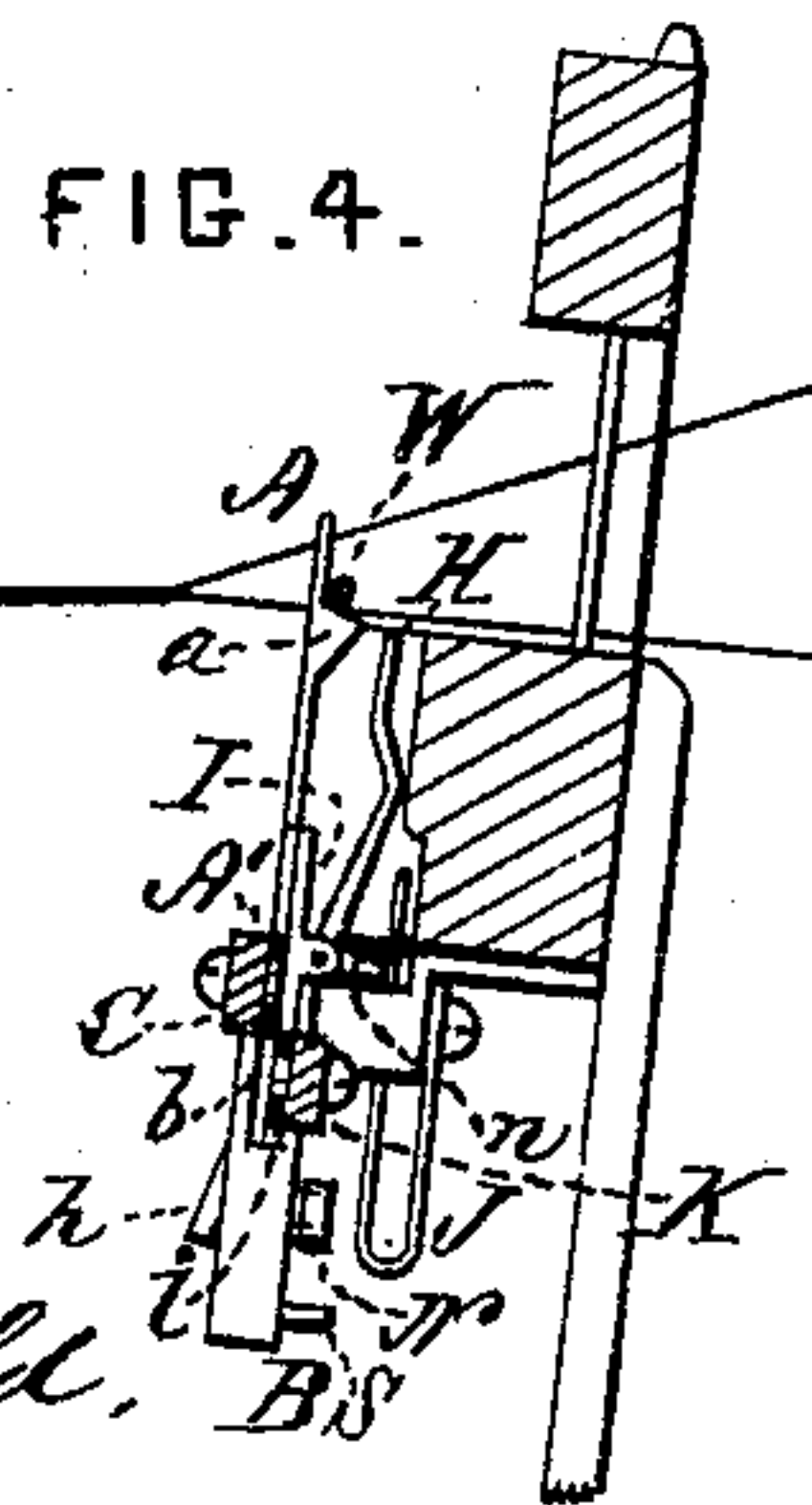
