

(No Model.)

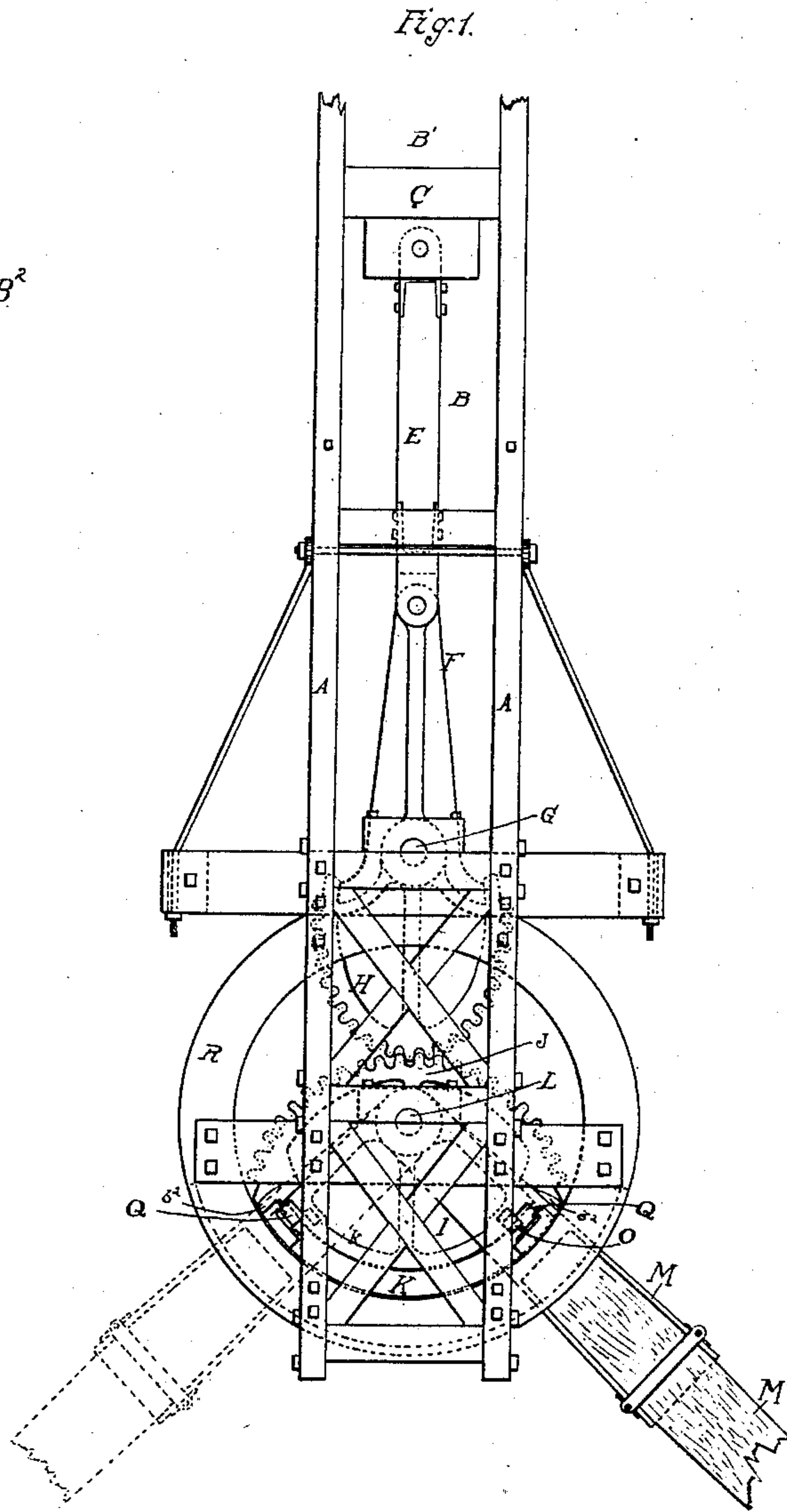
