

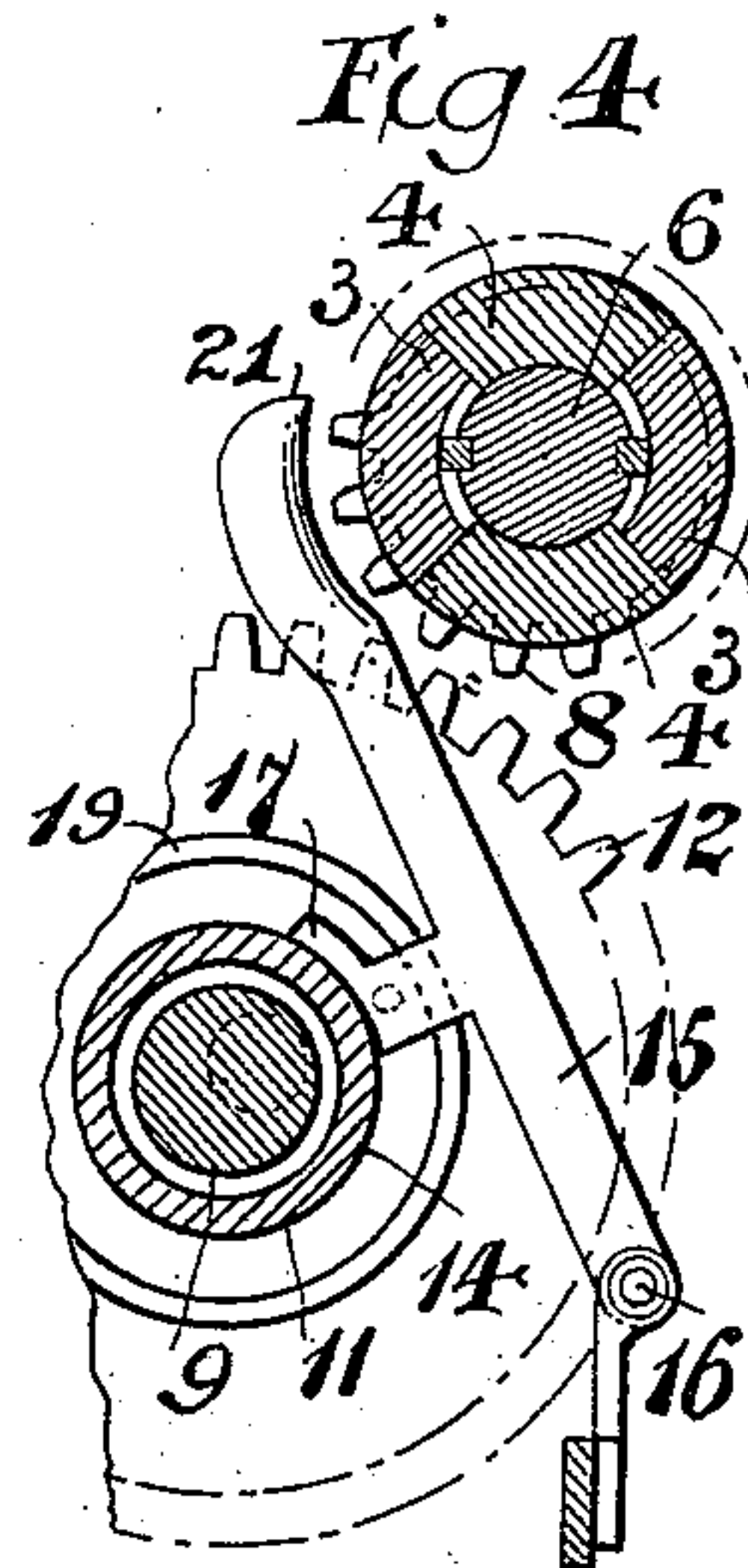
