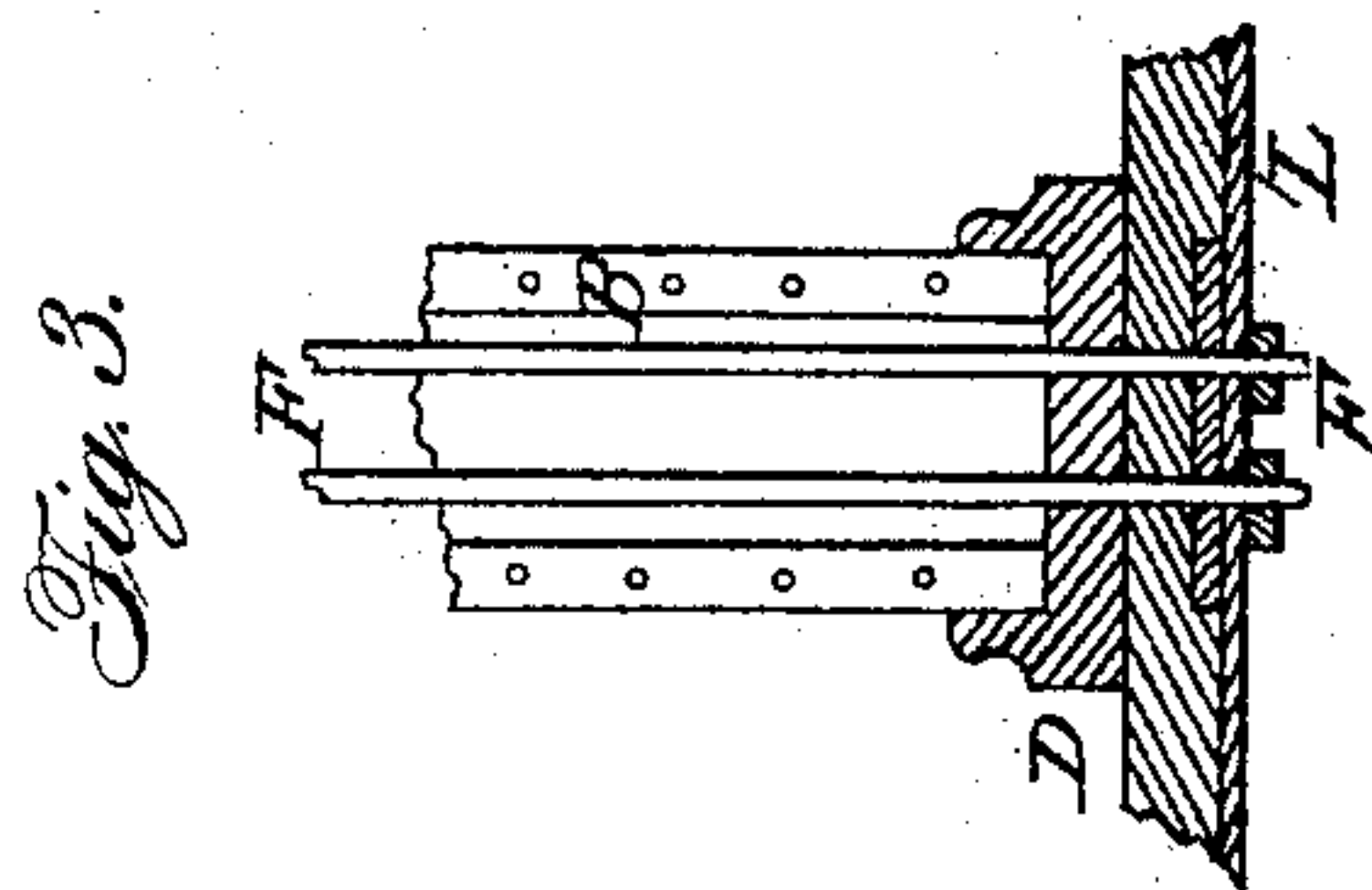
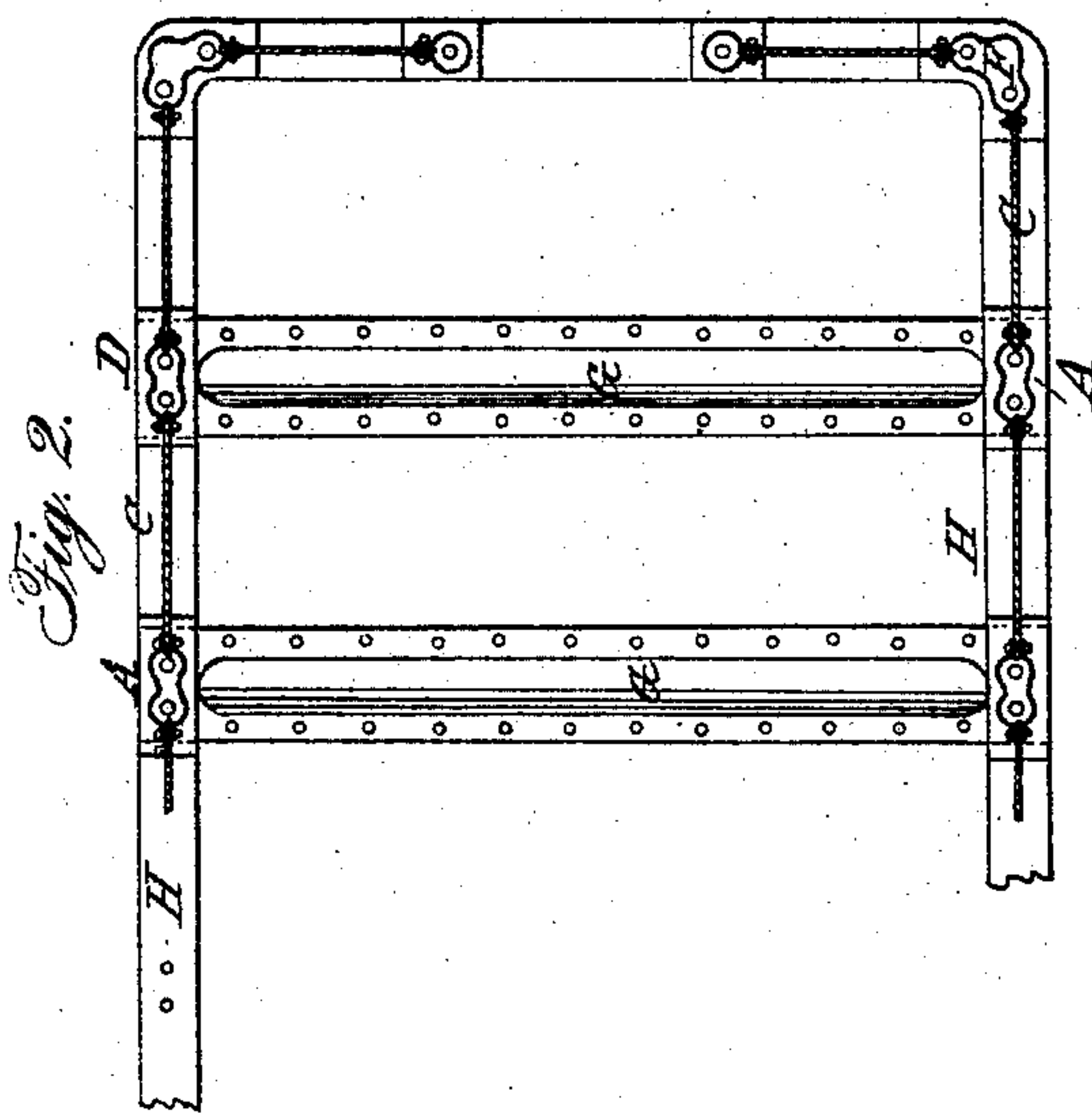
