

H. F. WHEELER & W. O. WAKEFIELD.

Stop-Mechanisms for Looms.

No. 143,552.

Patented Oct. 7, 1873.

Fig. 1.

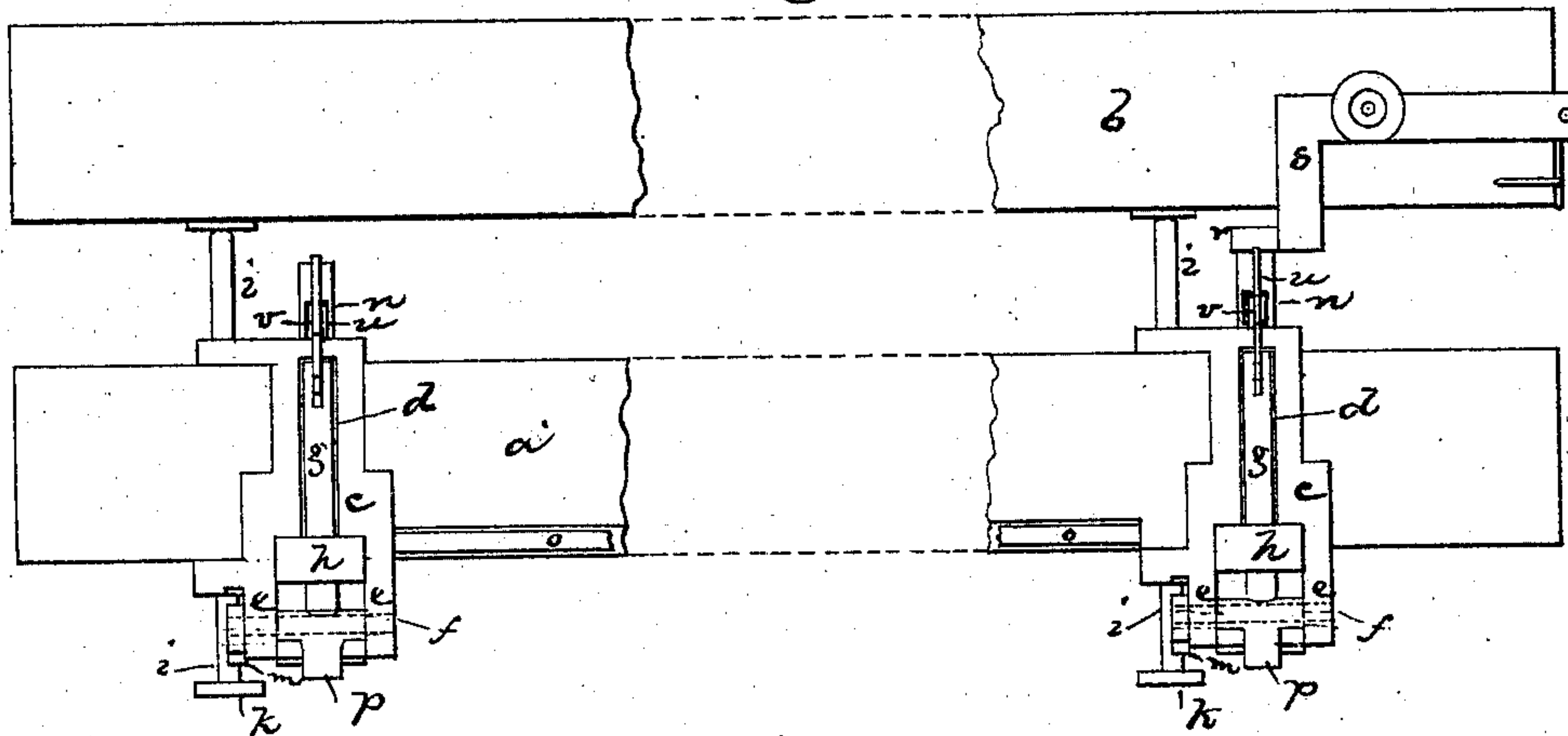


Fig. 2.

