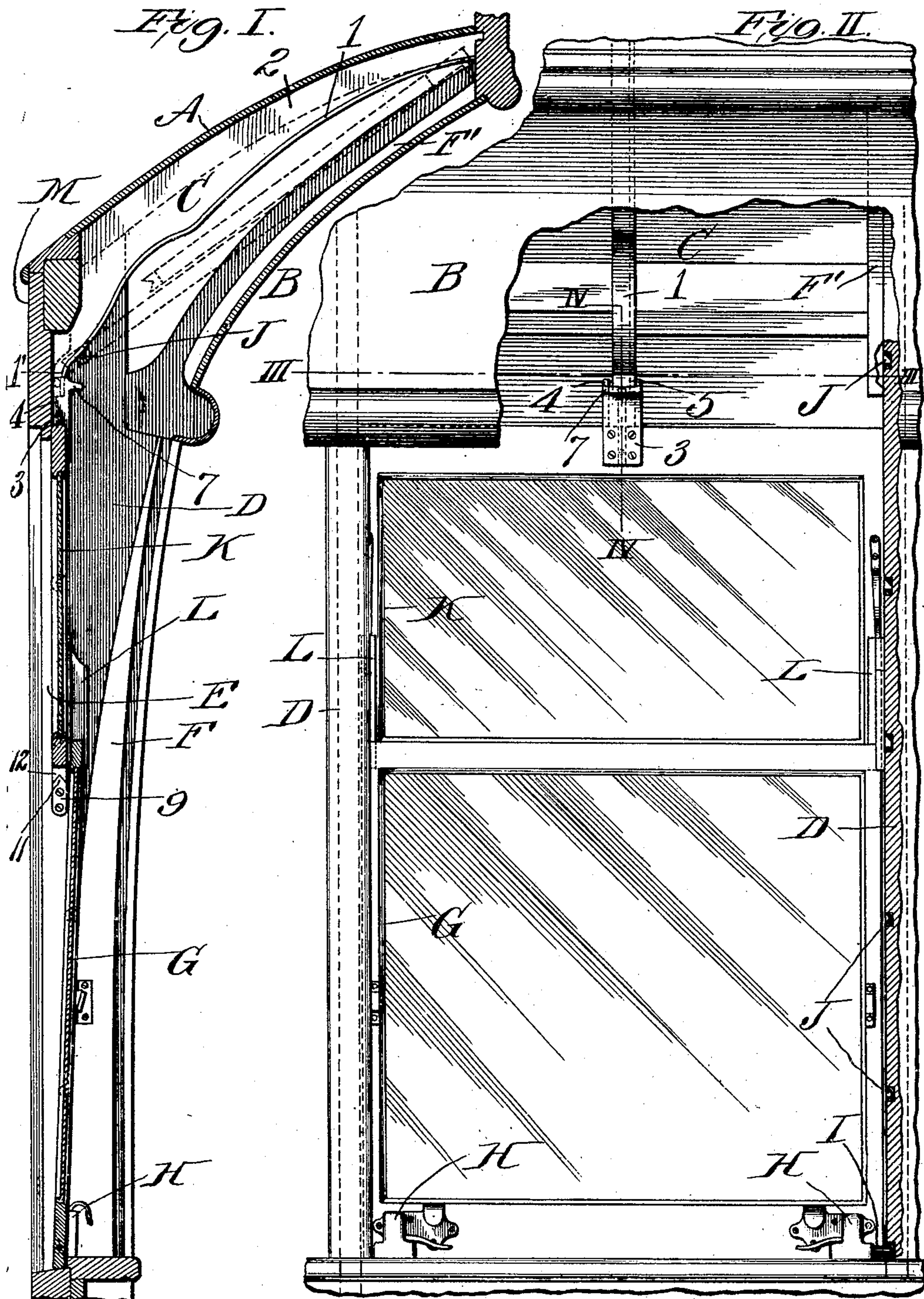


E. T. ROBINSON.
SEMI-CONVERTIBLE CAR.
APPLICATION FILED FEB. 11, 1908.

925,133.

Patented June 15, 1909.