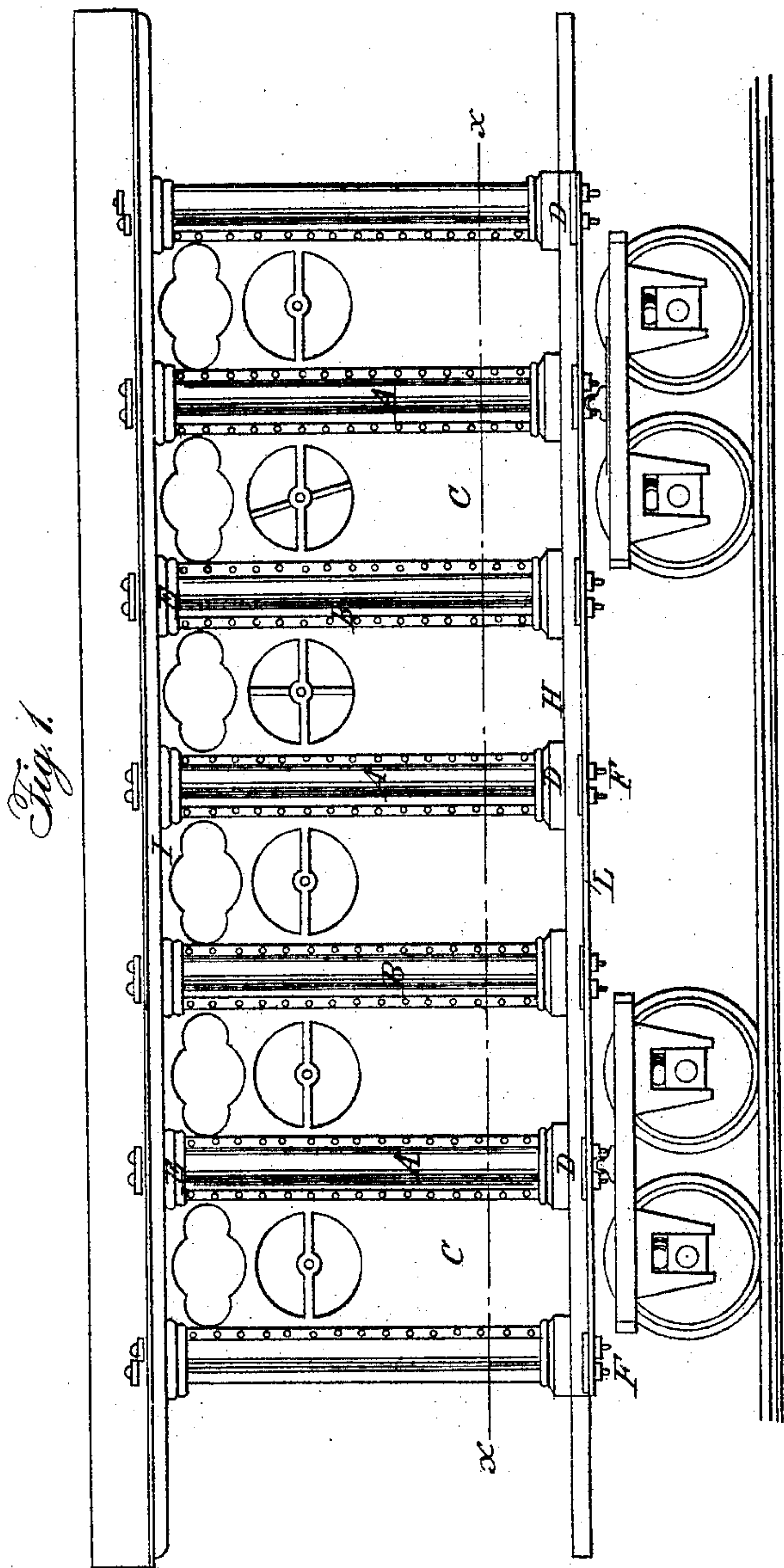


