

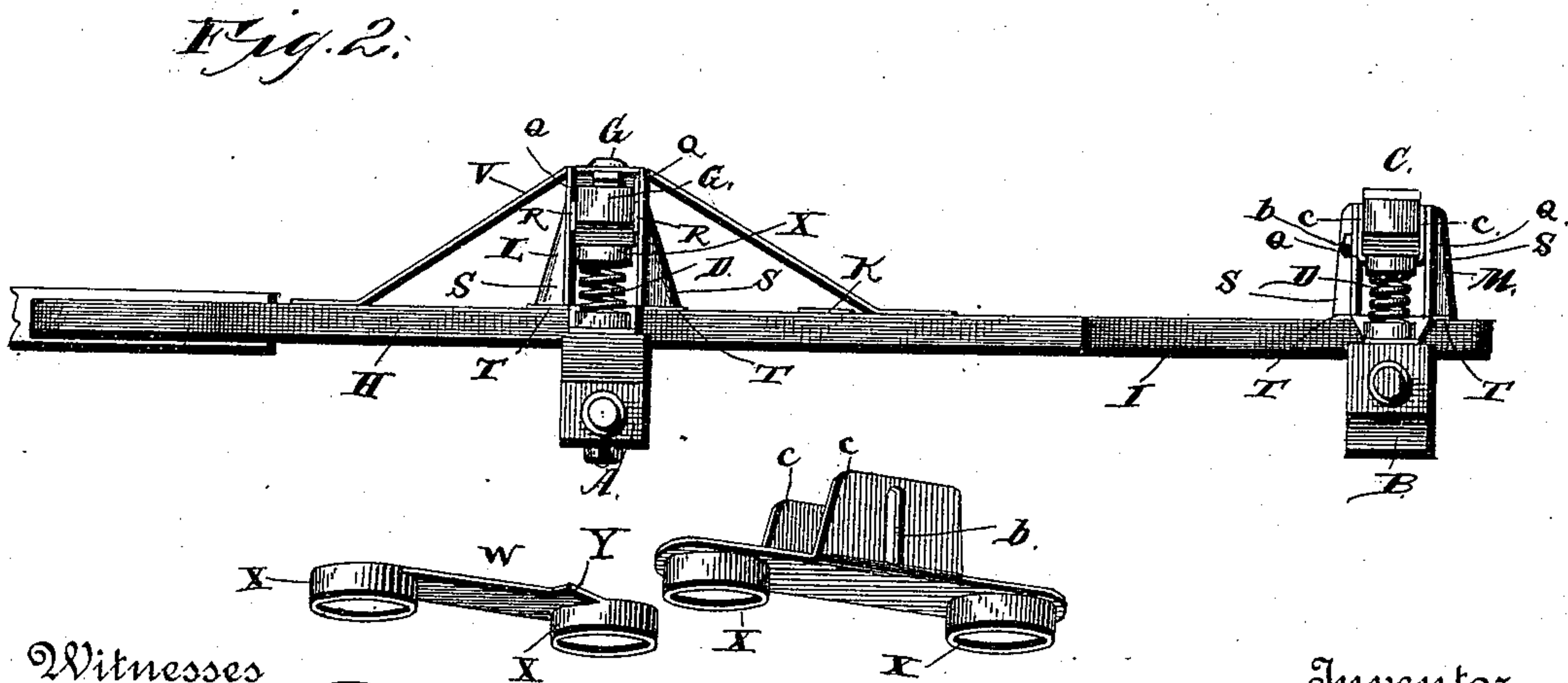