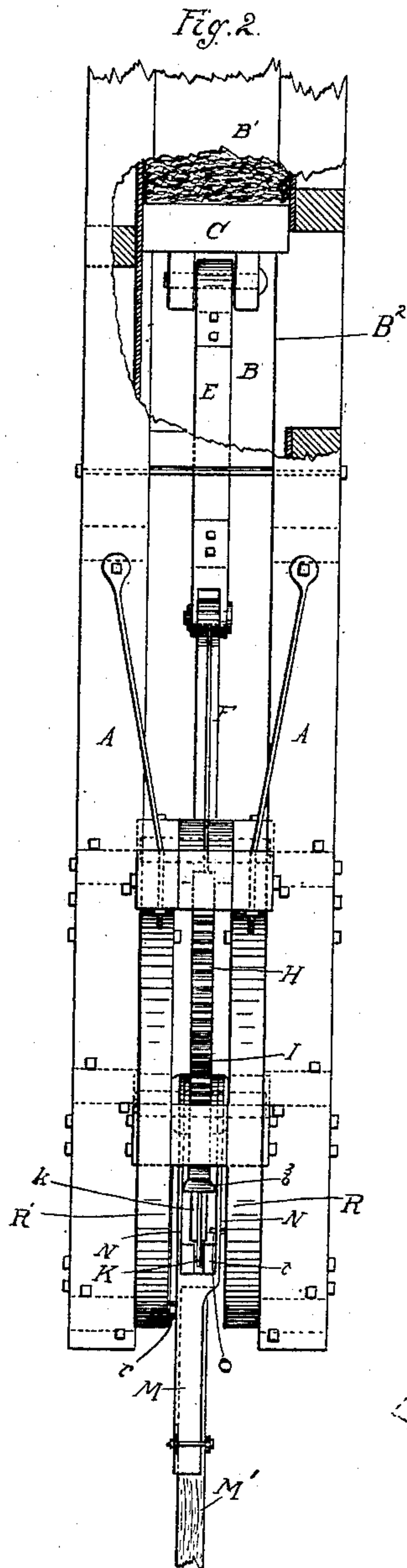
4 Sheets—Sheet 1.

