

(No Model.)

R. H. ILLINGWORTH & DE WITT C. SMILEY, Jr.

LOCOMOTIVE SPRING.

No. 350,630.

Patented Oct. 12, 1886.

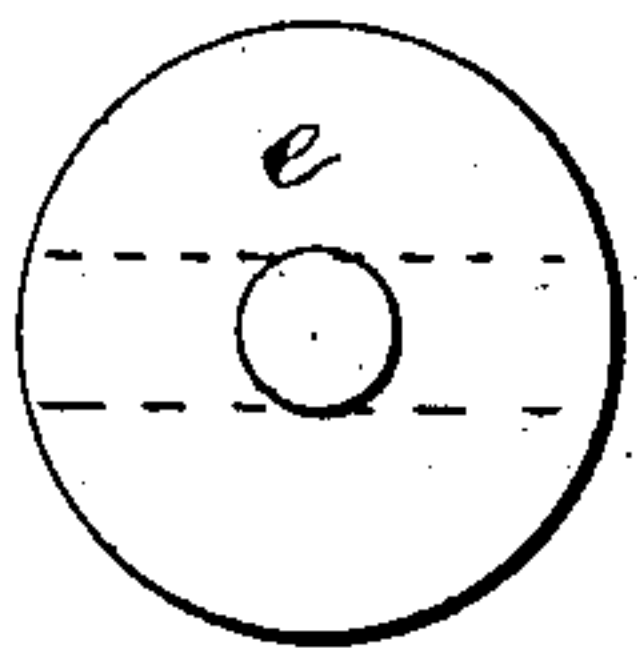