3 SHEETS—SHEET 1.



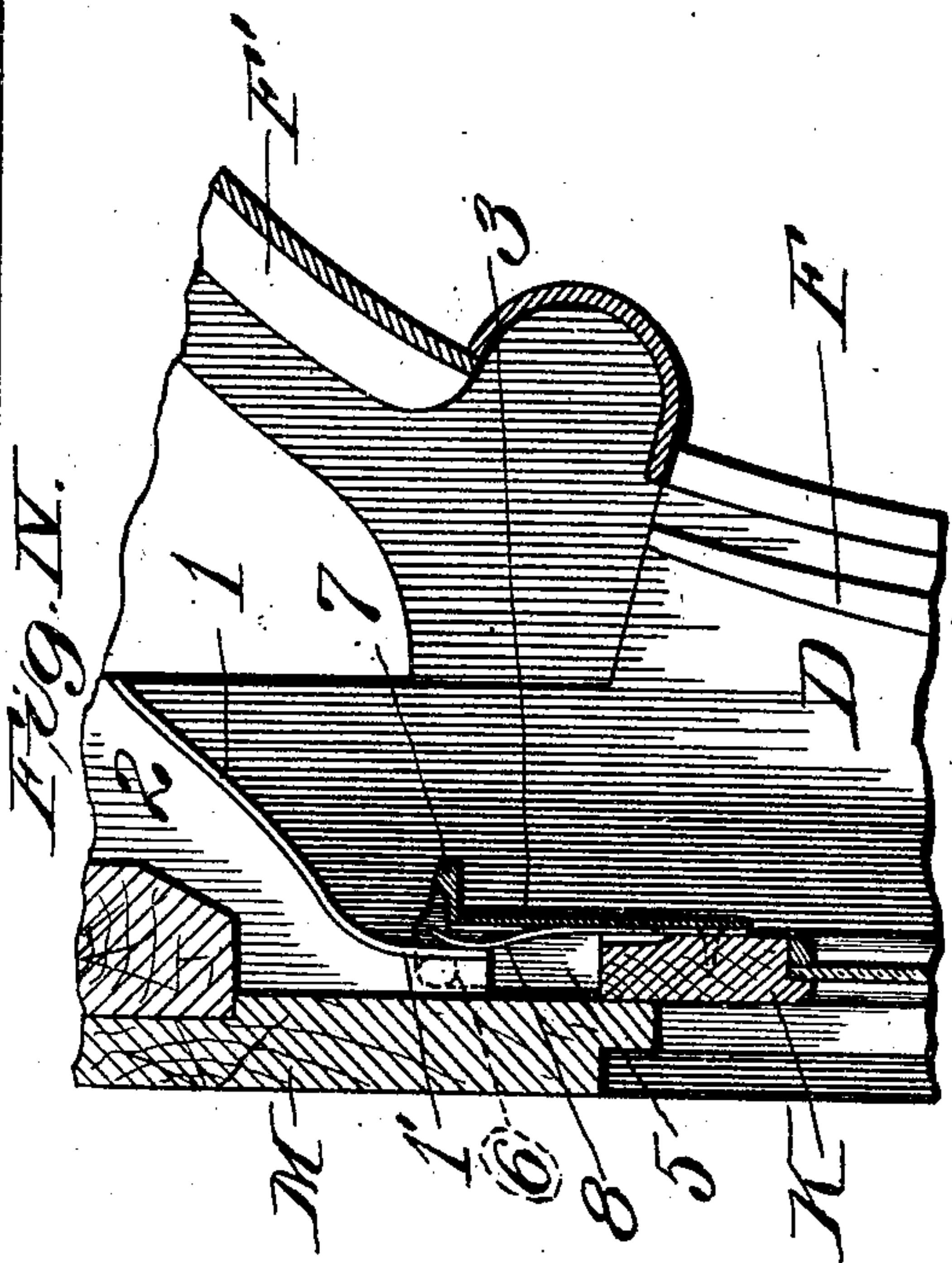
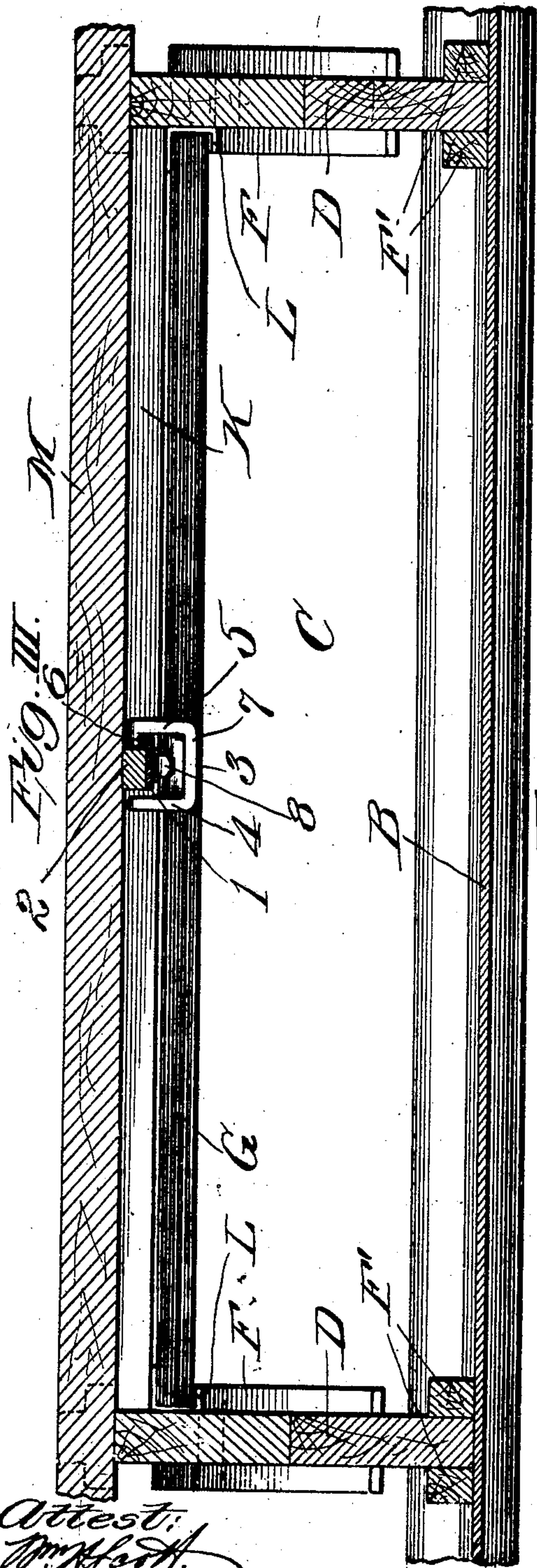
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925,133.

