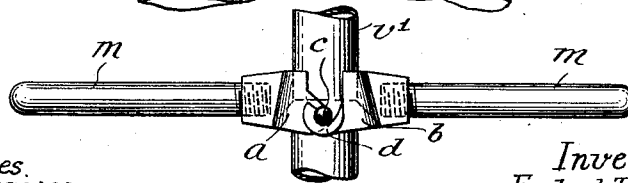
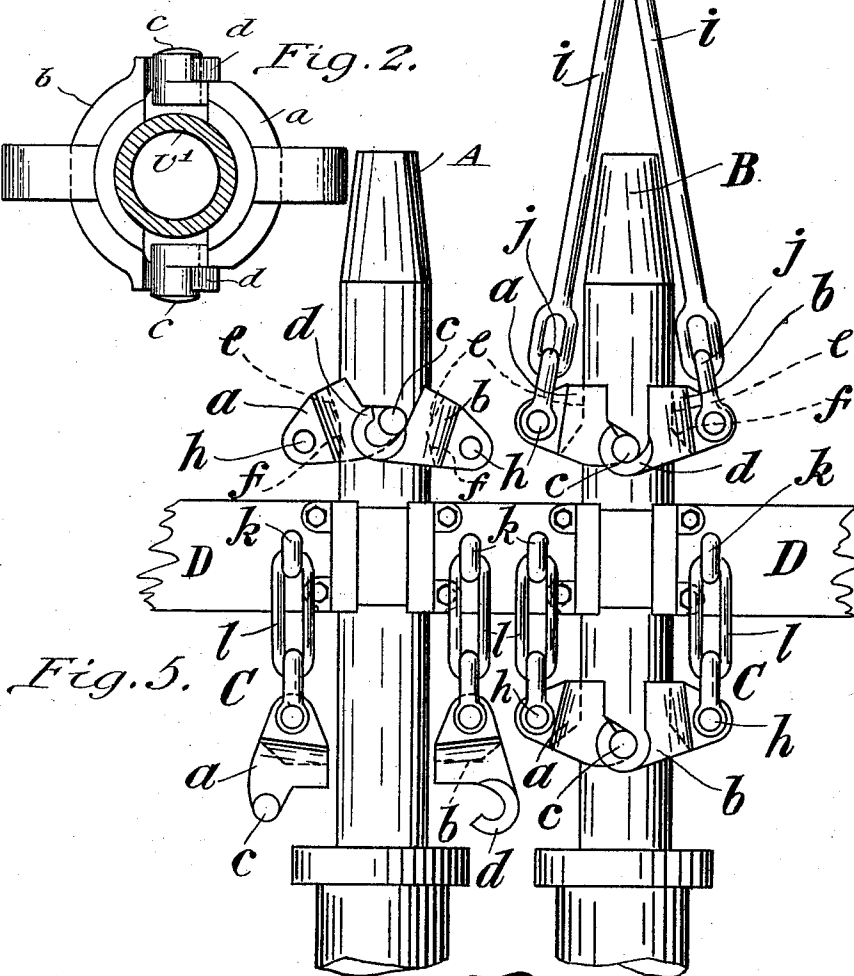
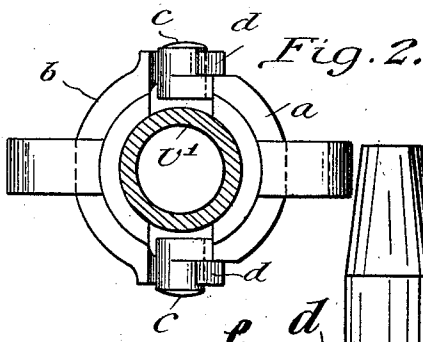
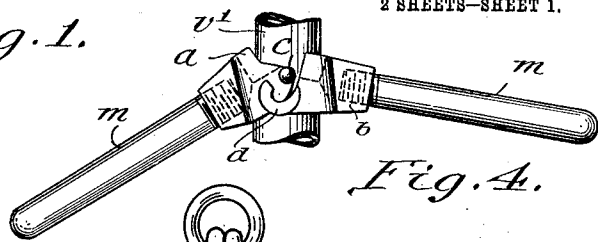
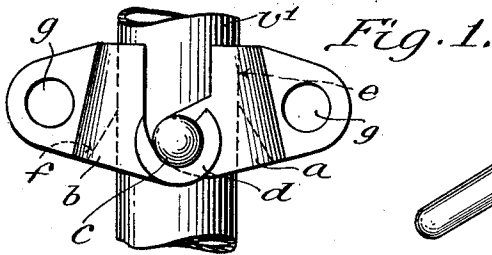


F. THOMAS.
DOUBLE JAW FRICTION GRIP CLAMP.
APPLICATION FILED MAR. 14, 1910.

1,037,560.

