

(No Model.)

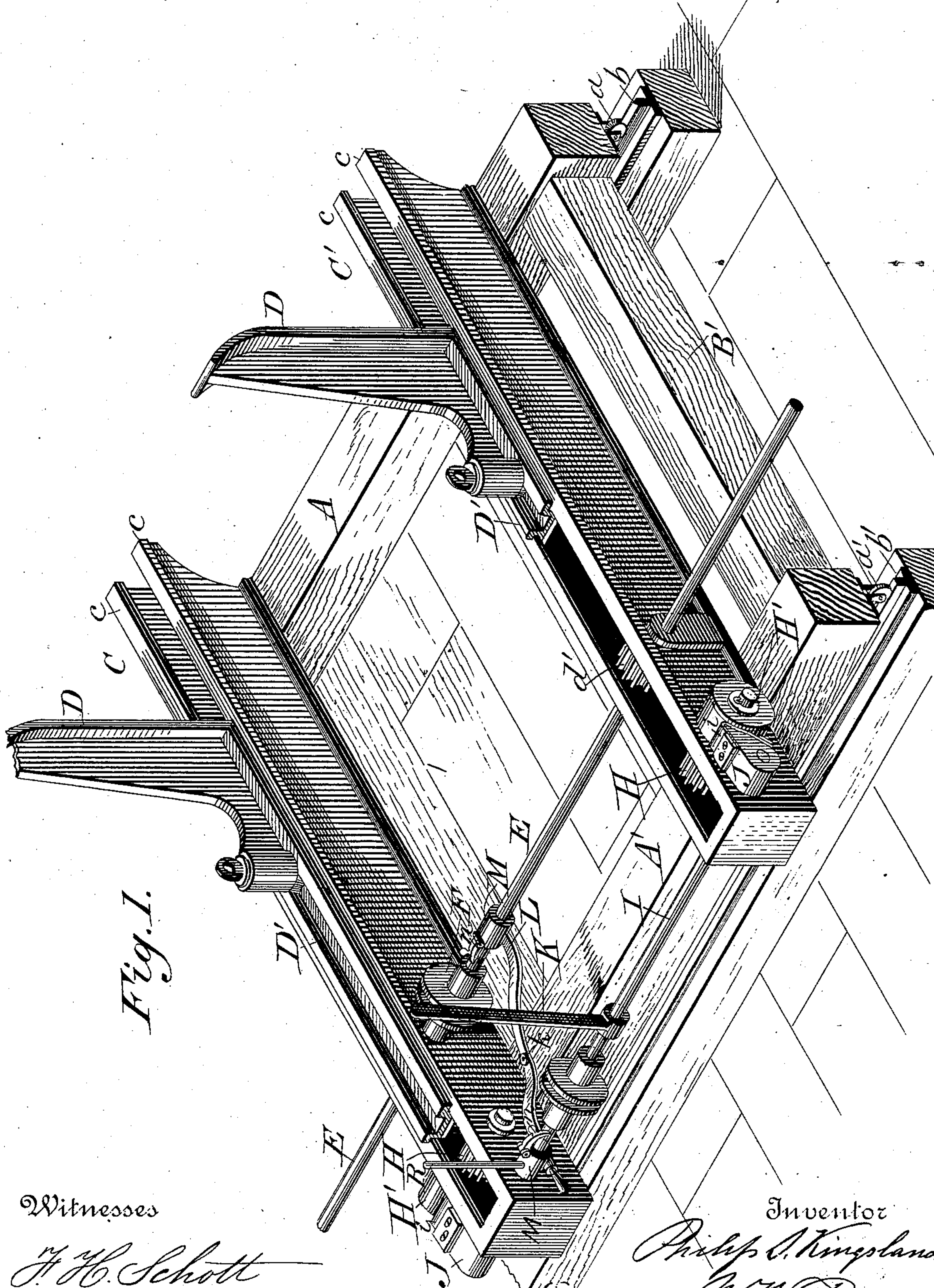
P. S. KINGSLAND.

3 Sheets—Sheet 1.

SAW MILL SET WORKS.

No. 365,478.

Patented June 28, 1887.



Witnesses

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(No Model.)

3 Sheets—Sheet 2.

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Fig. 2.

