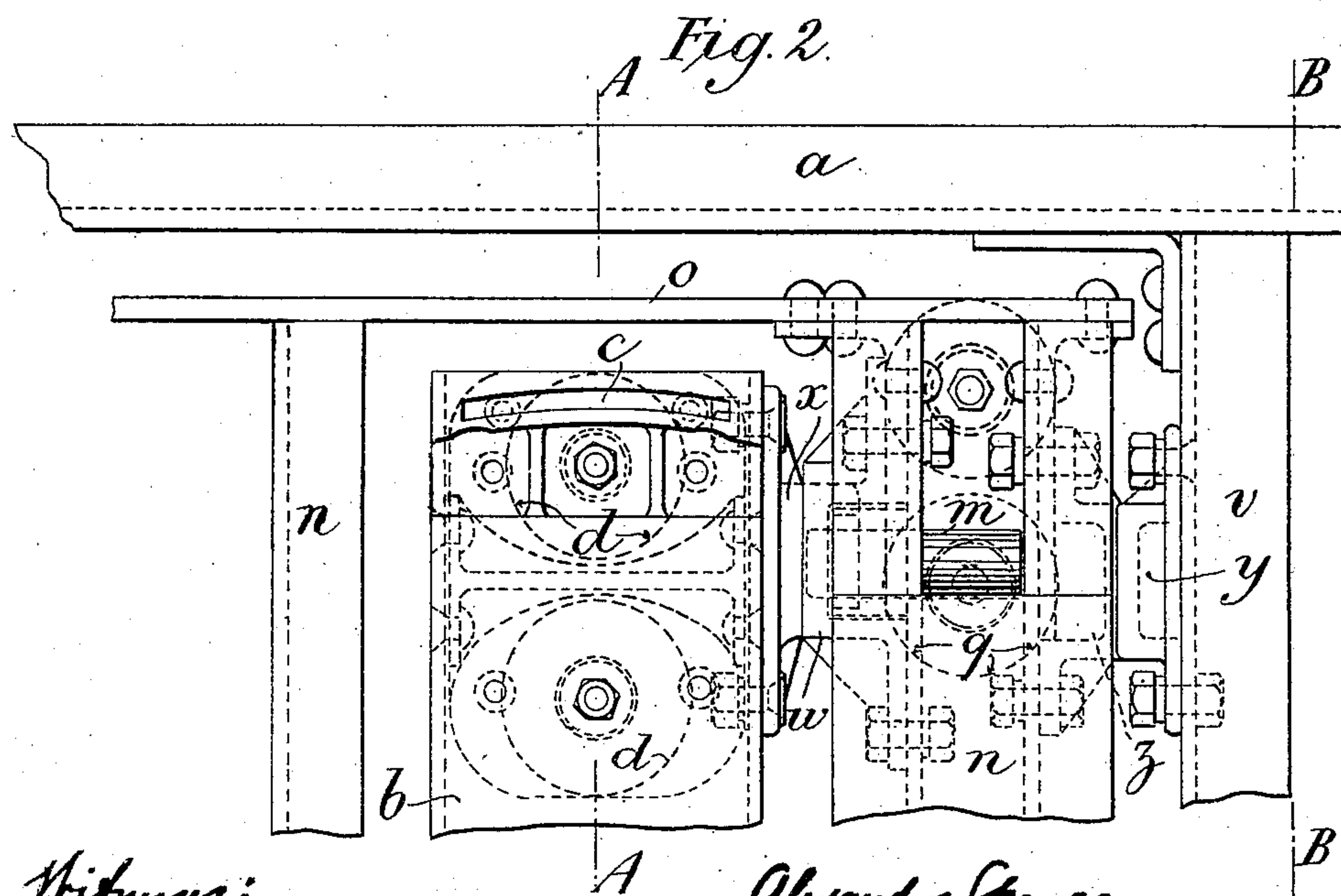
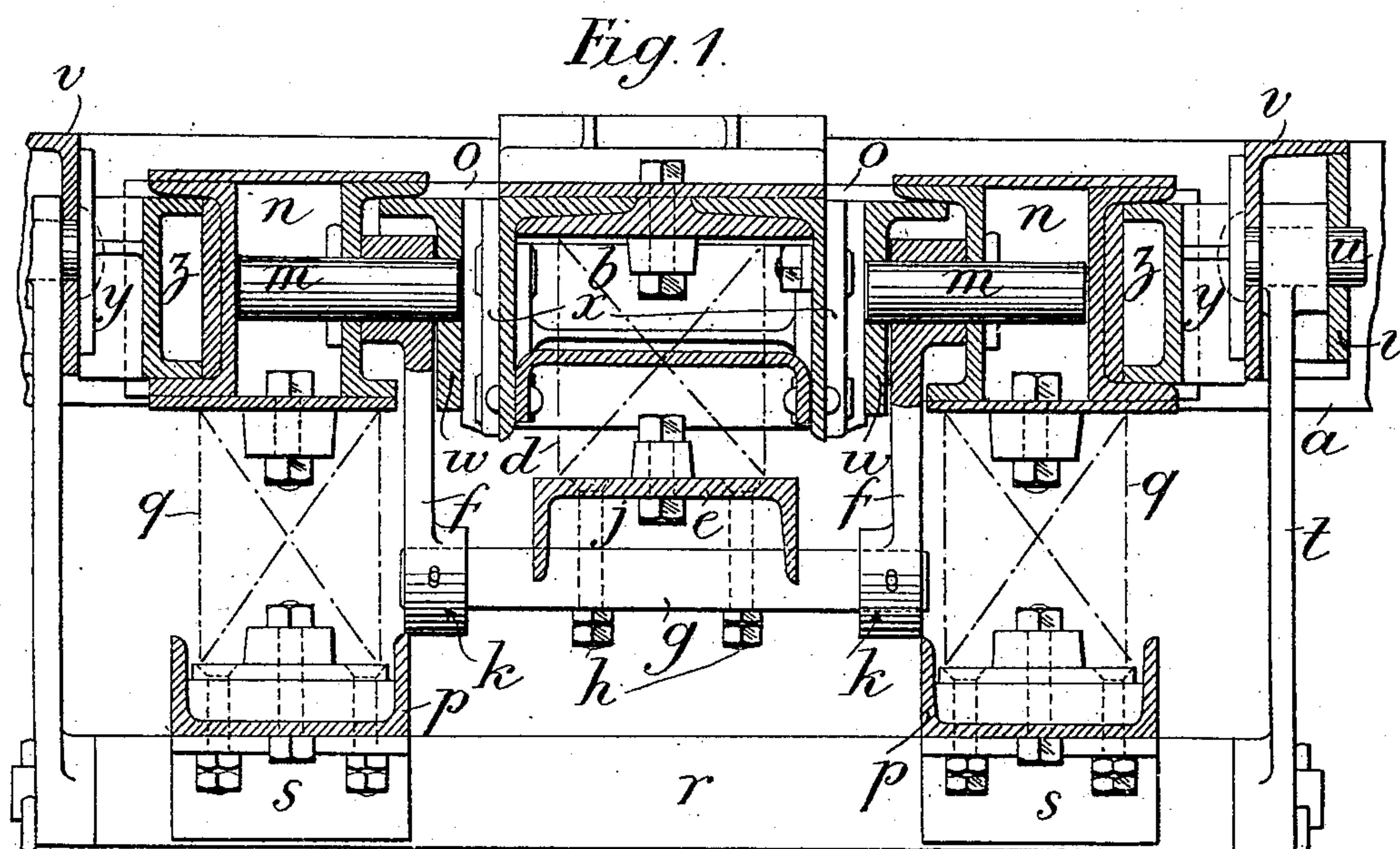


