

No. 41,290.

PATENTED JAN. 19, 1864.

J. G. GARRETSON.
HAND LOOM.

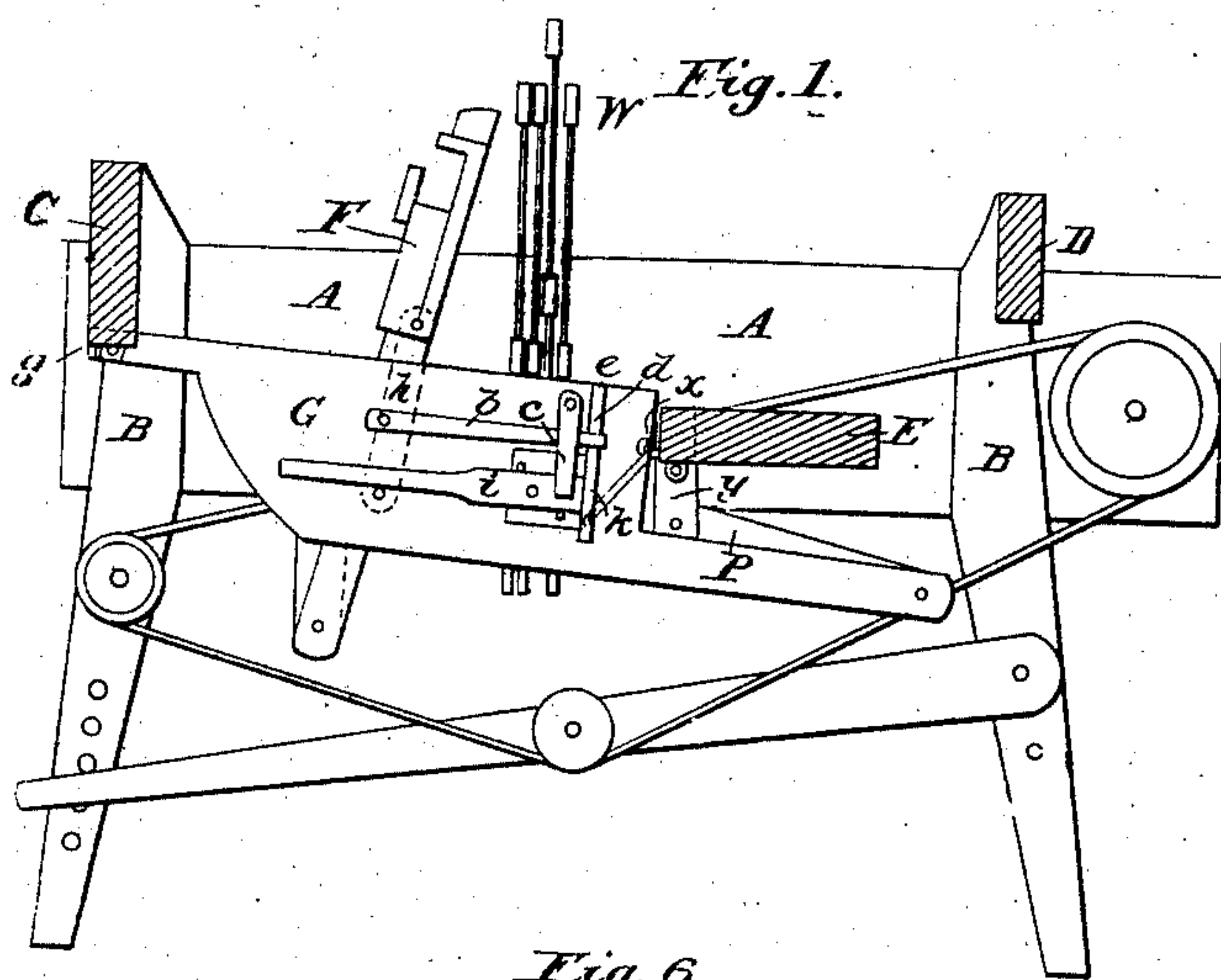


Fig. 6.