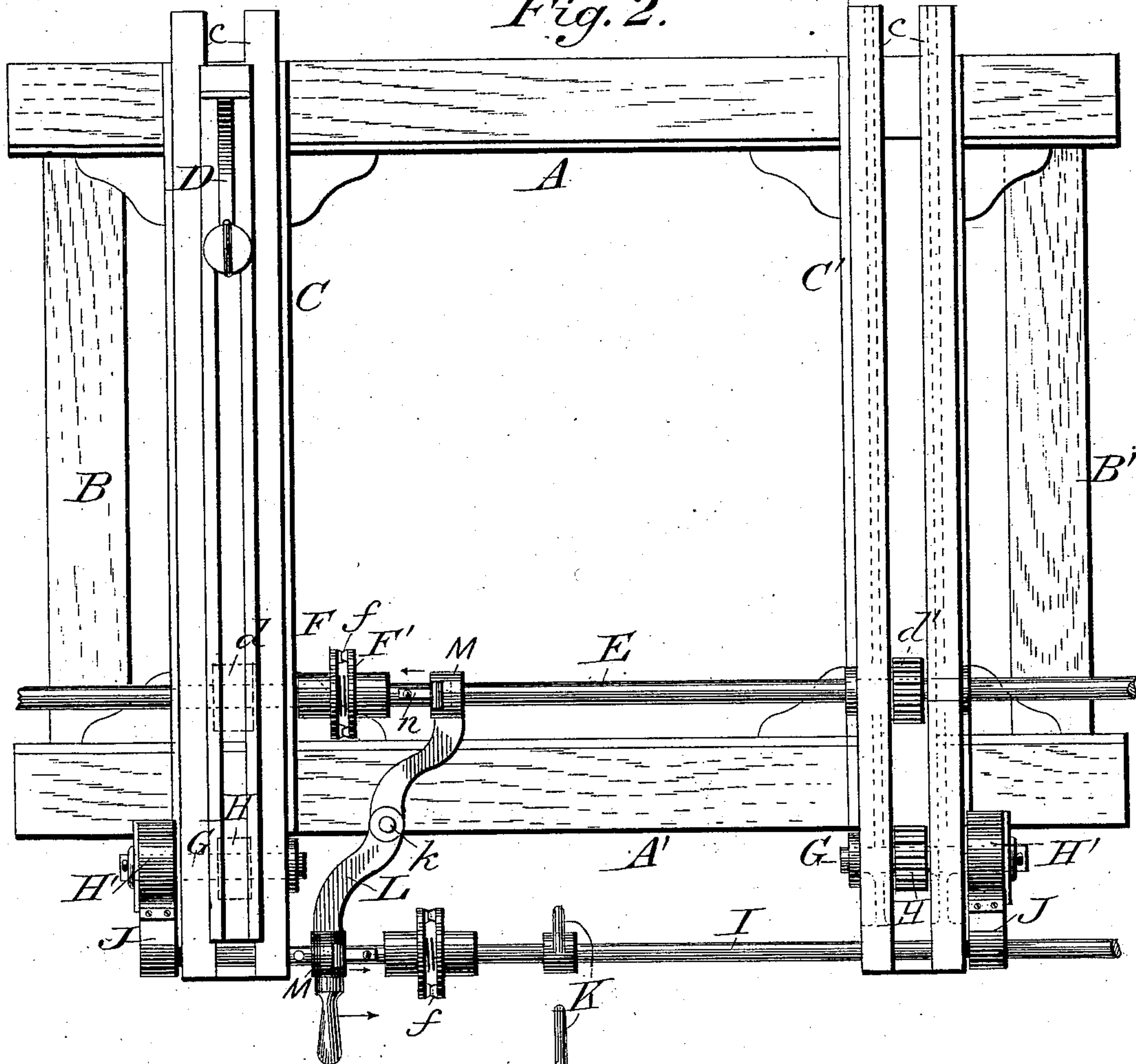
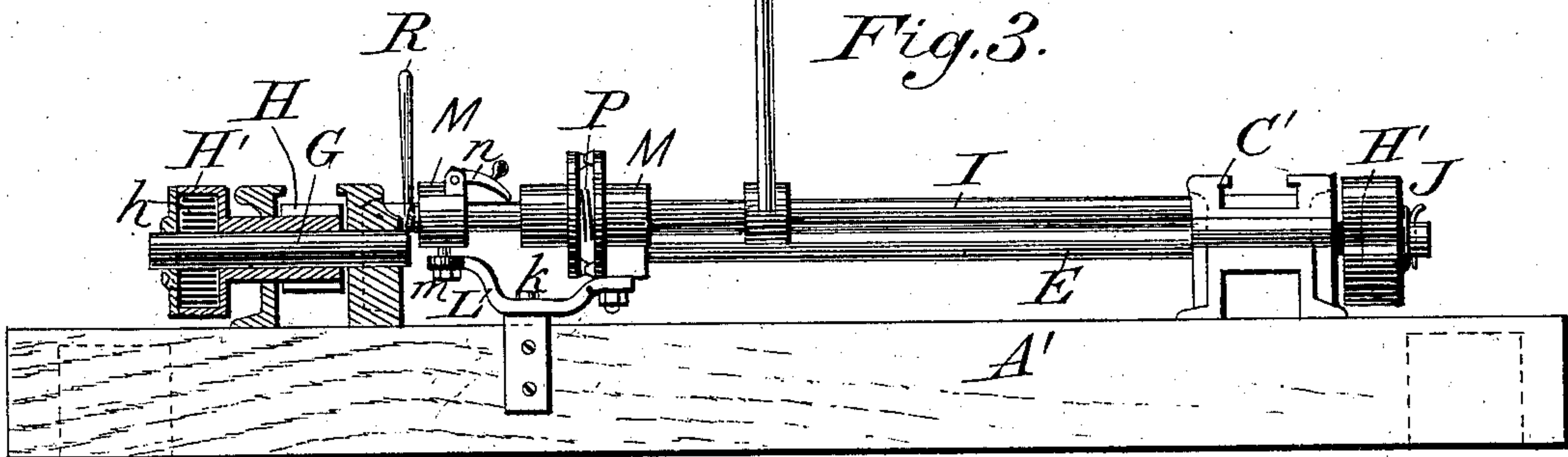


