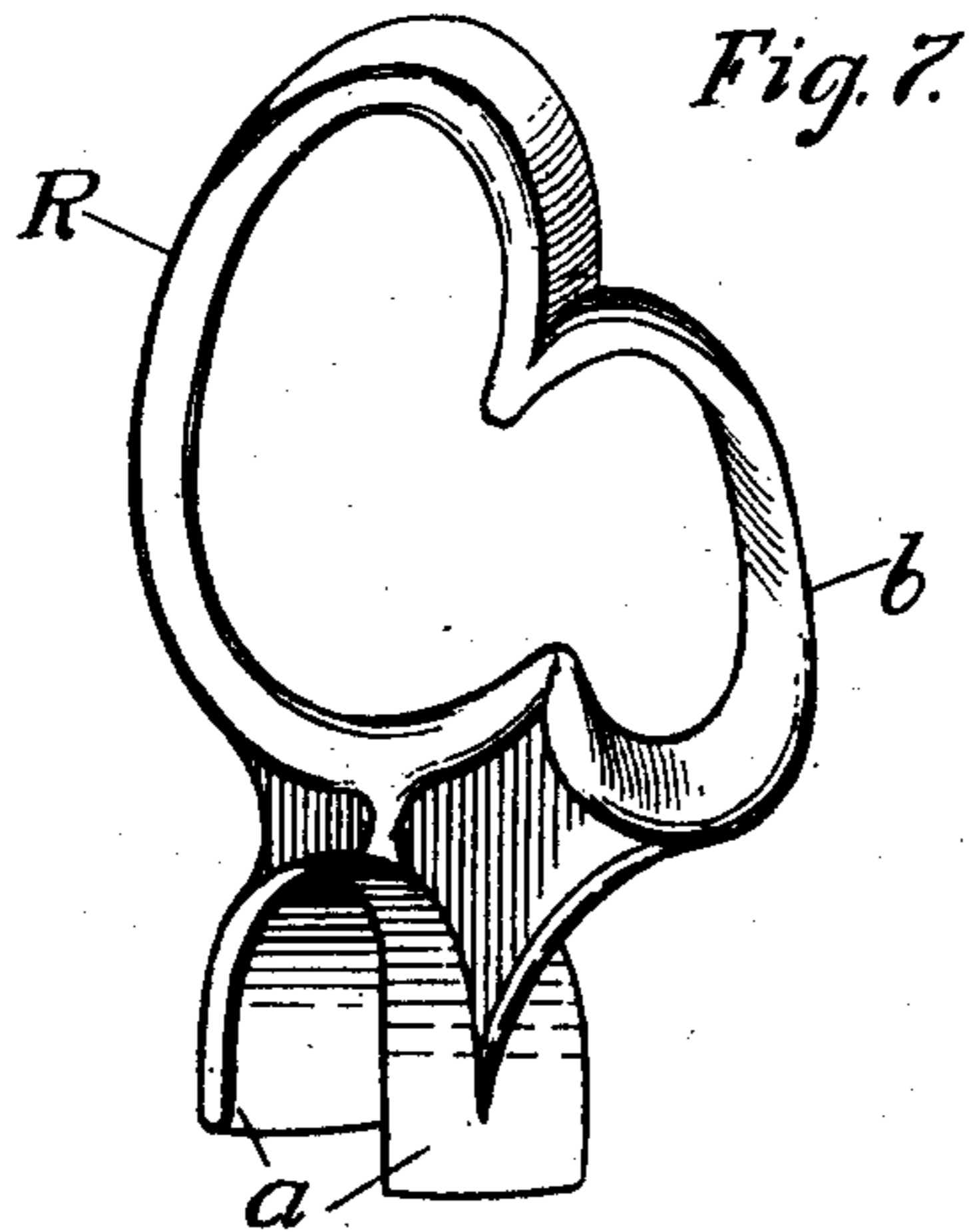
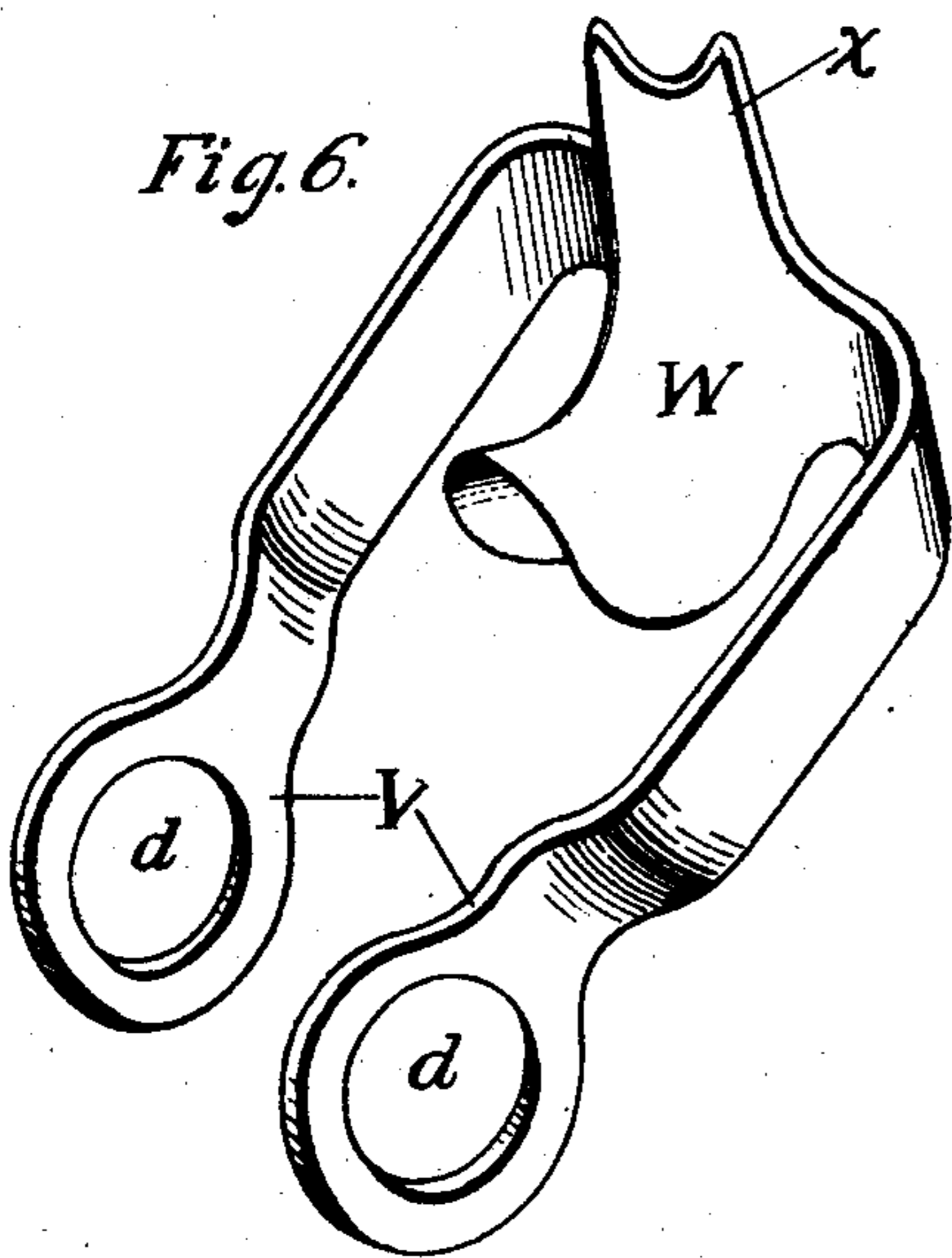
