Dec. 17, 1929. W. FISHER 1,740,168

PULLEY BLOCK

Filed Feb. 25, 1925

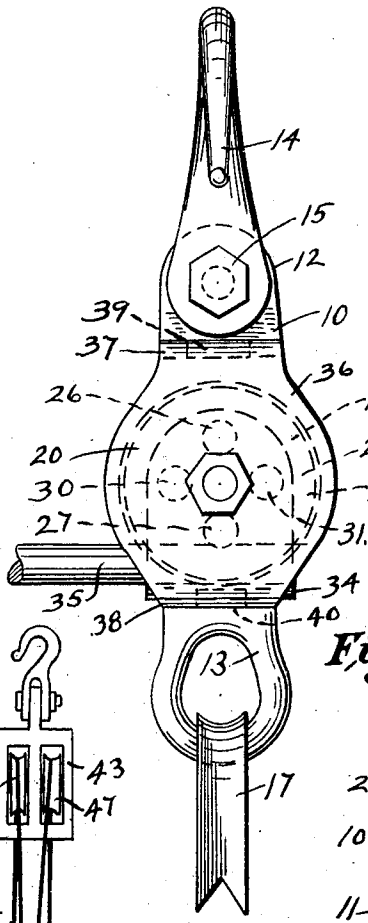


Fig. 2.

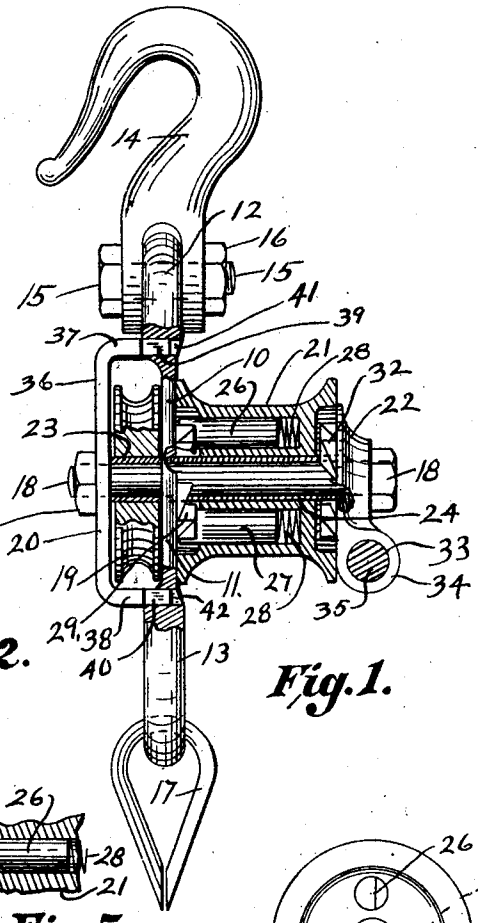


Fig. 1.

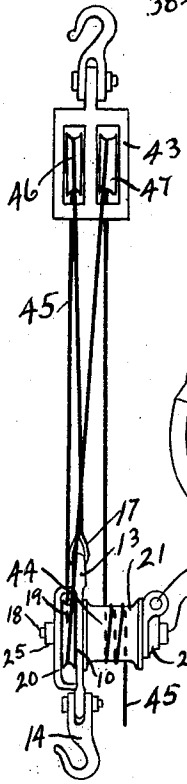


Fig. 7.

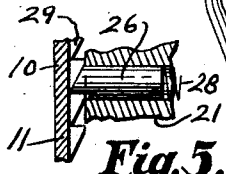


Fig. 5.

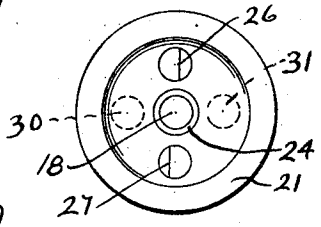


Fig. 3.

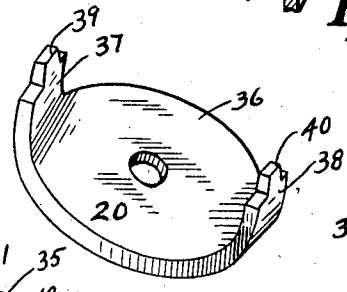


Fig. 4.

