

(No Model.)

E. CLIFF.

CAR SPRING.

No. 283,078.

Patented Aug. 14, 1883.

Fig. 1

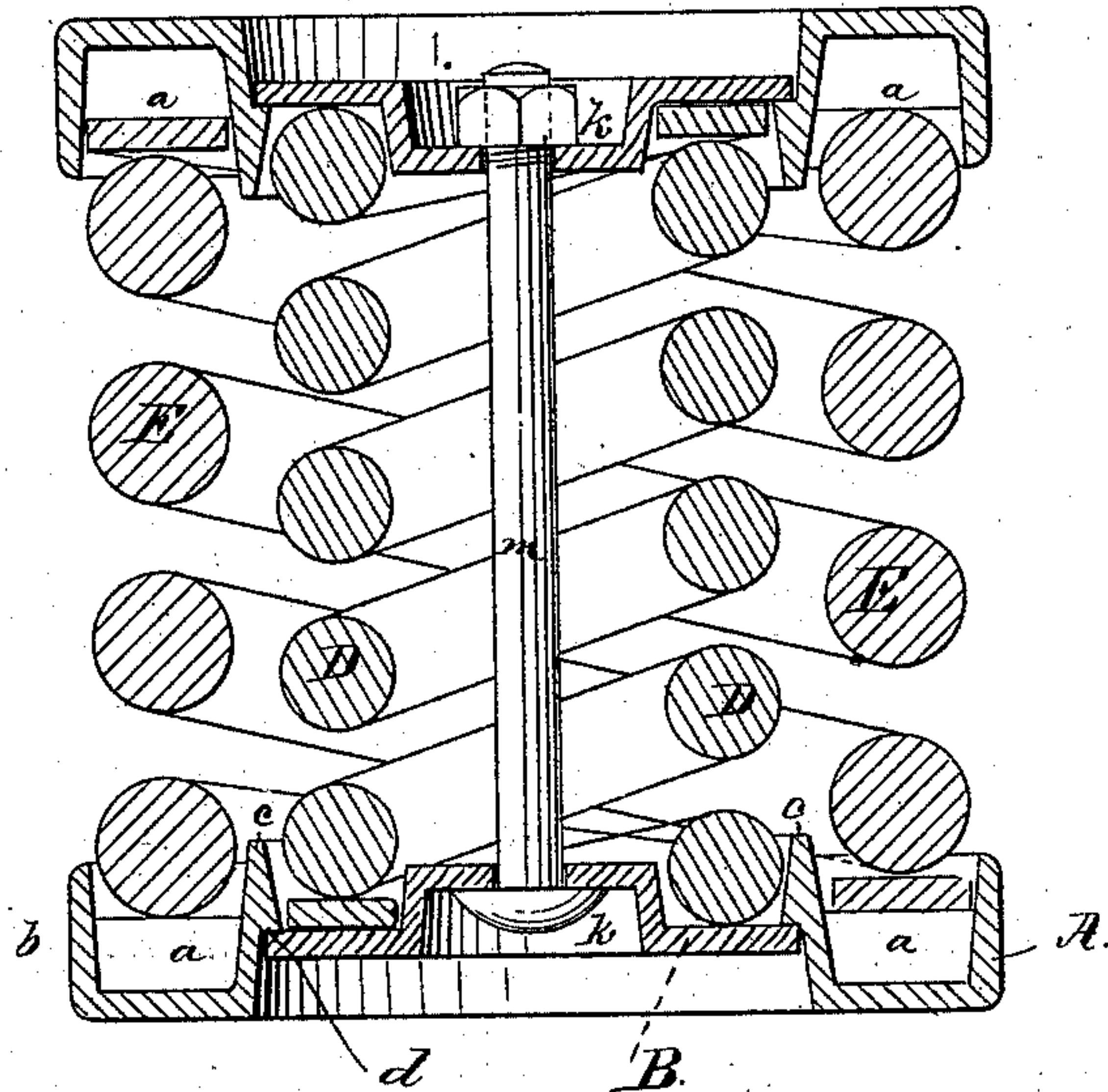


Fig. 2

