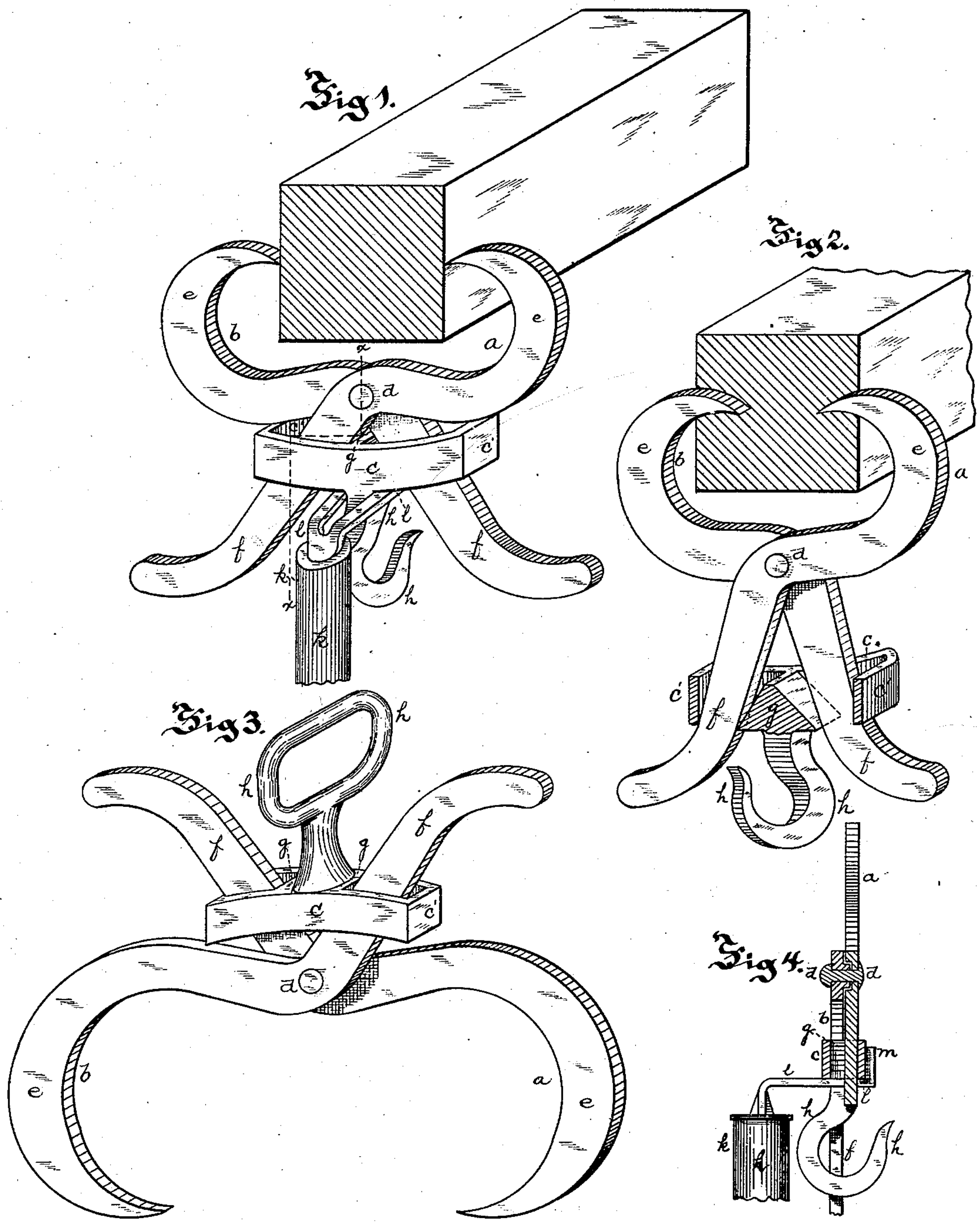
(No Model.)

J. S. DURNING.

GRAPPLE.

No. 306,067. Patented Oct. 7, 1884.



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UNITED STATES PATENT OFFICE.

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GRAPPLE.

SPECIFICATION forming part of Letters Patent No. 306,067, dated October 7, 1884.