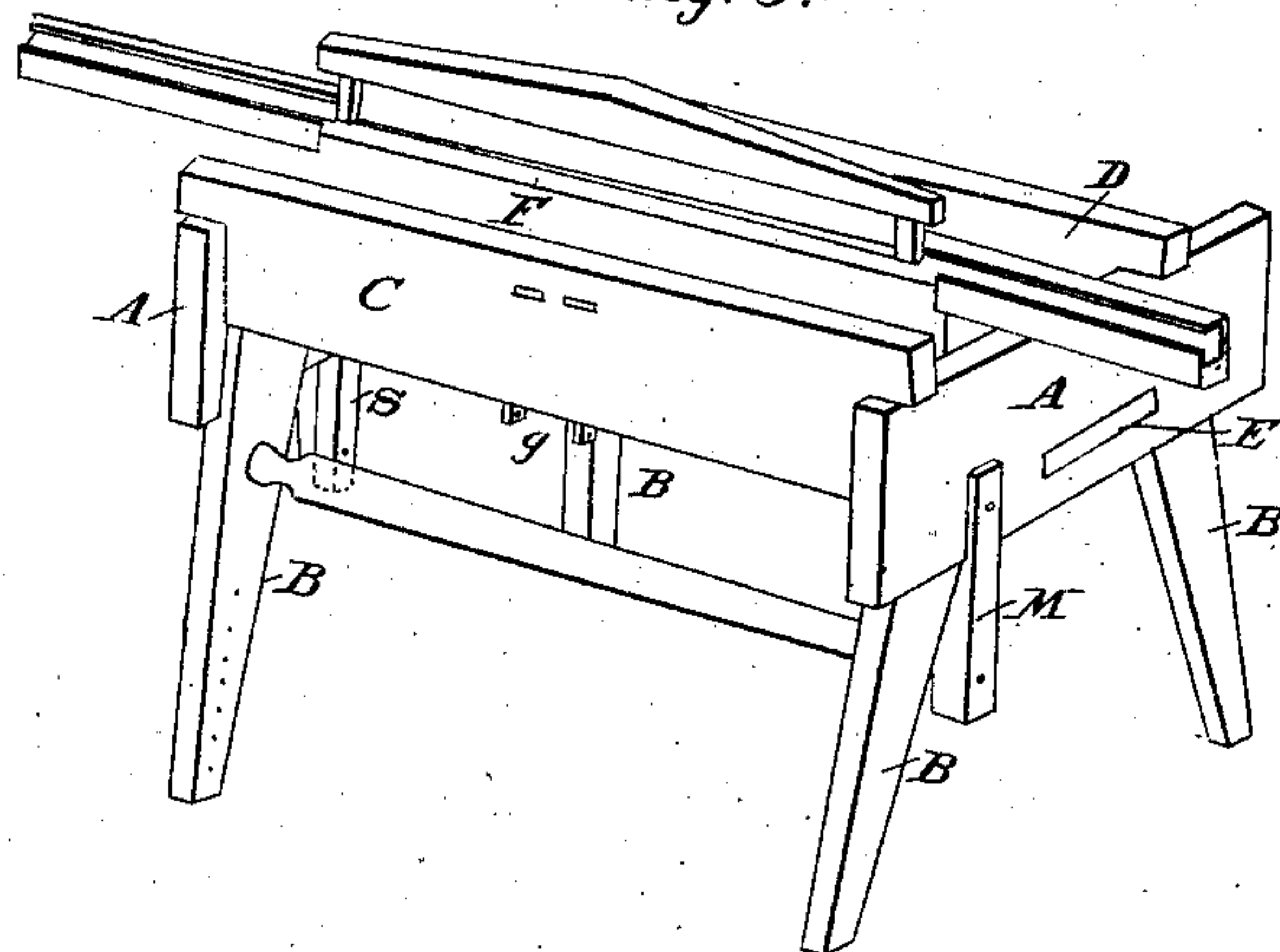


Fig. 4.

