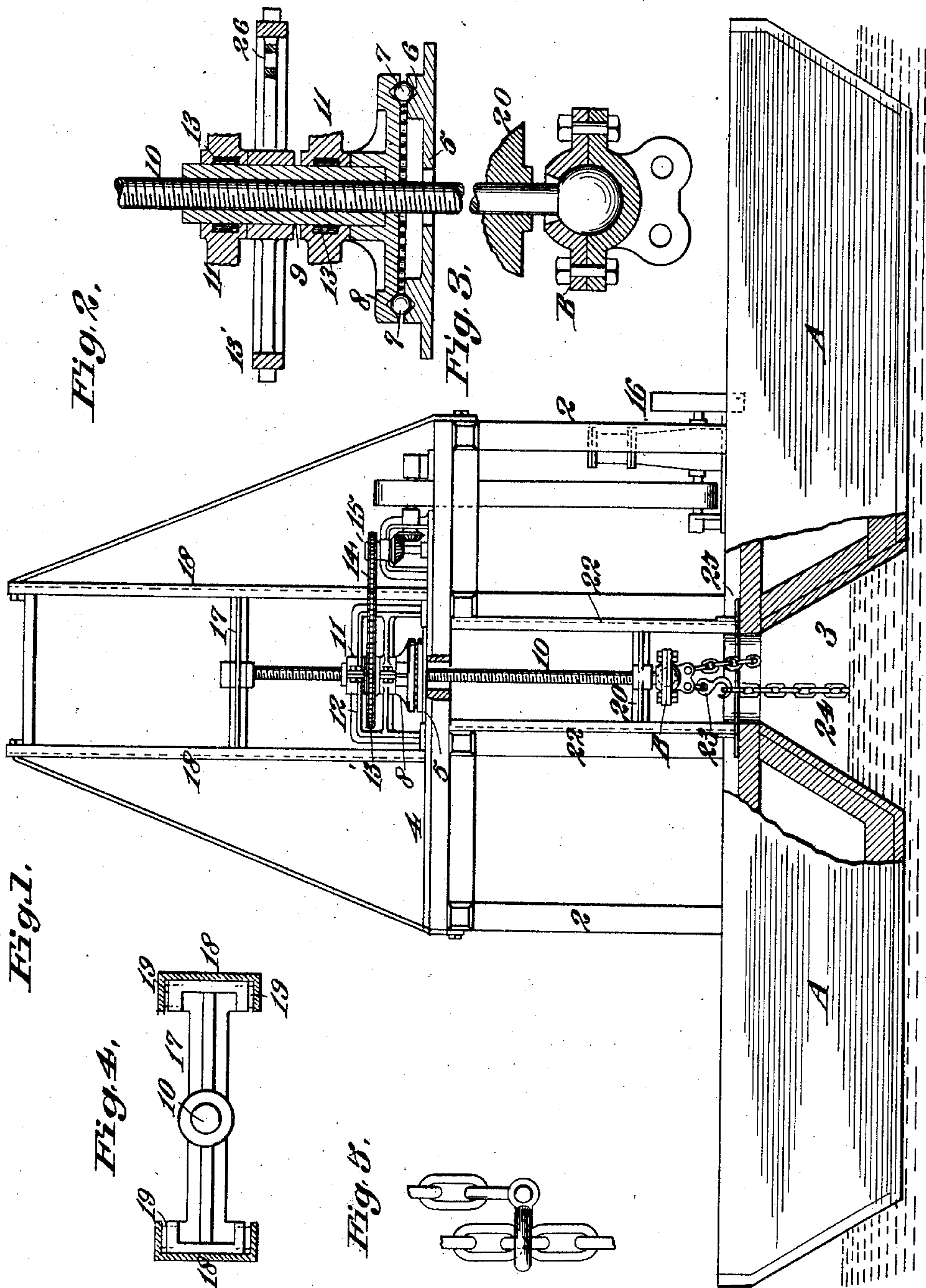


L. SANGUINETTI.
 DEVICE FOR RAISING SUNKEN VESSELS.
 APPLICATION FILED JAN. 11, 1911.

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Witnesses:
Charles Pickles
R. A. Burns

Inventor:
Luke Sanguinetti
 By *Geo. H. Strong* atty

UNITED STATES PATENT OFFICE.

LUKE SANGUINETTI, OF VALLICITA, CALIFORNIA.