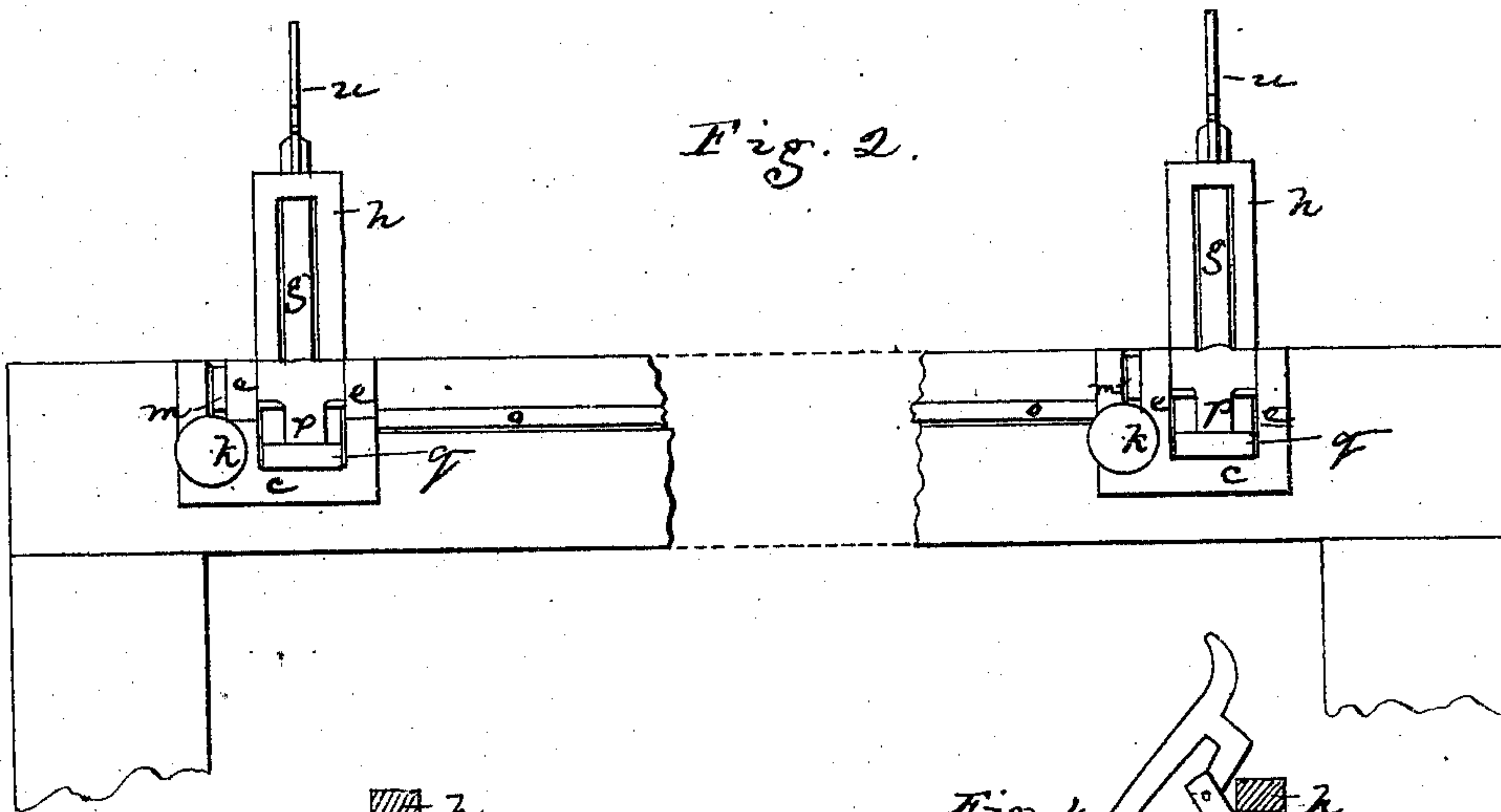


Fig. 3.