Patented Sept. 3, 1912.

2 SHEETS—SHEET 1.



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Fig. 6.

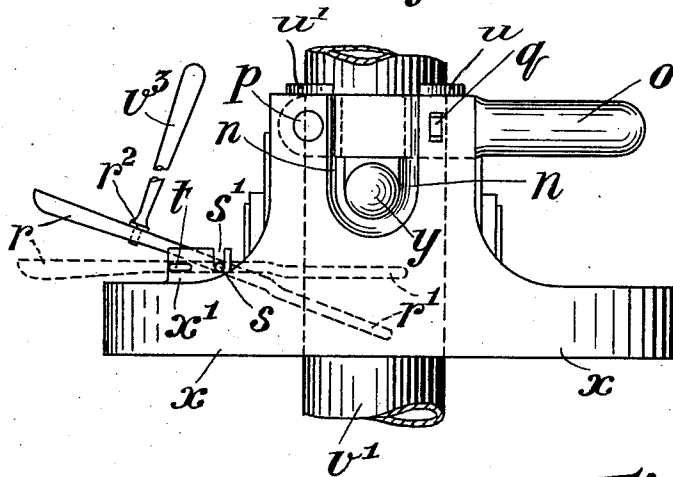
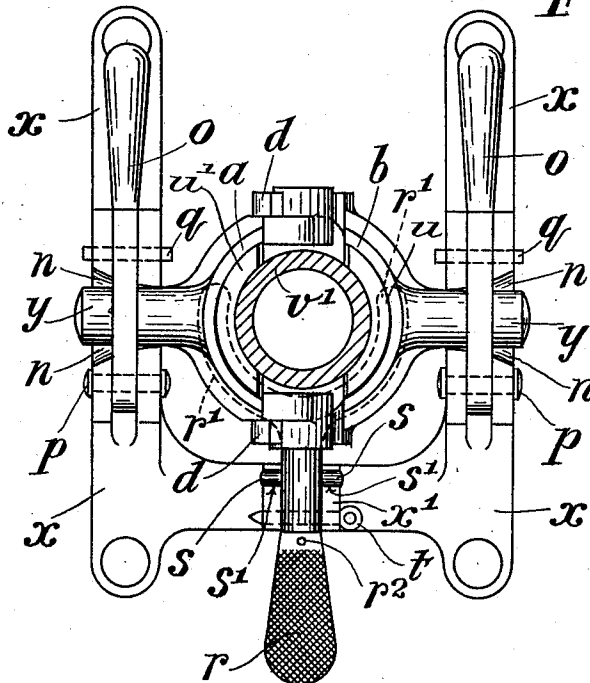


Fig. 7.



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UNITED STATES PATENT OFFICE.

FREDERICK THOMAS, OF TOOTING, LONDON, ENGLAND.

DOUBLE-JAW FRICTION-GRIP CLAMP.

1,037,560.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed March 14, 1910. Serial No. 549,244.

To all whom it may concern:

Be it known that I, FREDERICK THOMAS, a subject of the King of Great Britain, residing at Tooting, London, England, have invented a certain new and useful Improved Double-Jaw Friction-Grip Clamp, of which the following is a specification.

This invention relates to a clamp which is specially suited for use in connection with diamond drilling, Artesian well and other boring operations for holding, lifting or lowering the rod sections, and is equally applicable for any other purpose where rods, bars, spindles, shafts, cables and the like require to be held, lifted, lowered or hauled. It is also especially suitable for use when raising or lowering the stamps of stamp mills and such like purposes.