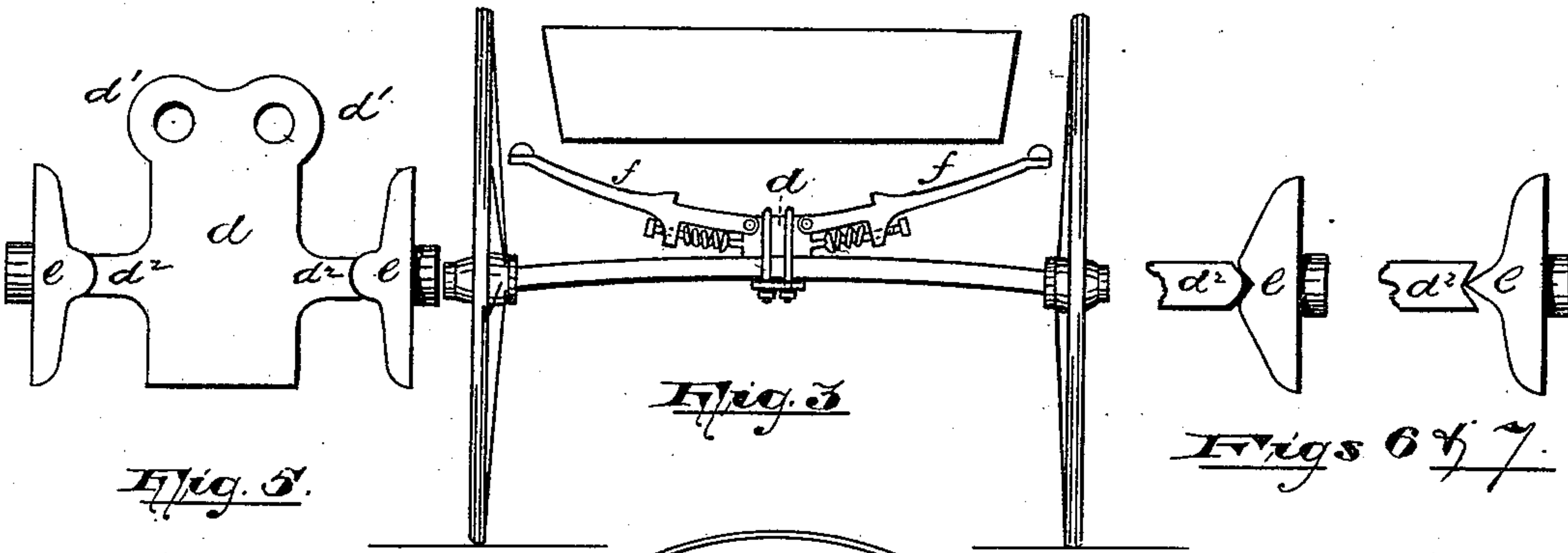
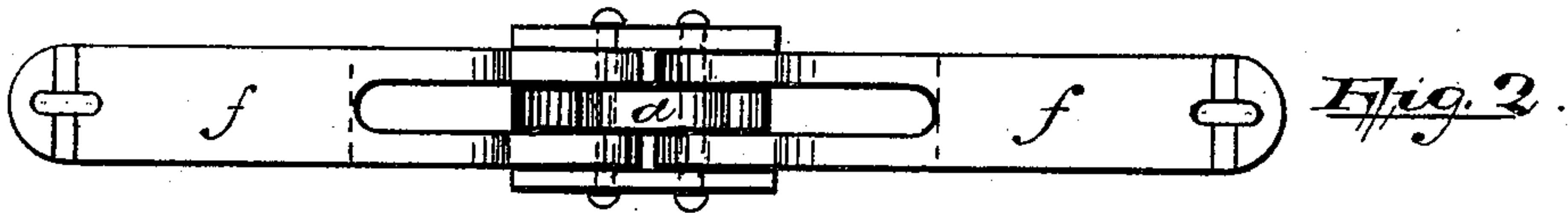
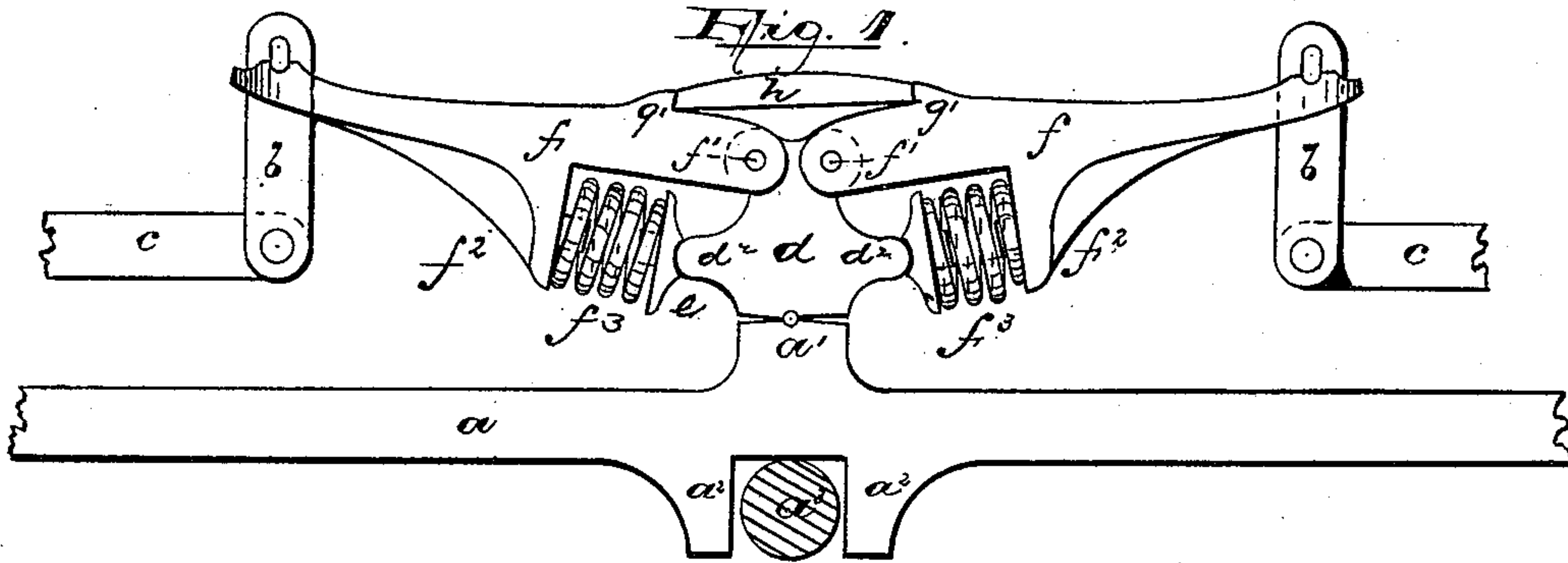