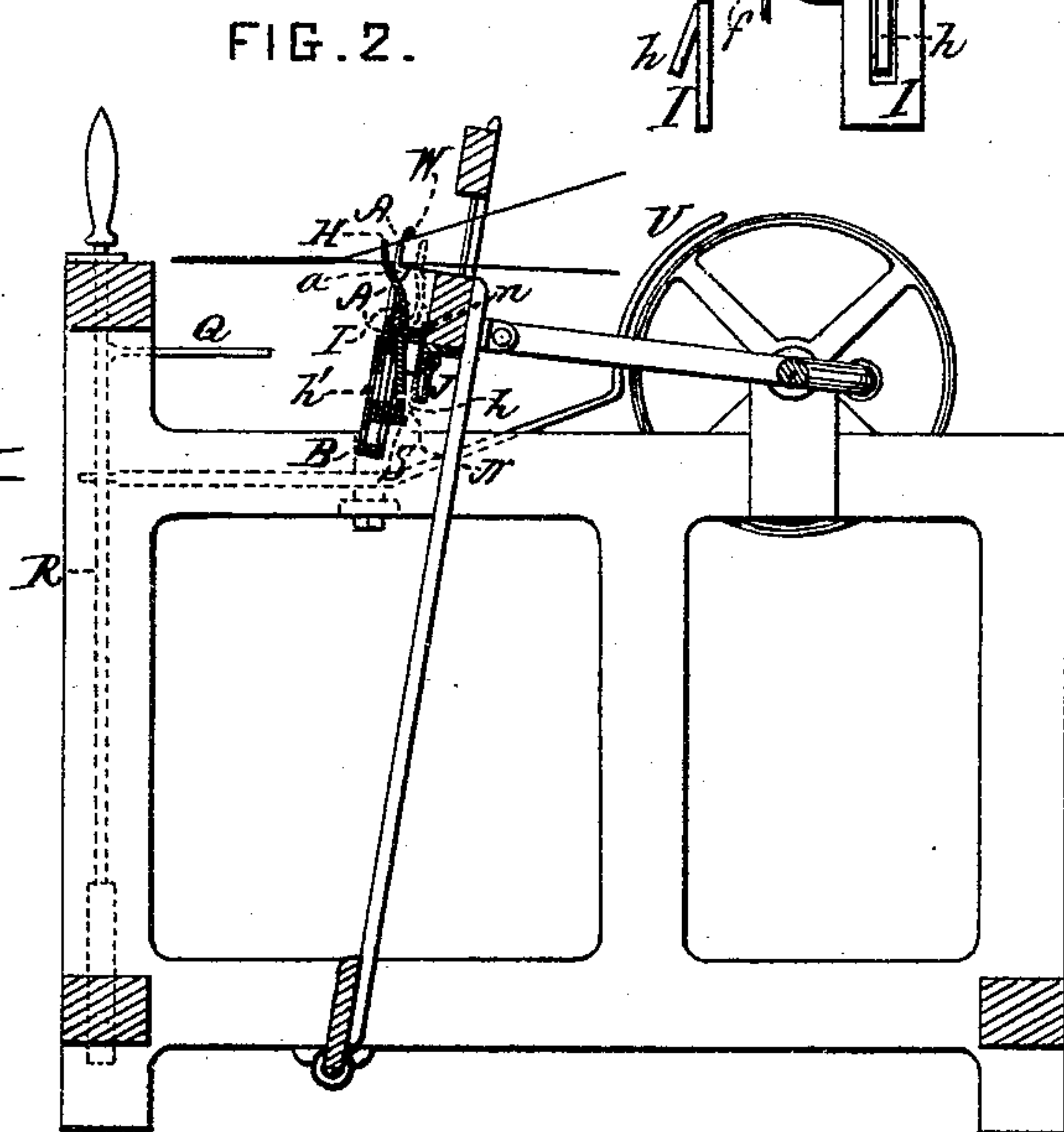
