

(No Model.)

3 Sheets—Sheet 1.

F. A. UFER.

FOLDING, BATH, AND INVALID CHAIR.

No. 286,871.

Patented Oct. 16, 1883.

Fig. 2.<sup>a</sup>

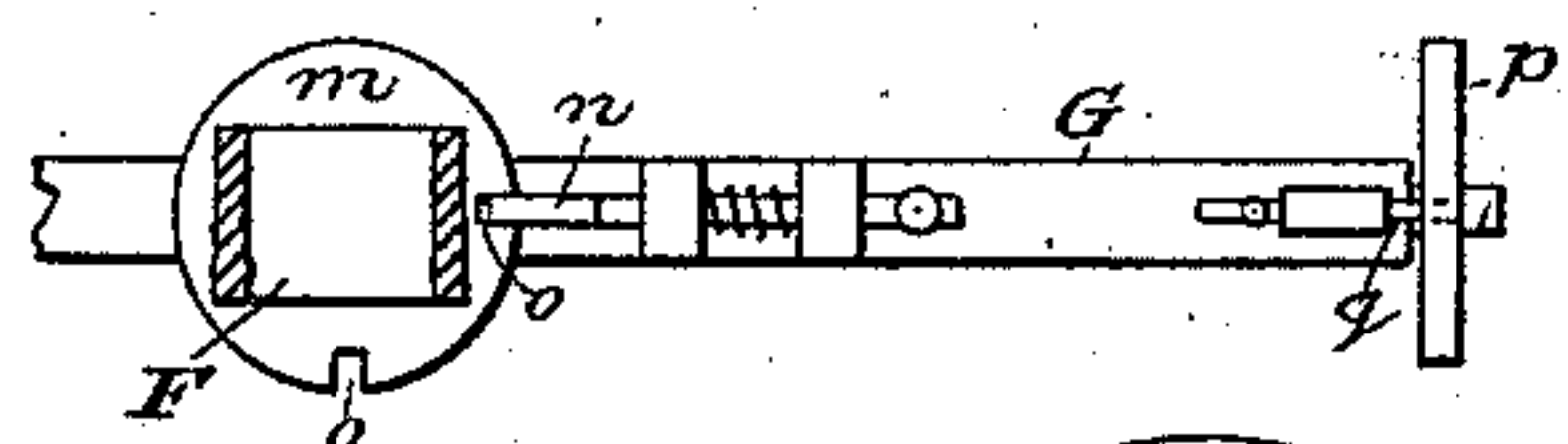


Fig. 2.