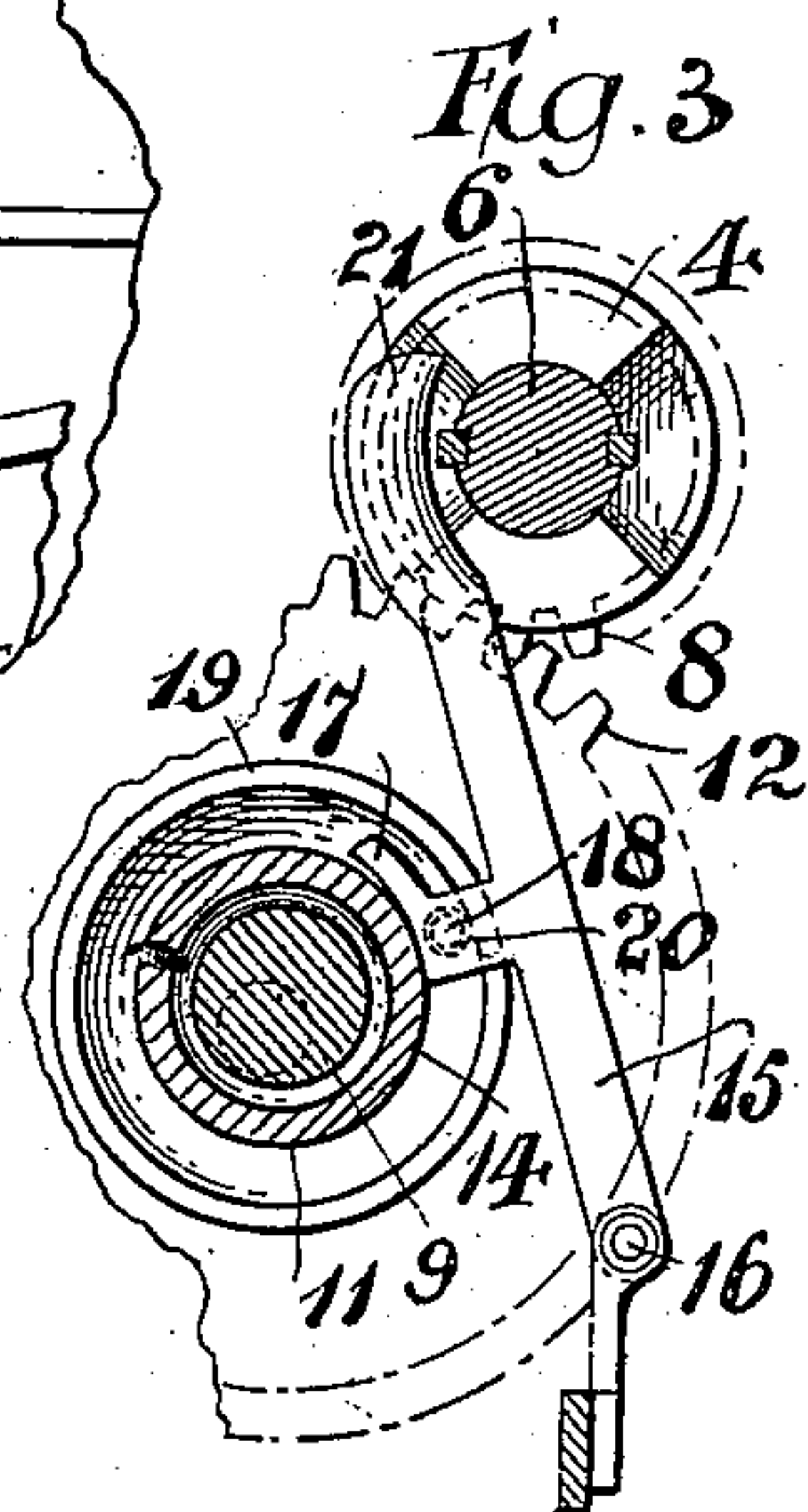
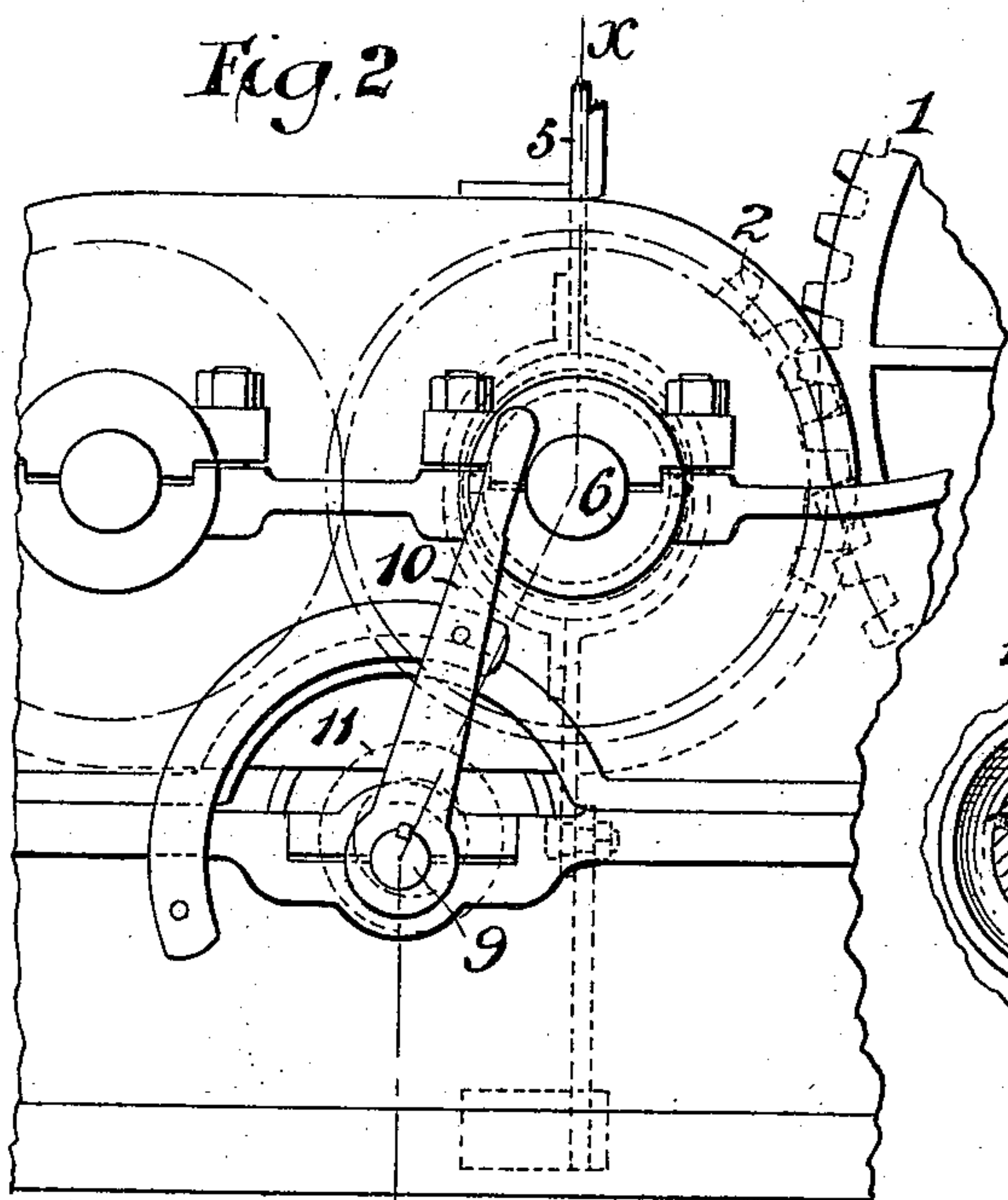
