(Model.)

C. STENGEL.

CASTER.

No. 388,460. Patented Aug. 28, 1888.

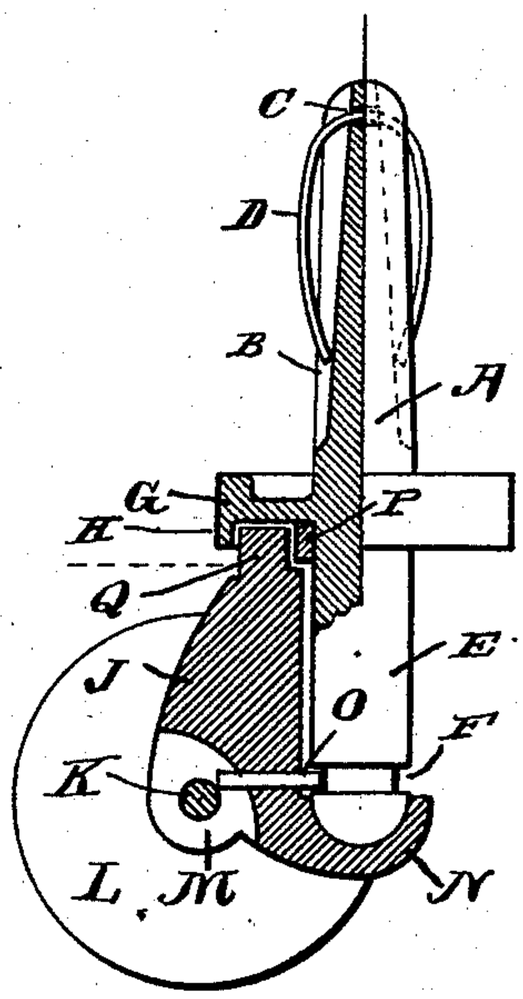

Fig. 1.

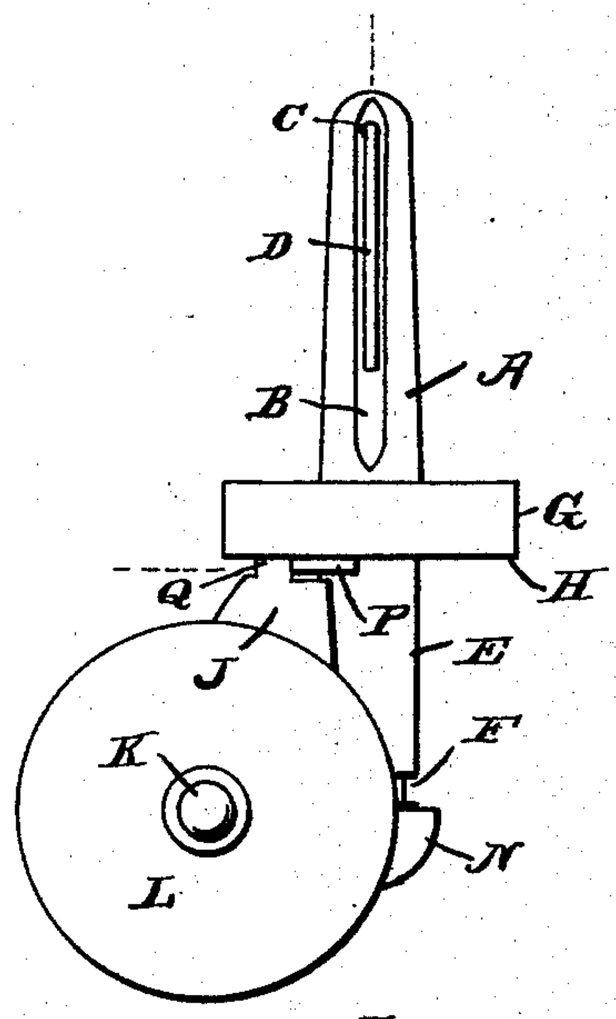

Fig. 2.

