

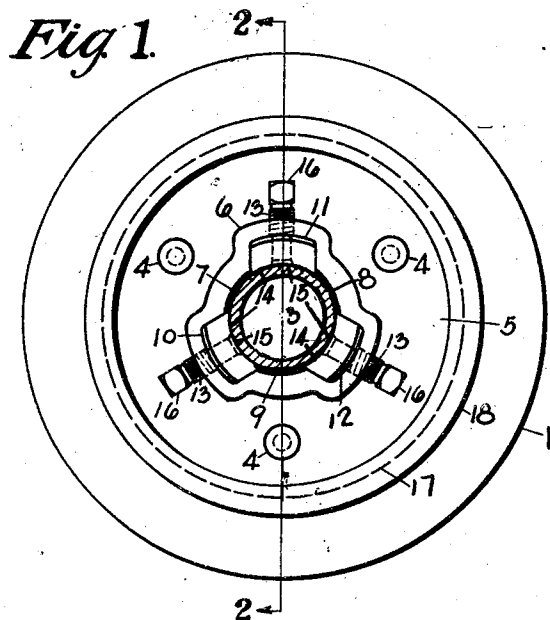
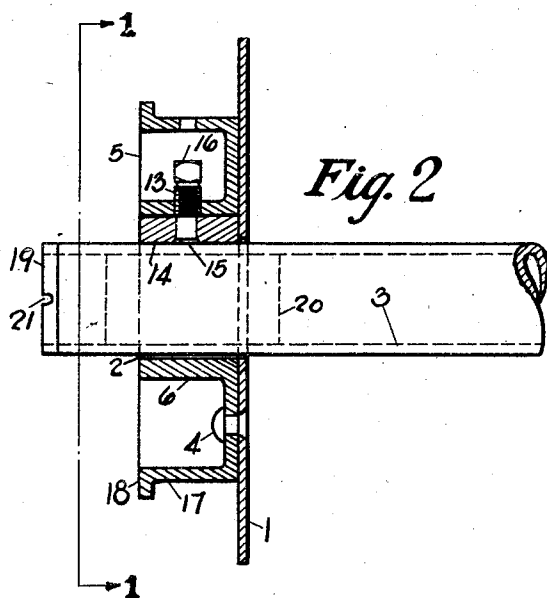
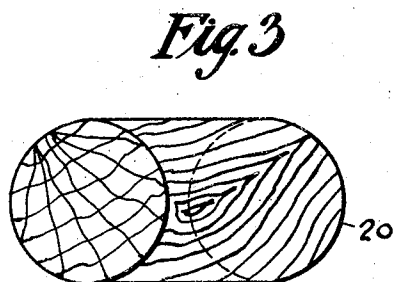
July 28, 1931.

E. UFF

1,816,503

LOOM BEAM STRUCTURE

Filed April 13, 1928



Inventor
ERNEST UFF
per Charles W. Rivise
Attorney

UNITED STATES PATENT OFFICE

ERNEST UFF, OF CHESTER, PENNSYLVANIA

LOOM BEAM STRUCTURE

Application filed April 13, 1928. Serial No. 269,754.

This invention relates to loom beam structures and particularly to beam heads and means for securing the same to beam barrels.

5 In a textile spool which is known in the art as a loom-beam, it is desirable to have the inner guiding surfaces of the flanges or heads at right angles to the axis of the barrel or shaft upon which they are fixed in order that the threads of warp forming the selvages of the resultant fabric may be maintained in the same state of tension throughout the entire weaving operation. This was not always possible in the prior art for the very means or operation employed to secure the head usually mutilated the beam barrel and produced irregularities therein. Furthermore if the barrel was of wood, it had a tendency to shrink or become warped at its juncture with the head or flange, thus causing the head to lean at an oblique angle thereto.

One of the objects of my invention is to entirely eliminate the above mentioned defects of the prior art and at the same time to produce a flange which may be easily fixed in position at any part lengthwise of the barrel and as readily be adjusted so that its inner radial surface may be maintained at all times at right angles to the axis regardless of any irregularity in the peripheral surface of the barrel.

A further object is to provide a flange which may be quickly adjusted on shafts differing considerably in diameter without making any structural changes and without the use of wedges or other usual mechanical expedients.

A still further object is to produce a flange which may be securely and tightly clamped to a hollow beam barrel made of a material having a comparatively small resistance to radial stresses.

Yet another object is to provide means to reenforce such a beam barrel to eliminate its tendency to rupture or collapse at its juncture with the flange.

With these and other objects in view, important and highly desirable though not entirely indispensable features of my inven-

tion relate to the provision of a hollow beam barrel or shaft within which is loosely receivable a block of wood, cork, iron, or other suitable material to reenforce the clamped portion of the hollow barrel against the inwardly acting disrupting forces due to the tightening of the head on the barrel as well as to cooperate with the hub of the head to more securely clamp the barrel and the head together.

My invention further relates to arrangements and combinations of parts which will be hereinafter set forth and more particularly pointed out in the appended claim.

