

(No Model.)

H. VAN ARSDALE.
BOLSTER SPRING.

No. 405,192.

Patented June 11, 1889.

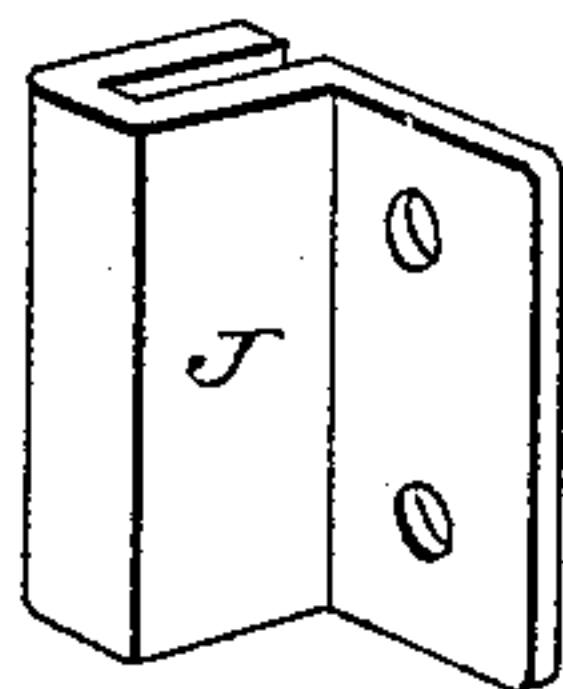
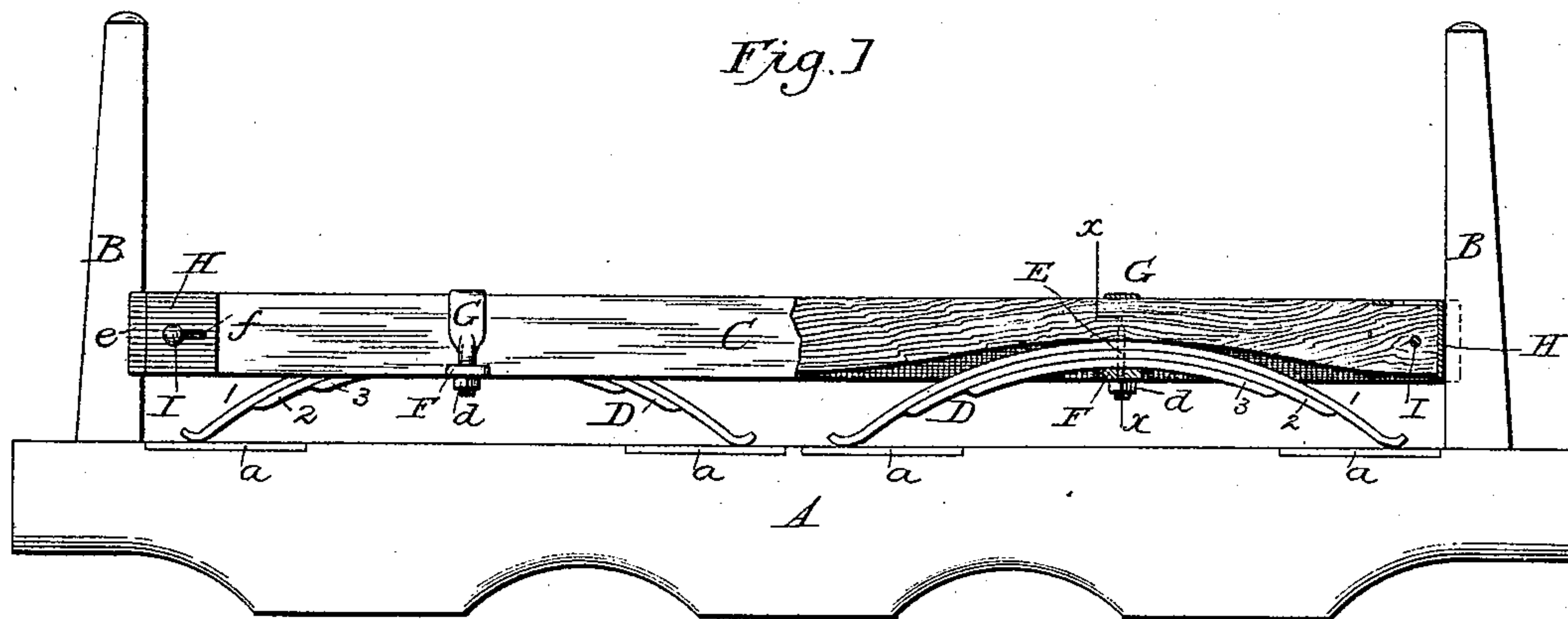


Fig. 7.