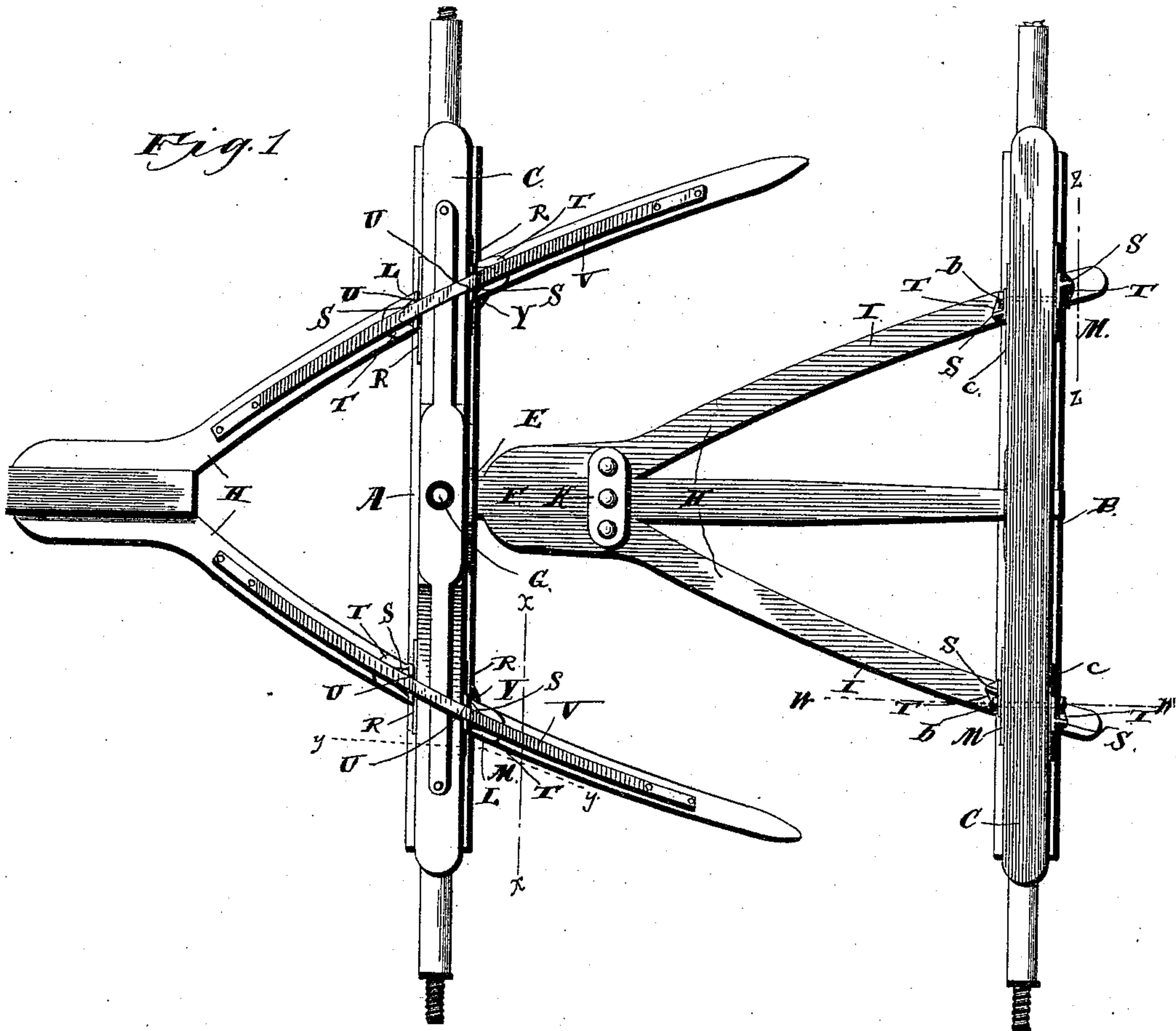
(No Model.)