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 APPLICATION FILED AUG. 8, 1908.

914,889.

Patented Mar. 9, 1909.
 2 SHEETS—SHEET 1.



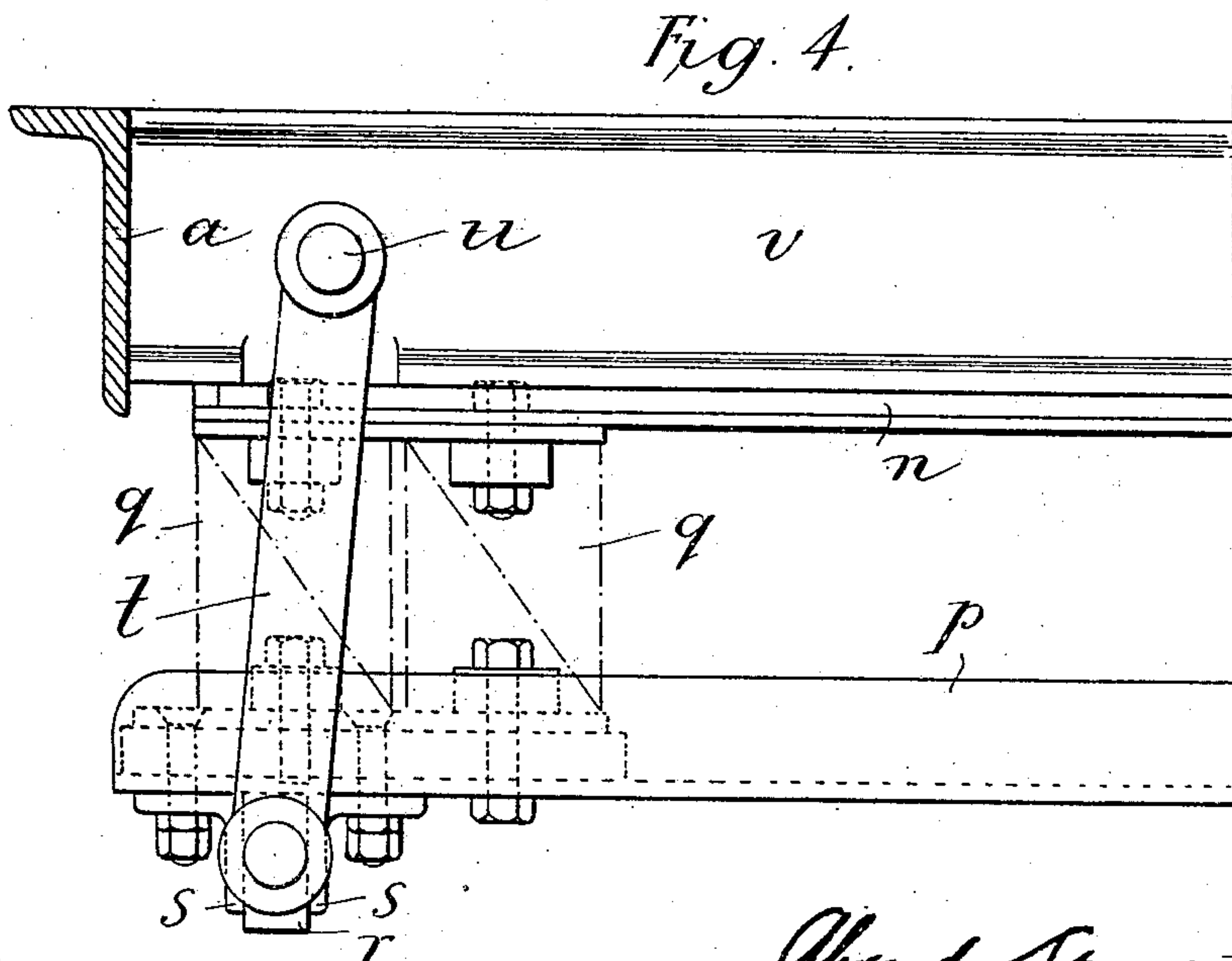
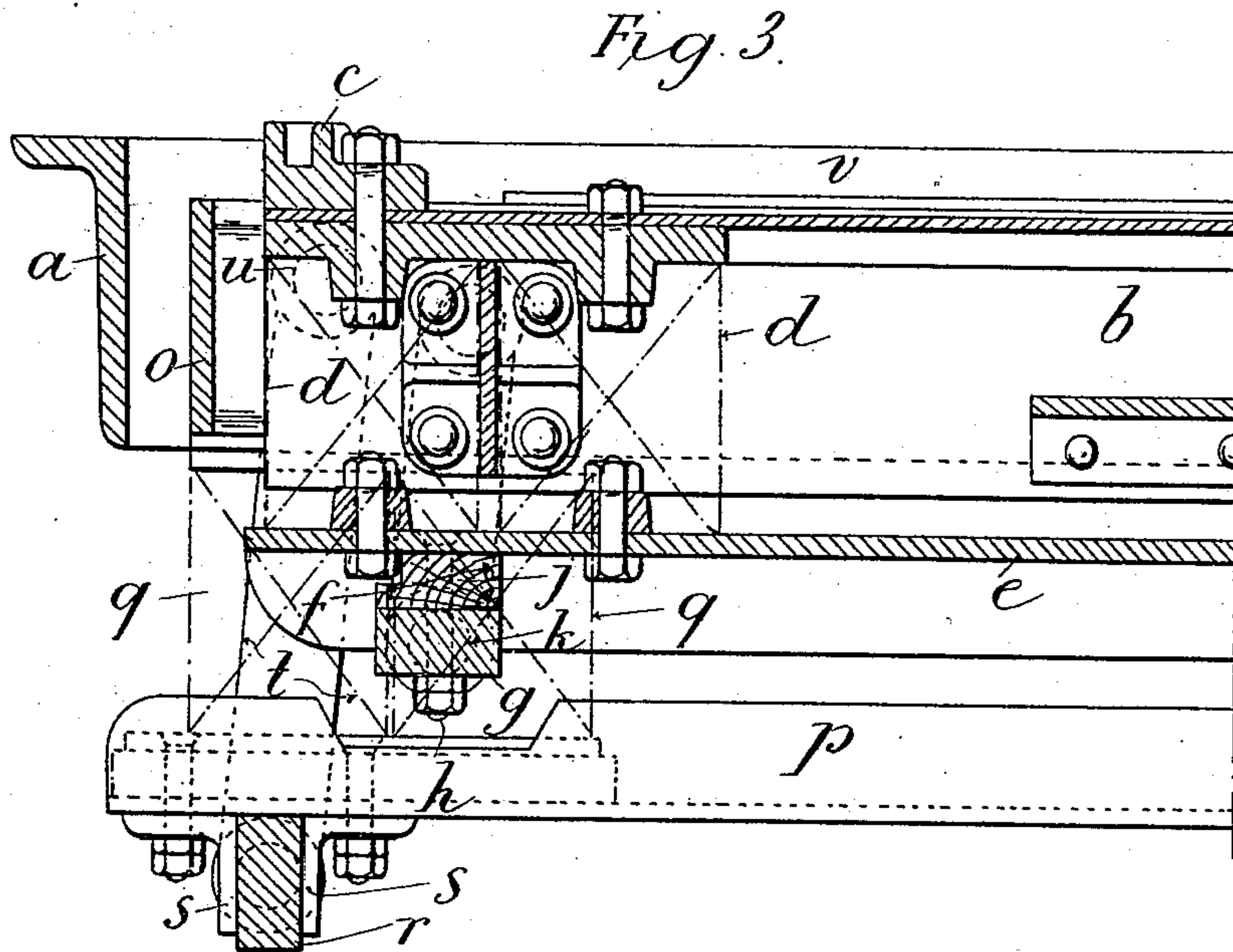
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 By Davis & Davis
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Witnesses:
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Alexander Spencer
By David Davis
Attorney

