

No. 629,030.

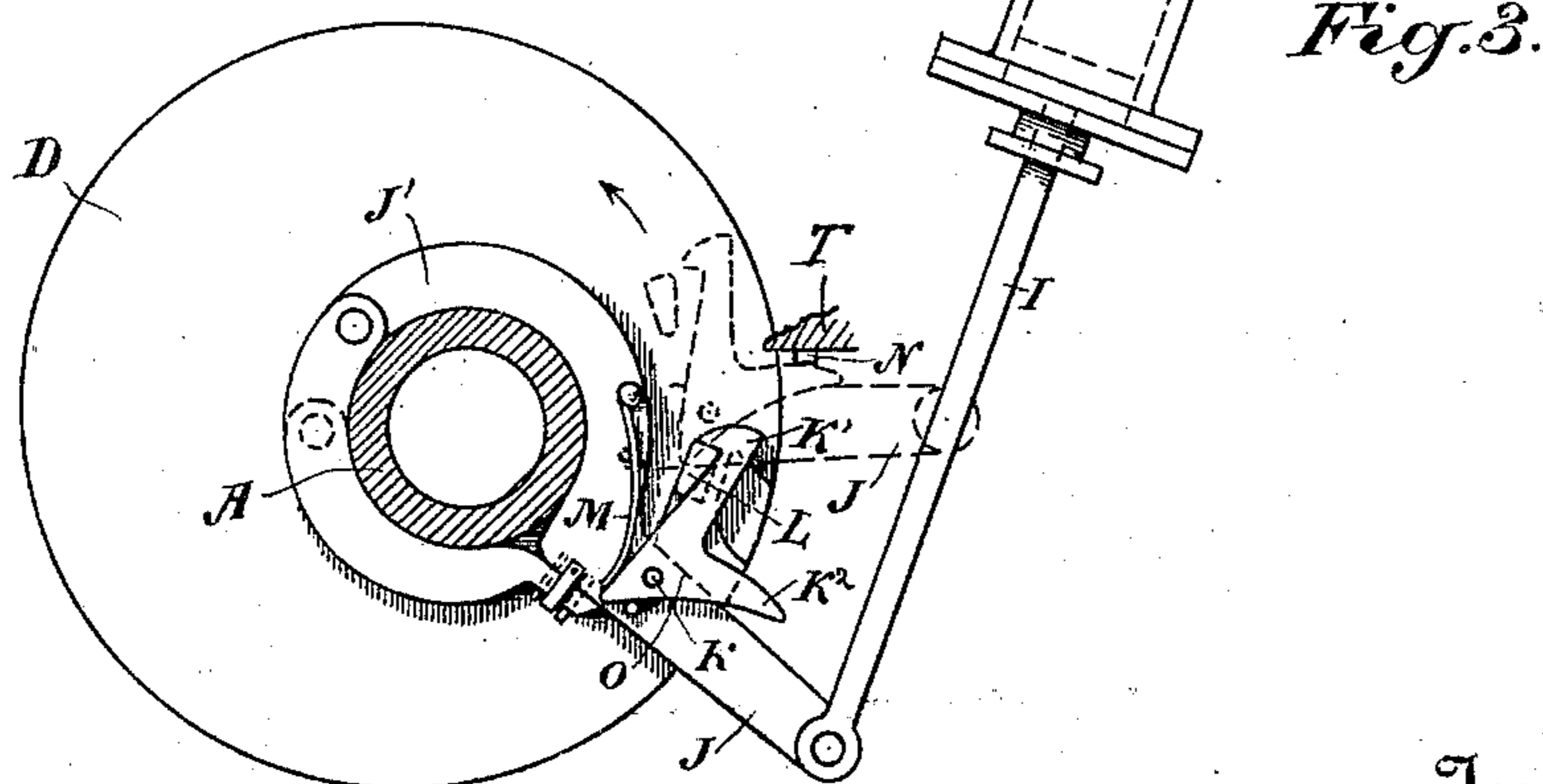
