

Oct. 29, 1935.

E. A. LARSON

2,018,795

HOIST

Filed Jan. 12, 1935

3 Sheets-Sheet 1

Fig. 1.

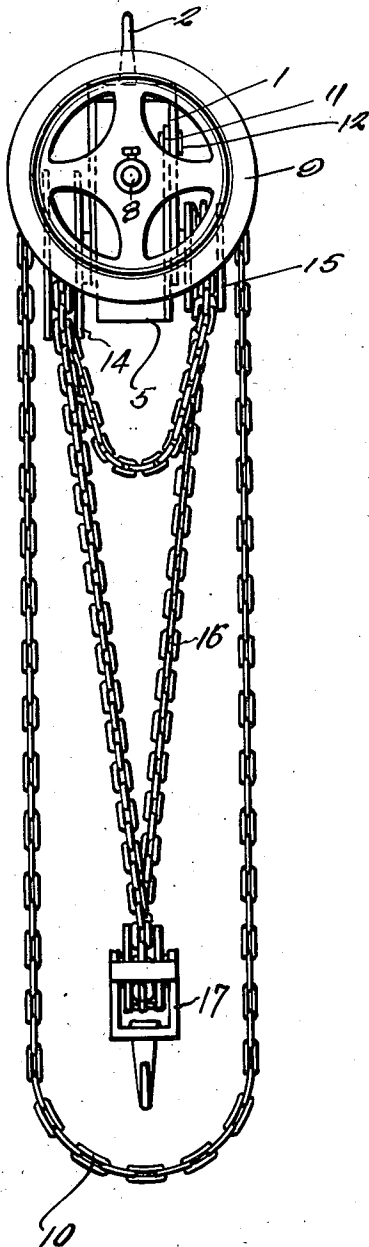
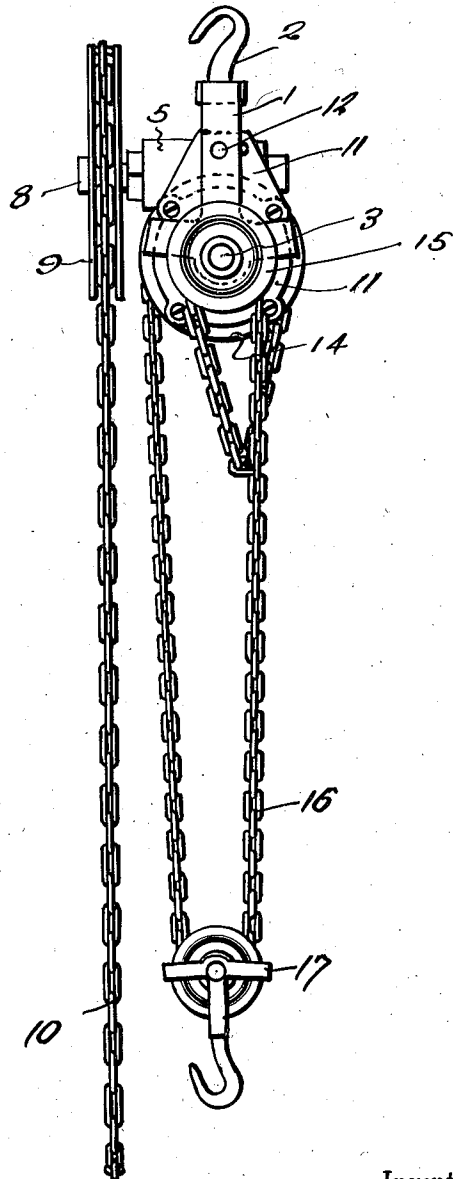


Fig. 2.