2 Sheets—Sheet 1.

B. C. SEATON.
BOLSTER SPRING.

No. 429,651.

Patented June 10, 1890.



Witnesses

Geo. J. Thayer
R. W. Bishop

Fig. 8.

Inventor,
Benjamin C. Seaton

By *his* Attorneys.

C. A. Howard

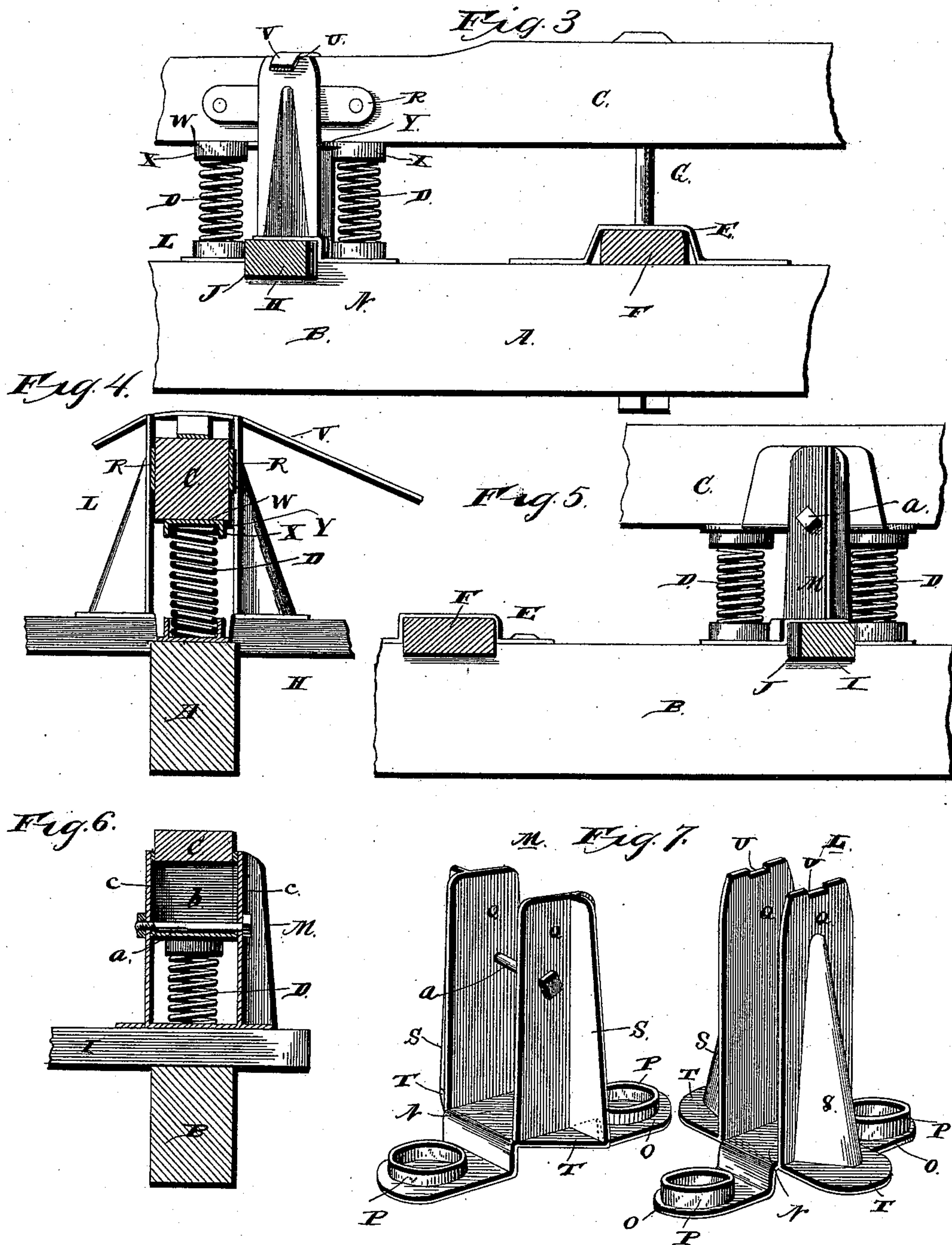
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UNITED STATES PATENT OFFICE.

BENJAMIN CAPLIN SEATON, OF NASHVILLE, TENNESSEE, ASSIGNOR OF TWO-THIRDS TO JESSE M. OVERTON, OF SAME PLACE.

BOLSTER-SPRING.

SPECIFICATION forming part of Letters Patent No. 429,651, dated June 10, 1890.

Application filed October 5, 1888. Serial No. 287,291. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN CAPLIN SEATON, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented new and useful Improvements in Running-Gear, of which the following is a specification.

My invention relates to improvements in running-gear for farm-wagons and other like vehicles; and it consists in the peculiar combination and novel construction and arrangement of devices, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In a prior patent issued to me on the 8th day of January, 1884, and numbered 291,542, I have shown and described coiled springs arranged between bolsters and axles of a vehicle running-gear and guide-bolts carried by the axles and bolsters and passing through the coiled springs and the bolsters and axles; but during a series of tests I have found that the guide-bolts are liable to enlarge the openings provided therefor in the axle and bolster and soon become loose and rattle, and they are also expensive. When one of the wheels of the vehicle sinks into or enters a rut in the road, the guide-rods do not allow one end of the bolster to be depressed and the other end thereof to remain in an elevated position or substantially so; but they force the bolster to move or become depressed at both ends, which is liable to break the axle or undish the wheel.

The object of my present invention is to provide means whereby either end of the bolster can be depressed without affecting the other end thereof, and to provide means whereby the bolster will be guided in its vertical movements.

My invention further aims to provide means for limiting the upward movement or play of the bolster, and to provide means for reducing the wear or friction on the bolster and preventing any lateral or sidewise play thereof.

