(No Model.)

D. F. CREAN & W. F. STONE.

CASTER SOCKET.

No. 454,257. Patented June 16, 1891.

FIG. 1.

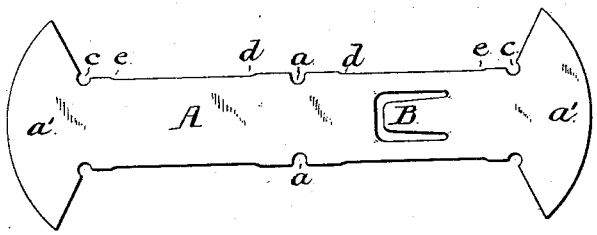


FIG. 2.

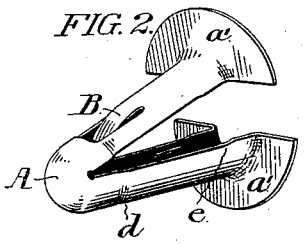


FIG. 3.

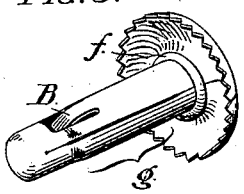
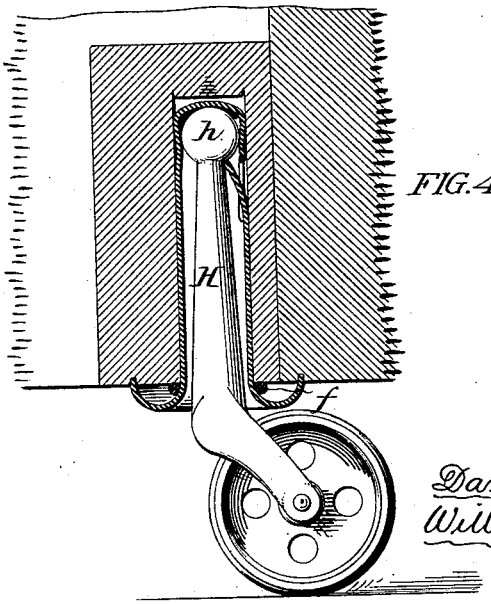


FIG. 4.



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CASTER-SOCKET.

SPECIFICATION forming part of Letters Patent No. 454,257, dated June 16, 1891.

Application filed October 4, 1890. Serial No. 367,130. (No model.)

To all whom it may concern:

Be it known that we, DANIEL F. CREAN, and WILLIAM F. STONE, both citizens of the United States, and residents of Woodbury, in the county of Gloucester, and State of New Jersey, have invented certain new and useful Improvements in Caster Sockets, of which the following is a specification.

Our invention relates to the sockets which are set in place within recesses in the legs and lower portion of articles of furniture, and are in such position designed to receive the pintles or stems of casters applied to such furniture, and which are usually provided with retaining springs which engage with such pintles.

It is the object of our invention to provide an inexpensive, simple, and durable, caster socket, which possesses in its completed form certain novel and advantageous features of structure and operation.

In the drawings we show and herein we describe a caster socket manufactured in accordance with our invention,—consisting of a socket proper embodying intermediately of its length a spring composed of a tongue cut from its own metal, and a track plate in the nature of an outwardly and rearwardly flaring lip at the open end of said socket. It is however to be understood that our invention is of applicability in connection with the formation of sockets of other design than that shown in the drawings.

The method referred to of forming the sockets, consists generally stated, in doubling a strip of blank of metal upon itself, and in bringing the respectively opposing pairs of edges of the two legs or halves of the blank into contact with each other, the spring being cut in the metal of the blank before the latter is bent as above described. The track plate of the completed caster socket is preferably formed integral with the metal of the socket itself, by providing each end of the original blank with a head, which heads are together with the respective halves of the blank, brought together in the doubling of the blank to form said track plate.

In the drawings, Figure 1 represents a blank of suitable shape to be bent up to form a track plate provided caster socket. Fig. 2 is a view in perspective of the blank of Fig. 1 in an intermediate stage of the process of doubling. Fig. 3 is a view in perspective of the completed caster socket. Fig. 4 is a view partly in central vertical section of the caster socket as applied to the leg or block of an article of furniture, illustrating also a caster in place within said socket.

Similar letters of reference indicate corresponding parts.

In Fig. 1 of the drawings A is a blank which is in readiness to be bent or doubled to form a socket, said blank being a strip of metal, preferably cold rolled steel, conveniently embodying a notch *a* in each edge at its center, and, as the completed socket is to be provided with an integral track plate, provided at each end with a head *a'*, the profile of which heads may be generally described as fan-like, and embodying near the base of each head notches *c*. A blank of this outline is preferably cut by a single stroke of an appropriate cutting die. From the metal of one of the halves or legs of the blank is cut a **U**-shaped section, the removal of which leaves a tongue B, the body of which exists in an opening sufficiently larger than itself to insure its entire freedom of movement as hereinafter explained. The cutting out of this **U**-shaped section is conveniently accomplished by a single stroke of a second cutting die. The blank so shaped is longitudinally and laterally bent to form the socket, and this bending is conveniently effected by the successive operation of two bending dies. The first bending die doubles the blank longitudinally into a form which may be described as **A** shaped, at the same time bends the body portions, or legs, of the blank, from the notches *a* to the notches *c*, into semicylindrical form, with convexity outward,—at the same time preferably bellies bodily outward or away from each other the central portions of the legs or members of the blank, as for example the metal between the points *d e* to form a bulb *g* in the completed socket, and, finally, conveniently also bends outward and away from each other the fan

