(No Model.)

F. I. PEARCE.

COLLAR FOR SHAFTING.

No. 272,974. Patented Feb. 27, 1883.

Fig. 1.

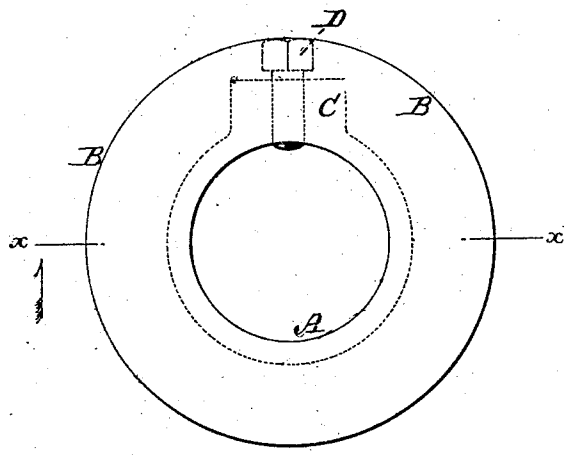


Fig. 2.

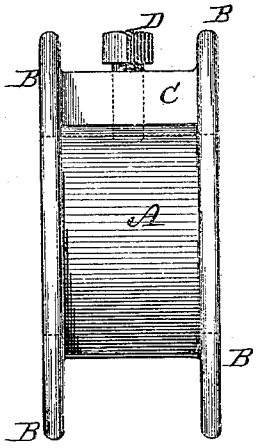


Fig. 3.

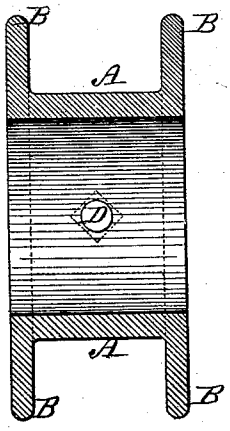


Fig. 4.

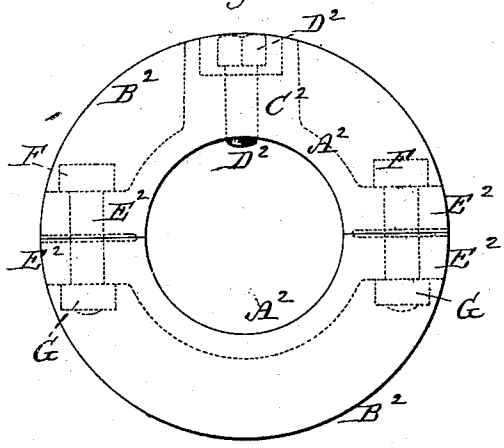
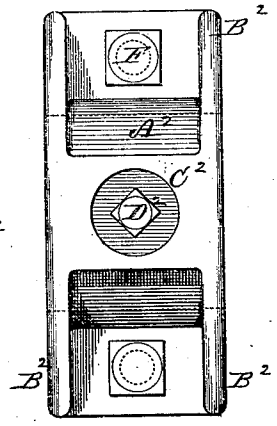


Fig. 5.



Attest:

G. W. Graham

H. C. Janvier

Inventor,

Frank I. Pearce

By

J. N. McIntire.

Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FRANK I. PEARCE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE LINK-BELT MACHINERY COMPANY, OF SAME PLACE.

COLLAR FOR SHAFTING.

SPECIFICATION forming part of Letters Patent No. 272,974, dated February 27, 1883.

Application filed December 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRANK I. PEARCE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Collars for Shafting; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to certain new and useful improvements in that kind of collar which is usually employed on shafting in machine-shops and other places for the purpose of confining endwise the shafting or pulleys or other wheels which are arranged to turn on said shafting, and commonly denominated "loose pulleys." Previous to my invention it has been customary to make collars of this class for this and analogous purposes in the form of a simple solid annulus or ring, having a bore very slightly greater in diameter than the diameter of the shaft or shafting on which it may be designed to use the collar, and provided at usually one point in its circumference with an ordinary set-screw working in a hole drilled and tapped through the stock of the collar, and adapted to secure the collar in any desired position on the shaft. To collars as thus made previous to my invention there are these two serious objections, viz: In the first place, the projecting head of the set-screw necessarily employed to fasten the collar to the shaft is exceedingly dangerous on account of its liability to catch the clothing or strike and injure the person of workmen engaged in doing any work in close proximity to the line of shafting (while in motion) provided with such collars, and, in the next place, in order to have the sides of the collar or ring of sufficient width to properly serve the purpose of bearing-surfaces against the edges or ends of the hub-like portions of the wheels to be held in place by such collar the collar itself is necessarily heavy and involves the use of an undue quantity of metal in its casting.

I propose by my invention to overcome these serious objections to collars as heretofore made, and at the same time provide a collar which in other respects will be more desirable than the collars made previous to my invention; and to these ends and objects my invention consists in making the collar with its body portion comparatively thin or light, and forming it with flange-like ends, so as to produce a figure in cross-section somewhat similar in appearance to a spool, and in forming said body portion with a sort of enlargement or boss-like extension at the locality where the body of the collar has to be drilled and tapped for the accommodation of the set-screw, the flange-like portions of the collar having their peripheries located at a distance from the axial line of the collar equal to or slightly greater than the distance from said axial line of the top surface of the head of the set-screw, all as will be hereinafter more fully described.

As is well known, it is common in the art to have collars such as made previous to my invention of two species—viz., solid collars, (which can only be applied to the shafting by slipping them on endwise,) and what are called "split collars," made in halves, adapted to be placed round about the shaft, and then have their parts bolted together, and in the use of this latter species of collar, as heretofore made, not only was there the objection before mentioned of the projecting set-screw, but this objection was aggravated by the presence of the radially-projecting lugs on either side of the collar, and the bolts and nuts passed through said lugs for the purpose of securing together the two halves of the split collar.