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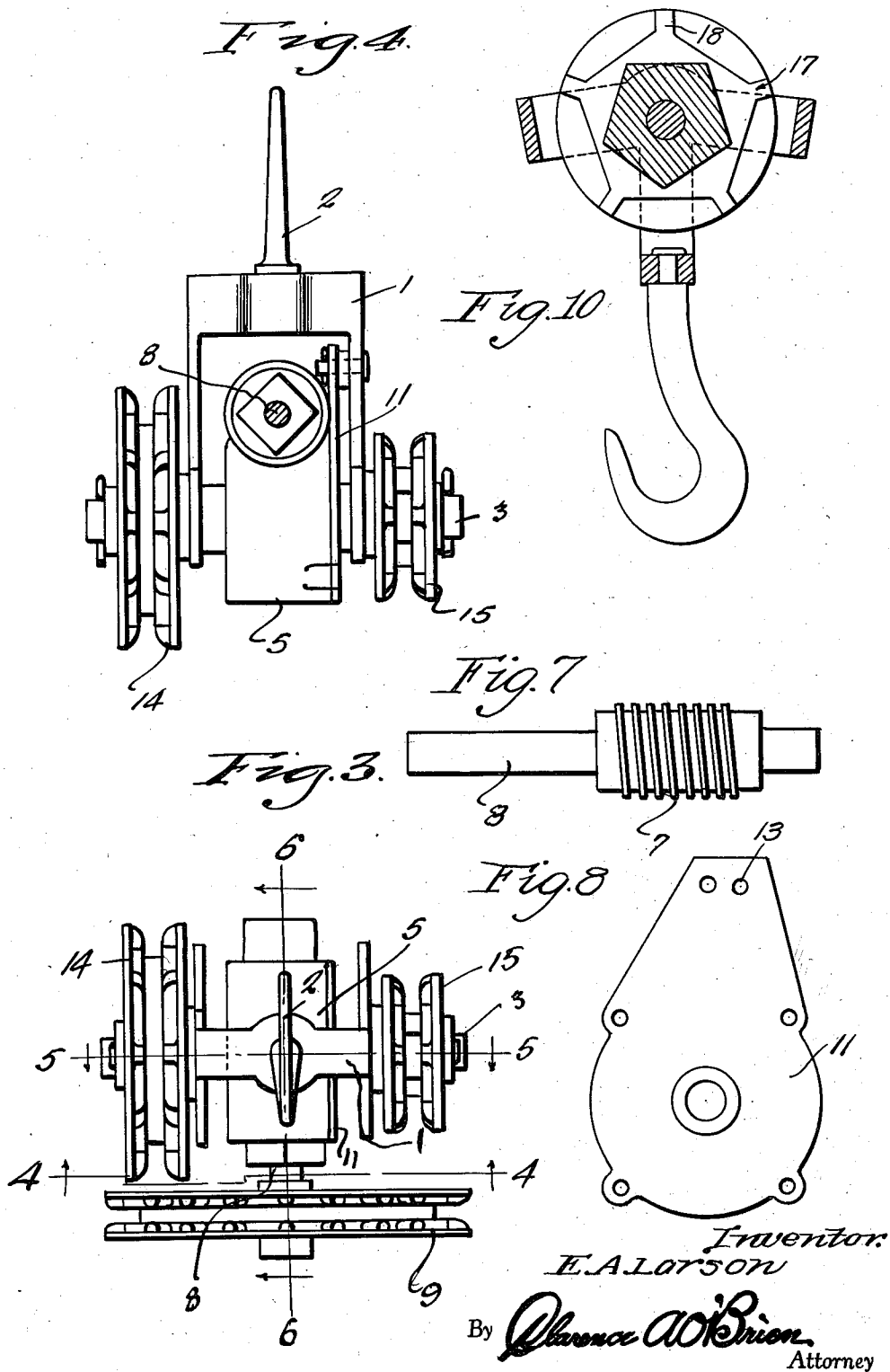
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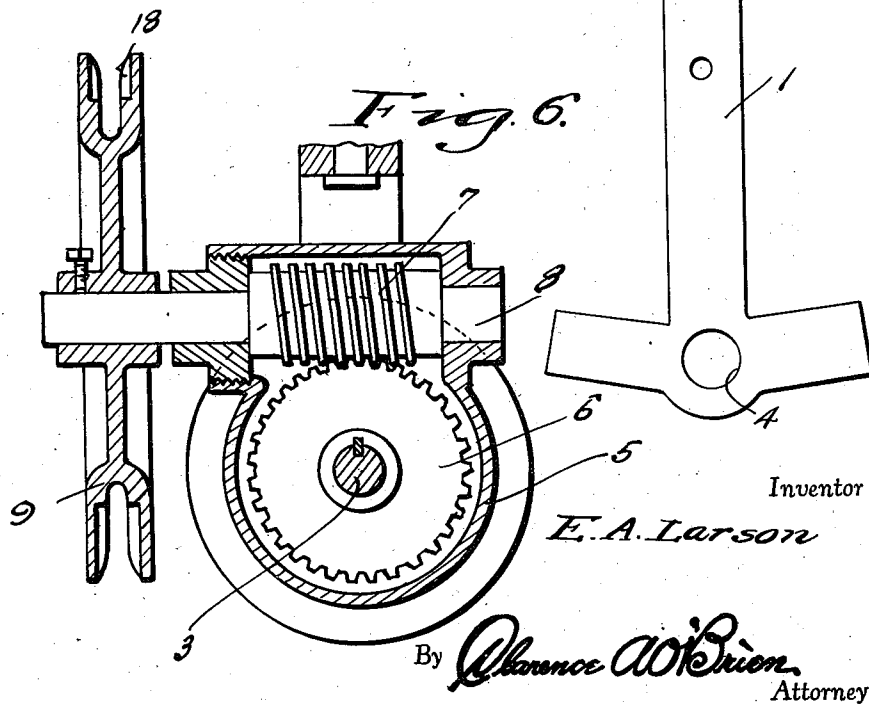
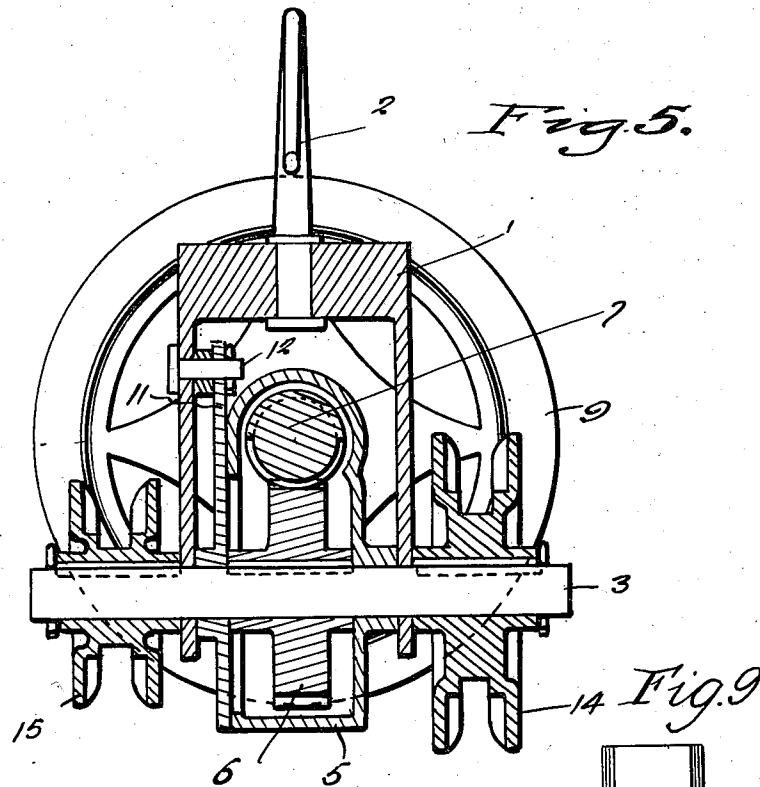
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UNITED STATES PATENT OFFICE