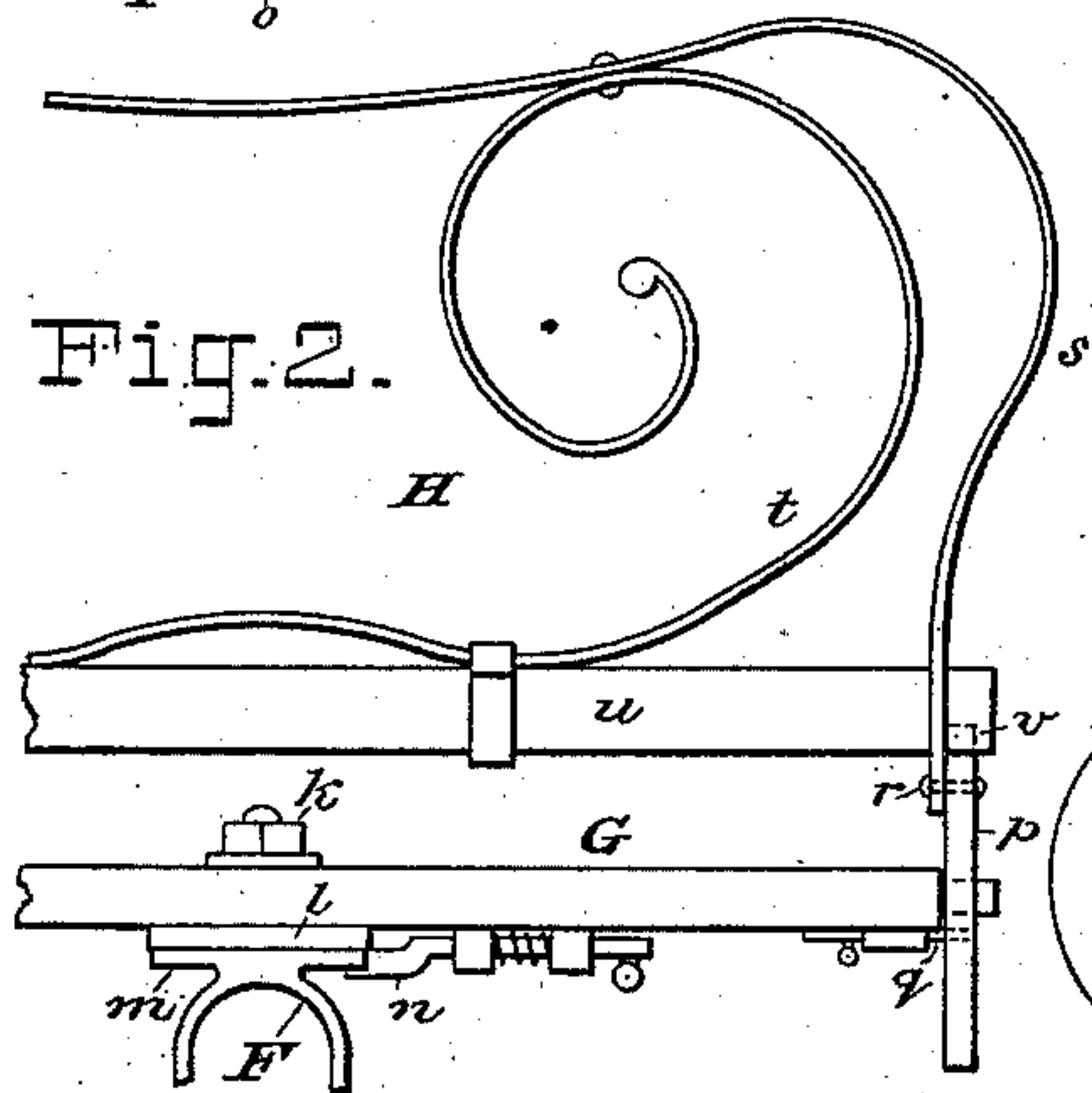