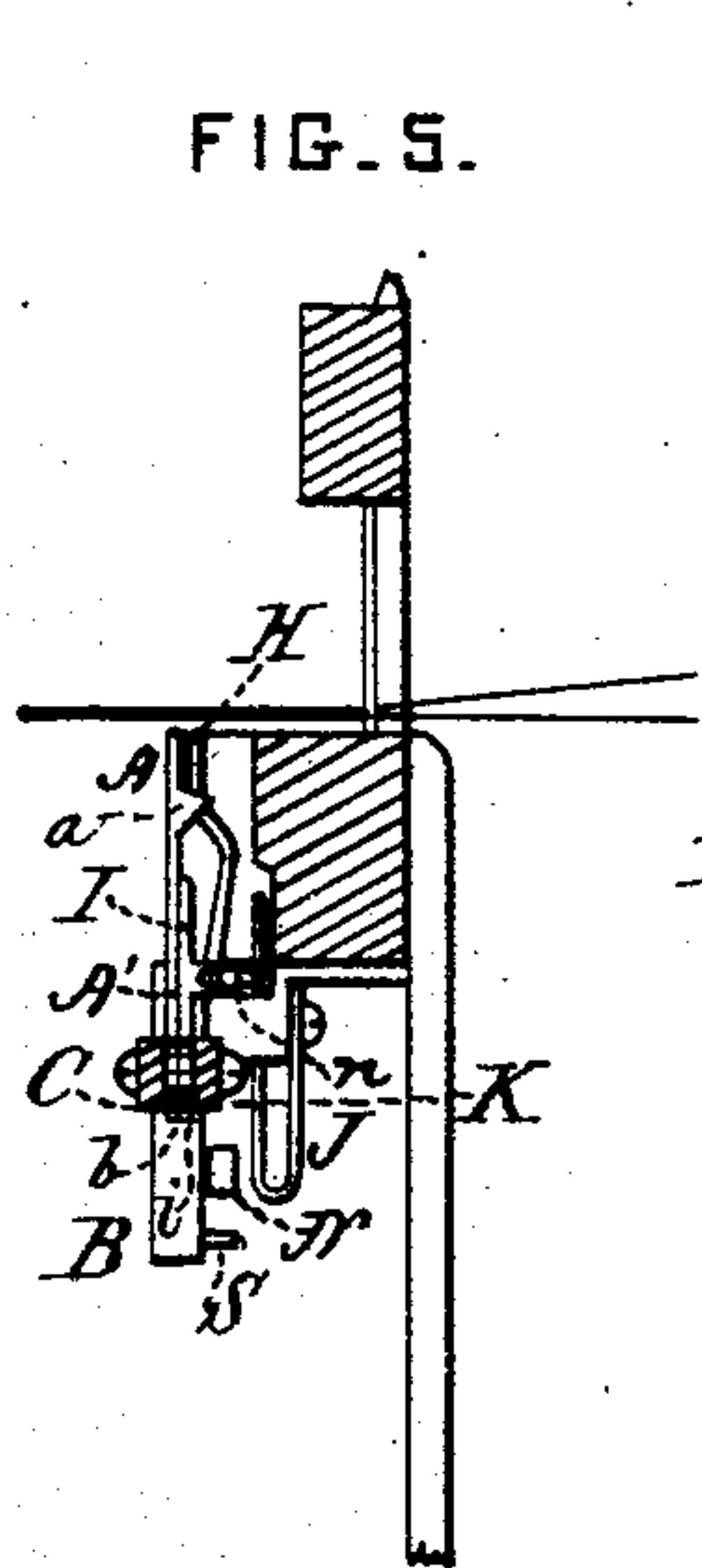
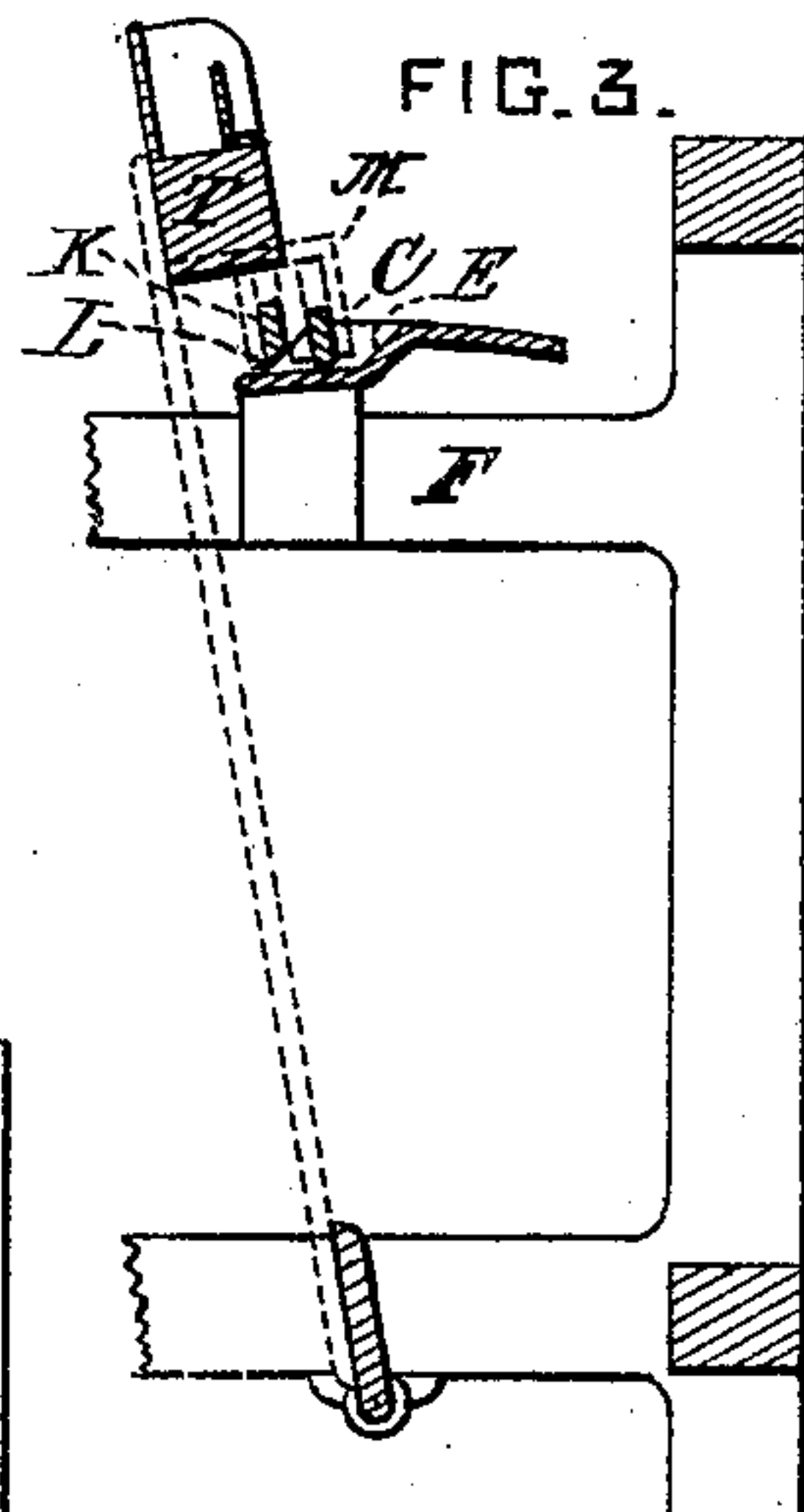
