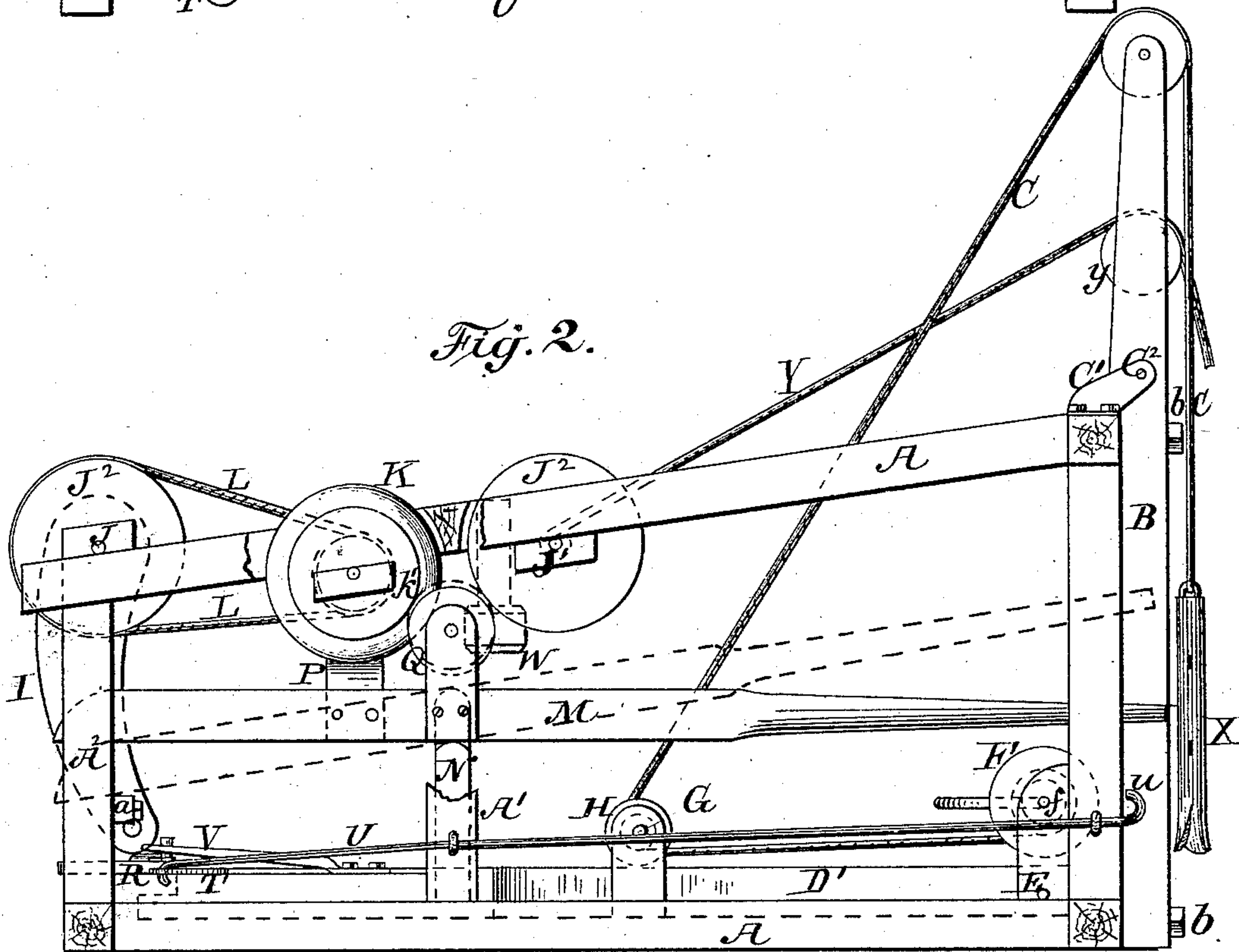