Fig. 3.

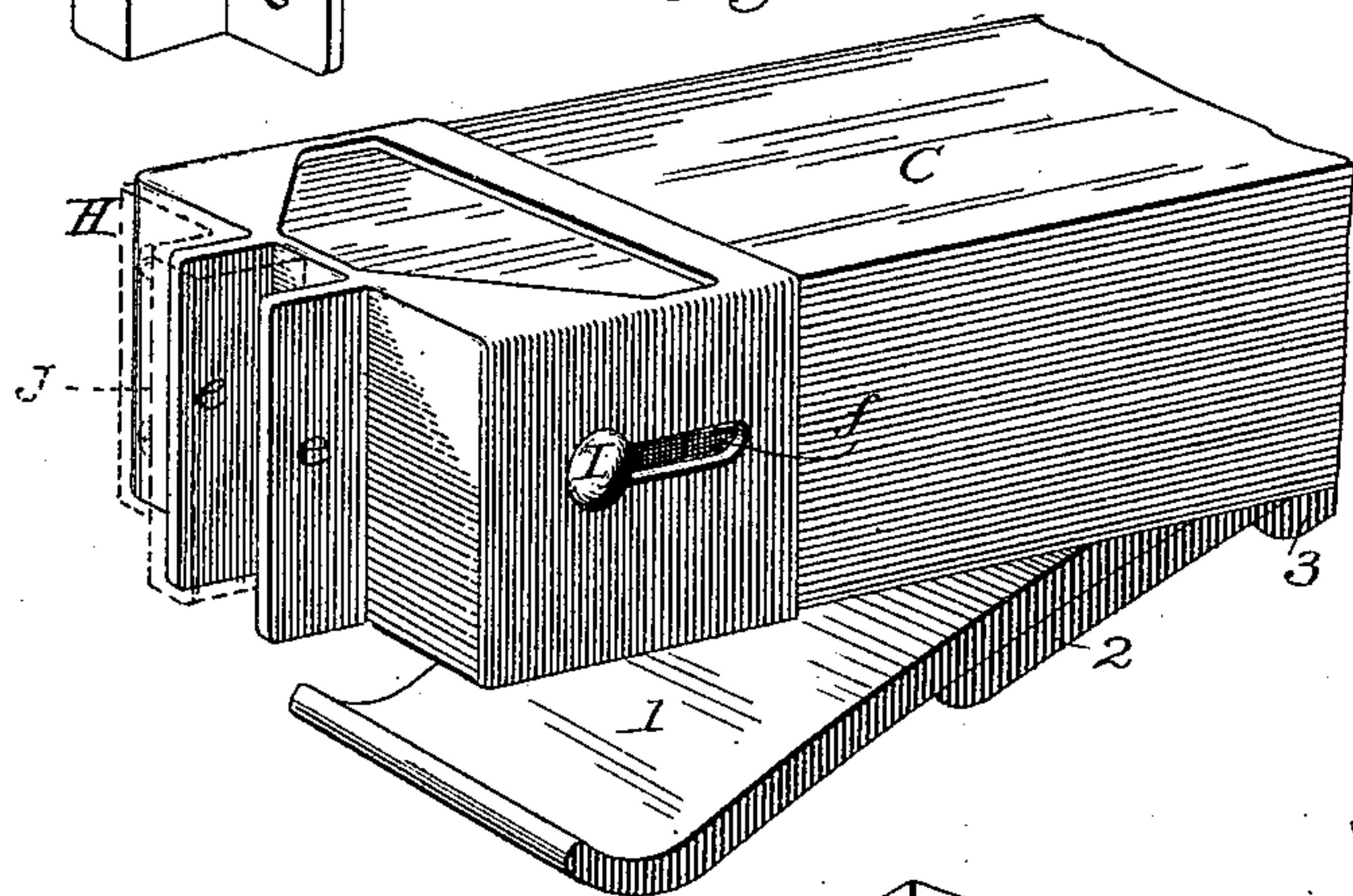


Fig. 2.

