(No Model.) 2 Sheets—Sheet 1.

# J. A. LOUNSBURY.

## ELECTRIC HOIST.

No. 580,457. Patented Apr. 13, 1897.

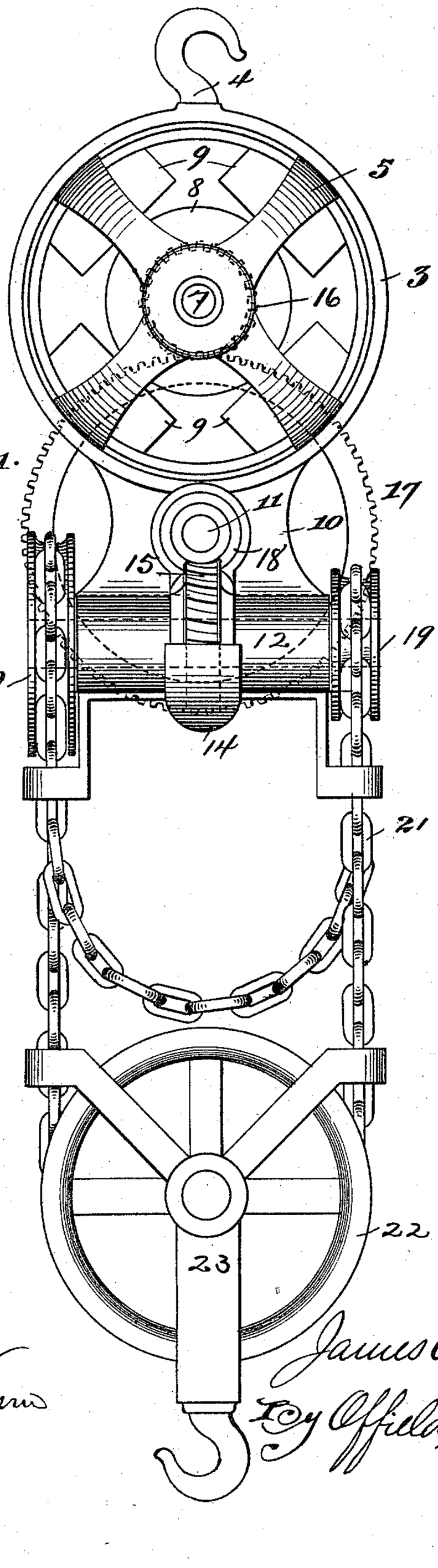


Fig. 1.

Witnesses,
F. D. Mann,
Frederick L. Goodwin

Inventor,
James A. Lounsbury
by Offield, Towle & Linthicum
Attys.

(No Model.) 2 Sheets—Sheet 2.

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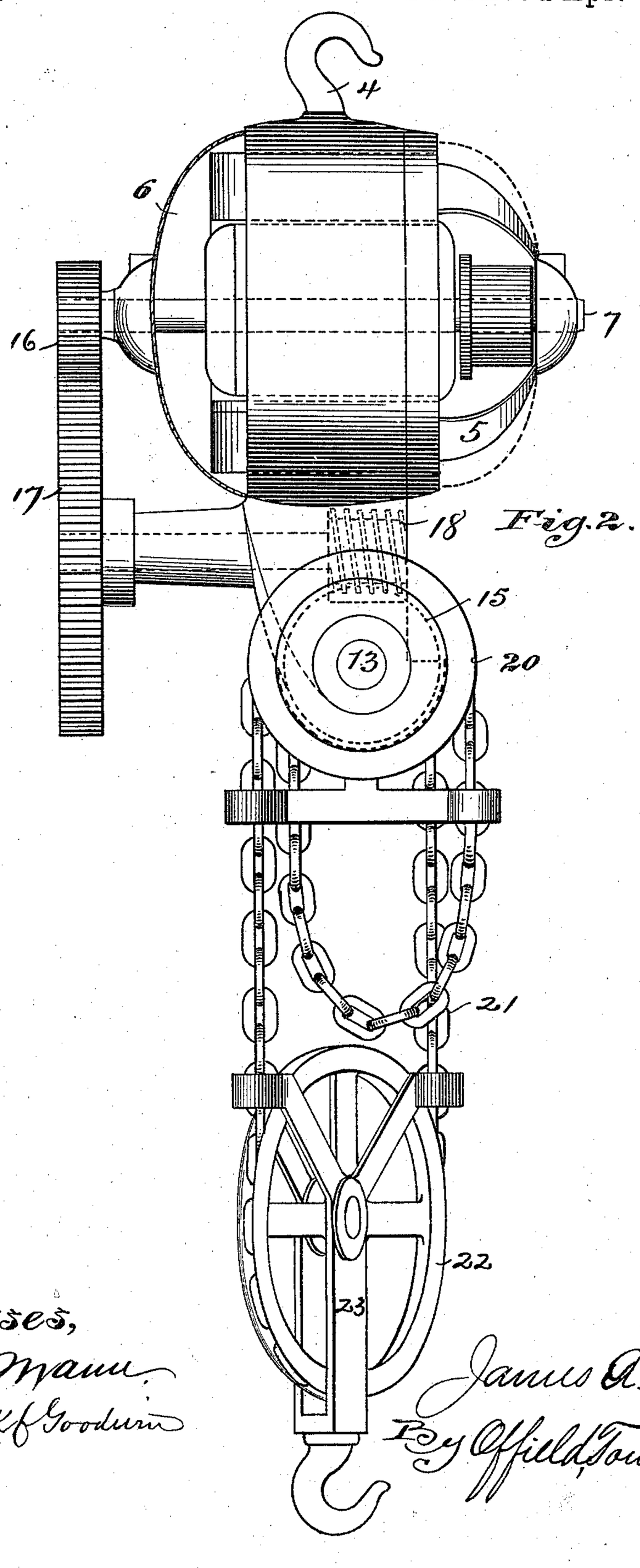


Fig. 2.