It has heretofore been proposed to provide a wire grip for use in connection with means for straining or stretching wire, and which is adapted to grasp the wire with a grip proportional to the pull, said wire grip comprising permanently pivoted jaws, and links permanently pivoted to each jaw and to a member which is connected to the straining device, but under my invention the clamp consists of two jaws of special shape, and which are removably jointed together in such manner that they completely surround the object being operated on and, on the weight being thrown upon them or a pull being exerted on them, they automatically grasp the object and hold it fast with a tight frictional grip proportional to the weight or pull.

In order that my said invention may be clearly understood I have shown on the accompanying drawings, by way of example, some forms of construction and various applications in connection with engineering and mining work.

Figures 1 and 2 show, in side elevation and plan, a form of the clamp suitable for a temporary lift, haul or grip. Figs. 3 and 4 show a method of applying the invention as a hand clamp for lifting, lowering, twisting and otherwise handling diamond drill rods, and the like by hand. Fig. 5 shows an application of the clamp for the lifting, lowering and handling of stamp battery stems. Figs. 6 and 7 show, in side elevation and plan, a construction of the clamp suitable for holding diamond drill rods and the like from slipping down the borehole

during the connection or disconnection of the sections.

Referring to the drawings whereon the same reference letters wherever repeated indicate the same parts, the clamp consists of two jaws *a*, *b*, of special shape, as shown on the drawings, and which are removably jointed together by pins and eyes or hooks. Each jaw has two internal faces, as shown in dotted lines at *e*, *f*, at an angle to one another and holes *g* are made in each jaw for the reception of pins or bolts *h*. The construction of the clamp is such that when the weight of the object being operated on is thrown upon the jaws *a*, *b*, or a pull is exerted on them they automatically grasp the object and hold it fast with a tight frictional grip which is proportional to the weight or pull.

In Figs. 1 and 2 the clamp is shown with the jaw *a* having externally projecting pins *c*, *c*, while the jaw *b* has corresponding books *d*, *d*, so that the jaws can be readily connected and disconnected at any part of a rod, shaft, or cable as the case may be. Of course, if so desired, the jaw *b* may have internally projecting pins and the jaw *a* have hooks.

In the case of the hand clamp shown at Figs. 3 and 4 each jaw *a*, *b*, is provided with a handle *m*. Fig. 4 shows the jaws of the clamp being fitted around the rod *v*¹ and caused to engage, while Fig. 3 shows the jaws engaged and gripping the rod *v*¹ so that the same can be raised or lifted by the handles *m*, *m*.

In the arrangement shown at Fig. 5 for lifting, lowering or handling stamp battery stems the two jaws *a* and *b* of the clamp are attached to the traveling chain block by chains and rods and shackles *i*, *j*. When it is required to lift the stamp stem B, the clamp is brought over the stem B and the jaws *a* and *b* connected in the manner shown at the left hand of the figure for the stamp stem A. When connected, as shown, the upward pull of the chain block will cause the clamp to grip and raise the stem to the desired position and, being hung in a line with the center of the stem, the said stem can be revolved to any desired position for driving the tappet keys or for driving off the head or shoe and held in that position by the suspension clamp C suspended by shackles and chain links *l* from the upper guide D, where-

upon the chain block and its clamp can be passed on to other stems or batteries. When the tappet keys are driven home or the new head or shoe placed in position to receive the stem the clamp C may be released by a smart upward tap of a hammer and left suspended clear of the stems as shown at the left hand side of the figure. The guide D is provided with hooks *k* for each stem so that the suspension clamp C may be shifted from one stem to another thereby enabling one clamp C to be used for every five stamps. This invention obviates the necessity of climbing on to the upper guide to place a lifting ring over the stems each time a stem has to be lifted and likewise the necessity for climbing up to release the said ring.