In the accompanying drawings, Figure 1 is a top plan view of my improved running-gear for vehicles. Fig. 2 is a side elevation. Fig. 3 is a sectional view on the line $x x$ of Fig. 1, looking in the direction indicated by the ar-

row. Fig. 4 is a vertical sectional view through the spring on the line $y y$ of Fig. 1. Fig. 5 is a vertical section on the line $z z$ of Fig. 1. Fig. 6 is a sectional view on the line $w w$ of Fig. 1. Figs. 7 are detached perspective views of the castings. Figs. 8 are detail views of the socket-plates.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A and B designate the front and rear axles of the running-gear, and C C the bolsters, which are supported thereon and elevated above the same by means of the coiled springs D D. The axles are provided at their middles with staple-like keepers E, in which are fitted and secured the ends of a reach or coupling-pole F, the rear end of the reach being rigidly secured to its keeper by through-bolts, and the front end of the same being securely pivoted to the front axle by a king-bolt G, which passes through the front bolster C, the keeper on the front axle, the front end of the reach, and the axle A, a limited amount of play or movement being permitted between the keeper and the front end of the reach to allow the front axle to be turned out of line with the rear axle in turning curves or angles, as will be readily understood.

H I represent the front and rear hounds, which are of the ordinary or any preferred construction, the hounds being fitted and bolted in recesses J, that are formed in the upper edges of the axles. The front ends of the rear hounds I are connected to the reach by a strap K and suitable bolts, and the front ends of the hounds H are bolted or have connected thereto the rear end of the draft pole or tongue of the vehicle.

L M designate the castings for the springs of the front and rear bolsters and axles, the peculiar constructions of which I will now proceed to describe.

The casting L comprises the central or middle socket-piece N and the lateral arms or flanges O, which are formed in one piece, and the arms O lie flush with and project outwardly from the lower edges of the socket-piece. The socket-piece N corresponds very closely to the shape of the hounds and are flanged to fit snugly over the same to strengthen and

brace them. The arms O bear on and are bolted to the axle to firmly and rigidly secure the casting in place, and the upper faces of the arms are provided with recesses or cups P, which conform to the shape of the spring, the end of which fits therein and is prevented from lateral movement or displacement thereby. The casting is further provided with integral vertical guides or standards Q, which are arranged a short distance apart and parallel with each other. The guides are arranged on opposite sides of the bolster and bear against the latter to prevent lateral play thereof and to guide the same, and the bolster is provided with metallic wear-plates R, which are secured thereto by screws and serve to decrease the wear and friction between the standards and the bolster. The lower ends of the standards bear or rest on the hounds, and they are provided with integral longitudinal strengthening-ribs S and lateral feet T, which are bolted to the hounds to strengthen and brace the guide or standard. The upper free ends of the standards are notched, as at U, and through the notches is passed a brace rod or bar V, which has its ends bent horizontally and bolted to the hounds, as shown. The braces serve to limit the upward movement or play of the front bolster and prevent the latter from displacement, and by fitting in the notches of the standards the latter are braced and strengthened and the braces prevented from movement. One of the castings and the braces are provided for each of the opposite ends of the front bolster, and the bolster is free to move vertically at both ends or at either end without affecting the other end, and thereby transfer the weight from the wheel that sinks in a rut or hole onto the wheel that rests on solid ground.

W designates a socket-plate, which is bolted to the under side of the bolster and provided with depending flanges X, that are circular in contour and receive and retain the upper ends of the pair of springs that are arranged at each end of each of the bolsters. Near one end the socket-plates are provided with projecting ribs or nibs Y, which bear or impinge against the side edges of the vertical guides or standards Q and prevent the bolster from having any longitudinal movement.

The castings M for the rear axle and bolster are of the same construction as the castings L—that is to say, they have the central socket for the hounds, the lateral arms that bear on the axle, and the vertical guides which have the integral strengthening-rib and the angular foot. The guides, however, in this latter case have the ribs arranged nearer one edge, and a transverse bolt *a* has its ends secured in the guides. This bolt passes through a transverse vertical slot *b* in the bolster, and thereby serves to prevent the bolster moving laterally with respect to the running-gear, and also serves to limit the vertical movement of the bolster. The socket-plate is secured to the under side of the bolster, and has its side

edges provided with the flanges *c*, which are secured to the sides of the bolster and form wear-plates, vertical slots being formed therein for the passage of the bolt *a*, as will be readily understood.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings.

It will be observed that the castings and socket-plates can be quickly and readily secured in place on the bolsters and axles, and that they very effectively retain the springs in their proper places and prevent them from becoming displaced, which is very important. The guides prevent any lateral movement or play of the bolster, and the nibs bearing against the edges of the guides prevent the same from longitudinal movement, while the upward movement of the front bolster is limited by the brace or strap and that of the rear bolster by the bolt *a* coming in contact with the ends of the slot through which it passes.

