No. 709,618. Patented Sept. 23, 1902.

H. J. VALENTINE.

HINGE KNOB.

(Application filed Apr. 21, 1902.)

(No Model.)

Fig. 1

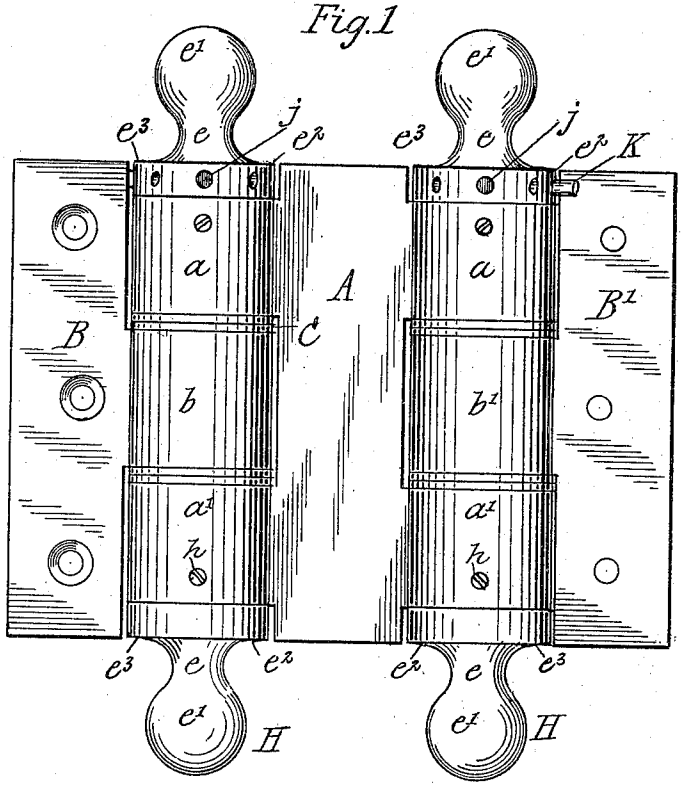


Fig. 2

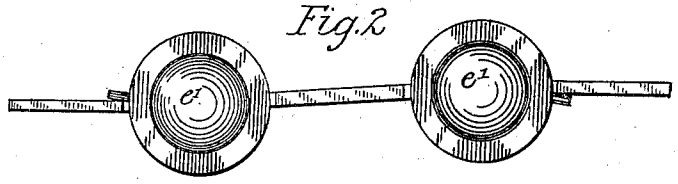


Fig. 6

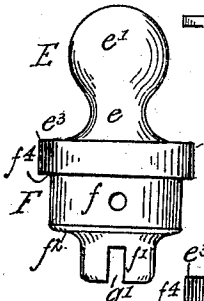


Fig. 3

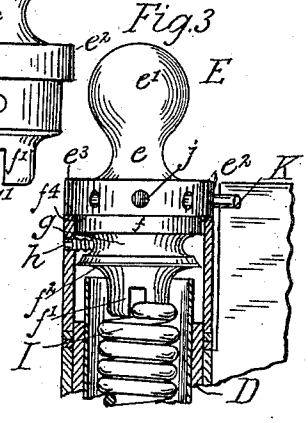


Fig. 5

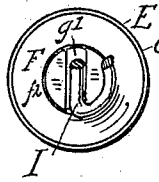


Fig. 4

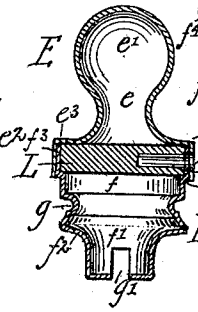
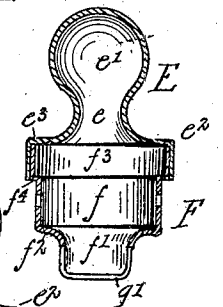


Fig. 7



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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HINGE-KNOB.

SPECIFICATION forming part of Letters Patent No. 709,618, dated September 23, 1902.

Application filed April 21, 1902. Serial No. 103,891. (No model.)

To all whom it may concern:

Be it known that I, HARRY J. VALENTINE, a citizen of the United States of America, and a resident of Hempstead, Nassau county, New York, have invented certain new and useful Improvements in Hinge-Knobs, of which the following is a specification.

This invention relates to hinge-knobs applied to the class of spring-hinges which are double-acting.

Heretofore the knobs or tips which are located at the ends of the pintles of spring-hinges have been cast solid in one piece of suitable metal, making the hinge itself, which is quite heavy, much heavier and apt to break at the neck. Besides, a high finish cannot be imparted to the knob without considerable trouble and expense. Bearing these objections in mind, the purpose of my invention is to provide a knob for spring-hinges which will be light, strong, and capable of receiving a very high finish and which, considering these points, is no more expensive to make than the solid cast-metal knobs.

With these ends in view my invention consists of a knob for spring-hinges which is made of sheet metal, preferably constructed as will be described in detail and having the novelty which will appear from the claims.

In the accompanying drawings, Figure 1 is an elevation of a suitable spring-hinge provided with knobs constructed in accordance with the present invention. Fig. 2 is a top view of the same. Fig. 3 is a sectional detail of the upper portion of a spring-hinge, showing the knob applied. Fig. 4 is a detail longitudinal section of the improved knob. Fig. 5 is a view of the inner end of the knob, a portion of the spring being shown to show how the end of the spring is anchored to the knob. Figs. 6 and 7 are a detail side elevation and a longitudinal section of a knob which is void of a core and may be used at the end of the hinge opposite to that in which the pin-keeper is located.

