3 Sheets—Sheet 1.

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HANGING CARRIAGE BODIES.

No. 4,989. Patented Feb. 27, 1847.

Fig. 1.

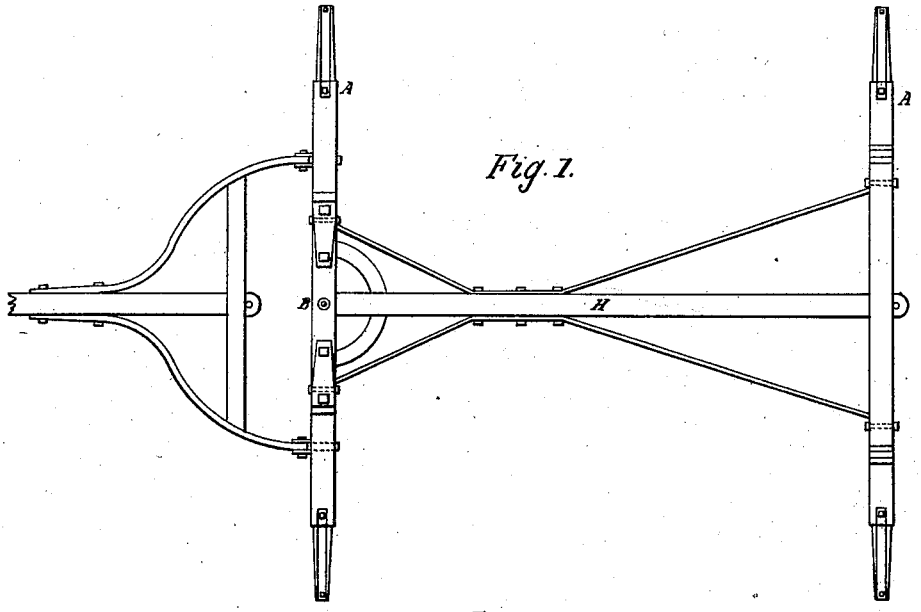

Fig. 2.

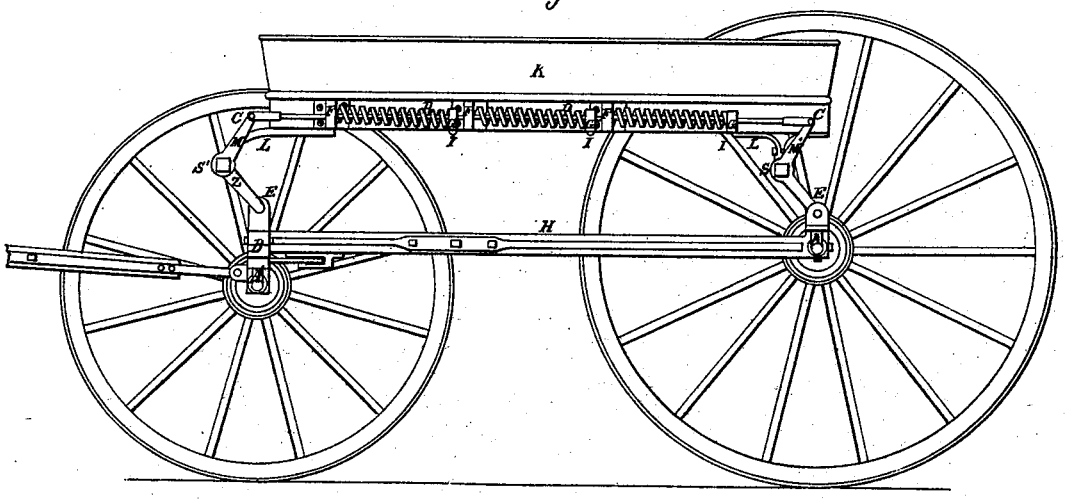

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Fig. 3.

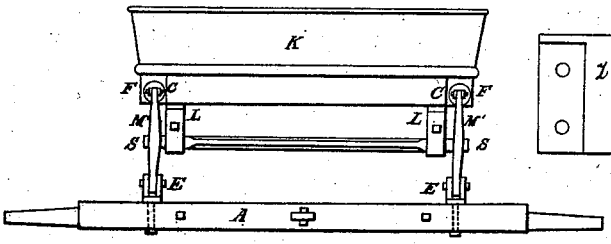

Fig. 5.

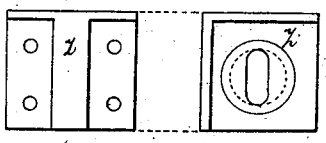

Fig. 8.

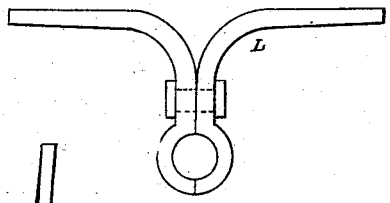

Fig. 4.

