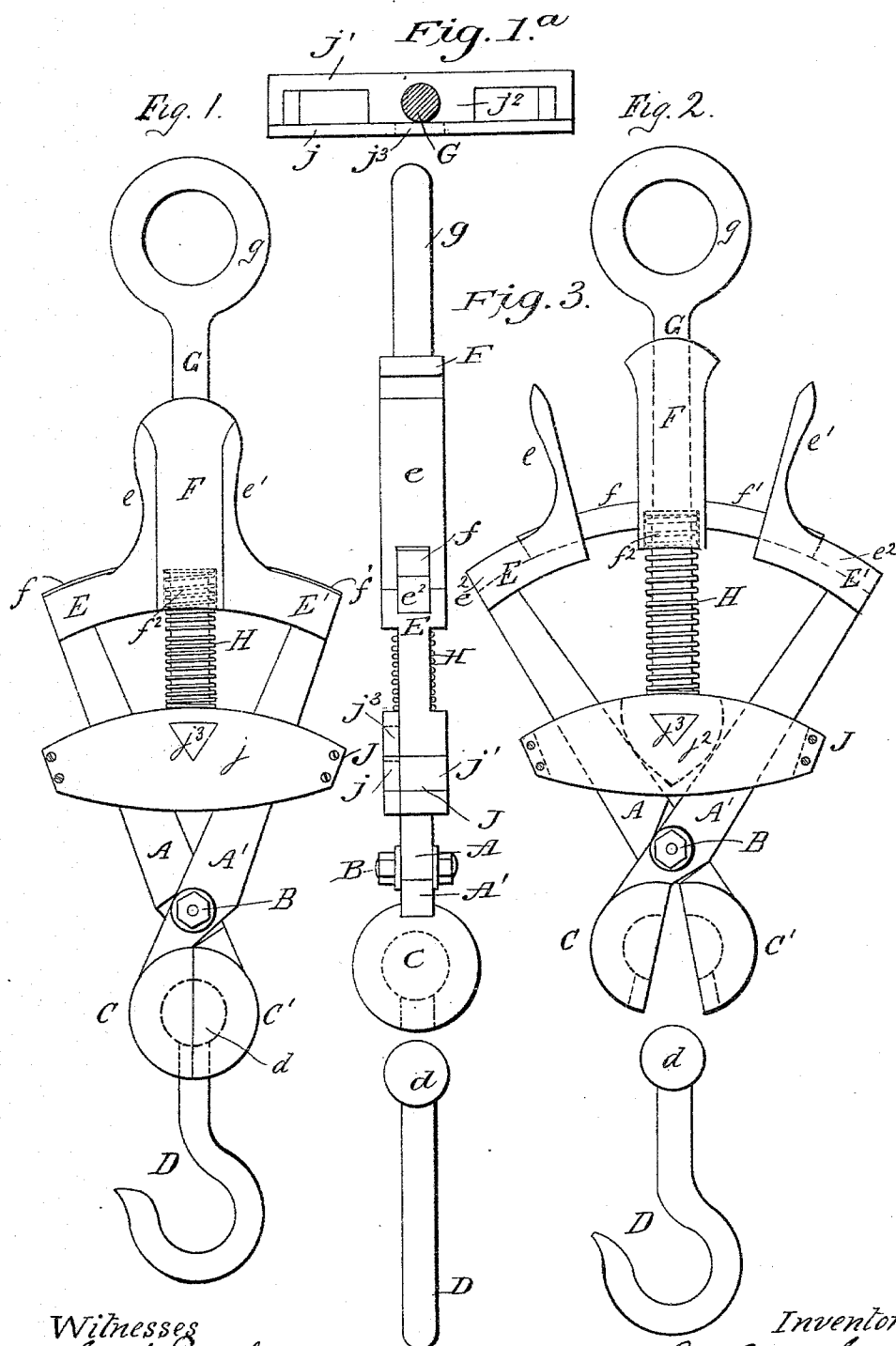


(No Model.)

O. C. MOOTHAM.
DISENGAGING CLUTCH.

No. 545,411.

Patented Aug. 27, 1895.



Witnesses
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DISENGAGING CLUTCH.

SPECIFICATION forming part of Letters Patent No. 545,411, dated August 27, 1895.

Application filed December 5, 1894. Serial No. 530,852. (No model.) Patented in England May 23, 1894, No. 10,048.

To all whom it may concern:

Be it known that I, ORBY CECIL MOOTHAM, a subject of the Queen of Great Britain, residing at Bournemouth, in the county of Hampshire, England, have invented a new and Improved Disengaging Clutch, (for which I have received Letters Patent in England, May 23, 1894, No. 10,048,) of which the following is a specification.

My invention relates to a new and improved disengaging clutch specially, though not exclusively, adapted for raising and lowering boats, and it is designed to automatically disengage the load which it sustains whenever the strain of the said load is relaxed.

In order that the description of my invention may be more readily grasped, I have appended hereto two sheets of drawings illustrative of my invention. The figures on Sheet 1 of the drawings illustrate one form of my detaching-clutch, the said form being that which I have hitherto found to give the best results in practice.

In the drawings, Figure 1 is a front elevation of my clutch in its closed position—that is to say, in the position which its parts occupy when the load is being sustained. Fig. 1^a is a plan view of the yoke-piece J shown in Fig. 1, rod G being shown in section. Fig. 2 is a front elevation of the clutch as seen in its open position—that is to say, in the position which its parts occupy when the load is no longer supported by the clutch. Fig. 3 is a side elevation of the clutch as seen in its open position.

