J. F. Thomas,

Grapple.

No. 93,217. Patented Aug. 3. 1869.

Fig. 1.

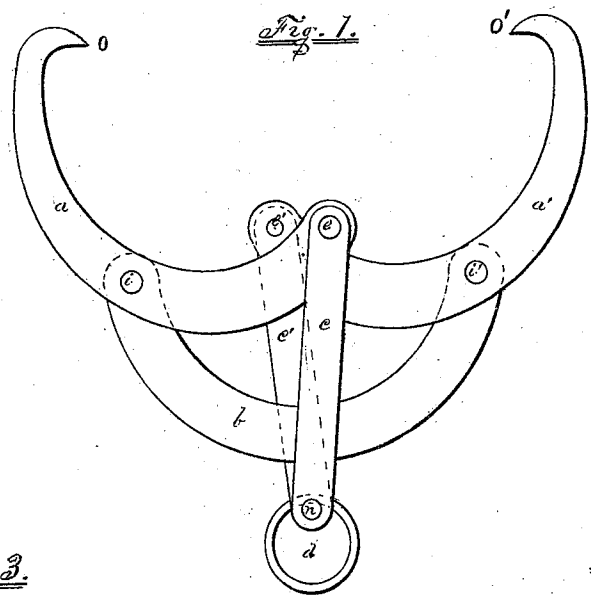


Fig. 3.

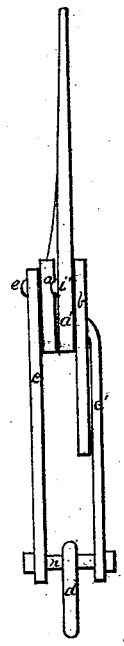
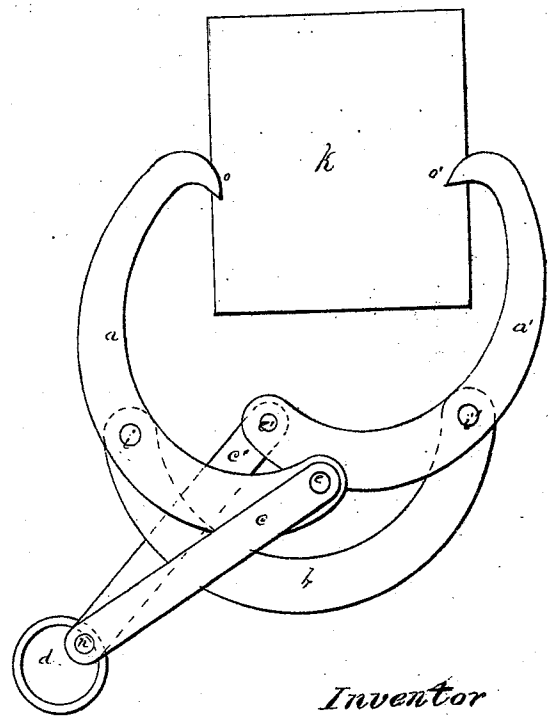


Fig. 2.



Inventor

John F. Thomas

Witnesses

Wm. H. Elliot

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United States Patent Office.

JOHN F. THOMAS, OF ILION, NEW YORK.

Letters Patent No. 93,247, *dated August* 3, 1869.

IMPROVEMENT IN GRAPPLES.

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 F. THOMAS, of Ilion, Herkimer county, New York, have invented a new and improved Grapple; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Similar letters of reference indicate the same devices in all the figures.

To enable others skilled in the arts to comprehend, make, and use my invention, I will proceed to describe its nature, construction, and operation.

The nature of my invention consists in the employment of two independent links, each being attached, at one end, to one of the hooks of the grapple, but joined together at their other ends, where the rope is attached, so that the link and hook, on one side of the grapple, may act to a certain extent independent of the link and hook on the other side of the grapple.

Figure 1 is an elevation of my grapple, with the hooks separated, as if about to be applied to some object.

Figure 2 is the same, applied to a beam or rafter, as it should be for the purpose of sustaining a hay-fork for unloading hay.

Figure 3 is an edge elevation of my improved grapple.

a and *a'* are hooks.

b, connecting-bar.

c and *c'*, links.

d, ring for the attachment of a rope or pulley-block.

e and *e'*, joints which connect the links with the hooks.

i and *i'*, joints between the connecting-bar and the hooks.

n, joint which connects the two links together.

k, section of a beam or rafter.

o and *o'*, points of the hooks.

My invention refers to that kind of grapple which is used for making fast to any object, such as the rafters of a barn, for the purpose of sustaining a hay-fork for unloading hay, or for any other use to which the invention may be applied; and

Its object is the construction of a grapple, which shall hold firmly under all circumstances, whether the force be applied at right angles to a line drawn from point to point of the hooks, or at any other angle.

In the position of the parts of the grapple represented in fig. 1, the hooks act as levers, the power being at *e* and *e'*, the fulcra at *i* and *i'*, and the weight at *o* and *o'*, but in the position of the parts as represented in fig. 2, the hook *a'* loses almost entirely its character as a lever, and takes that of an independent hook, and would sustain the weight if the other link and hook were taken away, the force being applied from *n* to *o'*, through joint *e'*, in a direct line, while the hook *a* retains its character as a lever.

This is owing to the fact that each hook is operated on by an independent link, which allows the grapple to accommodate the position of its parts to the direction of the force.

The bar *b* serves only to hold the fulcra in certain relation to each other.

It may be straight, reaching direct from *i* to *i'*, with just sufficient lateral curve to work freely by the side of the hooks.

When the grapple is applied to a beam, as shown in fig. 2, the points penetrate the timber in proportion to the amount of force applied to the hooks through the links, so that the greater the force, the greater the degree of firmness with which it grasps any object.

Having described my invention,

What I desire to have secured to me by Letters Patent of the United States, is—

Pivoting the connecting-bar *b* to the hooks *a* and *a'*, between the points *o* and *o'*, and the joints *e* and *e'*, substantially as set forth.

JOHN F. THOMAS.

Witnesses:

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