

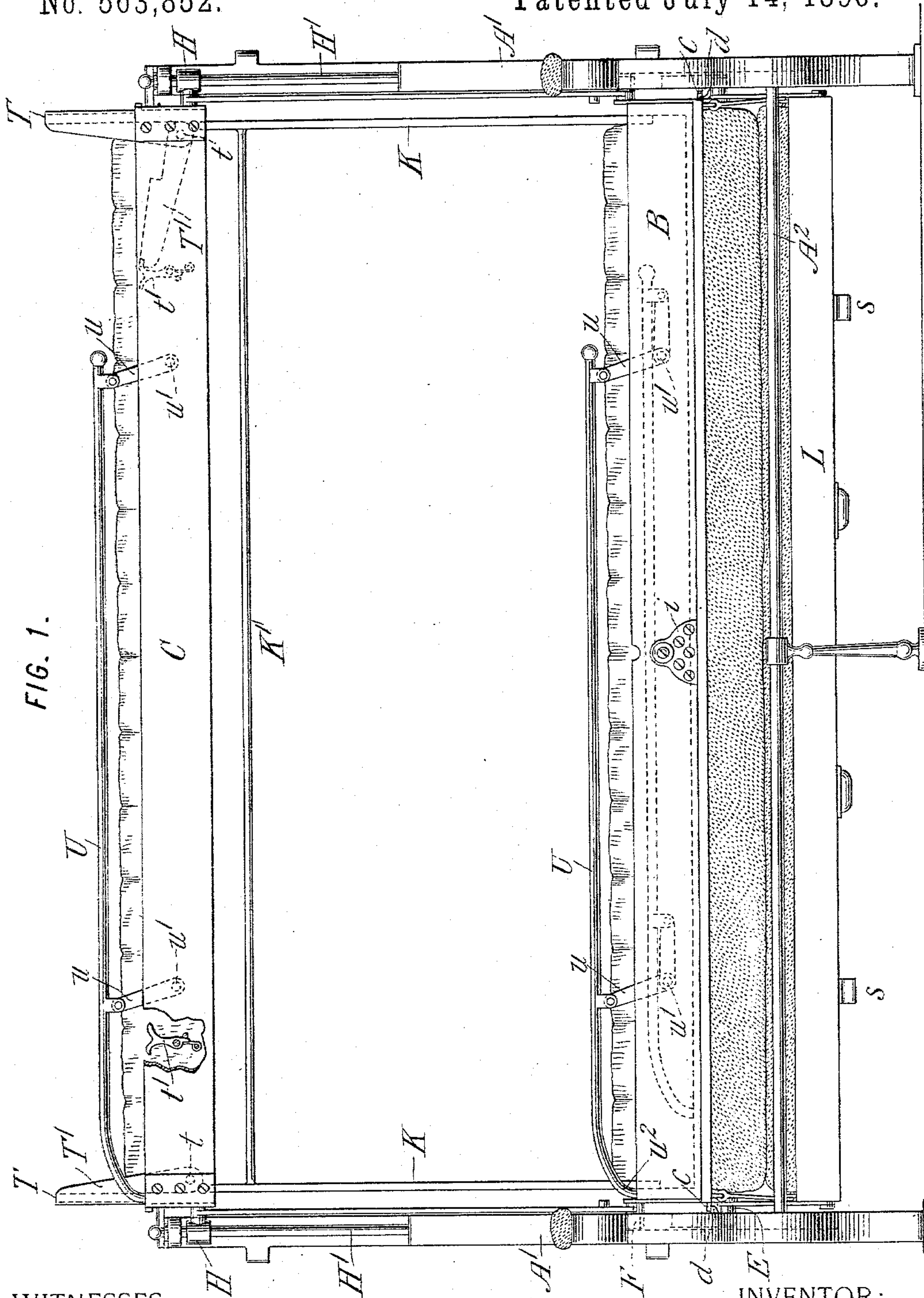
(No Model.)

5 Sheets—Sheet 1.

P. FRASER.
FOLDING BERTH.

No. 563,852.

Patented July 14, 1896.



WITNESSES:

W. W. Lloyd.
C. E. Ashley

INVENTOR:

Peter Fraser
By his Attorneys,
William C. Fraser & Co.

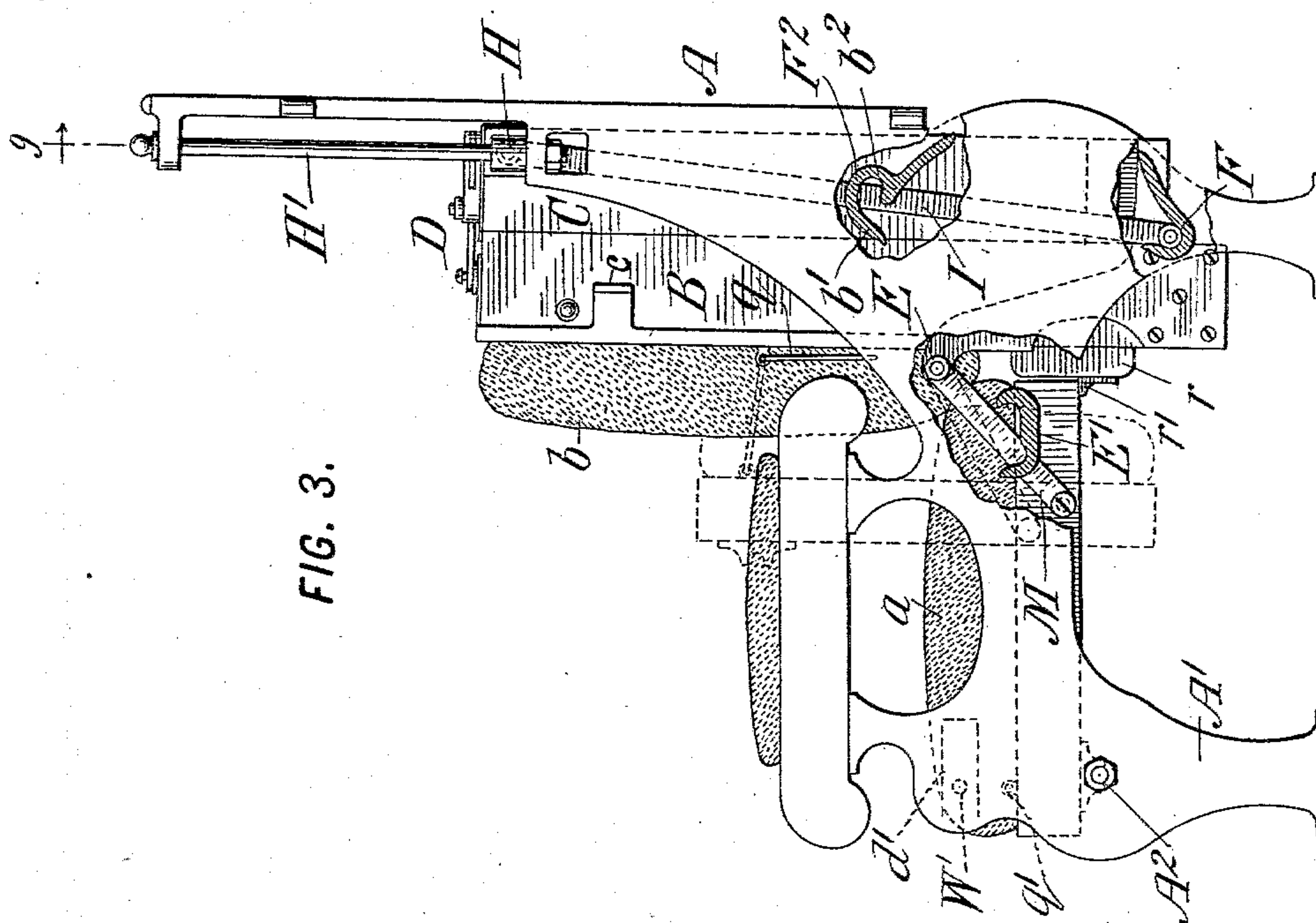
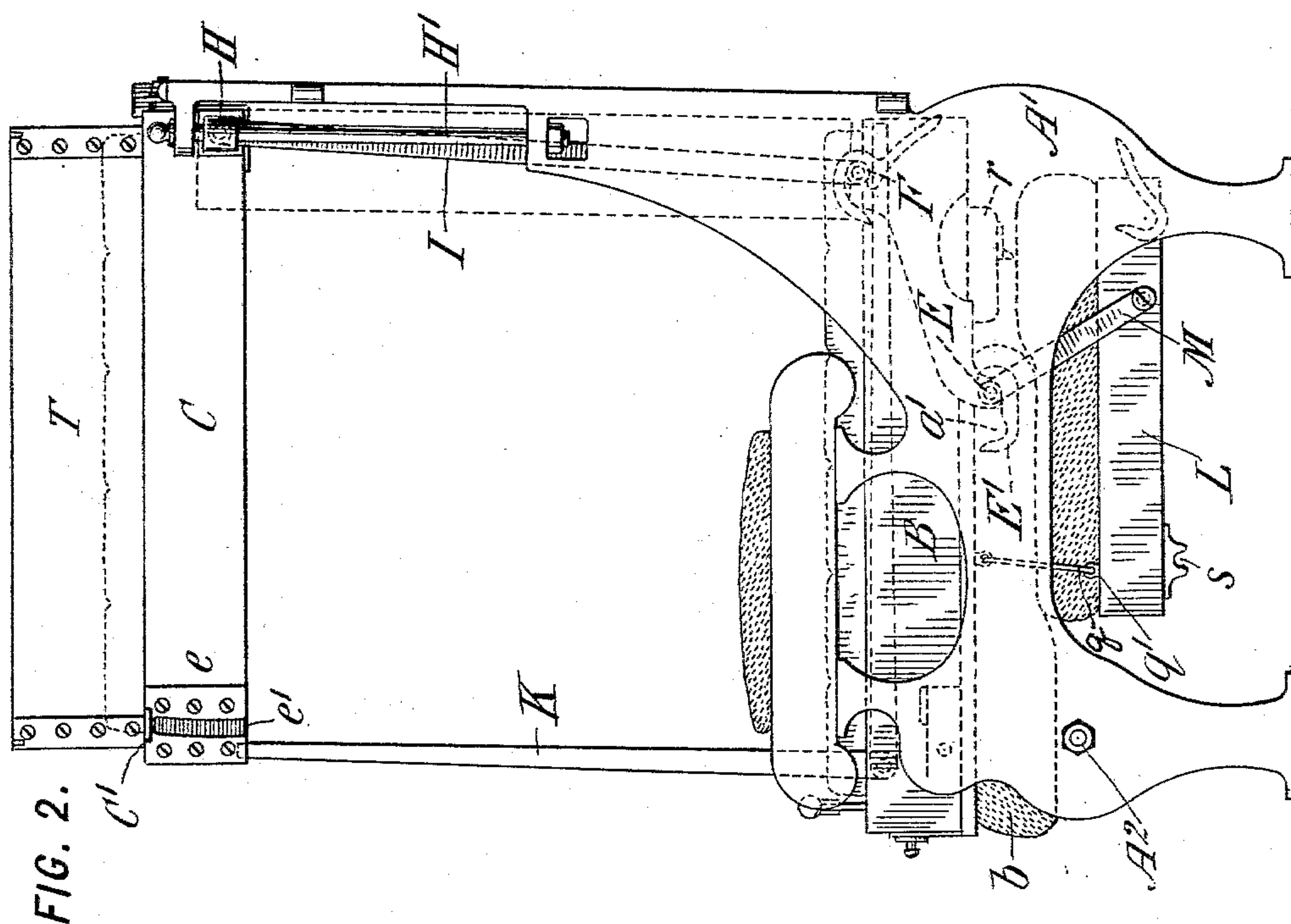
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5 Sheets—Sheet 2.