A. S. ROBINSON.

BALING PRESS.

No. 348,865.

Patented Sept. 7, 1886.



Witnesses.
J. P. Robinson.
W. B. Van Hook.

Inventor.
Albert S. Robinson

(No Model.)

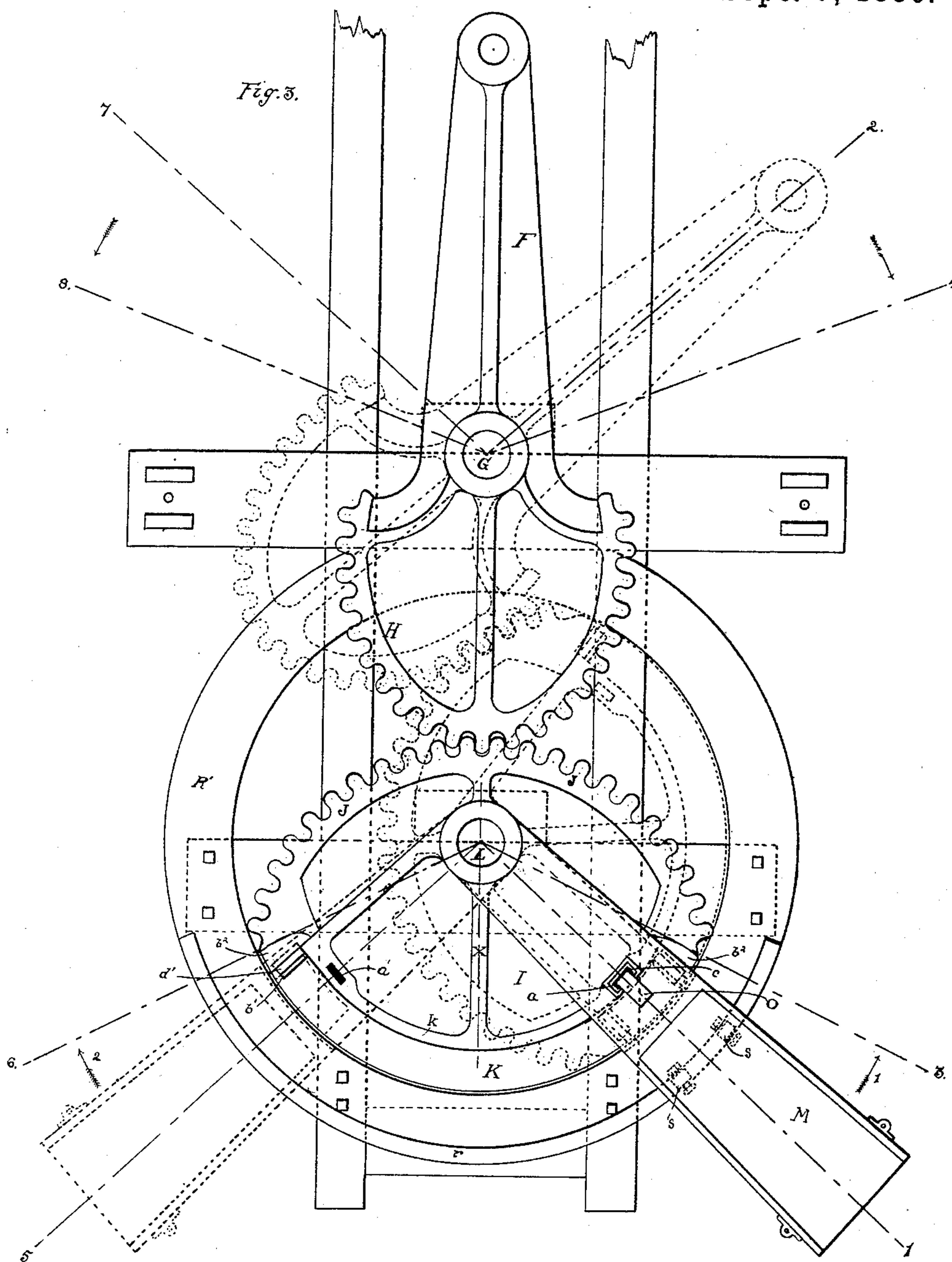
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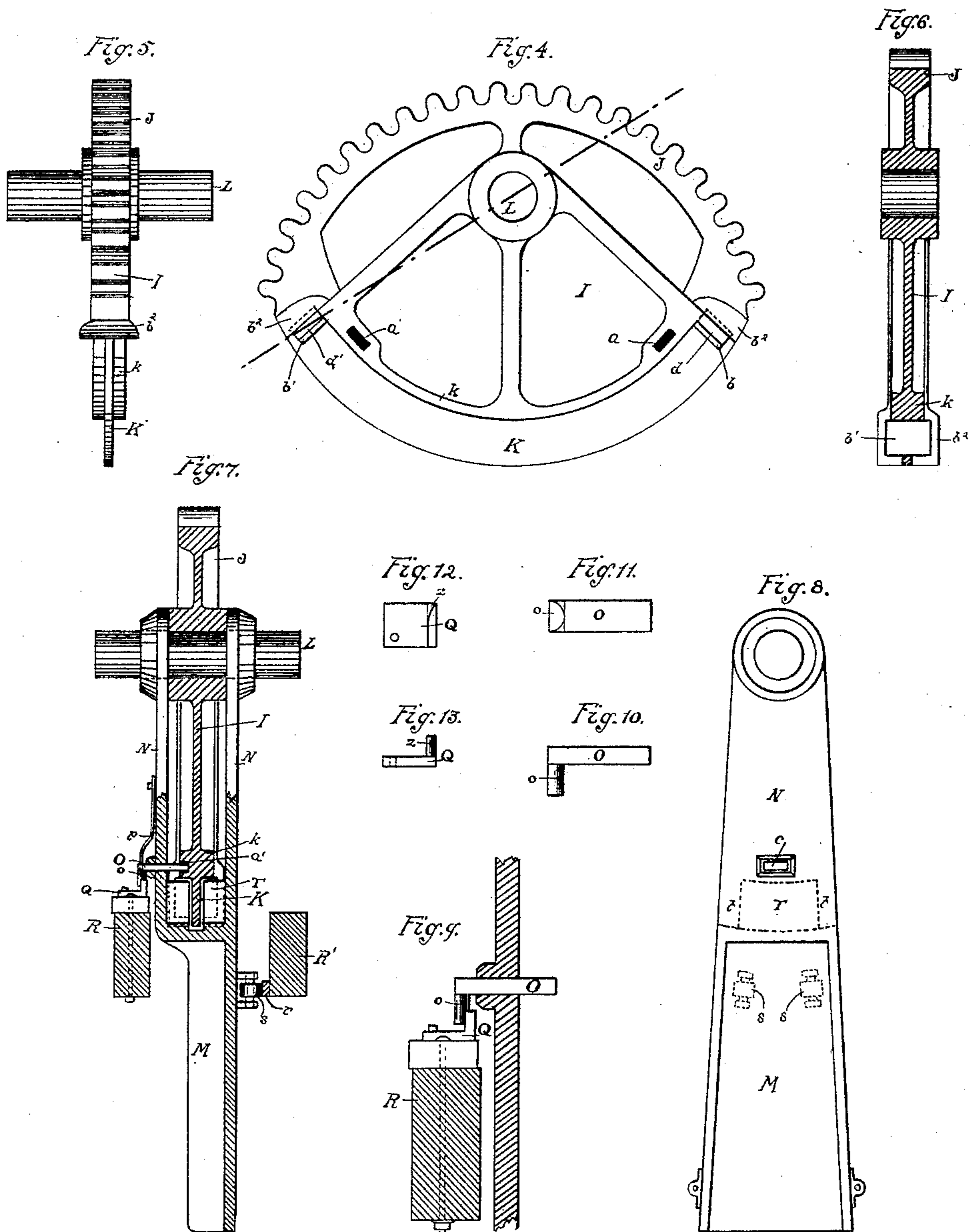
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