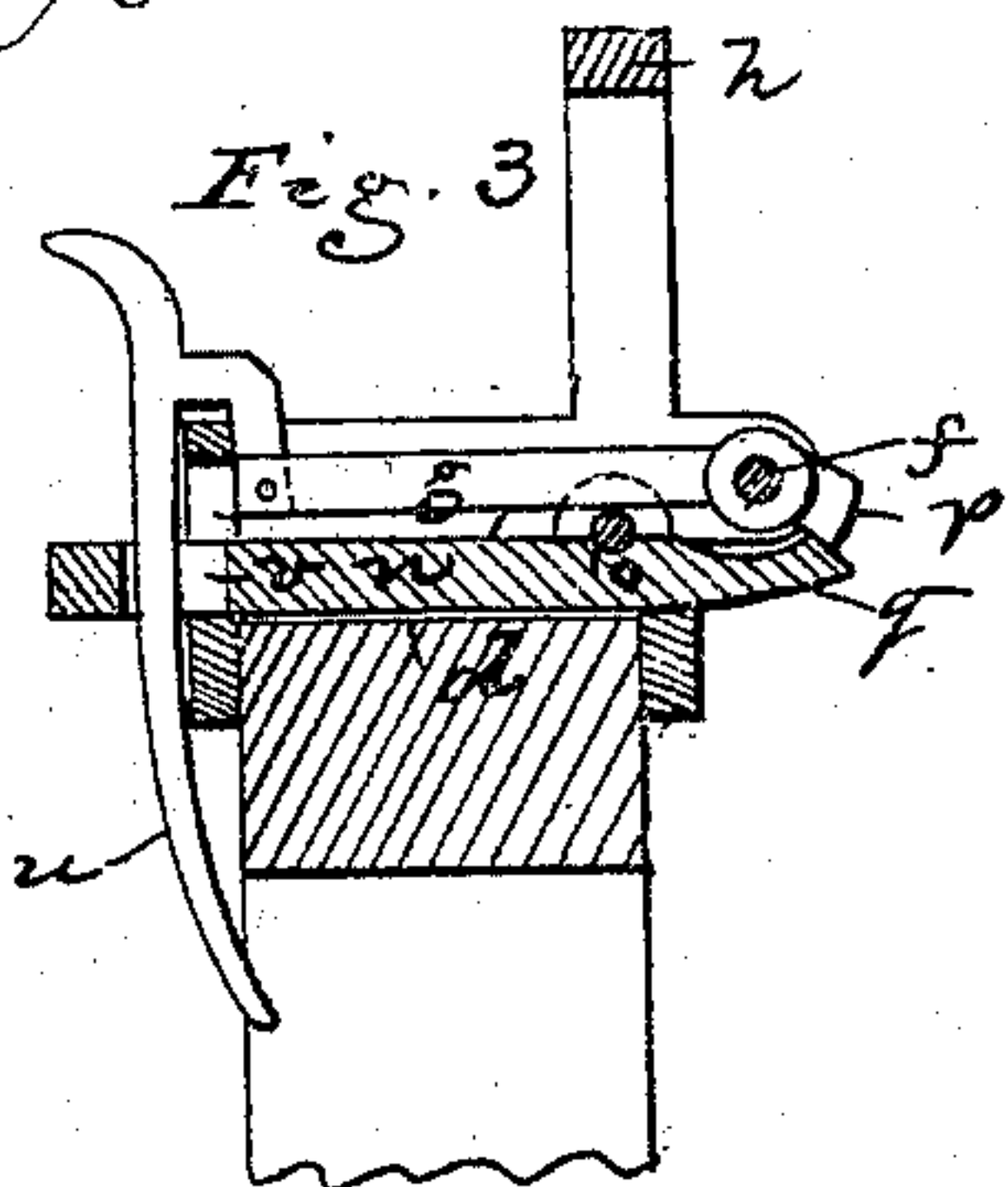
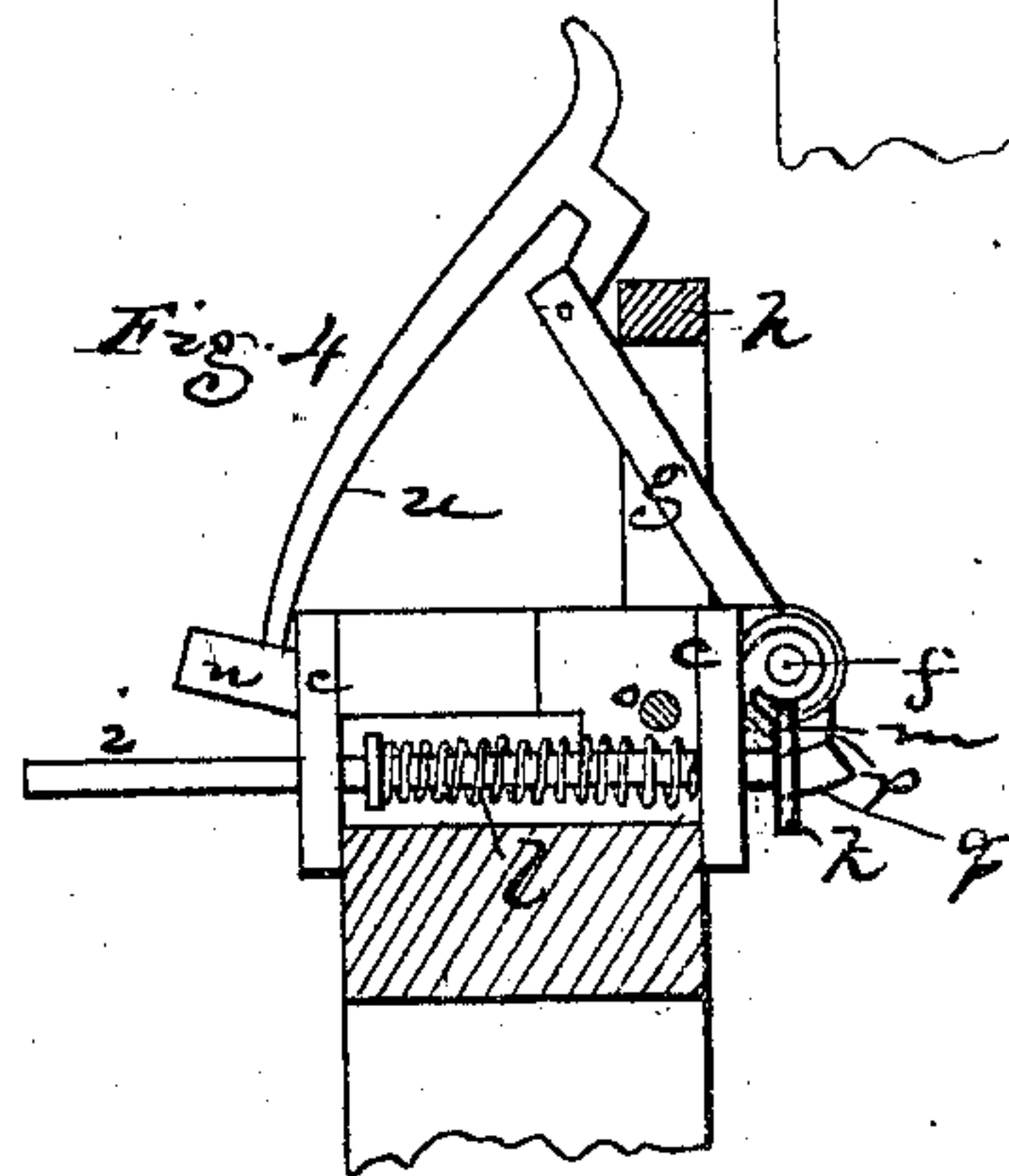