P. FRASER.
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No. 563,852.

Patented July 14, 1896.



WITNESSES:

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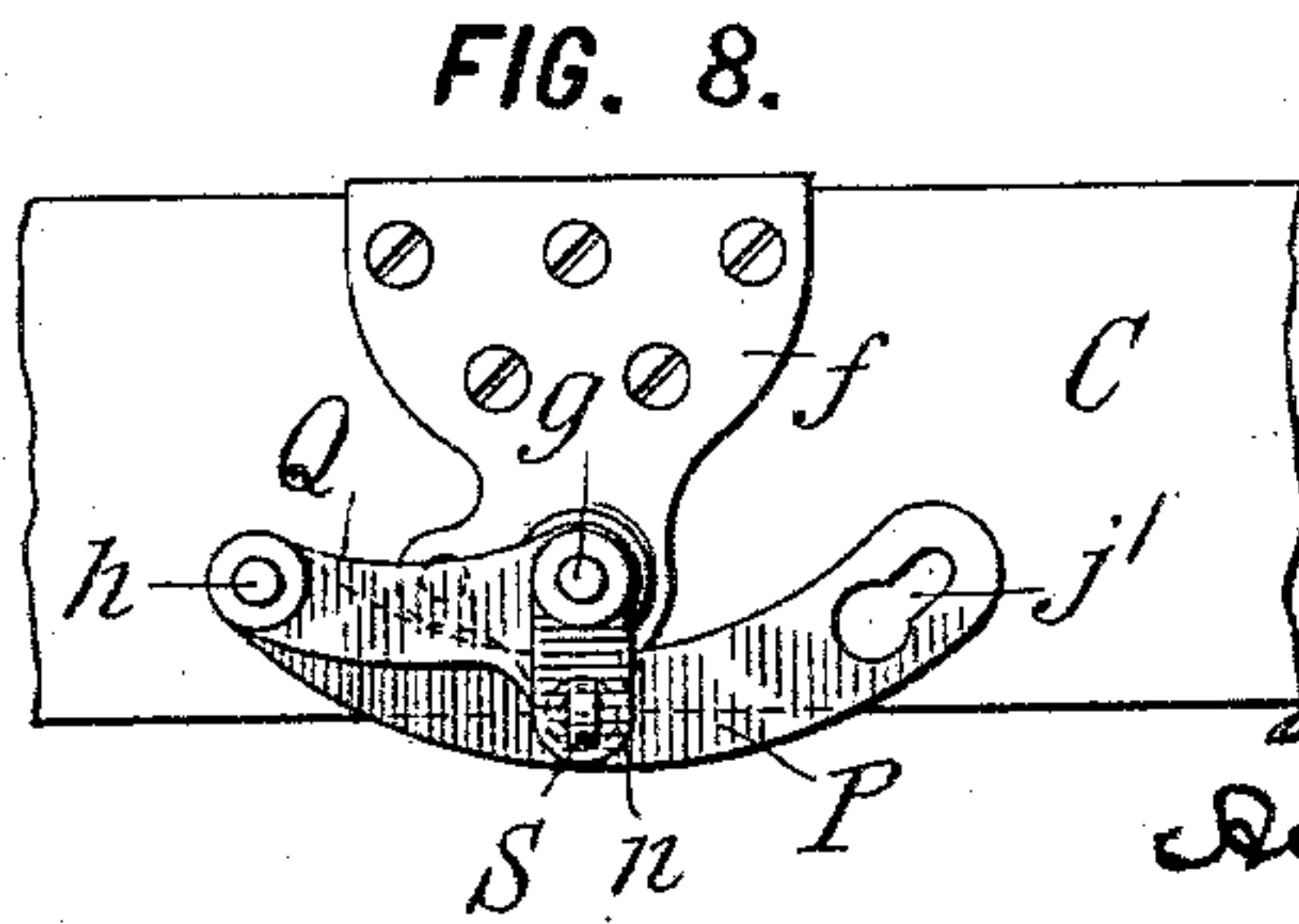
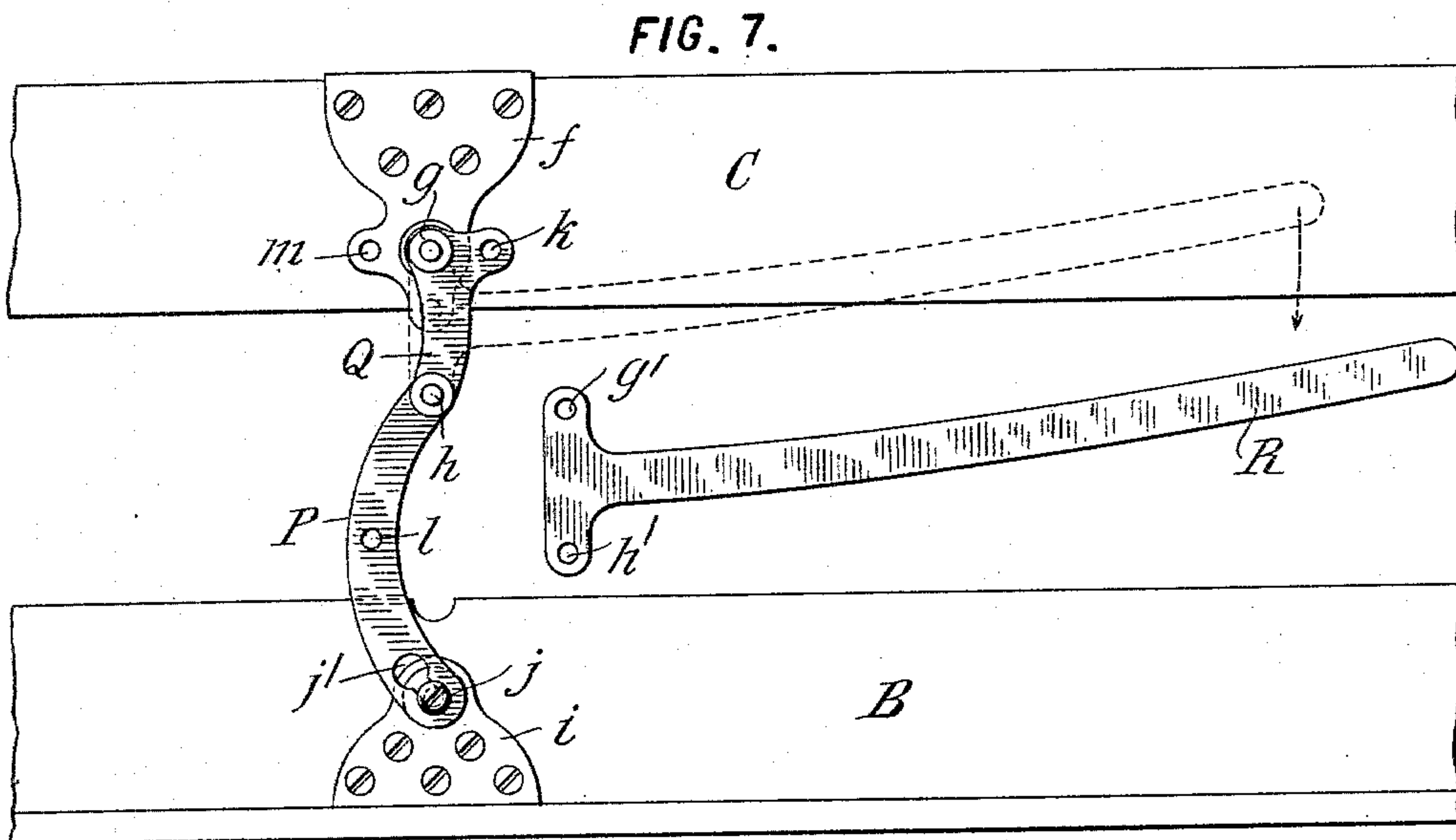
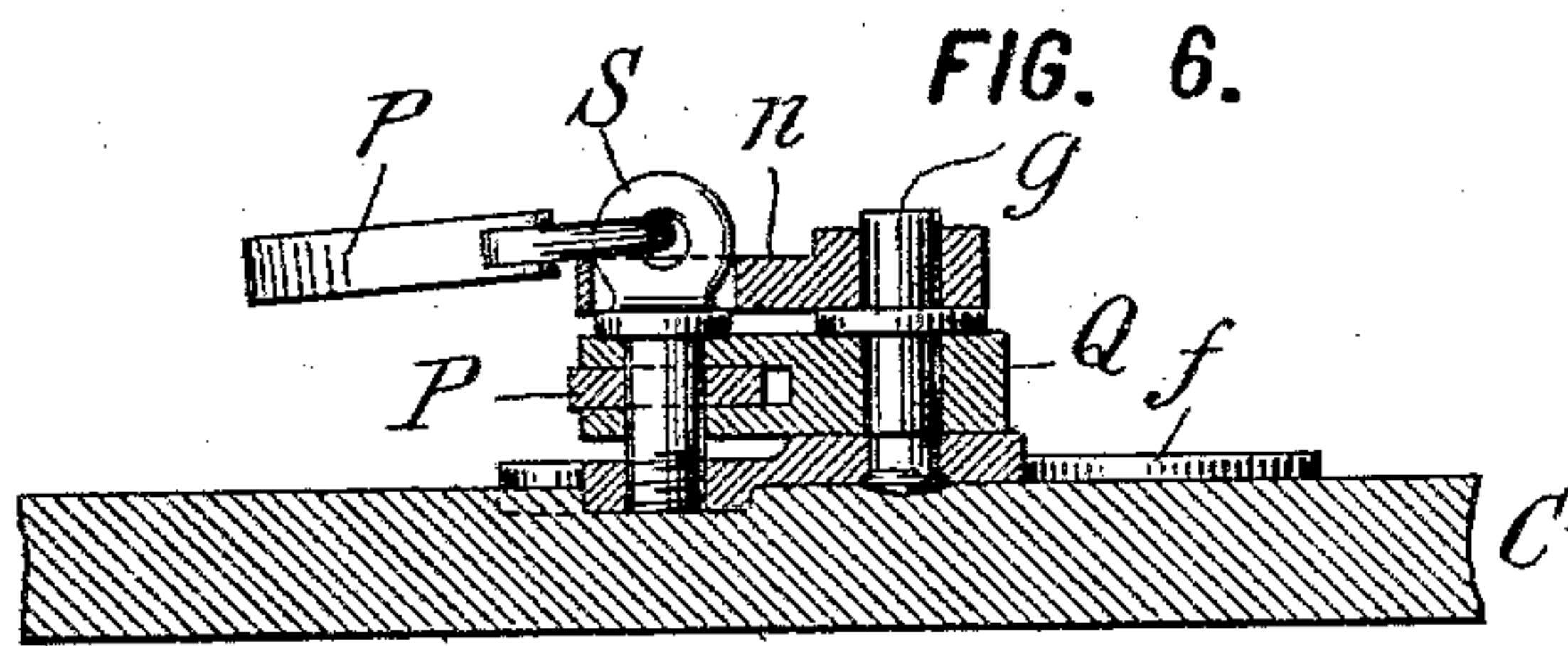