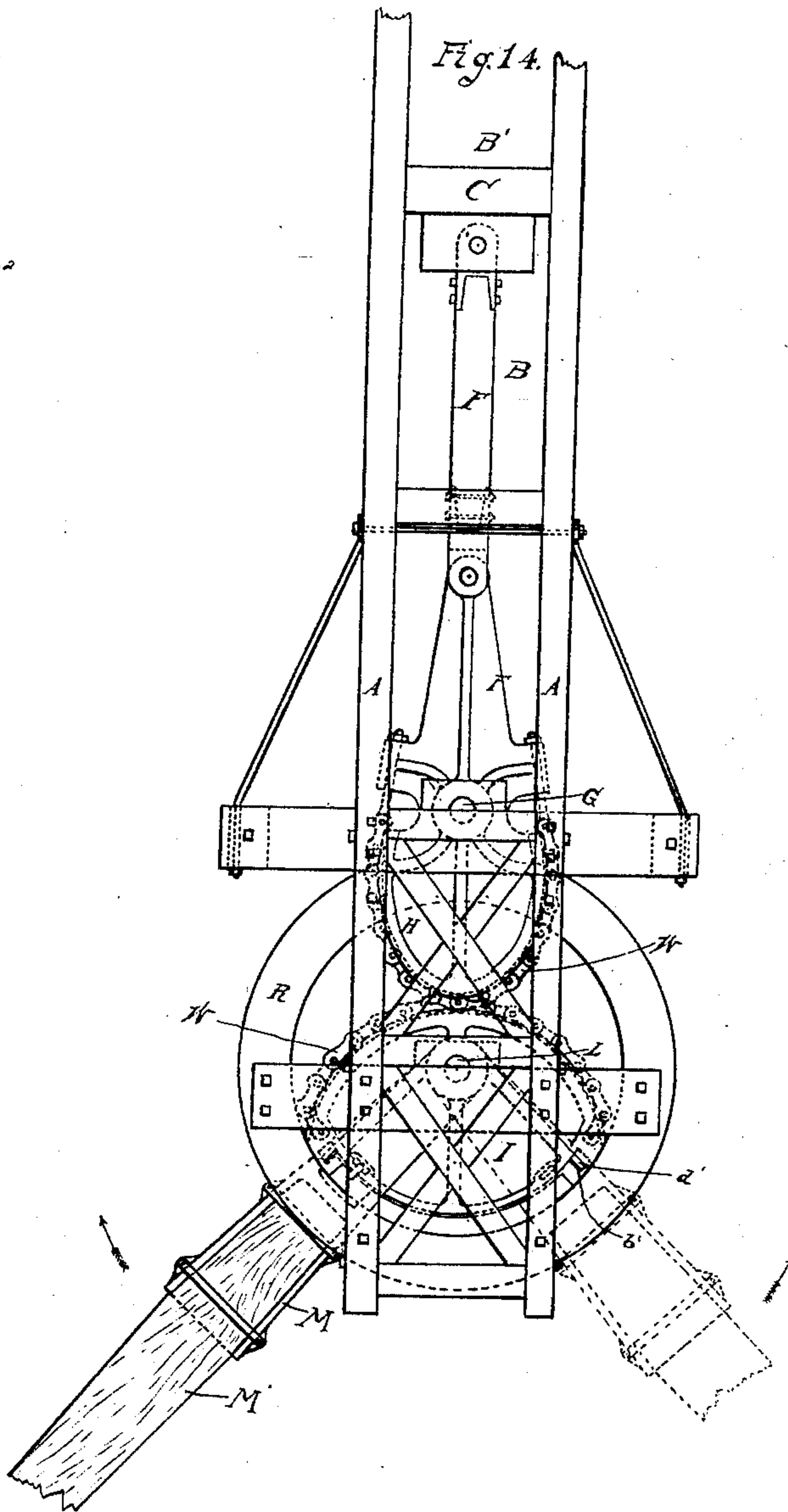
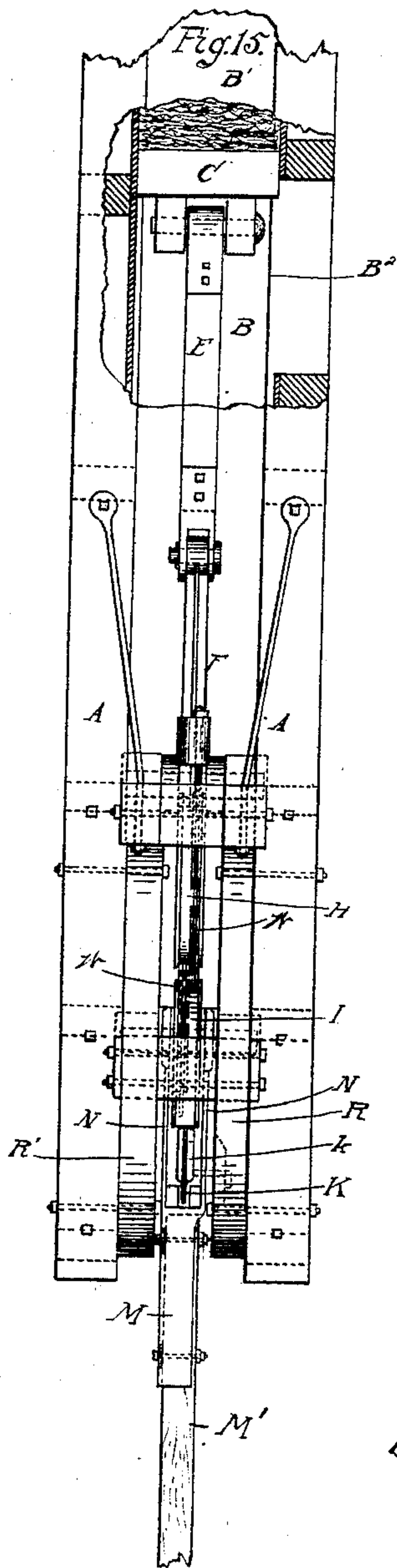
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UNITED STATES PATENT OFFICE.