Fig. 8.

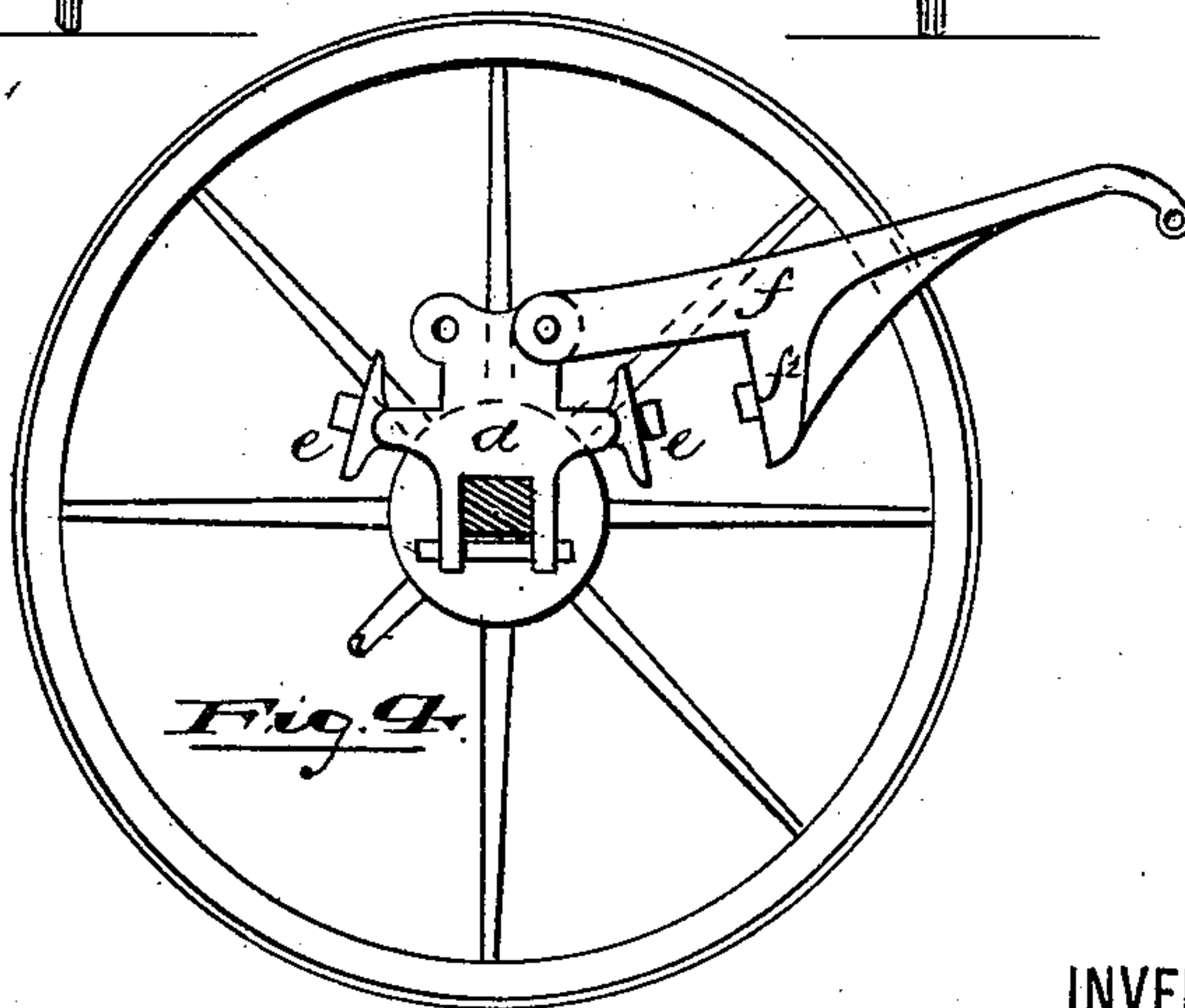


Fig. 9.



Fig. 9.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ROBERT H. ILLINGWORTH AND DE WITT C. SMILEY, JR., OF JERSEY CITY,
NEW JERSEY.

LOCOMOTIVE-SPRING.

SPECIFICATION forming part of Letters Patent No. 350,630, dated October 12, 1886.

Application filed February 23, 1886. Serial No. 192,749. (No model.)

To all whom it may concern:

Be it known that we, ROBERT H. ILLINGWORTH and DE WITT C. SMILEY, Jr., citizens of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Springs for Locomotives and other Vehicles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of spring-bearings for locomotives and other heavy vehicles in which independent bearing-arms are pivoted upon a central bearing-block, beneath which arm spiral springs are arranged to take the weight of the load.