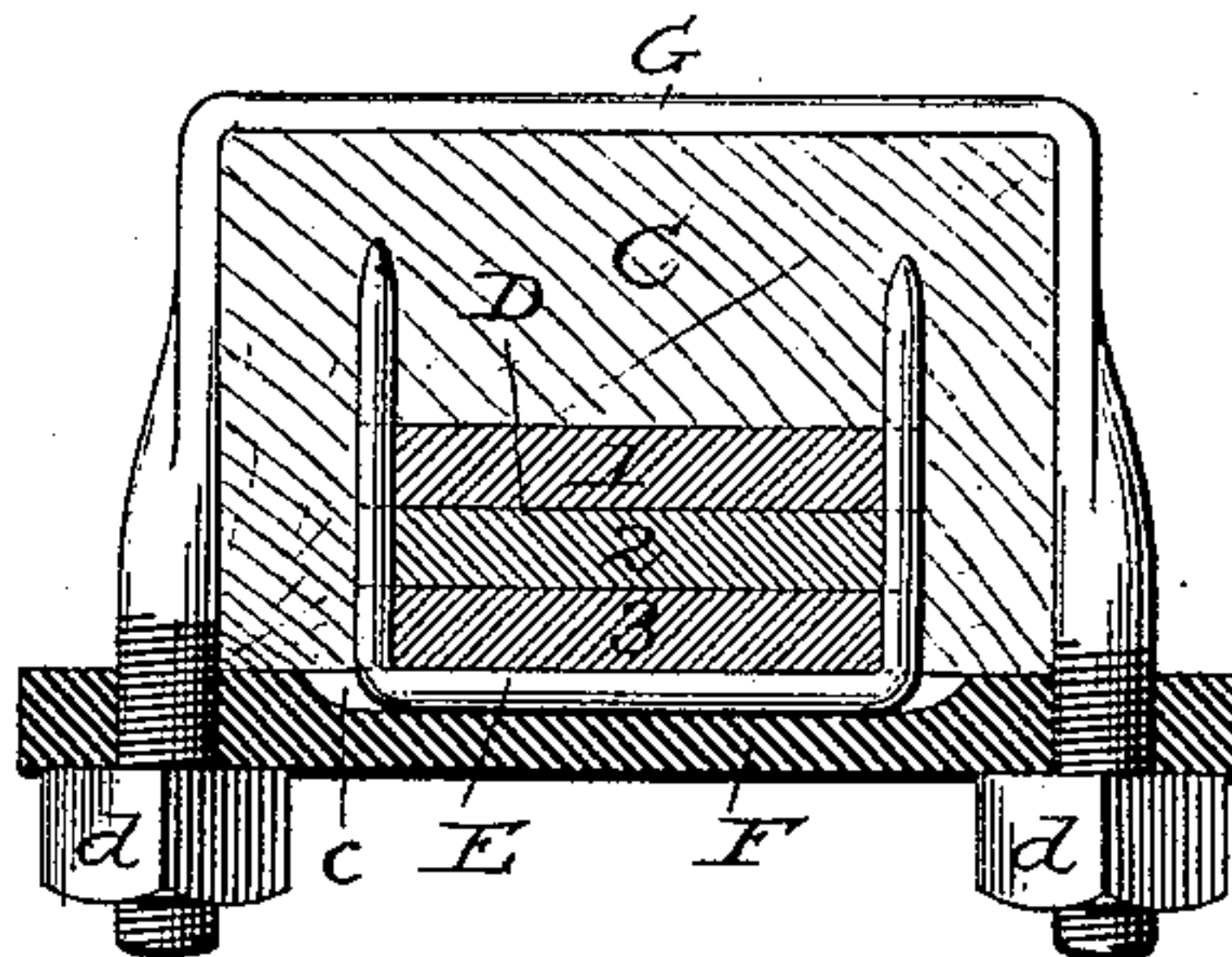


Fig. 6.