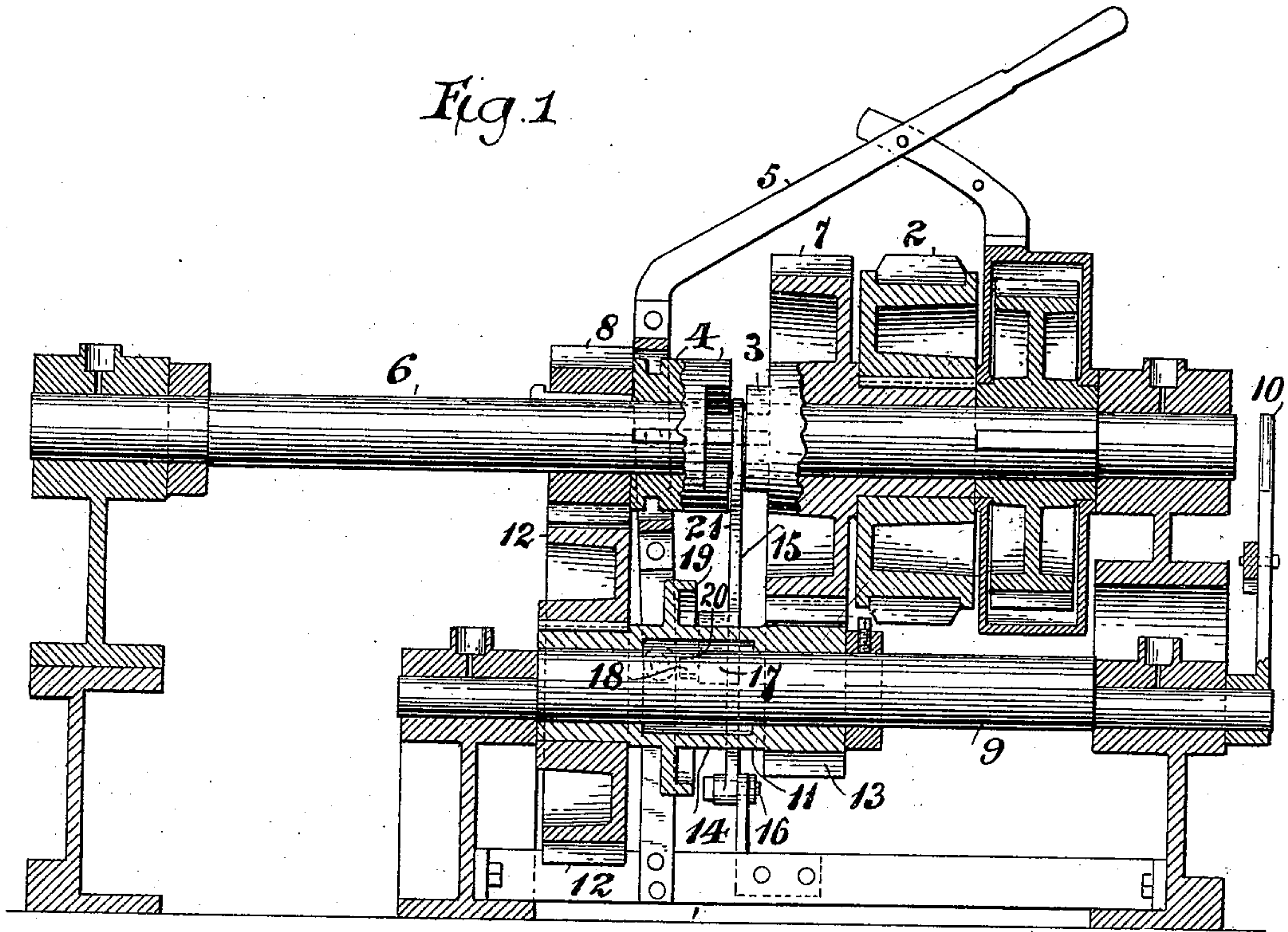
No. 621,632.