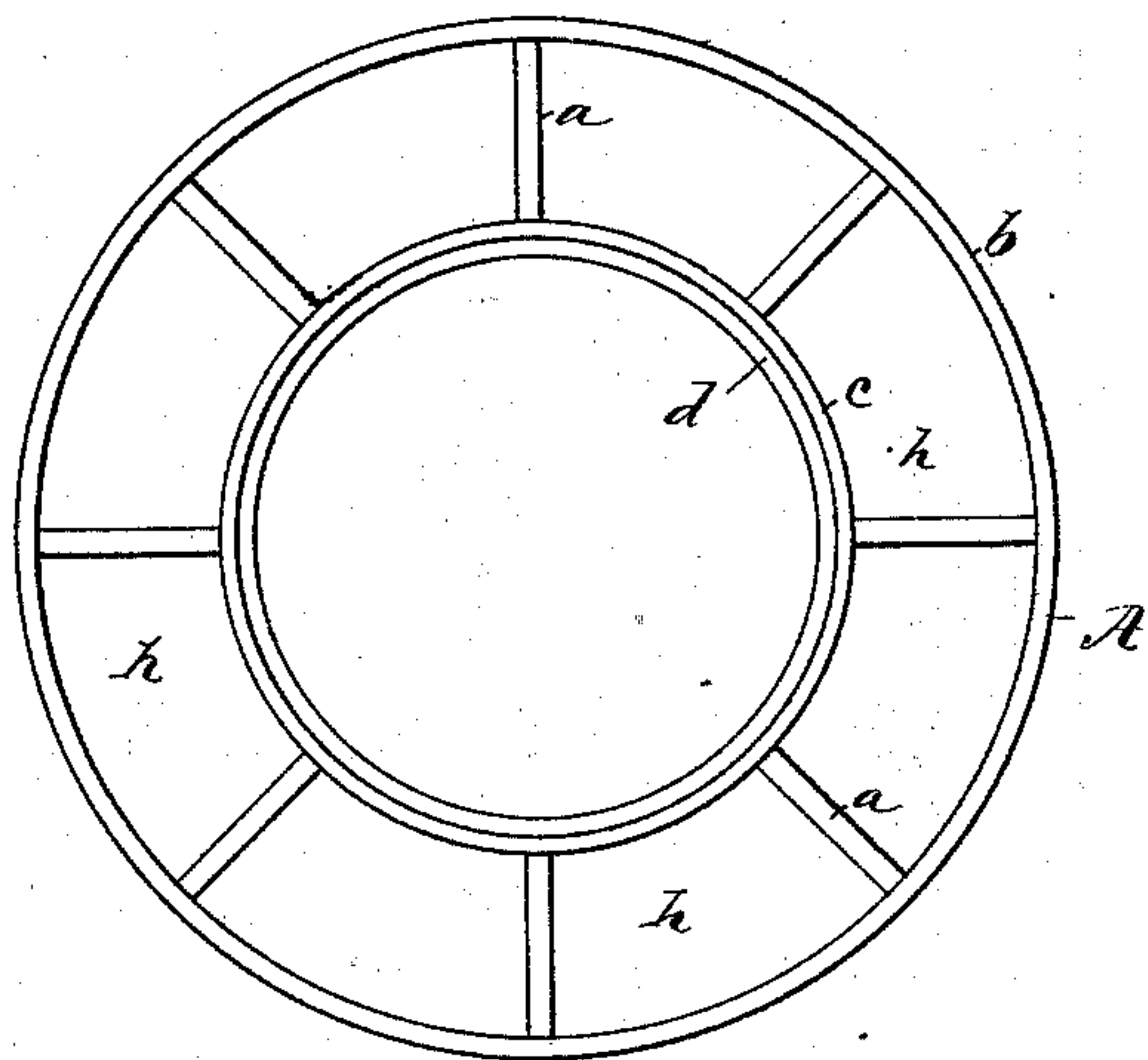


Fig. 3