Patented June 15, 1909.

3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. V.

Fig. VI.

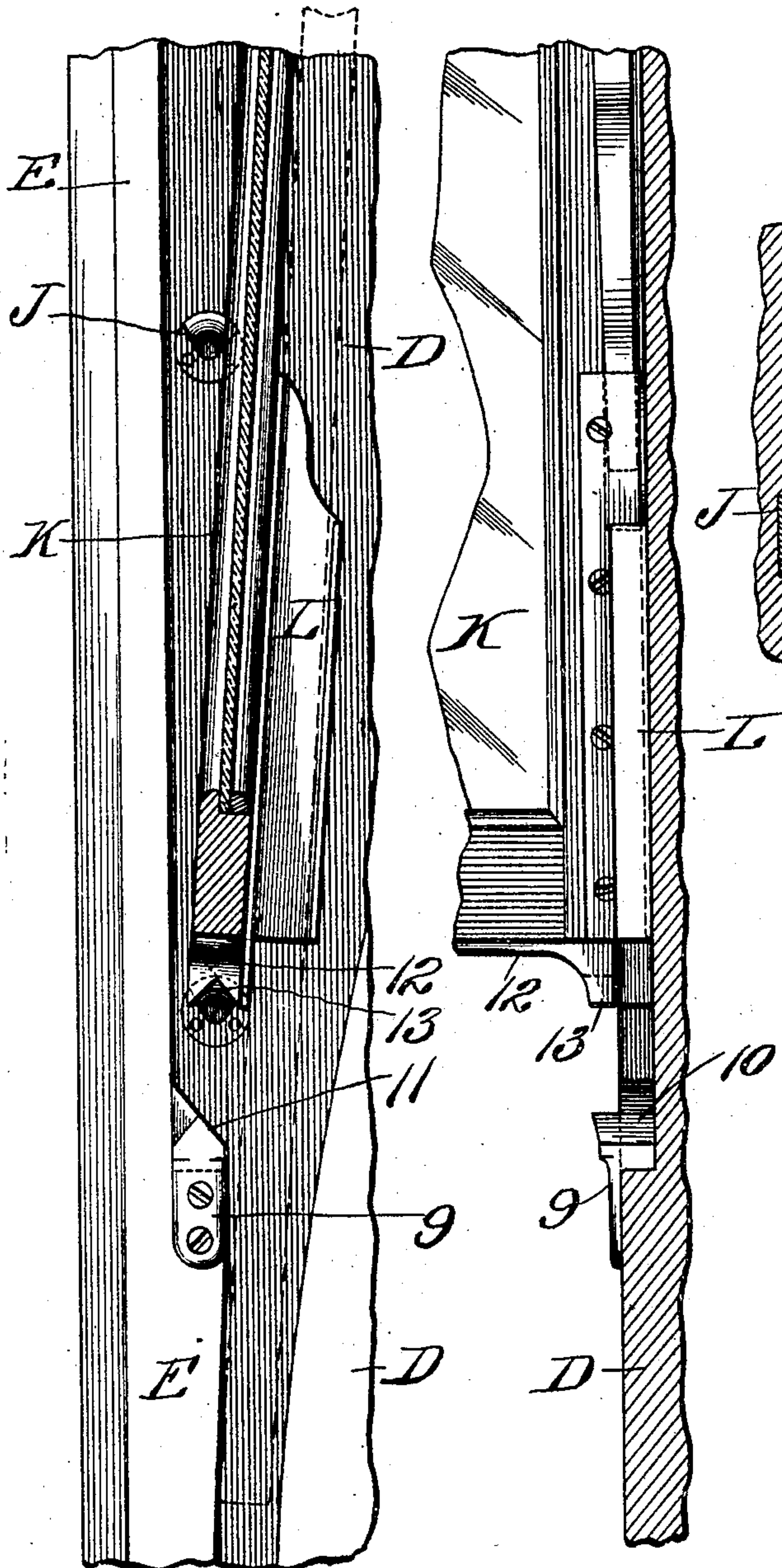


Fig. VII.