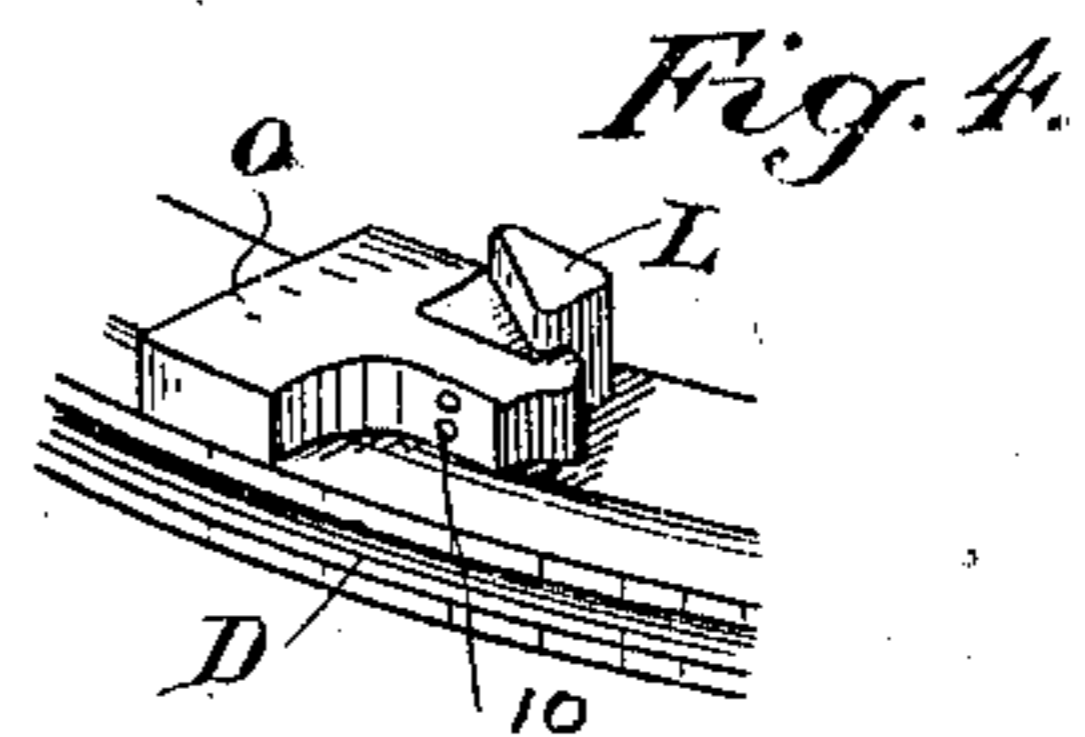
