(No Model.)

G. E. NEUBERTH & H. ILL.

CASTER.

No. 556,020. Patented Mar. 10, 1896.

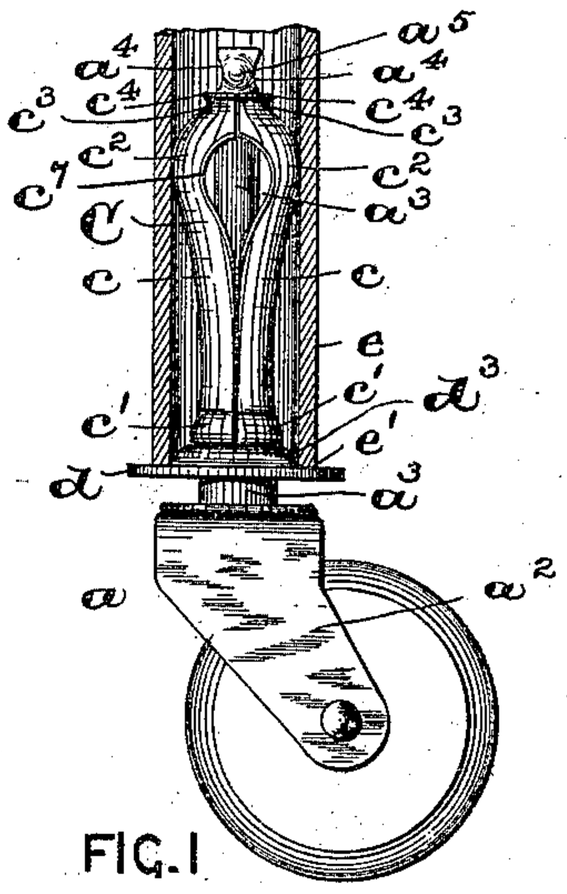

FIG. 1

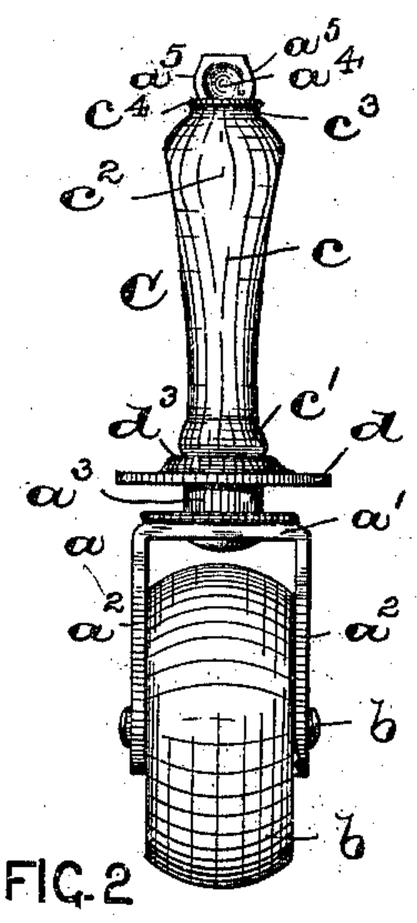

FIG. 2

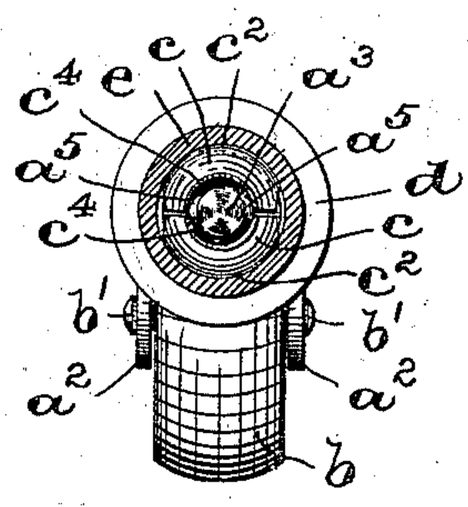

FIG. 3

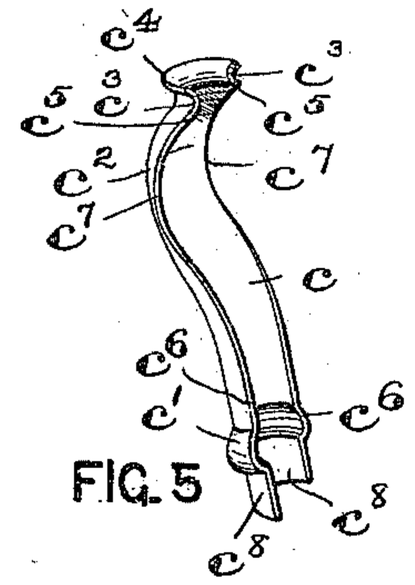

FIG. 5

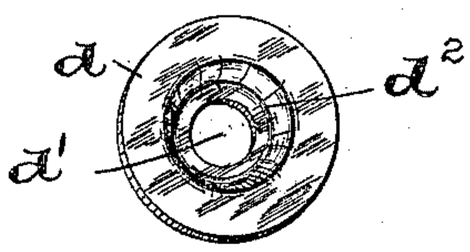

FIG. 6

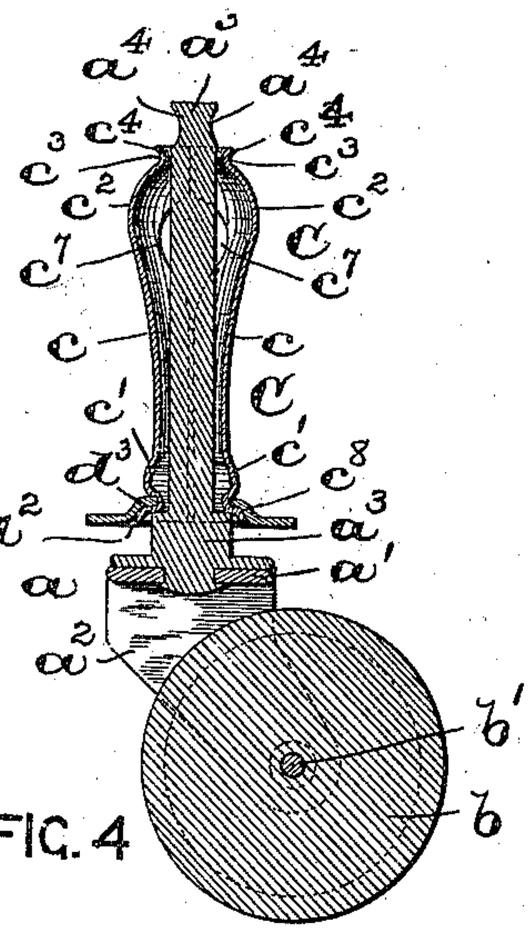

FIG. 4

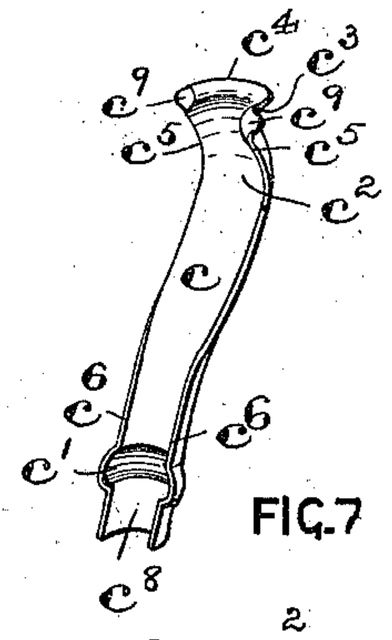

FIG. 7

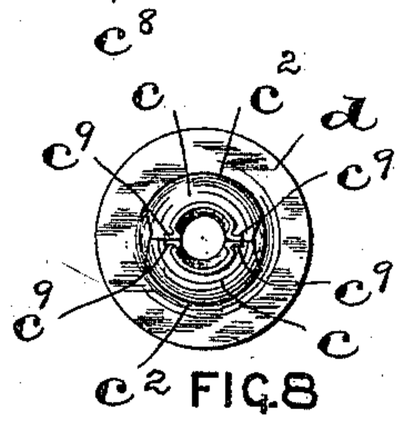

FIG. 8

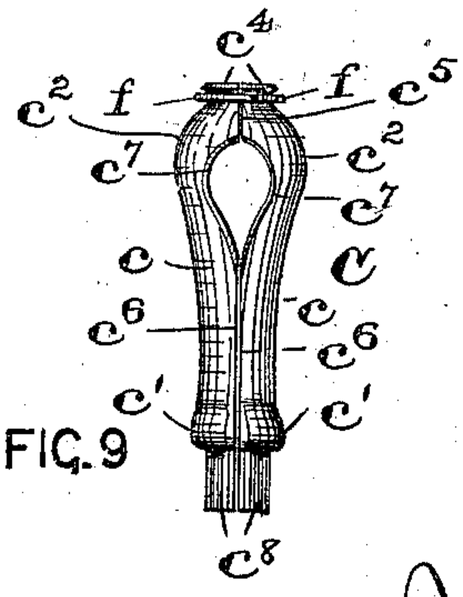

FIG. 9

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UNITED STATES PATENT OFFICE.

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CASTER.

SPECIFICATION forming part of Letters Patent No. 556,020, dated March 10, 1896.

Application filed May 25, 1895. Serial No. 550,607. (No model.)

To all whom it may concern:

Be it known that we, GEORGE E. NEUBERTH and HENRY ILL, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Casters; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has reference to a novel form and construction of caster and caster-frame; and it has for its primary object to provide a simply and cheaply constructed caster adapted for use in connection with the tubular or hollow legs or supports of furniture—such as bedsteads, &c., made of metal, as iron or brass—and into which a portion of the caster-frame is forced and held by the friction of certain spring-like portions of the frame with the inner surface of the tubular support of the piece of furniture.

