

(No Model.)

W. FORWARD.
PROPULSION OF BOATS.

No. 554,589.

Patented Feb. 11, 1896.

Fig. 1

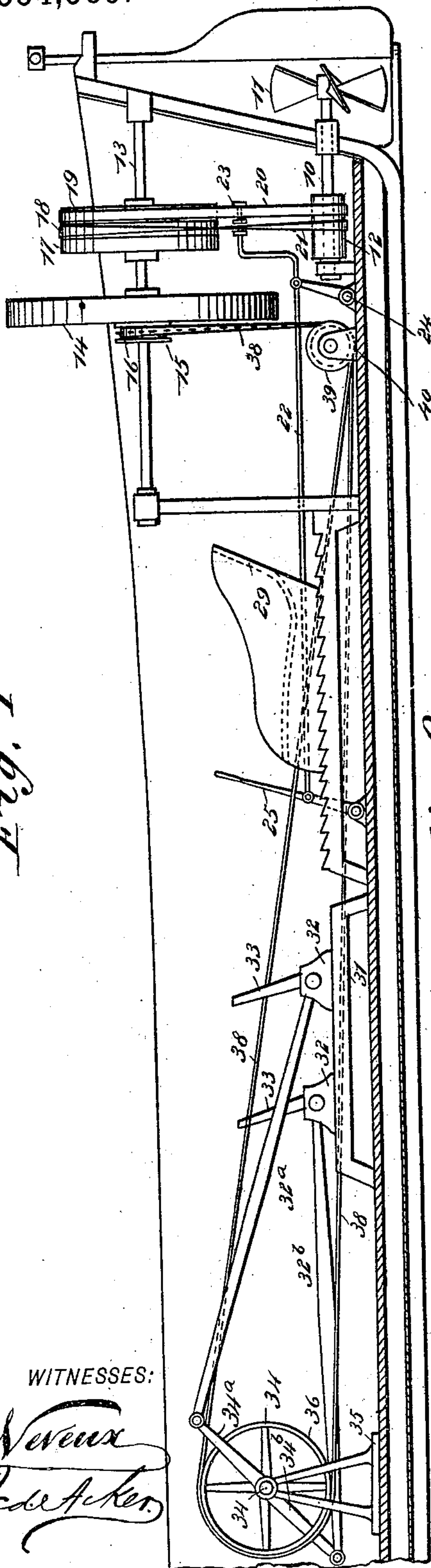
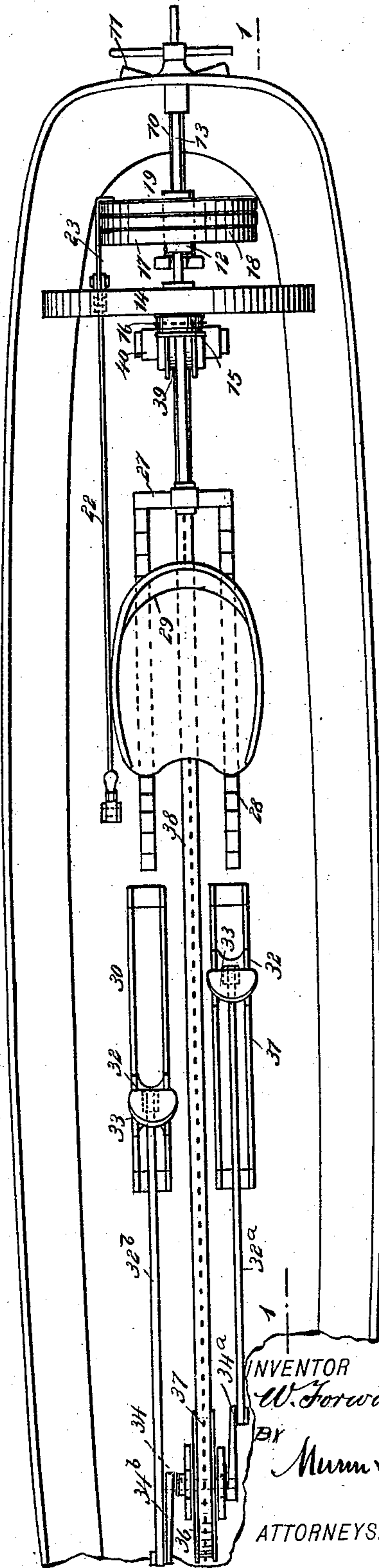


Fig. 2



WITNESSES:

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PROPULSION OF BOATS.

SPECIFICATION forming part of Letters Patent No. 554,589, dated February 11, 1896.

Application filed June 14, 1895. Serial No. 552,838. (No model.)

To all whom it may concern:

Be it known that I, WALTER FORWARD, of San Diego, in the county of San Diego and State of California, have invented a new and
5 useful Improvement in the Propulsion of Vessels, of which the following is a full, clear, and exact description.

My invention relates to an improvement in the propulsion of vessels, and especially to
10 means for propelling small boats—for example, the hunting-boats usually known as "sneak-boats;" and the object of this invention is to provide a propelling mechanism which will be exceedingly simple, durable and
15 economic, and in the operation of which the operator may be seated facing the bow, the hands being free for the handling of a gun or for other purposes.

A further object of the invention is to so
20 construct the propelling mechanism that, whether the boat is to be driven ahead or backed, the driving-shaft will be revolved at all times in the same direction.