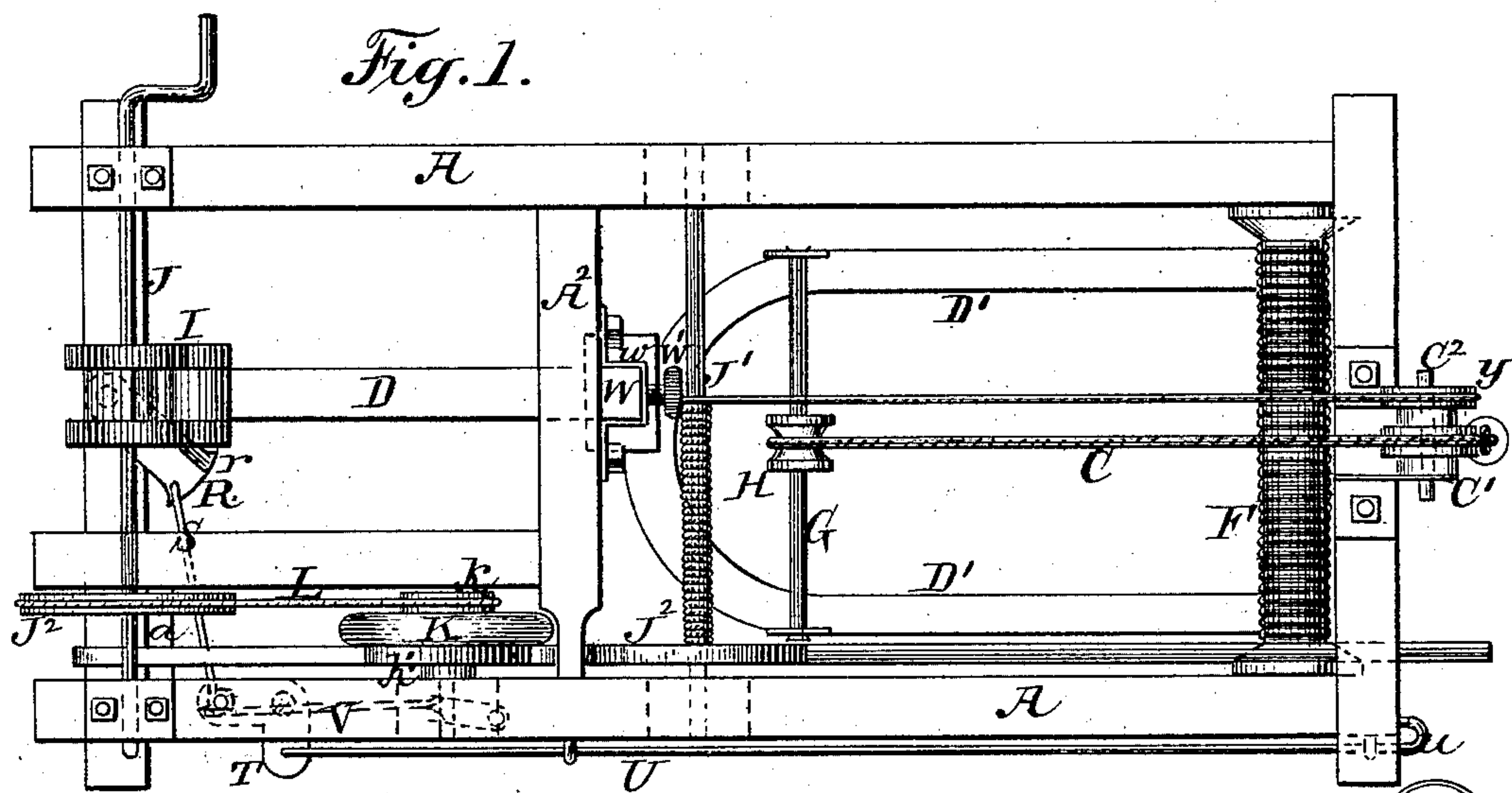