Our invention therefore consists in the novel construction of caster herein shown and also in the details of arrangement and combinations of parts comprising the caster, such as will be hereinafter fully described, and finally embodied in the clauses of the claim.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of our novel form of caster and its frame, illustrating the same in position in a tubular support or leg of a piece of furniture, said support or leg being represented in vertical section. Fig. 2 is an end view of the caster before it is secured in position in the tubular support or leg of the piece of furniture. Fig. 3 is a top view of the caster with the tubular support or leg of the piece of furniture represented in horizontal section. Fig. 4 is a longitudinal vertical section of the caster and its frame. Fig. 5 is a perspective view of one of the spring-leaves or frame-sections of the caster. Fig. 6 is a like view of a supporting-plate, both of which are used in the construction of the caster-frame. Fig. 7 is a perspective view of a spring-leaf or frame-section forming part of the caster-frame, said section being of a slightly-modified form of construction. Fig. 8 is a top view of the caster-frame, showing the arrangement of said two spring leaves or sections made in conformity with the construction of leaf represented in said Fig. 7; and Fig. 9 is a side view of two of said spring-leaves or frame-sections held together at the top by means of a split ring.

Similar letters of reference are employed in each of the above-described views to indicate corresponding parts.

In said drawings, *a* indicates the usual form of wheel-frame provided at the top with a connecting-plate *a'*, having the downwardly-extending ears a^2, which are perforated to receive the pin *b'*, on which is rotatively arranged the usual form of wheel or roller *b*. In a central perforation or hole in said top plate *a'* is secured the pin a^3, having the flattened portions a^4 and the oppositely-arranged enlargements a^5 for rotatively holding said pin and the parts connected therewith in the main frame C of the caster. This part of the caster-frame, which forms the essential feature of our invention, comprises therein two or more spring-leaves or frame-sections *c*, each of which is formed near its lower end with a bead *c'* and are made outwardly flaring toward the top to form an enlargement or bulge c^2 on each section. From this point each leaf or section *c* contracts or is narrowed down, being curved inward, as at c^3, and outward, as at c^4, as will be more especially seen from Fig. 5.