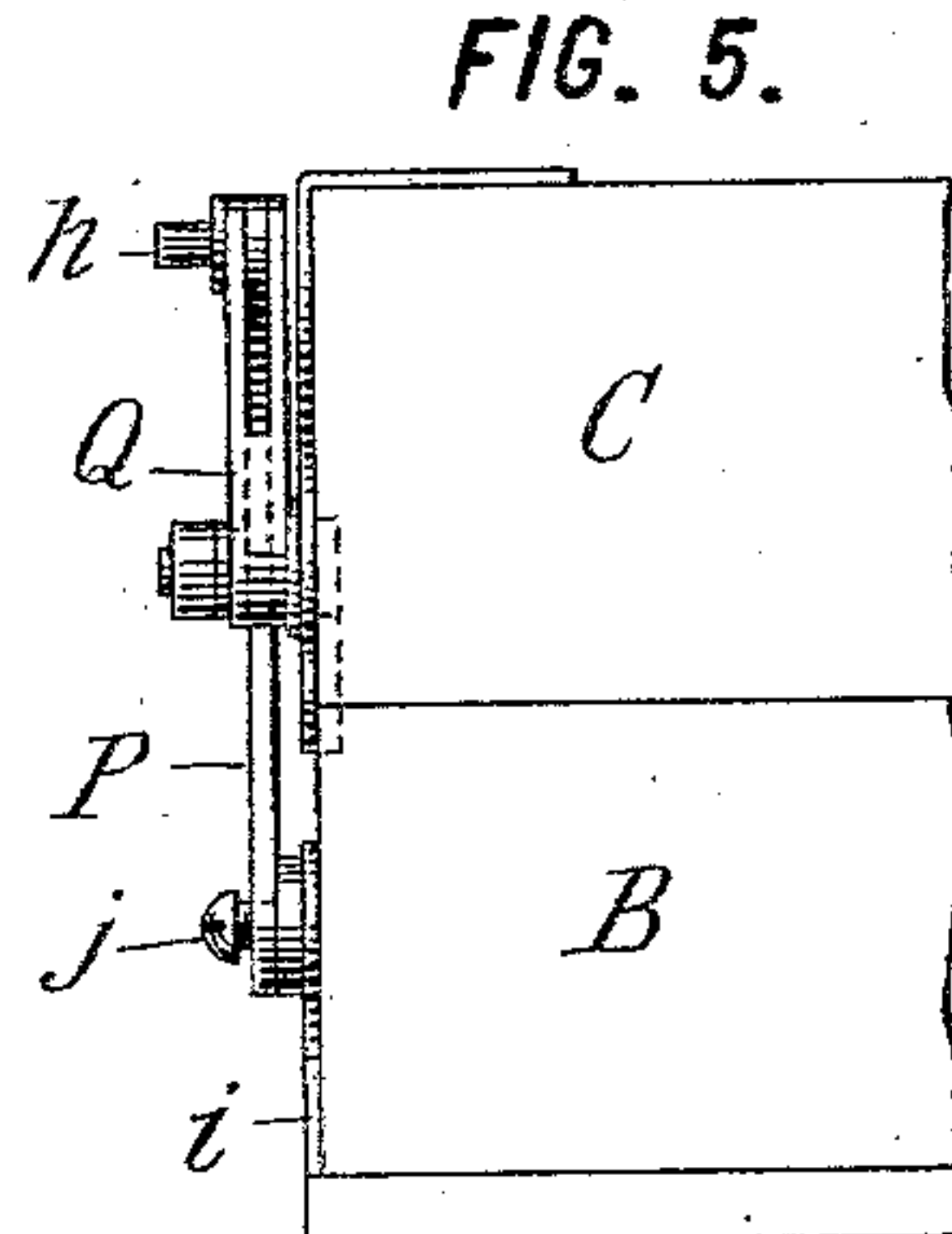
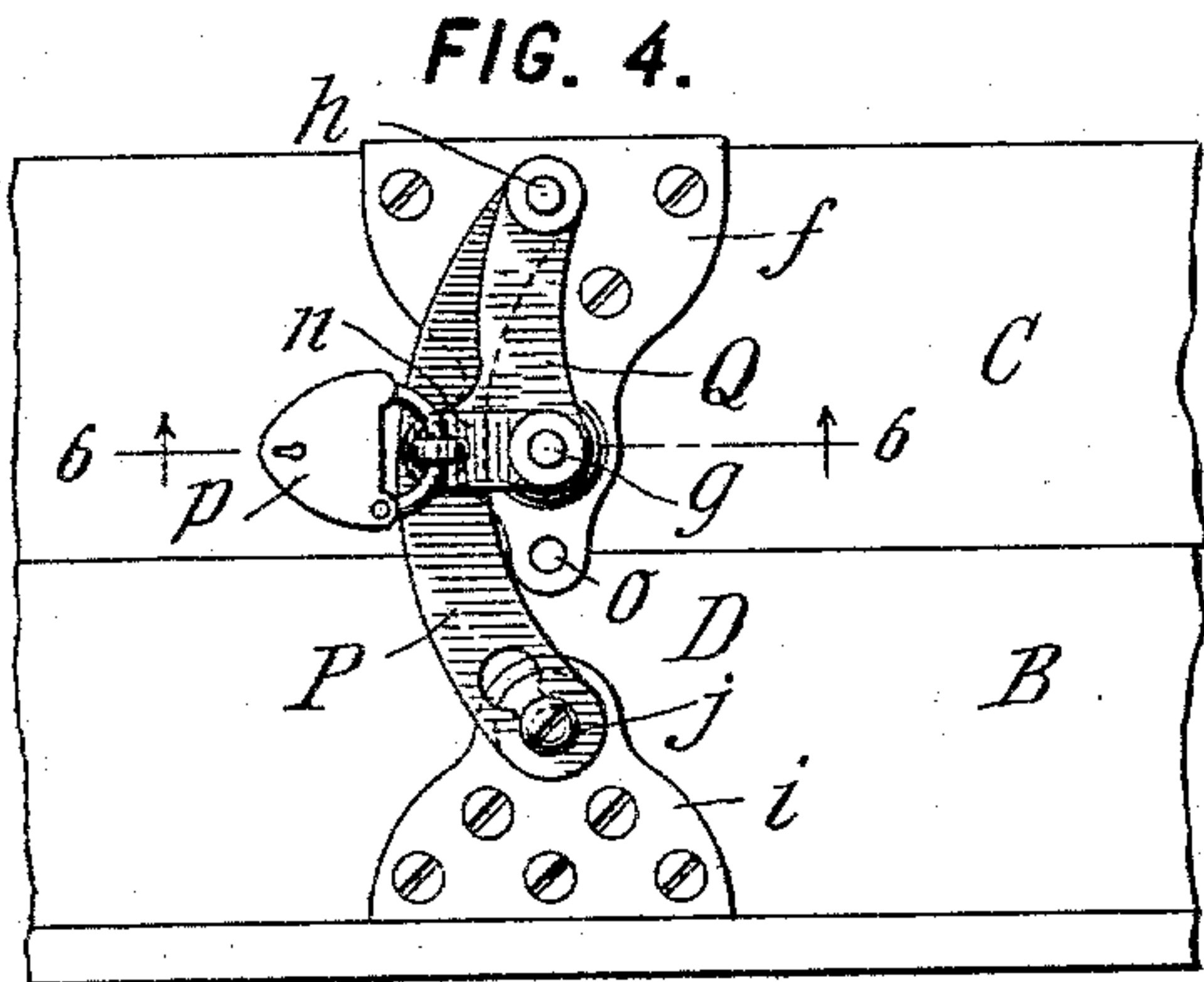
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P. FRASER.
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WITNESSES:
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(No Model.)

