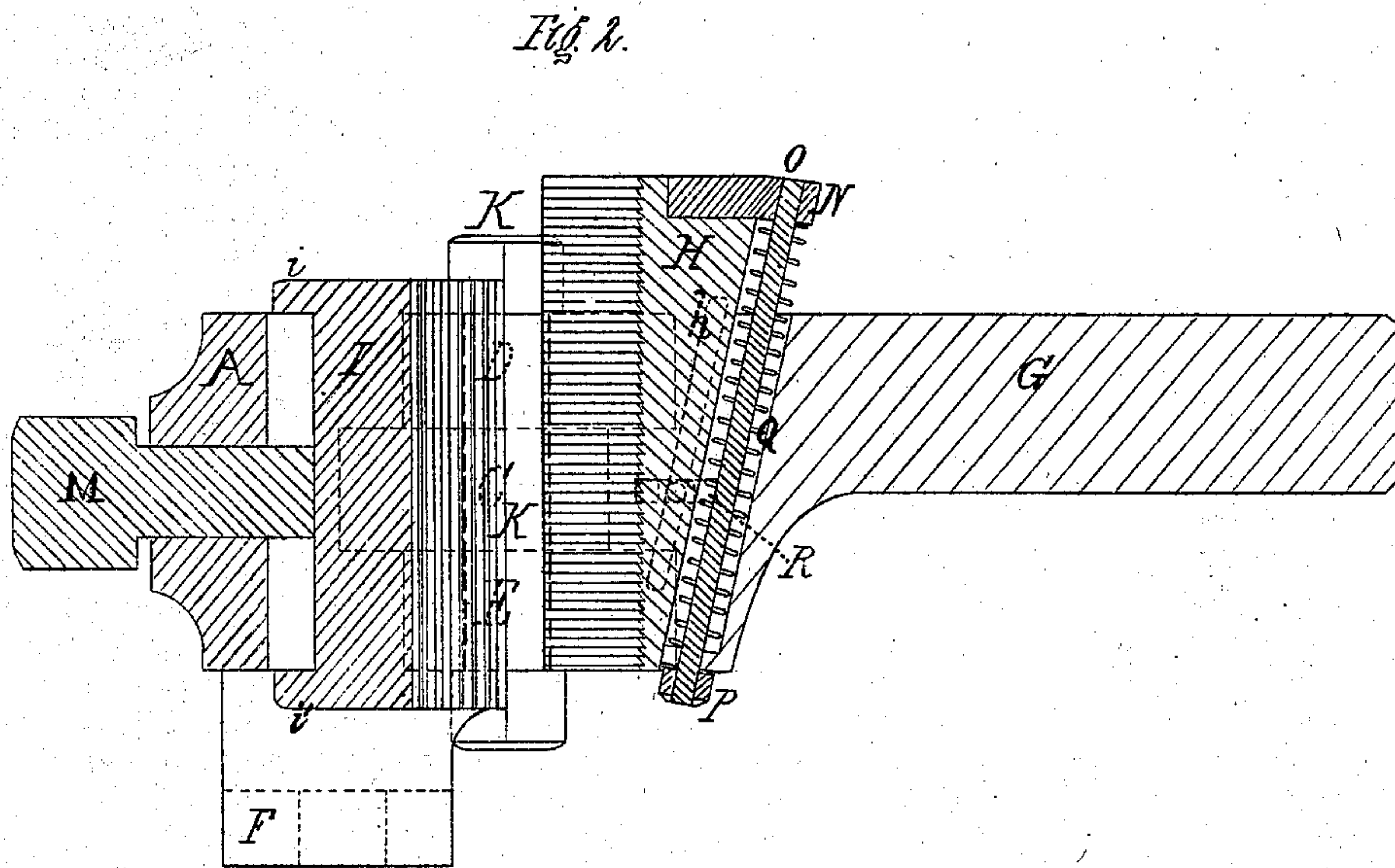
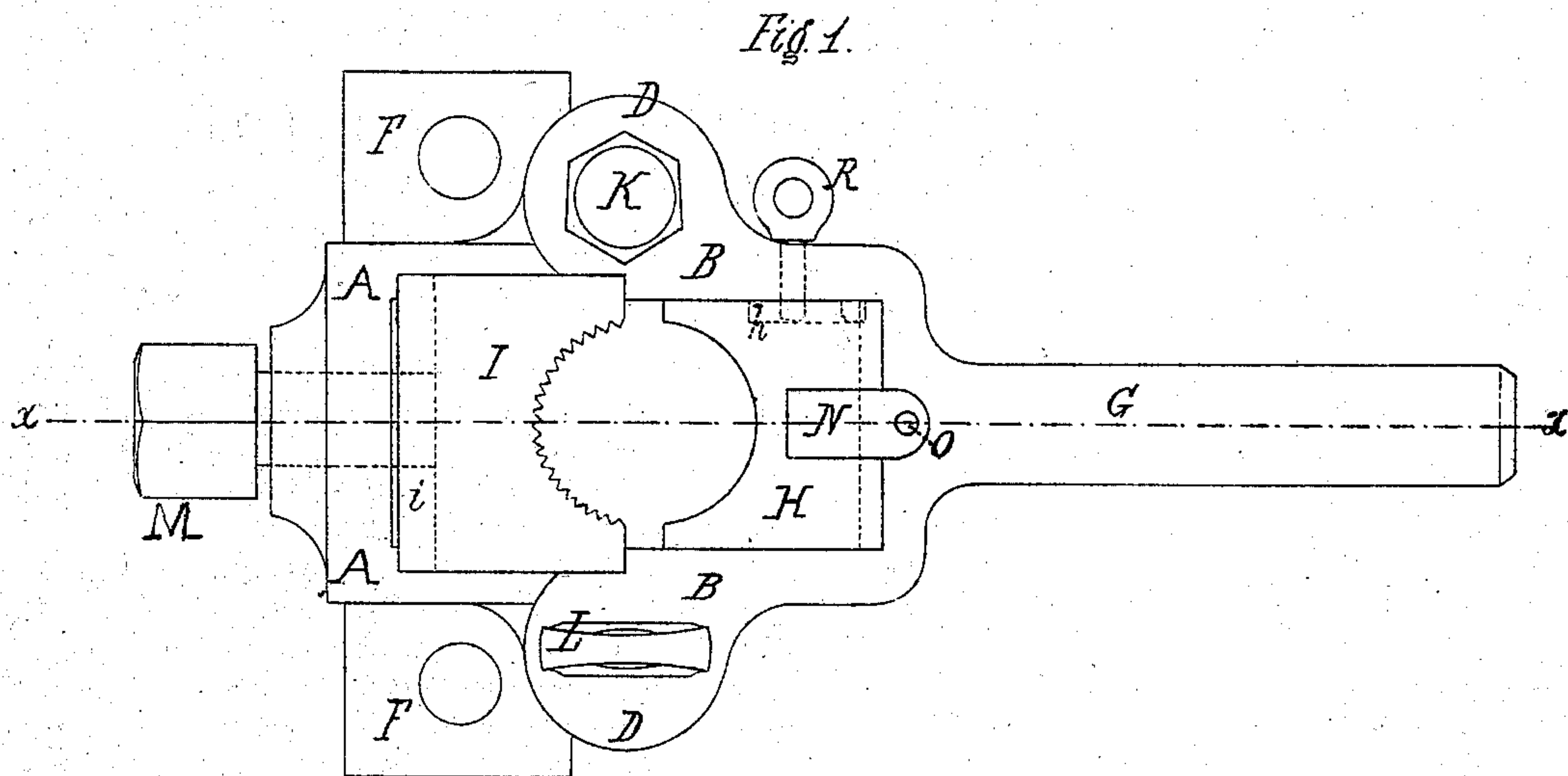