Fig. 3.



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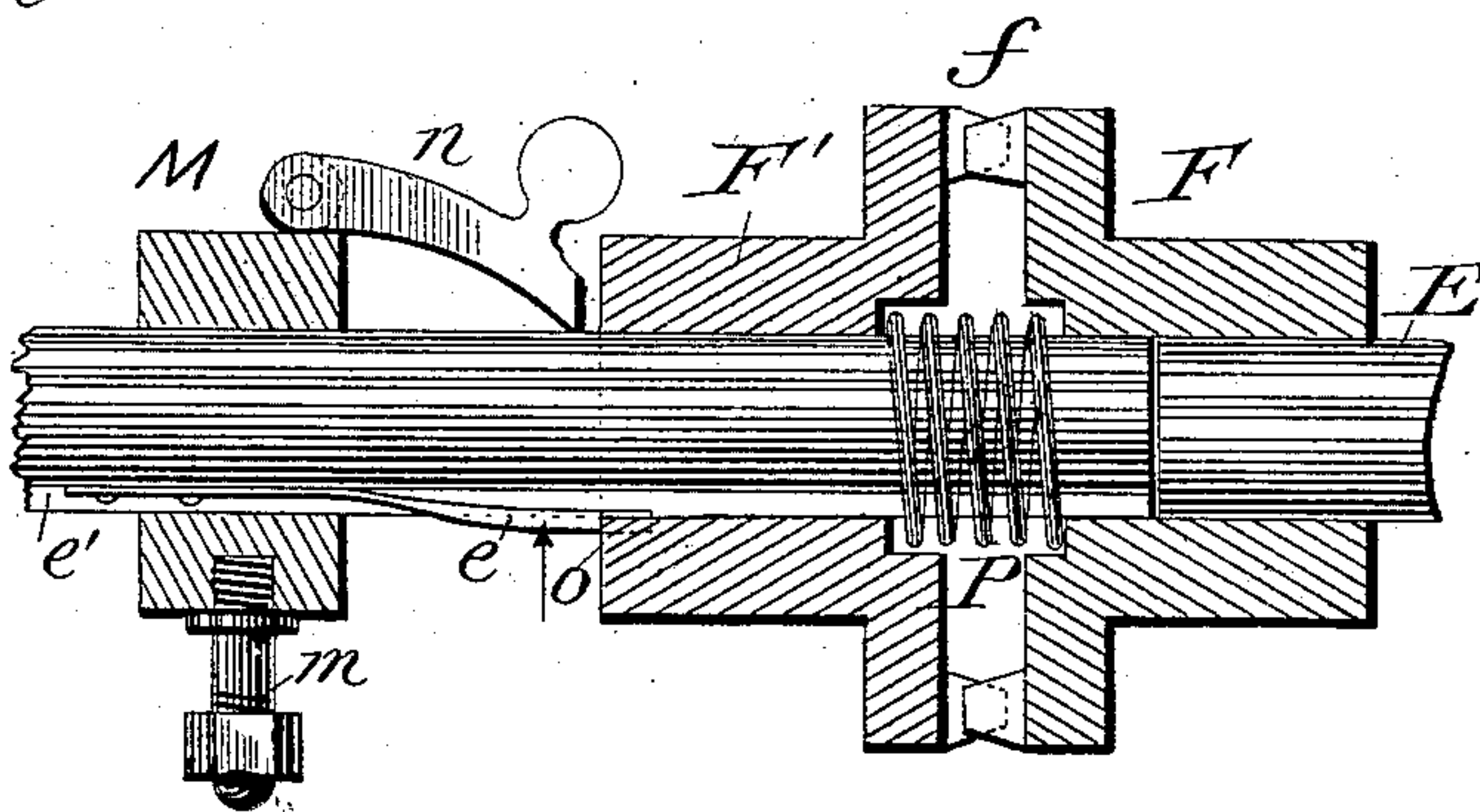
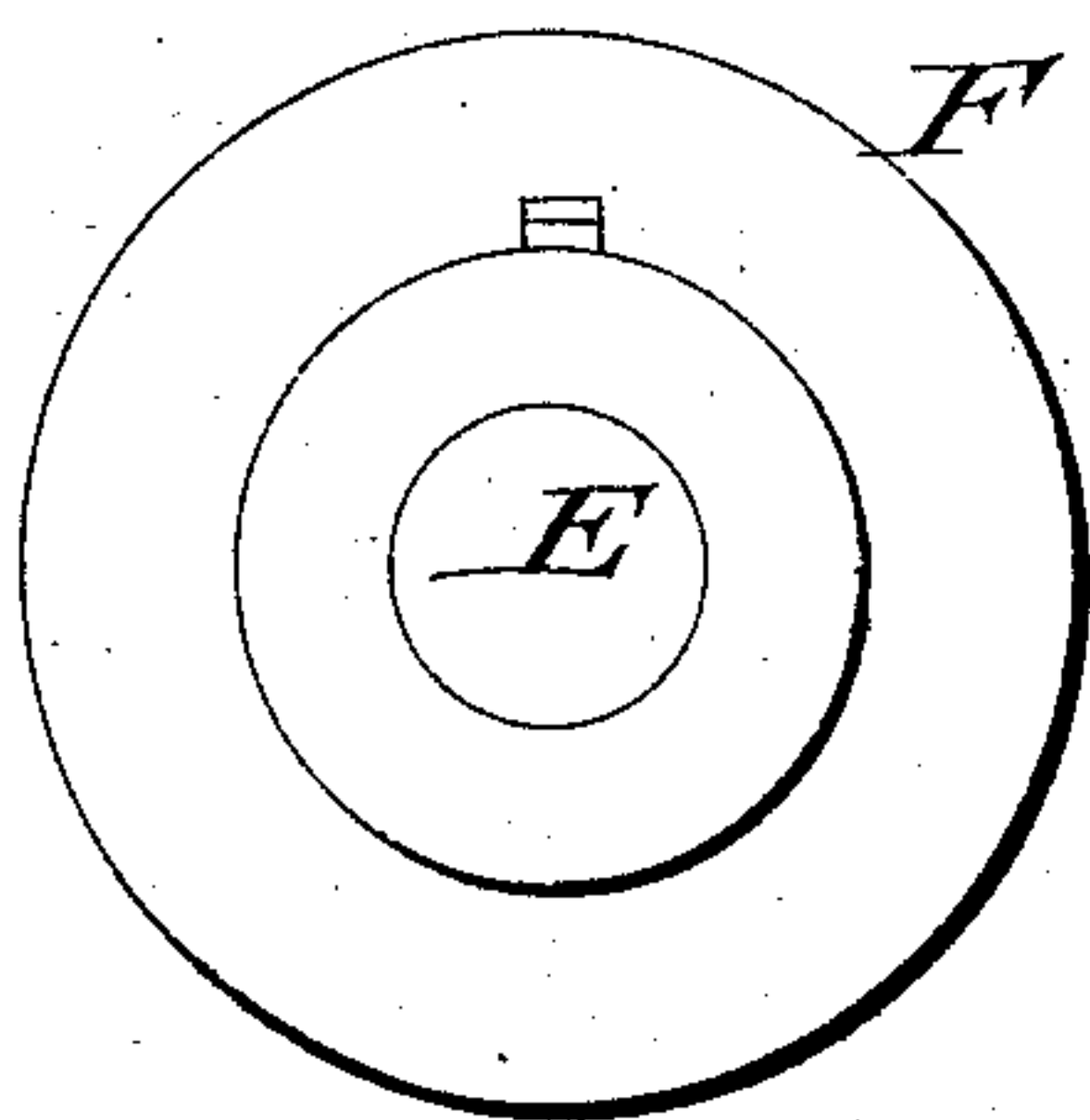