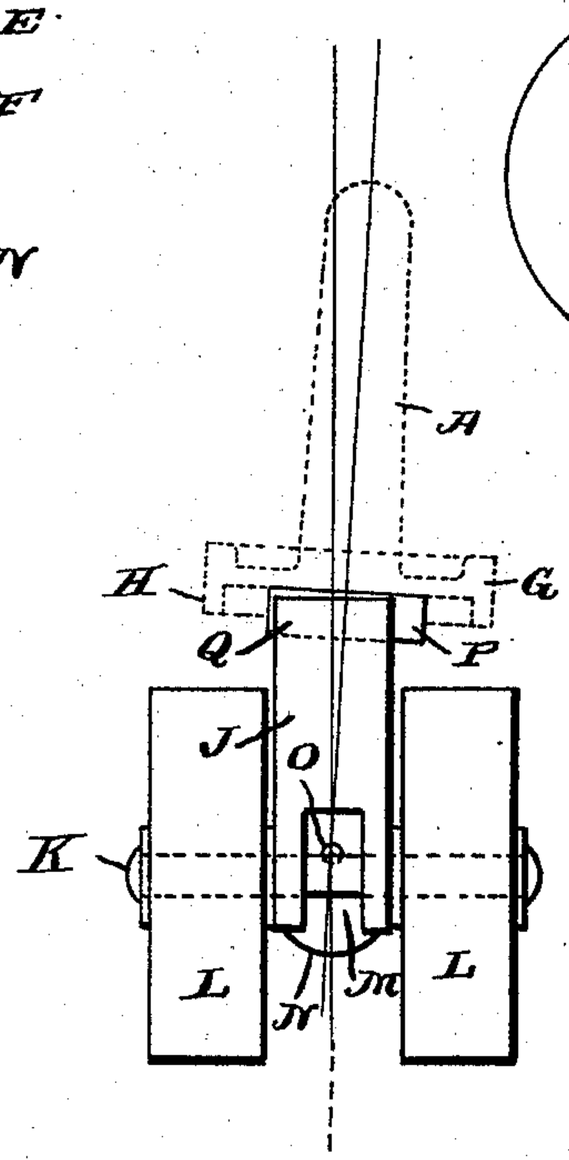

Fig. 3.

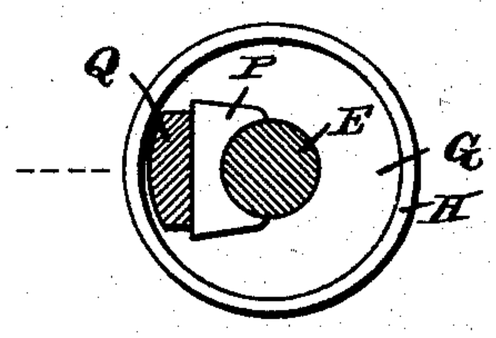

Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES STENGEL, OF HAMILTON, OHIO.

CASTER.

SPECIFICATION forming part of Letters Patent No. 388,460, dated August 28, 1888.

Application filed February 27, 1888. Serial No. 265,445. (Model.)

To all whom it may concern:

Be it known that I, CHARLES STENGEL, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Casters, of which the following is a specification.

This invention pertains to improvements in casters for furniture, and will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation, part vertical section, of a caster illustrating my improvements; Fig. 2, a side elevation similar to Fig. 1, but with none of the parts appearing in section, the attaching stem in this figure being shown as presenting its grooves B at the sides of the caster instead of front and rear, as in Fig. 1—that is to say, the stem has been turned to present one of its grooves to the viewer. Fig. 3, a rear view of the caster, the attaching-stem and its flange appearing in dotted line and as if tipped at an angle to the horizontal plane of the wheel-axle, and Fig. 4 a bottom view of the stem-flange G with its top box in position and showing other contiguous parts in horizontal section.

In the drawings, A indicates the attaching-stem of the caster, intended where the attachment is to be of the stem type for insertion into the usual socket in the bottom of the furniture-leg, such socket being simply a hole bored in the wood, or being a hole provided with the ordinary socket-bushing of metal; B, a pair of oppositely-disposed vertical longitudinal grooves in the attaching-stem; C, a transverse hole in the top of the attaching-stem leading from groove to groove; D, a staple-shaped piece of spring-wire with its bow held in said hole and with its extremities resting in the grooves well down upon the attaching-stem, and having its intermediate side portions swelled outwardly in convex curves projecting beyond the circumference of the attaching-stem; E, the foot-stem of the caster, the same to project downwardly from the stem A or from such other attaching device as might be used instead of the attaching-stem, this foot-stem being provided with a round or hemispherical extremity at its bottom; F, a circumferential groove in the foot-stem near its lower end; G, a circular flat flange formed at the upper end of the foot-stem; H, a downwardly-projecting peripheral curtain or flange formed upon the flat flange G; J, the wheel-housing, shown in the illustration as being of the single-prong type—that is to say, it engages the wheel-axle between the two wheels, and is without prongs to engage the wheel-axle outside the wheels, though such usual outside prongs may be provided, if desired; K, the wheel-axle carried by a hole across the base of the housing; L, the two floor-wheels, one disposed upon each side of the housing; M, a rearwardly-open notch in the base of the housing, exposing the axle where it crosses the central portion of the housing; N, the stem-bearing of the housing, formed by a forward projection of the housing, and having a bearing-cavity adapted to receive the round step of the foot-stem; O, a pin loosely inserted in a hole in the housing at right angles to the wheel-axle, and upon substantially the same level as the wheel-axle, the forward end of this pin projecting into the foot-stem groove F, while its rear end is against the axle at the notch M; P, a journal-box, shown in the form of a half-box, adapted for free rotation upon the foot-stem and having a rear flat face; and Q, an upward projection of the housing reaching up to near the flat flange G and within the peripheral flange H, and having a flat front face bearing against the journal-box P, the thickness of this projection being such as to permit the edgewise motion of the projection before coming in contact with the curtain H. In these two-wheeled casters it is important that the wheel-axle be capable of oscillation with reference to the furniture in order to permit the two wheels to find proper bearing upon irregular floor-surfaces. In the present construction the axis of oscillation is a line drawn horizontally through the center of the hemispherical stem-bearing at right angles to the wheel-axle. As the housing tips in the course of oscillation, the projection Q shifts its position upon the rear face of the journal-box P, the same as in my patent, No. 277,954, of May 22, 1883, to which reference is hereby made. The housing revolves upon the foot-stem in the usual manner when the caster swivels, and during this swiveling motion the journal-box P rotates upon the foot-stem precisely as in my former patent referred to. The foot-stem does not revolve during this swiveling motion, the intention being that it shall or may be permanently fixed to the furniture by any of the