ALBERT S. ROBINSON, OF ALBANY, NEW YORK.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 348,865, dated September 7, 1886.

Application filed November 13, 1885. Serial No. 182,659. (No model.)

To all whom it may concern:

Be it known that I, ALBERT S. ROBINSON, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention relates to improvements in presses for baling hay, straw, and other substances; and it consists in the devices and combinations and arrangements of devices and parts hereinafter particularly described, and specifically set forth in the claims.

The objects of my invention are, primarily, to produce in baling a lever-gear mechanism and an automatic device for locking and unlocking the sweep-lever with the gear mechanism at particular points in the line of the movement of the sweep-lever, so that when the platen is to be thrust back the sweep-lever will have engagement with the driving-gear plate, and when fully thrust back the former will be disengaged from the latter and allow the reactive force of the compressed material to shift the gear-plate while it is disengaged from the sweep-lever, so that the latter will not be in the least affected by the rebound of the platen, and, secondly, to provide specific means by which my invention will be carried into effect. I attain these objects by the means illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a baling-press embodying my improvements. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the operating mechanism embodying my improvements, and shown on an enlarged scale. Fig. 4 is a plan view of my improved gear-plates. Fig. 5 is a side elevation of the same. Fig. 6 is a sectional view of the same. Fig. 7 is a sectional view taken at line 1 in Fig. 3, and illustrating the automatic mechanism which operates to lock the sweep-lever in positive engagement with the gear-plate and unlock the same. Fig. 8 is a plan view of the head of the sweep-lever. Fig. 9 is a sectional view, on an enlarged scale, of the locking mechanism. Figs. 10 and 11 are detailed views of the lever dog or latch. Figs. 12 and 13 are detailed views of the lifting-dog operating with the lever-dog.

The same letters of reference refer to like parts throughout the several views.

In the drawings, A represents the frame-work of the press. B is the pressing-chamber. B' is the baling-chamber; and C is the platen, which is jointed with pitman in any suitable manner.

F, Figs. 1, 2, and 3, is a lever pivoted from its rear end to pitman E. This lever is pivoted on shaft G, which has its ends securely supported in the frame-work. The front end of this lever is made in the form of a section of an elliptical gear, H, and pivot G is eccentrically set in relation to this gear, as shown in Figs. 1 and 3.

I is the driving-gear plate having for its rear side portion the section of gear J, and for its front side portion web K. Made in the thickened metal or rib k, bounding the inner edge of the web, and nigh to the terminals of the rib, are perforations or catching-holes *a a'*, (shown in Figs. 3 and 4,) and at the terminals of the gear-sections J are the cushion-recesses *b b'*, which recesses are sunken horizontally in the metal wall *b²* at each side of web K, Figs. 4 and 5. This gear-plate I is loosely mounted on the shaft L, which is securely fixed by its ends to the frame-work of the press, and is relatively essential to the curvature of the gear portion J, and so as to be, in one respect, on a line relatively central between the terminal ends of the gear-section, as on line *x*, and in another respect near to the central cogs of the gear, as shown in Figs. 3 and 4. The cogs in this gear-section are on a true curved line, and with a length of curvature at each side from the middle cogs as will be about equal to the line of cogs in each half of the elliptical gear H, so that with the eccentric position of shaft L each half of the whole series of cogs in gear J will be on a gradually-extending throw which will be in correspondence with the gradually-contracting line of each half of said gear H.

M is the sweep-lever head, and M' is the sweep-lever secured to it. This sweep-lever head is made of cast metal, and is provided with parallel arms N N, Figs. 2 and 7, by which it is pivoted to shaft L, with gear-plate I working between, as shown in Fig. 7. The uppermost one of these arms N is perforated

at *c*, preferably with an oblong hole corresponding with holes *a a'*, and is relatively on the same vertical line, as shown in Fig. 7. This head *M* is independent and separate from the gear-plate *I*, and is free to move on pivot-shaft *L* independent of said gear-plate. Freely working in perforation *c* is the elastic key *O*, the spring *p*, secured to arm *N*, operating to hold said key down with elastic pressure. This key *O* has projecting from its upper end the lifting-arm *o*, made with reversed bevels on its under side, as shown in Fig. 11.