Patented Mar. 21, 1899.

H. N. COVELL.
HOISTING MACHINERY.

(Application filed Mar. 16, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

HARRY N. COVELL, OF NEW YORK, N. Y.

HOISTING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 621,632, dated March 21, 1899.

Application filed March 16, 1898. Serial No. 674,038. (No model.)

To all whom it may concern:

Be it known that I, HARRY N. COVELL, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Hoisting Machinery, of which the following is a specification.

My invention is applicable to any hoisting or hauling machine in which there is required a capacity for varying the power and speed of the drum or head on which the rope or cable is wound.

In the accompanying drawings I have shown my invention as applied to a ship's winch and have illustrated sufficient of the parts of the winch for the purpose of explaining my invention.

Figure 1 is a sectional elevation of an intermediate winch-shaft and the parts carried thereby, the section being on the line $x x$ of Fig. 2. Fig. 2 is an end view of the same parts and others. Figs. 3 and 4 are details.

1 is a main winch-shaft gear, being the usual gear fast to the winch-shaft on which the winch-head is mounted.

2 is the pinion by which gear 1 is driven.

3 4 are the two members of the ordinary positive clutch whereby the pinion 2 is driven, the clutch member 3 being fast to the pinion 2 and the clutch member 4 being connected with shaft 6, so as to be turned thereby and so as to be shifted by the lever 5.

6 is the intermediate shaft, which acts as the driver of the parts before referred to.

The parts thus far referred to are similar to those employed in the ordinary ship's winch, and to them are added the following parts embodying my invention:

7 is a gear fast to the driven clutch member 3 and also fast to the pinion 2.

8 is a pinion fast to the driving-shaft 6.

