

(No Model.)

2 Sheets—Sheet 1.

W. P. UHLINGER.  
DOUBLE LIFT OPEN SHED DOBBY.

No. 403,565.

Patented May 21, 1889.

FIG 1

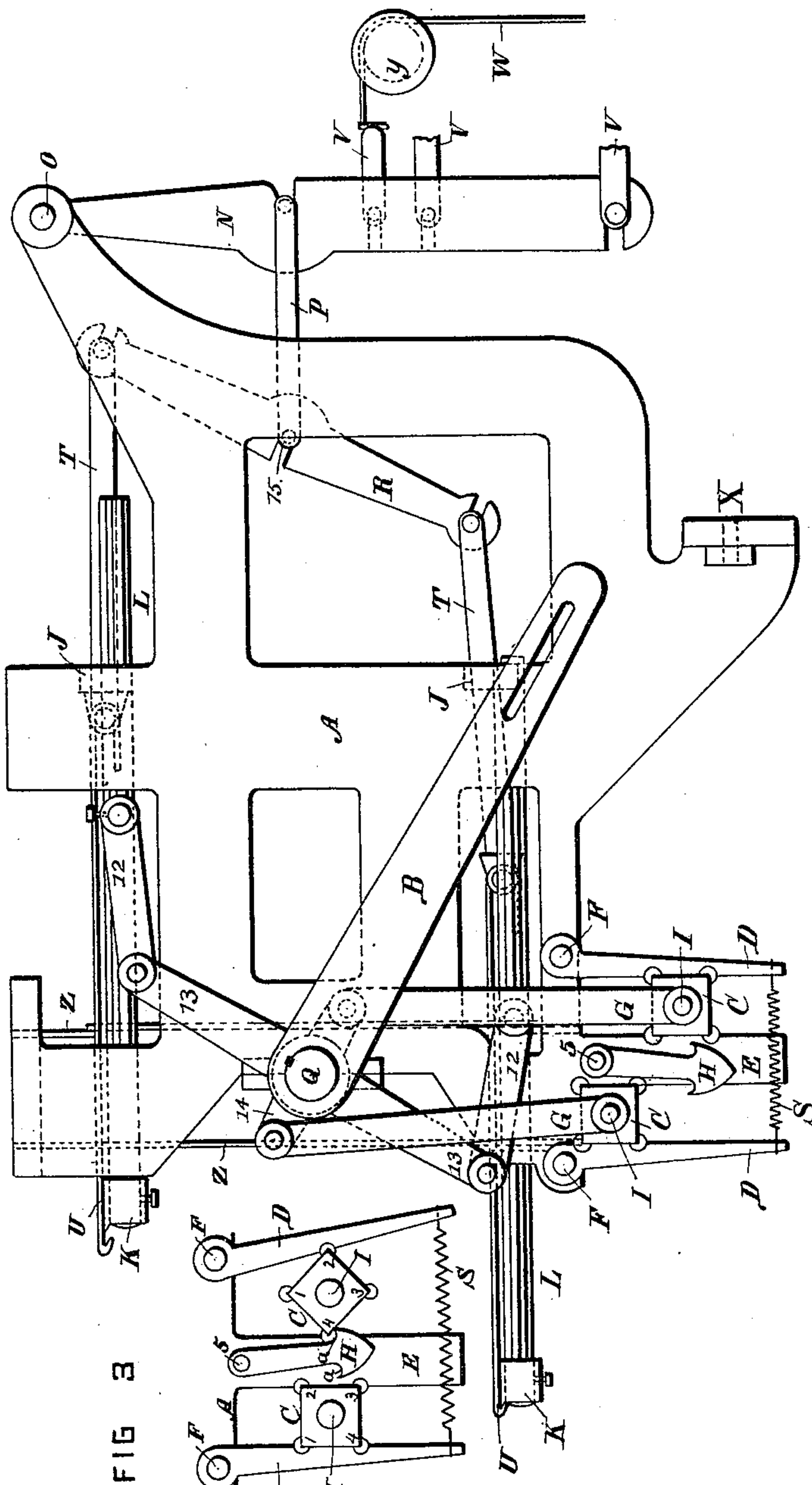


FIG 3

