(No Model.) 2 Sheets—Sheet 1.

# W. W. UHLINGER.

## DOUBLE LIFT OPEN SHED DOBBY.

No. 453,680. Patented June 9, 1891.

*Fig. 1.*

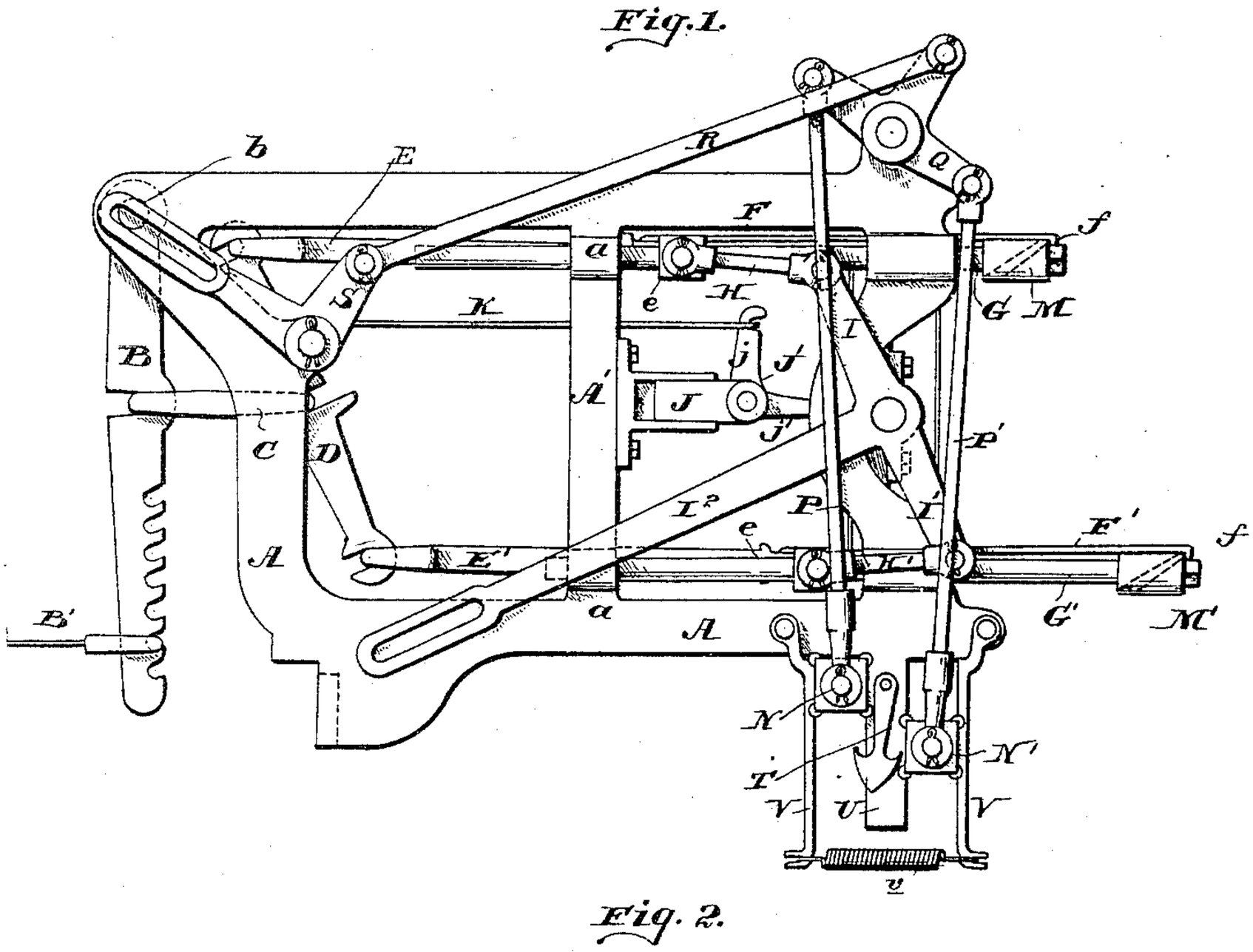
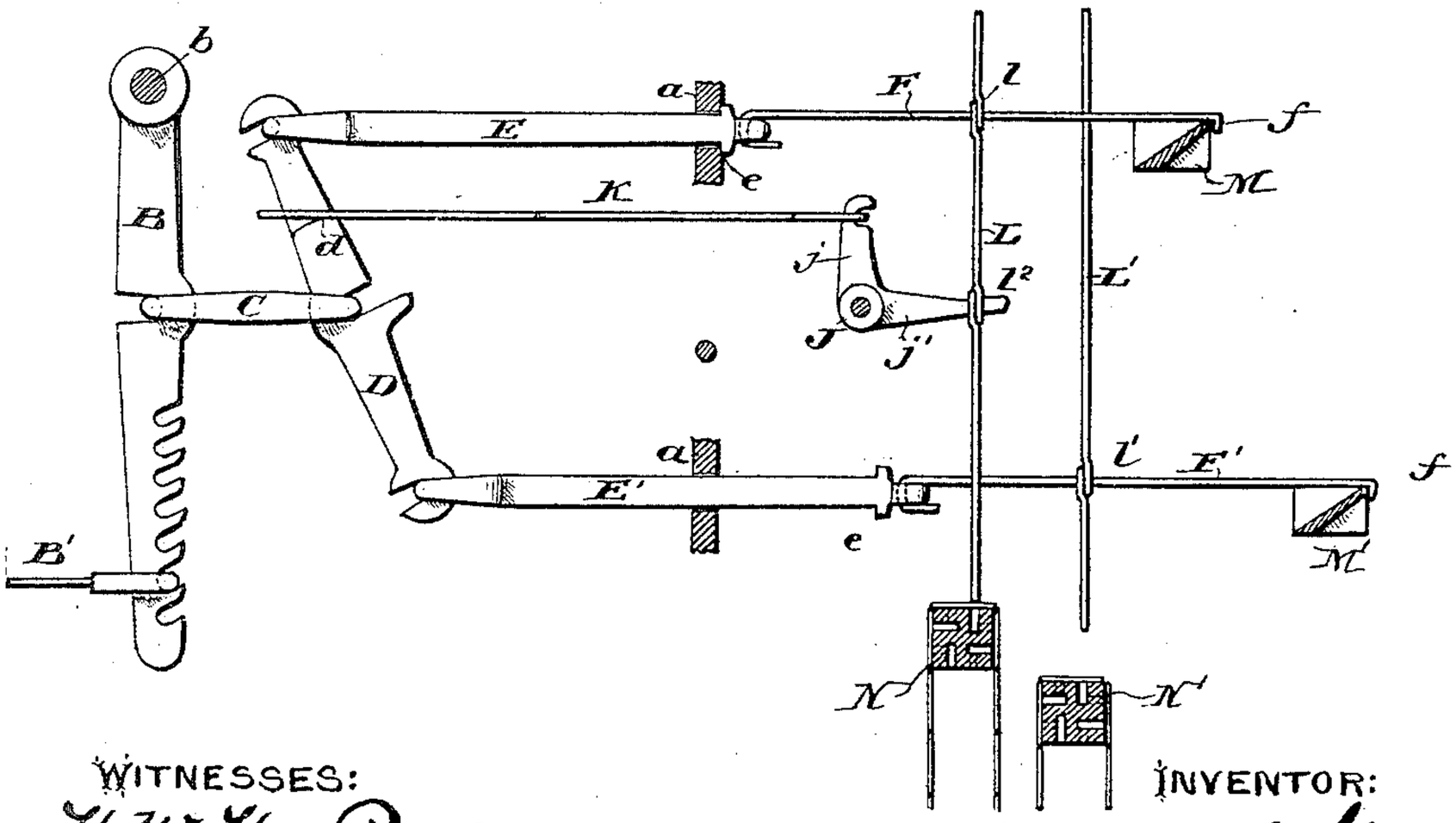