My invention further consists in making a collar of this species in the manner described with reference to the other species of collar, and also with the lug-like portions, for uniting the halves of the collar, located wholly within the peripheries of the flange-like portions, so that in this species of collar (made according to my invention) not only is the set screw arranged within the guarding-flanges of the collar, but the said flanges also prevent the possibility of any accident which might occur by reason of the presence of the lugs which project from the body portion of the collar, or from the bolts and nuts which are employed to secure together said lugs.

To enable those skilled in the art to which

my invention relates to make and use the same, I will now proceed to describe the same more fully, referring by letters to the accompanying drawings, making part of this specification, and in which I have represented both features of my improvements as applied to the known species of collars.

In the said drawings, Figure 1 is an end view of a collar made according to my invention. Fig. 2 is a side elevation of the same; and Fig. 3 is a central section taken at the line *x x* of Fig. 1, and looking in the direction indicated by the arrow at Fig. 1. These three views illustrate my invention as applied only to the solid species of collars. At Fig. 4 is shown in end or side view and at Fig. 5 in top view a split collar made according to my invention.

I will now explain in detail the construction of that species of my improved collar which is shown at Figs. 1, 2, and 3, in all of which the same part of the contrivance will be found designated by the same letters of reference. In these figures, A is the body portion or hollow cylindrical part of the collar, and B B are the flange-like or collar portions of the device, while C is the enlargement or boss-like portion of the casting, which lends sufficient strength to that part of the thin body portion A which is to be weakened by drilling through and tapping the hole necessary for the accommodation of the set-screw D, which latter is applied as shown, and is adapted to have its head project no farther in the direction of the radius of the collar than do the perimeters or peripheries of the collars B B, between which the said set-screw D is about centrally located. It will be seen that by casting the collar in this form, with the integral flanges B B and boss-like enlargement C, the cylindrical or body portion A may be made exceedingly thin, and yet sufficiently strong, and the sides or bearing ends (represented by the exterior faces of the flanges B B) may be made even greater than in a collar formed as heretofore, while at the same time a much less quantity of metal is required for the entire casting. I therefore produce a collar which not only affords better bearing-surfaces at each end, but one which is very much lighter than and fully as strong as the collars heretofore made, while at the same time the set-screw by which the collar is to be fastened to its shaft is so inclosed within or hedged about by the flanges B B that no danger arises and no accident can happen in case of the necessity for any person to work in close proximity to said collar while in rapid motion.

Referring now to Figs. 4 and 5, which represent the split species of collar, A^2 represents the body portion; B^2 B^2, the flange-like portion; C^2, the boss-like enlargement, and D^2 the set-screw, all substantially similar to the corresponding parts of the collar shown at Figs. 1, 2, and 3, and already described, with the exception, however, that in the species shown at Figs. 4 and 5 the collar is composed of two separate castings, either molded separately or produced by severing into two parts one casting, each forming one-half of the collar, and each provided with radially-projecting lug-like portions E^2, which, as shown, are equal in length to the distance between the exterior of the body portion A^2 and the peripheries of the flanges B^2, and which are arranged diametrically opposite in pairs, as clearly illustrated, said lug-like portions E^2 of the castings being secured together by the bolts F and nuts G.

Now, it will be observed that in a split collar made as shown at Figs. 4 and 5 not only the head of the set-screw D^2, but also all four of the lug-like portions E^2 and their securing bolts and nuts F and G all come within the diameters of the flanges B^2, that, as in the other species, are arranged on each side of the set-screw D^2. Hence in a split collar made according to my invention not only is the usual set-screw so shielded and guarded as to avoid all danger of its catching any person working in close proximity to the collar, but the lugs and their bolts and nuts, which, in the case of forming split collars, are even more dangerous than the set-screw, are so guarded by the flanges B^2 that no accident can be caused by them.

Of course the size of the collar and the relative proportions of the different parts of the casting (or the castings, in the case of a split collar) may be varied according to the judgment of the constructer or manufacturer without departing from the spirit of my invention, and the forms and arrangement of the different portions of the collar in either case may be somewhat varied without changing its principle of construction or mode of operation. It will be noticed, in exemplification of this, that in the two species of collar shown in the drawings the boss-like portion C in one instance differs somewhat from that seen at C^2 in the other instance, and other variations of form might be made without materially changing the novel construction of my improved collar.

Having now so fully explained the construction and principle of operation of my improved collars as to enable those skilled in the art to fully understand and practice my invention, what I claim, and desire to secure by Letters Patent, is—

1. A collar composed of a comparatively thin cylindrical portion, A, and flange-like portions B B, and having the body portion enlarged or strengthened, substantially as shown at C, at the locality where the body of the collar is to be drilled and tapped for the accommodation of the securing set-screw, the relative proportions of the said flanges B B and the enlargement C being such, as shown, that the head of the set-screw D, when said screw shall have been turned home to secure the collar on its shaft, will not project beyond the peripheries of the said flanges, all substantially as set forth.

2. A split collar, each of the halves of which

is composed of a cylindrical or body portion, A^2, the flange-like portions B^2, and lug-like portions E^2, one of which is formed with an enlargement, C^2, the construction of the parts of the collar being such, as shown and described, that when put together and fastened on the shaft not only the securing set-screw D^2, but also the bolts and nuts F and G, by which the parts of the collar are secured together, will be shielded by the flange-like portions B^2, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand and seal this 18th day of December, 1882.

FRANK I. PEARCE. [L. S.]

In presence of—
EDWARD F. GORTON,
E. N. LARNER.