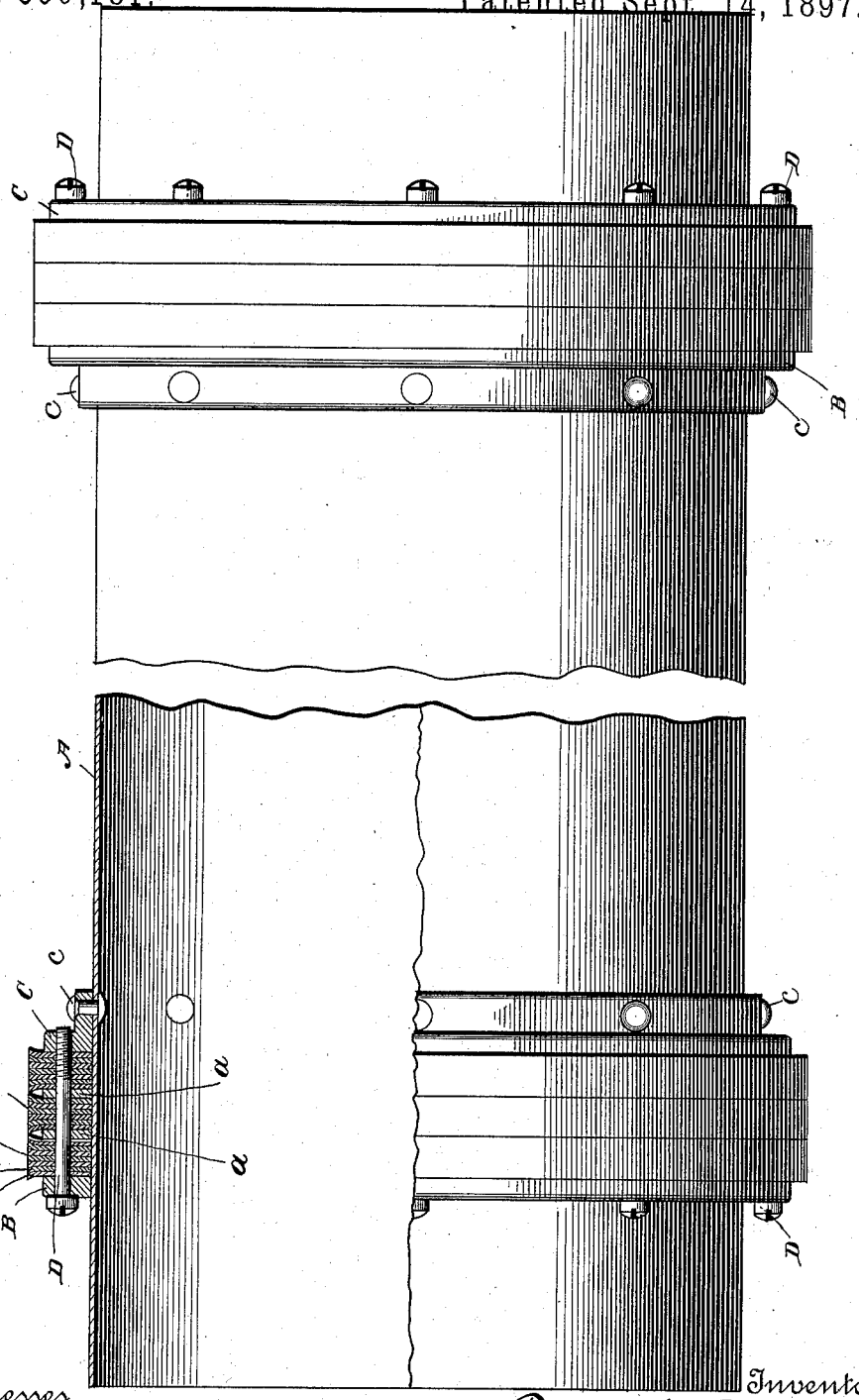
(No Model.)