Fig. 4.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN STOP MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **143,552**, dated October 7, 1873; application filed April 5, 1873.

*To all whom it may concern:*

Be it known that we, HENRY F. WHEELER and WILLIAM O. WAKEFIELD, both of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Weft-Stop Motion for Looms; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

The invention relates to the organization of a weft-stop motion for looms, &c.

In our invention we employ at each end of the lathe an arm pivoted at the rear side of the lathe and falling by gravity into a socket extending across the top of the lathe, the pivot upon which said arm turns having at one end a projection, which, when the lathe is away from the cloth-beam, is held by the head of a pin extending through the lathe, this pin being held forward normally by the stress of a suitable spring, and its front end striking the cloth-beam when the lathe beats up, thereby releasing the arm projection from the action of the head, the arm, when its projection is so released, falling down into the socket. At the bottom of each socket is a lever, also pivoted at or near the rear side of the lathe, and having a rearwardly-extending arm, which, when the lathe is away from the cloth-beam, is pressed down by a rear projection upon the arm above, the front arm of the lever being slightly raised, and staying in such position when the lathe beats up and the arm above falls, unless at such fall of the arm the weft or pick of yarn be broken. In such normal position the end of the lever, projecting through the front of the lathe, passes over a knocking-off lever connected with the shipper-lever, and imparts no movement thereto, the weft which extends over the socket arresting the falling arm; but if the weft be broken the arm will descend into the socket and by its weight will press down the lever, and thereby bring its projected end into line with the arm of the knocking-off lever, so that it will strike said lever and cause it to actuate the shipper-lever and stop the loom. The socket-levers at opposite ends are connected by a shaft, to which

they are fixed, said shaft being the fulcrum-shaft, and the movement of either lever, when affected by the pressure of the arm above it, in consequence of the absence of the weft, is thus made to actuate the knocking-off lever, the connection of the levers, however, causing both to be held in normal position whenever the unbroken weft is over either of the sockets. In connection with each arm that falls upon the weft, I use a light swing-finger, jointed to the top of the arm and extending down in front of the lathe through a slot in the socket-lever, this finger keeping the picks already beaten up from falling back upon the lathe, and yielding to let the last pick by it as the lathe starts back.