My improved running-gear is especially designed to be used in farm or heavy-draft vehicles, and by the peculiar arrangement of the springs and bolsters all “dead” weights or contents of the vehicle are converted into “live” weights, thereby protecting the wheels and axles from heavy or great jolts and jars that would otherwise take place and break them. When it is used as a farm-vehicle, it will haul vegetables and fruits without injury to them, and the springs are so arranged that an unevenness or rut in the road does not throw the contents of the vehicle in a “twist;” but the load seeks its level on all roads. If one wheel drops into a hole, the weight of the load is thrown off the wheel that enters the rut and onto the wheel that rests on the solid ground, thereby obviating the danger of breaking the axles and undishing wheels.

It will be understood, of course, that the downward movement of the bolsters is limited by the springs being compressed to their full extent, and that the bolsters are so proportioned that the wagon-box will not at any time come into contact with the guides.

The castings are simple and strong in construction and serve efficiently for the purpose designed.

The rear bolster can be quickly adjusted to any reduction in height of the spring, owing to the loss of temper or wear of the parts, by inserting a small piece of leather in the lower end of the vertical slot, as will be readily understood.

I would have it understood that I do not confine myself to the exact details of construction and form and proportion of parts, as I am aware that changes therein can be made without departing from the principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of an axle, a bolster, the springs interposed between the axle and

bolster, and the stationary guides projecting vertically upward from the axle and bearing against the opposite sides of the bolster, substantially as described.

2. The combination, with the axle and bolster, of the coiled springs interposed between the same, the stationary guides projecting upward from the axle and bearing against opposite sides of the bolster, and the braces connected to the guides and adapted to contact with the top of the bolster to limit the upward play of the springs and bolster, substantially as described.

3. The combination, with an axle and a bolster, of a casting carried by the axle and having the integral vertical guides bearing against the opposite sides of the bolster and a spring or springs intermediate of the axle and bolster and bearing on and retained in place by the casting, substantially as described.

4. The combination, with the axle and bolster, of the casting provided with the vertical guides bearing against the opposite sides of the bolster, the springs bearing on the casting and bolster, and the socket-plates carried by the bolster and retaining the upper ends of the springs in place, substantially as described.

5. The combination, with an axle, a bolster, and the hound, of a casting having a central socket bearing on and receiving the hound and having the lateral flanges bolted to the axle, the springs bearing on the lateral flanges of the casting and the bolster, and the vertical guides formed integral with the casting and bearing against the opposite sides of the bolster, substantially as described.

6. The combination, with the axle and bolster, of the springs interposed between the same, the stationary guides projecting upward from the axle and bearing against the opposite sides of the bolster, and the socket-plates secured to the bolster and provided with nibs Y, bearing against the sides of the guides, as set forth.

7. The combination of the axle, the bolster, a casting having a socket and the lateral arms bolted to the axle, the guides formed integral with the casting and having the lateral feet and longitudinal rib, the socket-plate having the flanges and bolted to the bolster, the said plate having projecting nibs bearing against the guides, the springs bearing on the lateral arms of the casting and within the

flanges of the socket-plate, the wear-plates carried by the bolster and bearing against the guides, and the brace secured to the hound and straddling the bolster, said brace being fitted and retained in notches in the ends of the guides, all arranged and combined substantially as described.

8. The combination of the axle, the bolster having a transverse vertical slot, the springs interposed between the axle and the bolster, the guides bearing against the opposite sides of the bolster, and the bolt secured in said guides and passing through the transverse slot in the bolster, as set forth.

9. The combination of the axle, the bolster having a transverse vertical slot, the springs interposed between the same, the socket-plates secured to the bolster, receiving the upper ends of the springs and having their side edges turned up and secured to the sides of the bolster and forming wearing-plates, the said plates being provided with vertical slots aligning with the slot in the bolster, the guides bearing against the sides of the bolster, and the bolt secured in said guides and passing through the slots in the wear-plates and the bolster, as set forth.

10. The combination, with the bolster and the plate secured thereto, of the bracket secured to the axle and formed with vertical jaws to embrace and guide said bolster, and said bolster-plate being formed to serve with said bracket either with or without the springs D, substantially as specified.

11. As an improved article of manufacture, the bracket comprising in a single element a base-plate to rest upon the hound, downwardly-projecting flanges to embrace the sides of the same and provided with cups, and upwardly-extending jaws to receive and guide the bolster, substantially as described.

12. The bracket comprising a base-plate to rest upon the hound and downwardly-projecting flanges to embrace the sides thereof, and formed with cups and upwardly-extending jaws having strengthening-ribs, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

BENJAMIN CAPLIN SEATON.

Witnesses:

W. J. JOHNSTON,
B. H. DUNN, Jr.