*Fig. 2.*

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(No Model.) 2 Sheets—Sheet 2.

# W. W. UHLINGER.

## DOUBLE LIFT OPEN SHED DOBBY.

No. 453,680. Patented June 9, 1891.

*Fig. 3.*

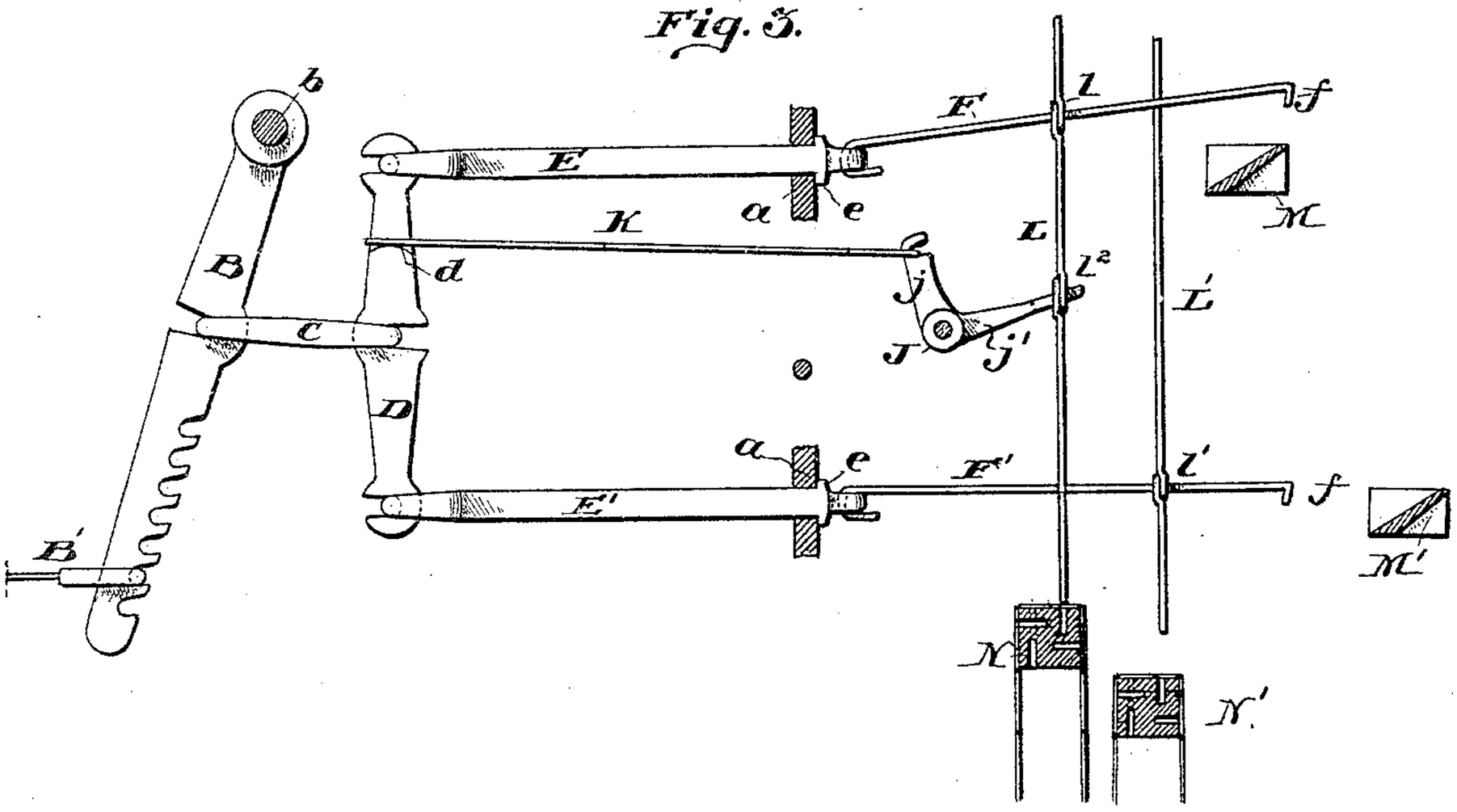
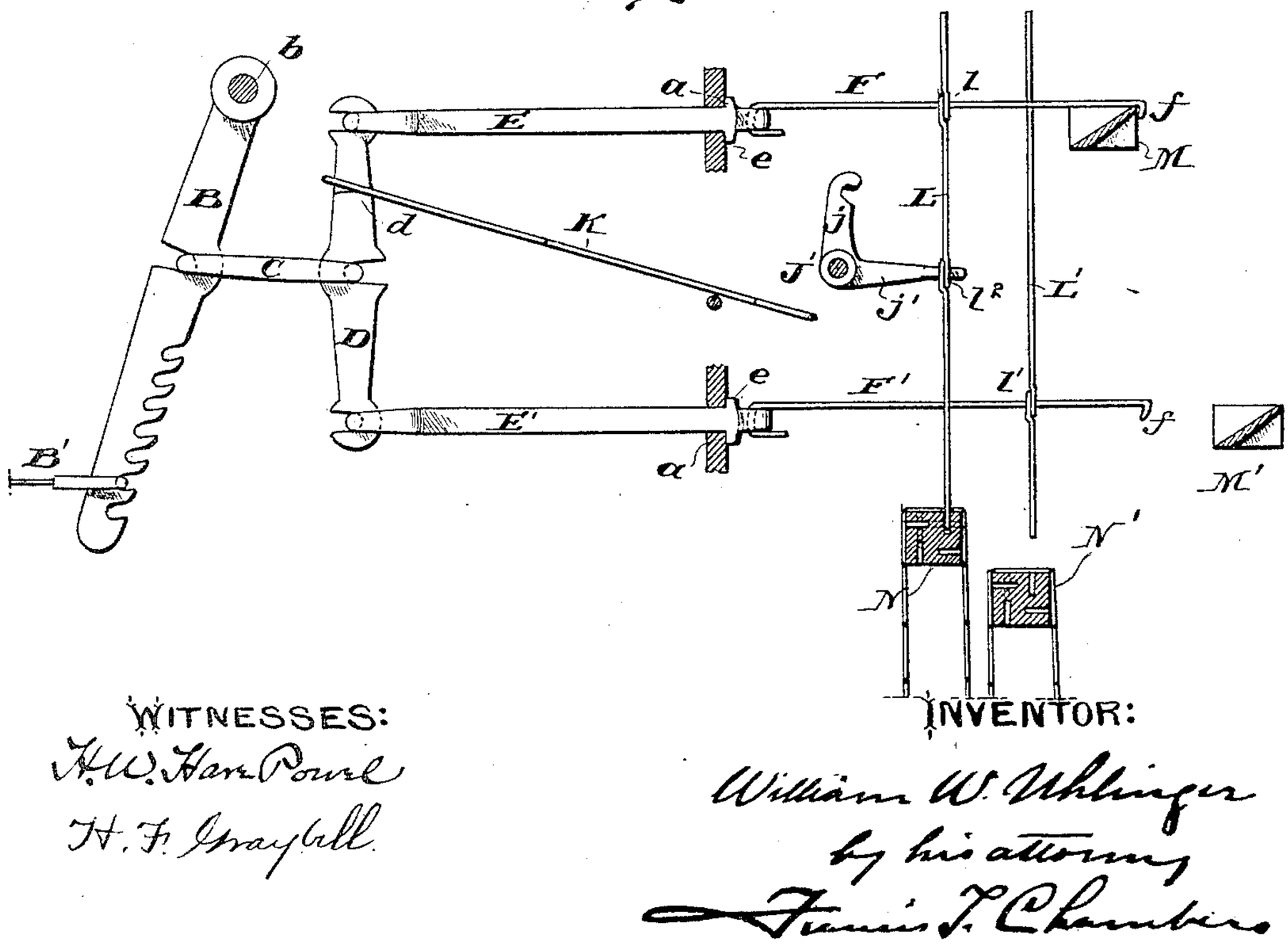



