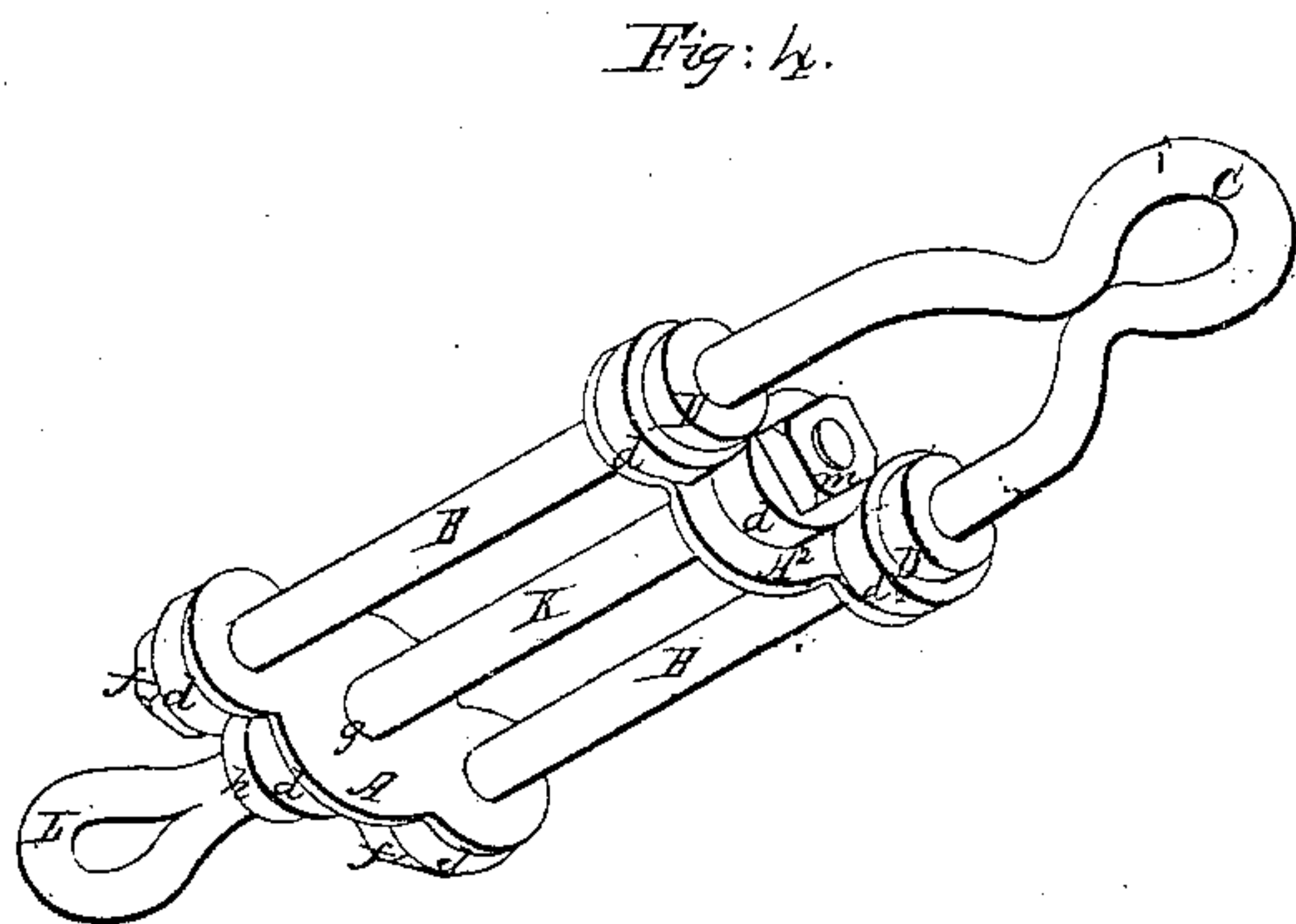
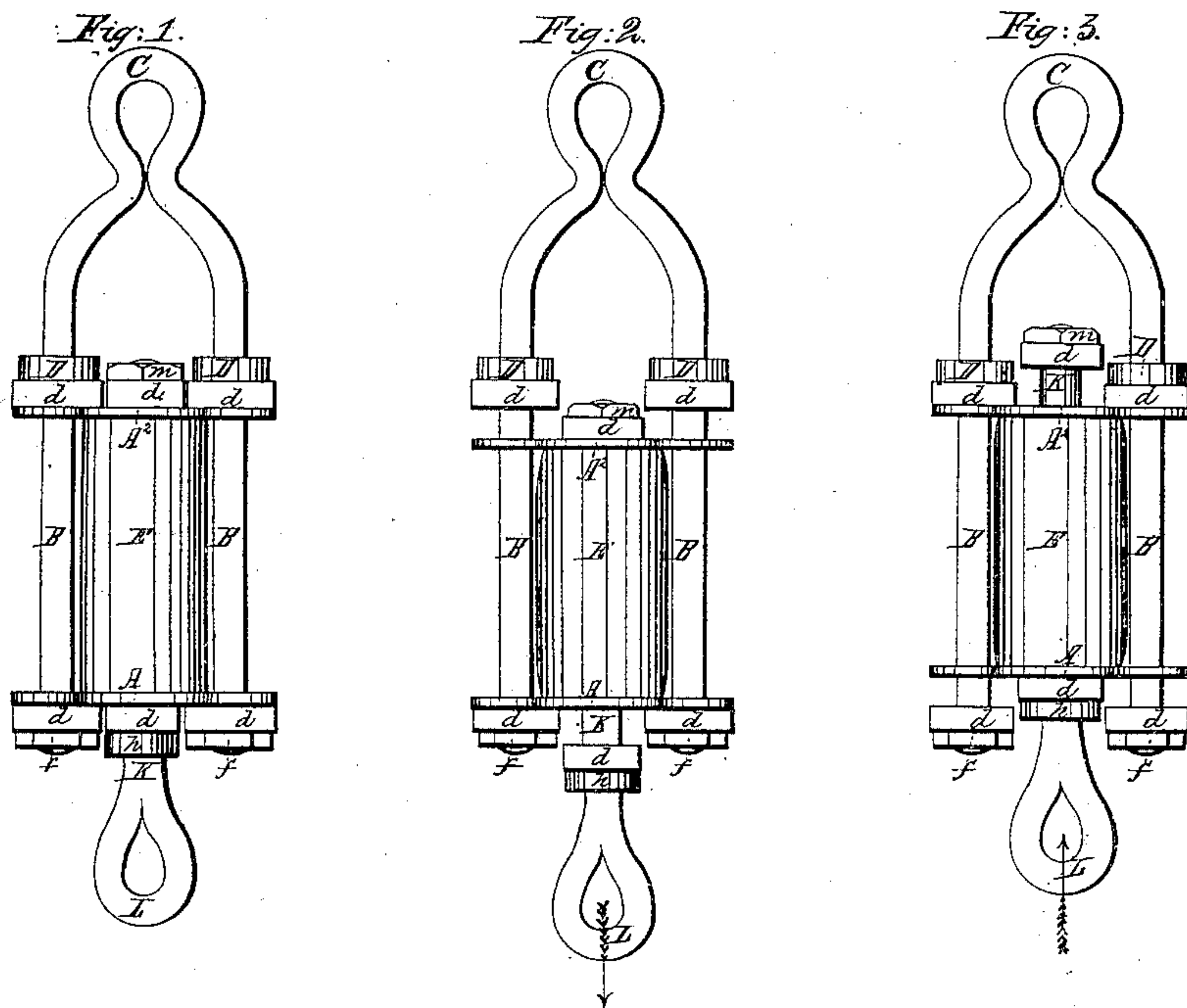