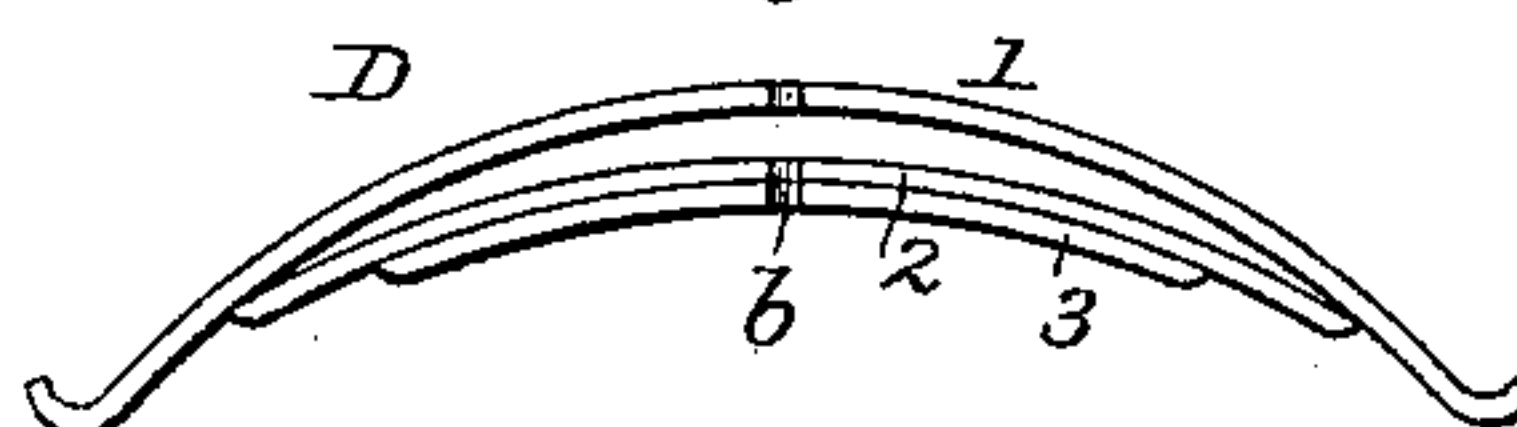


Fig. 4.