DEVICE FOR RAISING SUNKEN VESSELS.

998,403.

Specification of Letters Patent. Patented July 18, 1911.

Application filed January 11, 1911. Serial No. 601,977.

To all whom it may concern:

Be it known that I, LUKE SANGUINETTI, citizen of the United States, residing at Vallicita, in the county of Calaveras and State of California, have invented new and useful Improvements in Devices for Raising Sunken Vessels, of which the following is a specification.

This invention relates to a device for hoisting bodies of great weight and particularly pertains to an apparatus for raising sunken vessels.

It is the object of this invention to provide a simple, practical, and substantial means for raising sunken vessels which is capable of readily elevating heavy structures, and which is adapted to be operated either manually or mechanically.

This invention consists of the parts and the combination and construction of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation illustrating the application of the invention. Fig. 2 is a vertical section of the hoisting device. Fig. 3 is a detail in vertical section of the swivel joint. Fig. 4 is a detail of a cross head and guides. Fig. 5 is a detail of a grip.

In the drawings A represents a barge or floating structure of any suitable type or construction, on which the device constituting this invention is here shown as mounted. It will be manifest however, that any suitable method or means may be employed for mounting this invention as may be found necessary or circumstances may require.

A derrick or frame structure 2 of suitable construction is built over an opening 3 formed in the barge A; a platform 4 being constructed on the derrick 2 on which a bed-plate 5 forming the base of the machine is mounted. This bed-plate 5 is provided with a horizontally disposed annular groove 6 in which ball bearings 7 are adapted to travel. Supported upon the ball bearings 7 is a base-plate 8 formed on the lower end of a capstan 9. This capstan 9 is tubular in form and is threaded on its interior to receive a vertically disposed threaded shaft 10 which extends through the capstan 9 and projects downward through a perforation in the bed-plate 5 and the platform 4. This threaded shaft 10 is designed to be recipro-

cated vertically by the rotation of the capstan 9 as will be later described. The screw carries on its lower end the grip member. The upwardly extending cylindrical portion of the capstan 9 extends through a pair of bearings 11 mounted on a frame work 12. These bearings 11 serve to maintain the capstan 9 in a true vertical position; rollers 13 being disposed between the capstan 9 and the bearings 11 to reduce the friction between the bearings and the capstan due to the lateral strains on the latter.

Rigidly mounted upon the capstan 9 and between upper and lower bearings 11 is a horizontally disposed sprocket gear 13' which is designed to be rotated through a chain drive 14 from a sprocket pinion 15 rotated by means of a motor or engine 16, of any suitable description. The upper end of the threaded shaft 10 is provided with a cross head 17 rigidly mounted thereon. This cross head 17 is designed to travel between vertically disposed guide channels 18 supported on the derrick 2 above the capstan 9. Friction rollers 19 are mounted on the sides of the cross head 17, to bear against the side flange of the guide channels 18 to reduce the wear and friction between the contacting surface of the cross head 17 and guide 18 as the former moves upward and downward in the latter with the threaded shaft 10. The purpose of this cross head 17 is to prevent the turning of the shaft 10 when the capstan 9 is rotated.

Mounted on the lower end of the shaft 10 is a cross head 20, similar to that on the upper end of the shaft 10. This cross head 20 is adapted to travel in vertically disposed guide flanges 22, depending beneath the platform 4 and mounted on the floor of the barge A, adjacent the opening 3.

Mounted on the underside of the cross head 20 is a swivel bearing B, carrying a hook 23 which is adapted to be engaged and disengaged from a chain or cable 24. This chain 24 is provided for the purpose of connecting the lower end of the shaft 10 to the body it is desired to raise; the chain 24 being connected to this body in any suitable manner by a grappling device of any suitable nature.

The operation of this invention is as follows: The chain 24 being secured to a submerged vessel it is drawn taut and is engaged with the swivel hook 23 on the lower