In Figs. 6 and 7 the clamp is shown with a supporting frame *x* and the jaws have laterally projecting journals *y*, *y*, carried in bearings *n* in such a manner as to swivel in the framework *x* being retained within the bearings by levers *o* pivoted at *p* and secured by cotters *q*, thus allowing the clamp to adjust itself and its operations to any angle of the drill rod. The clamp is shown as provided with removable metal liners *u*, *u*¹, these reducing liners being made of a metal or substance suitable to the article to be gripped. By removing the cotters *q* and raising the pivoted levers *o* the clamp may be readily removed from its bearings, the framework *x* being open at one end facilitating its removal from the rod when desired. In these figures is also shown means whereby the clamp may be held open for a time, as when lowering drill rods, thereby obviating the necessity for removing the clamp. The jaws of the clamp are raised and supported by a forked foot lever *r*, *r*¹, having lateral projections *s*, *s*, which can be fitted in open slots *s*¹, *s*¹, in a block *w*¹ on the framework thereby forming a fulcrum. This lever, which can also be operated by hand, if so desired, by fitting a bar *v*³ (as shown in Fig. 6) into the hole *r*² of the lever, is held in position by a loose pin *t*. When the drill rods are lowered for another rod section to be screwed on, the loose pin *t* is removed and the weight of the rods causes the clamp to automatically grip until the weight is again taken by the hoist when the clamp is released whereupon it can be raised and opened by the foot lever and the loose pin be again inserted to hold the clamp in that position. It will be obvious that with a short foot lever and with the weight of the rods on the clamp it cannot be opened until the weight of the rods is taken by the hoist so that any possibility of accidental release is absolutely avoided. The rods may be hoisted and lowered by means of the usual eye bolt but, preferably, by a clamp as shown in Figs. 1 and 2, which, being connected to the hoisting rope, will grip and

raise or lower the rods as before described. When the rods are being lifted the ground clamp Fig. 7 automatically opens sufficiently for the rods to pass through and when hoisted up and the hoisting rope slackened it likewise automatically grips the same rods so that on the weight being removed from the hoist the lifting clamp may be detached and lowered for the next section. Should the rope break, when hoisting, the ground clamp likewise immediately grips the rods.

If desired, instead of both pins *c* being formed on one jaw and both hooks *d* on the other jaw, the jaws may each be correspondingly formed with a pin *c* on one side thereof and a hook *d* on the other side thereof so that the jaws may engage in a similar manner, the one with the other.

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

1. A clamp comprising two separate jaws of curved formation each jaw having an upper internal face and a lower internal face arranged at an angle to one another the upper internal faces of both jaws constituting vertically parallel gripping surfaces when in contact with the object to be held and means for removably jointing the jaws together comprising pins projecting from the jaws and hooks on the jaws for engagement with the pins, the hooks having their openings at the upper sides thereof so that the jaws may be caused to grip or release the object to be held without danger of becoming accidentally detached.

2. A clamp comprising two separate jaws of curved formation each jaw having an upper internal face and a lower internal face arranged at an angle to one another the upper internal faces of both jaws constituting vertically parallel gripping surfaces when in contact with the object to be held and means for removably jointing the jaws together comprising a pair of pins projecting from one of the jaws and a pair of hooks on the other jaw for engagement with the pins, the hooks having their openings at the upper sides thereof so that the jaws may be caused to grip or release the object to be held without danger of becoming accidentally detached.

3. A clamp comprising two separate jaws of curved formation each jaw having an upper internal face and a lower internal face arranged at an angle to one another the upper internal faces of both jaws constituting vertically parallel gripping surfaces when in contact with the object to be held, removable liners for the jaws, and means for removably jointing the jaws together comprising pins projecting from the jaws and hooks on the jaws for engagement with the pins, the hooks having their openings at the up-

per sides thereof so that the jaws may be caused to grip or release the object to be held without danger of becoming accidentally detached.

5 4. A clamp comprising two separate jaws of curved formation each jaw having an upper internal face and a lower internal face arranged at an angle to one another the upper internal faces of both jaws constituting
10 vertically parallel gripping surfaces when in contact with the object to be held, journals on the jaws, a framework, swivel bearings in the framework for said journals, and means for removably jointing the jaws
15 together comprising pins projecting from the jaws and hooks on the jaws for engagement with the pins, the hooks having their openings at the upper sides thereof so that the jaws may be caused to grip or release the
20 object to be held without danger of becoming accidentally detached.

5. A clamp comprising two separate jaws

removably jointed together each jaw having an angled internal surface, journals on the jaws, a frame-work, swivel bearings in the frame-work, means for holding the journals in the frame-work and means for retaining the jaws in the open position when so desired. 25

6. A clamp comprising two separate jaws removably jointed together each jaw having an angled internal surface, journals on the jaws, a frame-work, swivel bearings in the frame-work, means for holding the journals in the frame-work and a lever for retaining the jaws in the open position when so desired. 30 35

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK THOMAS.

Witnesses:

G. HELYER,
G. W. ST. GEM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."