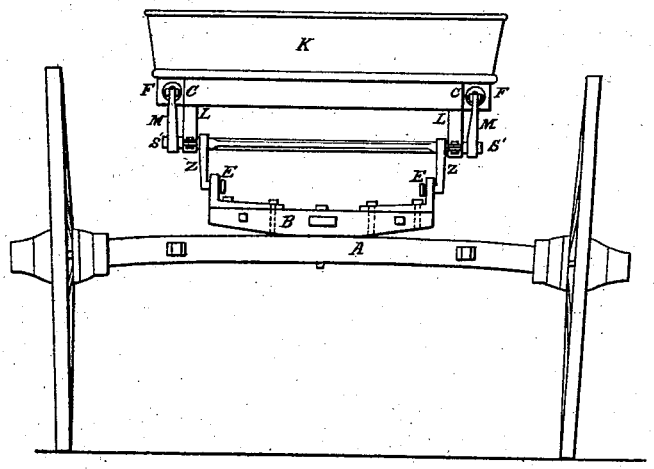

Fig. 6

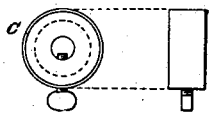

Fig. 7.

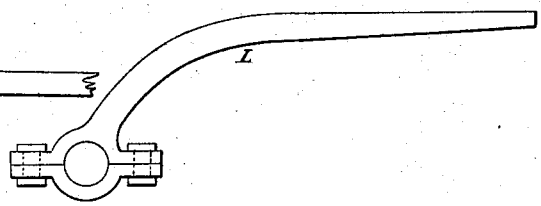

Fig. 9.

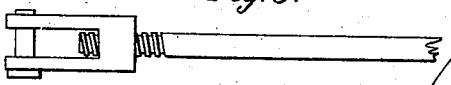

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Fig. 10.

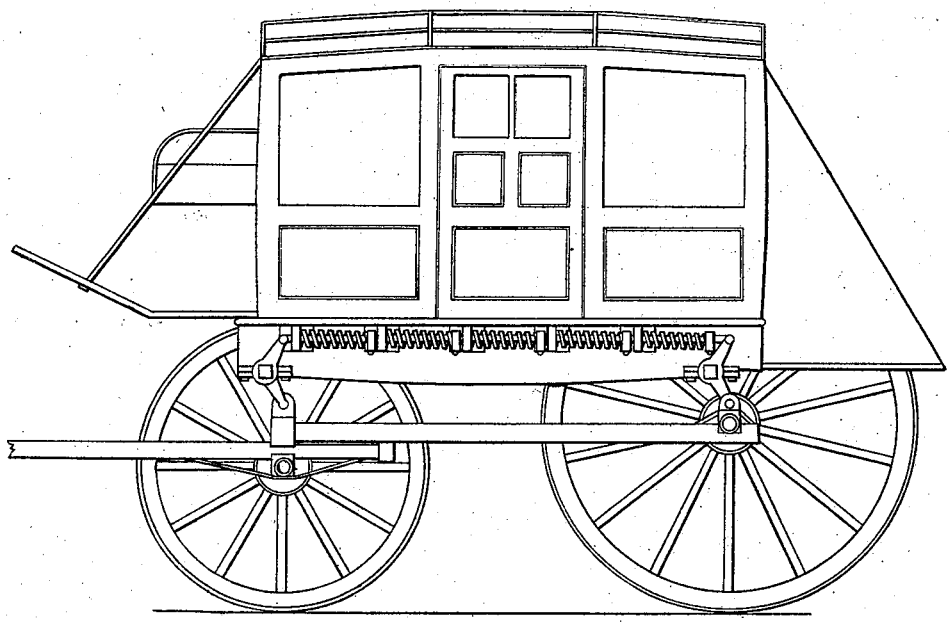
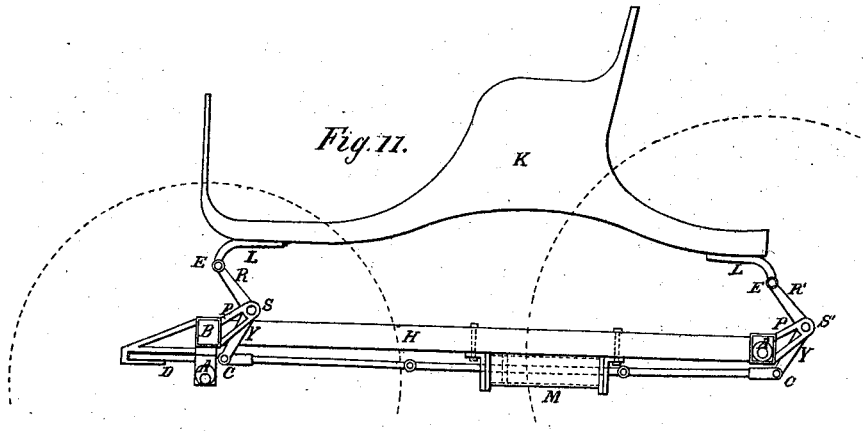


Fig. 11.



UNITED STATES PATENT OFFICE.

JOHN SPEED, OF CRAWFORDSVILLE, INDIANA.

HANGING CARRIAGE-BODIES.

