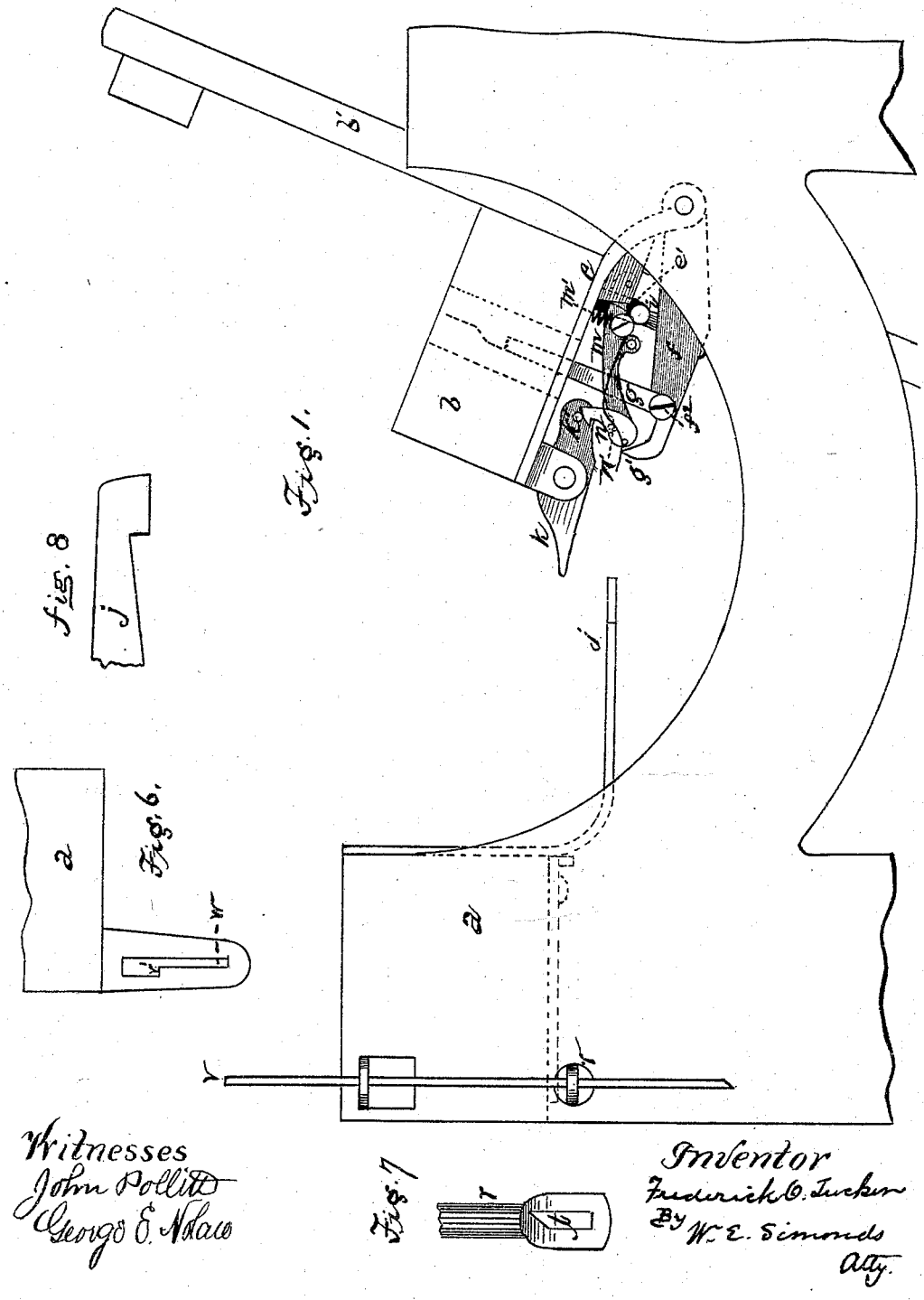
3 Sheets—Sheet I.

F. O. TUCKER.

STOP MOTIONS FOR LOOMS.

No. 182,618. Patented Sept. 26, 1876.



3 Sheets—Sheet 2.

F. O. TUCKER.

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Fig. 2.