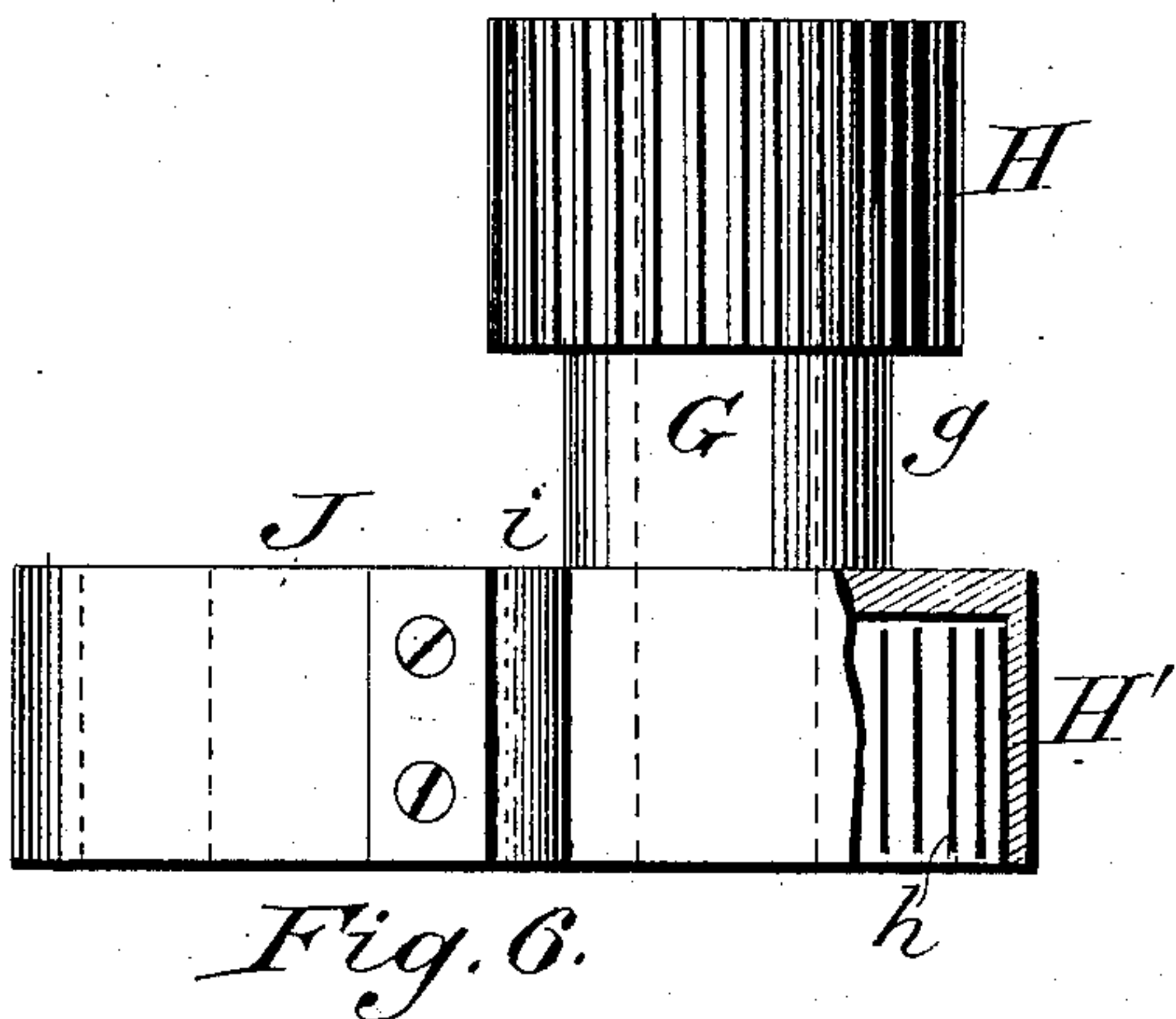
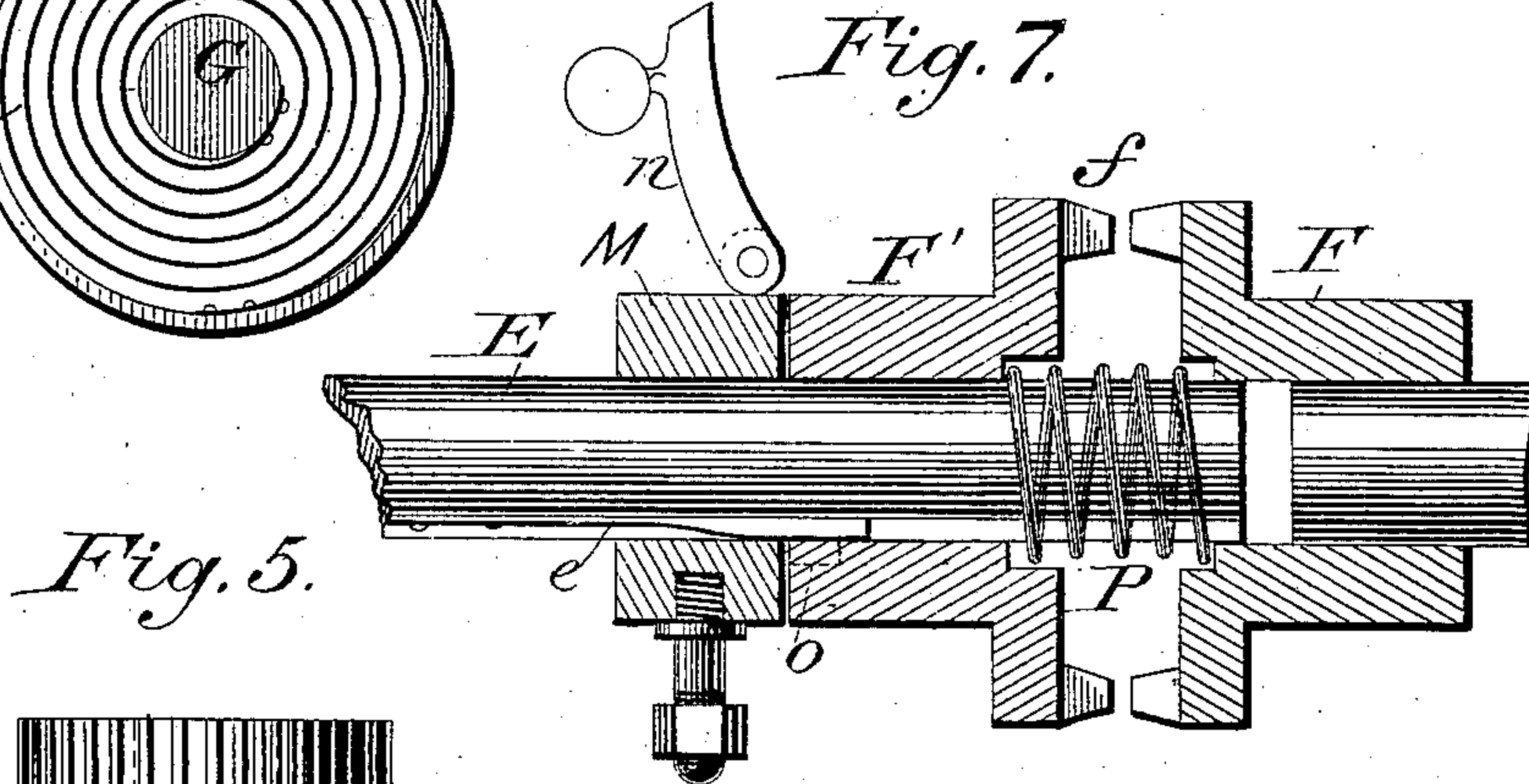