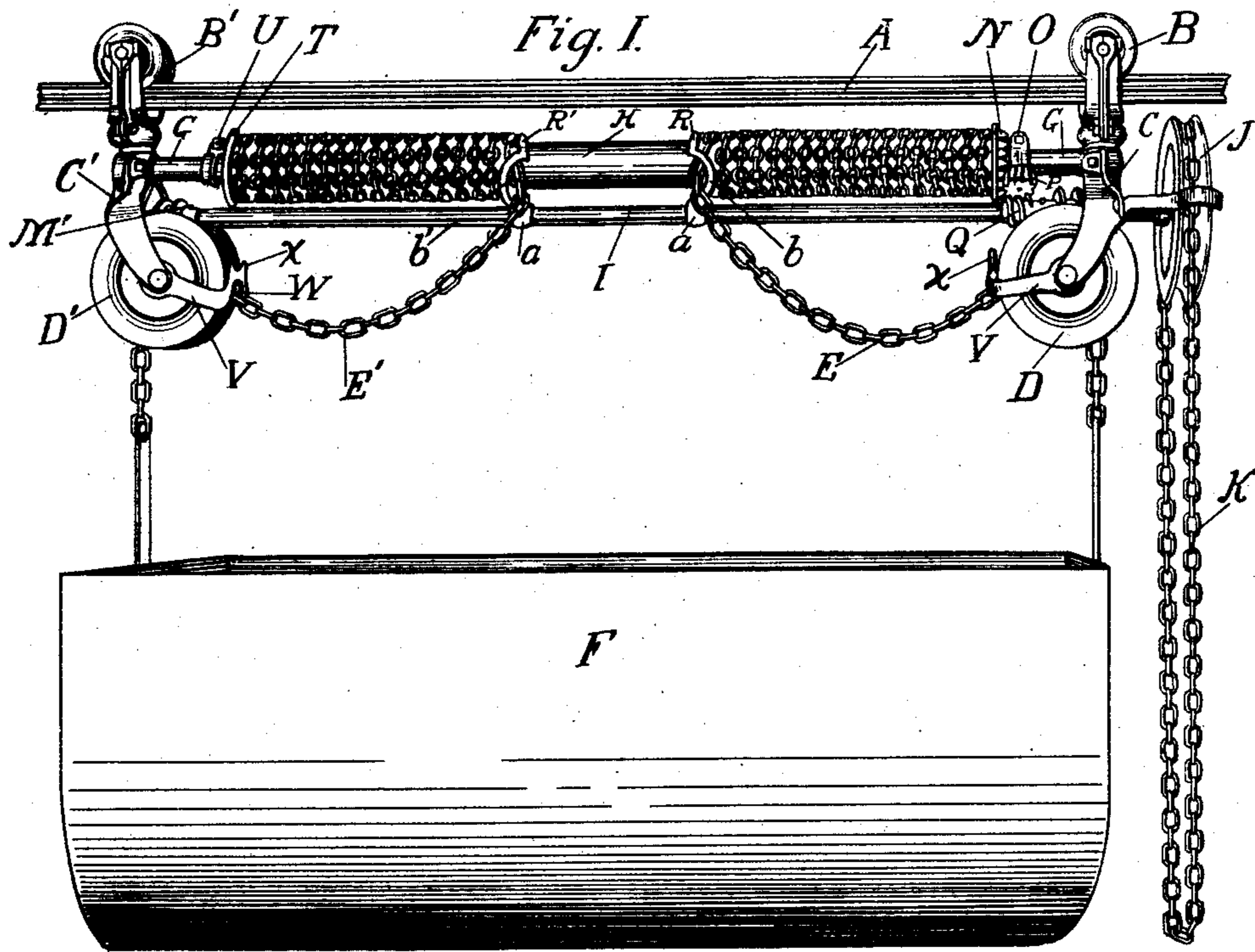