Q Q' are stationary dogs secured to the inner side edge of the upper circular way, *R*, Figs. 1, 2, 7, and 8. These dogs have each a beveled edge, *z*, Fig. 12, which face toward each other in their attachment with said way *R*, and they are so placed on this way, as to operate with key *O*, when said key has arrived at the point at which it is to be lifted out of the respective catching-holes *a a'*.

R R', Figs. 1, 2, and 7, are circular ways, made preferably of wood, and relatively between them works the lever-head arms *N N*, gear-plate *I*, and gear *H*. Secured on the upper surface of lower way, *R'*, is the track *r*, and attached to the lower side of the lever-head *M* are bearing-rollers *ss*. (Shown by full lines in Fig. 7 and dotted lines in Fig. 8.) These rollers are mounted on pins having bearings in ears attached to said lever-head, as shown in said figures.

T is a cheek-block at the fork of arms *N N* of the lever-head *M*, and its sides *t t* operate as checks for exerting pressure on the elastic cushions *d d'* in the recesses *b b'* in gear-plate *I*.

The manner in which the above-described parts operate is as follows: When the respective parts above described are in position shown by full lines in Fig. 3, with lever-head *M* on line 1 and moving in direction of arrow 1, lever *F* and pitman *E* will be on coincident lines, as shown in Fig. 1, and the key *O* will be about to be lifted out of engagement with catch-hole *a*, and as lever-head *M* passes line 1 in its movement toward line 3, Fig. 3, the said key will be lifted from said catching-hole by the action of stationary dog *Q* on the lower side of arm *o*, and gear-plate *I* will be free to turn on its shaft *L*. With this key raised out from catching-hole *a* the elastic force of the compressed material in the baling-chamber *B'* will operate, through platen *C* and pitman *E*, to move lever *F* to position of dotted lines on line 2, Fig. 3, and in this movement of said lever its gear *H* will be made to move gear-plate *I* through gear *J* to position of dotted lines in the same figure. This movement of said gear-plate to position of dotted lines will bring catching-hole *a'* in said plate directly beneath key *O*, and the latter will, by pressure of spring *P*, be made to engage with said catching-hole, and the cheek *t* of block *T* will have bearing against cushion *d'* in recess *b'* at the left-hand end of gear-section *J*, as shown by dotted lines in Fig. 3. The animal will move lever-head *M* from position of line 1 to that of

line 3, when lever *F* will, through the respective gear-sections *J* and *H*, be moved from line 2 to line 4, and the pitman and platen will be correspondingly moved, with the latter brought relatively forward of the feed-opening *B'* to pressing-chamber *B*. The animal being turned, the movement of head-lever *M* will be reversed, and the cheek-surface *t* will have bearing against cushion *b'*; and when this head-lever is moved in direction of arrow 2, Fig. 3, it will turn the gear-plate *I* from position of dotted lines to that of full lines when it arrives at line 5, and, the movement being continued to carry the lever-head past line 5, the key *O* will be brought into engagement with lifting-dog *Q'* and be lifted out of catching-hole *a'*, when the elastic force of the compressed material will again operate to change the position of lever *F*, which will be moved to the reverse of its first movement from full lines and to position of line 7, Fig. 3. In this movement of said lever its gear *H* will operate with gear *J* to reverse the position of gear-plate *I* and bring the cushion *d* in recess *b* against the cheek *t* of cheek-block *T*. The animal will move lever-head *M* to line 6, when lever *F* will be moved to line 8. In the continued reversed removals of lever *M'* the parts above described will operate as above stated, and the force of the rebound of the platen will not be communicated to the sweep-lever *M'*. The rollers *ss*, secured to the lever *M'* or its head *M* and way *r*, operate, together with shaft *L*, to preserve the arm of key *O* on the same horizontal plane, so that said key will be in position to be positively acted with by the stationary dogs *Q Q'* as the former is carried in alternately-reversed directions by said lever or its head. If preferred, the cushion (made of rubber) *d d'* may be inserted in recesses made in block *T* from the sides *t* of the same, and be omitted from the terminal ends of gear-sections *J*, and the surfaces at *b b'* be left plain or unrecessed, so as to operate as cheeks with the cushions carried in the sides of block *T* in this mode of reversal of said parts. It will be readily seen that the gear-plate *I*, mounted loosely on shaft *L*, without permanent attachment with the sweep-lever, will operate as a tumbling-plate between said lever and the pitman-lever, and be operated about at the time the latter lever is in line with its connected pitman to shift the gear in said plate to the position in which it will be in engagement with both the pitman-lever and the sweep-lever for a quick reversal of movements of parts without any stoppage of the animal, and without any rebound of the platen being communicated to the sweep-lever.