2,018,795

HOIST

Ernest A. Larson, Newberry, Mich.

Application January 12, 1935, Serial No. 1,555

1 Claim. (Cl. 254-170)

This invention relates to a hoist, the general object of the invention being to provide differential means whereby the weight of the load acts to facilitate the operation of the hoist in lifting the load.

This invention also consists in certain other features of construction and in the combination and arrangement of several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Fig. 1 is an elevation of the device.

Fig. 2 is an end view thereof.

Fig. 3 is a top plan view of the invention.

Fig. 4 is a section on line 4-4 of Fig. 3.

Fig. 5 is a section on line 5-5 of Fig. 3.

Fig. 6 is a section on line 6-6 of Fig. 3.

Fig. 7 is a view of the worm shaft.

Fig. 8 is a view of the cover plate for the worm gearing casing.

Fig. 9 is an end view of the yoke member.

Fig. 10 is a sectional view through the lower block.

In these drawings, the numeral 1 indicates a yoke which is rotatably connected with the upstanding hook 2 and the numeral 3 indicates a shaft passing through holes 4 in the lower ends of the limbs of the yoke. A gear casing 5 is located between the limbs of the yoke and the shaft passes transversely through the casing and a worm gear 6 is attached to that part of the shaft which passes through the casing and meshes with a worm 7 on a shaft 8 which is journaled in the upper part of the casing as shown more particularly in Fig. 6. A chain pulley 9 is connected to the outer end of the shaft 8 and the operating endless chain 10 passes over this pulley so that by pulling upon the chain, the pulley and shaft 8 will be rotated and this rotary movement of the shaft 8 is communicated to the shaft 3 through the worm gear as shown. A cover plate 11 shown more particularly in Fig. 8 covers an open side of the casing 5 and a bolt 12 connects the upper end of the cover plate with one limb of the yoke and I prefer to form a number of holes 13 in the top part of the plate, either one of which is adapted to receive the bolt so that the yoke can be adjusted with respect to the housing or casing 5.

of the shaft 3 and a small chain pulley 15 is attached to the other end thereof. An endless chain 16 has a portion passing over the large pulley 14 and another portion passing over the small pulley but in an opposite direction as shown in Fig. 1. The chain 16 carries the hook-equipped pulley block 17 detailed in Fig. 10.

Each pulley is provided with the chain grips 18 as shown.

Thus, it will be seen that while the pulley 10 or sheave 14 is turning to raise the load, the smaller pulley or sheave 15 is turning in the same direction but as the chain in passing over this small pulley in an opposite direction from that of the pulley 14, that part of the chain depending from the pulley 15 to the block 17 is moving towards the block 17 and thus one-half of the load is helping pulley or sheave 14 to raise the load.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

I claim:

A hoist comprising an inverted yoke having bearing openings at the lower end of its limbs, a hook supported by the bight part of the yoke, a housing located in the space between the limbs of the yoke, and having bearing openings in the sides in alignment with the first mentioned bearing openings, a shaft passing through the bearing openings of the housing and of the yoke, with its ends projecting beyond the yoke, a small chain pulley attached to one end of the shaft, a large chain pulley attached to the other end of the shaft, a worm gear located in the housing and attached to the central part of the shaft which passes through the housing, a second shaft in the upper part of the housing and extending at right angles to the first shaft, and having a worm thereon meshing with the worm gear, one end of the second shaft extending beyond the housing, a chain pulley on said end, an endless chain passing over the larger pulley, a second endless chain having a part passing in one direction over the large pulley on the first mentioned shaft, and in an opposite direction over the small pulley and a pulley block over the pulley of which the second endless chain passes.

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