906,913.

A. H. NELLER.
HOISTING DEVICE.
APPLICATION FILED APR. 20, 1908.

Patented Dec. 15, 1908.
2 SHEETS—SHEET 1.



WITNESSES:

Edw. C. Peters.
Leone J. Hamp.

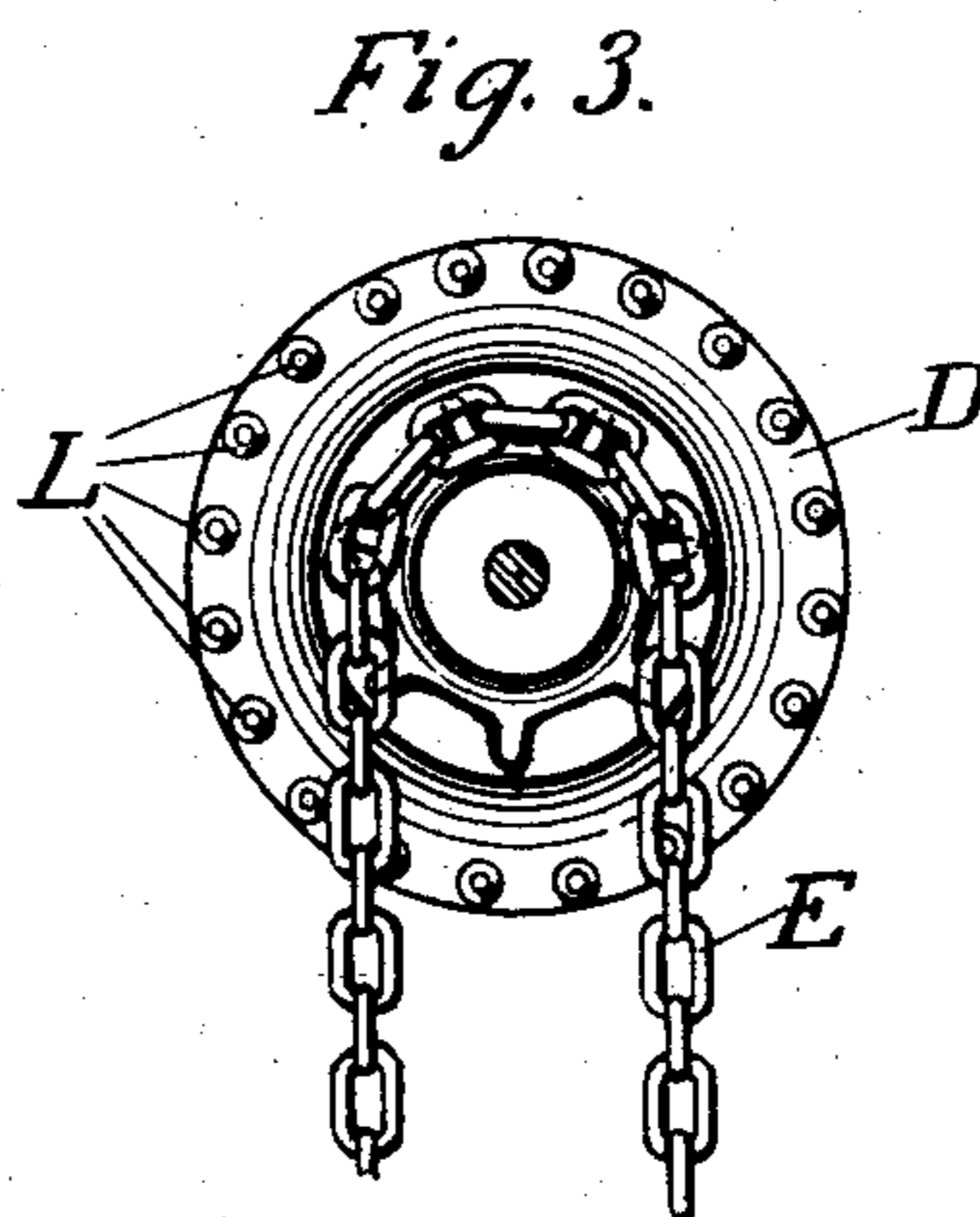
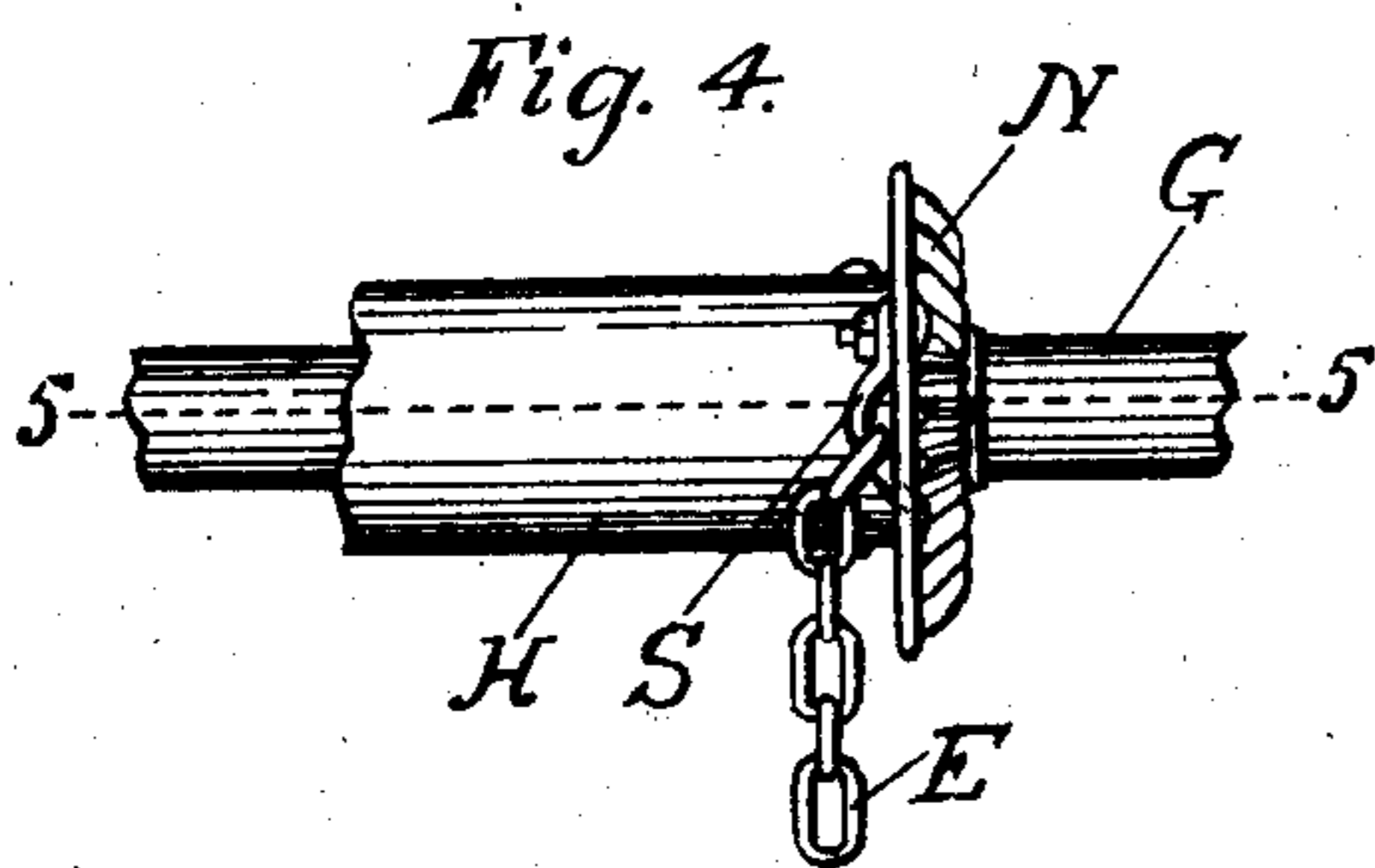