9 is an eccentric-shaft turned by the hand-lever 10.

11 is a hub mounted upon the eccentric-shaft 9.

12 is a gear fast to the hub 11 at one end and meshing with the pinion 8.

13 is a pinion fast to the hub 11 at the opposite end and meshing with the gear 7.

The operation of the eccentric by the lever

10 disengages the gears 12 and 13, respectively, from the gears 8 and 7.

14 is a portion of the hub 11 intermediate the gear 12 and pinion 13 and which is employed for operating the locking mechanism, which I will next describe.

The locking mechanism consists of the following parts:

15 is an arm pivoted on the fixed stud 16.

17 is a shoe projecting from the arm 15 and bearing against the surface of the hub portion 14 in the position shown in the drawings.

18 is a pin (shown in dotted lines) projecting from the side of the shoe 17 under a circular flange 19, fast to the hub 11. This pin is shown in the drawings as provided with an antifriction-roller 20.

21 is a member fast to the extremity of the arm 15 and adapted for being interposed between the two members of the clutch 3 and 4 when the same are separated. This member 21 will preferably be of wedge-shape form, as indicated in the drawings, although I do not limit myself to its form or mounting or the part of the clutch mechanism into the path of which it is moved as a stop. I will call it a "clutch-separator," because it is interposed in the path of some part of the clutch mechanism, so as to hold or lock the clutch mechanism in the position occupied when the clutch members 3 and 4 are separated.

The operation of the parts is as follows: When the clutch members 3 and 4 are disengaged, as shown in Fig. 1, the eccentric-shaft 9 may be turned by the hand-lever 10 into the position there shown, so that the gear 12 and pinion 13, respectively, are thrown into gear with the pinion 8 and the gear 7, respectively, thereby increasing the power transmitted from the driving member 6 to the driven member 7 to the extent that may be provided for by the proportioning of said gears and pinions. When, however, the parts are thus in position for the transmission of power through the pinion 8, gear 12, hub 11, pinion 13, and gear 7 to the pinion 2, the relative position of the shoe 17 and eccentric 9 is such that the arm 15 holds the clutch-separator 21 in the position shown in Figs. 1 and 3, locking the clutch members 3 and 4 against engagement. Thus so long as the eccentric-

shaft 9 remains in the position producing engagement between the members 8, 12, 13, and 7 it will be impossible for the clutch members to accidentally engage. When the operator desires to disengage the gear connection and engage the clutch connection, he moves the eccentric-shaft 9 into the position shown in Fig. 4, whereupon the arm 15 rocks into the position shown, whereby the clutch-separator 21 is removed from between the clutch members 3 and 4 and the clutch members are free to be engaged by the operation of the lever 5. The removal of the clutch-separator 21 from between the clutch members is rendered positive by the engagement between the pin 18 and the flange 19.

I claim—

1. In a hoisting or hauling machine, in combination, a driving member, a driven member, a clutch interposed between the same, a gear connection also interposed between said driving and driven members, means whereby said gear connection is engaged or disengaged, means whereby said clutch members are engaged or disengaged, a clutch-separator and means whereby the same is thrown into position by the action of the gear-shifting mechanism, substantially as described.

2. In a hoisting or hauling machine, in combination, a driving member, a driven mem-

ber, a clutch interposed between the same, a gear connection also interposed between said driving and driven members, means whereby said clutch connection may be engaged or disengaged and means whereby gears in said gear connection may be disconnected from each other, substantially as described.

3. In combination, the driving-shaft 6, the eccentric 9, the pinion 2 loose on shaft 6, the clutch 3, 4, whereby the shaft 6 may be rotatively connected with the pinion 2, the pinion 8 on shaft 6, the gear 7 connected with pinion 2, and the gear 12 and pinion 13, mounted on said eccentric, substantially as described.

4. In combination, the driving-shaft 6, the eccentric 9, the pinion 2 loose on shaft 6, the clutch 3, 4, whereby the shaft 6 may be rotatively connected with the pinion 2, a clutch-separator operatively connected with said eccentric and a chain of gears rotatively connecting said driving-shaft 6 with said pinion 2, substantially as described.

Signed at New York, in the county of Kings and State of New York, this 14th day of March, A. D. 1898.

HARRY N. COVELL.

Witnesses:

JOHN SINCLAIR,
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