The object of the invention is to more perfectly adapt the device to the uses for which it is intended, and to enable the device to be transported from place to place and the parts thereof remain in their relative positions.

The invention consists in the arrangements and combinations of parts, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters indicate corresponding parts in each of the several figures, Figure 1 is a side elevation showing the spring arranged in connection with the frame of a locomotive. Fig. 2 is a plan of the spring detached from said frame. Figs. 3 and 4 are elevations of the spring as applied to a wagon or similar vehicle. Fig. 5 is a detail elevation of a center block of the spring, showing certain adjustable or movable bearing-plates for the coil-springs thereof. Figs. 6 and 7 are side elevations of said bearing-plates, showing modifications in the construction of the same, and Figs. 8 and 9 are respectively front and back face views of the said bearings.

In said drawings, *a* indicates the ordinary locomotive-frame upon which the boiler rests, *a'* being an upward projection or saddle formed

thereon; and *a²*, a box formed beneath said saddle, in which the journal *a³* of the locomotive driving-wheels work.

b b are hangers which connect the arms of the spring with equalizing-bars *c c*, used for connecting and equalizing the pressure upon two or more springs. In connection with said parts of the locomotive we employ the improved spring of which *d* is a center block, preferably of cast-steel, provided at its opposite sides with pivotal bearings *d' d'*, which are independent or separate from one another. At the said opposite sides of said block, below the said pivotal bearings, are formed bearings *d² d²*, to receive the movable bearing-plates *e e*. The arms *f f* of the spring are secured on said block by pivotal bolts or pins *f' f'*, and have movements entirely independent of one another, as will be evident. Said arms have depending bearings *f²*, against which horizontally-extending springs *f³* bear, the said depending bearings co operating with the plates *e* to hold the springs in the horizontal or approximately horizontal positions shown. The said plates *e e* are either transversely grooved, as in Figs. 1 and 9, to receive the rounded edges *d²* of the central block, or are provided with ridges, as in Figs. 5 and 7, to engage grooves in said edges or bearings *d²*. The said plates have a limited pivotal movement on the bearings *d²* to keep the end coils of the spirals *f³ f³* parallel, and so gain strength of spring in all positions of the arms.

Upon the upper faces or edges of the arms *f* are formed lugs or bearings *g' g'*, to receive a block or piece, *h*, Fig. 1, to keep the arms down, so that there will be a tension on the spiral springs when the spring as a whole is detached from the vehicle and the several parts *d e f f³* be held in their several positions during transportation, and also to save labor in changing springs, the block being placed in position while the weight of the vehicle is still on the springs.

The arms *f f*, the center block, and the springs *f³ f³* are similar in construction and arrangement to those shown in a prior application, Serial No. 182,212, and are effective in producing like results.

It is evident that the spring can be applied

effectively to other vehicles than locomotives, and consequently we have shown the several parts in combination with the body and axle of a wagon; but we wish, because of the peculiar adaptability of the improved spring to a locomotive, to lay especial claim to its use with the parts thereof.

The general construction and arrangement of the oppositely-extending arms, the springs, and the center block are not claimed herein, as these features form the subject-matter of a prior application, Serial No. 182,212, filed November 9, 1885.

Having thus described the invention, what we claim as new is—

1. The improved spring for vehicles, consisting, essentially, of a center block having pivotal bearings, spring-arms *f f*, having projections *g' g'*, springs *f³ f³*, and a block or piece, *h*, all said parts being arranged and combined substantially as and for the purposes set forth.

2. In a spring, a center block, independent bearing-arms *f f*, which take the weight of the

locomotive-boiler, &c., spiral springs, and pivoted plates *e e*, all arranged and adapted to operate substantially as set forth.

3. In combination with the locomotive-frame *a*, having the saddle *a'*, equalizing-bars *c*, and hangers *b*, the center block, *d*, resting on said saddle and having independent bearings *d'* and side bearings, *d²*, the arms *f f*, pivoted on said block and taking the weight at their outer extremities from the said hangers *b*, and having depending bearings *f²*, plates *e e*, pivoted on said bearings *d²*, and spiral springs arranged between said plates and the depending bearings, all said parts being arranged and combined substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 18th day of February, 1886.

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Witnesses:

CHARLES H. PELL,
OSCAR A. MICHEL.