No. 886,547. PATENTED MAY 5, 1908.

W. S. SHARPNECK.

ROLLER BEARING.

APPLICATION FILED JAN. 26, 1906.

FIG. 1.

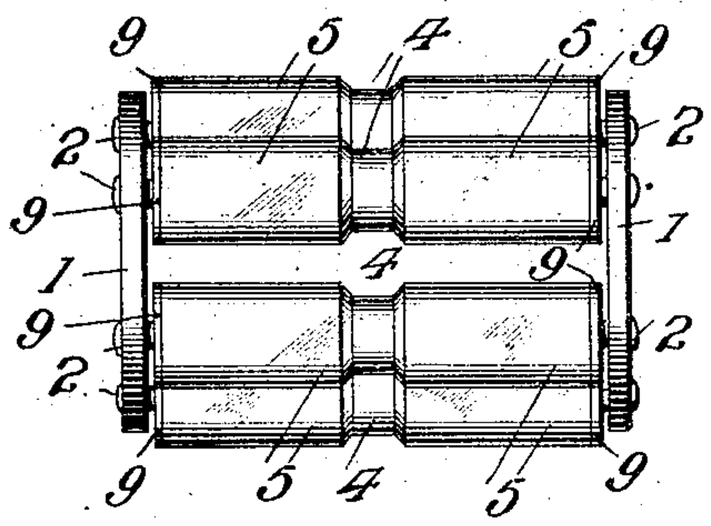

FIG. 2.

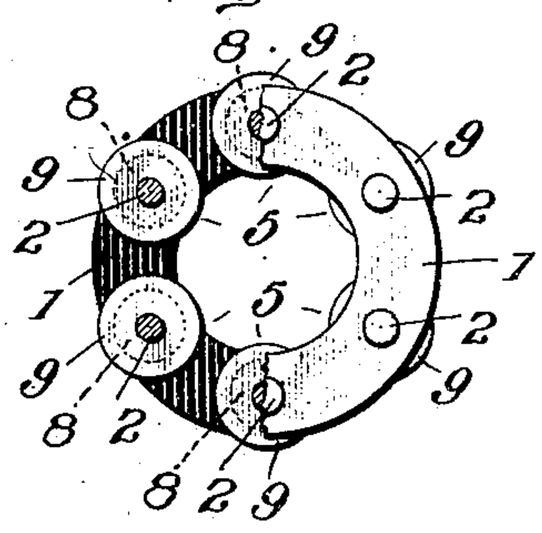

FIG. 3.

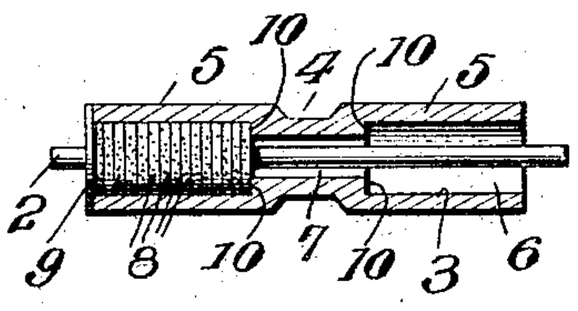

FIG. 4.

FIG. 5.

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ROLLER-BEARING.

No. 886,547. Specification of Letters Patent. Patented May 5, 1908.

Application filed January 26, 1906. Serial No. 297,966.

To all whom it may concern:

Be it known that I, WILLIAM S. SHARPNECK, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Roller-Bearings, of which the following is a specification.

My invention relates to roller bearings and has for its object to reduce the friction and thereby to increase the efficiency and add to the wearing qualities of such bearings.

To this end my invention consists in the construction described in the specification, illustrated in the drawings, and more particularly pointed out in the appended claims.

Referring to the drawings: Figure 1 is a side elevation of a nest of rollers. Fig. 2 is an end elevation thereof. Fig. 3 is a view in section of one of the rollers, the disks or washers being shown only at the left of the figure, while at the right of it is illustrated the cavity designed to receive disks or washers similar to those shown in position at the left of the figure. Fig. 4 is a detail of the outer or end disks or washers, and Fig. 5 is a detail of the inner disks or washers.