T. E. WARREN.

Car Body.

No. 10,142.

Patented Oct. 18, 1853.





# UNITED STATES PATENT OFFICE.

THOMAS E. WARREN, OF TROY, NEW YORK.

## IMPROVEMENT IN IRON CAR-BODIES.

Specification forming part of Letters Patent No. 10,142, dated October 18, 1853.

*To all whom it may concern:*

Be it known that I, THOMAS E. WARREN, of Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Making Railroad and other Carriage Bodies of Iron; and I do hereby declare that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known, and of the usual manner of making, modifying, and using the same.

My improvement in the construction of railroad and other carriage bodies consists in a combination of three elements, which united go to form a strong, light, and durable structure combining these qualities in a much greater degree than any other car or carriage now or heretofore known. The three elements above alluded to form the sides and unite all the parts and are a series of straight panels of thin sheet metal, which serve as diagonal braces, and columns of the same material for strengthening the plates, to which they are firmly riveted, together with through-bolts extending through the columns to hold the top and bottom to the sides—a service which there is not strength enough in the thin metal sides to perform if riveted to the top and bottom. These three parts united are found by experience to combine more strength with a given amount of material than any other structure now known. Each of these three elements was before well known, and two of them—namely, straight and corrugated plates—have been suggested in the manufacture of cars, but up to this time they have never been introduced, nor could they be without the third—the through-bolts or their equivalent.

The construction is as follows: The columns A are fluted round or ribbed of any figure that utility or ornament shall suggest. They are made of two parts, having a plain flat (or figured) panel C, bolted between these parts at the junction B, with a row of bolts like the joints of a boiler. A cap and box-plates E and D serve for the thin edges of the upper and lower ends of the columns to rest against. Under the boxes of the columns there is a sill-

piece H extending the whole length, and above the caps a similar piece F. With these sides the top and bottom of the car (or carriage) is connected by straight small rods of iron passing down through the top and bottom in the interior of the column. This is shown in detail in Fig. 3, F being the rods or bolts. They have a nut and screw on their ends by which they are screwed up tight and bind all the parts firmly together in such a manner that the car (or carriage) is secured against all lateral and twisting strains, as well as the vertical pressure of the load, and when the parts are worn loose they can be set up tight again.

The columns are for the purpose of stiffening the sides in the manner of corrugated plates, and the straight plates serve the purpose of diagonal bracing, as well as affording a proper opening for windows, &c., while the through-bolts run through the whole, and bringing the top and bottom together secure the whole into one, uniting the maximum of strength and tightness with applicability to the purpose of the car and other carriage bodies, and cheapness of construction.

It is obvious that these elements are capable of great variety and beauty of form without at all changing the structure in principle. The iron car will be superior to the wooden structures now in use in many respects. They will be cheaper, lighter, stronger, more durable, less leaky, safer in case of collision, fire, and lightning proof, &c.

Having thus fully described my new and improved car and other carriage body, what I claim therein as new, and desire to secure by Letters Patent, is—

The combination of the hollow sheet-metal columns and panels, as described, with the through-bolts holding the top, bottom, and sides all firmly together, in the manner and for the purpose set forth.

THOMAS E. WARREN.

Witnesses:

J. F. WALSH,  
CHAS. H. HOUGHTON.