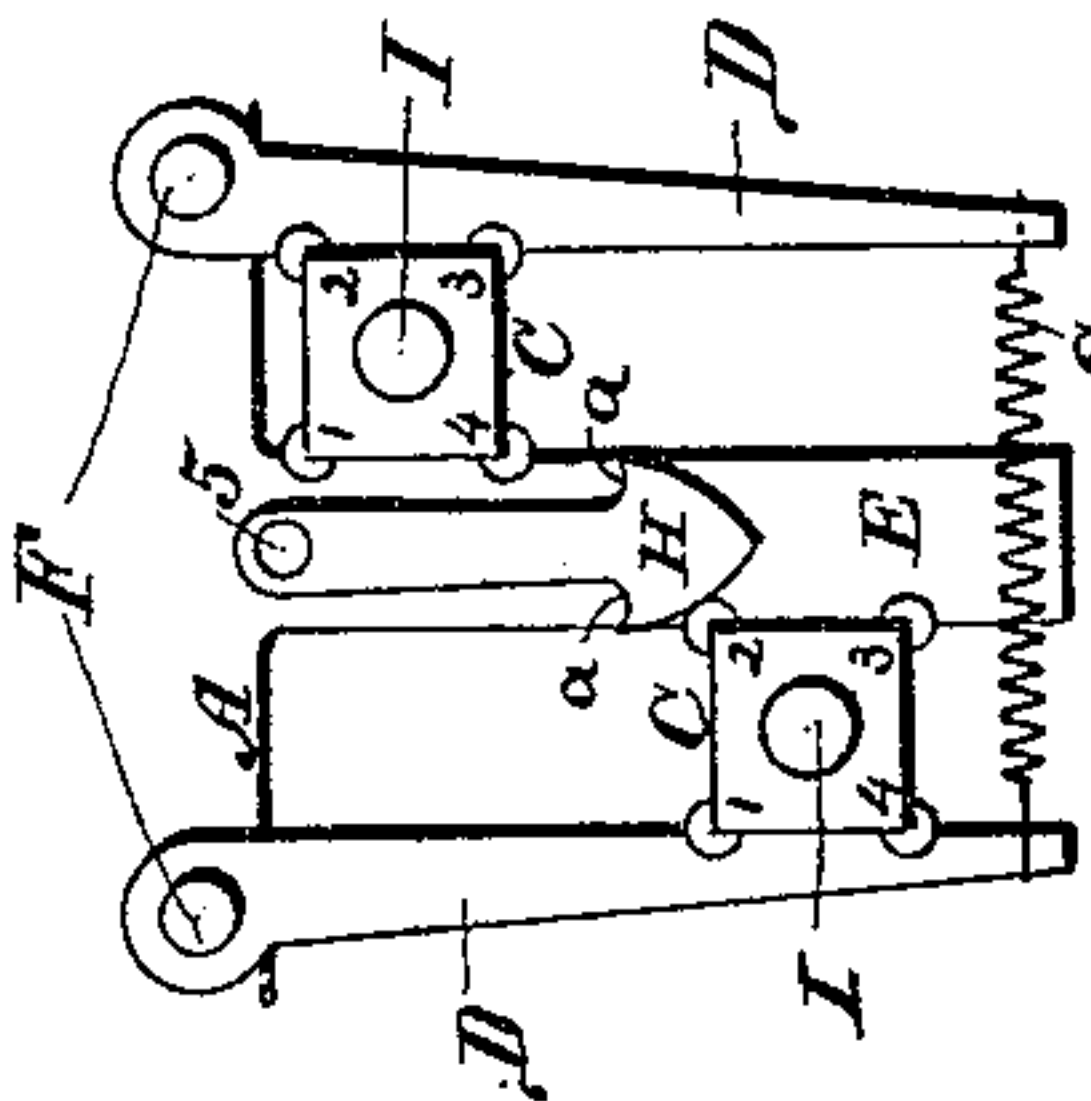
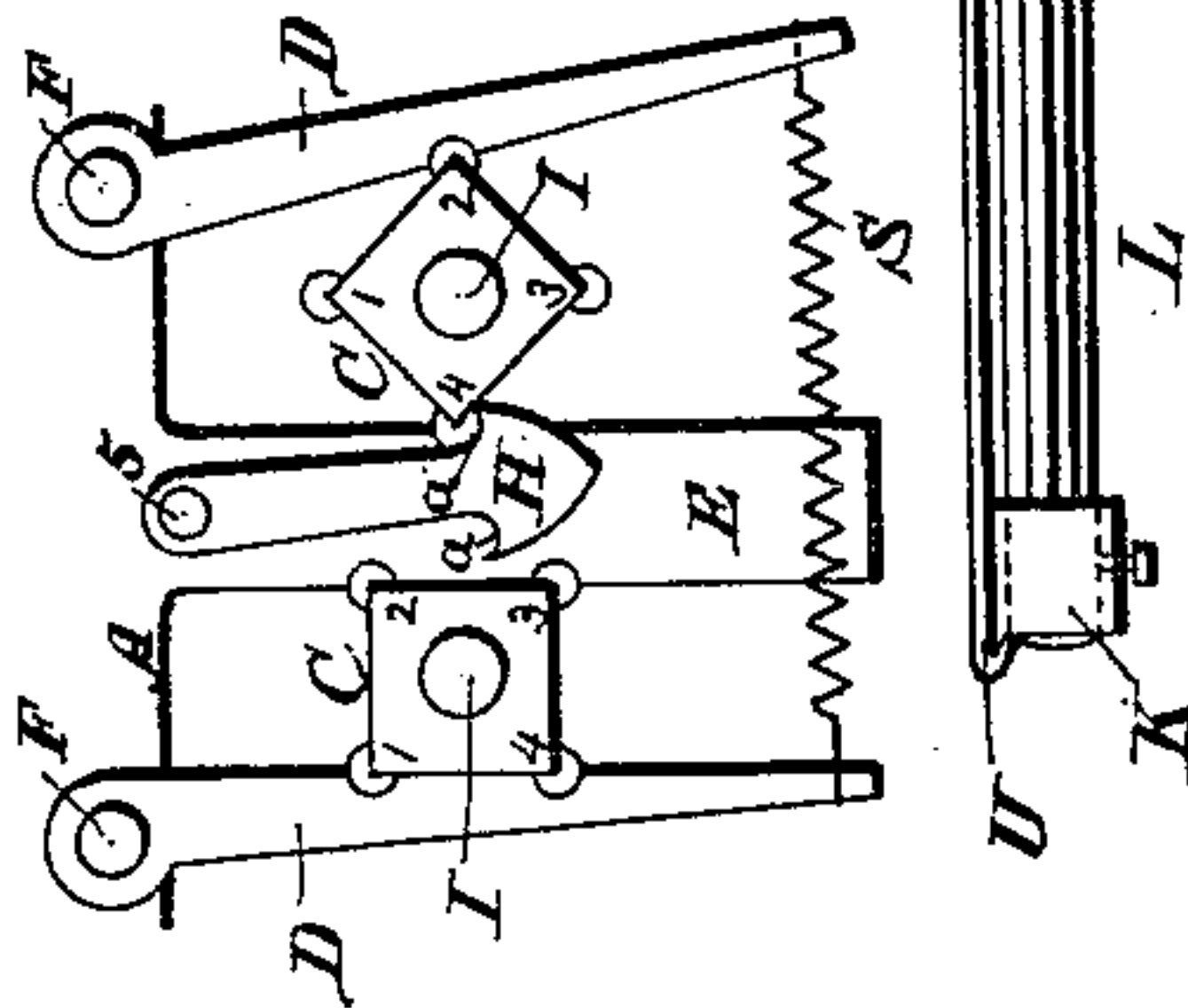