H. & J. KELLY.
WELL DRILLING MACHINE.

No. 285,274.

Patented Sept. 18, 1883.



Attest:
Edmund Broahag
Henry Oth

Inventor:
Henry Kelly,
Joseph Kelly,
by Johnson and Johnson
Attys.

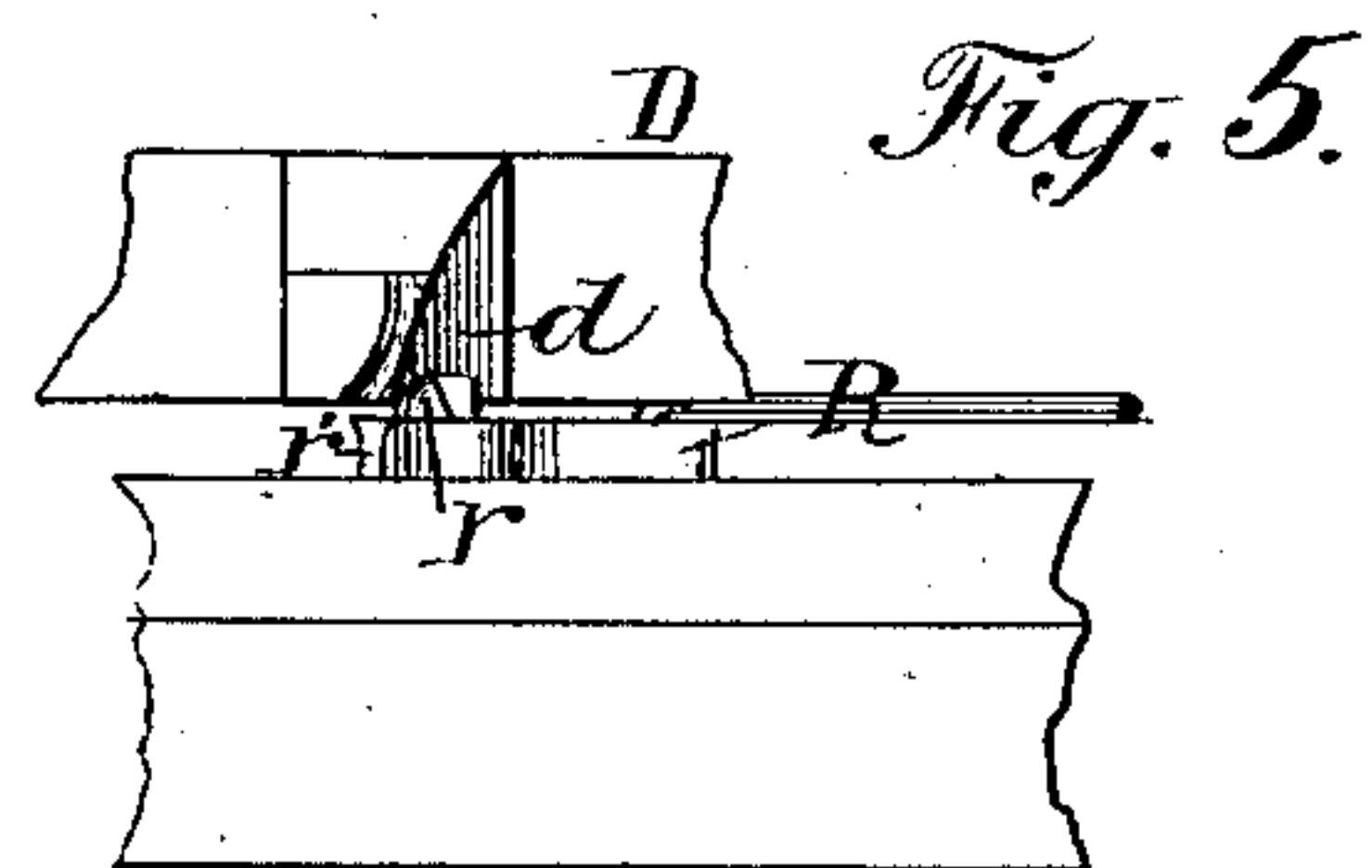
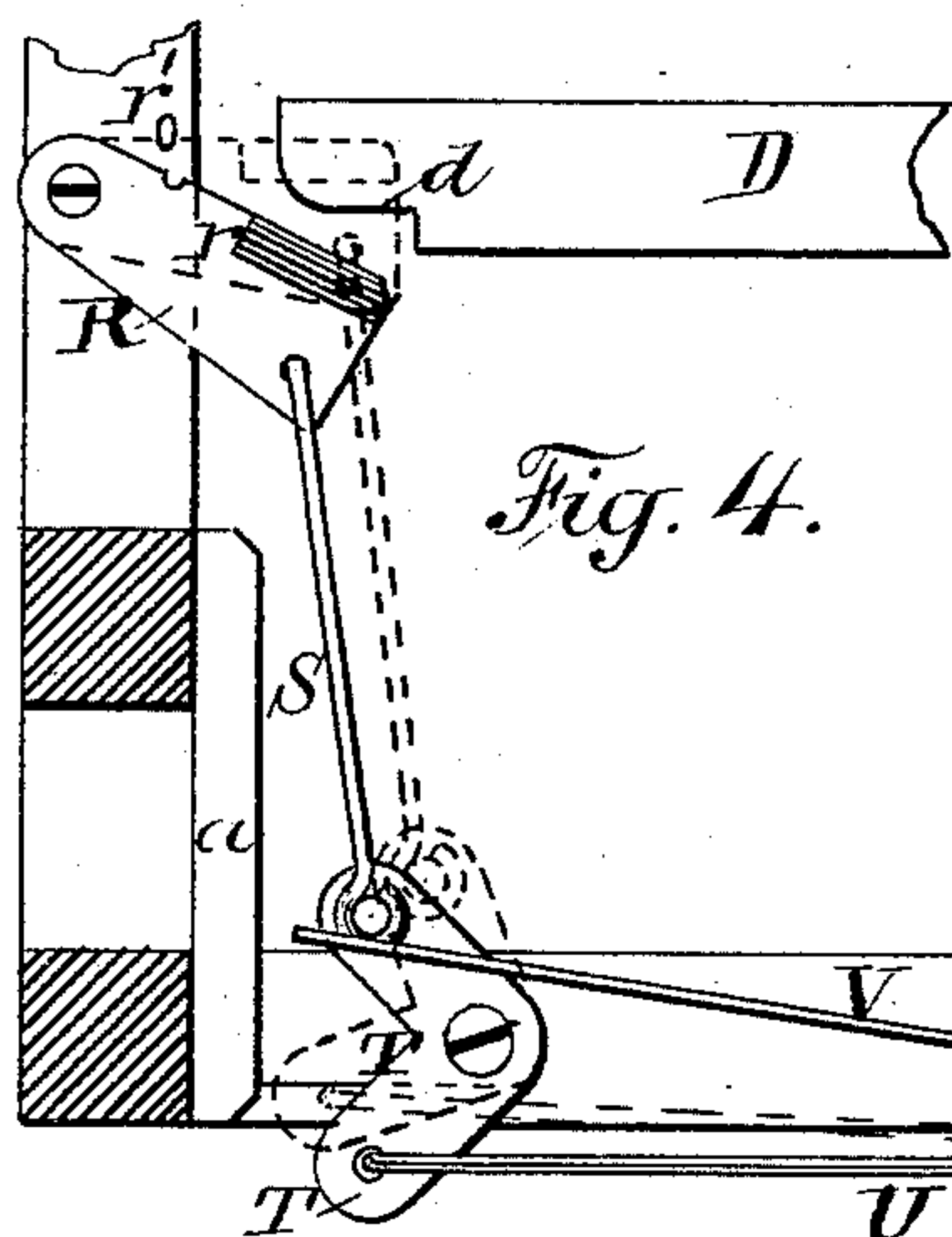
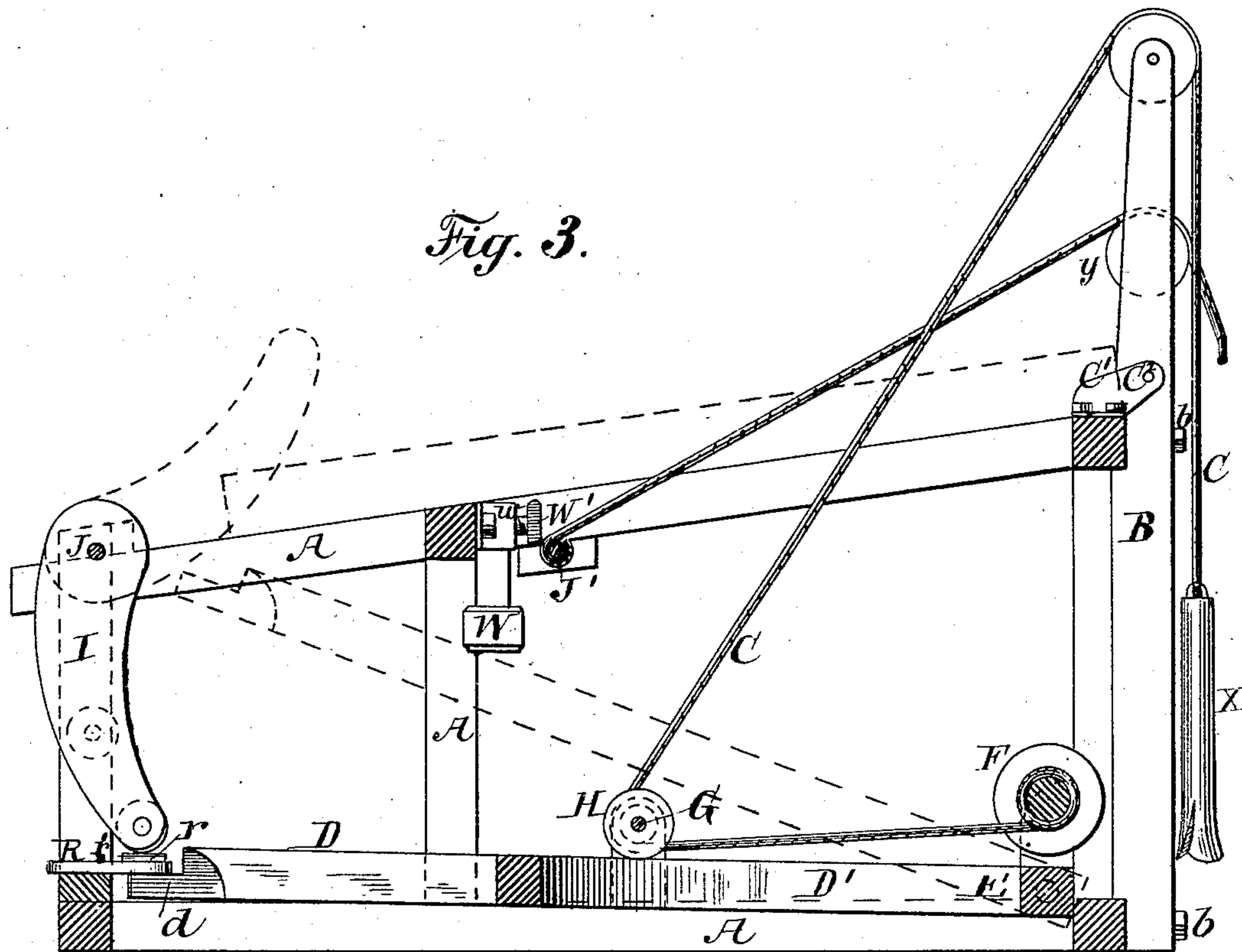
(No Model.)