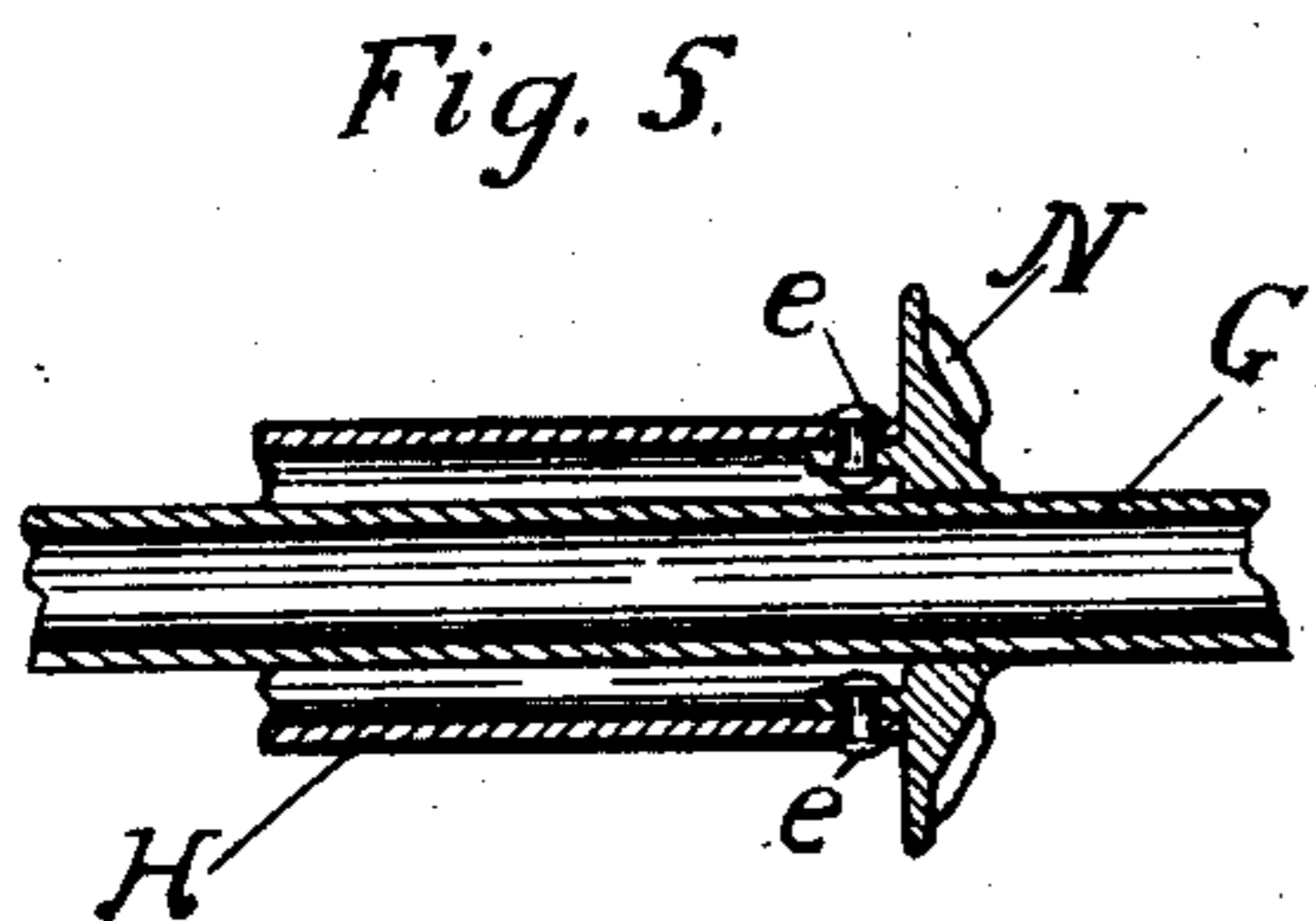
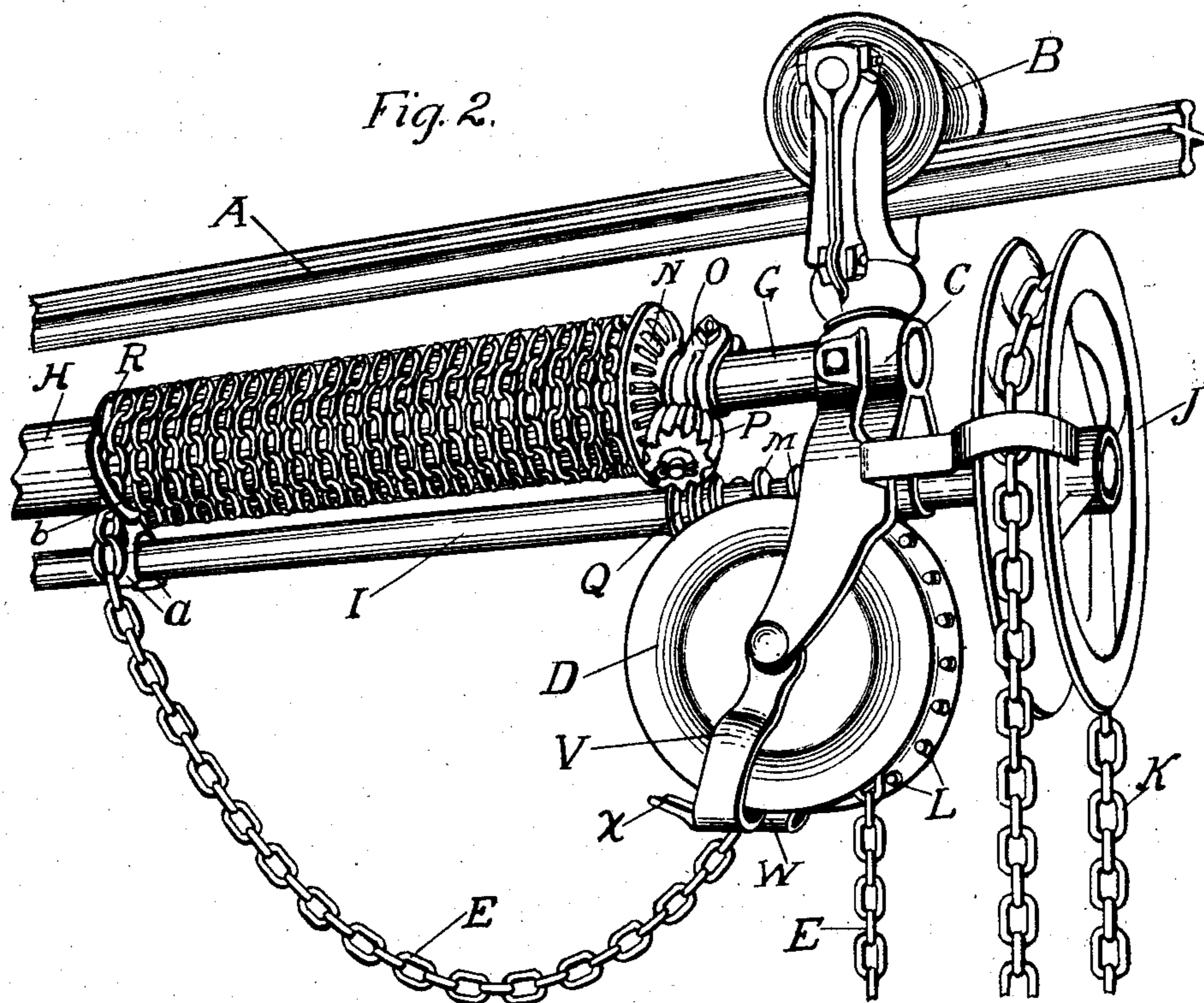
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WITNESSES:

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UNITED STATES PATENT OFFICE.

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OF FAIRFIELD, IOWA, A CORPORATION OF IOWA.

HOISTING DEVICE.

No. 906,913.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed April 20, 1908. Serial No. 428,254.

To all whom it may concern:

Be it known that I, ALBERT H. NELLER, a citizen of the United States, residing at Fairfield, in the county of Jefferson and State of Iowa, have invented a new and useful Improvement in Hoisting Devices, of which the following is a specification.

My invention relates to that class of hoisting devices in which a chain is used to raise and lower the load and it consists of means to take up and let out the free end of the chain, as required to keep it out of the way, and in other features as set forth in the specification and specifically pointed out in the claims.

In the accompanying drawings forming a part of this specification, Figure 1 is a perspective representing an elevated carrier embodying my invention. Fig. 2 is the same representing an enlarged view of the hoisting device. Fig. 3 is a view of the sprocket over which the chain passes, the front side being removed. Fig. 4 is a section of the take up cylinder which will be explained hereafter. Fig. 5, is a vertical section on the line 5—5 of Fig. 4. Figs. 6 and 7 are enlarged detail views.

Referring to the drawings, A represents an elevated track upon which trucks B and B' are adapted to run. To the lower ends of these trucks are connected frames C and C' carrying sprocket wheels D and D' over which hoisting chains E and E' are passed, and to the lower ends of the chains a receptacle F is suspended. The frames C and C' are connected together by means of a fixed shaft G upon which a cylinder H is rotatably mounted. Below the fixed connecting shaft G is a shaft I mounted in the frames C and C' so it will rotate and carry on one end a chain wheel J, over which a chain K is passed. The sprocket wheels D and D' are provided with a series of inwardly pointing pins L which are adapted to co-act with screws M and M' on the adjacent ends of the shaft I. When the chain wheel J is rotated the sprocket wheels D and D' will also be rotated and the chains E and E' will be drawn in one direction or the other, as may be necessary to raise and lower the receptacle.

The main object of the invention is to take up the free end of the hoisting chain so that a long chain may be used to make a high lift and not get in the way. To accom-

plish this result, the end of the chain is connected to the cylinder H which is fitted with a bevel gear N. A casting O carrying a gear P adapted to mesh with the gear N is secured to the shaft G. It is preferable to have the attaching end of the casting O forked so it will embrace the shaft G and be clamped thereon by a bolt.

On the shaft adjacent to the screw M is a supplemental screw Q which is adapted to operate the gear P. This in turn being attached to the cylinder will cause it to rotate, and this will wind up or unwind the chain secured thereto. The gearing operating the cylinder is adjusted so it will wind or unwind the chain with the same speed at which it is passed over the sprocket wheel D. In this way the free end of the chain, being connected to the cylinder, will be taken up or let out as may be needed, and will, at all times, be kept from getting in the way.