The edges c^5 of each leaf or section *c* and a large portion of the edges c^6 are straight, in order that when two leaves are placed edge to edge these edges correspond and can be made to bear against each other, as clearly shown in Figs. 1 and 9. Owing to the construction of said spring leaves or sections *c*, which are made from spring metal and are preferably struck up from a rectangular blank of the proper size, an open and rounded portion c^7 will be formed on each side of said leaves at that point where the metal is pressed outwardly to form the bulges c^2. Beneath the bead *c'* on each leaf *c* is a portion c^8, which

is straight in a downward direction, but is semicircular in cross-section. When two of said spring leaves or sections *c* are placed together said lower portions c^8 are fitted in a central opening *d'* in a washer or supporting-plate *d*, and are then turned over on the under side of said washer or plate, as clearly shown in Fig. 4. Said plate *d* is bent or forced inwardly, as at d^2, being that portion surrounding the opening *d'*, whereby said turned-over portions c^8 of the spring leaves or sections *c* fit in the recess thus formed in said plate *d* and do not project below the under surface of said plate to mar the appearance of the same. At the same time an annular rim or projection d^3 is formed on the upper surface of said plate *d*, which, when this part of the caster-frame is arranged in the tubular post or leg *e* of the furniture, fits snugly in the lower portion of said post or leg to prevent any side movement of the caster-frame in its support, as will be clearly seen from an inspection of Fig. 1. When the two leaves or sections *c* have been secured to said supporting-plate *d* in the manner just described to form the frame C, this part of the caster-frame is driven into the tubular leg or support of the piece of furniture until the supporting-plate *d* comes in holding or supporting contact with the lower edge *e'* of the leg or post *e*. At the same time the enlargements or bulges c^2 on each section *c* of the frame C are in firm frictional engagement with the inner cylindrical surface of said post or leg, as clearly illustrated in Fig. 1. When the frame C has been firmly driven into and is held in this manner in said post *e*, the pin a^3 on the wheel-frame of the caster is inserted in the opening in the bottom of said frame C formed by the semicircular portions c^8 until its upper end extends above the neck formed by the inwardly-extending portions c^3 and the outwardly-extending portions c^4 of the spring leaves or sections *c*, where said pin is rotatively held by contact with the enlargements a^5 on the opposite side of the latter, as will be seen from the drawings.

In some cases the upper portion of said leaves *c* may be provided with flat lugs or ears c^9, formed on the opposite ends of the outwardly-extending portions c^4, as shown in Fig. 7, which are for the purpose of preventing the upper and slightly-movable ends of the spring leaves or sections *c* from sliding past each other when the post or leg *e* is of an uneven inside diameter, or when the frame C is carelessly driven into the said tubular leg or post *e*. In other instances the sections *c* of the frame C may be provided with a split ring *f*, arranged in the inwardly-extending portions c^3, as shown in Fig. 9. This ring permits of sufficient outward movement of the upper portions of said leaves or sections *c*, but still prevents said parts from being distorted when the caster-frame is carelessly driven into the tubular post or leg *e*. As will be seen from Fig. 1, said washer or plate *d*, which forms a support for the post or leg of the piece of furniture, also prevents the caster-frame from being driven too far into said tubular leg or support, and the enlargements or bulges c^2 on the leaves or sections *c*, as well as the annular rib or projection d^3 on said plate *d*, cause the frame C, when once driven into place, to retain its fixed position in the tubular leg or post *e*, as will be clearly evident. Said plate *d* is preferably made from sheet metal, but it may be cast and turned down to the proper size and shape, if desired.

The frame pieces or sections *c* of the main caster-frame C, as well as the plate *d*, may be made in different sizes to adapt them to the tubular legs or supports of varying diameters. Of course it will be evident that changes may be made in the details of the arrangements and combinations of the parts herein shown and described, and hence we do not limit our invention to the exact arrangements and constructions of the parts shown.

Having thus described our invention, what we claim is—

In a caster, in combination, with the wheel and its pin and frame, of a frame C, adapted to be forced into a tubular support or post and held by friction, comprising a perforated supporting-plate *d*, having a rib d^3 surrounding the perforation in said plate and provided in the bottom with a recess d^2, and a pair of spring leaves or sections *c* secured in said perforation in said plate *d*, and having their ends c^8 turned over and secured in said recess d^2, and enlargements or bulges c^2 on said leaves or sections, substantially as and for the purposes set forth.

In testimony that we claim the invention set forth above we have hereunto set our hands this 23d day of May, 1895.

GEORGE E. NEUBERTH.
HENRY ILL.

Witnesses:
FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, JR.