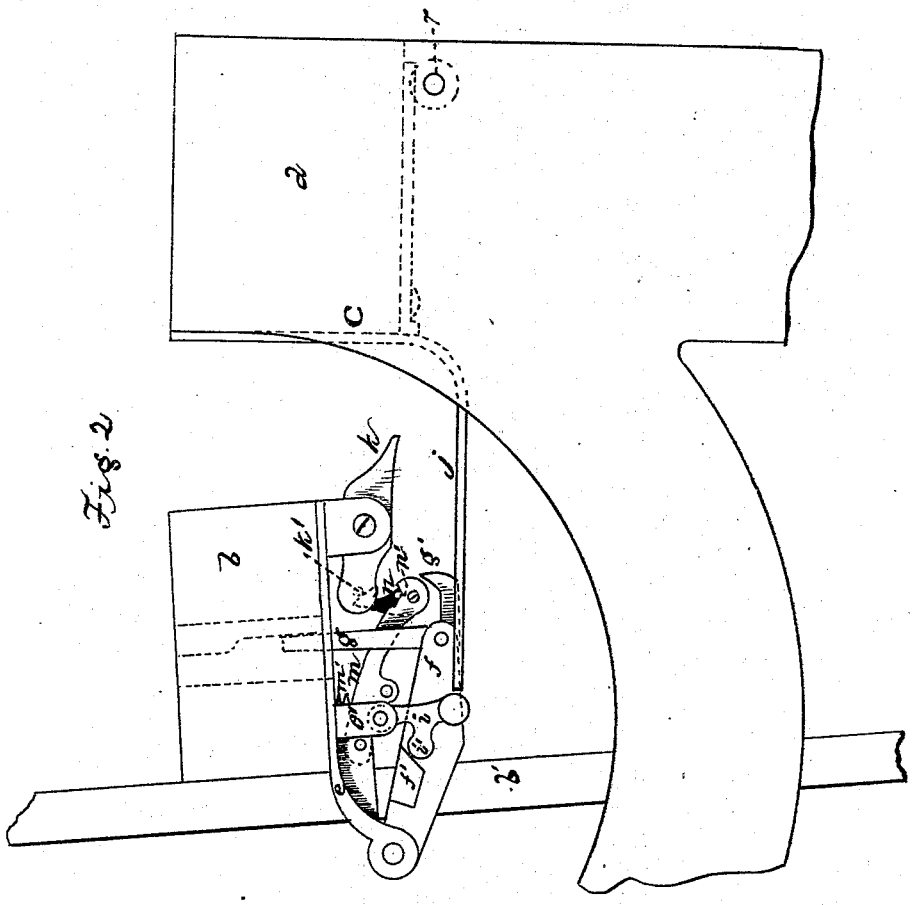
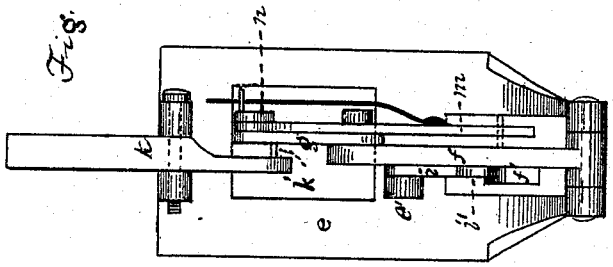


Fig. 5.



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3 Sheets—Sheet 3.

F. O. TUCKER.

STOP MOTIONS FOR LOOMS.