In the drawings, A A' are two levers articulated by the bolt or rivet B so as to resemble and move relatively to one another in the same manner as a pair of shears. At the lower or gripping end of the said levers are the jaws C C', in the case illustrated (and preferably) of hemispherical shape and having hemispherical recesses in them similar to those in an ordinary bullet-mold, so as to be adapted to grip the spherical head d of the attaching-hook D. At the upper ends of the levers A A' are the guide-wings E E', fitted with the extension-pieces e e' and having the grooves or slideways e².

f f' are side arms rigidly attached at their inner ends to the collar-piece F. The said arms f f' slide in the grooves or slideways e² as the parts of the clutch pass from their open to their closed position, and vice versa. The collar-piece F is bored, as shown by the dotted lines, so as to be free to slide upon the bolt-rod G, which latter is terminated at its upper end by the eye g and at its lower end by the cam-shaped part j² of the part j'.

H is a spring whose function is to force the parts into their open position. This spring encircles the shank of the bolt-rod G, its lower end abutting against the cam-shaped piece j² and its upper end nesting in the recess f² in the lower end of the collar-piece F.

J is a yoke-piece consisting of two pairs j and j', as shown more particularly in Fig. 1^a, where they are seen in plan. Of these two parts j is a flat plate of the form clearly shown in Figs. 1, 2, and 3, while j' is a piece of the form shown in end view in Fig. 3, in plan in Fig. 1^a, and in side elevation by the dotted lines in Fig. 2. It will be seen that the cam-shaped piece j² and the triangular stud or pin j³ are integral with the part j'. The stud or pin j³ fits in a triangular orifice in the plate j.

The action of my invention is as follows: Let us assume that the load is attached to the hook D. The clutch is brought down or the hook raised till the head d is within the jaws C C'. These are then caused to grip the head d by pressing the extension-pieces e e' close up to the collar-piece F. The parts are now in the position shown in Fig. 1. If the load is required to hang for a length of time on the clutch—as, for example, in the case of a boat which is to hang on the davits until required for use—a ring may be passed over the extension-pieces so, as to keep them in the position shown in Fig. 1, or the parts may be bound in this position by a cord or otherwise. Let us now assume that the load is to be lowered. The ring or cord is removed from the extension-pieces; but the load is still tightly sustained, provided the load is sufficiently heavy to overcome the action of the spring. Indeed, the heavier the load the

more tightly is the hook D held in the jaws C C'. As soon, however, as the load reaches the ground or the strain of the load is otherwise removed from the clutch the spring is no longer overcome by the weight of the load, but now forces the parts apart into the position shown in Fig. 2 and the load is automatically released.

When a load is to be raised by means of my invention, the action is similar. Let us assume, for example, that sacks of flour are being raised from the ground to the upper floor of a warehouse. The load is hung upon the hook in the ordinary way and the hook gripped by the clutch, as hereinbefore mentioned. The sack is then raised to the upper floor in the usual manner, when, as soon as the strain is taken off the clutch by the resting of the sack on the landing-stage, the spring asserts itself and the sack is released.

I desire it to be understood that I do not confine myself to the precise form of clutch illustrated, as it is obvious that it might be considerably altered in its minor details. The principle of my invention being understood, any competent engineer could modify the details to an indefinite extent without departing from the spirit of my invention.

I have hereinbefore stated that Fig. 1 represents the parts in their closed position—that is to say, when a load is sustained. I desire however, to add that the exact relative position of the said parts will depend upon the weight of the load. Thus the heavier the load the more will the spring be compressed until when a sufficiently-heavy load is sustained the spring is sufficiently compressed for the yoke-piece to come into contact with the guide-wings E E'. It will be understood, however, that the jaws are completely closed when a load of comparatively-small weight is sustained.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a disengaging-clutch, the combination of two fulcrumed levers provided with jaws at their lower ends, a yoke loosely embracing the upper ends of the levers, a suspension-rod fastened at its lower end to the yoke, a collar-piece guided on the rod, above the yoke,

and provided with means for guiding the upper ends of the levers, and an expansion-spring interposed between the yoke and the collar, substantially as set forth.

2. In a disengaging-clutch, the combination of two fulcrumed levers provided with jaws at their lower ends, a yoke loosely embracing the upper ends of the levers, a suspension-rod fastened at its lower end to the yoke, a collar-piece guided on the rod, above the yoke, and provided with curved side-arms for guiding the upper ends of the levers, and an expansion-spring interposed between the yoke and the collar, substantially as set forth.

3. In a disengaging-clutch, the combination of two fulcrumed levers provided with jaws at their lower ends, a yoke loosely embracing the upper ends of the levers, a suspension-rod connected with the yoke and provided with a ring at its upper end, a collar-piece provided with a recess in its lower end and having laterally-projecting arms for guiding the upper ends of the levers, and an expansion-spring resting at its lower end upon the yoke and seated at its upper end in said recess, substantially as set forth.

4. In a disengaging-clutch, the combination of two fulcrumed levers provided with jaws at their lower ends, guide-wings fixed to the upper ends of the levers, a yoke loosely embracing the upper ends of the levers below said guide-wings, a suspension-rod connected with the yoke, a collar-piece provided with side-arms guided in said wings, and an expansion-spring interposed between the yoke and the collar, substantially as set forth.

5. In a disengaging-clutch, the combination of two fulcrumed levers provided with jaws at their lower ends, guide-wings fixed to the upper ends of the levers and provided with upwardly-projecting extension-pieces, a yoke loosely embracing the levers above their pivot, a suspension-rod connected with the yoke, a collar-piece provided with side-arms guided in said wings, and an expansion-spring interposed between the yoke and the collar, substantially as set forth.

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