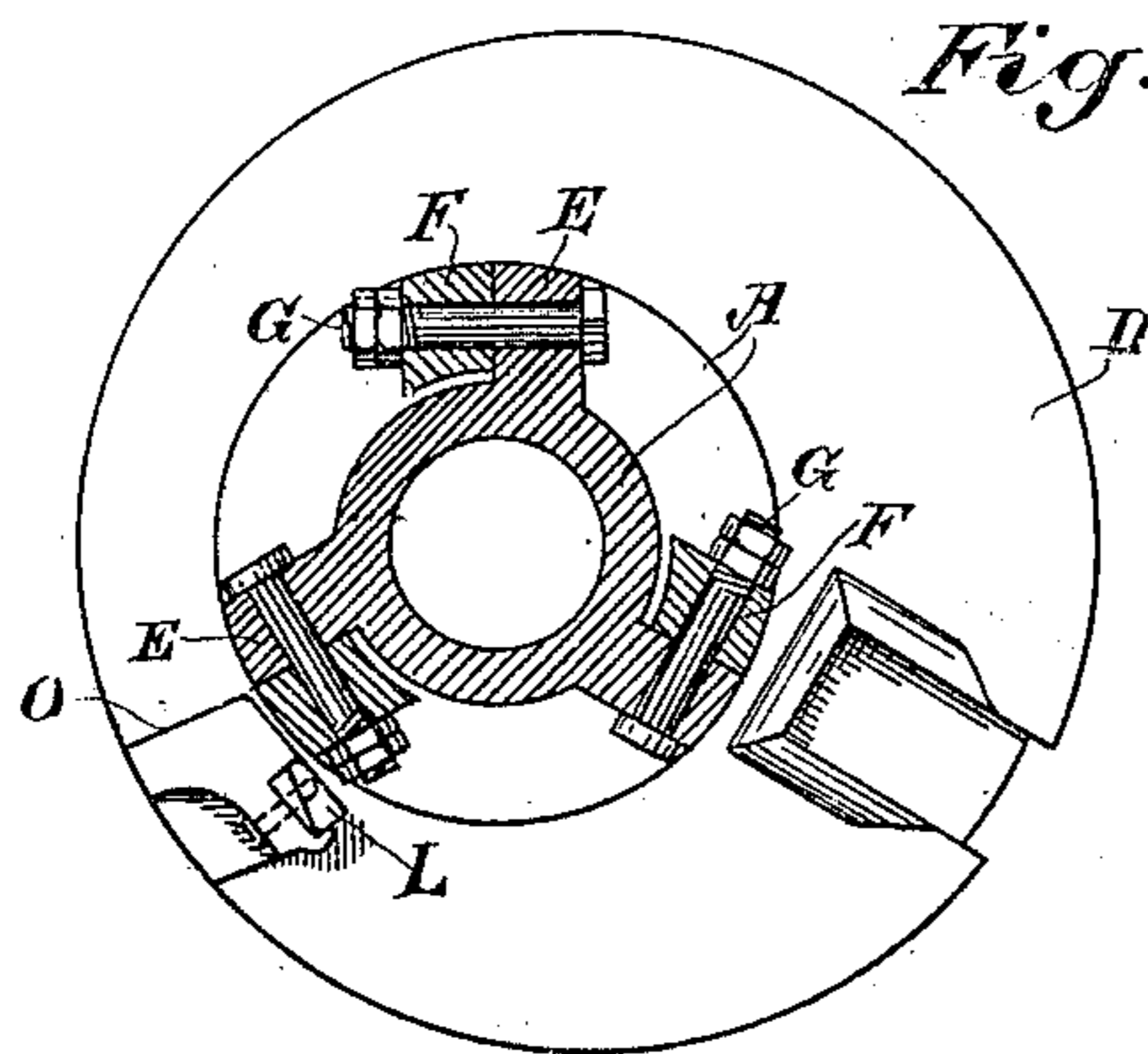