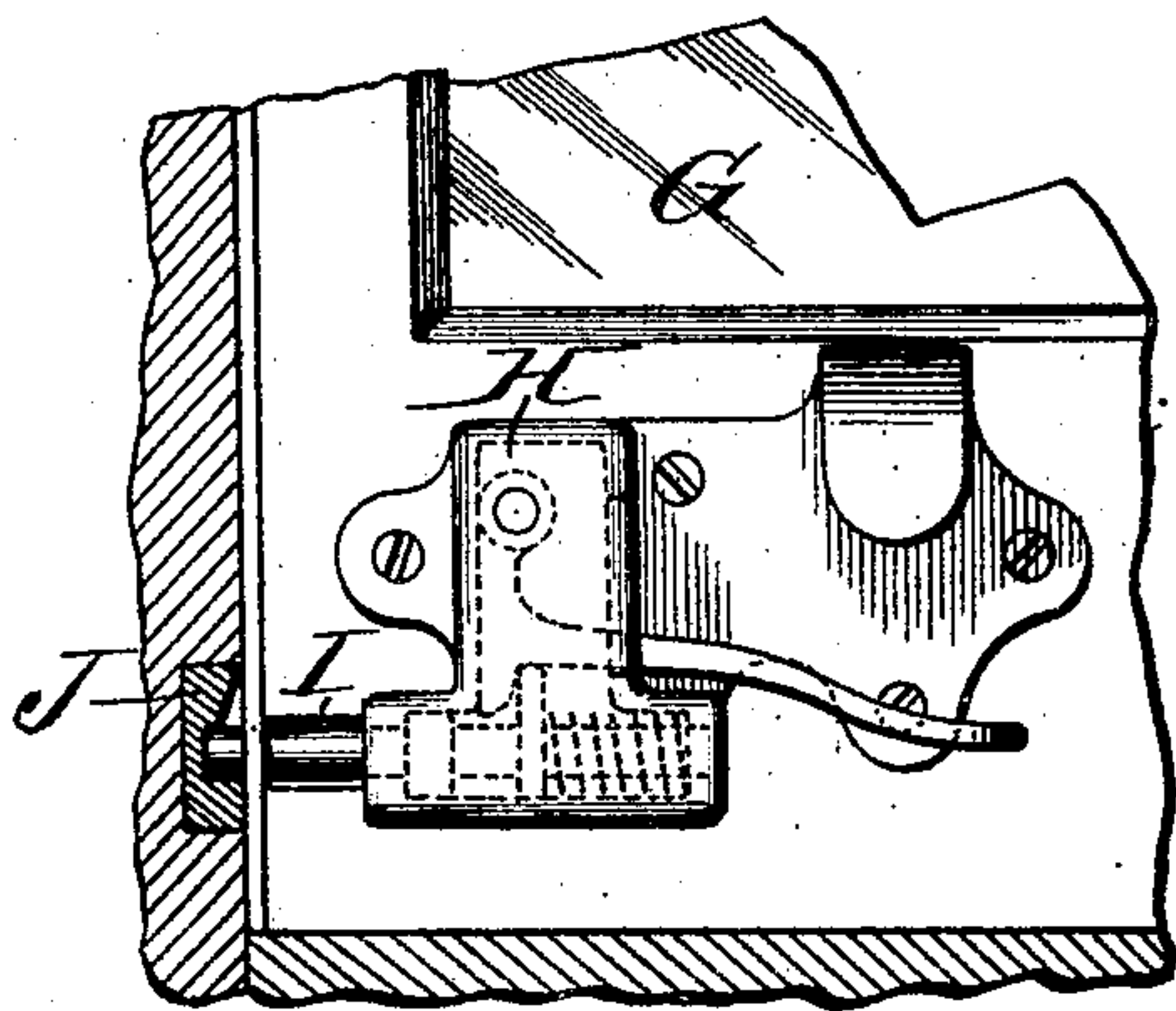