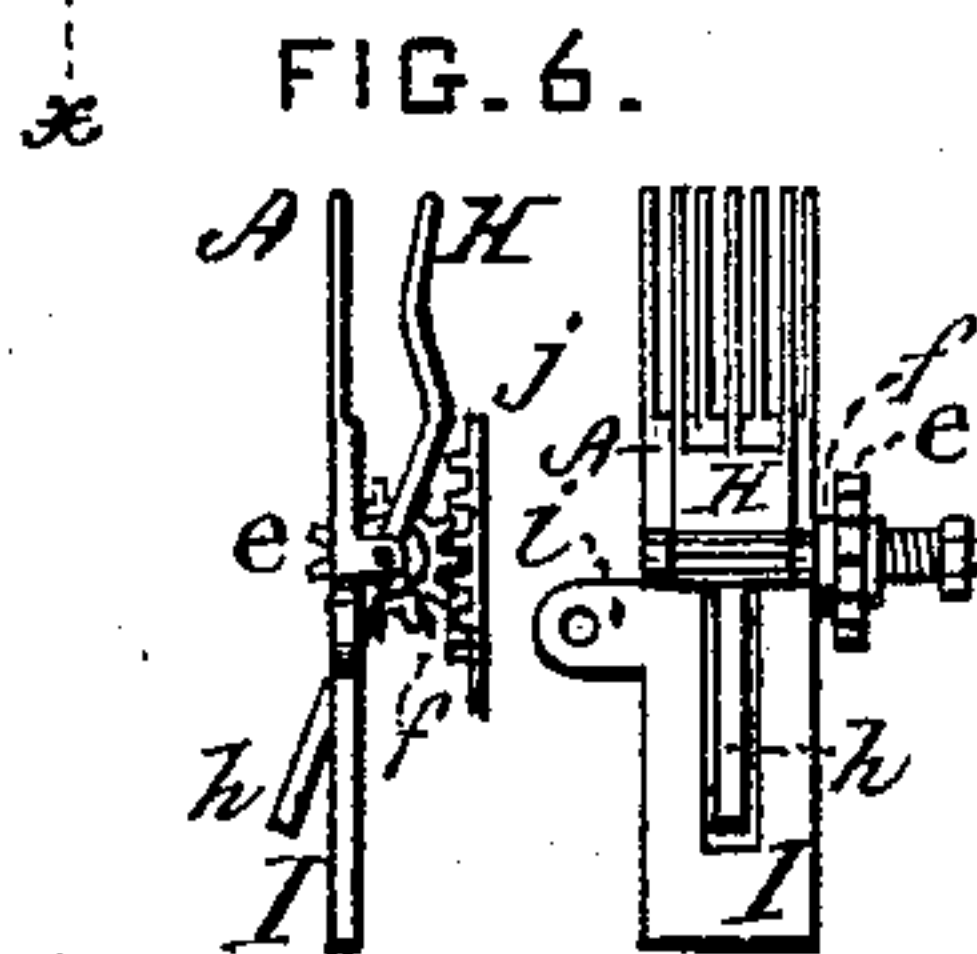