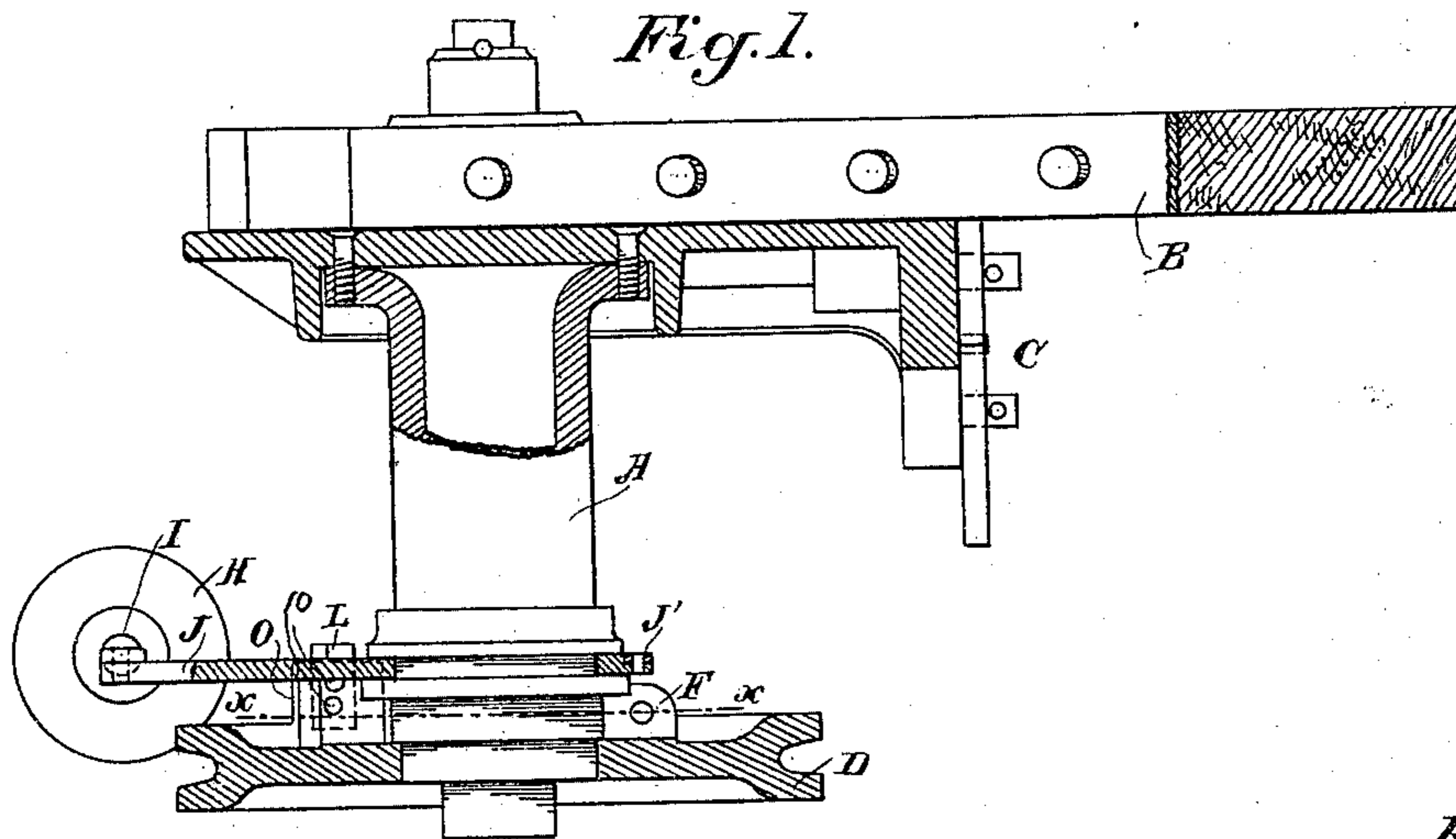
Patented July 18, 1899.

