W. W. SWAYZE, JR.

DREDGE FRAME BUSHING.

APPLICATION FILED JULY 30, 1921.

1,398,049. Patented Nov. 22, 1921.

Fig. 1.

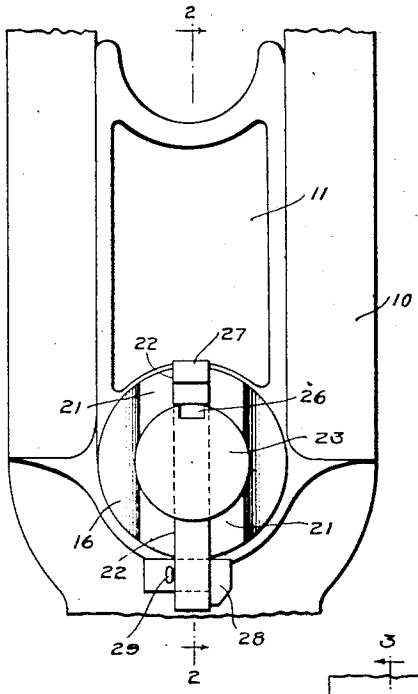


Fig. 3.

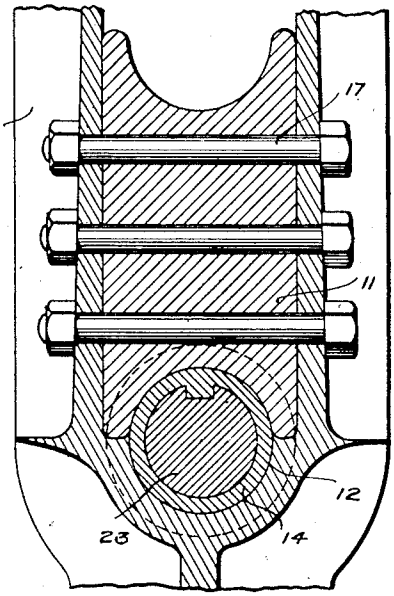


Fig. 2.

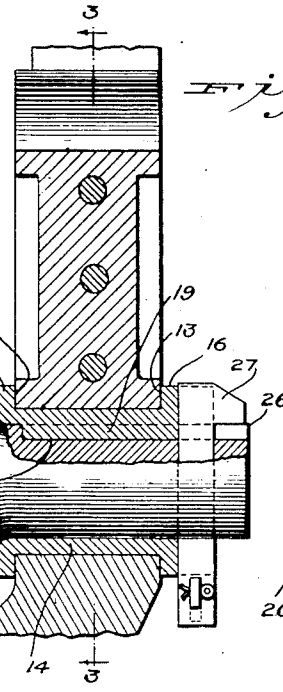


Fig. 4.

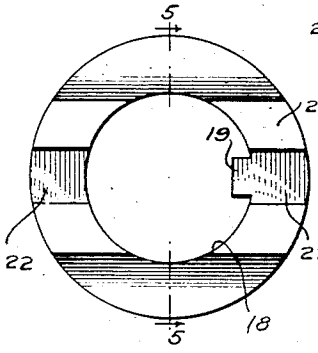
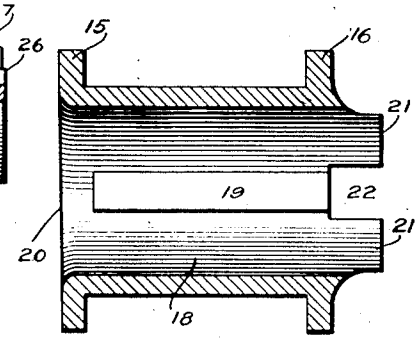


Fig. 5.



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DREDGE-FRAME BUSHING.

1,398,049. Specification of Letters Patent. Patented Nov. 22, 1921.

Application filed July 30, 1921. Serial No. 488,577.

To all whom it may concern:

Be it known that I, WILLIAM W. SWAYZE, Jr., a citizen of the United States, and a resident of Wilmington, in the county of New Castle and State of Delaware, have made and invented certain new and useful Improvements in Dredge-Frame Bushings, of which the following is a specification.

My invention relates to a bushing for the support of the main shaft of a dredge frame, although it may be used in other relations as will more fully hereafter appear.

As heretofore constructed, the main shaft of a dredge frame was subject to considerable wear requiring its frequent renewal, and it is accordingly an object of the present invention to provide a construction whereby the entire wear due to the turning of the main shaft will be borne by the bushing and the shaft proper will be entirely protected from wear.

A further object is to provide a construction whereby the main shaft is protected from wear despite the enormously high strains to which it is exposed and wherein the jars, impact and side thrusts will be taken up by the bushing and the dredge frame.