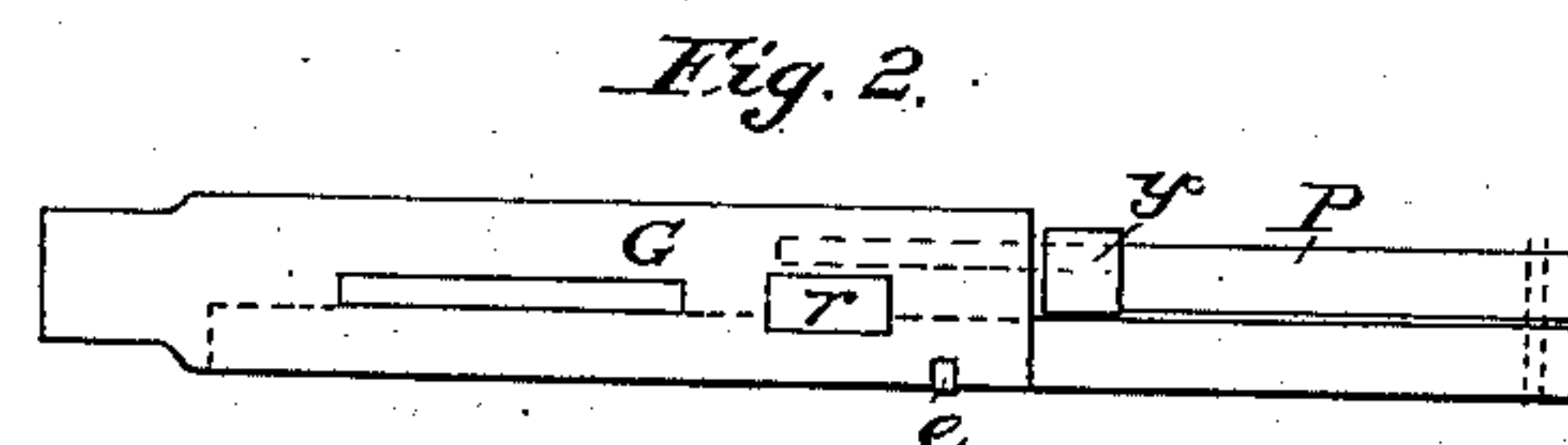