FIG 2

WITNESSES,

*Pr. B. Shepherd.*  
*Howard Quick,*

INVENTOR

*William P. Uhlinger*  
*Per G. J. Harding*  
*att'y.*

(No Model.)

2 Sheets—Sheet 2.

W. P. UHLINGER.  
DOUBLE LIFT OPEN SHED DOBBY.

No. 403,565.

Patented May 21, 1889.

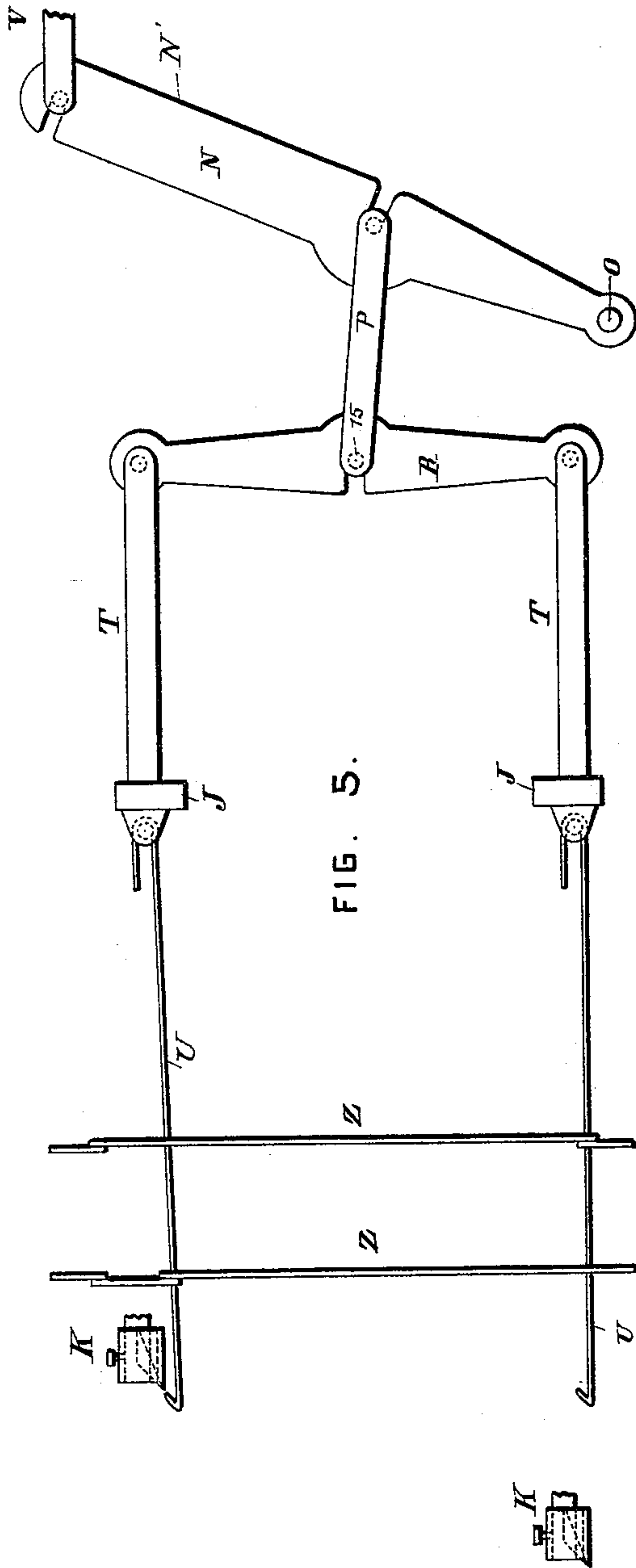


FIG. 5.