*Fig. 4.*

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# UNITED STATES PATENT OFFICE.

WILLIAM W. UHLINGER, OF PHILADELPHIA, PENNSYLVANIA.

## DOUBLE-LIFT OPEN-SHED DOBBY.

SPECIFICATION forming part of Letters Patent No. 453,680, dated June 9, 1891.

Application filed June 11, 1890. Serial No. 355,051. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. UHLINGER, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improvement in Double-Lift Open-Shed Dobbies for Operating Harness-Shafts in Looms, of which the following is a true and accurate description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the construction of Jacquard looms, and particularly to that part and kind of such machines known as "double-lift open-shed dobbies" for operating the harness of the loom.

The object of my invention is to adapt such mechanism for use with a single-card cylinder, as well as with double-card cylinders, so that they can be used as a single-lift as well as a double-lift machine.

The nature of my improvements will be best understood, as described, in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a side elevation of a double-lift dobby provided with my improvements, and Figs. 2, 3, and 4 diagrammatic elevations showing the action of my improved device.

A is the frame of the dobby, which is fastened to the loom in the usual way.

B is a lever pivoted to a rod *b*, and to which is attached the connection B′, which operates the harness. One of these levers is provided for each harness connection.

C is a link by which the lever B and pivoted lever D are connected together, as shown. To each end of the lever D bars E E′ are connected, said bars being provided with shoulders *e*, which limit their motion by coming in contact with the bars *a a*, extending from the frame. To the ends of the bars E E′ are pivoted the hooks F F′, the hooked ends *f* of which are adapted to engage the griff or knife edges M M′. These griffs are attached to the sliding frames G G′, to which are pivotally connected the links H H′, which links are attached to the ends I I′ of a double bell-crank lever $I^2$, by which motion is communicated to the griffs. On a bracket J, secured to the frame of the machine, I pivot the bell-crank lever J′, having the arms *j j′*. The arm *j* of this lever is connected with an arm of the lever D, when desired, by means of a wire link K, a projection *d* being formed on one arm of the lever D to support the end of the wire link K, as shown.