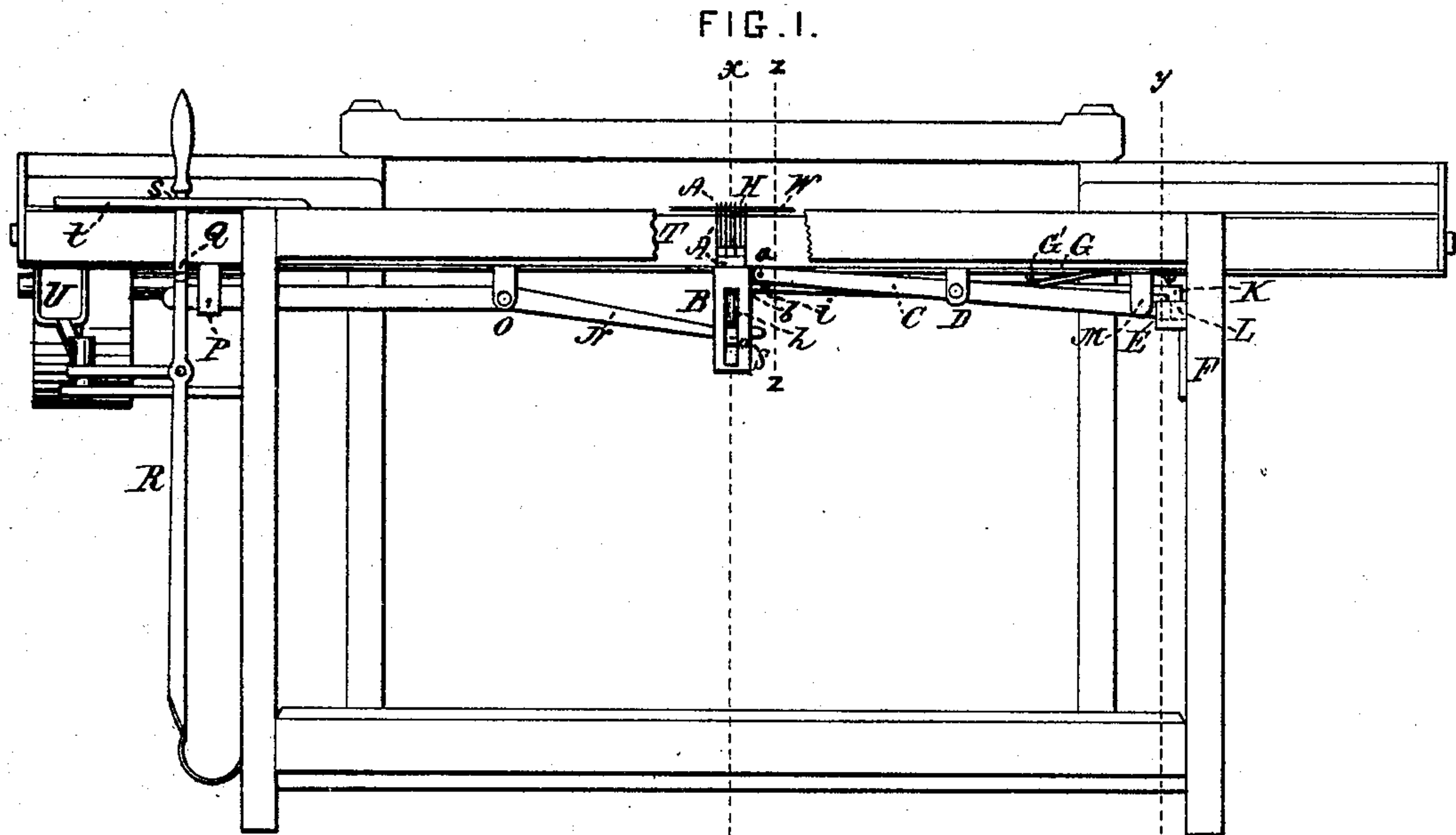