To cause the chain to wind and unwind evenly upon the cylinder and to prevent it from climbing upon itself or otherwise getting out of order, I use guides R and R' which preferably encircle the cylinder, and are adapted to slide back and forth thereon as the chain is wound or unwound. An enlarged view of this guide is shown in Fig. 7. It is fitted with forked ends *a* which are preferably broadened so as to sit steadily upon the shaft I, and to slide evenly back and forth thereon. On the side of each guide where the chain winds is an enlarged or extended portion *b b'* respectively adapted to admit the chain between it and the cylinder. The lower portion of this part is widened and made convex on the side over which the chain passes.

As the chain is wound upon the cylinder the guides R and R' are pushed along by the chain behind them and the chains are prevented from climbing upon themselves by having to pass under the portion *b*. As the chains are unwound, their pressure against the lower ends of the portions *b* and *b'* will make the guides follow the chains back and these parts being widened and made convex, the chains will slip easily over them, and whatever extra wear may be caused by the friction will be duly provided for. By this simple, inexpensive means the chains will always be evenly wound and unwound upon the cylinder and be kept from getting in the

way without any attention on the part of the operator.

The chain E is preferably connected to the cylinder by means of a link or bracket S secured to the body of the bevel gear N, as shown in Fig. 4, which in turn is secured to the cylinder by means of bolts or rivets e passing through the ends of the cylinder and through a flange on the rear side of the gear. At the opposite end of the cylinder a circular flange T is secured in a similar manner to which the chain E' may be attached. A set collar U is placed on the shaft G at this end of the cylinder to hold it in proper position.

Fig. 6 is an enlarged view of a chain guard, the office of which is to hold the chain in proper position on the sprocket wheels D and D' and to prevent the free ends of the chains from being drawn too far up when they are unwound from the cylinder. It comprises two arms V which are adapted to straddle the sprocket wheels and which are joined to a saddle shape part W terminating in a slightly bifurcated horn X. Eyes or openings d are formed in the ends of the arms and are adapted to encircle the hubs of the sprocket wheels and to swing loosely thereon.

The chains fit under the saddle and are adapted to slide in the rounded groove formed thereby. When the free ends of the chains are slack the guard will hang down as shown in Fig. 2, but when drawn tight the saddle portion will be lifted by the chain until the horn X will come in contact with the under side of the shaft I, which will prevent the chain from being drawn any higher and thus always securing a sufficient engagement with the sprocket wheel.

When it is desired to use my invention with a device which has no connecting shaft, such as shown in Fig. 1, upon which the cylinder H can be mounted, it will be necessary to provide a shaft, or at least, some sort of pivot upon which the cylinder may revolve. In Fig. 1 is shown a carrier having two hoisting chains E and E' but two hoisting chains are not always essential to the working of my invention. One chain is sometimes sufficient, as shown in Fig. 2, but in such cases suitable means must be used to properly support the outstanding end of the shaft G upon which the cylinder H is mounted.

My invention may be applied to a stationary hoist as well as a traveling hoist, all that is necessary being the necessary connection between the sprocket wheel and the cylinder so that the free end of the chain may be taken up and let out as the chain is passed over the sprocket wheel.

What I claim is:—

1. In hoisting devices, a sprocket wheel, a chain having a free end passed over the

wheel, and means to automatically take up and let out the free end of the chain as it passes back and forth over the wheel.

2. In hoisting devices, a sprocket wheel, a chain having a free end passed over the wheel, and a rotatable cylinder to automatically take up and let out the free end of the chain as it passes back and forth over the wheel.

3. In hoisting devices, a sprocket wheel, a chain having a free end passed over the wheel, a shaft and a cylinder to rotate on the shaft and take up and let out the free end of the chain as it passes back and forth over the wheel.

4. In hoisting devices, a sprocket wheel, a chain having a free end passed over the wheel, a shaft, a cylinder rotatable on the shaft and to which the free end of the chain is connected, and means to rotate the wheel and the cylinder in unison, so that the free end of the chain will be taken up and let out as it is passed back and forth over the wheel.

5. In hoisting devices, a sprocket wheel, a chain having a free end passed over the wheel, a shaft and a cylinder to rotate on the shaft and a guide adapted to move back and forth along the cylinder and keep the chain in even coils around the cylinder.

6. In a device of the character described, a sprocket wheel, a chain passed over the wheel, a fixed shaft, a cylinder to rotate on the shaft and a rotatable shaft adapted to rotate the wheel and the cylinder in unison, so that the chain may be automatically passed from the one to the other.

7. In a device of the character described, a sprocket wheel, a chain passed over the wheel, a fixed shaft, a cylinder to rotate on the shaft and a rotatable shaft carrying a screw adapted to rotate the wheel and the cylinder in unison, so that the chain may be automatically passed from the one to the other.

8. In a device of the character described, a sprocket wheel, a chain passed over the wheel, a fixed shaft, a cylinder carrying a gear rotatable on the shaft and a rotatable shaft carrying a screw to rotate the sprocket wheel and also the gear of the cylinder, so that the chain may be automatically transferred from the wheel to the cylinder and vice versa.