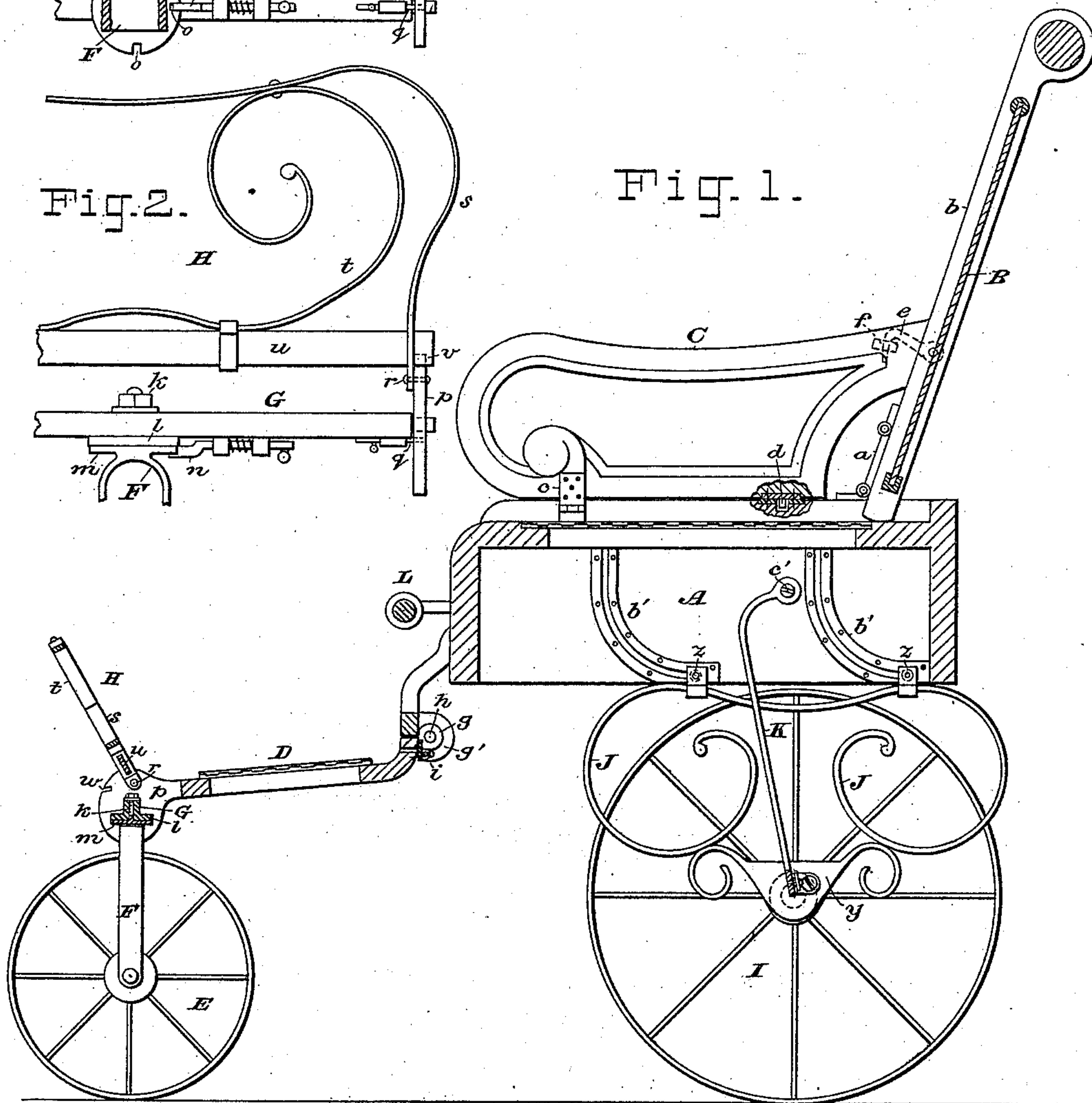