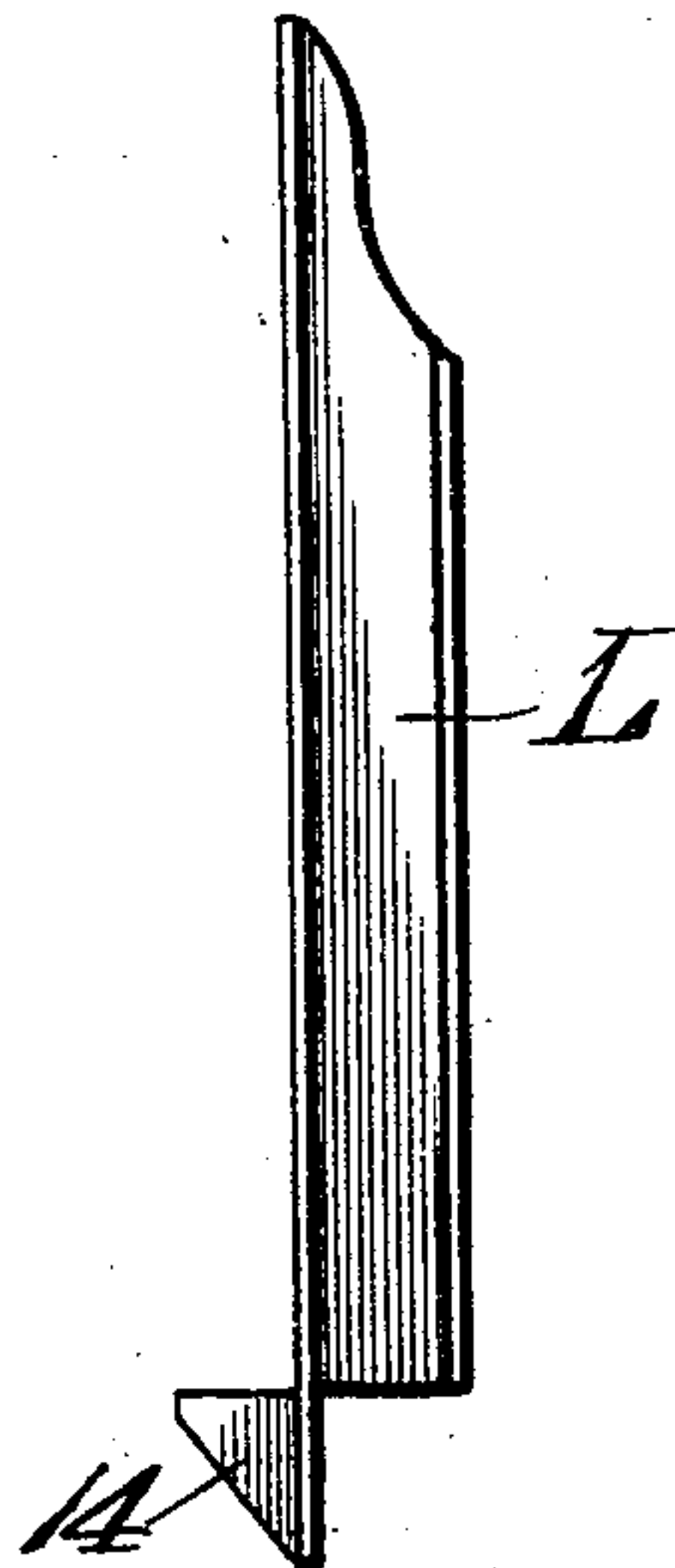


