost active position. Fig. 4 is an enlarged sectional side elevation of one of the links for the guard. Fig. 5 is an enlarged sectional side elevation of the guard, and Fig. 6 is an end elevation of the same with part broken out.

The improved shuttle-guard for looms consists, essentially, of end plates A, rigidly connected with each other by cross-bars B B', the end plates being provided with pivot-pins A', engaging brackets C, secured to the front of the hand-rail D of a reed E, carried by a lay F in the usual manner, said end plates also having a second set of pivots A<sup>2</sup>, pivotally connected with rods G, telescoping in tubes G', fulcrumed on brackets H, held ver-

tically adjustable on the loom-frame I, as is plainly illustrated in Figs. 1, 2, 3, and 4. The end plates are approximately triangular in shape, and the pivot-pins A' A<sup>2</sup> are located on the top opposite corners, as will be readily understood by reference to Fig. 5, so that when the lay oscillates the links easily impart a swinging motion to the guard. The rods G and the tubes G' form links for imparting a swinging motion to the connected end plates, so that when the lay is in a released position, as shown in Fig. 2, the guard is in a lowermost active position to prevent the shuttle from flying upward out of the shed, and when the lay F swings forward to beat in the weft then the links cause the guard to swing upward into an uppermost inactive position, as illustrated in Fig. 3. When it is desired to swing the guard completely out of the way and allow the attendant to gain access to the reed and the warp-threads, the attendant simply imparts an upward-swinging motion to the guard to bring the same into the position shown in dotted lines in Fig. 2, it being understood that the telescoping rods G then slide in their tubes G' to accommodate this upward-swinging movement of the guard.

In the bottom of each tube G' is arranged a cushion G<sup>2</sup> in the form of a rubber block, so that when the attendant swings the guard downward again then the lower end of the rod G seats itself on the cushion G<sup>2</sup>, which latter then takes up any undue jar. A third cross-bar B<sup>2</sup>, arranged a distance above the cross-bar B', is preferably employed and supported from the other two cross-bars B B' by connecting-pieces B<sup>3</sup>, as is plainly shown in Fig. 1, it being understood that this top cross-bar B<sup>2</sup> is arranged approximately in alignment with the pivots A'. (See Fig. 5.) Near the ends of the rods B B' B<sup>2</sup> are formed pockets J, preferably made of endless bands of leather, through which extend the rods, as plainly indicated in Figs. 2 and 3, said pockets serving to arrest the shuttle in its transverse movement along the guard cross-bars B B' B<sup>2</sup>, so that the shuttle does not strike the end plates and become injured thereby.

In order to prevent the points of the shuttle from becoming dulled when attaching the end plates, I prefer to form said end plates with apertures A<sup>3</sup>, countersunk at the inner

faces of the plates, so that the point of the shuttle readily enters one of said apertures at the time the shuttle becomes stuck in the corresponding adjacent pocket J. By having the connecting-pieces B<sup>3</sup> sufficient rigidity is given to the cross-bars to prevent the same from spreading apart in case the shuttle strikes the same. By terminating the upper cross-bar B<sup>2</sup> a distance from the end plates it is evident that when the top cross-bar B<sup>2</sup> is struck by an upwardly-flying shuttle then the force exerted against said top cross-bar tends to swing the guard upward on its pivots A', so that said guard is not injured by the blow of the shuttle.

The entire device is very simple and durable in construction, can be readily applied to any loom, and is not liable to get out of order, and the weaver can at any time obtain convenient access to the reed by throwing the guard upward, as previously explained.

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

1. A shuttle-guard, comprising approximately triangular end plates, cross-bars held on the plates, pivot-pins located on the top opposite corners of the plates and extending in opposite directions, one set of pins pivotally connecting the plates to a hand-rail, links connected with the other set of pivot-pins and provided with cushioning means, and adjustable connections between the links and the loom-frame, as set forth.

2. A shuttle-guard, comprising end plates pivoted to a hand-rail and provided with apertures countersunk on the inner faces of the plates, cross-bars held on said end plates, and links connecting the end plates with the loom-frame, as set forth.

3. A shuttle-guard, comprising end plates pivoted to a hand-rail, cross-bars held on said end plates, and extension-links, comprising rods connected with the end plates, and tubes connected with the loom-frame and in which the rods telescope, the tubes being provided with cushions, as set forth.

4. A shuttle-guard having end plates, cross-bars held on said end plates, the said end plates being provided with a series of apertures for the purpose described, and pockets held on said cross-bars adjacent to the end plates, as set forth.

5. A shuttle-guard, comprising end plates adapted for pivotal connection with a hand-rail, cross-bars held on said end plates, a top cross-bar supported by the other bars, and pockets formed of flexible material and held on said cross-bars near the ends thereof, the pockets extending inwardly toward the reed, as set forth.

6. A shuttle-guard, comprising end plates pivoted to a hand-rail, cross-bars secured to the end plates, a top cross-bar, means for supporting the top cross-bar from the other cross-bars, and links connecting the end plates with the loom-frame, as set forth.

7. A shuttle-guard, comprising end plates pivoted to a hand-rail, cross-bars held on said end plates, and supporting a top cross-bar, and pockets held on said cross-bars and formed of endless bands through which extend the cross-bars, as set forth.

8. A shuttle-guard comprising end plates pivoted to a hand-rail, cross-bars rigidly connecting the end plates, a top cross-bar supported from the other cross-bars, and arranged approximately in alinement with the pivots connecting the end plates to the hand-rail, and extension-links connecting the end plates with the loom-frame, as set forth.

9. A shuttle-guard, comprising end plates pivoted to a hand-rail, cross-bars held on said end plates, and cushioning-links connecting the end plates with the loom-frame, as set forth.

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

JURGEN PETER LANGE.

Witnesses:

THEODORE CAYAN,  
CHAS. J. HEUSER.