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Edmond Broahag
Notary

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UNITED STATES PATENT OFFICE.

HENRY KELLY AND JOSEPH KELLY, OF GOSHEN, INDIANA.

WELL-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 285,274, dated September 18, 1883.

Application filed April 30, 1883. (No model.)

To all whom it may concern:

Be it known that we, HENRY KELLY and JOSEPH KELLY, citizens of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented new and useful Improvements in Well-Drilling Machines, of which the following is a specification.

This invention relates to drilling-machines, particularly to that class of machines used in drilling Artesian wells and sinking shafts in mineral prospecting.

The first part of the invention relates to the mast over which the drill-rope goes, which mast, in this instance, is made in a single piece or length, bolted to the frame of the machine, as usual. In order to adapt the mast to be folded down on the frame for convenience in storing and moving the machine, it is pivoted to the frame, this being accomplished by passing a pivot bolt or pin through the mast and through ears at each side of the same, secured to the top cross-rail of the machine. By this construction the advantages of a hinged mast are secured without weakening the same, which is the case when the mast is cut in two.

The second part of the invention relates to the lever by which the drill is raised; and the said invention consists in a spring-actuated catch or latch of novel construction, secured to the lower part of the frame of the machine, and arranged in such position as to automatically engage the end of the lever and hold and prevent the same from working. A rod extending to the front of the machine operates this latch through a bell-crank connection, and a spring arranged to act upon the latch keeps it always in proper position, as will hereinafter appear.