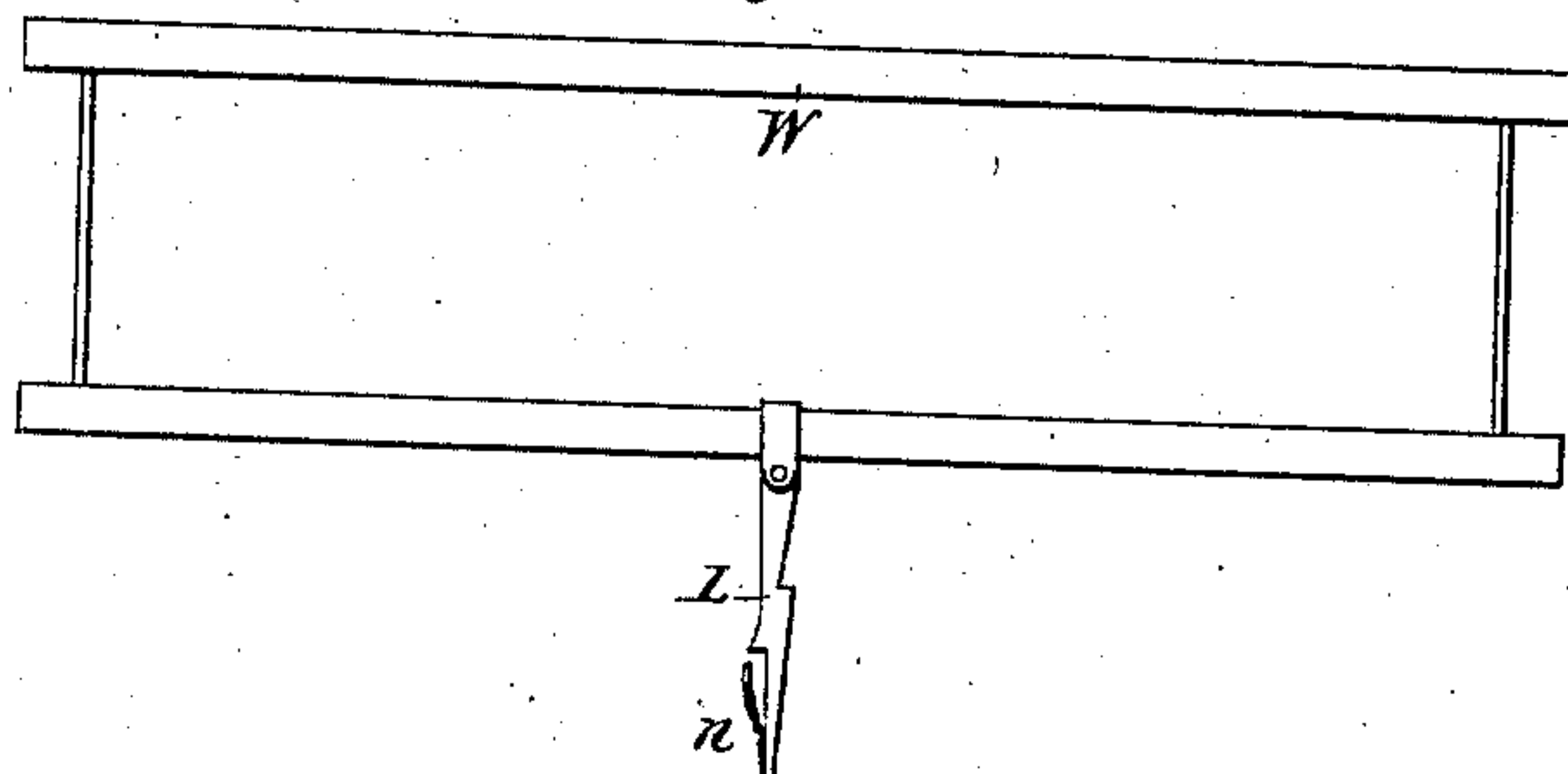