UNITED STATES PATENT OFFICE.

ALEXANDER SPENCER, OF LONDON, ENGLAND.

BOGIE FOR RAILWAY AND THE LIKE VEHICLES.

No. 914,839.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed August 8, 1908. Serial No. 447,553.

To all whom it may concern:

Be it known that I, ALEXANDER SPENCER, a subject of the King of Great Britain and Ireland, residing in the city of London, England, have invented Improvements in Bogies for Railway and the Like Vehicles, of which the following is a specification.

This invention has reference to bogies for railway and the like vehicles and has for object to provide an improved construction of such bogies wherein greater smoothness in running is obtained than with such bogies as heretofore usually constructed.

For this purpose the bolster which directly supports the vehicle, instead of being suspended from the bogie frame, is suspended from a supplementary bolster or bolsters. Both the main and the supplementary bolsters may be supported on spring planks, that of the main bolster being suspended, as by links, from the supplementary bolster or bolsters and that or those of the supplementary bolster or bolsters being suspended, as by links, from the bogie frame.

Figure 1 of the accompanying drawings shows in part central longitudinal section one construction of bogie embodying this invention, suitable for a railway vehicle. Fig. 2 shows a portion of such bogie in plan. Figs. 3 and 4 are transverse sections corresponding to the lines A A and B B respectively of Fig. 2.

a is one of the longitudinal side members of the bogie frame, *b* is the main bolster adapted to support the vehicle through a central swivel plate, not shown, and bearing blocks *c*, as heretofore usual. The bolster *b* is supported, through springs indicated diagrammatically at *d*, upon a spring plank *e* that is carried by links *f* through bars *g* connected to the plank *e* by bolts *h*; *j*, *j* being wooden blocks interposed between the bars *g* and spring plank *e*. The bars *g* are formed with trunnion like ends *k* each mounted in the lower end of a link *f*. At their upper ends the pair of links *f* at each side are mounted to turn on pins *m* which are carried by an intermediate bolster *n*. The two intermediate bolsters *n*, which are connected at their ends by plates *o*, are each supported by a spring plank *p* through springs indicated diagrammatically at *q*. The two spring planks *p* rest on longitudinal bars *r* that are prevented from lateral movement relatively to the spring planks by brackets *s*, and whose ends, which are turned to form trunnions,