5 Sheets—Sheet 4.

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FIG. 15.

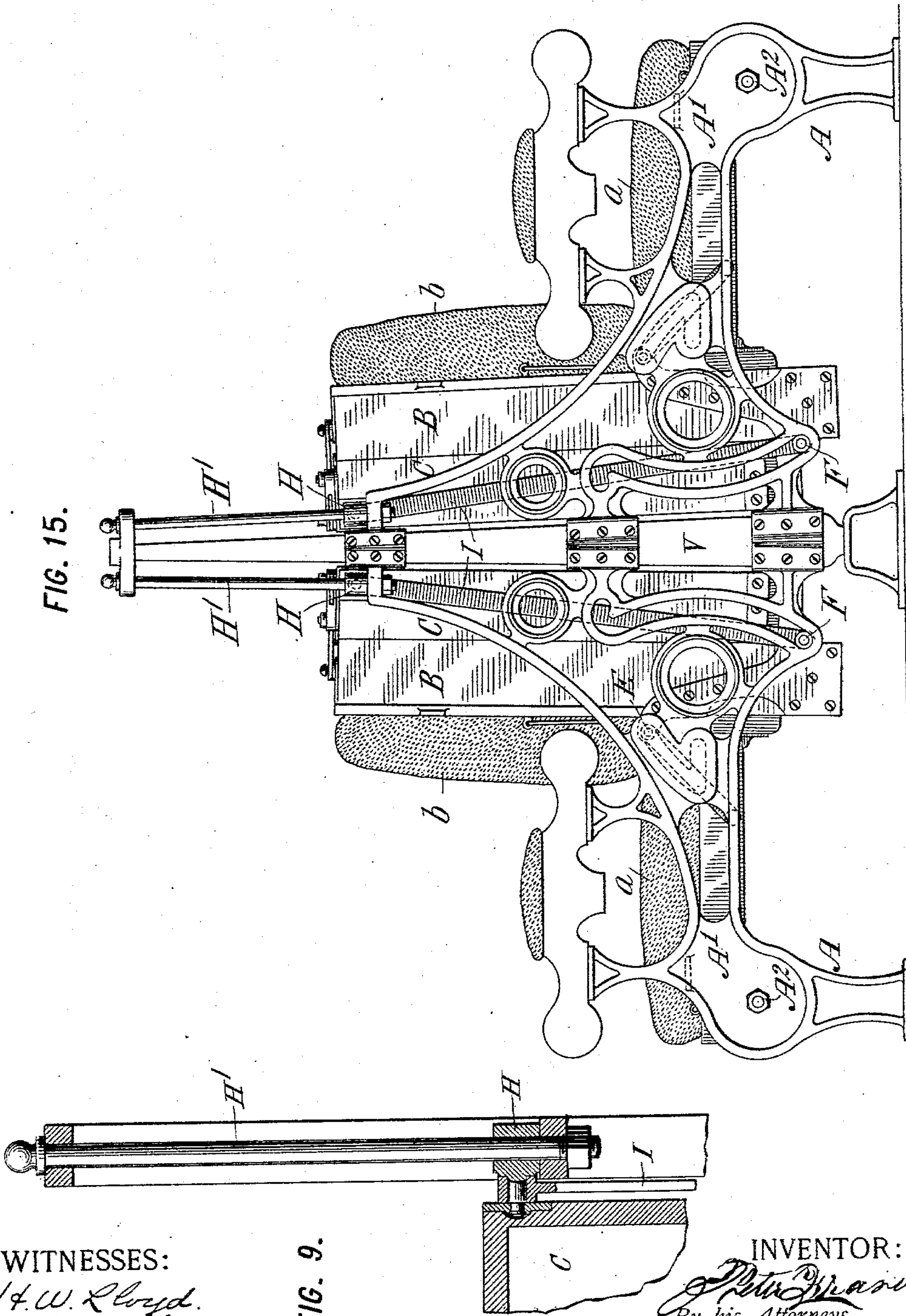


FIG. 9.

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5 Sheets—Sheet 5.

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FIG. 10.

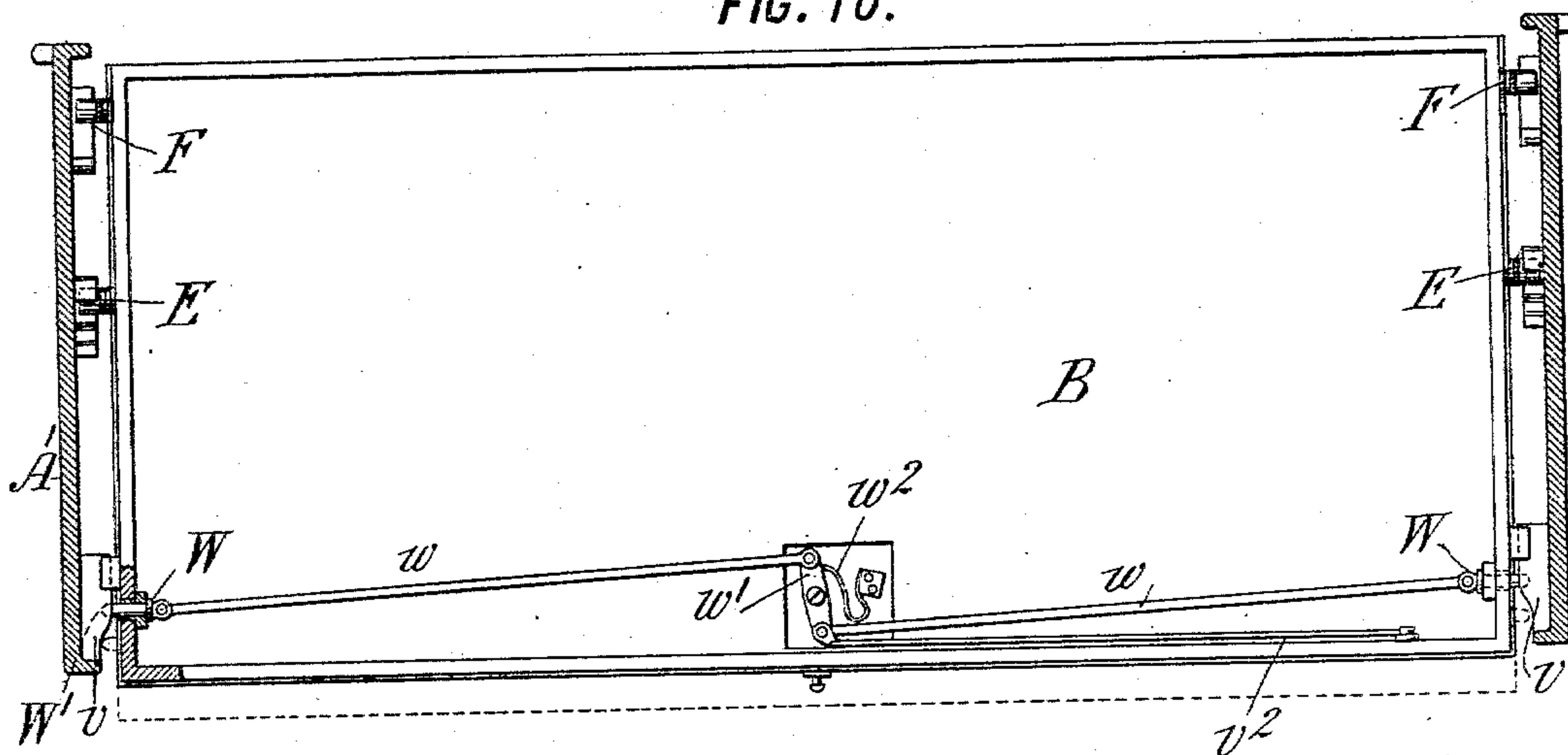


FIG. 11.

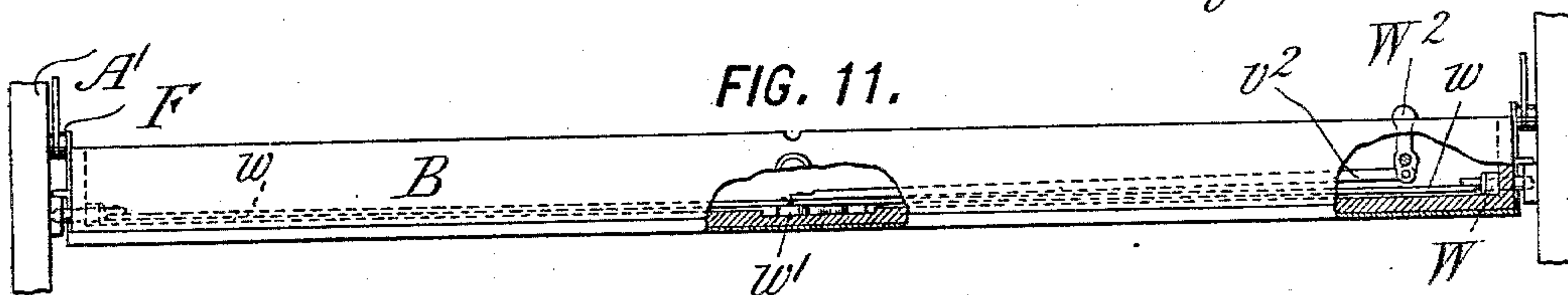


FIG. 12.