The third part of the invention relates to the rope sheave or pulley secured to the lever, by which the drill is raised; and the said invention consists in mounting said pulley loosely upon a rod, which is rigidly secured transversely across the lever. By thus making the pulley to slide back and forth on the rod it always follows the direct line of the rope as it is unwound from the spool, and it also causes the rope to wind evenly upon the spool, thus avoiding unnecessary strain upon the rope.

The fourth part of the invention relates to a

device for stopping the lever-operating machinery and communicating motion to the bucket-hoisting shaft; and the said invention consists in a brake-shoe and a friction-pulley secured upon a long lever, which is so arranged upon a support as to adapt the shoe to be brought against the power-wheel when pressing down upon the lever, and when raising said lever to bring the friction-pulley in contact with both the power-wheel and the wheel on the bucket-hoisting shaft. One movement of the lever, therefore, acts to stop the power-wheel, and the other movement to communicate motion to the bucket-hoisting shaft therefrom.

The fifth part of the invention relates to a device or bumper for limiting the upward movement of the lever by which the drill is raised, and consequently changing the stroke of the drill, the same consisting of a stop secured to the frame of the machine in position over the lever, and adapted to be adjustably secured in position, so that the lever will strike against it and be arrested in its upward movement.

In the drawings, Figure 1 represents a plan, and Fig. 2 a side elevation, partly in section, of the machine complete. Fig. 3 is a longitudinal sectional elevation; Fig. 4, a plan of the spring-catch that locks the drill-lifting lever and its connections, and Fig. 5 an end view of the lever-controlling latch.

Similar letters of reference indicate like parts in the several views.

A represents the frame of the machine, to the end of which the mast B, over which the drill-rope C works, is secured by bolts *b b*, passing through the mast and the top and bottom rails of the frame.

Secured to the top rail, and extending out at each side of the mast, are brackets or ears *C'*, through which and through the mast passes a pin, *C''*. By this means, upon removing the bolts *b b*, the mast may be swung over and made to rest upon the machine, this for convenience in storing or moving. If desired, the pivot-bolt may also be removed and the mast drawn over upon the top of the machine. When this is done, the ears *C'* will act as guides for the mast when again placing it in position.

The drill-hoisting lever is somewhat of a

fork-shape, having a handle or single free end, D, and crotched or double ends D', which are secured to a cross-piece, E, which in turn is pivoted or hinged to the frame of the machine.

5 The width of the crotched end of the drill-hoisting lever, or distance of the parts D' from each other or apart, is the same as the length of the spool F, upon which the drill-rope is wound, and transversely across the parts D',
10 near their top portion, is secured a rod, G, upon which loosely slides and revolves a sheave-pulley, H, around which the drill-rope passes. The object of making the drill-hoisting lever with two ends or parts, as herein
15 shown and described, and so arranging the sheave-pulley loosely upon a rod, which is made of equal length as the rope-spool, is to cause the pulley to follow the rope as it is unwound from the spool, and in winding up the
20 rope is prevented from winding irregularly; but because of this sheave-pulley moving back and forth on its bearing the regular winding of the rope upon the spool is assured. Therefore the strain and friction incident to a sta-
25 tionary guide are avoided. The outer single end, D, of the lever is beveled, as at *d*, on one of its vertical sides, for the purposes as will hereinafter appear.

I is the usual-formed cam-arms on the driving-shaft J for pressing down the lever D and raising the drill.

J' is the bucket-hoisting drum, having a smooth or friction wheel, J², at one side, opposite in position to the balance or power
35 wheel K. This wheel K has attached to it at one side a small pulley, *k*, (over which passes a band, L, to the wheel J²,) on the driving-shaft J, and on the opposite side of said wheel is a friction-rim, *k'*.

40 M is a long lever extending out to the front of the machine and resting upon a support or bearing, N, secured to the upright A' of the frame A. The inner end of this lever rests upon a bar or stop, *a*, on the upright A², at
45 the end of the frame, when driving the bucket-shaft. Upon this lever, just beneath the power-wheel, is formed a brake-shoe, P, and just beyond this brake-shoe is mounted a small pulley, Q, in position between the power-
50 wheel and wheel of bucket-shaft. With these devices, by pressing upon the outer end of the lever the brake-shoe is brought tight against the power-wheel, which stops its motion. By raising the lever the small pulley Q is brought
55 up against the friction-rim of the power-wheel and the rim of the wheel on the bucket-hoisting drum. Thus motion is imparted to said bucket-hoisting apparatus.