Fig. 1.



WITNESSES:

*E. B. Bolton*

*Geo. Scammon*

INVENTOR:

*F. A. Ufer*

By his Attorneys,

*Burke, Fraser & Cornwell*

(No Model.)

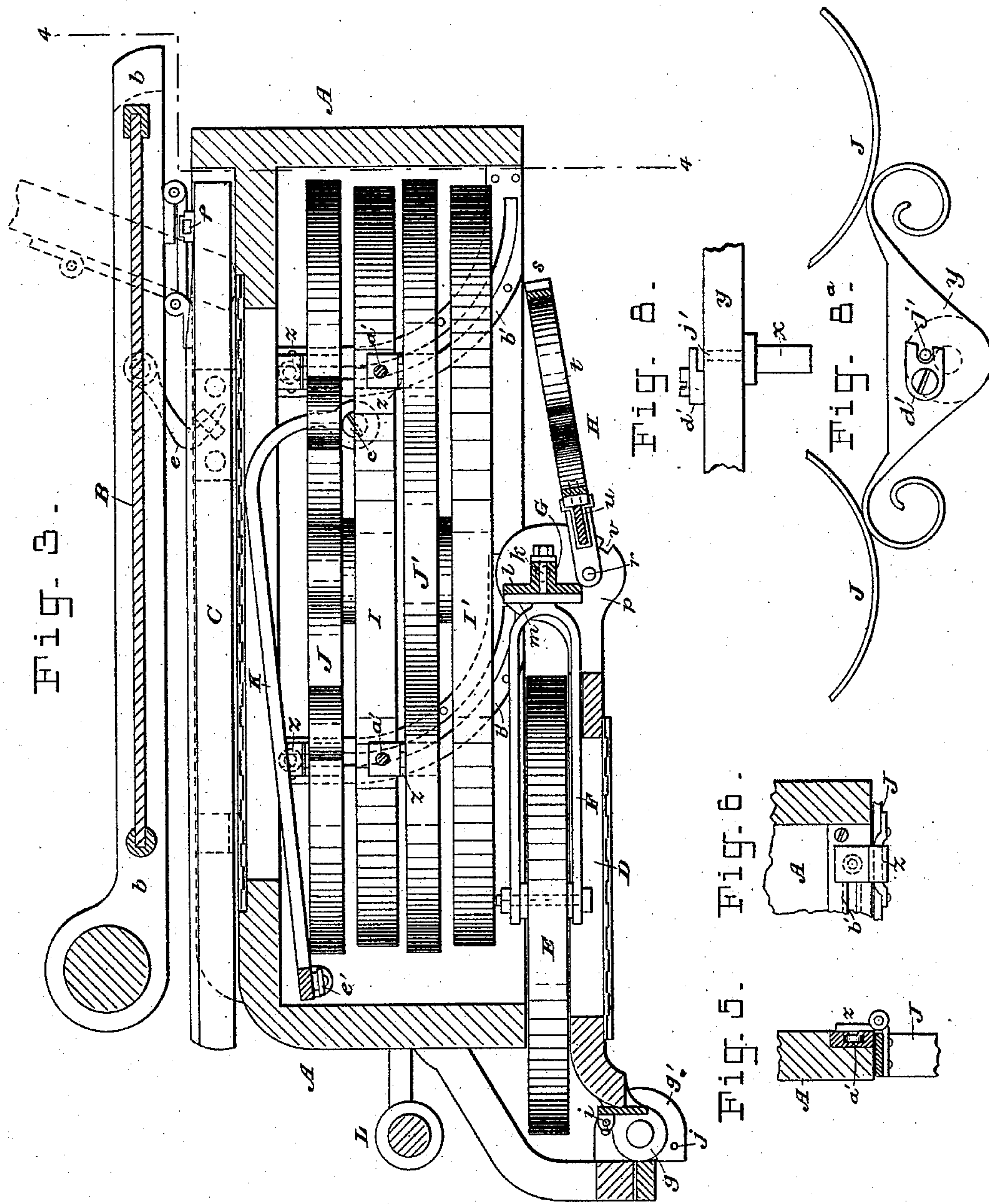
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WITNESSES:

E. B. Bolton  
Geo. Bainson

INVENTOR:

F. A. Ufer

By his Attorneys,

Burke, Fraser & Connell



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Fig. 4.

