W. MAIER.

CASTER.

APPLICATION FILED MAY 28, 1906.

1,015,572. Patented Jan. 23, 1912.

Fig. 1.

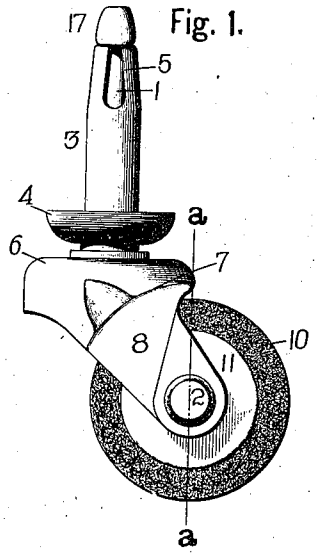


Fig. 2.

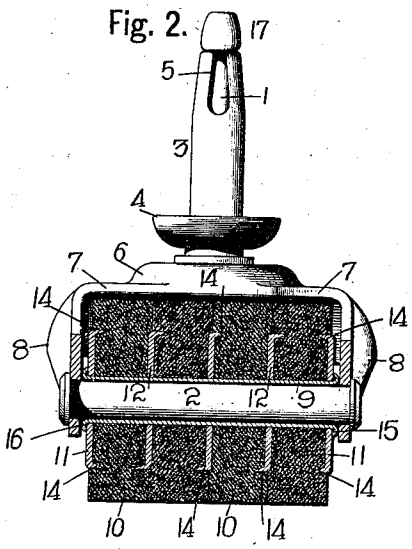


Fig. 3.

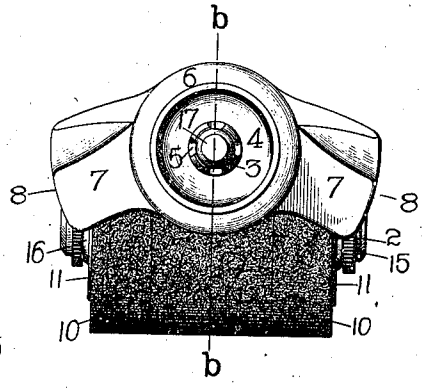


Fig. 4.

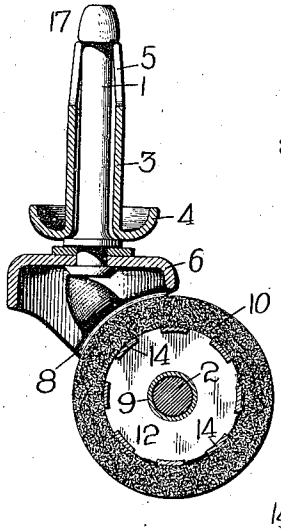


Fig. 5.

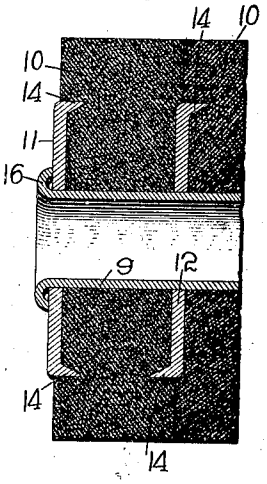


Fig. 6.

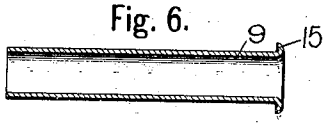


Fig. 7.

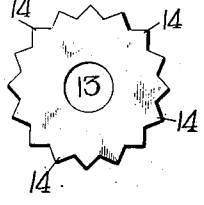


Fig. 8.

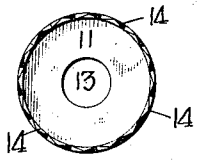


Fig. 9.

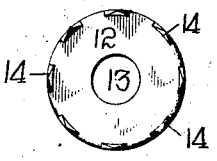
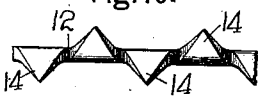


Fig. 10.



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CASTER.

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Application filed May 28, 1906. Serial No. 319,117.

To all whom it may concern:

Be it known that I, WILLIAM MAIER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a certain new and useful Improvement in Casters, of which the following is a specification.

This invention relates to an improved caster for furniture and the like and the invention resides mainly in the construction of the roller, which is built up of one or more rings of fibrous material clamped and supported between metal rings upon a metal core.

The object of the invention is to produce a caster having a roller formed almost entirely of fibrous material, and which is especially adapted for use on furniture located in rooms having polished floors to prevent injury to the floors.

The invention also relates to certain details of construction all of which will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which,—

Figure 1, is a side view of the improved caster. Fig. 2, is a longitudinal section on line *a*—*a*, Fig. 1. Fig. 3, is a plan view of the improved caster. Fig. 4, is a central vertical section on line *b*—*b*, Fig. 3. Fig 5, is an enlarged fragmentary section through the roller on line *a*—*a*, Fig. 1, showing the method of locking the fibrous rings together. Fig. 6, is a detached longitudinal section through the tubular core. Fig 7, is a face view of one of the metallic fastening rings before the prongs are bent. Fig. 8, is a detached face view of one of the end metallic fastening rings. Fig. 9, is a detached face view of one of the intermediate metallic fastening rings. Fig. 10 is an enlarged fragmentary edge view of one of the intermediate metallic fastening rings.

In referring to the drawings for the details of construction like numerals designate like parts.

The caster consists of a shank 1, a yoke or bifurcated foot between the fork members of which a roller is supported on a shaft 2, and a sleeve 3, having a flanged lower end 4, and a reduced and split upper portion 5, see Figs. 1, 2, 3, and 4.