W. H. GRAY.

HAY PRESS.

(Application filed Mar. 18, 1899.)

(No Model.)



Witnesses,

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UNITED STATES PATENT OFFICE.

WILLIAM H. GRAY, OF SAN LEANDRO, CALIFORNIA.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 629,030, dated July 18, 1899.

Application filed March 18, 1899. Serial No. 709,602. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. GRAY, a citizen of the United States, residing at San Leandro, county of Alameda, State of California, have invented an Improvement in Hay-Presses; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in hay-presses of that class in which the follower is moved to press the hay by means of horse or other power transmitted through a chain-sheave and intermediate mechanism, so that while the horse attached to a central fulcrumed lever continues to travel around in a circle the mechanism will operate to compress the hay to the desired point, and the operating-lever will then be disengaged to allow the sheave and connected parts to return to their normal position in readiness to again operate when the lever has reached the point of engagement with the operative parts. Such a press is well illustrated in what is known as the "Monarch Press," patented to Jacob Price July 22, 1884, No. 302,355.

The objects of my invention are to provide, first, an improved means for connecting the chain wheel or sheave with the vertical column through which the lever acts, and, secondly, to provide an air-cushion to relieve the shock when the parts are released and allowed to return in readiness for a new operation with a detachable steel block and strap.

Referring to the accompanying drawings, Figure 1 is an elevation of the column and connections. Fig. 2 is a horizontal section on line *xx* of Fig. 1. Fig. 3 is a similar section taken above the clamp. Fig. 4 is a detail of the removable lug attached to the face of the chain-pulley.

A is the vertical column suitably journaled and turnable, and B is the sweep or lever to which the horse is attached. The lever is engaged with the top of the column by a latch mechanism C and is freed therefrom when the column has been rotated to the desired point by a trip, which disengages the sweep and allows the column and disconnected parts to return to their normal position, while the horse or the power which is applied to rotate

the column continues its movement in one direction. This latch and trip mechanism in construction and operation are substantially the same as the like parts fully disclosed in the said prior patent, No. 302,355, and they form no part of my invention, and I do not further describe them or illustrate the parts in detail.

In order to connect the chain-pulley D with the column A, lugs E are cast or otherwise formed at the lower part of the column, and corresponding lugs F, upon the hub of the chain-wheel, are fixed in such position that they will be engaged by the lugs of the column. These lugs may be of any suitable number to properly divide the strain upon the wheel. In the present case I have shown three so disposed that they are simultaneously engaged by the lugs upon the column, and thus evenly divide the strain upon the wheel.

The lugs E and F are secured by bolts G passing through them and held by suitable nuts, so that the column and wheel are practically one structure for operation, but may be easily disengaged and separated when necessary.

The partial rotation of the chain-wheel when engaged by the sweep covers an arc of a circle sufficient to fully operate the follower of the press and properly compress the bale, and when the sweep at that point is disengaged from the column the spring or elasticity of the compressed hay will return the chain-wheel to its normal position with considerable force. In order to relieve the shock of this return, I have shown an air-cushion device which is constructed as follows:

H is a cylinder of any suitable or desired length having a plunger fitting and moving closely within it and connected by a rod or pitman I with the outer end of a lever J. This lever forms a part of and extends outwardly from a ring or clamp J', which fits in an annular groove around the lower part of the column and just above the lugs which fix the sheave to the column. As here shown, the ring J' is jointed at one side to open and allow it to be fitted or removed, and when in place the end is secured by screw-bolts or equivalent fastenings. Upon the lever-arm J is pivoted a latch, the pivot-point of which is shown at K. The latch has two arms di-

verging outwardly from the pivot-point, the arm K' being adapted to engage with a lug L, which projects upwardly from the upper surface of the wheel D.

5 M is a spring which, as here shown, presses upon the inner end of the latch, tending to force the inner end out and by the same action to force the latch portion K' inwardly, so that when the wheel has been revolved to
10 bring the lug L into line with the catch K' it will carry the catch, and with it the lever J, around with the wheel. This acts through the pitman I to move the piston in the cylinder H to the outer end of its travel, and that
15 end of the cylinder being perforated or open, so that the air can escape, no compression will take place in that direction. As soon as the piston reaches the end of its stroke the second arm K² of the forked lever strikes a
20 fixed lug or stop N, fixed to some stationary part of the mechanism or to the frame-timber T, a portion of which is shown in Fig. 3, and this acts to turn the lever about its pivot K until the latch portion K' has been dis-
25 gaged from the lug L of the pulley. This leaves the piston remaining at the outer end of the cylinder H, and as the clamp J' is sufficiently loose upon the column to allow the latter to turn within it without farther ad-
30 vancing the parts just mentioned the sheave and column continue to turn until the disengagement of the sweep from the column allows the sheave and column to spring back, as previously described. When the sheave
35 thus turns back, the lug L will force the latch K' to one side and pass it, so that the latter can spring forward again and engage the lug, as shown in full lines in Fig. 3. At the same time another lug O, which is also fixed to the
40 sheave but a short distance in advance of L, will strike against the nearest side of the arm J and force it backward, carrying the trip-latch K' with it, until the sheave has reached its initial point. This movement will have
45 forced the piston forward against the air-cushion formed in the forward end of the cylinder. The valves and the piston being then closed, the shock caused by the sudden return of the sheave will be relieved. This
50 sudden return takes place after the pressing has been completed and the parts disengaged.