end of the shaft 10, the shaft 10 being disposed in the lowermost position in the capstan 9. The engine or motor 16 is then caused to drive the sprocket wheel 13 through the chain drive 14 and the pinion 15. This rotates the capstan 9 within the bearings 11 and upon the ball bearings 7 on the bed-plate 5. The rotation of the capstan 9 in one direction causes the threaded shaft 10 to be moved upward therethrough in the manner common to the well known principle of the screw. The shaft 10 being prevented from turning, by means of the cross heads 17 and 20, it is compelled to move upward by the screw action of the capstan 9. When the shaft 10 has reached its uppermost position with the cross head 20 beneath the platform 4, the chain 24 is gripped in any suitable manner at any desired point below the lower end of the shaft 10. In this case a rod 25 is shown as passed through a link in the chain 24 and disposed across the opening 23 and supported at each end of the floor of the barge A. This being done, the direction of the rotation of the capstan 9 is reversed so as to cause the shaft 10 to move in a downward direction. The load on the chain 24 will now be supported on the rod 25 so that the hook 23 may be disengaged from the chain and when lowered down by the shaft 10 to be inserted in the chain 24 at a point near the supporting rod 25. This being done the direction of rotating the capstan 9 is again reversed to move the shaft 10 in an upward direction. In this manner the load supported by the chain 24 will be raised by a series of step by step lifts until it is brought against the underside of the barge A and secured thereto, whereupon it may be towed to any suitable point and raised above the surface of the water in any suitable manner.

In practice it is obvious that any number of these hoisting devices may be employed as may be found necessary and they may be mounted in any suitable manner, such for instance as on a swinging boom or a framework disposed upon spaced barges, the latter case permitting a sunken vessel being elevated above the surface of the water. When light work is to be done, the sprocket wheel 13' may be rotated by hand; a series of hand holds 26 being provided near the outer edge of the sprocket wheel for that purpose.

From the foregoing it will be seen that I have provided a means for elevating bodies of immense weight, the capacity of the machine being limited only to the strength of the materials and the motive power employed.

The cross heads 17 and 20 while acting to prevent the rotation of the threaded shaft 10 also serve as guide means for the outer

ends of the shaft 10, so as to prevent the latter being bent by lateral strains on its lower end, and also enables the use of a threaded shaft of considerable length; it being obvious that the greater the length of the threaded portion of the shaft 10, the fewer the steps required in elevating a body for a considerable distance.

If it is desired to operate the lower end of the shaft beneath the surface of the water a clutching mechanism such as is shown in Fig. 5 may be mounted on the lower end of an extended portion of the shaft 10, beneath the cross head 20. This clutch 30 is designed to ride upon the taut chain beneath the supporting bar 25 and is so constructed as to engage the chain on the upward movement of the shaft 10 and to ride loosely on the chain on a downward movement of the shaft 10. By the use of this clutch the manual manipulation of a hook connecting member such as is shown at 23 may be dispensed with.

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

1. In a hoisting device for raising sunken vessels, an internally threaded capstan mounted on anti-friction bearings, a vertically disposed threaded shaft extending longitudinally therethrough, means for rotating said capstan to cause said shaft to move up or down through said capstan, and means for holding said shaft against rotation, said means comprising cross-heads fixed on said shaft and slidable in guides.

2. In a device for raising sunken vessels, the combination of an internally threaded capstan mounted on anti-friction bearings, a threaded shaft extending therethrough and adapted to be reciprocated by rotating said capstan, means for rotating said capstan embodying a gear on the capstan, a pinion engaging said gear through a sprocket chain and means for rotating said pinion, cross-heads fixed on the ends of said shaft, and guides in which said cross-heads are slidable.

3. In a device for raising sunken vessels, the combination of an internally threaded capstan mounted on anti-friction bearings, a threaded shaft extending therethrough and adapted to be reciprocated by rotating said capstan, means for rotating said capstan embodying a gear on the capstan, a pinion engaging said gear through a sprocket chain, means for rotating said pinion, cross heads fixed on the ends of said shaft, guides in which said cross heads are slidable, and a grip member swivelly mounted on the lower end of said shaft adapted to engage a chain or cable.

4. In a device for raising sunken vessels, the combination of an internally threaded capstan mounted on non-friction bearings,

a threaded shaft extending therethrough
and adapted to be reciprocated by rotating
said capstan, means for rotating said cap-
stan embodying a gear on the capstan, a
5 pinion engaging said gear through a
sprocket chain and means for rotating said
pinion, a cross head fixed on each end of
said shaft, guides in which said cross heads
are slidable, non-friction rollers in said cross
10 heads and a grip member swivelly mounted

on the lower end of said shaft adapted to en-
gage a chain or cable.

In testimony whereof I have hereunto set
my hand in the presence of two subscribing
witnesses.

LUKE SANGUINETTI.

Witnesses:

CHARLES EDELMAN,
CHAS. E. MONTGOMERY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