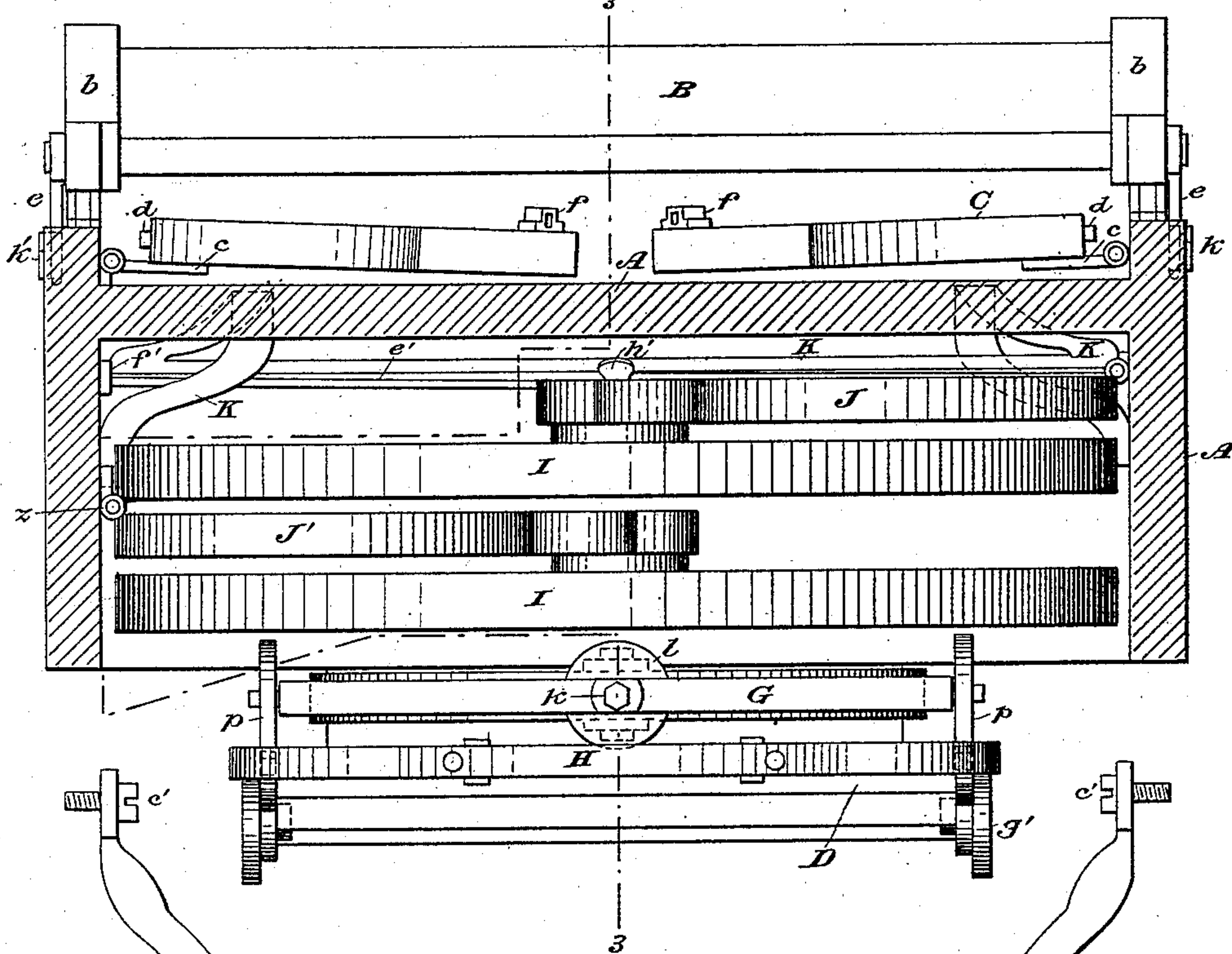


Fig. 7.