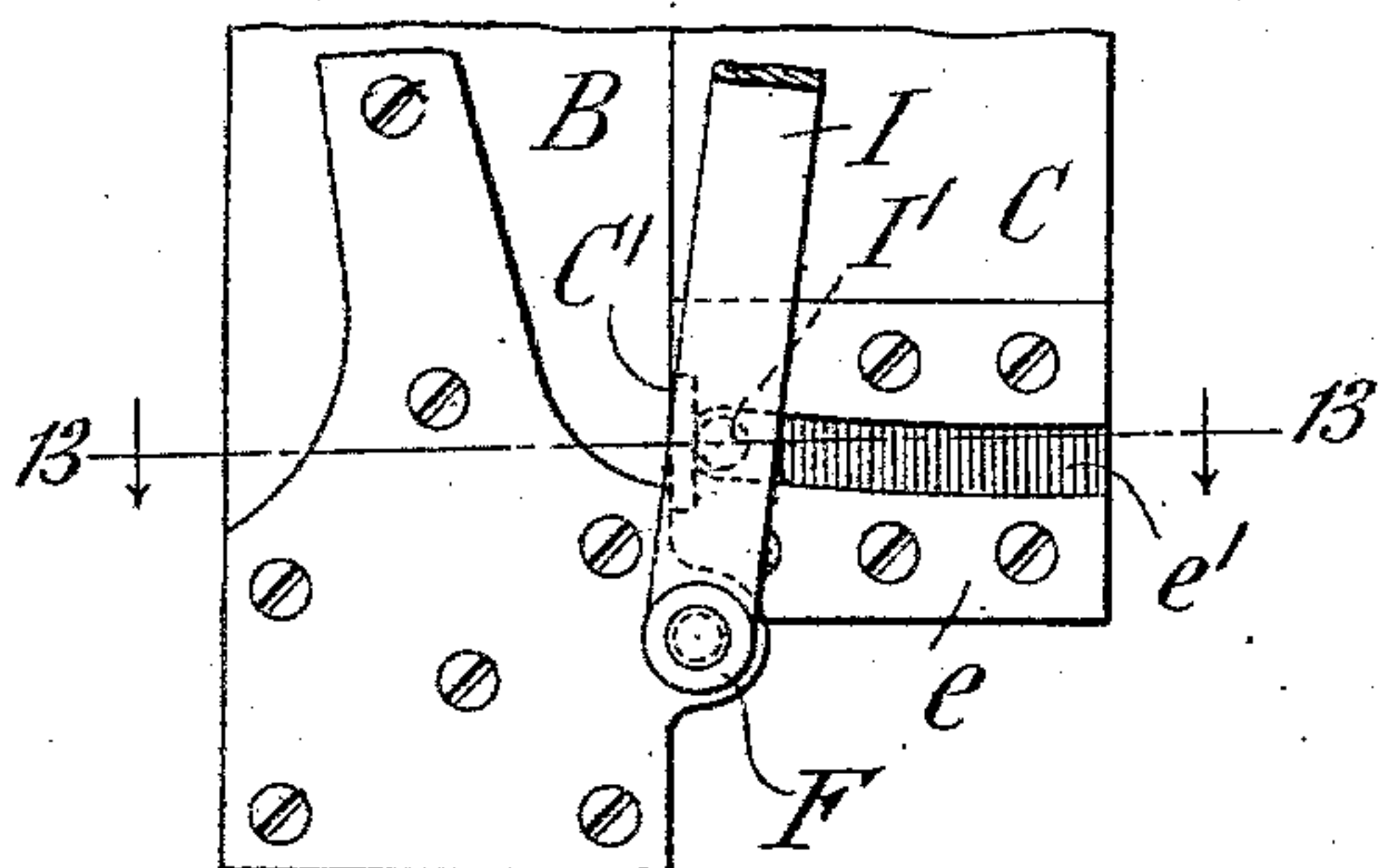


FIG. 13.

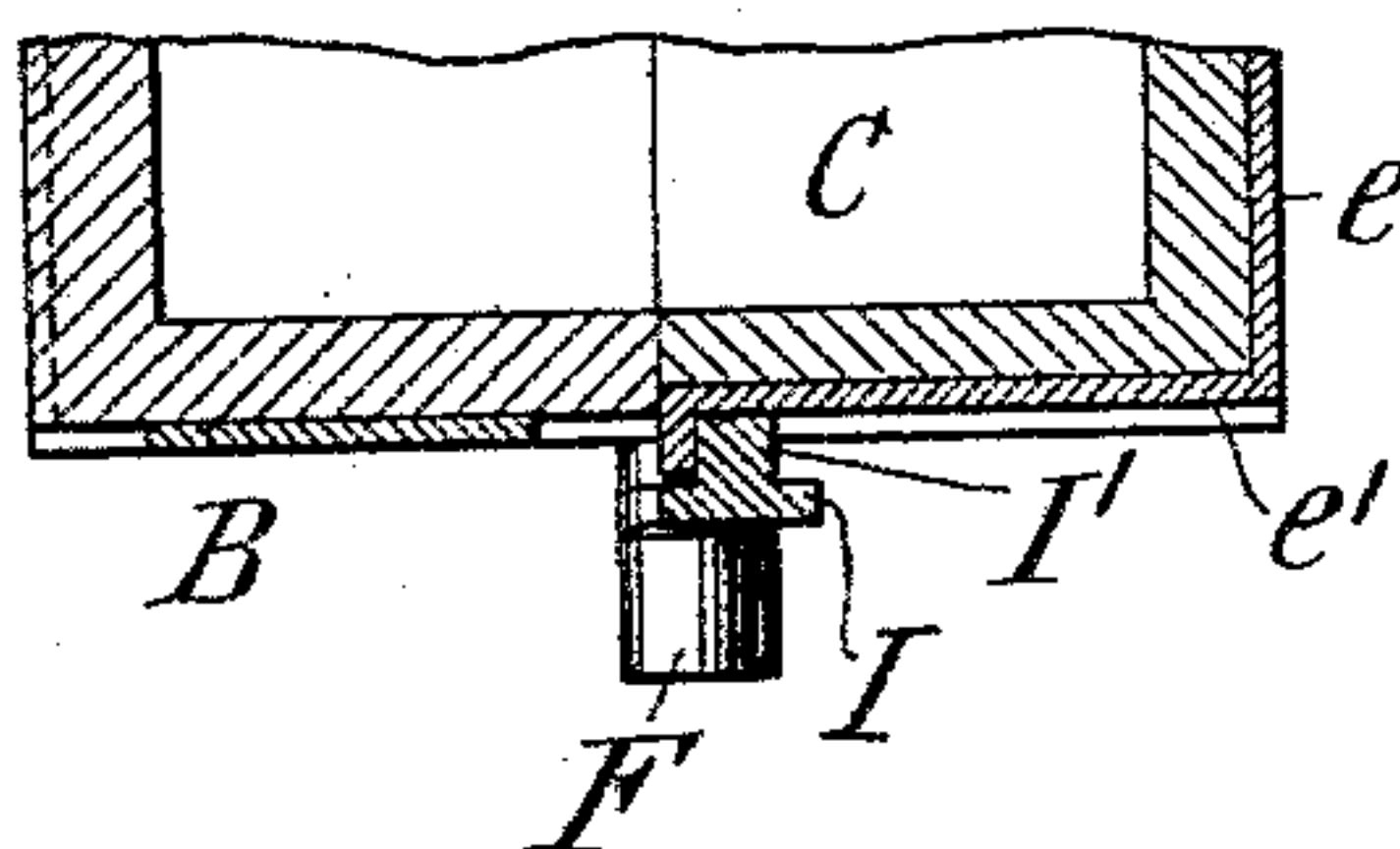
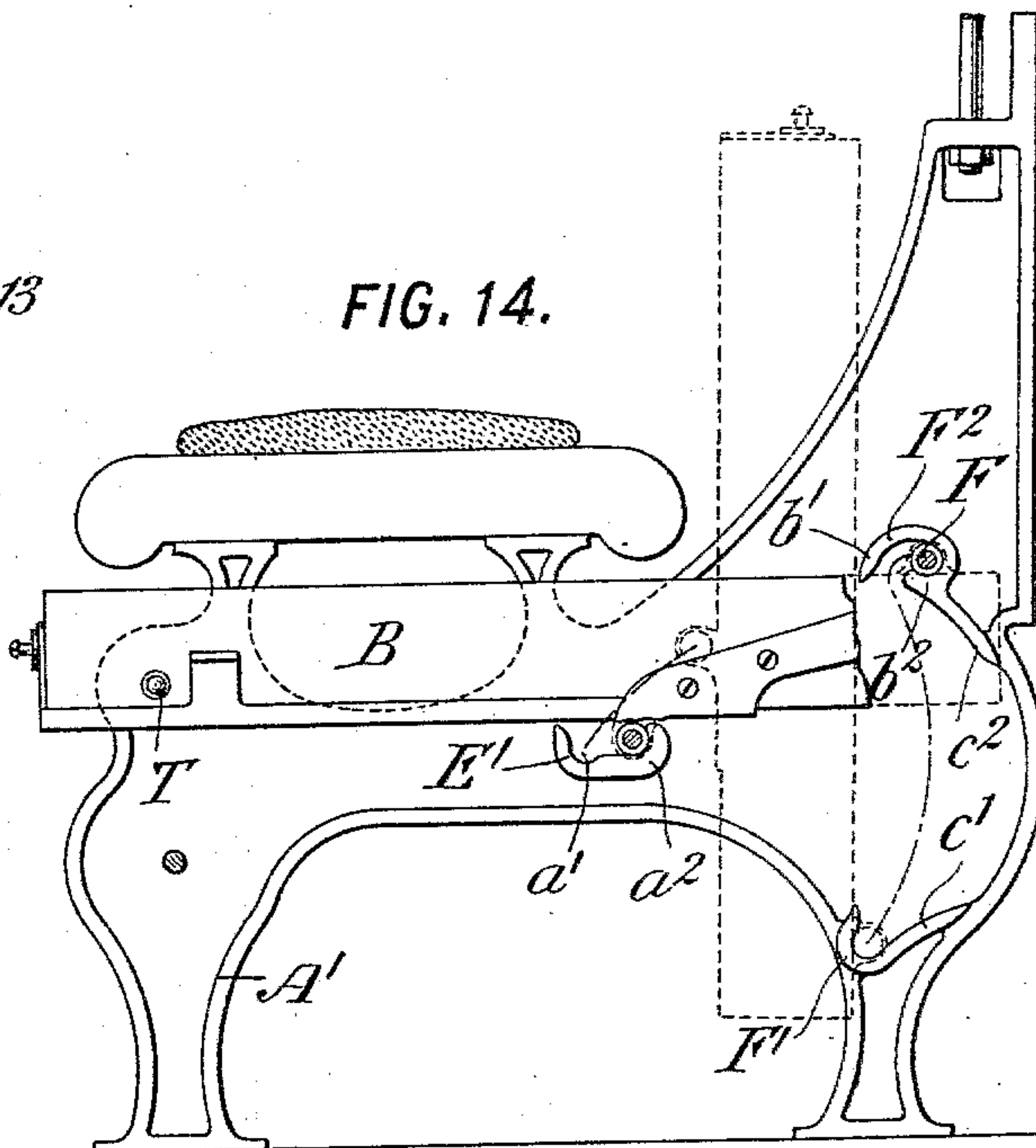