Application filed June 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. DURNING, of Allegheny City, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Grapples; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to grapples and hooks, having special reference to the grapples employed in barns or like places for suspending ropes employed with horse hay-forks in carrying hay in or out of barns or like places, its object being to provide a simple and efficient grapple or hook for this and other purposes. It comprises, generally, a pair of jaws pivoted together and having arms extending back therefrom, and a sliding yoke fitting over said arms, and carrying a supporting handle or hook for carrying the grapple, or forming a connection between it and the ropes employed in operating the hay-fork, said yoke having a wedge-piece fitting between the arms of the jaws and acting, when forced toward said jaws by spreading the arms, to open the jaws or draw them apart. It also comprises a carrying-pole for said grapple, having a fork adapted to fit around the hook secured to the yoke and under the yoke, and so support the grapple that it may be raised by the pole and secured to the beam or girders of the building in which it is employed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a perspective view showing the grapple supported on the pole in position to be secured to the beam or girder. Fig. 2 is a like view illustrating the grapple secured to the girder, the face of the yoke being broken away to show the inner arrangement thereof. Fig. 3 is a perspective view illustrating the grapple when it is used as an ice-hook or similar tool, and Fig. 4 is a cross-section on the line *x x*, Fig. 1.

Like letters of reference indicate like parts in each.

The grapple or hook is formed of three parts, *a b c*, the parts *a b* being substantially the same shape, and being connected together at the point *d* by a pivotal joint. These parts each have the jaw *e* curved, so as to catch upon and enter into the beam or girder to which it is secured, and the arm *f*, extending down from the pivotal joint *d*, and the yoke *c*, forming the other part of the grapple, fits over the arms *f f*, these arms sliding within the yoke, and the yoke being provided in the center between the arms with the wedge-piece *g*, each arm *f* being confined within the yoke between this wedge-piece and the end wall, *c'*, of the yoke. The grapple is opened and closed by sliding this yoke *c* on the arms *f*, the wedge-piece *g* acting to press the arms apart in opening the grapple, and the end walls, *c'*, thereof drawing said arms together, thus causing the jaws *e* of the grapple to approach each other and bite into the beam or other object to be caught and held by it. The grapple thus formed can be operated either as a hook for lifting objects, as shown in Fig. 3, or as a grapple for suspending or hanging objects from an overhanging beam, as shown in the drawings.

When employed as a lifting-hook, the handle *h* is rigidly secured to the yoke *c* between the arms *f*, and when the object is to be grasped the jaws *e* are spread apart by pressing down on the handle, being forced apart by the wedge *g*, and they are then placed over the object and the point of one jaw caught in it, and when the handle is raised the arms *f* are caused to slide through the yoke and press the jaws of the grapple into the object to be raised, so that there is a continual pressure of the jaws into the object to be raised, the pressure being proportionate to the weight of the object.

When employed as a hay-fork grapple, the hook *h* is secured to the yoke between the arms *f*, as shown, and after the grapple is fastened to the beam the rope or pulley is secured to said hook *h*.

In order to attach the grapple to the beam, I have provided the pole *k*, having the fork *l*, the two arms of which fit under the yoke *c* on either side of the hook *h*, and having lugs *m* extending up on the opposite side of the yoke, the hook *h* resting against the body of

the pole, and thus holding the grapple in an upright position, as shown in Fig. 4. The grapple is thus supported on and raised by the pole, being spread out so that its jaws *e* fit one on each side of the beam, and after the point of one of the jaws *e* is caused to catch on one side of the beam the pole is slightly lowered, and by drawing on the rope secured to the hook *h* the yoke *c* is drawn down on the arms *f*, thus forcing the jaws *e* of the grapple into the beam, as shown in Fig. 2.

When it is desired to remove the grapple, the pole *k* is placed under the yoke in the same position, and raises the yoke on the arms *f*, when the wedge *g* between said arms, pressing against their inner faces, draws apart the jaws *e* of the grapple, and thus draws the jaws out of the beam, the pressure of the wedge *g* on the inner faces of the arms *f* being sufficient to spread said arms widely apart and thus release the grapple.

The grapple is simple in construction, is formed of but few parts, which can be cast to shape, and the parts are all comparatively heavy and strong, so that it is not liable to get out of order. It is positive in its operation, and can be used for any purpose for which hooks or grapples of this nature have been employed.

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

1. A grapple formed of a pair of jaws pivoted together and having arms extending backwardly therefrom, and a yoke fitting over said arms and adapted when drawn down to slide along said arms, and thus draw together the jaws of the grapple, substantially as described.

2. In a grapple, the combination of the jaws, pivoted together and provided with the arms *f*, and the yoke *c*, fitting around said arms and having the wedge *g* between them, substantially as and for the purposes set forth.

3. The combination, with the grapple having the sliding yoke *c*, provided with the yoke *h*, of the pole *k*, having the fork *l*, substantially as and for the purposes set forth.

4. The combination, with the grapple having the sliding yoke *c*, provided with the hook *h*, of the pole *k*, having the fork *l*, provided with lugs *m*, substantially as and for the purposes set forth.

In testimony whereof I, the said JOSEPH S. DURNING, have hereunto set my hand.

JOSEPH S. DURNING.

Witnesses:
H. T. MORRIS,
J. N. COOKE.