Fig. 2.

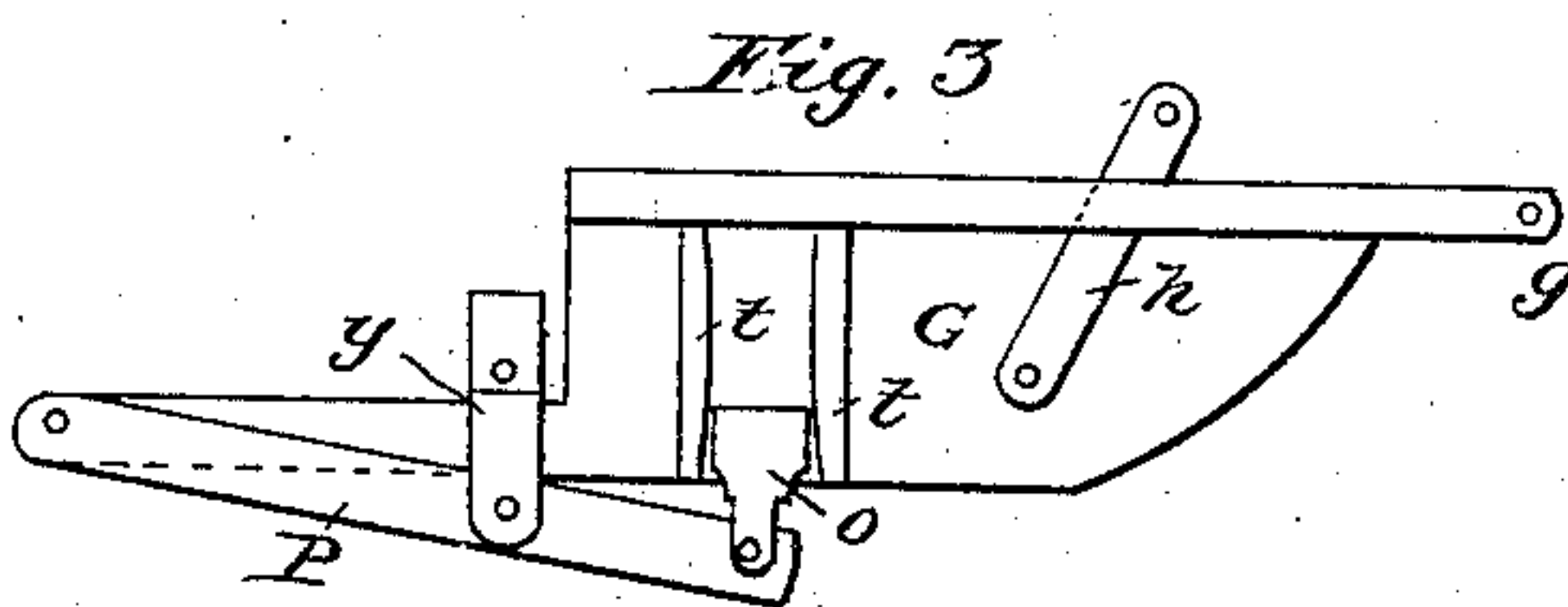


Fig. 5.



Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN G. GARRETSON, OF SALEM, IOWA.

IMPROVEMENT IN HAND-LOOMS.

Specification forming part of Letters Patent No. 41,290, dated January 19, 1864.

To all whom it may concern:

Be it known that I, JOHN G. GARRETSON, of Salem, in the county of Henry and State of Iowa, have invented a new and Improved Mode of Shedding the Web in Looms; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation showing the inside of the frame of the left side of the loom, the right side being removed the better to show the treadle and the manner of connecting it to the breast-beam and to the lay in the proper manner by a link extending from the body of the lay to the treadle; also, the manner of connecting the sword of the lay to a projection of the loom-frame. This projection is better shown at M, Fig. 6, and the sword is seen at S, Fig. 6. Fig. 2 is a top view of the treadle and arm, showing the slot in which the link plays, and the mortise *r*, in which the pendants work. Fig. 3 is the reverse side of the treadle, or left side as you face the loom, and shows the link *h*, the arm P, the pawl O, and the lug Y. Fig. 4 shows a pair of harness-shafts, (marked W,) to which is attached one of the pendants, (marked L.) Fig. 5 is the roller. Fig. 6 is a perspective view of the loom-frame adapted to my mode of shedding the web, and the better to show some parts not so clearly portrayed in Fig. 1.

The nature of my improvements in looms is a new device for the purpose of shedding the web without cords or straps, either to draw down or to elevate the harness-shafts, but by communicating a positive up-and-down motion to one treadle by means of a connecting-link from the body of the lay to the treadle, so that at the backward vibration of the lay the treadle will be sufficiently depressed, and at the forward vibration will be duly elevated for the purpose, and then communicating that motion to the harness-shafts by the use of the pendants, which are operated on and made to change the shed by means of a revolving roller connected with the treadle and made to revolve by its action, one-fourth of a revolution at each back-and-forward vibration of the lay, and which at every fourth of its revolution acts on different pendant or pendants, so as to bring them in contact with the pawl, and

by its action to elevate one or more pair of harness shafts, while those not so acted on by the roller are drawn down by the downward motion of the treadle, thus producing a shed in the web by the action of the lay in its backward and forward vibration, and avoiding the great inconvenience arising from the stretching or breaking of cords or straps, so that by a link connecting the body of the lay to one treadle the backward and forward motion of the lay will cause the treadle to vibrate up and down certainly and positively, and then, by supplying the device of the roller and pendants, above mentioned, all the necessary motions may be communicated to the harness-shafts required in weaving either plain cloth or many kinds of twilled goods.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, referring to the drawings by letter.