S. SCHOLFIELD.
Weft Stop-Mechanisms for Looms.

No. 147,070.

Patented Feb. 3, 1874.



WITNESSES.

George H. Rogers.
Alfred H. Abbott

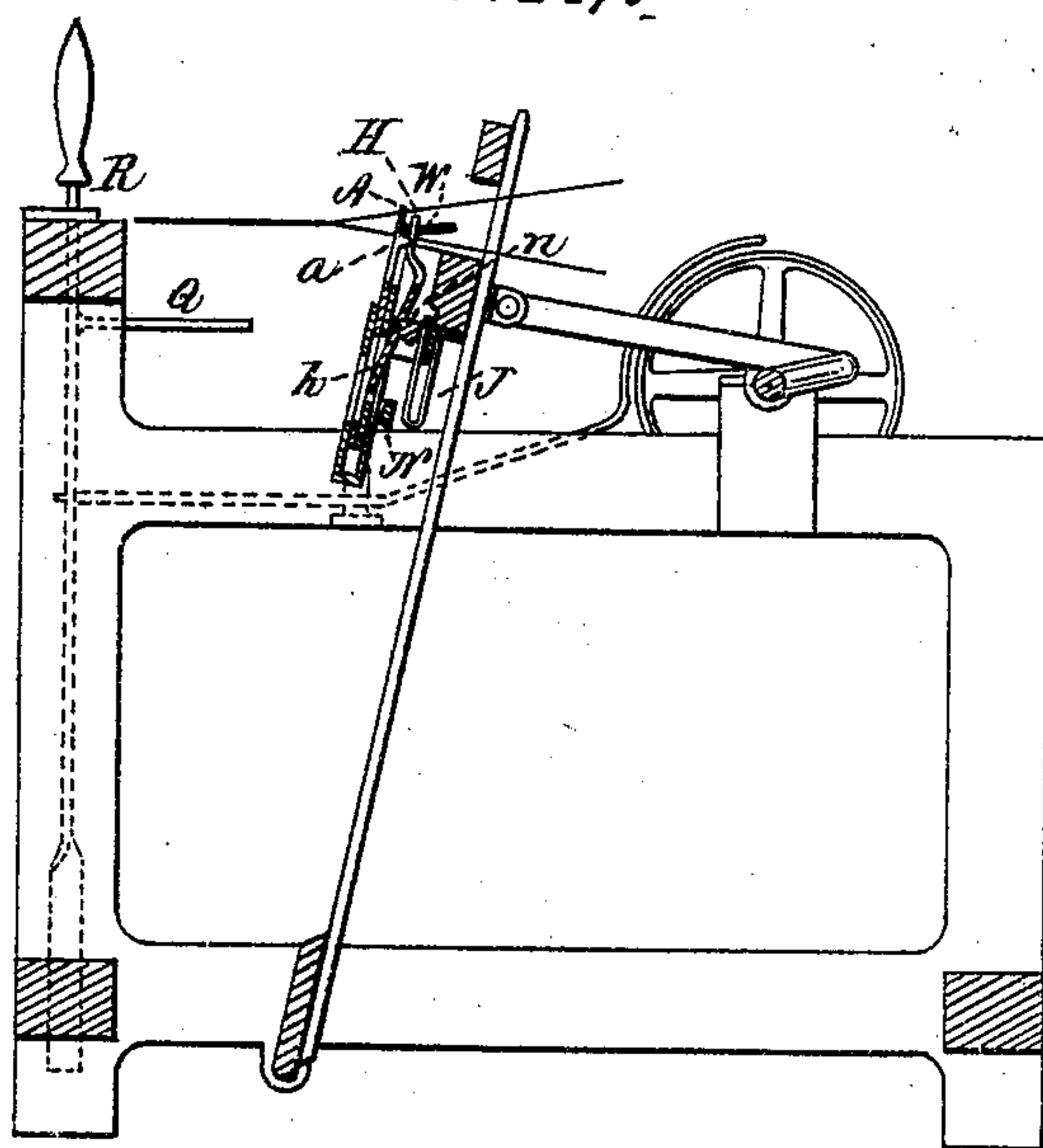
Sheratus Scholfield.