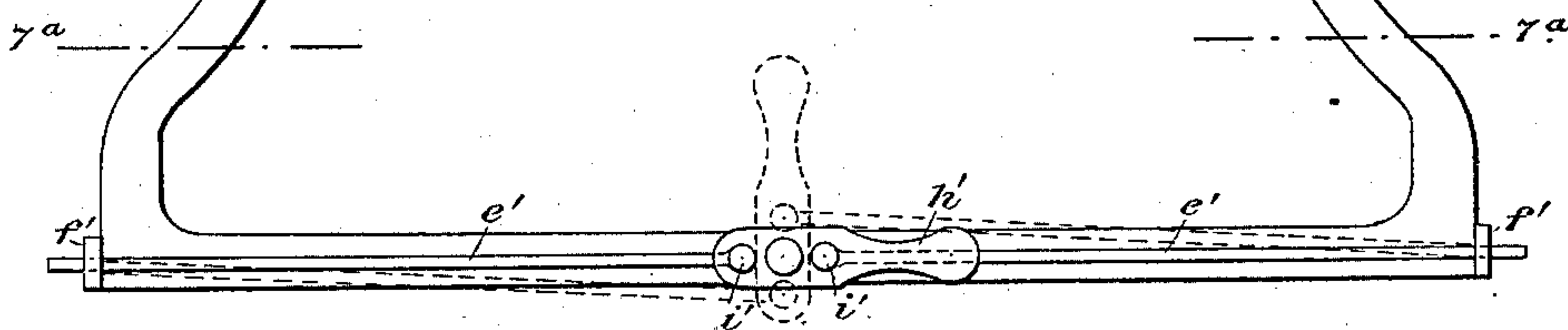


Fig. 7<sup>a</sup>.



WITNESSES:

*E. B. Bolton*  
*Geo. Bainson*

INVENTOR:

*F. A. Ufer*

By his Attorneys,

*Burke, Fraser & Connors*



# UNITED STATES PATENT OFFICE.

FRIEDRICH ADOLF UFER, OF DRESDEN, SAXONY, GERMANY.

## FOLDING, BATH, AND INVALID CHAIR.

SPECIFICATION forming part of Letters Patent No. 286,871, dated October 16, 1883.

Application filed April 23, 1883. (No model.) Patented in Germany May 24, 1882, No. 21,302.

*To all whom it may concern:*

Be it known that I, FRIEDRICH ADOLF UFER, a subject of the Emperor of Germany, and a resident of Dresden, in the Kingdom of Saxony, in the German Empire, have invented certain Improvements in Folding, Bath, or Invalid Chairs, of which the following is a specification.

My invention relates to a wheel-chair such as is commonly employed for the use of invalids.

The object of the invention is to provide a chair that may be folded up into a small compass, so that it will occupy but little space. Ordinarily such chairs, when adapted for use, are very bulky, and are liable to be injured in transit. Therefore I have so constructed my chair that it may be folded into compact shape, and the means that enable me to do this form the essential features of my invention. These will be definitely set forth in the claims.

In the drawings which serve to illustrate my invention, Figure 1 is a vertical longitudinal mid-section of my chair when set up and ready for use. Fig. 2 is a front view, on a large scale, of one-half of the dash-board, and Fig. 2<sup>a</sup> is a view of the under side of same. Figs. 3 and 4 are sectional views on a large scale, showing the chair folded up, the former being a longitudinal section substantially on line 3 3 in Fig. 4, and the latter a transverse section substantially on line 4 4 in Fig. 3. Figs. 5 and 6 are details of the hinging device whereby the main wheels are secured to the seat. Figs. 7 and 7<sup>a</sup> are respectively an elevation and sectional plan of the swinging brace detached and enlarged. Figs. 8 and 8<sup>a</sup> are detached views of the axle-block, showing the means for securing the brace thereto. Fig. 1 is on a scale half the size of the other figures.

All the principal parts of the chair—such as the back, arms, main wheels, foot board or rest, and front wheel—are connected to the box-like seat A, and are capable of being folded up into or onto it, as will be described.

B is the back, which is connected to the sides of the seat by means of double-jointed hinges *a a*. When the back stands upright, as in Fig. 1, the ends of the stiles *b b* rest on the seat.

C C are the arms. These are hinged at *c c* to the sides of the seat, near their front ends, and have short dowels *d d*, which engage sockets in the seat to steady them when erected. The slight looseness of the hinges *c* permits these dowels to enter their sockets. A hook, *e*, on the stile *b* of the back engages an eye, *f*, on the arm and holds it steady.

The foot-rest D is provided with hinging-lugs *g g*, and these are connected by a bolt or hinging-rod, *h*, to hinging-lugs *g' g'*, secured to the seat A. A simple bolt, *i*, mounted on the foot-rest, is made to engage a socket, *j*, (see Fig. 3,) in the lug *g'* when the rest is extended, as in Fig. 1, and hold it in this position.