The invention consists in the novel construction and combination of the several parts, as
25 will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification,
30 in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a longitudinal vertical section through a portion of the boat having the improved propelling mechanism applied thereto,
35 the section being taken on the line 1 1 of Fig. 2; and Fig. 2 is a plan view of that portion of the boat or vessel shown in Fig. 1.

In carrying out the invention a propeller-shaft 10 is mounted in suitable bearings in the
40 stern of the boat and is provided with a propeller 11 of any approved construction, the said propeller-shaft being likewise fitted with a pulley 12, having a wide face. Above the propeller-shaft the driving-shaft 13 is journaled in properly-located bearings, and on this
45 driving-shaft a fly-wheel 14 is firmly secured, the hub of which has attached to it an auxiliary wheel 15, which may be a sprocket-wheel, but is usually provided with a peripheral groove and with pins 16 in its grooved
50 portion.

At the rear of the balance-wheel 14 three

pulleys 17, 18 and 19 are placed in position on the said driving-shaft, being in close relation to each other, the outer pulleys, 17 and 19,
55 being firmly attached to the shaft, revolving therewith, while the intermediate pulley, 18, is an idler; and two belts, a straight belt 20 and a crossed belt 21, are carried in contact with the pulley 12 on the propeller-shaft and over
60 two of the group of pulleys on the driving-shaft, one of the belts being on one or the other of the fast pulleys while the second belt will be on the loose pulley, and these belts are shifted through the medium of a shifting-rod
65 22 provided with a shifting-head 23, receiving the two belts and mounted upon the rock-lever 24 at or near the inner end of the propeller-shaft.

The shifting-rod 22 is carried forward and
70 connected with a shifting-lever 25 in any suitable manner. Convenient to this shifting-lever a racked or toothed support 27 is erected in the bottom of the boat, the teeth 28 whereof
75 incline in a forwardly direction, and this support receives a seat 29 for the accommodation of the hunter or operator, the seat being correspondingly toothed to the support, whereby the said seat may be adjusted forward or rearward, being stationary after having been
80 placed in position.

In front of the seat-support 27 two parallel slideways 30 and 31 are erected in the bottom of the boat, and in each of these slideways a
85 block 32 is held to slide, each block being provided with a foot-rest 33. Each block has pivotally connected with it a pitman, respectively designated as 32^a and 32^b, and in the working position of these blocks one will be in advance of the other. These pitmen 32^a
90 and 32^b are respectively connected to crank-arms 34^a and 34^b, secured upon a shaft 34, journaled in suitable bearings 35 at or near the forward portion of the boat, and on this shaft a driving-wheel 36 is firmly secured, having
95 its periphery grooved, as shown in Fig. 2, and provided with pins 37, whereby this wheel corresponds to that attached to the balance-wheel 14 on the driving-shaft.

An apertured belt 38 is passed around the
100 pin-surface of the driving-wheel 36 and under a single or a double pulley 39, journaled in suitable bearings 40, located at the rear of the seat-support 27, and from this pulley 39 the

belt is carried upward over the pin-carrying pulley or sprocket-wheel attached to the balance-wheel 14 of the driving-shaft, as shown in Fig. 1. Thus it will be observed that the operator, when in the seat 29, by alternate forward movement of the feet pressing against the foot-rests or pedals 33 on the blocks 32 will revolve the driving-pulley 36, and a rotary motion will be communicated to the driving-shaft 13, and from thence through either the straight belt 20 or the crossed belt 21 to the propeller-shaft, one of the belts driving the shaft in a manner to propel the boat forward and the other in a direction to back the boat, it being understood that one of the belts at all times is on the idler 18 on the driving-shaft. Thus it will be observed that the driving-shaft is revolved in the same direction whether the boat is going ahead or is backing, and that a reverse movement may be effected whenever desired by simply moving the shifting-lever 25. There are no ratchets or other mechanism to make a noise. Consequently this propelling mechanism is especially adapted for hunting-boats or for small crafts designed to approach a given point without signaling or giving notice of such intention.

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

1. In the propulsion of vessels, a power-shaft, foot-rests capable of sliding movement in reverse directions, a driving connection, substantially as described, between the foot-rests and the power-shaft, a propeller-shaft, a drive-shaft located adjacent thereto, a belt

connection between the power-shaft and the drive-shaft, fixed and loose pulleys located on the drive-shaft, a crossed and a straight belt connecting respectively one of the fast and one of the loose pulleys with the propeller-shaft, and a shifting mechanism connected with the said belts, as and for the purpose specified.

2. In the propulsion of vessels, the combination, with slideways, foot-rests having movement in said slideways and adapted to travel in reverse directions, a power-shaft, and a pitman-and-crank connection between each of the foot-rests and said power-shaft, the cranks being reversely placed, of a second power-shaft mounted longitudinally in the stern, a propeller-shaft therebelow and parallel therewith, a belt connection between the second power-shaft and the drive-shaft, a balance-wheel secured on the drive-shaft, driving-pulleys fixed on the drive-shaft, and an idler also on the second drive-shaft between the said fixed pulleys, a straight belt and a crossed belt respectively connecting one of the fixed pulleys and the idler with the propeller-shaft, and means, substantially as shown and described, for shifting the said belts, whereby the drive-shaft is revolved in the same direction, whether the boat is traveling forward or rearward, and whereby also the operator may be seated facing the bow, as and for the purpose specified.

WALTER FORWARD.

Witnesses:

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