Specification of Letters Patent No. 4,989, dated February 27, 1847.

To all whom it may concern:

Be it known that I, JOHN SPEED, of Crawfordsville, in the county of Montgomery and State of Indiana, have invented a new and Improved Mode of Hanging Bodies of Spring-Carriages, whereby the wheels or a wheel on coming in contact with obstructions on the road are allowed to move with relation to the carriage-body backward as well as upward, thereby surmounting obstructions without materially disturbing the *vis inertia* of the load.

To enable carriage makers to make and use my invention, I will proceed to describe its construction and operation; and I do hereby declare that the following is a full, clear, and exact description of the construction, and operation of the same, reference being had to the annexed drawings making a part of this specification, in which—

Figure 1 is a plan of the running gear. Fig. 2 is a longitudinal elevation, (the near wheels being left off). Fig. 3 is an elevation of the rear part of the carriage (the wheels being left off). Fig. 4 is an elevation of the front. Fig. 5 is elevations of the brackets, Fig. 6 elevations of the taps, Figs. 7 and 8 respectively elevations of the fore and hind body-loops, Fig. 9 is a plan of the extremity of the connecting rod.

I construct my running-gears as shown in the plan Fig. 1 in which—A A are the axletrees B the bolster H the perch &c.

I construct my carriage body as shown in Figs. 2, 3 and 4 in which K is the carriage body.

To the underside of the corners of my carriage body (by means of screws) I fasten four body-loops L L L L. Through the collars of these body-loops I place (transversely) two partially rotating shafts S S′. Near each end of the first shaft S′ I attach two cranks M and Z, one of which M is jointed to the connecting rod C C and the other Z is joined inside the loop L to the running gears by means of the collar-step E so as to give (by shortening the bolster) full play to the forewheels; one crank M as arranged in Fig. 3 will do for the rotating shaft S behind. Upon each side of my carriage-body I fasten three or more brackets F F F; upon each connecting rod C only one rod being used to connect the forward and hindward cranks on each side of the carriage body I place taps G G G equal in number to the brackets, said taps are fastened to the connecting rods by means of the thumb-screws I, between each bracket and its opposing tap I place a coil of helical steel-spring D. Each bracket and its opposing tap are countersunk and their opposing sides so as to receive and retain in their proper places the ends of the helical spring; each bracket is pierced by an oblong or elliptical hole through which the connecting rod plays; the transverse axis of such hole must be equal to the versed sign of the arc described by the crank M + the diameter of the connecting rod.

In the operation of this carriage any number of the springs may be rendered inoperative by unscrewing the thumb-screws I, and by this means adjusting the resistance of the springs to the weight of the load. It will be observed also that the cranks are reciprocally parallel synchronic and uniform in their action and point backward both toward the carriage-body and running-gears when the carriage is in a state of rest.

Fig. 10 is a longitudinal elevation (the near wheels being left off) of a stage coach wherein the above principles are applied.

When it is desirable that the carriage body should assume any curvilinear form, I construct my spindles, cranks, &c., as shown in elevation in Fig. 11 in which A A are the axletrees B the bolster and H the perch &c., upon each end of my bolster I place a stay as shown at Q; upon each end of my hind axletree I likewise place a stay as shown at P, through the collars of the stays above mentioned I place two partially rotating shafts the ends of which are shown at S and S′; toward each of the ends of these shafts I attach a crank R; upon these four cranks the carriage body is supported by the body loops L L these body-loops four in number are fastened to the carriage body by means of screws and to the cranks R by a movable joint at E. Near to the middle of each of the partially rotating shafts I attach a crank Y. These cranks are joined to the connecting rod C C, brackets may then be fastened to the underside of the perch, and helical or pneumatic springs and taps, used as above described; in the construction of the carriage, what is usually called the D iron, should be placed before the front axletree, instead of being placed (as is usually the practice) behind it; in the construction of this carriage nearly all the iron work

(springs excepted) may be done with maleable cast-iron, thus rendering it desirable in point of economy.

In the operation of the above described carriage springs the following desirable results are attained by suspending the body of the carriage on a series of horizontal helical springs connecting rods cranks and shafts &c. as represented in the drawings and described in the specification viz. 1. When an obstruction on the road impinges against a wheel, or wheels, the shock is almost entirely communicated backward and upward to the running-gears, being eased off against the springs so as not suddenly to arrest the progressive motion of the carriage body, this result being due also to the parallelism of the cranks and their synchronous and uniform action through the partially rotating shafts and connecting rods. 2. The carriage-body is not put out of level by the load being placed toward one side or toward one end of it. 3. The resistance of the springs may easily be adjusted to the weight of the load by which means an easy spring may always be obtained. 4. The carriage body has no lateral motion consequently the liability to be overturned is lessened.

What I claim as my invention is—

The combination of the shafts S S′ the cranks the connecting rods C C, brackets F F and taps G G substantially as above described with their application to railway and all other carriages.

JOHN SPEED.

Witnesses:
THOMAS JOHN,
E. M. DONNELL.