Fig. VIII.



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UNITED STATES PATENT OFFICE.

EDWARD T. ROBINSON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ST. LOUIS CAR COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

SEMI-CONVERTIBLE CAR.

No. 925,133.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed February 11, 1908. Serial No. 415,354.

To all whom it may concern:

Be it known that I, EDWARD T. ROBINSON, a citizen of the United States of America, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Semi-Convertible Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of railway cars more particularly used upon street railways and which are so constructed as to render them suitable for use in closed condition for winter service and open condition for summer service.

The objects of the present improvement are to provide efficient means by which the sashes of a semi-convertible car may be guided when elevated into the deck compartment of the car and held from movement while in the deck compartment and also to provide efficient means for holding the upper sashes steady when in lowered positions.

Figure I is a vertical cross section taken through the upper portion of the wall and deck of one side of my semi-convertible car. Fig. II is an elevation of the parts shown in Fig. I viewed from the interior of the car and with a portion of the deck ceiling broken away to afford a view of the members back of it. Fig. III is an enlarged horizontal section taken on line III—III, Fig. II. Fig. IV is an enlarged vertical section taken on line IV—IV, Fig. II. Fig. V is in part an enlarged vertical section taken through an upper sash of the car and in part an enlarged elevation of one of the window posts of the car, the sash being shown in a slightly elevated position. Fig. VI is an elevation of the parts shown in Fig. V. Fig. VII is an elevation of a lower corner of one of the lower sashes and a sash holder carried there- by. Fig. VIII is an elevation of one of the sash receiving plates carried by the upper sashes and in which the lower sashes are operable.

A designates the deck roof of my car and B the deck ceiling between which is a sash receiving compartment C.

D are the window posts containing sash runways that are furnished by the outer stops E and the inner stops or guides F.

F' are guides or rest strips at the sides and

bottoms of the compartment C and which are practically extensions of the guides F.

G is one of the lower sashes operable in the window post runways and which carry sash holders H having bolts I that are adapted to enter into pockets J in the window posts when the lower sash is in a lowered position, a partially elevated position and a completely elevated position, the last named position being that of the sash when it is raised into the deck sash receiving compartment C.

K is the upper sash which is susceptible of being elevated with the lower sash into the compartment C and which carries at its inner side sash receiving channel strips L in which the lower sash is adapted to be moved and guided when said lower sash is raised and lowered independent of the upper sash and without moving it into the deck sash receiving compartment.

1 designates a guide rail, see Figs. I to IV inclusive, that is centrally positioned in the compartment C beneath the deck roof of the car and is spaced apart from said deck roof and the vertical members of the car beneath the deck roof, such as the letter board M. This rail is inflexibly supported by a rigid supporting strip or rafter 2 that is of less width than the guide rail in order that one edge of said rail will project beyond one of the sides of said supporting strip, as seen most clearly in Fig. III. The upper portion of the guide rail extends in a curved line approximating the line of the deck roof A while the lower portion of said rail is disposed vertically alongside of the vertical member M of the car body, as seen at 1' Figs. I and IV.