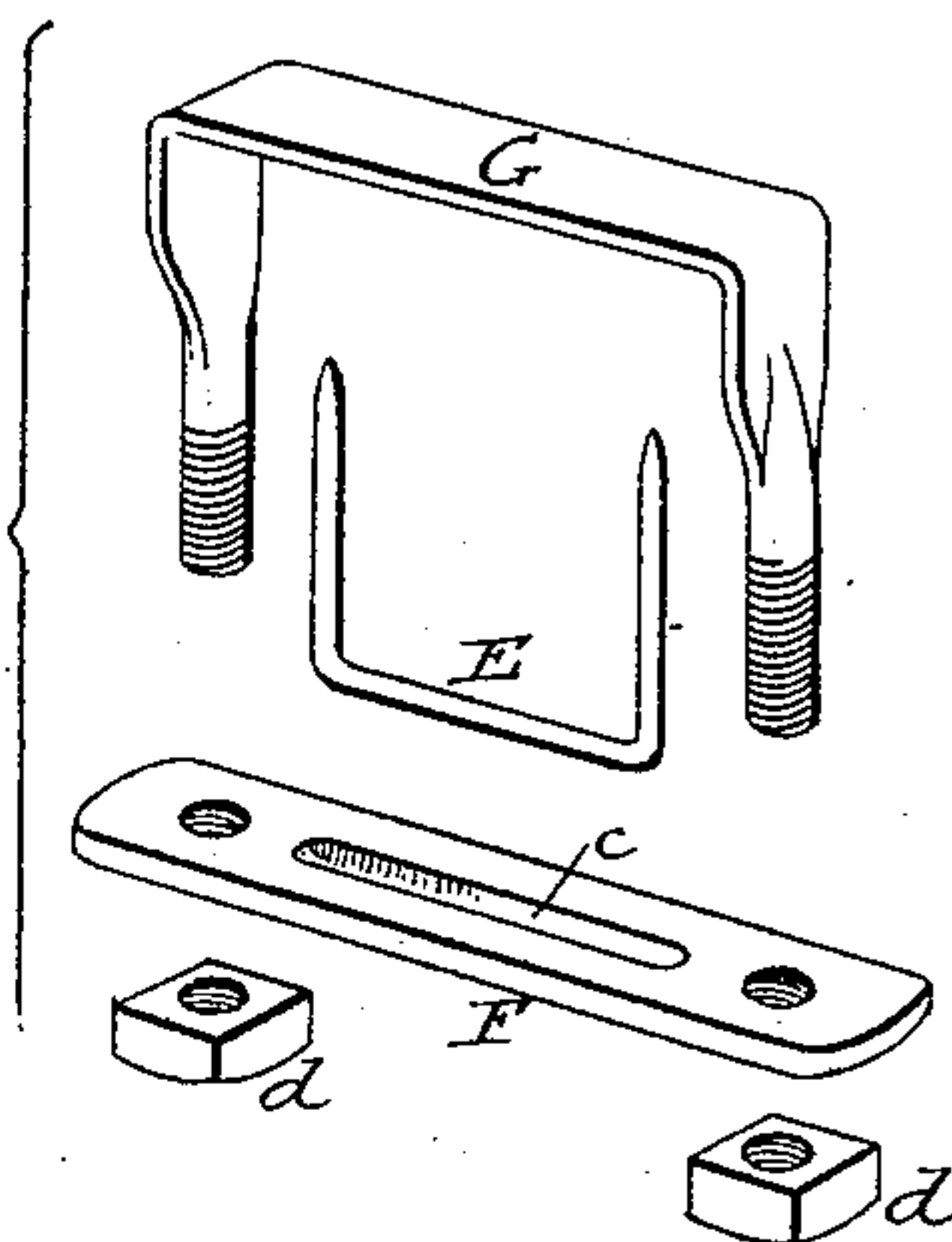
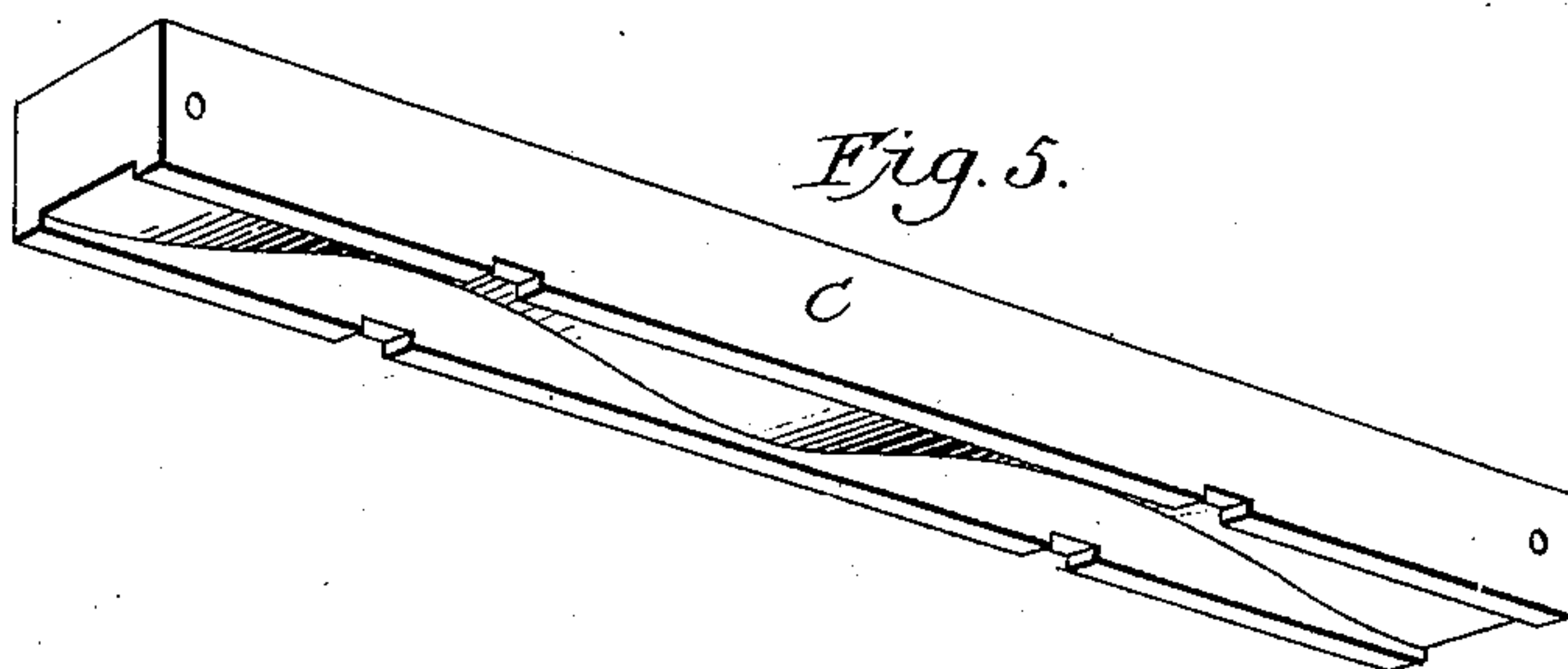