## Safety-Clamps for Rock-Drill Rods.

Patented March 18, 1873.



Witnesses:

Com R. Wright.  
J. Bonball Taylor.

*Inventor.*

M. C. Bullock,  
by his Atty,  
Horace Binney, 3rd.



# UNITED STATES PATENT OFFICE.

MILAN C. BULLOCK, OF NEW YORK, N. Y., ASSIGNOR OF ONE-FOURTH HIS RIGHT TO SAMUEL E. GRISCOM, OF MAHANoy PLANE, PENNSYLVANIA.

## IMPROVEMENT IN SAFETY-CLAMPS FOR ROCK-DRILL RODS.

Specification forming part of Letters Patent No. 136,812, dated March 18, 1873.

*To all whom it may concern:*

Be it known that I, MILAN C. BULLOCK, of the city, county, and State of New York, have invented a new and useful Safety-Clamp for Rock-Drill Rods; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 is a plan or top view of the said invention, and Fig. 2 a longitudinal section thereof taken on the line *x x*, Fig. 1.

The same parts are denoted by the same letters in both figures.

This invention consists in a device, hereinafter described, to prevent the pipe or hollow rod of a rock-drill from falling during the operation of raising or lowering it, and also to hold such pipe while a section thereof is coupled or uncoupled.

Prior to my invention the pipe was raised as follows: A collar with one or more set-screws was slipped on over the end of the pipe and rested on the top of the stand-pipe or on a plank trough, with a hole in it through which the drill-rod passed. Another similar collar was then slipped on over the end of the pipe, and the set-screws screwed up until their points entered or penetrated the side of the pipe deep enough to sustain its weight. A chain was then wound around the pipe below the upper collar and hooked to the tackle-block above, by which the pipe was hoisted. When it had been raised to the proper height for uncoupling, the set-screws in the lower collar were set up tight enough to hold the pipe, and the upper collar and chain taken off by a man on a platform on the derrick. To break the joint or uncouple the two sections, one man with a pair of tongs took hold of the lower section above the lower collar and below the joint, preventing the pipe from turning round, while another man with tongs unscrewed the upper section.