are supported in the lower ends of links *t* that at their upper ends are pivoted to pins *u* carried by the transverse members *v* of the bogie frame. The inner ends of the pins *m* are each supported in a bracket *w* arranged to form a rubbing block that works against a corresponding rubbing block *x* fixed to the main bolster *b*. The pins *u* of the links *t* are each supported at one end by the corresponding cross member *v* and at its other end by a bracket *v*¹ which is secured to such cross member *v*.

z indicate rubbing blocks fixed to the bolsters *n* and working against the rubbing blocks *y*.

In the example illustrated, the lower ends of each pair of spring plank carrying links *f* and *t* are farther apart than their upper ends but in some cases the links can be vertical or inclined outwardly toward their upper ends instead of toward their lower ends, or the links supporting the main bolster may incline one way, while the links supporting the intermediate or double bolster are inclined the other way.

Stops or buffers, for example of rubber, may, if desired, be arranged between the ends of the bolster *b* and the connecting members *o* of the compound bolster, or between the bolster members *o* and the bogie frame members *a*, or such stops or buffers may be arranged in both these positions.

For the purpose of enabling the bogie to support with suitable resilience a vehicle when lightly loaded as well as when heavily loaded, the springs *d*, supporting the main bolster *b* may be comparatively light springs suitable for a light load, stops being provided to limit the downward movement of such main bolster and thereby prevent these springs being unduly stressed, the arrangement being such that the springs *q* of the supplementary bolster come into more effective action when the vehicle is heavily loaded which time the springs *d* may be inoperative by reason of the stops.

The details of construction may be other than in the example shown, without departure from this invention.

What I claim is:—

1. In a bogie for railway and the like vehicles, a bogie frame, a bolster supported by said frame and capable of movement relatively thereto in a transverse direction, and another bolster suspended from said frame-supported bolster.

2. In a bogie for railway and the like vehicles, a bogie frame, a bolster supported by said frame, and capable of movement relatively thereto in a transverse direction, and
5 another bolster suspended from said frame-supported bolster and adapted to directly support the vehicle body.

3. In a bogie for railway and the like vehicles, a bogie frame, a spring plank suspended
10 from said frame, a supplementary bolster supported on said plank, a second spring plank suspended from said supplementary bolster and a main bolster supported on said second spring plank.

4. In a bogie for railway and the like vehicles, a bogie frame, a compound bolster supported by said frame and capable of movement relatively thereto in a transverse direction, and a main bolster suspended from said
20 compound bolster.

5. In a bogie for railway and the like vehicles, a bogie frame, two spring planks suspended from said frame, a supplementary bolster supported on each of said spring
25 planks, a main bolster arranged between the said supplementary bolsters and a spring plank for said main bolster suspended from said supplementary bolsters.

6. In a bogie for railway and the like vehicles, a bogie frame, two spring planks suspended from said frame, a supplementary bolster supported on each of said spring
30 planks, means rigidly connecting said supplementary bolsters, a main bolster arranged between the said supplementary bolsters and a spring plank for said main bolster suspended from said supplementary bolsters.

7. In a bogie for railway and the like vehicles, a bogie frame, downwardly extending
40 links pivoted at their upper ends to said frame, bars supported by said links, a supplementary bolster supported by said bars, and a main bolster suspended from said supplementary bolster.

8. In a bogie for railway and the like vehicles, a bogie frame, downwardly extending
45 links pivoted at their upper ends to said frame, bars supported by said links, a spring plank carried by said bars, a supplementary bolster supported by said spring plank, and a main bolster suspended from said supplementary bolster.

9. In a bogie for railway and the like vehicles, a bogie frame, downwardly extending
55 links pivoted at their upper ends to said frame, bars supported by said links, a spring plank carried by said bars, a supplementary bolster supported by said spring plank, a main bolster, and a spring plank for said
60 main bolster suspended from said supplementary bolsters.

10. In a bogie for railway and the like vehicles, a bogie frame, links suspended from
65 said frame, bars carried by said links, a pair of spring planks supported on said bars,

a pair of supplementary bolsters supported on said spring planks, a main bolster located between said supplementary bolsters, and a spring plank for said main bolster suspended
70 from said supplementary bolsters.