In Fig. 14, a plan view, and Fig. 15, a side elevation, are shown a modification of manner of gearing plate *I* with the head of lever *F*, in which chains *W* are substituted for cogs. By use of this modification the same operations and results will be had when all the above-described other elements are used.

Having described my invention, what I

claim, and desire to secure by Letters Patent, is—

1. The gear-plate I, mounted on pivoted shaft L, having the eccentric gear-section J of the former and provided with catching-holes $a a'$, in combination with the lever pivoted to said shaft and independent of said shaft, having key O, and a spring to lock said gear-plate and lever, and stationary dogs adapted to release the same, all substantially as and for the purposes and operation set forth.

2. The gear-plate I, mounted on shaft L, having the gear-section J, provided with the elastic cushion $d d'$, in combination with the lever pivoted on said shaft, and provided with cheeks $t t$, substantially as and for the purposes and operations set forth.

3. The gear-plate I, mounted on shaft L, having the gear-section J of said plate, and provided with catching-holes $a a'$, cushions $d d'$, in combination with the lever pivoted on said shaft L and carrying elastic key O, and cheeks $t t$, substantially as and for the purposes and operations set forth.

4. The combination, with the gear-plate I, mounted on shaft L, and having the eccentric gear-section, of the lever M, independently mounted on said shaft L, the means, substantially as described, for engaging and disengaging the said lever with said plate, and the lever F, provided with the elliptical gear-section H, substantially as and for the purposes set forth.

5. The combination of platen C, pitman E, and lever F, provided with elliptical gear-section H, as above described, with the gear-plate I, having gear-section J mounted on shaft L eccentric to said gear-section, catching-holes $a a'$, cushions $d d'$, elastic key O, lever M, having cheek-block T, and stationary dogs Q, substantially as and for the purposes and operations set forth.

6. The combination of the key O, having the beveled lug o , with the stationary lifting-dog Q, for disengaging the key from the catching-holes in the gear-plate, substantially as and for the purpose set forth.

7. The combination of the gear-plate I, provided with catching-holes $a a'$, with the lever-arm N, provided with perforation e , a key provided with beveled arm o , a spring, P, and stationary dog Q, substantially as and for the purpose set forth.

8. The pivoted gear-plate I, provided with cushions $d d'$, held in recesses at the termination of the gear-teeth on said plate, in combination with the lever M, provided with the cheek-block T, securely fixed thereto, both the lever and gear-plate being pivoted to the shaft L, substantially as and for the purpose set forth.

9. The combination of the lever M, pivoted to shaft L, and provided with rollers s , sliding on track r , with the stationary dog Q, and the key O, substantially as and for the purpose set forth.

10. In a baling-press, the combination, with the platen connected by a pitman to lever F, having a section of elliptical gear as a part thereof, and sweep-lever M, pivoted to shaft L, of gear-plate I, above described, and pivoted to said shaft and provided with catching-holes $a a'$, key O, for engaging said gear-plate with lever M, for operation and purposes set forth.

11. In a baling-press, the combination, with the platen connected by a pitman to lever F, having a section of elliptical gear as a part thereof, and sweep-lever M, pivoted to shaft L, of gear-plate I, above described, and pivoted to said shaft, which will be automatically moved in either direction by the reactive force of the compressed material to a point of engagement with key O, and intermittently moved by the continuous movement of lever M to its full rearward thrust, substantially as and for operations and purposes set forth.

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Witnesses:

W. B. VAN VOORHIS,
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