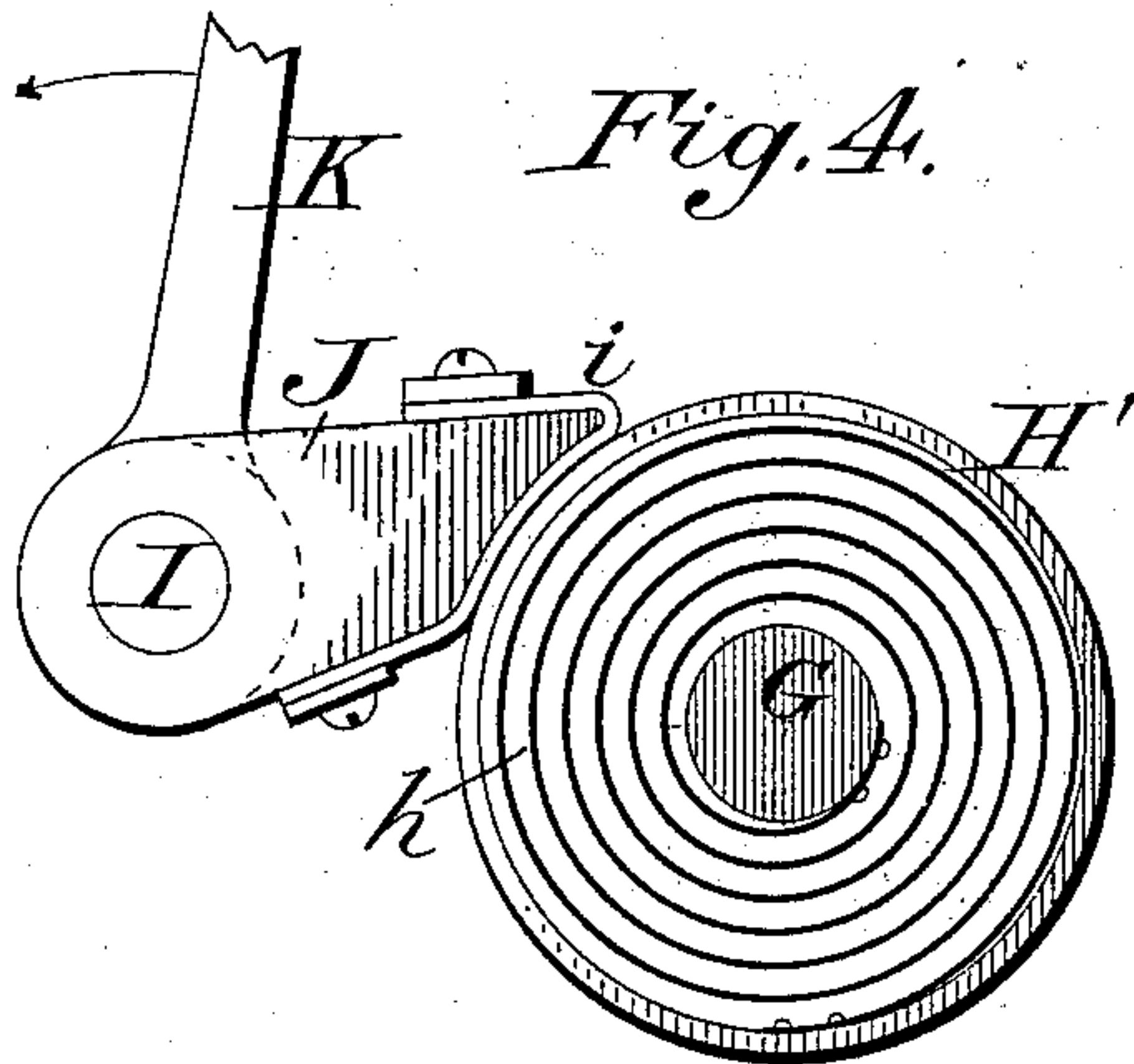
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