The front wheel, E, is mounted rotatively in a fork, F, which is provided with a pintle, *k*, at its top, that has a bearing in a bar, G. On this bar is a circular bearing-plate, *l*, and on the fork F is a similar bearing-plate, *m*, the two forming a species of fifth-wheel device. The fork may turn on its pintle, and to prevent this a simple bolt, *n*, (see Figs. 2 and 2<sup>a</sup>,) is arranged to engage a notch or socket, *o*, in the plate *m* when the wheel stands as in Fig. 1. When the wheel and fork are turned a quarter-way around, as in folding up, the bolt *n* may be made to engage another notch or socket, *o'*.

The bar G is mounted rotatively in side plates, *p p*, which form a part of the foot-rest, in order that the parts may fold up compactly. To hold said bar from rotating, I employ a simple bolt, *q*, (see Figs. 2 and 2<sup>a</sup>,) which is arranged to engage a socket in the plate *p*.

H is an ornamental dash-board, which is mounted rotatively on journals *r r* in the plates *p p* of the foot-rest D. This dash-board is made of bent metal strips *s* and *t*, as best shown in Fig. 2. This view shows only one half of the dash-board; but both halves are precisely alike. In order to compel the dash-board to stand erect and at the proper inclination, a flat thin bar is secured to the curved elastic strip *t*, and its ends pass through and play in slots in the strip *s*. In the plates *p p* are notches, (*v* in Fig. 3,) which are engaged by the ends of bar *u* and prevent the dash-board from turning on its journals *r r*. To release it in order that it may turn, the bar *u* may be lifted, the spring-



strip *t* being compressed or flexed. Other notches (*w* in Fig. 1) may be provided to receive said bar *u* when the parts of the chair are folded, as in Figs. 3 and 4.

5 The main wheels *I I'* are mounted on spindles *x*, (see Fig. 8) fixed in axle-boxes *y*, secured to springs *J J'*. These springs are provided with hinges *z z*, (see detached views 5 and 6,) and one leaf of the hinge *z* is provided with a  
10 headed slide, *a'*, which engages an undercut curved groove, *b'*, formed in a metal plate secured to the inner face of the side of the seat. Each spring has two hinges *z* and two slides *a'*, and there are two curved grooves in each  
15 side of the seat. When the chair is set up, as in Fig. 1, the springs *J J'* take under the sides of the seat, (see Fig. 5,) and the latter rests fairly on them. In this position of the parts the slide *a'* cannot play in the groove *b'*.

20 To brace the main wheels and press them outwardly, I employ a swinging U-shaped brace, *K*, as best shown detached in Figs. 7 and 7<sup>a</sup>. This comprises two upright arms, pivoted at *c' c'* to the sides of the seat *A*, and cross-  
25 piece or stretcher, which ties these together. This stretcher extends across between the axle-blocks *y*, and when in position takes behind cleats or keepers *d'* on blocks *y*. These latter serve as stops or shoulders to arrest the brace.

30 The brace is provided with what is called a "Bascule fastening," which comprises two elastic bolts, *e' e'*, the outer ends of which have bearings in plates *f' f'* on the brace, and the inner ends of which are coupled to a lever, *h'*, piv-  
35 oted or fulcrumed to the stretcher of the brace between the points *i' i'*, where the bolts are attached. Thus a species of double spring-bolt is provided, the two bolts being simultaneously withdrawn by the erection of the lever,  
40 as I have indicated in dotted lines in Fig. 7. The bolts *e' e'* engage sockets *j' j'* in the axle-blocks *y*, (see Figs. 8 and 8<sup>a</sup>,) and thus prevent the braces *K* from shifting until the said bolts are withdrawn.

45 Having thus described the various parts of my chair, I will proceed to describe the mode of folding it up for packing or transportation, referring particularly to Figs. 3 and 4 for illustration.