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# UNITED STATES PATENT OFFICE.

JAMES A. LOUNSBURY, OF CHICAGO, ILLINOIS.

## ELECTRIC HOIST.

SPECIFICATION forming part of Letters Patent No. 580,457, dated April 13, 1897.

Application filed July 13, 1896. Serial No. 598,968. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES A. LOUNSBURY, of Chicago, Illinois, have invented certain new and useful Improvements in Electric Hoists, of which the following is a specification.

My invention relates to certain improvements in electric hoists, and has for its principal object a construction whereby a compact and powerful engine of this class is provided.

The novel features of this invention relate, first, to the construction of the frame whereby the field-magnets of the motor and the bearings for a counter-shaft and the sheave or pulley shaft are provided in the same casting; second, to a novel combination and arrangement of the gearing, including a worm-gear driven from the armature-shaft and differential sheaves mounted upon the sheave-shaft and driven by the worm.

In the accompanying drawings, Figure 1 is a front elevation, and Fig. 2 a side elevation.

In the drawings, 3 represents the motor-frame, which is of annular form and which is provided on its upper surface with the swivel-hook 4.

5 represents a casting of spider form which is secured to the front of the annular body 3, and 6 is a casting to be secured to the rear side thereof. The castings 5 and 6 afford bearings for the armature-shaft 7.

8 is the armature, and 9 the field-magnets, which are cast integral with the annular body portion. The body 3 has a narrow neck-like extension 10, providing a bearing for a counter-shaft 11, and a terminal portion 12, of cylindrical form, apertured to provide a bearing for the sheave-shaft 13. The terminal portion 12 has likewise a semicircular peripheral enlargement 14, providing an oil-pocket for a worm-wheel 15, mounted on the sheave-shaft 13. The armature-shaft 7 carries the pinion 16, in mesh with gear 17 of the shaft 11, and the latter has the worm 18, which drives the worm-gear 15. On the sheave-shaft are mounted the sheaves 19 and 20, of unequal diameter and constituting differential sheaves over which are passed the turns of the hoisting-chain 21. The chain is also passed around the hoisting-pulley 22, journaled in the pulley-frame 23, which has the usual grapple. The chain passes from the pulley 22 over the sheave 19 from the front, and from the rear side of the pulley 19 the chain passes over the sheave 20 also from the front, and thence from the rear of the said sheave to the pulley 22, the action being that when the load is lifted the sheave-shaft is revolved in a direction to pay out the hoisting-chain from the sheave 19 and to wind it up on the sheave 20 at a higher rate corresponding to their difference in size, and thereby the speed of hoisting is reduced and the lifting power increased.

From the foregoing description it is seen that the bearings for the several shafts may be kept in perfect alinement and that the frame, while of simple construction, will afford the maximum strength of the material employed.

The arrangement of the gearing is such that the power is effectively employed upon the sheave-shaft. The engine is calculated to give approximately four hundred revolutions of the counter-shaft for twelve hundred revolutions of the armature-shaft.

The engine, provided with a motor of one and one-half horse-power, has a hoisting capacity of three tons and a hoisting speed of about four feet per minute, while the total weight of the apparatus does not exceed two hundred and fifty pounds.

It is obvious from the foregoing statements that my invention provides an easily-portable hoist of great power.

Certain accessories, such as caps to inclose the motor, may be added. While the structural details may be varied, I have found the construction hereinabove described the most desirable.

I claim—

1. In an electric hoist a motor-frame of annular form having an integral extension or neck providing a bearing for a counter-shaft and a terminal portion providing a bearing for a sheave-shaft, substantially as described.

2. In an electric hoist a motor-frame of annular form having inwardly-projecting integral lugs constituting field-magnets, a spider secured to the front of said frame and affording a bearing for the armature-shaft; an integral neck affording a bearing for a counter-

shaft and a terminal portion in which is provided a bearing for a sheave-shaft, substantially as described.

3. In an electric hoist, a motor-frame of annular form having an integral neck affording a shaft-bearing and a terminal portion providing a shaft-bearing at right angles to that of the neck and provided with a peripheral enlargement affording an oil-pocket for worm-gear, substantially as described.

4. In an electric hoist the combination with an electric motor, of a counter-shaft arranged parallel to the shaft of said motor and provided with a worm, a sheave-shaft having differential sheaves thereon and a worm-wheel driven by the worm on the counter-shaft, substantially as described.

JAMES A. LOUNSBURY.

Witnesses:
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A. J. PRATT.