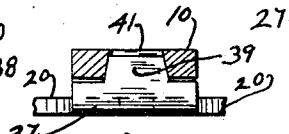


Fig. 6.

Inventor

Wages Fisher.

by his attorney

J. Edward Thebaud.

Patented Dec. 17, 1929 1,740,168

UNITED STATES PATENT OFFICE

WAGER FISHER, OF BRYN MAWR, PENNSYLVANIA, ASSIGNOR TO A. BISHOP CHANCE, OF CENTRALIA, MISSOURI

PULLEY BLOCK

Application filed February 25, 1925. Serial No. 11,609.

In the following description like figures of reference refer to like parts.

This invention relates to pulley-blocks, more particularly to those having capstan or windlass winding drums.

This invention is concerned with improvements on the construction of the pulley-block, which is the subject of the Laurent-Cherry Letters Patent, Number 715,589, of December 9, 1902.

The pulley-block of the said patent has a body cast in one piece, when using a core to make the compartment for the pulley of the block, and the hook, attached to the body, loosely engages the ear thereof and drops down when the block is handled, when starting to use the same.

One of the objects of this invention is to so improve the construction of the pulley-block of said patent, as to permit of making the body of the same of separate pieces, using a strong and hard metal, as cast steel, for the principal part of the body particularly for the teeth of the ratchet thereon, and eliminating the necessity of a core, thus simplifying the foundry work on the same, and producing a casting free from the defects which often accompany castings requiring the use of cores; besides permitting of the use of a lighter and softer metal, as aluminum, for that part of the body which serves as a shield to the rope or cable line at the pulley, resulting in the formation of a better and lighter pulley-block.

A further object is to provide a capstan pulley-block having a detachable clevis hook at one end, which will not drop down, but which permits the handling of the pulley block in a manner to present the hook for ready engagement with the chain, or loop of wire or cable, without requiring the separate holding of the hook in position, by handling the same, while holding the pulley-block by hand. The clevis hook, on this style of pulley-block also assists in rectifying the position of the block when starting with slack lines.

Another object is to provide an improved pulley block of the character described, in which the parts are held keyed together, by the one bolt which forms the bearing support for the pulley and the winding drum.

With these and other objects, my invention is embodied in the construction herewith illustrated, hereinafter described and claimed.

In the drawings,

Figure 1 is an axial sectional elevation of a pulley-block, similar to that of the said Laurent-Cherry patent, but embodying my improvements.

Figure 2 is a side elevation of the pulley-block shown in Figure 1.

Figure 3 is an end elevation of the capstan or winding drum.

Figure 4 is a perspective view of a shield part of the pulley-block.

Figure 5 is a side elevation of one of the ratchet pawls, engaging teeth on the body of the block.

Figure 6 is a sectional end elevation, showing the wedge keying arrangement of one of the shield tongues with the main pulley body part.

Figure 7 is a diagrammatical elevation of the pulley block and additional double pulley with cable engaged therewith.

In the figures, the body part 10, has a central plate portion 11, with terminal ears 12 and 13, at opposite ends thereof. To the ear 12 is bolted the clevis hook 14, by means of the bolt 15 and nut 16. To the other ear 13 is engaged a sheet metal loop 17 for receiving a cable or rope passing through the ear 13. Passing through the center of the portion 11 is a bolt 18, which supports the pulley wheel 19, the shield 20, the winding drum 21 and the end lever plate 22. Spacing tubes 23 and 24 are provided which form bearing surfaces for the pulley 19 and the drum 21, respectively. A nut 25, on the bolt 18 binds the parts together, while the tubes 23 and 24 properly space the lever plate 22 and the shield 20 from the body part 10, for the free movement of the pulley 19 and the drum 21. The winding drum 21 is provided with pawl pins 26 and 27, reciprocating in longitudinal blind holes in the drum 21 and pressed toward the body part 10 by springs 28 for engagement with the circular row of teeth 29 integral with the body 10, surrounding the bolt 18.

Similar pawl pins 30 and 31 reciprocating in longitudinal blind holes in the drum 21, are pressed toward the lever plate 22 by springs to engage the teeth 32, integral with the end lever plate 22, and positioned in a circle concentric to the bolt 18. The teeth 32 and the teeth 29 are beveled and face in the same direction around the bolt 18, and in planes perpendicular to bolt 18. The end lever plate 22 has a hole 33, passing through a lug portion 34, engaged by a lever rod 35, for forcibly turning the end plate 22, when winding a rope or cable on the ratched drum 21.