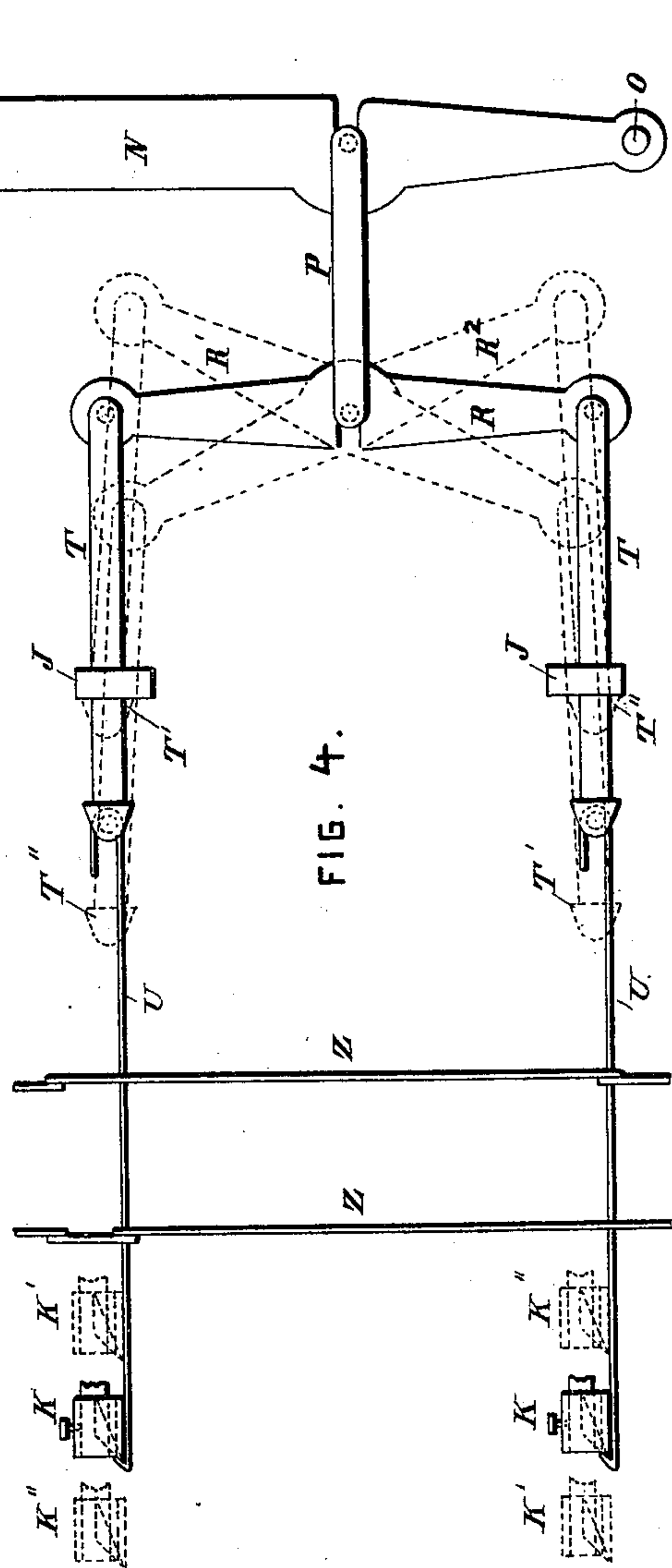


FIG. 4.

WITNESSES

*Wm. B. Shepherd.*  
*Howard Quick.*

INVENTOR

*William P. Uhlinger*  
*per G. J. Harding*  
*att'y.*



# UNITED STATES PATENT OFFICE.

WILLIAM P. UHLINGER, OF PHILADELPHIA, PENNSYLVANIA.

## DOUBLE-LIFT OPEN-SHED DOBBIES.

SPECIFICATION forming part of Letters Patent No. 403,565, dated May 21, 1889.

Application filed September 28, 1887. Serial No. 250,889. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM P. UHLINGER, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and  
5 useful improvement in double-lift open-shed dobbies for operating harness-shafts in looms, and also a novel method of operating the card cylinders when two card-cylinders are used, of which the following is a full and exact  
10 description, due reference being had to the accompanying drawings, which form a part thereof.

My invention relates in part to improvements in Jacquard machines of that class  
15 wherein the wearing action on the warps is reduced by causing the harness-shafts when raised to remain in the raised position until the pattern-cards shall call for a depression of the warps; and one object of my invention  
20 is to provide a new and improved combination of parts for operating the harness-shafts.

The object of that portion of my invention which relates to turning the two card-cylinders alternately by one hook is to simplify  
25 the mechanism formerly employed to turn the two card-cylinders where two hooks have heretofore been employed.

The action of the single hook is hereinafter fully explained.

30 In the drawings, Figure 1 is a side view of a double-lift side dobby and shows my mechanism for operating the harness-shafts. It also shows my hook, which operates both card-cylinders. Figs. 2 and 3 show different positions which my hook and the card-cylinder assume during the operation of the machine.  
35 Figs. 4 and 5 exhibit diagrammatically the mechanism for raising and lowering the harness-shafts. In Fig. 4 both hooks are on the knives and the shed is open, while in Fig. 5 both hooks are off the knives and the shed is closed or down. Fig. 4 shows the positions the mechanism assumes when a harness-shaft is up. Fig 5 shows the position the mechanism assumes when a harness-shaft is down.  
45

Similar letters denote similar parts.