like heads of the blank hereinbefore referred to. The operation of the second pair of shaping dies brings the two halves of the blank together to form the cylindrical socket, their respective opposing edges except between the points *d e* being brought into contact,—also bends or curls the edges of the two heads, now the track plate, rearwardly or toward the apex of the socket,—also cuts the edge of said track plate to form a series of serrations, (which operation incidentally evens or trims said edges)—and also if desired forces down upon the socket and to a point close to the track plate, a binding ring *f*.

If desired the edges of the blank are slightly recessed as shown between the points *d e*, but such recesses are not strictly necessary. The tongue B is at any desired stage of the formation of the socket to be bent or set inward to constitute it a spring. In the operation of the dies in forcing the track plate into the form shown, a slight drawing of the metal of the apex or closed end of the socket occurs.

The method of forming a socket by doubling a strip of metal upon itself produces a socket the upper end of which is integral with the metal of its body and therefore naturally the better able to endure the heavy strains to which its bearing upon the upper end of the pintle subjects it. This method also permits the formation of a tongue or spring by the removal of a U-shaped section of metal from the blank itself and before the formation of the socket, and therefore makes it possible to form such a spring even in the smallest sizes of sockets, a thing which has been impossible in such small sized sockets as are formed by being drawn from a blank of metal, and in which the spring is cut after the socket is formed, because the diameter of such completely formed small sized sockets is practically equal to the necessary breadth of the U-shaped sections, and the dies which cut the latter cannot operate upon such small sized sockets. The bulbs *g* formed in the completed socket by the bellied out portions between the points *d* and *e*, constitute in effect a socket retaining spring, the object of which is to impart to the socket a degree of self adjustability enabling it to seat itself firmly within recesses to which it may be applied notwithstanding slight variations in size of said recesses. The degree to which said bellying shall be carried out is a matter within the province of the manufacturer. The normal diameter of the socket is its size between the points *a* and *d* and *e* and *c*.

When the socket is applied to a recess of exactly its normal size, the bulb portion is compressed by the entrance of the socket within the recess, and operates to retain the socket very tightly in position. When the socket is applied to a recess slightly larger than its own normal size and within which the ordinary socket could not be retained in place, said bulb portion takes up or compensates for, so to speak, the additional area of the recess, and retains itself firmly in position. It is apparent that our invention is broad enough to cover socket retaining springs of other character than the bulb described.

The invention, as is obvious, is not restricted to the sockets herein described provided with integral track plates but may also be practiced in the formation of sockets to be provided with the detachable track plates well known in the art.

By the method herein described the manufacture of sockets is improved, because the doubling of the blank requires a less number of operations than the methods heretofore in vogue of drawing sockets from circular blanks, and is effected furthermore without the necessity of annealing.

The pintle spring described has by reason of the large opening in which it is situated great freedom of action, and is secure against being caught by the edge of said opening in the rotation of the pintle.

H, Fig. 4, indicates the pintle of a caster, beneath the head or ball *h* of which the pintle spring of the socket is shown as engaged.

The notches *a* hereinbefore referred to are cut in the substance of the blank for the purpose of avoiding the presence of the two sharp projecting corners of metal at opposite sides of the upper end or apex of the socket which would otherwise be formed in the doubling of the blank upon itself as described, and, said corners being thus dispensed with, the action of the shaping dies leaves the exterior of said socket smooth, while the notches *c* permit the necessary flow or readjustment of the metal incident to the bending backward of the track plate.

Having thus described our invention, we claim:

1. As an article of manufacture, a caster socket formed of resilient metal, the body of which is for a portion of its length of a normal diameter, and as to the remainder of its length of an enlarged diameter, in the nature of an abrupt bulge, the wall of which enlarged portion embodies openings, whereby said enlarged portion is adapted to be compressed and to act as a socket retaining spring, substantially as set forth.

2. As an article of manufacture, a caster socket consisting of an integral strip of spring metal bent into suitable shape to form the upper end or apex and the two semi-cylindric halves of said socket, said halves being so longitudinally bent that the completed socket is as to its upper and lower portions of a substantially common and normal diameter, and the intermediate portion of an enlarged diameter, said enlarged portion being provided with openings so as to be compressible and adapted to act as a socket-retaining spring, substantially as set forth.

3. As an article of manufacture, a caster socket formed of a strip of metal doubled upon itself and having its opposing edges forced into contact with each other, and held in position by a circumscribing ring, substantially as set forth.

In testimony that we claim the foregoing as our invention, we have hereunto signed our names this 10th day of September, A. D. 1890.

DANIEL F. CREAN.
WILLIAM F. STONE.

In presence of—
GEO. H. BARKER,
H. S. FALMAN.