The shield 20, which serves to keep the line on the pulley wheel 19, has a central plate portion 36, with bent ends 37 and 38 terminating in wedge-shaped tongues 39 and 40 respectively. The tongues 39 and 40 engage the respective tapered slots 41 and 42, in the body 10.

In the small figure 7 is shown a double pulley block 43, used in conjunction with the pulley block 44, similar in construction to that just described. A rope or cable 45 engages the pulley wheels 46 and 47, of the block 43, and also the ear 13, the pulley wheel 19 and the drum 21 of the pulley block 44.

Figure 7 illustrates the threading of the line 45 through the blocks 43 and 44. The line 45 is fixed to the loop 17, engaging the ear 13, and passes around the pulley wheel 46 of the block 43 thence down around the pulley wheel 19, of the block 44, thence up, around the pulley wheel 47, of the block 43, thence a few times around the ratcheted drum 21, the loose end being held taut, while the end lever plate 22 is turned intermittently, back and forth, by means of the lever 35. As the plate 22 is turned, and is engaged with the pawl pins 30 and 31, the drum 21 is turned to wind on the line 45, the loose end being held taut and taken up as it is paid off the drum 21. The pawls 26 and 27, engaging the teeth 29, on the body part 10 hold the drum 21, and the line 45 from unwinding therefrom, while the lever 35 is swung back to take a fresh hold of the winding drum 21, for further take-up on the line 45, when pulling the load attached to the clevis hook 14.

The position of the pulley blocks, shown in Figure 7, is vertical for lifting a suspended load, but for exerting a strong pull in taking up slack in a line running from pole to pole, it is necessary, when connecting up the pulleys, to hook on the same in other than a vertical plane, in which case it will be found convenient to use the kind of hook 14, shown in the figures. Inasmuch as this kind of a hook is adapted to turn only on one plane, and does not hang down for every position of the pulley when unattached, it can readily be hooked up without having in every case to take hold of the hook itself to connect it with a line.

In manufacturing my improved pulley-block, the body part 10 and the clevis hook 14 are preferably made of steel and the form of the body part 10 readily lends itself for casting, by its absence of core, to a uniform flow of steel metal, permitting the casting of a thinner body part 10. The slots 41 and 42 being necessarily tapered to key with the tapered tongues 39 and 40 of the shield 20, also provide the draft necessary when taking the pattern of the body part 10 out of the sand.

When casting the shield 20, the tapered tongues 39 and 40, being parallel to one another, and perpendicular to the central portion 36, are easily drawn from the sand. A little filing of the tongues 39 and 40, and the slots 41 and 42, is all that is necessary to make them fit. The shield 20 being of softer metal, as aluminum, a little hammering in, serves to make a rigid fit between the shield 20 and the body part 10, when assembling the parts of the pulley-block and holding the same together by the bolt 18 and nut 25.

The improved construction thus not only lends itself to improved methods of manufacture but at the same time a better, lighter and more serviceable article of its class is provided.

I claim:

1. The combination in a pulley block, of a flat body member having three openings and ears at each end thereof extending in opposite directions in the plane of the body member, a pulley axle bolt passing through one of the openings of the said body member transversely thereof, an idler pulley mounted to turn about said bolt on one side of said member, a shield having three sides surrounding said idler pulley and engaging said bolt, two of the sides of said shield having tapered ends adapted to engage and wedge into the other openings in said member, a winding drum on the axle bolt, and pawl and ratchet connections between the winding drum and body member.

2. The combination in a pulley block of a substantially flat body member having openings, an ear extending from said member in the plane thereof, a pulley axle passing through one of the openings of said member transversely thereto, an idler pulley rotatably mounted on said axle, and positioned at one side of said member, a shield for said idler pulley, mounted on said axle and having a central plate portion and wedge shaped end portions at an angle thereto, the end portions being adapted to be projected into the other of said openings to form a rigid detachable connection therewith, a winding drum on the axle, pawl and ratchet connections between the winding drum and said member, and means for turning said winding drum.

WAGER FISHER.