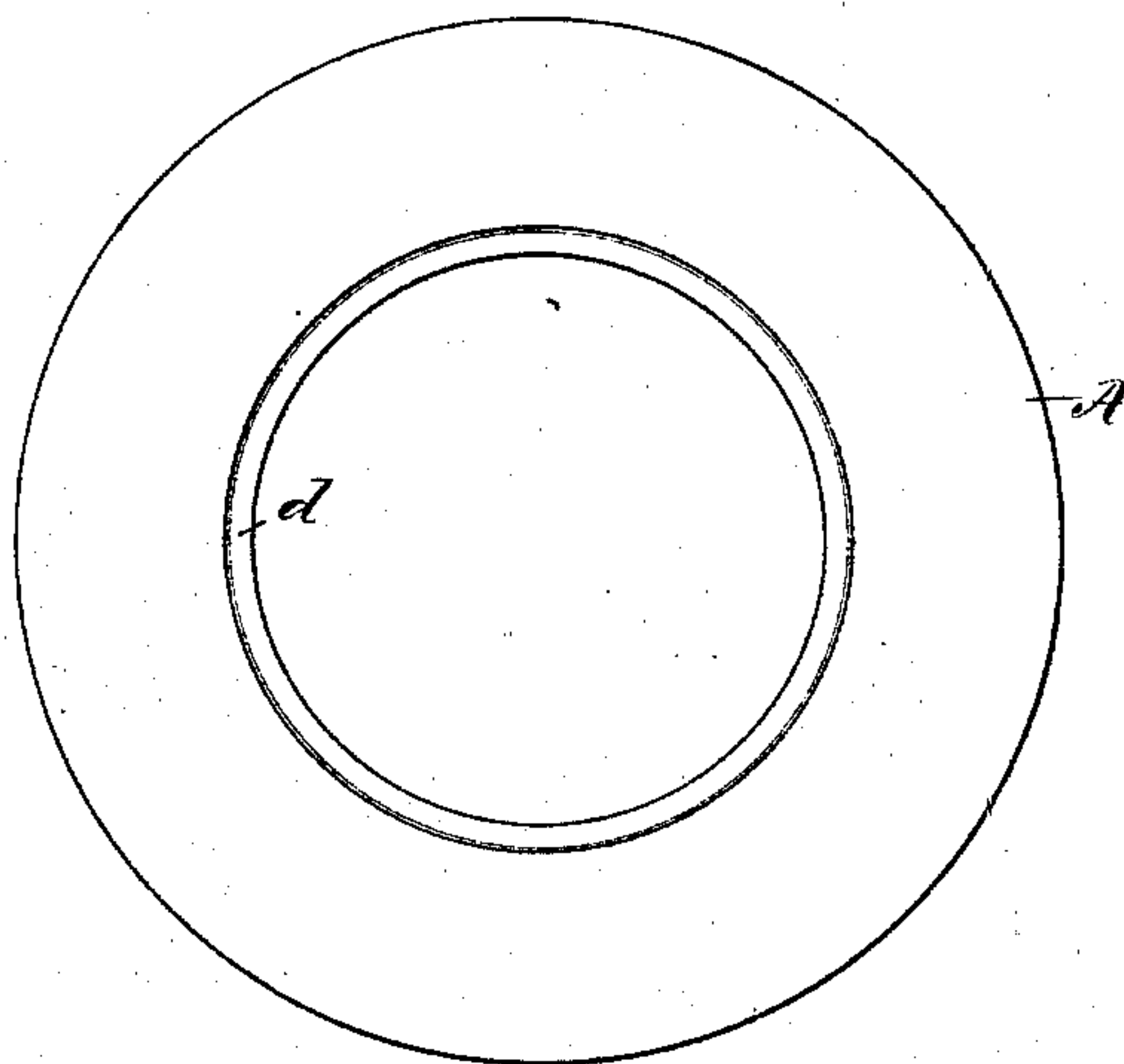
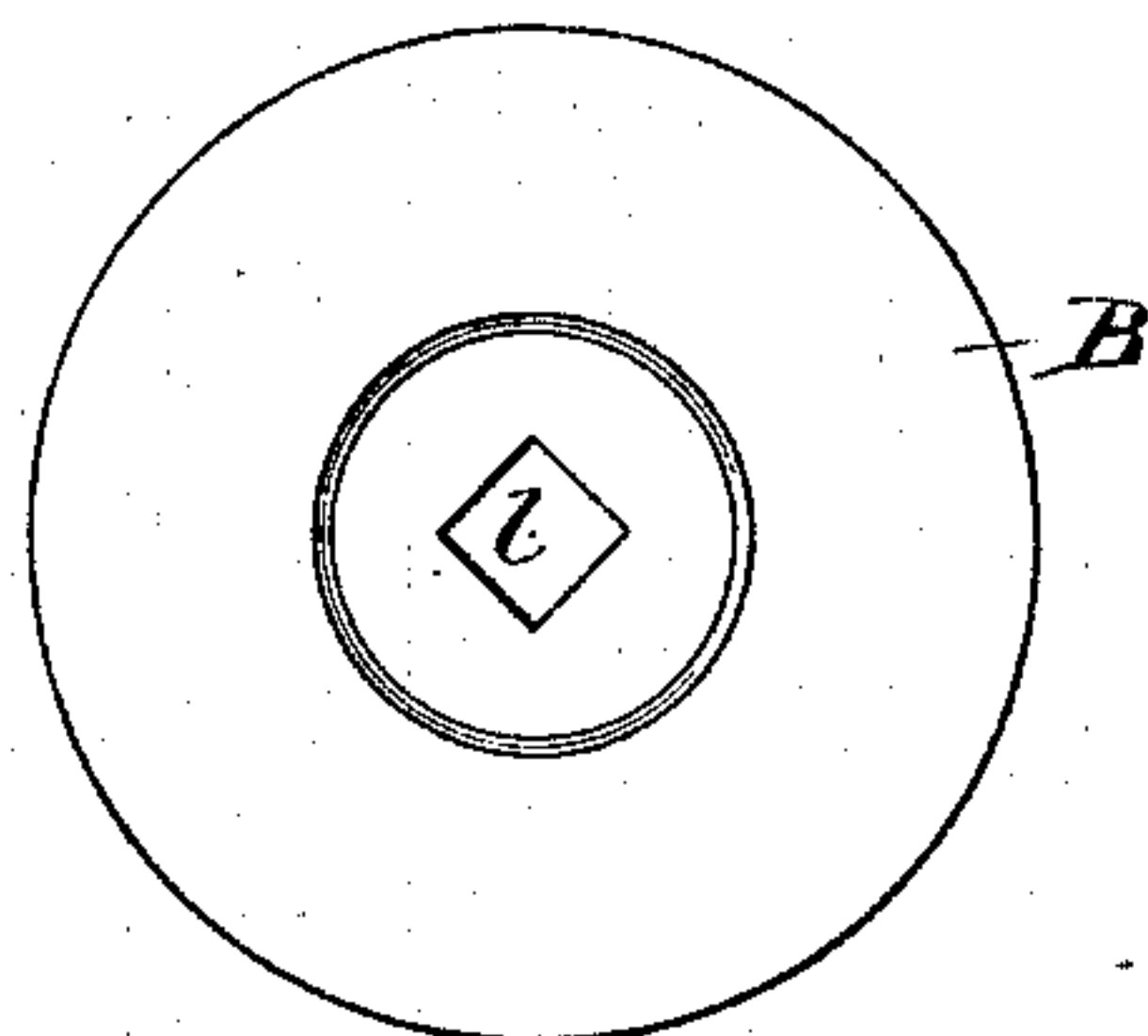