Secured upon the lower rail of the frame, at
60 the end adjacent to the outer end of the drill-hoisting lever, is pivoted a latch, R, having a bevel-edge, *r*, and connected by a rod, S, to a bell-crank, T. To the other arm of this bell-crank T is a rod, U, extending to the front of
65 the machine and having a bent end, *u*.

V is a spring acting against one end of the

bell-crank to keep the latch-piece R against its stop *r'* when the lever is not operating. This latch-piece, coming over the end of the drill-hoisting lever, prevents the said lever
70 rising up, as shown in Fig. 4. To permit the movement of the lever the rod U is drawn forward until the bent end *u* comes beyond the frame of the machine, when, by giving the rod a slight turn, the bent end *u* comes against the
75 frame and prevents the return of the latch to its place over the path of the drill-hoisting lever. When the rod U is released, the spring forces the latch back in place. This probably
80 occurring when the drill-hoisting lever is in an elevated position, provision must be made to permit the returning of said lever to its normal position—in other words, to permit it to pass the latch. This is accomplished by mak-
85 ing a bevel, *r*, on one edge of the latch-piece, and beveling the end of the lever on its vertical side, as shown at *d*. By this means, when the drill-hoisting lever is forced down, the bevel-edge *d* on the lever coming against the bevel *r* on the latch, the latch gives away
90 slightly and permits the lever to pass the same, but instantly on its doing so the spring forces said latch-piece back in place and prevents the lever being raised, except upon re-
95 leasing the latch-piece by drawing it to one side.

W represents a bumper or stop, fastened to the cross-piece A² of the machine by a loop, *w*, directly over the drill-hoisting lever.

W' is a set-screw, by operating which the
100 bumper may be raised or lowered, thus changing the length of movement or swing of the drill-hoisting lever, and consequently changing the stroke of the drill for light or heavy drilling.

X is the drill, the rope C of which passes from the spool F around the sheave-pulley H, and thence up over a pulley on top of mast, the usual ratchet being provided on the end
110 of the drum to prevent the unwinding of the rope.

Y is the sand-bucket rope, passing from the bucket-hoisting drum or shaft J' over a small pulley-sheave, *y*, attached to the side of the
115 mast.

The pivot *f* of the drill-rope drum F is placed as near as possible to the lower end of the frame of the machine and in a vertical line over the pivot E of the operating-lever D'.

We claim—

1. In a drilling-machine, the drill-hoisting lever combined with the drill-rope spool, and a sheave-pulley having lateral play upon a bearing-rod carried by said lever, as and for the purposes described.

2. In a drilling-machine the combination of the drill-hoisting lever with a catch or latch arranged to engage the end of the lever and stop the movement of the same, for the pur-
125 poses described.

3. In a drilling-machine, the combination of the lever with a locking or latch-operating
130

mechanism consisting of latch, bell-crank, connecting-rod, reacting spring, and rod extending to the front of the machine, and provided at its end with a suitable lock or holding device, all constructed and arranged to operate as and for the purposes described.

4. In a drilling-machine, the brake-lever, carrying a brake-shoe and a friction-pulley or clutch, in combination with the power-wheel and the friction-wheel of the bucket-hoister, whereby the motion of the main wheel may be stopped, or motion communicated from said main wheel to the bucket-hoisting mechanism.

5. In a drilling-machine, the combination, with the drill-hoisting lever, adapted to operate substantially as described, and drill operated thereby, of the bumper or stop adjusta-

bly secured to the frame above said lever, for the purposes described.

6. The combination, in a drilling machine, of a latch or stop for the drill-hoisting lever, and an adjustable clutch between the power-wheel and wheel of bucket-hoisting shaft, whereby the drill-operating machinery may be stopped and the bucket-hoisting apparatus set in motion without stopping the driving machinery.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

HENRY KELLY.
JOSEPH KELLY.

Witnesses:

ENOCH EBY,
WILLIAM J. DAVIS.