Fig. 5.



Attest:

Sidney P. Hollingsworth
James D. Duhamel

Inventor:

Henry Van Arsdale
by *Dodger Lane*
Atty.

UNITED STATES PATENT OFFICE.

HENRY VAN ARSDALE, OF RACINE, WISCONSIN.

BOLSTER-SPRING.

SPECIFICATION forming part of Letters Patent No. 405,192, dated June 11, 1889.

Application filed March 7, 1889. Serial No. 302,311. (No model.)

To all whom it may concern:

Be it known that I, HENRY VAN ARSDALE, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Bolster-Springs, of which the following is a specification.

My invention relates to bolster-springs; and it consists in various features and details hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a side view, partly in section, of my improved bolster-spring; Fig. 2, a vertical sectional view on the line *x x*; Fig. 3, a perspective view of one end of the spring-bar, showing the metallic cap applied thereto; Fig. 4, a perspective view of the parts employed for securing the springs to the bar; Fig. 5, a perspective view of the under side of the bar; Fig. 6, a view showing the form of the springs prior to their application to the bar, and Fig. 7 a view of an attachment designed to adapt the invention to different styles of wagons.

A indicates the bolster, B B the standards, and C the spring-bar, the bolster being advantageously provided with metallic bearing-plates *a* on its upper face, upon which the ends of the springs D bear.

In the drawings I have shown the bar C as provided with two sets of springs; but it is obvious that the number of sets may be varied as desired.

It will be noticed upon reference to Figs. 1, 2, and 6 that the springs are composed of a series of leaves 1, 2, and 3, which are of different lengths, the ends of the leaf 1 being bent or turned upward slightly, so as to more readily ride over the plates *a* on the bolster.

Upon reference to Fig. 6, it will be noticed that the curvature of the semi-elliptic leaf 1 is greater than the curvature of either of the leaves 2 and 3, so that when the leaves 1, 2, and 3 are fastened together into the recess on the under side of the bar C they will be pressed together so that their sides will be parallel.

It is obvious that in this compression, the inner leaves 2 and 3 being shorter and stiffer than the outer leaf 1, the latter will be forced out at its ends and its radius increased, so that it will be the same as the inner springs

2 and 3. This gives the outer leaf 1 an inward tension, so that its ends will pull in exactly opposite directions when a load is on the spring. This inward tension is sufficient to overcome the weight of the wagon box or rack, and consequently when the weight of the wagon box or rack is applied to the bar C the leaf 1 is not forced away from its fellow leaves 2 and 3, but remains exactly parallel with them, and is thus more efficient than would be the case if its curvature were the same as that of the inner leaves.

Formed in one or both edges of the leaves 1, 2, and 3 are notches or grooves *b*, adapted to receive the prongs of a staple E, which, as shown in Fig. 2, is driven into the bar C from the under side and prevents movement of the leaves relatively to each other.

F indicates a flat plate applied to the under side of the bar C directly beneath the staple E, the said bar being provided on its upper side with a socket or recess *c* to receive the main body of the staple, as shown in Figs. 2 and 4, and provided, also, with perforated ends to receive the ends of a clip G, passing upon the upper side of the bar C. The ends of the clip G are threaded, as shown in Figs. 3 and 4, to receive nuts *d*, by means of which the parts are held in position.