9. In a device of the character described, a sprocket wheel, a chain passed over the wheel, a fixed shaft, a cylinder having at one end a bevel gear, a casting secured to the shaft adjacent to the beveled gear and carrying a gear adapted to coact therewith, and a rotatable shaft having a screw adapted to rotate the sprocket wheel and also the gear on the casting whereby the sprocket wheel and the cylinder will be made to rotate in unison.

10. In a device of the character described, a sprocket wheel, a chain having a free end passed over the sprocket wheel, means to automatically take up and let out the free end of the chain, and a guard pivoted so as to hold the chain in engagement with the sprocket wheel.

11. In a device of the character described, a sprocket wheel, a chain having a free end passed over the sprocket wheel, means to automatically take up and let out the free end of the chain, and a guard having arms pivoted to the hub of the sprocket wheel and a saddle to fit over and hold the chain in engagement with the sprocket wheel.

12. In a device of the character described, a sprocket wheel, a chain having a free end passed over the sprocket wheel, a rotatable cylinder to automatically take up and let out the free end of the chain, a rotatable shaft to operate the sprocket wheel and the cylinder, and a guard having arms pivoted to the hub of the sprocket wheel, a saddle to fit over the chain and a horn to come in contact with the rotatable shaft and to hold the chain in contact with the sprocket wheel.

13. In a device of the character described, a sprocket wheel, a cylinder, means to rotate the sprocket wheel and cylinder in unison, a chain passed over the sprocket wheel and connected to the cylinder and a guide adapted to encircle the cylinder and guide the chain in coils around the cylinder.

14. In a device of the character described, a sprocket wheel, a cylinder, means to rotate the sprocket wheel and cylinder in unison, a chain passed over the sprocket wheel and connected to the cylinder and a guide adapted to encircle the cylinder and having an extended portion to take in the chain and guide it in coils around the cylinder.

15. In a device of the character described, a sprocket wheel and cylinder, means to rotate the sprocket wheel and cylinder in unison, a shaft parallel with the cylinder, a chain passed over the sprocket wheel and connected to the cylinder, and a guide for the chain adapted to slide back and forth on the cylinder and having a forked end to straddle the shaft and be supported thereby.

16. In a device of the character described, a pair of trucks adapted to run on an overhead track, a sprocket wheel carried by each of the trucks, a shaft joining the two sets of parts together, a rotatable cylinder mounted on the shaft, a chain passed over each of the sprocket wheels, and each having one of its ends connected to the adjacent end of the cylinder and means to rotate the cylinder and the sprocket wheels so that the chains in passing back and forth over the sprocket wheels will be wound and unwound upon the cylinder.

17. In a device of the character described, a pair of trucks adapted to run on an over-

head track, a sprocket wheel carried by each of the trucks, a fixed shaft joining the two sets of parts together, a rotatable cylinder mounted on the shaft, a chain passed over each of the sprocket wheels and each having one of its ends connected to the adjacent ends of the cylinder, and a rotatable shaft carrying screws adapted to operate the cylinder and the sprocket wheels so that the chains in passing back and forth over the sprocket wheels will be wound and unwound upon the cylinder.

18. In a device of the character described, a pair of trucks adapted to run on an overhead track, a sprocket wheel carried by each of the trucks, a shaft joining the two sets of parts together, a rotatable cylinder mounted on the shaft, a chain passed over each of the sprocket wheels, and each having one of its ends connected to the adjacent ends of the cylinder, means to rotate the cylinder and the sprocket wheels so that the chains in passing back and forth over the sprocket wheels will be wound and unwound upon the cylinder, and a pair of guides to cause the chains to wind and unwind evenly upon the cylinder.

19. In a device of the character described, a pair of trucks adapted to run on an overhead track, a sprocket wheel carried by each of the trucks, a shaft joining the two sets of parts together, a rotatable cylinder having a bevel gear at one end mounted on the shaft, a co-acting gear secured to the shaft adjacent to the bevel gear, a set collar on the shaft at the opposite end of the cylinder, a chain passed over each of the sprocket wheels and each having one of its ends connected to the adjacent end of the cylinder, and means to rotate the sprocket wheels and also the co-acting gear so that the chains will be wound and unwound upon the cylinder in passing back and forth over the sprocket wheels.

20. In a device of the character described, a pair of trucks, adapted to run on an overhead track, a frame connected to each truck, a sprocket wheel mounted in each frame, a shaft connecting the two sets of parts together, a rotatable cylinder mounted on the shaft, a chain passed over each of the sprocket wheels and each chain having one of its ends connected to the adjacent end of the cylinder, means to rotate the cylinder and the sprocket wheels so that the chains in passing back and forth over the sprocket wheels will be wound and unwound upon the cylinder and guides adapted to slide back and forth upon the cylinder and cause the chains to wind and unwind evenly thereon.

ALBERT H. NELLER.

Witnesses:

CHAS. O. SHETLER,
OSCAR LEEDHAM.