FIG. 14.



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UNITED STATES PATENT OFFICE.

PETER FRASER, OF BROOKLYN, NEW YORK.

FOLDING BERTH.

SPECIFICATION forming part of Letters Patent No. 563,852, dated July 14, 1896.

Application filed October 24, 1895. Serial No. 566,685. (No model.)

To all whom it may concern:

Be it known that I, PETER FRASER, a subject of the Queen of Great Britain, late of Whitman, Massachusetts, but now residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Folding Berths, of which the following is a specification.

This invention relates to folding berths such as are used in sleeping-cars, steamboat-staterooms, &c., wherein it is desirable to convert the berths into seats for use during the day.

My present invention relates more especially to folding berths of that class in which the lower berth swings up from the horizontal position used at night to an upright position for the day, and in which the upper berth is stowed away during the daytime in position close behind and parallel with the lower berth. A combined seat and folding berth of this character is disclosed in my Letters Patent No. 528,271, dated October 30, 1894. The present invention aims most particularly to improve the details of construction of the berths shown in that patent.

The improvements introduced by my present invention will be fully hereinafter described with reference to the accompanying drawings, wherein—

Figure 1 is a front elevation showing the berths made up for night. Fig. 2 is an end elevation showing them in the same condition. Fig. 3 is a similar end elevation, but showing the berths folded together in order to provide a seat during the day. Figs. 4 and 5 are respectively top and end views of the lock for fastening together the upper and lower berths when not in use. Fig. 6 is a transverse section thereof on the line 6 6 in Fig. 4. Fig. 7 is a similar view to Fig. 4, showing the parts, however, in different positions, and showing the wrench for operating them. Fig. 8 is a similar view to Fig. 4, showing the fastening disconnected and out of use. Fig. 9 is a fragmentary section on the line 9 in Fig. 3, on enlarged scale. Fig. 10 is a sectional plan of the lower berth in the position of use, the mattress being omitted. Fig. 11 is a fragmentary front elevation of Fig. 10. Fig. 12 is a fragmentary side elevation showing the lower part of the folded-to-

gether berths of Fig. 3. Fig. 13 is a fragmentary section on the line 13 13 in Fig. 12. Fig. 14 is a side or end elevation answering to the lower part of Fig. 2, with one of the end frames removed. Fig. 15 is an end elevation illustrating a further development and modification of my invention and the construction of two berths or seats back to back.

Let A designate in general the framing of the berth, which framing may be more or less built in integral with the walls of the car or ship's stateroom where the berth is located, if desired, but which for clearness I have shown as an independent frame consisting of end frames A' A', and any suitable cross connection between them in the nature of stay-bars or other equivalent devices. The lower berth is lettered B and the upper berth C. When the two berths are folded together against each other, as shown in Fig. 3, they are held by a catch device or fastening lettered D, the details of which I will presently describe.

The lower berth is provided at each end with two journals, pivots, or supports, (lettered E and F, respectively,) and consisting of rollers or pins projecting from suitable brackets or fittings applied to the opposite end portions of the berth. The journals E, which in my said patent are designated as "lever-journals," are located, preferably, at the under side of the berth and somewhat to the rear of its middle, while the journals F, which in my said patent are termed "hinge-journals," are located at or near the middle of the berth and toward its upper side, as shown in Figs. 2 and 14. In my former patent the end frames are formed with curved slots in which the respective journals are housed and caused to move in determinate paths, somewhat as shown in Fig. 15. I have materially improved upon that construction by my present invention, whereby all slots are dispensed with, the construction being such that the journals no longer require the presence of slots to guide them in their movement. To this end my present construction provides that when either pair of journals is moving up or down, the other pair remains motionless in notches or depressions in a suitable bearer or bracket, so that it cannot get out of place and is made to serve as a pivot around which

the moving pair of journals may travel, and by which they may be guided in an arc-shaped path of which said pivot is the center. To this end I construct the end frames with externally-projecting flanges, brackets, or ledges, which for convenience I will call "bearers," of which one (lettered E') is arranged to receive the journal E when the latter is turned down, while a bearer F' is arranged to receive the journal F when turned down, and in addition I provide an internal flange constituting a housing F² for receiving the journal F when the latter is thrown up, and guiding it to place on a ledge b², which serves as a support. These parts are best shown in Fig. 14. The bearer E' is at a level intermediate of the levels of the bearer F' and ledge b', and is extended horizontally, having preferably at its forward end a depression or notch a', and extended thence back to form a ledge or recess a². The notch a' is in position to receive the journal E when the latter first descends, and serves to hold it there, while it is serving as a hinge journal or fulcrum around which to swing the berth in order to raise the journal F. The bearer F' is constructed with inclined sides terminating in a recess or housing adapted to hold the journal F in place while the berth is being turned around it as a pivot.

When the berths are folded together, as shown in Fig. 3, the action in turning down the lower berth B is for it to swing or pivot on the journals F, which rest in the sockets of the bearers F', the journals E consequently traveling in an arc-shaped path until they strike the bearers E' and rest in the notches a' therein, whereupon the berth occupies an intermediate inclined position with both pairs of journals simultaneously resting on their respective bearers. Thereupon by pressing down on the front side of the berth, the latter acts like a lever by turning on the journals E as fulcrums to swing the journals F upward from the bearers F', which movement continues until these journals are brought to the upper housing F², where the journal strikes against an incline b', which stops it, whereupon by a backward push the berth is displaced bodily, the journals E moving back along the horizontal bearers E' to the position a², Fig. 14, while the journals F move back into sockets formed in the housings F², where they rest on supporting- ledges b², thereby upholding the rear of the berth, which has now reached the position of use shown in Fig. 2.

In case by any possibility the journals E were to escape from the notches a' and roll back on the ledge a² during the the movement of the journals F, the latter on reaching either end of their movement would strike inclines c' or c², which form parts, respectively, of the bearers F' and F², and which would serve to force the berth forward and bring the journals E back into proper place.

The upper berth C is somewhat narrower than the lower berth, and is folded in an opposite direction therefrom, that is, its rear edge is uppermost when folded, and is supported by pivots or journals H, which in my former patent were arranged to slide in upright slots in the framing, but which I now construct to slide on upright guiding-rods H'. These pivots H are connected by supporting-links I with the journals F of the lower berth, so that the rear pivots of both berths are maintained at the same distance apart, and the upper berth is raised and lowered bodily, following the movements of the rear of the lower berth. Hence in swinging the lower berth around its journals E so as to raise the journals F the upper berth C is lifted from the position shown in Fig. 3 to that shown in dotted lines in Fig. 2. To complete the making up of the upper berth, it is only necessary to swing its lower side forward and upward, thereby bringing it to the horizontal, as shown in Fig. 2, it being then supported in this position by swinging up two uprights K K, which are pivoted to the front portion of the lower berth, so that the front side of the upper berth will be supported on the upper ends of these uprights, as shown. In my previous patent the uprights had slots at their upper ends into which dropped studs on the upper berth, but in my present construction I make the upper berths with sockets in which the upper ends of the uprights fit. The uprights are preferably connected together by a longitudinal rod K', which comes close beneath the upper berth, and in practice is used as a curtain-rod.

To stow away the berths, it is only necessary to first raise the front side of the upper berth to free the upper ends of the uprights K; then to drop these to place in the lower berth, as shown by the dotted lines in Fig. 2, and swing down the upper berth to the upright position; then by pulling the lower berth forward to move its journals F off from the ledges b² and out of the housings F², so that by swinging the lower berth on its journals E it is folded partly back, while at the same time the upper berth descends until the journals F rest on the bearers F', the weight of the upper berth being utilized in this movement to counterbalance the weight of the forward portion of the lower berth. The movement is then finished by swinging the lower berth back about the journals F as a hinge or pivot until the journals E have moved up to the position shown in Fig. 3, whereupon the upper sides of the berths B C are fastened together by the catch device D. The paths of movement of the journals F and E are indicated by dotted arcs in Fig. 14. When the berths have been thus stowed away, it is desirable to provide a seat or settee, and to this end the under side of the lower berth, which now becomes the front, is upholstered with a cushion b, which forms the back of the seat, while the cushion a, forming the

bottom thereof, is mounted on a seat-frame L, which is connected to the lower berth by links M, pivoted, preferably, to the journals E. The seat L, being turned down to the position shown in Fig. 3, rests upon suitable supports and forms the bottom of the settee.