B. C. BATCHELLER.

CARRIER FOR PNEUMATIC DESPATCH TUBES.

No. 590,181. Patented Sept. 14, 1897.



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CARRIER FOR PNEUMATIC-DESPATCH TUBES.

SPECIFICATION forming part of Letters Patent No. 590,181, dated September 14, 1897.

Application filed June 23, 1896. Serial No. 596,622. (No model.)

To all whom it may concern:

Be it known that I, BIRNEY C. BATCHELLER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Carriers for Pneumatic-Despatch Tubes; and I 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.

This invention relates to an improved carrier for pneumatic-despatch apparatus, and more particularly to the construction of a new and improved bearing-ring for such carriers.

The principal object of the invention is to so construct the bearing-rings that they will have greater durability than heretofore and at the same time will have sufficient strength to enable them to properly perform the work which they have to do.

The invention therefore consists, essentially, in carrier-rings made of cloth or other suitable textile or woven fabric suitably treated with a lubricant, and also in numerous details in the construction, arrangement, and combination of the various parts, substantially as will be hereinafter described and claimed.

The accompanying figure of drawing represents a side elevational view of a carrier for pneumatic-despatch apparatus, the same being provided with my improved bearing-rings, one of which is shown in cross-section.

A represents the cylindrical body or shell of the carrier, which is preferably made of sheet metal or other available material and is constructed at its ends in any desired manner, said ends or heads not being herein shown or described, as they do not enter into the present invention.

In the ordinary construction of carriers for pneumatic tubes the body or shell A is usually made somewhat smaller than the bore of the tube through which it is designed to travel, and such body or shell A is provided near its ends with exterior encircling bearing-rings whose outside periphery has a diameter nearly equal to the interior diameter or bore of the tube, so that the said bearing-rings fit with a neat and close joint, only loose enough to permit of the free movement of the carrier through the tube. These bearing-rings not only serve to prevent in a large measure the flow of any air past the body of the carrier, but also they have the function of providing wearing-surfaces for the carrier as it slides through the tube in the performance of its normal work. Obviously as the pneumatic tube increases in diameter and the size of the carrier which is propelled through it correspondingly increases the weight of the carrier will likewise increase, and the wear on the bearing-rings will also be greater in proportion. When, for instance, the pneumatic tube has a large diameter of, say, six inches or more, the carriers will be very heavy, particularly when they are filled with heavy material, and during their constant sliding action through the despatch-tube the bearing-rings will wear away very rapidly unless they are made of some substance with a moderately low coefficient of friction in sliding contact with the interior surface of the tube. Furthermore, it is desirable to have these bearing-rings made of some tough but yielding substance, in order that they may not be broken by any blow received in handling or in transit through the tube, in order that they may take up and prevent undue jar to the carrier, and in order that the passage of the carrier through the tube may be as noiseless as possible. It is furthermore desirable that the bearing-rings may be so constructed and applied to the carrier that they can be readily and easily removed therefrom when desired—as, for instance, when they are worn out—and new rings substituted in their places. It therefore becomes an extremely important desideratum in the manufacture of carriers for pneumatic-despatch apparatus that the bearing-rings, which are so necessary in the operation of the carriers, should be made of strong and durable material.

In my present invention I have devised bearing-rings which I think meet the several wants and needs just alluded to.

As a result of a long course of testing and experimentation conducted with great care and accuracy I have discovered that the most durable bearing-rings and those that best fulfil all of the recited requirements are made of canvas cloth or duck coated or soaked with some suitable oil, such as linseed-oil, or a mixture of several oils, and also treated with plumbago. Powdered plumbago is placed between layers of the cloth and worked thoroughly between the interstices of the fibers of the cloth, so as to make as intimate and complete a penetration and filling of the fibers as possible. The plumbago may, if desired, be mixed with the oil and applied jointly with it to the cloth.

I do not, of course, confine myself to the particular materials just specified.

Instead of the canvas cloth or duck which I have mentioned any woven cloth or textile or woven fabric may be used.