Referring to the drawings, A indicates the intermediate body of a spring-hinge, and B B′ the two leaves. The body A has the pairs of sockets a a' at opposite ends, and the leaves B B′ have the intermediate sockets b b', respectively. Washers C separate the sockets a a' b b', and tubular pintles D pass through the sockets, so that the sockets of the leaves may turn thereon. The tubular pintles D are secured in the body A in such manner as that the parts will move freely to and from each other when necessary.

While the description just given applies to the drawings, it will be clear hereinafter that the invention may be applied to any suitable hinge in which knobs or tips are used.

In carrying out the invention suitable sheet metal is employed for each knob or tip.

In Figs. 3, 4, and 5 the knob is seen to consist of two sections—namely, an outer or exposed section E and an inner or hidden section F. The outer sheet-metal section E is preferably provided with a neck e, topped off by a head e', and with an annular base-rim e^2 of greater diameter than that of any other portion thereof. An annular shoulder e^3 is formed between the rim e^2 and neck e. The sheet-metal section F consists of a cylindrical body f, a contracted portion f', joined to the body f by an annular transversely-disposed web f^2, and a rim f^3, of preferably greater diameter than the body f, to form a square offset or shoulder f^4, while around the body f is an annular groove g. The sections E F are stamped out of sheet metal, and the rim f^3 of section F fits hard and snug into the rim of section E to form a tight joint. The inner edge of the section F abuts against the shoulder e^3 of section E, and the exterior width of the offset rim f^3 corresponds with the interior width of the rim e^2, so that a double thickness is formed at the joint approximately the thickness of the sockets of the hinge. In other words, the combined thicknesses of the rims e^2 f^3 is the same as that of the thickness of the hinge sockets or knuckles. The annular square shoulder f^4 reinforces and strengthens the joint between the sections and is of such size that the exterior surface of the rim e^2 will be flush with that of the hinge socket or knuckle, while the cylindrical body f will fit snugly in the latter. The end of the contracted portion f' is notched or recessed, preferably with diametrically opposite notches g'. Each knob is preferably constructed as described; but in the case of one knob H, such as shown in

Figs. 6 and 7, at one end of each tubular or other pintle it is secured rigidly to the socket a' by a rivet or screw h, so as to provide a fixing-point for one end of the helical torsion-spring I, of which one is located in each tubular pintle. The other or capstan knobs, such as shown in Figs. 3 and 4, turn in sockets a, the double thickness of material formed by the annular shoulder f^4 and the rim e^2 resting on the outer ends of the said sockets. Set-screws, countersunk in the sides of sockets a, engage in the grooves g of the knobs to permit them to turn and to yet prevent their displacement. The ends of the springs I are removably engaged in the recesses or notches g', so that when a nail or other suitable lever is inserted into one of an annular series of holes j in the wide doubly-thick portion of the knob the same may be turned like a capstan, thereby straining the torsion-spring. While the leverage is exerted on the capstan-knob a pin-keeper K or its equivalent is inserted to project from that hole j which is located next to and on that side of the hinge-leaf against which the keeper will be forced when the lever is withdrawn from the capstan-knob. Then the spring-hinge will act as such when both capstan-knobs have been turned and set so as to strain both springs. Each capstan-knob, if not all the hollow knobs, is preferably provided with a disk-shaped metallic core L about as wide as the rim of section F. Before assembling the knob-sections the core L is driven into the section F until it abuts against the shoulder f^4, whereupon the two sections E F are forced together until the core seats in and fills or substantially fills the enlarged annular chamber formed at the joint between the knob-sections. In the case of capstan-knobs radial holes l, which are bored into the periphery of the core-disk L in line with keeper-holes j in the knobs, provide long and firm bearings or sockets for the pin-keepers.

Knobs for hinges so constructed are light and strong, and owing to the workability of sheet metal into various shapes and the ease with which designs may be stamped therein a highly-ornamental knob, and hence hinge, may be produced.

What I claim as new and of my invention is—

1. The combination, with a hinge having a socket or knuckle, of a hinge-knob, composed of an outer sheet-metal section, and a cylindrical inner sheet-metal section, said outer section having an enlarged rim and said inner section having a rim fitted firmly in the enlarged rim and being provided with a square shoulder at the joint adjoining its cylindrical surface, the said rims combined being the thickness of the socket or knuckle, and the shoulder being less than such thickness and resting and turning upon the end of the socket or knuckle, substantially as set forth.

2. A sheet-metal hinge-knob, comprising in its construction two hollow sections each closed, or substantially closed, at one end and so constructed and joined at their open ends as to form an internal annular shoulder, and an annular core-disk seated on said shoulder, substantially as set forth.

3. A sheet-metal hinge-knob, comprising in its construction two hollow sections each closed, or substantially closed, at one end and so constructed and joined at their open ends as to form an enlarged annular chamber, and an annular core-disk seated and filling in said chamber, substantially as set forth.

4. A hinge-knob, composed of an outer sheet-metal section having an annular shoulder at its juncture with its rim, and an inner sheet-metal section having an annular shoulder, the rim of said inner section resting firmly against the shoulder of the outer section, and a core confined between the shoulders, substantially as set forth.

5. A sheet-metal hinge-knob provided with a series of keeper-holes, in combination with a fixed core therein, reinforcing the weaker perforated portion of the knob, substantially as described.

6. A sheet-metal hinge-knob provided with a series of keeper-holes, in combination with a fixed transverse core-disk provided with holes registering with the other holes, and reinforcing the weaker perforated portion of the knob, substantially as described.

Signed at New York, N. Y., this 16th day of April, 1902.

HARRY J. VALENTINE.

Witnesses:
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