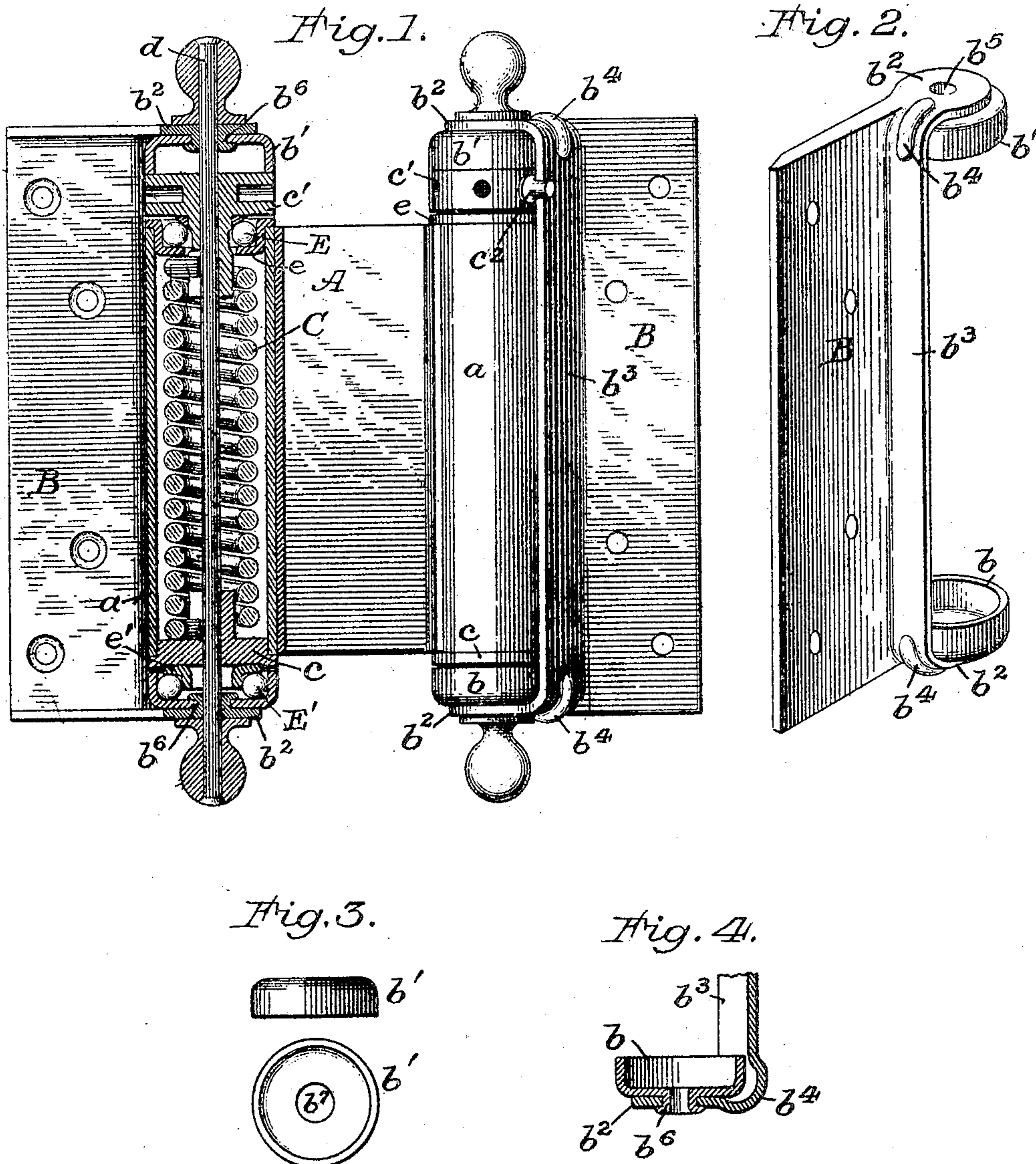


No. 798,051.

PATENTED AUG. 22, 1905.

C. S. VAN WAGONER.  
SHEET METAL HINGE LEAF.  
APPLICATION FILED OCT. 20, 1902.



Attest:  
Blanche L. Chadwell.  
C. W. Fowler

Inventor:  
Cornelius S. Van Wagoner  
By *Howell Battle*  
Associate Attorney

# UNITED STATES PATENT OFFICE.

CORNELIUS S. VAN WAGONER, OF CLEVELAND, OHIO, ASSIGNOR TO M. L. VAN WAGONER, OF BROOKLYN, NEW YORK.

## SHEET-METAL HINGE-LEAF.

No. 798,051.

Specification of Letters Patent.

Patented Aug. 22, 1905.

Application filed October 20, 1902. Serial No. 127,944.

*To all whom it may concern:*

Be it known that I, CORNELIUS S. VAN WAGONER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Sheet-Metal Hinge-Leaves, of which the following is a specification.

My invention relates to a hinge-leaf adapted for use in a ball-bearing spring-hinge; and its object is to provide a leaf having cup-shaped knuckles which form the terminal ends of the hinge-barrel and afford receptacles in which antifriction-balls may be housed.