The invention consists in the weft motion thus generally described, and in the combination therewith of the mechanism for preventing the beaten-up yarns from falling back to the lathe or shuttle-race.

The drawing represents a mechanism embodying the invention, only the cloth-beam and lathe being shown in connection with such mechanism, as the invention is directly connected with these parts alone.

Figure 1 shows the mechanism in plan. Fig. 2 is a rear view of the lathe. Fig. 3 is a section through one of the sockets. Fig. 4 is a section at the side of one of the pins.

*a* denotes the lathe, *b* the cloth-beam. In the top of the lathe is set at each end a frame-piece, *c*, having a socket, *d*, and at the rear side of this piece *c* are two ears or bearings, *e*, which support the pivots or gudgeons *f* of an arm, *g*, which arm, by gravity, falls forward into the socket *d*, but is normally held up against a stop, *h*. For holding it in this position, a pin, *i*, extends through the lathe, and having a head, *k*, is pressed forward by a spring, *l*, bringing its head against a projection, *m*, from one of the pivots *f*, the stress of the spring causing the head to turn said projection and the pivot, and hold the arm up. When the lathe beats up the two pins *i* strike the cloth-beam, the lathe moving forward against the stress of the springs, releasing the projections *m* from the pressure of the heads *k*, and the arms then fall down to the sockets *d*. The arms are left entirely free, and when they reach the sockets



they will descend into them, if there be no obstruction; but if a pick of weft be drawn over either of the sockets and under the tension of the shuttle, the arm will be arrested by the yarn. At the bottom of each socket is a lever, *n*, fixed to a shaft, *o*, at the rear of the lathe, said shaft turning in stationary bearings, and connecting the two levers. The long arm of each lever *n* is tipped up slightly by the downward pressure of a projection, *p*, (extending from the rear end of the arm *g* over the lever,) against the rear arm *q* of the lever, the projection *p* being so formed as to keep the lever in this position at all times, unless the arm *g* descends into the socket, in which case the projection *p* passes by the arm *q*, and the lever-arm *n* then falls. In its normal or raised position the front end of the lever *n*, projecting beyond the lathe, passes over an arm, *r*, of a knocking-off lever, *s*, and the lever will keep this position every time either arm *g* in descending as the lathe beats up meets the unbroken pick of weft thrown across the top of the socket *d*; but when the weft breaks, the arm *g*, over which the weft would otherwise be stretched, not being kept up by the weft, will drop into the socket, the lever *n* will be thereby released, and the arm *g* will press the lever down, the beat-up of the lathe then bringing the projecting end of the lever against the arm *r* of the knocking-off lever, thereby actuating said lever, and causing it to knock off the shipper-lever and stop the loom. The levers *n n* being connected by the shaft *o*, the descent of either lever *n* from the action of the arm *g* over it, by the absence of the weft, will cause corresponding movement of the other lever, so that the breakage of the weft prior to or at the flight of the shuttle in either direction will effect the stop of the loom. As soon as the lathe starts

back the springs *l* draw in the pin-heads *k*, the arms *g* are thrown up, and the levers *n* are thrown into or held in their normal position. To the end of each arm *g* a finger, *u*, is loosely jointed, this finger, as the arm descends, passing through a slot, *v*, in the lever *n* at the front of the lathe. When the lathe beats back these fingers rise, and the weft beyond the web, or between the web and shuttle, raises the finger and slips by it; but the loose weft cannot pass back to the lathe, as the presence of the finger prevents the finger having no yield over the lathe, being stopped by the front face of the lathe.

In the employment of the stop motion, as above described, it will be seen that when the weft is drawn over either socket, the lever-arm at the other socket cannot descend, as the connection of the two levers *n n* by the shaft *o* makes the movement of either contingent upon the movement of the other, and either projection *m* will keep the adjacent arm *p* under it from rising, if the adjacent arm *g* does not fall low enough to release the arm *m*.

A knocking-off lever may be placed at each end of the lathe; but we prefer a single lever, *s*, as described.

We claim—

1. The arms *g*, levers *n*, and pins *i*, constructed and arranged to operate substantially as shown and described.

2. In combination with the arms *g*, and pivoted thereto, the fingers *u*, operating substantially as and for the purpose set forth.

Executed this 29th day of March, A. D. 1873.

WM. O. WAKEFIELD.

H. F. WHEELER.

Witnesses:

FRANCIS GOULD,

M. W. FROTHINGHAM.