T. J. MAYALL.  
ELASTIC DRAW BAR AND BUMPER.

No. 22,607.

Patented Jan. 11, 1859.



Witnesses:

*Thos. H. Rouch*  
*J. E. Schenck*

Inventor:

*Thos. J. Mayall*

# UNITED STATES PATENT OFFICE.

THOS. J. MAYALL, OF ROXBURY, MASSACHUSETTS, ASSIGNOR TO HIMSELF, AND BENJN. F. COOKE, OF BOSTON, MASSACHUSETTS.

## ELASTIC DRAW-BAR AND BUMPER.

Specification of Letters Patent No. 22,607, dated January 11, 1859.

### *To all whom it may concern:*

Be it known that I, T. J. MAYALL, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented a new and  
5 Improved Elastic Duplex Draw-Bar and Bumper, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

10 Figure 1 represents my improved draw bar when not in use; Fig. 2 a view of the same as it appears when distended as in the act of drawing a car or train; Fig. 3, shows it when compressed by the crowding of the  
15 cars together; Fig. 4 a perspective view of the bar without the elastic cylinder.

My invention has for its object to do away with those disagreeable jerks and shocks which are felt by the passengers of a rail-  
20 way train, when the engine is suddenly stopped or started.

To enable others skilled in the art to understand my invention I will proceed to describe the manner in which I have carried  
25 it out.

A, A<sup>2</sup>, are cross heads of the form represented in Fig. 4, which slide freely upon the side bars B. These bars are connected with the eye C', through which passes the cou-  
30 pling pin, and they also carry the collars D, which interrupt the motion of the head A<sup>2</sup> in one direction, the motion of the other head A upon the bars B being limited by the nuts f upon the ends of the bars. The  
35 heads A, A<sup>2</sup> are kept apart as in Fig. 1, by a hollow elastic cylinder of vulcanized india rubber E. Through the center of this cylinder and also through the holes g of the heads A, A<sup>2</sup> passes a rod K having at one  
40 extremity an eye L for the reception of the other coupling pin, also a collar h, and at the other end a nut m. Between the

heads A A<sup>2</sup> and the collars and nuts are placed the short india rubber blocks or washers d the object of which is to prevent  
45 the noise and shock arising from the sudden contact of the metallic heads with the nuts and collars as the train is stopped or started.

Operation: The cars are coupled by pass-  
50 ing the coupling pins of two adjacent cars through the eyes C' and L, the diameters of these eyes being as near to that of the pins as may be that there may be no jar or jerk arising from lost motion at these points.  
55 When thus arranged if the engine be started whether it be gradually or suddenly the strain is brought upon the elastic cylinder which is thus compressed as in Fig. 2, an amount proportional to the strain upon it,  
60 and when the steam is shut off or the engine is backing the train the drawn bar assumes the position represented in Fig. 3 the compression of the elastic rubber cylinder being proportional to the force with which the  
65 cars are crowded together. It will thus be perceived that whether the draw bar be subjected to a force of tension or compression the rubber cylinder is compressed and the apparatus acts equally as a draw bar or a  
70 bumper, and that no jar can be produced upon the cars however suddenly the engine may be stopped or started.

What I claim as my invention and desire  
75 to secure by Letters Patent is—

The above described combined draw bar and bumper, consisting of the elastic cylinder E, the heads A, A<sup>2</sup>, bars B, springs d and bolt K constructed and operating in  
80 the manner substantially as herein set forth.

THOS. J. MAYALL.

Witnesses:

THOS. R. ROACH,  
P. E. TESCHEMACKER.