I have illustrated a simple embodiment of my invention in the accompanying drawings in which

Figure 1 is a section on line 1—1 of Figure 2, showing the details of construction of the beam head and its clamping action on the beam barrel.

Figure 2 is a front elevation of one end of the beam structure and showing the beam head in section on line 2—2 of Figure 1.

Figure 3 is a perspective view of a cylindrical reenforcing block, one end being shown in section.

My improved device as shown in Figure 1 consists of an end flange or disk 1 having a central aperture 2 to receive a beam barrel, roll or shaft 3. The end flange is preferably of steel though it would not constitute a departure from my invention to make it of another suitable metal or even of wood or of other material.

Fastened to said end flange by means of the conventional rivets 4 or other suitable attaching means is an annular casting 5 preferably of cast iron. The casting may, if desired, be formed integrally with the disk 1 but I prefer to make it separate as illustrated on account of the ease of manufacture.

Formed as an integral part of the casting 5 is a central hub 6 which has certain separated portions 7, 8 and 9 of its inner periphery along the circumference of one circle while the intermediate portions of its periphery are along the circumference of a somewhat larger circle, thus forming a

series of recesses 10, 11 and 12. As shown in Figure 1 I prefer to cut away or to omit the excess metal on the outer periphery of the hub between the recesses in order to save metal and lighten the structure, but it is clear that the outer periphery of the hub might well be circular.

Opening into each one of the recesses 10, 11 and 12 is a screw threaded bore which receives a screw threaded stud 13 on the inner end of which is mounted a radially slidable clamping block 14. The block may be fastened to the stud in any suitable manner but in my preferred modification the stud extends through an aperture in the block and has its inner extremity flattened like a rivet as shown at 15.

The slidable blocks have smooth, arcuate inner and outer peripheries which preferably conform to the two circles above referred to so that when the blocks are in their normal or retracted position they just fill the recesses, and cooperate with the portions 7, 8 and 9 of the hub to form a circular aperture. This aperture may, if desired, be made to register with the aperture 2 in the disk but this is not essential, nor is it necessary, though desirable, that the aperture formed by the blocks 14 and the portions 7, 8 and 9 of the hub be truly circular.

The studs 13 may be provided with rectangular or hexagonal heads 16 so that they can be turned by means of a wrench or other simple tool to bring the slidable blocks 14 into clamping engagement with the beam roll 3.

In the drawings I have shown my improved flange as being provided with three clamping blocks equally spaced about the central hub but it is evident that while this is a very desirable and advantageous arrangement, it is not at all necessary for the blocks to be equally spaced, nor is it absolutely essential that the blocks be three in number. However, I do not deem it advisable to use less than two blocks for several reasons, the most important being that unbalanced stresses in the barrel would thus be set up and that a single block would only be useful in keying a truly bored hub to a truly-turned shaft.

I have further shown the casting 5 to be formed integrally with a pulley 17 having a flange 18. The pulley may serve as a driving means for the beam structure or it may be used merely as a friction band in which case the beam may be driven in a manner well known in the art, as, for example, by means of the notch 21 in the end of the beam barrel 3. The barrel may also be provided with a brass ferrule for reinforcement.

Though my improved flange may be used with any kind of roll or barrel, it has been particularly designed for use with a hollow

shaft made of a relatively frangible non-metallic material such as compressed paper or wood pulp, paste-board, press-board, leather, or laminated paper or fabric. In such case I prefer to reinforce the hollow shaft at its juncture with the head by means of a short cylindrical block 20 of wood, cork, metal or other suitable material. The reinforcing block might well be kept in stock in the form of long cylinders and small sections sawed or cut therefrom when needed. The block is preferably of smaller diameter than the internal diameter of the hollow barrel to provide a loose sliding fit. Of course, each end of the barrel is provided with a reinforcing block, one for each head or flange.

Although I prefer to use my improved flange with a beam barrel made of a non-metallic material, such as disclosed above, it is to be understood that a metallic tube would serve my purpose equally as well and that, therefore, my claim should not be limited in scope as far as the material of the beam barrel is concerned.

The operation of securely clamping the flanges to the shaft is very simple and so obvious that it need not be described in any detail. Suffice it to say that I prefer to clamp the slidable blocks 14 so tightly against the hollow barrel that the reinforcing blocks are no longer slidable within the barrel, thus causing the block to co-operate with the hub 6 to securely clamp the barrel to the head.

While in order to comply with the statutes, the invention has been described in language more or less specific as to certain features, it is to be understood that the invention is not to be limited to any specific details, but that the means and construction herein described comprises but one illustrative mode of putting the invention into effect, and the invention is therefore claimed broadly in any of its possible forms or modifications within the scope of the appended claim.

I claim:—

In combination with a hollow shaft or beam barrel of frangible material and a separable flange or head tightly clamped thereto, a cylindrical block tightly clamped within said shaft or barrel and serving to prevent the collapse and rupture of said barrel at the juncture of said barrel and said flange, said cylindrical block being of less diameter than the internal diameter of the barrel so that the block is loosely receivable within the barrel when the flange or head is not clamped thereto.

In testimony whereof I affix my signature.

ERNEST UFF.