S. SCHOLFIELD.
Weft Stop-Mechanisms for Looms.

No. 147,070.

Patented Feb. 3, 1874.

FIG. 7.



WITNESSES.

Geo. H. Stader
Alba R. Abbott

Socrates Scholfield.

UNITED STATES PATENT OFFICE.

SOCRATES SCHOLFIELD, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN WEFT-STOP MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **147,070**, dated February 3, 1874; application filed January 7, 1874.

To all whom it may concern:

Be it known that I, SOCRATES SCHOLFIELD, of Providence, in the State of Rhode Island, have invented an Improved Weft-Stop Motion for Looms; and do hereby declare that the following is a full and exact description, reference being had to the accompanying drawing making a part of this specification.

The nature of my invention consists in two opposing weft-forks, placed upon the front of the lay near the center of the shuttle-race, and which, by means of suitable mechanism, are made to pass upward into the shed of the warp, in order to feel for the weft at each beat of the lay. One of the above-mentioned forks is made to move up and down in a fixed position with regard to the race, and the other is so pivoted that when a corresponding up-and-down movement is imparted to it it will partake also of a rocking movement. The tines of one of the forks are to be set opposite the spaces of the other, thus allowing them to pass and interlock whenever the weft-thread is missing; and in this case the projecting catch-arm of the pivoted fork will strike the lever, which serves to throw the shipper-handle out of its retaining-notch, and thus stop the loom; but if the weft-thread is present, then the forward position of the hinged fork will be governed by the location of the fixed fork, and upon the downward movement of the former the projecting catch-arm will not strike the before-mentioned lever, and the loom will therefore continue in operation.

Figure 1 is a front view of a portion of a loom with my improved stop-motion attached thereto. Figs. 2 and 7 are sectional views. Fig. 3 is a sectional view taken in the line *y y*. Figs. 4 and 5 are sectional views taken in the line *z z*, to illustrate the relative position of the two forks at different points in the movement of the lay. Fig. 6 shows another method of combining the two forks.

Referring to the drawing, A is the registering or controlling weft-fork, rigidly attached to the slide A', which has an up-and-down movement in the holding-guide B, attached to the lay T. The slide A is jointed to a lever, C, which is pivoted to the lay at the point D, and is operated by means of the fixed cam E, attached to the frame F. The outer end of

the lever C is pressed down upon the cam by means of a spring or otherwise. The feeling-fork H, combined with a suitable friction-arm, *n*, and catch-arm *h*, is pivoted to the slide I, which moves, by the side of the slide A', up and down in the guide B, and the fork H is caused to strike either back from the fork A or toward it by means of the friction between the short arm *n* and the spring J, according as the slide I is being moved up or down in the guide B. The slides A' and I may be slotted, as shown in Fig. 1, in order to make suitable provision for the forward-and-backward movement of the catch-arm *h*. The lever K is pivoted to the lay at the point D, and is also jointed to the slide I. The opposite end of the lever K is held against the fixed cam L by means of a spring or otherwise. The outer ends of the levers C and K are supported by the side guide M, attached to the lay. The lever N is pivoted to the lay at the point O, and its outer end is supported by the side guide P, which is also attached to the lay. Whenever the outer end of the lever N is elevated it will, during the forward movement of the lay, strike against the spur Q, which is attached to the spring shipper-handle R, and thus throw the handle out of the retaining-notch S in the guide *t*, and cause the fork of the belt-shipper V to be changed from the fast to the loose pulley. The outer end of the lever N may be held in its lower or normal position, as shown in Fig. 1, by means of friction applied to the joint O, and, when it has been forced therefrom by the action of the catch-arm *h*, it may be again brought back upon the succeeding backward movement of the lay by means of the pin S, attached to the slide I; or, if preferred, a gravitating lever may be used, so arranged as to drop back to its normal position when released for that purpose.