Although the drying qualities of linseed-oil make it peculiarly valuable for the purpose suggested, yet various kinds of oils may be used, and the plumbago may be replaced by talc (powdered soapstone) or other similar substance having lubricating qualities.

The method of manufacturing the cloth or textile bearing-rings may be described as follows: I first treat the sheets or pieces of cloth or other textile or woven fabric with the oil and plumbago. Second, several layers of cloth which have thus been treated are superimposed one upon the other, putting more plumbago between the several layers, if desirable, and then sewing the layers of cloth together. Third, I allow the material to dry somewhat. Fourth, from the sheets thus formed rings are cut of the desired size, and, fifth, these rings are mounted in operative position upon the carrier and secured thereto. Cotton duck thus prepared and treated is found to be very strong, tough, and durable. It is not brittle and will yield under a blow. The oil, especially linseed-oil, protects the cloth from the absorption of water, which might rot and destroy it. The oil partially dries, forming a gummy substance that fills up the interstices of the cloth, making a solid yielding body. The permeating effect of the oil serves to hold the plumbago between the fibers of the cloth.

The plumbago (graphite) acts as a dry lubricant. It reduces the friction between the bearing-rings and the interior surface of the tube, thereby prolonging very greatly the life of the ring and enabling it to operate efficiently and nicely during its entire period of service.

In the accompanying figure of drawing I have shown one way in which my improved textile bearing-rings may be secured to the body of the carrier. It must be distinctly understood, however, that the means thus shown are given here simply by way of illustration and as one example of the invention and that I am not to be restricted thereto, but reserve the liberty of adopting other securing devices whenever found necessary, convenient, or desirable.

In the drawing the body A of the carrier has fastened thereto at each end by means of rivets *c* the rings C C.

B B denote follower-rings which encircle the body A and are adjustable toward and away from the rings C, being connected to said rings by means of the adjusting bolts or screws D D, which serve as clamping-bolts.

Between the rings C and the follower-rings B are clamped the groups E E of cloth layers which constitute the bearing-rings.

It will be evident that each bearing-ring may consist of a single group of cloth rings *e* or of a plurality of such groups, and when the bearing-ring is of the multiple form the different parts thereof are preferably separated by thin metal rings *a a*. I desire it to be particularly stated, however, that any number of these cloth strips may be used and that they present their edges to the wearing-surface of the tube within which the carrier operates. In other words, it may be said that the bearing-ring as herein described and illustrated consists of an exterior clamp on the body of the carrier, which clamp holds a plurality of textile layers whose edges constitute the bearing-face of the ring, said layers being suitably treated with a lubricant in order to make the bearing-ring tough and durable.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bearing-ring for pneumatic-despatch-tube carriers consisting of a plurality of superimposed, textile, disk-like rings surrounding the carrier and clamped together, with a dry lubricant between the surfaces of the rings, the exterior edges of which rings form the face of the bearing-ring.

2. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a plurality of superimposed layers of cloth or textile material clamped together, and saturated with an oil which is allowed to dry, substantially as described.

3. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a series of superimposed cloth or textile disk-like rings clamped together so that their exterior edges may form the face of the bearing-ring, said layers being impregnated with an oil or oils and having an interposed dry lubricating material between them.

4. A bearing-ring for pneumatic-despatch-tube carriers, consisting of a series of layers of cotton cloth impregnated by treating with linseed-oil and plumbago.

5. A bearing-ring for pneumatic-despatch-

tube carriers, consisting of a series of layers of cotton cloth impregnated by treating with linseed-oil and plumbago and having powdered plumbago placed between the layers of the cloth so as to penetrate the fiber thereof.

6. A bearing-ring for pneumatic-despatch-tube carriers, consisting of layers of cloth or other textile fabric clamped to each other, said layers having a dry lubricant introduced throughout their fibrous substance and held therein by means of a gummy substance.

In testimony whereof I affix my signature in presence of two witnesses.

BIRNEY C. BATCHELLER.

Witnesses:
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