Broadly stated, my invention consists in a hinge-leaf having a sheet-metal body portion provided with integral ears at opposite ends and separately-formed cup-shaped knuckles fixedly secured to said ears and adapted to receive antifriction-balls, as will be hereinafter described.

My invention also consists in the details of construction set forth in the claims hereunto annexed.

Referring to the drawings furnished and forming a part of this specification, Figure 1 is a side elevation of a double-acting spring embodying my invention, one of the hinge-barrels being shown in vertical central section. Fig. 2 is a perspective view of one of my novel hinge-leaves. Fig. 3, in side and plan views, illustrates one of the knuckles of said leaf detached therefrom. Fig. 4 is a central vertical section through one of the knuckles and a portion of the leaf, showing a slightly-modified construction.

I have illustrated my invention in connection with a double-acting spring-hinge which embodies features of invention forming the subject of a separate application for patent filed by me September 30, 1903, Serial No. 175,157. Said hinge comprises a center leaf A, having knuckles *a a* at opposite edges, and two side leaves B B, each of which is provided with cup-shaped knuckles *b* and *b'*, which form the terminal ends of the hinge-barrels. Within each of the knuckles *a a* of the center leaf is a spring-holder *c*, fixedly secured at one end thereof for holding one end of a spiral spring C. The other end of said spring is held by an adjustable spring-holder *c'*, mounted between the knuckle *a* and the cup-shaped knuckle *b'* of the leaves B B, said adjustable spring-holder being mounted on the pintle *d*,

so that it may be rotated for adjusting the tension of the spring and being locked in its adjusted position to the leaf B by a pin *e*, all of which will be readily understood. Between the adjustable spring-holders *c'* and the knuckles *a* is an antifriction-bearing consisting of antifriction-balls E, mounted in a cup-shaped receptacle *e*, surrounding the lower portion of said spring-holder and supported by and within the knuckle *a*. Beneath the fixed spring-holder *c* there is a cone or ring *e'*, which rests upon antifriction-balls E', which are supported by and housed within the tubular knuckle *b* of the side leaf B. The arrangement and structure of the antifriction-bearings form the subject of my application hereinbefore referred to.

My present invention relates to the structure of the side leaves B regardless of whether they be used in connection with a double-acting or single-acting hinge. The body portion of said leaves is formed from an appropriately-shaped sheet-metal blank and is provided with integral ears *b<sup>2</sup>* at opposite ends, to which the cup-shaped knuckles *b* and *b'* are secured. Said ears are formed from appropriately-shaped portions of the blank, which are bent at right angles to the body portion of the leaf. For stiffening and strengthening the leaf the inner edge thereof is bent to form the flange *b<sup>3</sup>*, which integrally connects the two ears *b<sup>2</sup> b<sup>2</sup>*, and at the angles of union between said flange and said ears the metal is indented or crimped to form a strengthening-bead *b<sup>4</sup> b<sup>4</sup>*, which serves to brace the ears against the weight to be carried by the hinge. Each of said ears is perforated, as at *b<sup>5</sup>*, to receive the hinge-pintle *d*, and around said perforations the metal is forced inwardly to form an integral eyelet or hollow rivet *b<sup>6</sup>*, which secures the cup-shaped knuckles *b* and *b'*. These knuckles, one of which is shown in side and plan views in Fig. 3, are preferably stamped from sheet metal and are in the form of a centrally-perforated cup, the central perforation *b<sup>7</sup>* being made to receive the eyelet or rivet *b<sup>6</sup>* on the ears *b<sup>2</sup>*, which are turned down or headed for securely holding the knuckles, as clearly shown in Fig. 1. This leaf, besides affording a desirable structure for a ball-bearing hinge, possesses the strength necessary in hinges designed for moderately heavy duty and may be produced at comparatively small cost.

I do not wish to be confined to the particular mode shown and described of securing the

knuckles to the ears of the leaf; but I believe substantial economy will result in integrally forming a connecting rivet or eyelet either on the ears of the leaf, as shown in Fig. 1, or by forming said rivet integral with the knuckles, as shown in Fig. 4. As there shown the connecting rivet or eyelet  $b^6$  is formed on the knuckle  $b$  and headed on the outside of the ear  $b^2$ .

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

1. A hinge-leaf having a sheet-metal body portion provided with integral ears at opposite ends thereof, and separately-formed cup-shaped knuckles fixedly secured to said ears and adapted to receive antifriction-balls, substantially as described.

2. A hinge-leaf having a sheet-metal body

portion provided with integral ears at opposite ends thereof, and separately-formed cup-shaped knuckles secured to said ears by means of an eyelet or rivet integrally formed on one of the united parts, said knuckles being adapted to receive antifriction-balls, substantially as described.

3. A sheet-metal hinge-leaf provided with an integral ear and a separately-formed cup-shaped knuckle fixedly secured to said ear and adapted to receive antifriction-balls, substantially as described.

In testimony whereof I hereby set my hand this 18th day of October, 1902.

CORNELIUS S. VAN WAGONER.

Witnesses:

WM. M. MONROE,  
C. H. OLDS.