A further object is to provide a simple, practical and efficient construction whereby the bushing is anchored to the main shaft and not only rotates with respect to the main frame, but is also capable of transmitting side or end thrust from the main shaft to the frame without wear upon the former, so that the main shaft which is an expensive part will be capable of long and extended service.

A further object is to accomplish the forementioned ends in a simple, practical and economical manner, and with the foregoing and other objects in view my invention consists in the improved bushing and associated parts illustrated in the accompanying drawings and described in the following specification, and in such variations and modifications thereof as will be obvious to those skilled in the art to which my invention relates, it being understood that changes may be made within the scope of what is claimed without departing from the spirit of the invention.

The preferred embodiment of my invention is disclosed in the accompanying drawings wherein:—

Figure 1 is a view in front elevation of a portion of a dredge frame with my improved bushing secured thereto.

Fig. 2 is a transverse view in vertical section of the same taken on the line 2—2 of Fig. 1.

Fig. 3 is a view in vertical section taken on the line 3—3 of Fig. 2.

Fig. 4 is a detail view in front elevation of the bushing; and

Fig. 5 is a view in vertical section taken on the line 5—5 of Fig. 4.

Referring specifically to the several views wherein similar reference numerals designate corresponding parts, the main frame 10 of the dredge is provided with a removable socket 11 the same and adjoining portions of the frame being provided with a cylindrical bore 12 extending therethrough. The sides of the frame adjacent the bore are faced as at 13 so that the bushing 14 is capable of rotating within the bore 12 and is held against endwise shifting by outstanding flanges 15 and 16 which contact with the faced surfaces 13 of the frame.

The bushing is formed in one piece and is moved into the bore 12 by first removing the socket 11, depositing the bushing in the lower half of the bore and then returning the socket member to place, and so securing it by the bolts or other holding means 17. The bushing, as clearly disclosed in Figs. 4 and 5, is provided with the internal bore 18 and with an integral key 19 projecting therein. This key as illustrated in Fig. 5, extends from the outer end of the bushing to a point well toward the inner end or surface 20 thereof.

The outer extremity of the bushing is also provided with outstanding spaced lugs 21, four in number, and defining therebetween the alined slots 22. The main shaft 23, a portion of which only is shown, is provided with the shoulder 24, which rests against the outer face of the flange 15 and is further provided with a key way opening 25 into which the internal key 19 of the bushing extends, thus rigidly locking the bushing to the main shaft throughout practically the entire length of the former and thus holding the two against relative turning. In order

to further insure the locking of the bushing to the shaft and at the same time to provide for the transmission of end thrust from the main shaft to the dredge frame, the main shaft is provided adjacent its outer extremity with the slot or opening 26 extending therethrough and into which fits the key 27. The key thus extends diametrically through the main shaft and has its protruding ends seating within the alined slots 22.

A second and smaller key 28 extends through the main key and is so held by a cotter pin 29 or other equivalent means whereby the auxiliary key 28 and the main key 29 are securely locked in place.

With the various parts as thus constructed, no wear whatever will be borne by the main shaft as the bushing will turn therewith regardless of the enormous strains to which these parts are exposed. Further, the constant racking and resulting wear and tear due to the dropping of the dredge bucket into the material to be excavated, as well as the enormous lateral or side thrust will be borne by the bushing which may be readily renewed and thus provide for the economical operation of the entire apparatus.

Having thus fully described my invention what I claim is—

1. The combination with a dredge frame of a shaft provided with a key way slot therein, and having a shoulder thereon, a bushing having spaced flanges and an inwardly extending key fitting into the key way slot of the shaft and with the one flange abutting against the shoulder of said shaft, said frame provided with a bore rotatably receiving the bushing therein and holding it against endwise shifting, and means engaging the protruding extremity of the shaft and the bushing and holding the shaft against endwise shifting with relation to the bushing.

2. An apparatus of the class described comprising a supporting member having a bore extending therethrough a bushing rotatably mounted within said bore and provided with upstanding flanges holding it from displacement therefrom, said bushing provided with an internal integral key and with alined slots at one extremity, and a shaft having a key way therein receiving said key of the bushing, means to prevent the endwise shifting of the shaft with relation to the bushing in one direction, and a key extending transversely through the shaft and seating within the alined slots of the bushing and holding the shaft from endwise shifting in the opposite direction.

3. A bushing formed with end flanges, an internal integral key and outstanding spaced lugs carried at one extremity of said bushing and defining a slot therebetween.

Signed at Wilmington, in the county of New Castle and State of Delaware A. D. 1921.

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Witnesses:
GEO. F. COMLY,
HOWARD BUTLER.