PHILIP S. KINGSLAND, OF CHICAGO, ILLINOIS.

SAW-MILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 365,478, dated June 28, 1887.

Application filed July 9, 1886. Serial No. 207,611. (No model.)

To all whom it may concern:

Be it known that I, PHILIP S. KINGSLAND, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Head-Blocks for Saw-Mills; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in the head-blocks of saw-mill log-carriages, and especially to the devices used in connection with such carriages for the purpose of drawing back the setting-knees automatically after the log has been cut into lumber, and also to those employed for the purpose of drawing or retracting either of the knees, so that it shall no longer travel in the same line as the other, thus enabling the setter to allow for the taper of a log and avoid the waste of lumber which must occur when both knees are invariably moved backward and forward in the same line. Many devices have been invented and tried for accomplishing these objects—such as weights so arranged as to act upon the knees and draw them back when released from the setting-dogs. Springs also have been used coiled around the set-shaft and arranged in other ways. Devices to allow for the taper of the log—such as a movable piece to place in front of one of the knees—and means for releasing one of the setting-pinions from its connection with the set-shaft, so that the latter might revolve without carrying both knees with it until the two were in the desired position with relation to each other, when the connection between the pinion and the shaft was again made, and the two knees could be advanced simultaneously; but all of these devices, so far as my knowledge extends, were objectionable, either because their action was imperfect or too much time was lost in making the adjustment.

This invention may therefore be said to consist in the construction and arrangement of the devices by means of which a helical spring

is made to automatically draw back the setting-knees, and in the devices by which one knee may be moved out of line with the other to adjust the same to the taper of the log.

In the accompanying drawings, Figure 1 is a perspective view of a log-carriage provided with my improved set-gear, the racks by which the knees are moved being cut off to show clearly the gears by which they are actuated. Fig. 2 is a plan of the same, one of the knees and its rack being removed from the head-block to more clearly illustrate the details of construction. Fig. 3 is a rear view, partly in section, showing the construction of the spring-case and its connected gear. Fig. 4 is an end view of the spring-case and spring, with the brake-pawl applied to the outer surface of the case. Fig. 5 is a plan view of the same, a part of the case being broken away to show the spring. Fig. 6 is an end view of one of the couplings. Figs. 7 and 8 are detail sectional views showing the couplings connected and disconnected.

The construction of the log-carriage may be that in common use, different forms being produced by different builders, although the principles upon which they are constructed remain substantially the same in all cases.

In the drawings used to illustrate this invention the carriage is shown as constructed of two longitudinal timbers, A and A', connected by the cross-pieces B B', forming an elongated rectangular frame supported by the wheels *a* and *a'* upon the tracks *b* and *b'*, upon which tracks the carriage has a longitudinal movement to bring the log to the saw.

Mounted upon the carriage and extending transversely across the same are the head-blocks C and C'. One of these head-blocks, as C, is commonly secured to the carriage, while the other, C', is made adjustable upon it, to suit the varying lengths of the logs to be carried upon them. The upper side of each head-block is provided with guides or ways, *c c*, on which slide the setting-knees D D and their extensions or racks D' D'. Extending lengthwise of the carriage, and revolving in suitable bearings in the head-blocks, is a set-shaft, E. This shaft carries two pinions, *d* and *d'*, which engage with the racks of the setting-knees, and one of which, the pinion *d*, is firmly keyed

to the shaft, the other, d' , being made longitudinally adjustable thereon, so that it may move with the head-block C' when the latter is adjusted to suit logs of different lengths.

5 The shaft E is also divided, so that its two ends, carrying the pinions d and d' , may revolve independently of each other when desired, the two parts of the shaft being connected by the clutch-disks F and F' , the disk
10 F being securely keyed or otherwise fastened to one part of the shaft, while the disk F' is made to slide on the shaft and prevented from revolving thereon by the spring-key e , secured at one end within a keyway, e' , formed in said
15 shaft.