Instead of supporting the front portion of the lower berth upon swinging legs, as in my previous patent, I now provide ledges for its support, the lower berth being constructed with projections *c* on its ends, (see Fig. 3,) and the end frames A' having projections *d* on their inner sides, on which the projections *c* rest when the berth is turned down, as clearly shown in Figs. 1 and 2.

As already stated, instead of providing the upper berth with roller-journals at H traveling in upright slots in the side frames, I form the journals H as swiveled sleeves, the construction of which is best shown in Fig. 9, adapted to slide freely on upright rods H', connected at opposite ends to the fixed portion of the frame, the journals H being swiveled to the berth C, and having a pivotal connection with the links I, as clearly shown. It makes a slightly, lighter, and stronger structure.

An important part of my present invention relates to means for pressing the berths B and C closely together, so as to stow them away as compactly as possible when not in use. These berths are provided with the usual spring-mattresses or bed-bottoms, and when folded together the mattresses come together face to face. In order to make comfortable beds, it is desirable that the mattresses should be of sufficient thickness to project somewhat above the upper edges of the frames or body portion of the respective berths, as shown in Fig. 1, and it is one object of my invention to permit of this, and yet to provide means for forcing the projecting portions of these mattresses back into the berth-bodies when the berths are folded together. To do this requires considerable pressure, as the combined tension of all the springs in both mattresses has to be overcome simultaneously. To this end I provide separate means for forcing together the lower sides and the upper sides (in their upright position) of the respective berth-bodies.

For forcing together the lower sides, I provide the links I with projections or lugs I' on their inner sides, and on the berth C, I provide stop projections C', arranged to be encountered by the lugs I', so that the latter resist any backward movement of these lugs, and hence any backward swing of the lower side of the upper berth, and hold it unyieldingly while the lower berth is being swung back against it. This construction is best shown in Figs. 12 and 13. The projection C' is formed on a plate *e*, let into the wooden frame or body of the berth, and preferably is formed with a groove *e'*, in which the projection I' may move, thus enabling this projection to be made longer than it otherwise could. The construction described holds the lower

side of the upper berth and prevents its being swung back by the tension of the springs of the respective mattresses, as would otherwise occur.

For drawing together the upper sides of the respective berths I have devised a new catch device D, as best shown in Figs. 4 to 8. This catch device consists of a pair of toggle levers or links P and Q. The link Q is pivoted at one end to the berth C, and at the other end is jointed to one end of the link P, while the other end of this link is adapted for detachable connection to the berth B. In the preferred construction shown the upper berth C is fitted with a metal plate *f*, which is formed with a projecting stud *g*, on which the toggle-arm Q is pivotally mounted. The toggle-arm Q is pivoted to the link P by a pin *h*, the end of which projects beyond the pivotal connection, as shown in Fig. 5. The berth B is fitted with a plate *i*, having fixed to it a headed pin or stud *j*. The end of the link P is formed with a buttonhole-slot *j'*, the smaller end of which is adapted to engage the stud *j*, while its larger end is adapted to slip freely over the head of the stud. In operation, when the berths have been drawn as close together, as is shown in Fig. 7, the toggle-links are swung out and the link P is connected by its buttonhole-slot to the stud *j*, as shown in that figure. Then a key or wrench R, Fig. 7, having a cross-head with holes *g'* and *h'*, is fitted in place in the position shown in dotted lines, with these holes engaging the projecting ends of the studs *g* and *h*, respectively. The key or wrench R is then swung around in the direction of the arrow, Fig. 7, carrying the link Q with it, until the latter link is brought into the position shown in Fig. 4. In so doing a powerful leverage is exerted, which, pulling through the link P, draws the berth B toward the berth C against the tension of its mattress-springs. On reaching this position the axes of the pivotal studs *h*, *g*, and *j*, being in line, or being carried slightly beyond the position of alinement, the thrust of the mattress-springs is taken up in the toggle-links, and has no effect to throw the parts back, so that the key R may be now disconnected and removed. To lock the parts safely in this position, a locking-pin S is applied, being passed through a hole *k*, Fig. 7, in a lateral branch of the arm Q and through a hole *l* in the link P, and then screwed into a threaded socket *m* in the plate *f*, as shown in Fig. 6. To prevent this pin being unscrewed and removed, a hasp *n* is slipped over the projecting end of the pin *g* with its slotted end embracing the head of the screw S, and to keep this hasp in place a padlock *p* is engaged with an eye in the head of the screw S. The lock device is thus held securely in this position. Before opening out the berth the lock device D is disconnected by first removing the padlock *p* and hasp *n*, unscrewing and removing the screw S, and then either by means of the key R or by hand swinging the toggle

back into the position shown in Fig. 7, where-
upon the slot j' in the link P is disconnected
from the stud j . The lower berth is then free
to be swung outwardly; but in order to com-
5 pactly house the catch device and keep it in
compact condition and out of the way, it is
swung to the position shown in Fig. 8, where
the holes k l coincide with a hole o , Fig. 4,
in the plate f , and the same screw S is then
10 passed through the coinciding holes and
screwed into the threaded hole or socket l ,
the hasp n being applied, if desired, as shown
in Fig. 8. This new fastening device thus
serves not only as a catch to hold the parts
15 strongly together, but also as a powerful tog-
gle-compression device for forcibly drawing
them together and overcoming the tension of
the mattress-springs.

The seat L is connected, as before, to the
20 lower berth B through the medium of end
links M; but instead of providing these links
with springs, as in my former construction,
I now dispense with the springs and pro-
vide a fastening device for holding back the
25 front end of the seat when it is tilted back
from the normal position shown in full lines
in Fig. 3 to the position shown in dotted lines.
This device may consist of any suitable catch,
being preferably a hook q , pivoted to the
30 frame or body of the berth B, and engaging
an eye q' , applied to the seat body or frame.
To prepare for opening the berths, the seat
L is thrown back to the position shown in
dotted lines in Fig. 3, and is fastened back by
35 the hook q , which, when the berths have been
opened and the seat L swung underneath, as
shown in Fig. 2, supports the front edge of
the seat L and keeps it from dropping down.
When the berths are folded away, it is only
40 necessary to unhook the hooks q and swing
the seat L down to the position shown in full
lines in Fig. 3, at the same time pulling it
slightly forward. To insure that it shall be
brought forward far enough, the berth-body
45 B is provided with a block or filling-piece r ,
Fig. 3, which fills up the space between the
rear of the seat L and the lower or front face
of the berth-body B. To properly support
the back of the seat and relieve the links M
50 of carrying its weight, the filling-blocks r are
provided with projecting flanges or ledges r' ,
which come directly beneath the rear edge of
the seat when in place, as shown in Fig. 3.
The front of the seat is provided on its lower
55 side with notched fittings or plates s , Fig. 2,
which, when the seat is dropped into posi-
tion, rest on the cross-bar A^2 , connecting the
side frames A' and forming part of the gen-
eral framing of the apparatus. The notches
60 in these fittings, by partly embracing the
cross-bar, serve to prevent any accidental for-
ward displacement of the seat, such as would
release its rear from the supporting-flanges r' .

It is desirable to provide the upper berth C
65 with head and foot boards, which should be
adapted to stow compactly away with the
berth in order that they may not occupy space

during the day. To this end I provide these
boards, lettered T T, in Figs. 1 and 2, with
end-pivot pieces T' , the shape of which is best 70
shown in dotted lines at the right in Fig. 1,
and which are pivoted or hinged on axes t in-
side the frame constituting the berth-body.
When it is desired to stow away the berths,
the head and foot boards are swung down 75
against the mattress, compressing the mat-
tress into the frame or body of the berth to
the position which for one of the boards is
shown at the right in Fig. 1. In this position
they are caught by spring-catches t' , the one 80
at the left in Fig. 1 being shown in full lines
by breaking away the body of the berth. To
release the head and foot boards, it is only
necessary to press back these catches, when
the boards fly up to the upright position, 85
where they are stopped by contact with the
ends of the frame or body of the upper berth.

It is desirable, especially for steamer-berths,
to provide a rail in order to protect the sleeper
from rolling out in case of the extreme pitch- 90
ing or rolling of the vessel. Such rails are
shown at U U as applied to the upper and
lower berths in Fig. 1. These rails, however,
should be capable of being stowed away com-
pactly when the berths are folded away, and 95
to this end I mount each rail upon parallel
links u u , pivoted at u' inside the body or
frame of the berth, so that by moving the rail
endwise it is swung down to the position
shown in dotted lines in Fig. 1, as applied to 100
the rail for the lower berth. One end of the
rail is bent down at u^2 and abuts against the
surface of the berth-body to form a stop for
limiting the endwise movement of the rail
and holding it in the position where it is re- 105
quired during use. One advantage of this
construction is that the rail may be used or
not when the berth is made up, as if its use
is not required, it can be dropped in between
the mattress and the berth frame or box in 110
the position shown in dotted lines in Fig. 1.

In order to provide absolutely against any
possibility of the journals F rolling or slip-
ping off from the ledges b^2 by a forward move- 115
ment of the lower berth, I provide self-en-
gaging spring-catches adapted when the berth
B is pushed back to bring the journals F onto
these ledges to lock the berth fast to the end
frames, and thereby prevent its accidental
movement forward. These catches consist 120
of bolts W W, Figs. 10, 11, and 14, housed in
opposite ends of the lower berth B, and pressed
outward by spring-tension, and which in the
proper position coincide with sockets in the
frames A' , the position of which sockets is in- 125
dicated at W' in Figs. 3 and 10. In order to
connect the two bolts W W to work simulta-
neously, I may join them by rods w w to a le-
ver w' , which is acted upon by a spring w^2 to
protrude the bolts. When the berth is first 130
turned down, it comes to the position indicated
in dotted lines in Fig. 10, and in pushing it
back, as already described, to seat the jour-
nals F the bolts ride over inclines v v , whereby

they are pushed back, and on reaching the final position they snap into the sockets W' . To withdraw them from the sockets, I provide a hand-lever W^2 , Fig. 11, connected by a rod v^2 to one end of the lever w' , so that by pressing the handle of this lever to the right the bolts are drawn back to unlock the berth.