The under side of the bar C is recessed, as shown in Figs. 1, 2, and 5, to receive the springs D, the upper wall of the socket or recess being curved to conform to the curvature of the springs, so as to enable the latter to seat themselves within the bar when they are compressed by a heavy load.

Secured to the ends of the bar C is a cap-plate H, which is provided with wings or flanges *e*, which pass upon opposite sides of the standards B and prevent lateral displacement of the bar, but permitting the latter to rise and fall. This cap-plate H is secured to the end of the bar B by means of a bolt I, which passes through the bar and through an elongated slot *f* in the sides of the cap-plate, as shown in Figs. 1 and 2.

By loosening the nut (not shown) on the end of the bolt I, the cap may be slid lengthwise upon the end of the bar to accommodate the latter to different widths of wagons, and after the desired adjustment has been effected

the nut will be screwed up tightly, so as to prevent any movement of the cap-plate relatively to the bar.

Owing to the fact that different makes of wagons are provided with standards of varying widths, considerable lateral play would take place between the wings or flanges *e* and the standards, and to overcome this objection I provide a detachable and removable clip J, provided with a U-shaped body portion, which is adapted to be applied to one of the webs or flanges *e* of the cap-plate, as shown by dotted lines in Fig. 3, the said clip J being secured to the end of the cap-plates by screws or in any equivalent manner.

From this description it will be seen that I provide an improved bolster-spring that is adjustable to all makes of wagons and is easily applied to any wagon by simply slipping it over the standards; that requires no fastening to the wagon bolster or box; that raises the wagon box or body but slightly; that is thoroughly graduating and equally efficient in action whether the load be small or up to the full limit of its capacity; that in case of overloading it cannot be injured, and that is strong, more efficient, and durable by reason of its having no holes through the springs or the spring-bar.

Where the upper face of the bolster is faced with iron from end to end, of course the plates *a* will be omitted.

The staple E may be reversed in position—that is to say, it may be driven down through the bar C from the upper side of the latter—and its ends clinched on the under side of the leaf 3 of the spring. Such a plan I consider the inferior equivalent of that shown in the drawings.

Having thus described my invention, what I claim is—

1. In combination with bar C, a semi-elliptic spring D, a socket or recess formed in the under side of the bar and of a width to receive the spring, a U-shaped clip G, applied to the upper side of the bar, and a clip-plate F, extending transversely across the under side of the bar in contact with the spring and adapted to receive the ends of the clip, the socket or recess being provided with side walls to prevent lateral displacement of the spring, all substantially as shown, whereby perforation of the spring is obviated.

2. In combination with bar C, provided with a socket or recess in its under side, spring D, seated in said socket or recess, a staple E, a plate F, bearing upon the body of the staple, and a clip G, applied to the bar, all substantially as shown.

3. In combination with bar C, provided with a socket or recess, a spring D, seated in said socket or recess, a staple E, a plate F, provided with a socket *c* to receive the staple, a clip G, and nuts *d*, all substantially as shown.

4. In combination with bar C, provided with a socket or recess, spring D, mounted in said socket and notched on its edges, as shown, staple E, passing into the bar from its under side and engaging with said notches and a clip G, and a plate applied to the bar, substantially as shown, and for the purpose set forth.

5. In combination with bolster A, bar C, and a spring D, applied to said bar, and composed of two or more leaves 1 2 3, normally curved in the same general direction, but having different degrees of curvature, the said leaves being rigidly affixed to the bar in contact with each other.

6. In combination with bolster A, and bar C, spring D, composed of two or more leaves 1 2 3, of different lengths, normally curved in the same general direction, the longer leaf having a greater curvature than the shorter leaf, and the said leaves being clamped together so as to be in contact throughout the greater part of their length.

7. In combination with the bolster A, standards B, and spring-bars C, cap H, provided with guiding webs or flanges *e e*, and clips J, adapted to be applied to one of the webs or flanges *e*, as and for the purpose set forth.

8. In combination with bolster A and standards B, the spring-bar C, cap H, provided with guiding webs or flanges *e e*, and clip J, provided with a U-shaped body and with a lug or ear, by which it is attached to the cap of the spring-bar.

In witness whereof I hereunto set my hand in the presence of two witnesses.

HENRY VAN ARSDALE.

Witnesses:

WINIFRED VAN ARSDALE,
ISAAC C. ADRIANCE.