In order to easily renew the lug L, which is subject to much wear, it is made as an independent block fitting into a depression in the
55 rim, as shown, with its upper end projecting sufficiently to engage the hook, as previously described. The lug is removably bolted in place by bolts 10 and may be removed at will.

Having thus described my invention, what
60 I claim as new, and desire to secure by Letters Patent, is—

1. In a hay-press-actuating mechanism, the column, a sweep through which power is applied thereto, a pulley or sheave actuated by
65 the column through which power is transmitted to the press and means for detachably se-

curing the sheave to the column, consisting of lugs fixed to the column, corresponding lugs fixed to the hub or central portion of the sheave and contacting with the column-hubs, 70 and bolts whereby they are secured together.

2. In a hay-press-actuating mechanism, a vertical column, a sweep with means for engaging it with the head of the column through which power is intermittently applied to ro- 75 tate said column, a sheave the central portion of which surrounds the base of the column having lugs equidistantly disposed around the central portion, correspondingly-disposed lugs projecting from the column and contact- 80 ing with the lugs of the sheave, and bolts whereby they are detachably secured together.

3. In a mechanism for operating a hay-press, a vertically-disposed column, a sheave fixed 85 to the base of the column and turnable therewith, a sweep with periodically-disengaging connections whereby a continuous power applied through the sweep acts intermittently to partially rotate the sheave and is then dis- 90 engaged to allow the sheave to return to its normal position, an air-cushion cylinder and mechanism between it and the sheave whereby the return of the latter is cushioned and a lever-arm and hinged detachable strap sur- 95 rounding the column.

4. In a hay-press-actuating mechanism a vertically-journaled column, a chain-driving sheave fixed thereto, mechanism by which the column and sheave are turned sufficiently to 100 compress the bale, then disengaged and allowed to return to the normal position, an air-cylinder with a plunger movable therein, a pitman or rod connected with said plunger, a band surrounding the column having a lever- 105 arm extending outwardly and connecting with the pitman, said band being centrally hinged and bolt connections at the outer end whereby it is removably attached to the column.

5. In a hay-press-actuating mechanism of 110 the character described, the rotary column and sheave, a band surrounding the column having a lever-arm projecting from one side, a cylinder having a plunger movable therein, a pitman or rod connecting the plunger with 115 the outer end of the lever-arm, a spring-pressed latch pivoted upon the lever-arm and a lug projecting from the sheave adapted to engage the latch and move the lever-arm until the piston has reached the end of its out- 120 ward stroke, said lug being detachably secured to the sheave.

6. In a hay-press-actuating mechanism of the character described, the column and sheave through which power is applied to 125 rotate the sheave through a part of the circumference of a circle, a jointed removable band surrounding the column having a lever projecting therefrom, a cylinder with a plunger movable therein, a plunger-rod connected 130 with the end of the lever, a spring-pressed latch pivoted to the lever-arm, a lug upon the

sheave with which it normally engages and
through which the forward movement of the
sheave acts to force the plunger to the outer
end of its stroke in the cylinder, said lug be-
5 ing an extension of a steel block fitting a cor-
responding depression in the sleeve, and bolts
by which it is detachably secured thereto.

In witness whereof I have hereunto set my
hand.

WILLIAM H. GRAY.

Witnesses:

G. M. FLINT,
C. L. BEST.