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Fig. 3

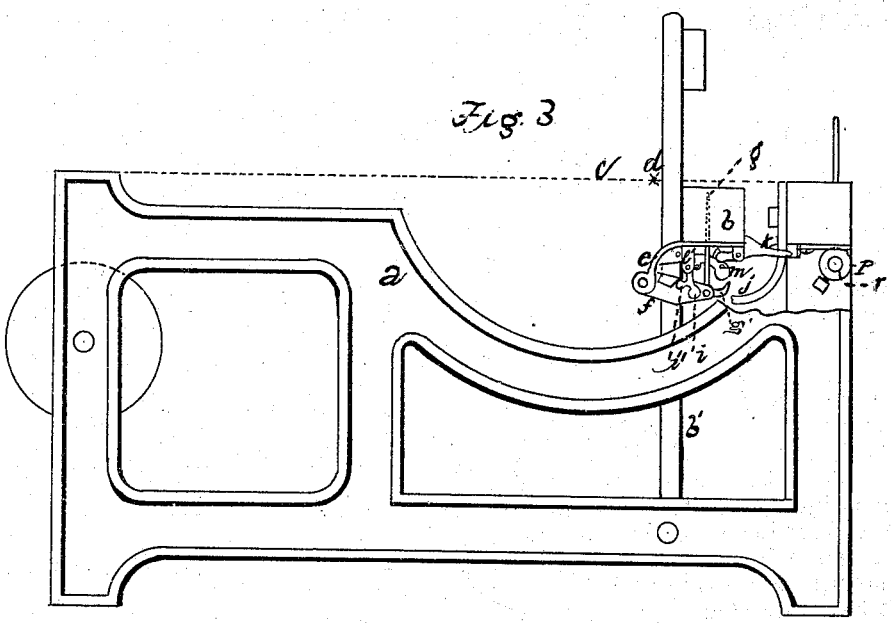
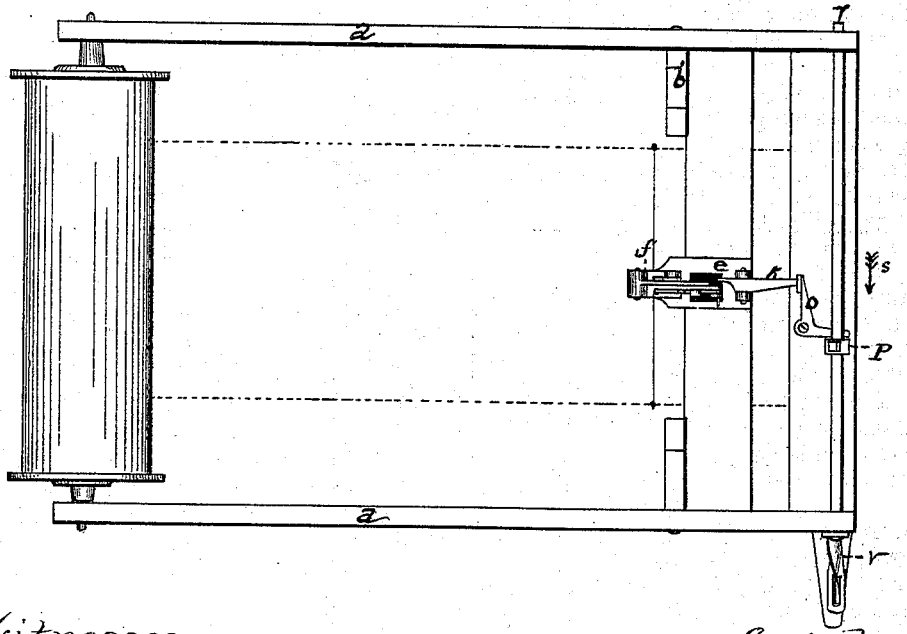


Fig. 4.



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UNITED STATES PATENT OFFICE

FREDERICK O. TUCKER, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN STOP-MOTIONS FOR LOOMS.

Specification forming part of Letters Patent No. **182,618**, dated September 26, 1876; application filed April 20, 1875.

To all whom it may concern:

Be it known that I, FREDERICK O. TUCKER, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements Pertaining to Stop-Motions for Looms, of which the following is a specification, reference being had to the accompanying drawings, where—

Figure 1 is a right-hand-side view of part of a loom bearing my improvements. The lathe is shown at the rearward extreme of its throw. Fig. 2 is a side view of most of the same parts from the left side, when the lathe has started forward, and the stop mechanism is about to mount the stationary cam. Fig. 3 is a left-side view of the loom and stop mechanism, on a diminished scale, when the lathe is near the forward end of its play, the filling-thread being broken, and the dagger is about to operate the shipping mechanism and stop the loom. Fig. 4 is a bottom view of the loom-frame and stop mechanism, when the lathe is in the same adjustment as in Fig. 3. Fig. 5 is a bottom view of the stop mechanism in the same adjustment as in Fig. 2, and on the same scale. Fig. 6 is a detail top view of an arm projecting from the right side of the loom-frame, containing a mortise in which plays the shipping-lever. Fig. 7 is a detail top view of the end of the rod which trips the shipping-lever. Fig. 8 is a detail top view of stationary cam.

The invention is designed for attachment to a loom, to stop it when the filling-thread is broken.