L L′ are the needles, the needle L being connected with the hook F at *l* and the needle L′ with the hook F′ at *l′*. The needle L is also connected with the arm *j* of the bell-crank lever J′, as shown.

N and N′ are the card-cylinders, which are operated in the usual way, receiving a reciprocating motion through the connecting-rods P and P′, which are actuated by the double bell-crank lever Q, which in turn receives motion through the connecting-rod R from the bell-crank lever S. The card-cylinders are guided by the stationary arm U and the pivoted arms V V, which press the cylinders against the arm U by the action of the spring *v*. The rotation of the card-cylinders is effected by the hook T.

For the most part the apparatus here shown is substantially the same in construction and operation as that illustrated in the patent to W. P. Uhlinger, No. 403,565, dated May 21, 1889, and it need not therefore be further described, except with relation to the novel features which I have introduced into it.

In the use of machines of this kind it will frequently be a matter of convenience for the manufacturer to be able to use the dobby as a single-lift machine and with a single-card cylinder in operation. I am enabled to adapt the machine for such use by means of the connection of one of the needles with the bell-crank lever J′ and with one arm of the lever D and a device for connecting the said lever-arm with the bell-crank lever. Thus in the plan shown in the drawings the needles L, which govern the position of the upper row of hooks F, are connected with the bell-crank levers J′, this connection being made when griff M is in its extreme outward position. If now it is desired to operate the machine as a single-lift machine, cards are placed in the cylinder N′ only, and the wire link K is placed over the end *j* of the lever J′ and upon one arm of the lever D, as shown, the projection *d* being provided to support it in position on said arm. Whenever the card in the cylinder N′ raises the needle L′ and lifts a hook F′ off of the griff M′, the lower end of

the lever D of course moves inward to its extreme position, and as the upper griff M moves back the upper end of the lever D also moves inward toward its extreme position, and toward the end of its said movement it presses against the end of the link K and causes the bell-crank J′ to turn, lifting the needle L and the hook F and disengaging the hook F with the griff M, so that as the griff M moves out again it leaves the hook behind it and does not effect any movement in the levers D and B during its outward movement. While the griff M moves out the griff M′ is of course moving in, and will at the end of its inward movement engage the hook F′, unless the card again raises the needle L′, which regulates the engagement of the said hook. The result of this construction, as will be at once apparent, is to convert the machine substantially into a single-lift machine instead of a double-lift machine. When it is desired to again use the machine as a double-lift machine, it is only necessary to disconnect the link K, as indicated in Fig. 4.

The different positions of the machine represented in the drawings are sufficient to illustrate the mode of action of my improved device. Thus in Fig. 1 the hook F′ is represented as engaged with the griff M′ and in its extreme outward position, while the hook F is engaged with the griff M and is represented in its extreme inward position. The same position of the parts is represented in the diagrammatic Fig. 2, and it will be seen that in the position of the lever D, effected by this arrangement of the griffs and hooks, no stress is put upon the bell-crank lever J′. In Fig. 3 the hook F′ is represented as detached from the griff M′ and the griff M is in its inward position. The lever D therefore occupies its extreme inward position, the harness controlled by it being of course dropped. As there shown, the lever D, pressing against the end of the link K and by means of the bell-crank J′ and needle L, lifts the hook F out of engagement with the griff M, so that the harness remains dropped during the outward movement of the griff M and the inward movement of the griff M′.

The advantage of the double-lift dobby is that the harness remains open or closed, as the case may be, until there is occasion to change its position, and also that the motion of the harness need be but half as fast as in an ordinary single-lift machine to effect the same results on the shed.

By my improvement I retain the advantageous feature of holding the harness and shed stationary until the time comes to change their position, and the required speed is secured when the machine is used as a single lift by a simple change of gears.

Having now described my invention, what I claim as new, and desire to protect by Letters Patent, is—

In a double-lift dobby, the combination, with the lever D, of the rods E E′, connected with the ends of said lever, the hooks F F′, pivoted on said rods, the griffs M M′, the needles L L′, connected, respectively, with hooks F and F′, the card-cylinders N N′ and means for actuating them, a bell-crank J′, connected with one of the needles, and means, as link K, for connecting said bell-crank with an arm of lever D, all substantially as specified, and so that the apparatus can be fitted to operate with a single-card cylinder.

WILLIAM W. UHLINGER.

Witnesses:
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