3 designates a traveler that is secured to the top rail of the upper sash K and which is provided at its upper end with a fork comprising arms 4 and 5 which straddle the guide rail 1 to prevent lateral movement of the sashes G and K when they are elevated into the compartment C, thereby avoiding binding of the sashes against the side walls of the compartment. The arm 5 is provided with a stud 6 located at its inner side and which serves to support the upper sash when said sash is elevated into the deck compartment C. The traveler 3 is provided with a lip 7, see Figs. I, II and IV, that is adapted to be engaged by the top rail of the lower sash G when said lower sash is elevated, and both the lower and upper sashes are to be elevated combinedly into the deck compartment C,

and whereby the lower sash may cause the upward movement of the upper sash.

8 is a spring located at the rear of the traveler 3 and adapted to bear against the inner or lower face of the guide rail 1 to serve as a means for holding the stud 6 of the traveler against the guide rail and obviate rattling or shaking of the upper sash when it is either in a lowered position in the window or in an elevated position in the deck compartment C.

When, in the practical use of my car, the sashes in any window opening therein are elevated into the deck compartment C above the window opening the sashes are guided by the unflexibly supported guide rail 1 so that they are not permitted to play laterally to bind against the walls at the sides of the compartment. During the upward movement of the sashes, and also during the downward movement thereof, the lower sash rides against the guide or rest strips F' which, at this time, serve as supports for the sashes, thereby supporting the weight thereof. When the sashes are completely mounted and supported in the compartment C as previously described, the weight of the sashes is borne by the strips F' and jostling of the sashes is prevented, due to the engagement with the guide rail 1 by the traveler 3 and the spring 8 opposing said traveler.

9 designates rests that are secured to the window stops E and which serve as supports for the upper sash K when it is in a lowered position. These rests are provided with inclined upper portions 10 that are located at the bottoms of the portions of the window post runways which receive the upper sash and they are also provided at their upper ends with inverted V-shaped members 11 located exterior of the window post runways. 12 are socket plates secured to the bottom edges of the upper sash and provided with inverted V-shaped sockets 13 that are adapted to fit onto the V-shaped members 11 of the rests 9 when the upper sash is in lowered position. This construction provides for the bottom of the upper sash being securely upheld in a manner to prevent dislodgment from its supporting rests. To prevent rattling of the lower sash upon its rests I provide at the lower end of each sash receiving channel strip L an angular arm 14 which projects beneath the upper sash at its ends. These angular arms are adapted to rest upon

the inclined portions 10 of the rests 9 when the upper sash is in a lowered position and by riding downwardly thereon, act to create binding engagement between the socket plates 12 and the V-shaped upper ends of the rests 9.

I claim:

1. The combination with a car body having a deck sash receiving compartment, of a guide rail inflexibly supported in said compartment, a traveler carried by said sash and adapted to cooperate with said guide rail, and rest strips at the bottom of said compartment.

2. The combination with a car body having a deck sash receiving compartment, of a rigid strip located in said compartment at the lower side of the deck roof, a guide rail inflexibly attached to said strip and extending beyond one side of the strip, a sash, and a traveler carried by said sash and having a stud adapted to travel on the extended portion of said rail, substantially as set forth.

3. The combination of a car body having a deck sash receiving compartment, of a guide rail inflexibly supported in said compartment, a sash, a traveler carried by said sash and straddling said guide rail at one side thereof, and a spring carried by said sash and adapted to bear against said guide rail at a point opposite to that with which said traveler has engagement, substantially as set forth.

4. The combination with the window posts of a car, of a sash operable in said posts, rests secured to said posts and having V-shaped members at their upper ends, and socket plates carried by said sash and adapted to engage the V-shaped members of said rests when the sash is in lowered position, substantially as set forth.

5. The combination with window posts of a car, of sash rests secured to said posts and having inclined upper ends, and V-shaped members adjacent to said inclined upper ends, sash socket plates carried by said sash and adapted to engage said V-shaped members, and angle arms carried by said sash and adapted to engage the inclined upper ends of said rests, substantially as set forth.

EDWARD T. ROBINSON.

In presence of—

A. DICKMANN,
M. C. MURPHY.