50 The hooks *e e* are released from the eyes *f f* on the arms *C*, and these arms may then be folded down in the seat *A* by lifting them slightly, so as to release dowels *d*. The back *B* may now be folded down by first swinging  
55 it forward on the lower joints of hinges *a*, and then turning it on the upper joints of same and pressing it back and down until it lies flat, as in Fig. 3. The hooks *e e* on the back are now made to engage eyes, at *k' k'* in Fig. 4, in  
60 the sides of the seat *A*, which serves to hold the back and arms firmly in place. The chair may now be inverted for convenience in folding the remaining parts. The brace *K* is released by withdrawing bolts *e' e'* from their  
65 sockets *j' j'*, and is then folded into the cavity of the seat. The wheel *I* and its spring *J* are

then folded in and the slides *a'* on the spring-hinges *z* caused to move along grooves *b'* until said wheel and its spring rest snugly in the hollow of the seat, as indicated in Figs. 3 and  
7c 4. Wheel *I'* and its spring *J'* are then folded and adjusted in the same way. It is immaterial which wheel is folded in first, and it is im-  
75 material which is considered as *I'*. I merely letter them differently in order to distinguish them. The object in curving slots *b'* is to bring the wheels and their springs forward, so that they may fold into the box of the seat. By reference to Fig. 1 it will be seen that the  
80 wheels, when erect, stand back of the center of the seat. In order to fold in the foot-rest *D* and its attachments, the bolt *n* is released from *o* and fork *F* turned on its pin *k* until said bolt engages *o'*. Bolt *q* is then withdrawn  
85 from its socket in *p*, and *G* turned until the fork *F* lies nearly parallel to *D*. Bolt *i* is now withdrawn from sockets *j* in *g'*, and the foot-rest *D* folded into the position shown in Fig. 3. The dash-board *H* is now turned until bar  
90 *u* engages notches *w* in plates *p p*, when it will stand as shown in Fig. 3. It will now be seen that the chair forms a compact and nearly rectangular package.

*L* is a cross-handle, by which said package may be conveniently handled, and which may  
95 also serve as a handle to move the chair by when it rests on its wheels.

In order to form a four-wheeled vehicle or perambulator for children, the foot-rest, dash-board, and front wheel may be omitted and  
100 two box seats be constructed each with a pair of wheels. These seats may then be hinged together, so as to fold up, bottom to bottom, and form a box which may have handles and be carried like a trunk or satchel.  
105

Having thus described my invention, I claim—

1. In a folding chair, the box-like seat *A*, provided with curved undercut grooves *b'*, the main wheels and their springs, and the hinges  
110 *z*, provided with slides *a'*, and means, substantially as described, for locking the wheels in operative positions, all arranged to operate substantially as set forth.

2. In a folding chair, the combination, with  
115 the box-like seat provided with the curved groove *b'*, the main wheels *J*, axle-blocks provided with sockets and their springs, as set forth, and the hinges *z*, provided with slides *a'*, of the swinging brace *K*, provided with  
120 bolts, constructed as described, whereby the same may engage sockets in the axle-blocks *y*, substantially as set forth.

3. The combination, with the seat-frame, of the axle-blocks *y*, devices, substantially as set  
125 forth, connecting them with the seat-frame, said blocks provided with cleats *d'* and sockets *j'*, of the swinging brace *K*, provided with plates *f'*, bolts *e'*, and a lever, *h'*, all arranged to operate substantially as set forth.  
130

4. The combination, in a chair, of the seat and its main wheels connected to the seat, sub-



stantially as set forth, whereby they may be  
folded beneath the seat, the folding foot-rest  
D, and means for locking the same in opera-  
tive position, and having side plates, *p*, the  
5 bar G, mounted in the side plates, *p*, and means  
for retaining it in operative position, as set  
forth, the fork F, mounted in the bar G, and  
means for locking the said bar and the front

wheel, E, all arranged to operate substantially  
as set forth.

FRIEDRICH ADOLF UFER.

Witnesses:

OTTO WOLFF,  
PETER LUDWIG,  
*Of Dresden.*