Each of the disks is provided with projecting lugs f , which, when the disk F' is brought near the disk F , engage and cause both parts of the shaft to revolve simultaneously; but
20 when the disk F' is out of engagement the opposite ends of the set-shaft E may revolve independently of each other. The object obtained by this construction is that it allows either setting-knee to be moved independently of
25 the other when it is desired to set them to saw a tapering log. Passing through each head-block in the rear of the set-shaft is a fixed shaft, G , upon which is carried, freely revolving thereon, a pinion, H . These pinions H
30 are connected by the sleeves g with the spring-cases H' , said pinions, sleeves, and spring-cases being preferably cast in one piece.

Within the spring-cases, and having one end secured thereto, are the helical springs h , the
35 opposite or inner end of said springs being secured to the fixed shafts G .

It is evident that as the setting-knees are moved toward the saw by a suitable lever or other mechanism operating on the set-shaft
40 the racks of the knees acting upon the pinions H will wind up the springs h , which, when the setting-racks attached to the knees are released from the set-pawls, will unwind and revolve the pinions H in the contrary direction,
45 thus automatically drawing back the setting-knees into position for the reception of another log upon the carriage.

As it is unnecessary to let the knees go back to their full extent when small logs are to be
50 placed upon the carriage, a pawl-shaft, I , is journaled in the head-blocks in the rear of and parallel with the set-shaft. This shaft I carries the friction-pawls J , each of which is provided with a friction-surface, i , of leather or
55 other suitable material, said pawls being so placed that when the shaft is rotated by means of a lever, K , attached thereto, the frictional surface of the pawls will be made to impinge upon the peripheries of the spring cases, stopping their further revolution and also that of
60 the pinions to which they are connected by the sleeves g .

It will be evident that the retrograde movement of the setting-knees may be arrested at
65 any desired point by the application of these pawls to the spring-cases. The shaft I is cut in two and each part provided with coupling-

disks identical in construction with those already described as being upon the set-shaft E , the two couplings being arranged to operate
70 simultaneously, when it is desired to place the knees in position to receive a tapering log, by the following mechanism.

Pivoted upon the carriage at k is a lever, L . This lever is attached by means of pivotal
75 studs m to the collars M , which slide upon the shafts E and I . Each of these collars is provided with a pawl, n . When these pawls are thrown back, as shown in Fig. 7 of the drawings, the couplings may be connected by moving the lever L and sliding the collars M toward the coupling-disks F' until they push the
80 latter into engagement with the coupling-disks F . The spring-keys e will then spring outward into the notches o , formed in the hubs of the disks, holding the latter in the engaged positions until they can be firmly secured by dropping the pawls n into the position shown in Fig. 8.

When it is desired to uncouple the separate
90 parts of the shafts to allow one knee to go back farther than the other, the pawls n are thrown back and the collars advanced by means of the lever L until they have depressed the spring-keys sufficiently to take them out of
95 the notches o of the coupling-disks F' , when the latter will be thrown back out of engagement with the disks F by means of the spring P , coiled around the shafts within the recess of the coupling-disks. The two ends of the
100 pawl-shaft being now free, by properly manipulating the levers K and R the setting-knees may be allowed to move independently of each other into any desired relative position and immediately secured therein by reversing the
105 position of the lever L , so as to cause the re-engagement of the couplings.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent, the following—
110

1. As an improvement in the setting mechanism of saw-mill head-blocks, the combination of the setting-knees and attached racks, a fixed shaft, and the helically-coiled retracting-spring, a spring-case containing said
115 spring, a pinion, and connecting sleeve integral with the spring-case, arranged to revolve upon said fixed shaft to automatically retract said setting-knees after they have been forced forward in setting, substantially as set forth.
120

2. As an improvement in the means for operating the setting-knees of saw-mill head-blocks, the combination of a divided set-shaft provided with couplings, a divided pawl-shaft also provided with couplings, and an operating-lever arranged to couple and uncouple
125 both shafts simultaneously, substantially as specified.

3. In a saw-mill head-block, the combination of the setting-knees and their rack extensions, the retracting-springs, spring-cases, and pinions operated by said springs, with the pawl-shaft and friction-pawls acting upon the peripheries of said spring-cases to assist
130

the movement of the setting-knees, as set forth.

4. In combination with the set-shaft of a saw-mill carriage, the coupling-disks, one of
5 which is fixed, the other movable, a spring for forcing said disks apart, a sliding collar upon the shaft, provided with a swinging pawl, a spring-key secured in a groove of the shaft and acting as a stop for the coupling-disk to
10 prevent its disengagement, as well as to pre-

vent its rotation upon the shaft, and an operating-lever, all arranged as and for the purpose specified.

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

PHILIP S. KINGSLAND.

Witnesses:

GEORGE KINGSLAND,
E. C. DICEY.