well-known attaching means or by means of the improved attaching-stem herein set forth. The vertical strains upon the caster tend to push the stem-bearing N of the housing downward, and consequently to push the projection Q of the housing forward. The projection Q becomes, therefore, pressed firmly against the rear face of the journal-box P. The curtain H, exterior to the projection Q, prevents serious displacement of the housing, but the engagement of the projection Q within the curtain is so loose and free as to permit the necessary side movement of the projection in the oscillatory movement of the housing.

In putting the caster together the journal-box P is placed in position upon the foot-stem, the housing J placed in position, the pin O is pushed into position through the open notch M, and the axle and wheels applied. The parts are then properly united and incapable of improper disunion, the axle serving to prevent the retreat of the pin O from the grooves F. By removing the wheels and axle, the pin O may be readily withdrawn and thus permit the separation of the parts. The wire D when the attaching-stem is pushed upwardly into the socket which is to receive it yields inwardly and permits the insertion; but the expansive force of the wire produces such friction against the walls of the socket as to prevent the attaching-stem from readily leaving the socket, without, however, preventing the stem being forcibly withdrawn from the socket. There is in common use a form of metallic bushing for the caster-sockets in the legs of furniture in which a collar presents itself at the foot of the bushing a trifle below the lower surface of the furniture-leg. In order to have the flange G close up neatly against the furniture-leg, I provide, preferably, an annular groove in its upper surface around the foot of the attaching stem so as to make room for the socket-collar referred to.

In connection with the spring arrangement for securing the stem within the leg-socket it should be explained that the method, broadly, is not new. It has been proposed to provide the socket with a spring arranged in some cases externally and in some cases internally, such spring engaging a groove in the stem, the spring remaining in the socket when the stem was withdrawn. I disclaim such arrangement.

In another form of stem attachment a circumferential groove has been formed in the stem, and in this groove was placed an open flat ring which, when the stem was pushed up into the socket, engaged the walls of the socket and held the stem in place by frictional engagement, the stem rotating within the ring. In this arrangement the ring, while it pressed outwardly upon the wall of the socket, did not press inwardly upon the stem of the caster, and therefore had no effect in preventing the noisy rattling of the stem in the socket. Furthermore, when the stem was to be inserted in a socket some sort of a tool would be needed to collapse the ring to permit its entry into the socket. I disclaim such arrangement. In my device the spring is arranged lengthwise of the stem, and is of exceedingly cheap, efficient, and simple construction. The upper end of the spring, by reason of the convex form of the spring, will readily enter the foot of the socket, thus avoiding the need of tools in the operation. The spring, while acting outwardly against the wall of the socket, reacts inwardly upon the stem and serves to prevent rattling noises.

I claim as my invention—

1. In a furniture-caster, the combination, substantially as set forth, of a foot-stem provided at its lower end with a bearing of oscillation, and at its upper end with a circular flange having a peripheral curtain, a wheel-housing united to said foot-stem and engaging said bearing of oscillation, and provided with an upward projection within said curtain, an axle carried by said housing, and a pair of floor-wheels on said axle.

2. In a furniture-caster, the combination, substantially as set forth, of a foot-stem fitted for attachment to furniture, and having a rounded lower end provided with a circumferential groove, a wheel-housing provided with a stem-bearing engaging the lower end of the foot-stem, a wheel-axle carried by said housing, and a pin also carried by said housing with its forward end engaging said circumferential groove and with its rear end engaging said wheel-axle.

3. In a furniture-caster, the combination, substantially as set forth, of a foot-stem provided at its top with a circular flat flange having a peripheral curtain, and at its bottom with a bearing of oscillation and a circumferential groove, a journal-box engaging the stem just below said flange, a housing provided with a stem-bearing and with an upward projection engaging said journal-box within said curtain, and having a rearwardly-open notch in rear of the foot-stem, a wheel-axle carried by said housing and crossing said notch, a pair of floor-wheels upon said axle, and a pin carried by the housing at its notch and engaging its forward end with the circumferential groove of the foot stem and its rear end with the wheel-axle.

4. In a furniture-caster, the combination, substantially as set forth, of a stem adapted for insertion into a leg socket in furniture and to be held against rotation therein, and provided with one or more vertical longitudinal grooves or spring-spaces in its peripheral surfaces, and a spring secured to said stem and lying in such groove or spring-space and presenting a convexly-curved side located partly within the circumference of the stem and partly beyond such circumference.

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Witnesses:
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