Fig. 4



Witnesses:

Henry Gilling

Chas. R. Blake

Inventor

Edward Cliff

By R. E. Clark
his atty.

UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF OSWEGO, NEW YORK, ASSIGNOR TO CLIFF & RIGHTER COMPANY, (LIMITED,) OF SAME PLACE.

CAR-SPRING.

SPECIFICATION forming part of Letters Patent No. 283,078, dated August 14, 1883.

Application filed March 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFF, of Oswego, county of Oswego, in the State of New York, have invented an improvement in caps for the ends of spiral springs for use on railway-cars, &c., of which the following is a specification, reference being had to the drawings hereto annexed, in which—

Figure 1 is a sectional view of my cap and a spiral spring; Fig. 2, a top view of the bottom part of my cap, the inner part or bottom removed. Fig. 3 is a top view of said cap, the inner part or bottom being removed. Fig. 4 is a top view of the inner part or bottom.

My invention relates to an improvement in caps for spiral springs used in railway and street cars, &c., and is made so that by its use two spiral springs—one inside of the other—may be used, and although both springs are of the same length and resting in the same cap, yet one allowed more longitudinal motion than the other, thus affording a graduated spring, also by the use of which both spirals are held from any contact and all rocking or rattling prevented. To do this, in the place of the usually-constructed cap or end-covering found now in use, I construct a cap composed of two pieces, the outer and larger piece, A, and inner piece B. The outer and larger piece is constructed with the recess *h* between the outer rim, *b*, and the inner rim, *c*. At certain distances apart, and running from rim *b* to rim *c* in the said recess *h*, are placed the ridges or ribs *a a*, all resting on the same plane, and all of equal width. In the face of the rim *c*, on the inside, is the rib or projecting circular lip, *d*, located a little more than half-way down from the top of and on said rim *c*. On this rib or projecting lip is placed the inner part, B. (Shown in Figs. 1 and 4.) The middle part of this inner piece, B, is countersunk, as shown in Fig. 1 at *k*. In the center of said piece B is a hole, *l*, Fig. 4, through which the bolt *m* is passed, the head of said bolt resting down out of contact in said hole *l*.

It will be seen that the end of inner spiral D rests in recess formed between *k* and rim *c*, and rests against the bottom of piece B. The outer coil, E, rests between the rims *c* and *b*

on the lower sides of ridges or lugs *a a*. The cap and springs are likewise placed at the other end. Then the bolt is passed up through the hole *l* and inner spiral and out of the hole *l* in the upper circle or piece, B, and the screw-head formed therein. Now, when the bolt is securely fastened therein, the top and bottom of spiral springs D and E rest in the same plane as found in the recesses. Now weight is placed on the top of the cap, and the same presses down the spirals; but as the weight is increased and the inner spring is forced against the piece B it forces the said piece up until it may, if weight sufficient be applied, be in the same plane as the top of piece A. The two spirals now act as auxiliaries one to the other, for as soon as the outer spiral is well reduced the same weight causes the inner spiral to push up the piece B, and thus the spiral D is relieved and given a longer motion. Thus a graduated spring in motion is obtained with springs of same length by means of the cap.

If desired, the cap may have another rim added exterior to all, and a third spring can be used.

It will be readily seen, also, that the rim *c* prevents any rattling of the spring, or any contact between the two spirals, as the bolt *m* keeps the parts A and B at all times in contact with the spirals D and E.

Any other mode of producing the same plane on which to rest the ends of the spirals may be obtained by having the recess between the rims *c* and *b* filled with metal between the ribs *a a*; but this only increases the weight of the cap and gives no additional benefit; or the face of part A may be countersunk, so that the same plane is obtained. I prefer the way I here show.

I am well aware that caps or followers for spiral springs have been so constructed that the load or car-body containing the load, when placed upon the cap or the "follower," presses the cap or follower down onto the center spiral or spirals, or rather on the spiral under the cap or follower, until the load rests on the main cap and on the main spiral underneath said main cap.

What I claim, and desire to secure by Letters Patent, is—

1. An adjustable cap or covering for spiral
springs, consisting of the main cap A, the
movable disk B, which disk, in its motion up
and down, does not extend above the upper
5 surface of cap A or below the rib *d*, or below
the plane in which the end of the main spiral
rests, both inner and outer coils being of the
same length, and when at rest in the same
plane, substantially as described, and for the
10 purpose specified.

2. A graduated cap or covering for spiral

springs, consisting of the rim A, having ribs
a a, the movable disk B, and the same plane
surfaces, in combination with spirals E and
D, held together by bolt *m*, so as to prevent 15
any rattling or displacement of said spirals,
substantially as described, and for the pur-
pose specified.

EDWARD CLIFF.

Witnesses:

D. M. IRWIN,

F. E. MOREY.