The bearing consists of a nest of rollers rotatably supported in the customary cage, which comprises end rings 1 and cage pins 2, of which there may be any suitable number (six as shown) and which are spaced as desired. On each pin 2, is rotatably mounted a roller 3. Up to this point the construction exhibits no novelty. It is in the mounting of these rollers and in the efficient combination resulting therefrom that the invention lies. Each roller is by preference, but not of necessity, formed with a central portion 4 of less outer diameter than the rest of the roller, constituting a depression and breaking the roller into two acting surfaces 5. The rollers are hollow being at all points of greater internal diameter than the cage pins, so that at no point do they touch the same. As shown and in the preferable embodiment of the invention, the bore of the hollow roller is varied to correspond roughly with the variation in its external form, and comprises a cavity 6 at each end and a connecting portion 7 of less internal diameter than that of the cavities. The material with which these cavities are filled is raw hide, the use of this material being one of the most important features of the invention. Raw hide is especially suited to this use, being tough, durable, noiseless, of strength sufficient to meet all demands, and constituting a permanent lubricating element. Other materials have various defects, as incompressibility, insufficient strength and toughness, absence of lubricating qualities, etc. As pointed out, these defects are not any of them present in raw hide, the material I employ.

Another important feature of my invention is the manner in which the cavities are filled. For this purpose are employed disks or washers 8 fitting loosely on the pins and of slightly less external diameter than the internal diameter of the rollers, so that the relative movement may freely take place between all three of these elements, viz., the pin, the disks, and the roller. This renders the rotation of the rollers much less rapid and reduces friction and wear.

The disks 8 within the roller are held in position by outer or end disks 9 which have a sufficiently close fit upon the pin to maintain substantially their relative position thereon. These end disks not only hold the inner disks in position, but protect the cage rings from being cut by the ends of the rollers. The shoulders 10 formed where the cavities 6 end and the connecting portion 7 of the roller bore begins restrain the disks from undue endwise movement in the other direction. These disks are capable of rotation relative to each other to equalize any strains in use or any inequalities in the various surfaces, and are therefore not tightly packed into the cavities. They are, however, placed there in sufficient numbers and near enough together to sustain the rollers effectively.

I am aware that it is not new to employ in a roller bearing, a composite roller of steel lined with wood fiber, nor to protect the cage rings from the rollers by end washers. This has been done in the patent to Brooks, No. 642,204. But so far as I am aware, it is new to support a roller by internal disks with respect to which the roller is free to move, and to make a bearing of this nature self-lubricating by the use of raw hide.

What I claim as new and desire to protect by Letters Patent, is:—

1. In a roller bearing, a cage comprising pins, disks free to rotate on said pins, and rollers supported by said disks and free to rotate thereon, substantially as described.

2. In a roller bearing, supporting pins, raw

hide disks free to rotate independently on said pins, and rollers free to rotate on said disks, substantially as described.

3. In a roller bearing, supporting pins, rollers having an internal bore greater than the diameter of the pins, raw hide disks between said pins and rollers to sustain said rollers so that they are always out of contact with said pins but rotatable with respect to said disks and pins, substantially as described.

4. In a roller bearing, a supporting pin, a roller having cavities at each end thereof and a smaller connecting bore, all being of greater diameter than the pin, disks within the cavities and rotatable with respect to the roller, and means for retaining the same in position, substantially as described.

5. In a roller bearing, end rings supporting pins connecting the same rollers supported from said pin and having cavities, a plurality of disks rotatable on said pins and filling said cavities, said disks being of less external diameter than the internal diameter of the cavities to permit the rollers to rotate with respect to the disks.

Signed by me at Chicago Illinois this 23d day of January 1906.

WILLIAM S. SHARPNECK.

Witnesses:

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M. A. BEGS.