The letter *a* denotes the loom-frame; *b'*, the lathe-sword, pivoted to the frame at its lower end; *c*, the line of the warp, and *d* the particular thread of filling upon which the loom is supposed to be operating. *b* is the lathe, to which the greater part of my improved mechanism is attached; *e*, a metal plate, attached to bottom of lathe *b*, turning downward at the rear, and having pivoted therein the lever *f*, to which is pivoted, near the front end, the feeler *g*, the lower end of which forms the hook *g'*, and the upper end extends up through a mortise in the beam *b*. This upper end, at every forward movement of the lathe, is thrown up behind the filling-thread, and strikes it if it is unbroken and in its proper place. The lever *f* and feeler *g* have an up-and-down movement with every forward throw of the lathe given, as follows: From the lower end of the arm *e'*, which is practically a part of the plate *e*, depends and is pivoted the dog *i*, rearward from which projects the finger *i'*. When the lathe swings forward, the lower end of the dog *i* strikes, and then rides the cam *j* on the end of arm *c*, fixed upon the breast-beam, which raises the finger *i'*, which, thus rising, strikes against the under side of the lug *f'*, which is upon the side of the lever *f*, and raises the lever *f*, and with it the feeler *g*. When the dog *i* falls off the front end of the cam *j*, the lever *f* and feeler *g* fall down again by their own weight.

To the front end of the plate *e* is pivoted the dagger *k*, the front end of which overbalances the rear end, so that, not otherwise acted on, the front end will cant downward. To the plate *e* is pivoted the lever *m*, pressed downward to position shown in Fig. 2 by spring *m'*. To the front end of this lever is pivoted the catch-pawl *n*, which operates in connection with the pin *k'* on the side of the rear end of the dagger *k*, and itself is provided with the pin *n'* on its side. When the lever *f* rises, the pin f^2 on the side of lever *f* strikes the under side of the lever *m*, and raises it and the catch-pawl *n*, which allows the rear and lighter end of the dagger *k* to rise, and if it does not rise the base of the catch-pawl *n* strikes the pin *k'* and causes it to rise. This position of the parts is not shown in drawings. Now, as the lathe continues to move forward, if the filling-thread *d* is in its proper place in front of the feeler *g*, the feeler will strike the filling-thread, and, being thereby held stationary, or nearly so, while its lower end moves forward, it will be canted backward, and the hook *g'*, bearing rearward on the pin *n'*, will cant the catch-pawl *n* backward, so that when the dog *i* drops off the front end of the cam *j* the catch-pawl *n* drops free of the pin *k'*, and so leaves the dagger *k* with its front end canted downward, the several parts just named being in relatively the same positions when the lathe is in front of the cam *j* as when the lathe is in the rear thereof, where it is shown in Fig. 1, the change of positions of the parts being effected by contact with the cam *j*; but if the filling-thread *d* be broken, or not in place, then the feeler *g*

will not be canted backward as the lathe swings forward, and when the dog *i* drops off the front end of the cam *j*, the catch-pawl *n*, in falling, catches upon the pin *k'* and lifts the front end of the dagger *k* to the position shown in Figs. 3 and 4. In either case, when the lathe swings backward the dog *i* rides the stationary cam without affecting the adjacent parts.

I have shown that when the lathe swings forward, with the filling-thread *d* in proper place, the front end of the dagger *k* is canted downward, and when the lathe swings forward, with the filling-thread *d* broken, or out of place, the front end of the dagger *k* is raised to position shown in Figs. 3 and 4. When the front end of the dagger *k* is canted downward, it will not strike the bell-crank lever *o;* but when the filling-thread is broken, or out of place, and the front end of the dagger *k* is thereby raised to position shown in Figs. 3 and 4, the front end of the dagger *k* will strike upon one end of the bell-crank lever *o*, and it will, acting on the collar P, which is fast on the rod *r*, move the rod in the direction indicated by the arrow *s*, which action, by means of a cam-slot, *t*, in the flattened end of the rod *r*, through which runs the shipper-lever *v*, moves the top of the shipper-lever a trifle rearward, just enough to disengage it from the shoulder *v'*, when this lever, being a spring-lever, flies to the opposite end of the mortise *w*, and by common mechanism (not shown) ships the driving-belt off the driving-pulley of the loom and stops the loom.

I claim as my invention—

1. In combination with the stopping mechanism and lathe of a loom, the vibratory piece *m*, the pawl-hook *n*, spring *m'*, and dagger *k*, provided with pin *k'*, all substantially as described.

2. In combination with the stopping mechanism and lathe of a loom, the dagger *k*, pawl-hook *n*, adapted to be controlled by the weft-feeler, and vibratory piece *m*, all substantially as described.

3. In combination with the stopping mechanism of a loom, the hook-pawl *n*, the pivoted arm *m*, dagger *k*, lever *f*, and the feeler *g*, having hook *g'*, all carried by the lathe, and operating together, substantially as described.

F. O. TUCKER.

Witnesses:
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