

J. Hughes,

Ladder.

No. 108483.

Patented Oct. 18. 1870.

Fig. 1.

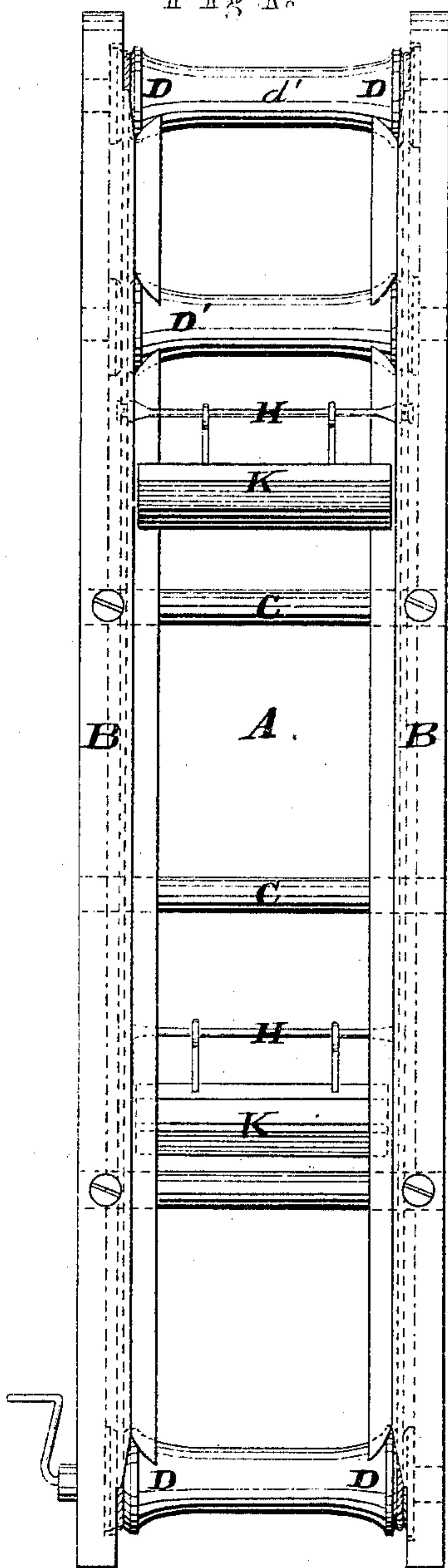
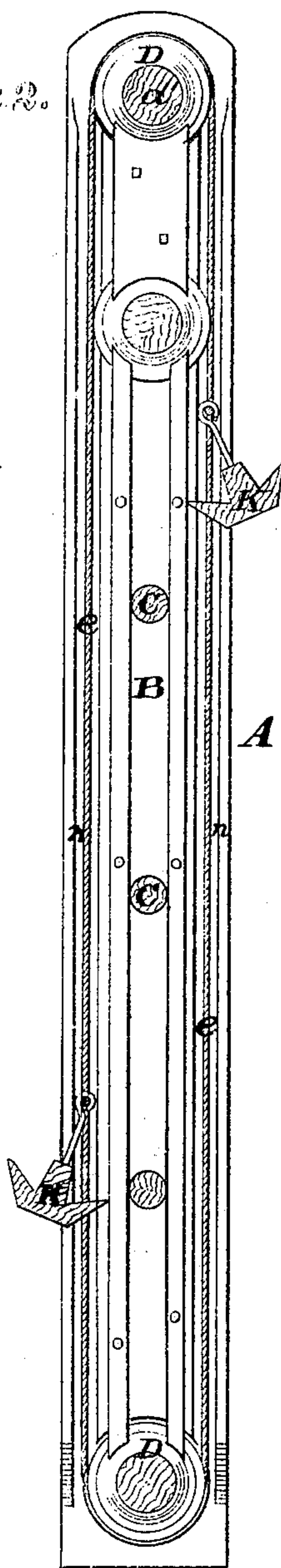


Fig. 2.



Witnesses.
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JOHN HUGHES, OF NEW BERNE, NORTH CAROLINA.

Letters Patent No. 108,483, dated October 18, 1870.

IMPROVEMENT IN LADDERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, JOHN HUGHES, of New Berne, in the county of Craven and State of North Carolina, have invented a new and valuable Improvement in Ladders; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a front view of my invention.

Figure 2 is a central vertical section of the same.

My invention has relation to ladders, and consists in passing over pulleys, bearing in the side bars thereof, endless ropes or chains for the attachment of carriages or hooks, whereby weights may be elevated or lowered.

The letter A of the drawing designates the ladder, consisting of the side-bars B B and the rungs C C.

Grooves *n n* are made on the inside of each side bar, both in front and in rear of the rungs.

D D are the pulleys, seated in recesses in the side bars, one at each end, or sometimes, as D', at an intermediate point, when it is not necessary that the endless chain should be carried beyond this point.

e e represent endless chains, or ropes, passing over the pulleys D D, and in the grooves *n n* in the side bars.

H H are transverse horizontal arms, of metal or wood, attached to the ropes *e e*, and extending across from one side of the ladder to the other.

The ends of each arm H extend within the grooves *n n*, and the arm is designed to serve as a brace to keep the ropes in proper position, and as a rod for the attachment of the carriage or hook.

In the drawing, the opposite pulleys are shown as being rigidly connected by a bar, *d*, designed to serve

also as a rung. This arrangement is adopted for convenience, in applying the power to both endless ropes at the same time, in order that they may move in concord.

If the power is applied only at the bottom of the ladder, as shown by the position of the crank in the drawing, the upper pulleys may be separate. But a crank may be applied to the upper end as well, in which case the upper pulleys would necessarily be connected.

If desired, a stationary sleeve may be fitted over the bar *d*.

K K represent carriages attached to the arms H H, so arranged that weights may be placed thereon, whether they be ascending or descending. These carriages may be made removable.

Sometimes I attach loops or hooks to the arms H H, to which articles which cannot be conveyed on the carriages may be secured.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination, the ladder A with grooves *n n*, the pulleys D D, braces H H, and endless ropes *e e*, as specified.

2. In combination with a ladder with grooved side bars, the endless ropes *e e*, pulleys D D, and braces H H, the removable carriage K K, so arranged as to present a support for articles, whether ascending or descending, in front or in rear of the ladder, as specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JNO. HUGHES.

Witnesses:

C. W. McLEAN,
J. A. HELLER.