11. In a bogie for railway and the like vehicles, a bogie frame, links suspended from said frame, bars carried by said links, a pair of spring planks supported on said bars, a pair of supplementary bolsters supported on
75 said spring planks, means rigidly connecting said supplementary bolsters, a main bolster located between said supplementary bolsters, and a spring plank for said main bolster suspended from said supplementary bolsters. 80

12. In a bogie for railway and the like vehicles, a bogie frame, a main bolster, a spring plank supporting said main bolster, a pair of supplementary bolsters, links suspended
85 from said supplementary bolsters, bars carried by said links and supporting said spring plank, plates connecting the ends of said supplementary bolsters, a spring plank for each said supplementary bolster, bars supporting said supplementary bolster spring
90 planks, and links suspended from said bogie frame and carrying said bars.

13. In a bogie for railway and the like vehicles, a bogie frame, a main bolster, a spring plank supporting said main bolster, a pair of
95 supplementary bolsters, links suspended from said supplementary bolsters, bars carried by said links and supporting said spring plank, plates connecting the ends of said supplementary bolsters, a spring plank for
100 each said supplementary bolster, bars supporting said supplementary bolster spring planks, rubbing blocks fixed to said main and supplementary bolsters respectively, and links suspended from said bogie frame and
105 carrying said bars.

14. In a bogie for railway and the like vehicles, a bogie frame, a main bolster, a spring plank supporting said main bolster, a pair of supplementary bolsters, links suspended
110 from said supplementary bolsters, bars carried by said links and supporting said spring plank, plates connecting the ends of said supplementary bolsters, a spring plank for each said supplementary bolster, bars supporting said supplementary bolster spring
115 planks, rubbing blocks fixed to said main and supplementary bolsters respectively, rubbing blocks fixed to said supplementary bolsters and said bogie frame respectively, and links suspended from said bogie frame
120 and carrying said bars.

15. In a bogie for railway and the like vehicles, a bogie frame comprising longitudinal and transverse members, a pair of supplementary
125 bolsters located between transverse members of said frame, bars rigidly connecting the ends of said supplementary bolsters, coacting rubbing blocks on said supplementary bolsters and said transverse
130

members respectively, pins mounted in the transverse members of said frame and said rubbing blocks thereof, links pivoted at their upper ends to said pins, bars pivoted to the lower ends of said links, spring planks carried by said bars and supporting said supplementary bolsters, a main bolster located between said pair of bolsters, coacting rubbing blocks on said main and supplementary bolsters, pins mounted in said supplementary bolsters and said rubbing blocks thereof, links pivoted at their upper ends to said supplementary bolster pins, bars pivoted to the lower ends of said last mentioned links, and a spring plank carried by said last mentioned bars and supporting said main bolster.

16. In a bogie for railway and the like vehicles, a bogie frame, a bolster, means suspending said bolster from said frame, springs interposed between said means and said bolster, another bolster, means suspending said bolster from said firstly mentioned bolster, springs interposed between said means and said secondly mentioned bolster, the springs of the one bolster offering a greater yielding resistance than those of the other bolster.

17. In a bogie for railway and the like vehicles, a bogie frame, a bolster, means suspending said bolster from said frame, springs interposed between said means and said bolster, another bolster, means suspending said bolster from said firstly mentioned bolster, springs interposed between said means and said secondly mentioned bolster, the springs of said frame-supported bolster offering a

greater yielding resistance than those of the other bolster.

18. In a bogie for railway and the like vehicles, a bogie frame, a bolster, means suspending said bolster from said frame, springs interposed between said means and said bolster, another bolster, means suspending said bolster from said firstly mentioned bolster, springs interposed between said means and said secondly mentioned bolster, the springs of said frame-supported bolster offering a greater yielding resistance than those of the other bolster and means adapted to prevent the said springs of said bolster-supported bolster being unduly stressed.

19. In a bogie for railway and the like vehicles, a bogie frame, a bolster, means suspending said bolster from said frame, springs interposed between said means and said bolster, another bolster, means suspending said bolster from said firstly mentioned bolster, springs interposed between said means and said secondly mentioned bolster, the springs of said frame-supported bolster offering a greater yielding resistance than those of the other bolster and stops arranged to limit the downward movement of said bolster-supported bolster.

Signed at London England this 31st day of July 1908.

ALEXANDER SPENCER.

Witnesses:

RICHARD T. CLASCODINE,
H. D. JAMESON.