Fig. 15 shows one suitable method of applying my invention in a sleeping-car where it is desired to place the seats back to back. In this construction two complete berth structures are arranged back to back and mounted upon one combined frame at each end. I have shown the frame as made with a middle post V , which may be of wood, the end frames being bolted at their respective rear sides to this post, which post serves as the rear leg for each of the end frames. This construction provides a compact arrangement of berths for a sleeping-car, the berths being arranged transversely of the car, so as to afford a passage-way at the ends of the berths along one side of the car. Fig. 15 also serves to show the application of slots for the journals E F somewhat after the manner shown in my previous patent, except that the slots are here arranged in such manner that only one pair of journals can be in motion at a time, except during the final operation of bodily pressing back the lower berth with its two pairs of journals. The slots for the journals E are shown in this figure as capped over. While slots may thus be used, if desired, yet I consider the arrangement of bearers first described an important practical improvement, since it avoids much machine finishing of the castings, and renders any accurate surfacing of the moving parts unnecessary, besides lightening the structure, and affording greater range for variation in the artistic design of the end frames.

I claim as my invention the following-defined novel features, substantially as hereinbefore specified, namely:

1. In a folding berth, the combination with the tilting or swinging berth and fixed end frames, the berth provided at its ends with projecting journals, and the end frames provided with fixed rests or bearers formed as downward depressions or notches adapted to engage said journals and restrain them laterally and thereby to retain each pair stationary while the other pair is swinging up or down, whereby the moving pair is confined to an arc-shaped path, and said bearers arranged relatively to the journals to simultaneously support both journals when the berth is tilted to an inclined intermediate position, whereby in swinging the berth from its open to its folded position or vice versa, it first turns on one pair of journals until said intermediate position is reached, and afterward turns on the other pair.

2. In a folding berth, the combination with a berth having rear hinge-journals and lever-journals forward thereof, of end frames having each a bearer for receiving the lever-journals in their lower position, and a bearer for

receiving the hinge-journals in their lower position, and said bearers arranged relatively to the journals to simultaneously support both journals when the berth is tilted to an inclined intermediate position, whereby in swinging the berth from its open to its folded position or vice versa, it first turns on one pair of journals until said intermediate position is reached, and afterward turns on the other pair.

3. In a folding berth, the combination with a berth having rear hinge-journals and lever-journals forward thereof, and between said hinge-journals and the front of the berth, of end frames having each a bearer for receiving the hinge-journals in their lower position, a ledge for receiving and supporting the hinge-journals in their upper position, and a bearer at an intermediate level for receiving the lever-journals in their lower position.

4. In a folding berth, the combination with a berth having rear hinge-journals and lever-journals forward thereof, of end frames having each a bearer for receiving the lever-journals in their lower position, a bearer for receiving the hinge-journals in their lower position, and a ledge for receiving and supporting the hinge-journals in their upper position, said lever-journal bearer being formed with a rearward extension adapted to permit the berth to be moved bodily backward to seat the hinge-journals on said supporting-ledge while continuing the support of the lever-journals on their bearers.

5. In a folding berth, the combination with a berth having rear hinge-journals and lever-journals forward thereof, of end frames having each a bearer for receiving the lever-journals in their lower position, a bearer for receiving the hinge-journals in their lower position, and a housing for receiving said journals in their upper position, the same comprising a supporting-ledge for the journal and an inclined rib above the path of the journal and adapted to guide it onto said ledge.

6. In a folding berth, the combination with berth B having journals E and F , of end frames having bearers E' F' and F^2 , the bearer E' extending rearwardly and the bearers F' and F^2 formed with inclines as c' and c^2 respectively, adapted to replace the journals F in case by accidental backward movements of the journals E they should diverge from their proper path.

7. In a folding berth, the combination with end frames and a tilting berth having at its ends hinge and lever journals coöperating with bearers on said frames, and said bearers constructed to admit of a backward sliding movement of the berth after swinging it down, to bring it to its final position, and spring-catches applied to said berth and adapted to lock it to said frames upon such backward displacement of the berth to its final position, to prevent possibility of its accidental forward displacement.

8. In a folding berth, the combination with end frames and a tilting berth having end journals coöperating with bearers on said frames, and spring-catches applied to said berth and adapted to lock it to said frames upon the displacement of the berth to its final position, consisting of bolts housed in the berth, a spring for pressing them out, mechanical connections for insuring their simultaneous movement, and on the end frames inclines for thrusting in said bolts, and sockets coinciding with said bolts in the final position of the berth.

9. In a folding berth the combination with end frames and a tilting lower berth having journals F F at its rear side, links pivoted thereto and extending upward, and an upper berth having journals H H at its rear, pivoted on said links, and constructed as swivel-sleeves, and upright guide-rods H' H' fixed on said side frames, and receiving the sliding sleeves of said journals H H.

10. In a folding berth, end frames having suitable journal-bearers, combined with the lower berth having rear hinge-journals and lever-journals coacting with said bearers, and front supports for said berth consisting of projections *c c* from its opposite ends, and stationary ledges *d d* formed on the inner sides of the end frames to support said projections.

11. In a folding berth wherein the upper and lower berths are folded flat together in such manner as to compress the springs of the mattress of either berth, the combination with said berths and a supporting-framing within which they are movable between their made-up and their stowed-away positions, of a catch device adapted to forcibly draw together the respective berths, constructed with means for fastening or locking them in place when brought together.

12. In a folding berth wherein the upper and lower berths are folded flat together in such manner as to compress the springs of the mattress of either berth, the combination with said berths and a supporting-framing within which they are movable between their made-up and their stowed-away positions, of a catch device consisting of toggle-links connected pivotally to one berth and detachably to the other, and adapted to be swung around so as to forcibly draw the two berths together, with means for locking the toggle-links in place to hold the berths together.

13. The combination with berths B and C, of a toggle-arm Q pivoted to the berth C, a toggle-link P jointed to said arm Q at one end and adapted at the other end for separable connection with a stud *j* on the berth B, whereby on turning the arm Q the toggle is collapsed to draw the berths together, and locking means for fastening them in this position to hold the berths when drawn together.

14. The combination with berths B and C, of a toggle-arm Q pivoted to the berth C on

a stud *g*, a toggle-link P jointed to the arm Q by a pin *h* at one end and constructed at its other end for separable connection with a stud *j* on the berth B, and an operating-key R constructed to engage the arm Q and adapted on being turned to swing this arm around to draw the berths together.

15. The combination with berths B and C of a toggle-arm Q pivoted to the berth C on a stud *g*, a toggle-link P jointed to the arm Q by a pin *h* at one end and constructed at its other end for separable connection with a stud *j* on the berth B, and having a central hole *l*, a socket *m* applied to the berth C, a socket *k* in the arm Q, and a locking-pin adapted to lock together the hole *l*, socket *k* and socket *m* to retain the catch device in the closed position.

16. The combination with berths B and C of a toggle-arm Q pivoted to the berth C on a stud *g*, and having a lateral socket *k*, a toggle-link P jointed to the arm Q at one end and constructed at the other for separable connection with a stud on the berth B, and having a central hole *l*, a socket *o* applied to the berth C, and a locking-pin S adapted when the device is out of use to be thrust through the coinciding holes *l*, *k* and *o* to lock the parts of the catch device together when out of use.

17. In a folding berth wherein the upper and lower berths are folded together face to face so as to compress their mattresses against the tension of their mattress-springs, the combination of upper suspensory pivots for the upper berth, and means for preventing the lower side of said berth from swinging away from the upper berth, consisting of a stop projection on the lower portion of said upper berth, and a stop projection coöperating therewith and arranged to the rear of said projection.

18. The combination of the framing, the berths B and C, the links I joined at their lower ends to the berth B and at their upper ends to the berth C, and means for preventing the lower side of the upper berth from swinging away from the lower berth, consisting of end projections C' on the upper berth, and inwardly-projecting lugs I' on said links in the rear of said projections, as specified.

19. In a folding berth, the combination of a lower berth adapted to swing upwardly and backwardly to form on its lower side the back of a settee, with the seat of said settee suspended at its rear portion from said lower berth, a fastening device for attaching its front portion to said berth, and a framing constructed with supports for said settee when turned down.

20. In a folding berth, the combination of a lower berth adapted to swing upwardly and backwardly to form on its lower side the back of a settee, with the seat of said settee suspended at its rear portion from said lower berth, filling-pieces *r* on the lower berth for preventing the rearward displacement of said

settee when in use, and supports for the front and rear portions of said settee.

21. In a folding berth, the combination of a lower berth adapted to swing upwardly and backwardly to form on its lowerside the back of a settee, with the seat of said settee suspended at its rear portion from said lower berth, filling-pieces *r* on the lower berth for preventing the rearward displacement of said settee, projecting ledges *r'* from said filling-pieces for supporting the rear of said settee, notched plates *s* under the forward portion of said settee, and a framing formed with a transverse bar *A*² adapted to be engaged by said notched plates.

22. In a folding berth, the combination with the berth-body, of a head or foot board *T* hav-

ing end pieces *T'* extending inside the body and pivoted thereto, combined with catches *t'* pivoted to the body and adapted to engage and hold down said board.

23. In a folding berth, the combination with the body or frame thereof, of a side rail *U*, and parallel links *u u* pivoted to said rail at one end, and pivoted to said berth-body at the other, whereby by swinging said rail endwise it may be housed inside said berth-body.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PETER FRASER.

Witnesses:

GEORGE H. FRASER,

THOMAS F. WALLACE.