The operation of the machine will be as follows, viz: When the lay has moved forward to beat upon the weft, as shown in Fig. 5, the forks A and H will both have been drawn below the web by the actions of the fixed cams E and L upon the levers C and K. Then, as the lay moves back away from the web to about one-half of the full stroke, the shuttle may be picked; and when the lay arrives at the position shown in Fig. 4, which is about

three-quarters of the full stroke, the action of cam E upon the lever C will cause the fork A to be raised into the shed, as shown, in order to catch the weft W; and upon the continuance of the backward movement of the lay, the action of the cam L upon the lever K will also raise the slide I, thus immediately throwing back the fork H, by means of the resulting friction of the spring J against the arm *n*, and when the lay has reached its extreme backward position the fork H will occupy the position shown by the dotted lines in Fig. 2, and the lower end of the catch-arm *h* will be brought back, as shown. The weft, if it has been properly laid, will then be found between the two forks, and resting upon the spurs *a* of the fork A. Now, as the lay starts to beat up the weft, the action of the cam L upon the lever K will cause the slide I to move downward, which will immediately, by means of the arm *n* and friction-spring J, cause the fork H to be thrown forward against the fork A. If the weft is then found in proper position, as shown in Fig. 7, the end of the catch-arm *h* will not be thrown over far enough to let it engage with the lever N; but if the weft has been broken, or has floated upon the warp-threads, (see Fig. 2,) then the fork H, meeting with no resistance at the face of the fork A, will pass forward to the position shown in Fig. 2, and upon the continued downward movement of the slide, caused by the forward movement of the lay, the end of the catch-arm *h* will engage with the lever N, causing its outer end to strike against the spur Q and stop the loom. The forks A and H will in the meantime be brought, by the action of the cams E and L, one after the other, back under the web.

The registering-fork A may, in some cases, be attached to the slide I, to which the feeling-fork H is pivoted, as shown in Fig. 6, and in this case both forks may be operated to rise and fall by the action of a single cam. Also, instead of the arm *n* and spring J, a properly-constructed friction-joint, arranged between the gear *e* and the collar *f*, may be used, the gear being caused to turn during the movement of the slide I by means of the fixed rack

j. The feeling-fork H may be actuated to close with the fork A by means of a spring or gravity, instead of the frictional means herein described, in which case it will only be necessary to draw back the fork H by forcible means upon the instant of imparting its upward movement into the shed, and allowing the spring or weight to act freely to bring the two forks together during the downward movement; and I consider that this mode of producing the required rocking movement of the feeling-fork is an equivalent for the frictional means herein more particularly described; and in case the position of the feeling-fork is reversed, so as to cause it to rise into the shed of the warp in front of the weft, then the friction produced by the warp-threads against the tines of the fork will be sufficient, as the lay moves back and forth, to produce the rocking movement desired.

I claim as my invention—

1. A weft-feeling device arranged centrally upon the lay, to operate within the shed, and which is composed of two forks, so combined that one of the forks will serve to register or gage the position of the weft, while the other feels for the same, and combined with operating mechanism in such a manner that the forks will be made to drop from within the shed and pass under the web at every forward beat of the lay.

2. The two forks combined with the lay, and made to rise and fall independently of each other, substantially as described.

3. The vertically-reciprocating feeling-fork combined with the lay, and operated in timely relation to its up-and-down movement, substantially as and for the purpose set forth.

4. The spurs *a*, placed upon a fork, which is made to rise into the shed of the warp from below the web, for the purpose of supporting the weft under the action of the opposing fork.

SOCRATES SCHOLFIELD.

Witnesses:

GEO. H. SLADE,

ALBA R. ABBOTT.