The mode of coupling and lowering may be sufficiently understood from the above description.

In order to save the time consumed in setting the screws on the lower collar, and to pre-

vent defacement and injury to the pipe from said-screws, as well as to dispense with one of the men heretofore employed in coupling and uncoupling, I have devised the combined clamp and tongs shown in the drawing.

A and B in the drawing represent the halves of the clamp. The lugs C C on the part A fit between the lugs D D and E E on the part B. A bolt, K, passes through the lugs D C E on one side of the clamp, and is secured by a nut under them, thus forming a hinge, about which the part B may be turned, A being fixed. When the clamp is closed the key L is inserted through the lugs on the other side, and the halves are thus locked rigidly together. The part A is constructed with two feet, F F, by which it is secured to its support; and from the part B projects the horizontal arm G, by which also the clamp is supported, as hereinafter described. The jaws of the clamp consist of the wedge H and of the gib I, whose back and side fit into the part A. The gib is made with a top flange, *i*, lapping partly over the top of A on three sides so as to keep the gib from falling through the clamp, and also with a bottom flange, *i'*, at its back, which, in connection with the set-screw, whereby the gib is set out, prevents it from rising out of the clamp. The face of the gib is semicircular, and formed into vertical teeth, as shown in the drawing, to prevent the pipe from turning. The shape of the wedge is shown in the drawing. Its face, as represented in Fig. 2, is formed into horizontal teeth like those of a saw, the points upward. From its top projects a lug, N, into which is screwed or otherwise secured a pin, O, which passes through a hole in the bottom of B, and is secured by a nut, P, underneath. Above this hole a recess is made in B to receive the spring Q and lug N, so that the wedge may be forced down until its top is flush with that of B, or even lower. The wedge is pressed upward by the spiral spring Q, which bears against the lug N and the bottom of the above-mentioned recess. A pin, R, passes through B into a slot, *h*, in H, and, in conjunction with the pin O, maintains the perpendicularity of the wedge.

The operation of this device is as follows: The part A having been placed so that the face of the gib I is in contact with the drill-rod, the feet F F are firmly bolted to the plank trough



on the stand-pipe or to any other suitable support. The clamp is then closed, the key L inserted, and the arm G supported firmly and rigidly upon any suitable bearing—such as a block with a notch or shoulder in it to fit the said arm. The screw M is set to hold the wedge H lightly against the pipe, the upwardly-pointing saw-teeth permitting the pipe to be drawn up through the jaws, but catching against it in case of its falling, so that the weight of the pipe drags the wedge downward, compressing the spring Q, and binding tighter the further the pipe descends, and thereby arresting its fall. The pipe is then raised in the ordinary way described above, or by means of the lifting-jack invented by me, or by any other convenient means, until a section has been withdrawn from the hole and the joint raised about a foot above the clamp. The operator then forces down the wedge H, compressing the spring Q until the face of the wedge comes into contact with the pipe, after which he turns the screw M, clamping the pipe immovably between H and I. He then takes a pair of tongs and unscrews the section above the joint, the lower section being held from turning by the upright teeth of the gib. In lowering the pipe the screw M is loosened enough to let the gib I so far back that the pipe may pass down without touching the wedge. If the tackle should break, the operator puts his hand or foot on the wedge and forces it down, thereby catching and holding the pipe. If the lifting-jack is used, the breaking of the rope will let the jack fall on the wedge, forcing it down and catching the pipe automatically. If the jack or other means be relied on to prevent the fall

of the rods in lowering, the clamp may be unhinged or opened till a section is to be coupled, when the clamp is closed.

The operation of coupling may be understood from the foregoing description. The wedge is forced down, the screw M tightened to hold the pipe immovably between the wedge and gib, and the operator screws the upper section on with tongs.

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

1. The safety-clamp for rock-drill rods, operating as described, and provided with an arm, G, whereby it may be secured in a fixed position.

2. The above-described combination, in a clamp for rock-drill rods, of a gib whose face is formed with vertical teeth, and a wedge whose face is formed with horizontal upwardly-projecting teeth.

3. The combination, in a clamp for rock-drill rods, of the parts A and B, constructed and arranged as shown and described, with a gib and wedge which clamp the rod.

4. The combination, with a clamp for rock-drill rods, of the gib I, whose face is formed with vertical teeth, operating as described.

5. A clamp for rock-drill rods, consisting of the parts A and B, provided with means for supporting the clamp, the gib I, set-screw M, and wedge H, all constructed and operating substantially as above set forth.

M. C. BULLOCK.

Witnesses:

W. H. BARBOUR,  
JACOB DU BOIS.