A A, Fig. 1, is the left side of the loom-frame, into which are framed the legs B B by halving and dovetailing, or any other suitable way, and securing by screw-bolts, if need be. The sides are framed together by a brace, (marked E, Fig. 1.) A mortise to receive one end of this brace is seen at E, Fig. 6. This brace is used as an attachment for the lug Y, which is there so pivoted as to have a slightly swinging motion back and forward. This is to adapt it to the endwise motion of the arm P, Figs. 1, 2, and 3, which is bolted to one end of the treadle G and supported by the lug Y in the middle, while the other end of the treadle is pivoted at *g* in the breast-beam in such a manner that when the lay vibrates backward the link *h*, Figs. 1 and 3, bears down on the treadle and one end of the arm, which is supported in the middle by the lug Y. The other end must rise, and on this end I fix the pawl O, Fig. 3, bolted on somewhat loosely to admit of its conforming its motions to suit the guides *t t*, Fig. 3, between which it plays. The roller, Fig. 5, is proportioned as shown in the figure, having small metal journals at each end to insure its revolving easily and certainly, for upon the certainty of the revolving of this roller depends the certainty of a different shed at each backward vibration of the lay. This roller is made to revolve on its axis by the action of two springs and a jack, one called the "mainspring," seen at *b*, Fig. 1, and

lying on the jack K, Fig. 1, near *d*. Over and on top of this is seen the feather-spring C, Fig. 1, a light spring, and used only to impart a slight rotary motion to the roller—say one-tenth of a revolution—by impinging on one corner of the square part of the roller when raised out of the groove in the treadle, into which the mainspring drives it by its action on the jack, which is seen pivoted at *e*. Fig. 2, in the treadle. A strap or cord extending from the lower end of the jack and made fast at X on the brace E, Fig. 1, if of the proper length, will tighten as the treadle goes down and draw the lower end of the jack far enough out to bring the roller entirely out of the groove, when the feather-spring rolls it about one-tenth of a revolution on its axis, or so far that upon the forward motion of the lay, when the strap loosens and the mainspring endeavors to drive the roller back into the groove by pressing on the jack. One corner of the roller comes in contact with one side of the groove and, being pressed in, completes one-fourth of a revolution.

The pendant L, Fig. 4, may be made of hard wood or metal, proportioned as seen in the figure, with one shoulder adapted to drawing the harness down and another adapted to raising them up, while to the lower end of the pendant I attach the light spring *n*, Fig. 4, the loose end of which extends nearly up to the lower shoulder of the pendant.

The operation of the invention may be as follows: At the backward vibration of the lay the link *h*, Figs. 1 and 3, extending from the lay to the treadle, which is hinged at *g* to the breast-beam C, Figs. 1 and 6, so bears down the treadle that that part to which the harness-shafts are designed to connect will be just low enough down to permit the harness, when the shafts lie on the treadle, to bring the warp down to lie smoothly on the shuttle-track, and on the forward vibration to raise the treadle just so high that at the time the filling-yarn is beat up that the warp will be on a direct line from the breast-beam C and the

mid-beam, D, Figs. 1 and 6, (its proper position when at rest,) preparatory to a change to make another shed in the web. Fig. 4 shows a pair of harness-shafts with the pendant L attached to the lower shaft by means of a strap of iron passing over and around the shaft, between the ends of which the pendant is secured by bolt or rivet so loosely as to play crosswise of the loom or in the direction of the harness shafts. The shoulders of these pendants being acted on by the descending treadle, descend with it, while any pendants pushed off from and disconnected with the treadle by the impinging of the projections or pins in the roller, must have the other shoulder come in contact with the pawl and be raised up, thus making a shed in the web for the shuttle to pass through. If two or more harness shafts are required to be raised up at the same time for any particular kind of goods to be woven, you only have to put as many pins in that side of the roller as you wish harness raised, when the roller presents that side to the pendants. So by varying the number of pins and their position in the roller, plain cloth and many kinds of twilled goods may be produced.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a loom, operated by one treadle only, the connecting the lay and treadle together by a link in such a manner that the back and forward motion of the lay will impart to the treadle a positive up and-down motion suited to the purpose of elevating and depressing the harness properly in making a shed in the web for the shuttle to pass through in weaving.

2. The combined action of the roller and pendants, as above described, for the purpose of changing the shed in such a manner as to produce either plain or twilled goods, and to be used either in hand or power looms.

JOHN G. GARRETSON,

Witnesses:

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