The yoke or bifurcated foot has a central circular portion 6, from opposite sides of which horizontal portions 7, extend, the outer extremities 8, of said portions 7, being bent at right angles and extending downwardly in an oblique direction to form a fork, see Figs. 1 and 2.

The yoke is secured to the shank 1, by fitting the lower end of the shank through a central opening in the circular portion 6, and then upsetting its lower extremity, see Fig. 4.

The roller consists of a tubular metallic core 9, and a series of rings 10, formed of compressed fibrous material such as felt, which are placed side by side upon the core, and locked against creeping or independent movement of each other or of the core by a plurality of end and intermediate metallic locking rings 11 and 12. These metallic locking rings are formed substantially as shown in Figs. 5, 7, 8, 9 and 10, are less in circumference than the fibrous sections and each consists of a flat sheet metal plate having a central opening 13, to permit the passage of the tubular core 9, and an annular series of laterally extending prongs 14, which embed themselves in the felt rings and rigidly lock them together.

The metallic locking rings are formed by stamping a ring shaped as shown in Fig. 7, from a blank of sheet metal, the ring having a serrated peripheral edge the serrations of which are then bent at right angles to the body of the ring and form the prongs 14.

The end locking rings 11, are formed by bending the serrations in one direction so that when completed the prongs 14, all extend laterally from only one face of the ring and in the same direction, as shown in Figs. 2, 5 and 8. The intermediate locking rings 12, are formed by bending the serrations alternately in opposite directions, so that when completed the prongs 14, extend from both faces of the ring, and alternately in opposite directions, as shown in Figs. 2, 5, 9 and 10.

The roller is assembled or built up as follows,—One of the ends of the tubular metallic core 9, is flanged as shown at 15, in Fig. 6, and an end locking ring 11, is slipped upon the core and against the flange 15. A felt ring 10, is next slipped upon the core and pressed tightly against the ring 11, so that the prongs 14, embed themselves therein. An intermediate locking ring 12, is then placed upon the core and forced against the felt ring 10, so that its prongs 14, embed themselves in said felt ring as shown in Fig. 2. Another felt ring 10, is then placed upon

the core and is followed by one of the intermediate locking rings 12. This operation is continued until the desired width of roller is obtained when one of the end locking rings 11, is placed upon the core so that the prongs 14, embed themselves in the last felt ring 10. The roller is now placed in a suitable machine and compressed longitudinally so that not only the prongs of the locking rings, but the entire rings themselves are completely embedded in and buried between the felt rings, the felt being compressed to such a degree that the portions of the felt rings beyond the metallic locking rings are brought in close contact with each other, thus producing an almost invisible joint see Fig. 5 and protecting the metal rings from rust. By this means the intermediate locking rings are completely concealed between the sections, forming a roller the outer circular portion of the annulus of which is purely felt while the remainder is metal reinforced felt, thereby providing a very strong and rigid inner portion and a fairly soft outer portion. When this stage of the operation has been reached, the unflanged end of the core 9 is expanded or upset by a suitable tool against the outer face of the adjacent end locking ring, as shown at 16 in Figs. 2 and 5, thereby maintaining the felt in its compressed state, and the roller is complete. This not only securely fastens the metal and felt rings of the roller together in a highly compressed condition, but also curves or rounds the interior walls of the ends of the core so that the roller will not present any short end edges and will roll easily and smoothly on its supporting shaft.

The roller is supported between the fork ends 8, of the yoke or bifurcated foot by the shaft 2, which has its ends passed through openings in said fork ends 8, and then upset or flattened, see Fig. 2.

The caster is secured to the leg of a chair or other suitable article by fitting the sleeve 3, in a recess in the bottom of the chair leg with the flange 4, fitting against the bottom surface thereof.

The shank 1, has an enlarged upper end or head 17, over which the reduced and split upper portion 5, of the sleeve 3, is sprung when the shank is inserted in said sleeve, thereby holding the caster in place, see Figs. 1, 2 and 4.

The yoke is preferably stamped from sheet metal and in one integral piece, being shaped so as to have great strength and rigidity.

It will be seen by referring to Figs. 2 and 5, of the drawings, that that portion of the felt ring 10, between the metallic locking rings 11 and 12, is compressed to a greater degree than that portion beyond said rings, in order to provide the space for the locking rings, and this portion of the felt rings taken in conjunction with the locking rings forms in reality a supplementary core which is harder than the periphery of the roller, but is in part integral therewith. By this construction a built up felt roller is produced the parts of which are so rigidly fastened together as to avoid all possibility of creeping or independent movement, thereby avoiding slipping or unequal wear. The chief advantages of this form of caster reside in the absolute and rigid locking of the felt sections together to make a rigid roller; in the production of a roller having a non-injuring surface made of fibrous material and which is guarded against creeping due to stretching; and in the manner of building up the roller in sections whereby the length of the roller may be varied according to the weight of the piece of furniture to which it is to be attached.

I claim as my invention—

1. A caster having a horn and pintle, and a wheel rotatably mounted in the horn and having a dense body of compressible material, a sheet metal washer within said body of but slightly less diameter than said body having projections from its face and embedded in said body, and retaining plates for the body.

2. A caster having a horn and pintle, and a wheel rotatably mounted in the horn and comprising a plurality of felt disks, one or more sheet metal washers intermediate said disks and having transverse teeth adjacent its periphery, these elements being compressed together to embed the faces of the washers in the material of the disks thus highly compressed, and retaining plates for the dense body thus formed.

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