A, Figs. 1, 2, and 3, represents the ordinary frame of a double-lift open-shed side dobby.

50 X, Fig. 1, is a slat, by means of which the machine is bolted to the loom.

B, Fig. 1, is a lever-arm attached to the

shaft Q. At one extremity of the lever B is a slot to which is bolted the crank-rod from the loom in the ordinary manner and as is illustrated in Patent No. 217,589, July 15, 55 1879, which gives the lever B the required motion necessary to move the knives K K, which operate the hooks, Fig. 1. The motion which the lever B gives to the shaft Q is transmitted to the knives K K by the links 60 12, which are connected to the shaft Q by the arm 13. The motion given to the shaft Q by the lever B is also transmitted to the card-cylinders C C, Fig. 1, by means of the links G G', these links being connected to the shaft 65 Q by the arms 14.

D D are two arms attached to the frame A by pins F F, and at their extremity is a spring, S, Fig. 1, which keeps the arms pressed against the card-cylinders C, and presses the latter 70 against the arm E of the frame A, thus keeping the card-cylinders in place.

U U, Fig. 1, are the ordinary hooks, which are operated by the knives K K, and Z Z, Fig. 1, are the needles commonly used to op- 75 erate the hooks, as prescribed by the pattern-cards which pass over the cylinders C.

My invention consists in the following attachments: To the hooks U U are attached links T T. Each link T has a shoulder near 80 the extremity where it is attached to one of the hooks U U. Thus when the hooks U U are off the knives the inward motion of links T will be limited on account of this shoulder meeting bar J, which consequently limits the 85 downward motion of the harness-shaft. The links T T are pivoted at opposite ends of the rocking lever R, and the center of lever R is pivotally connected to a link, P. Link P connects lever R with lever N. The lever 90 N is supported by a rod, O, which passes through the frame, as seen in Fig. 1. At one extremity of lever N is a collet, V, to which is tied the cord W, which passes over the pulley Y, and tied to a harness-shaft. Thus by 95 the motion of the lever N the harness-shaft is raised or lowered. The links T T and P act as fulcrums for the rocking lever R. These fulcrums are in a straight line, and the links T T are equidistant from the point 100 on the rocking lever R.

Fig. 4 represents the harness-shaft up—or,



in other words, the shed is open and this harness-shaft will remain up as long as the hooks U U are on the knives K K. The hooks are kept on the knives by the ordinary method of the needles Z and the cards which pass over the cylinders. The knives K receive their parallel motion from the mechanism seen in Fig. 1, and the hooks convey this motion to the links T, and so long as the hooks remain engaged the rocking lever R, Fig. 4, assumes, respectively, the positions R' and R<sup>2</sup>, and the center of the rocking lever is stationary so long as both hooks remain engaged with the knives. Consequently the link P and the lever N are stationary, and hence the harness-shaft is stationary, but up. This is the case as long as the hooks are on the knives. When they are off, as in Fig. 5, the harness, by virtue of its weight or springs attached to it, falls, since the knives do not catch the hooks, which remain down out of the way of the said knives. Consequently the hooks U, the links T, and the whole combination of links and levers move inward until the shoulders on the links T meet bars J, where it comes to rest, and the harness is down.

It is necessary that the levers connecting the hooks operating the inner threads of the harness should have a greater distance of throw, in order that all the threads may be acted upon equally, and this is accomplished by shifting the points at which connections are attached to the levers N.

The means by which the two card-cylinders are alternately turned is as follows: The hook H is pivoted to the frame of the machine at 5, and is so constructed that as the card-cylinders alternately rise they push the

hook H over to one side or the other, the under surface of the hook being smooth and offering no resistance to the movement of the cylinder; but on the downward movement of the card-cylinder the projections *a* of the hook H catch on the circular projections marked 1, 2, 3, and 4, causing the cylinder to turn on its axis so as to present its next succeeding face to the needles, as shown in Fig. 3. On the return of the right-hand cylinder it pushes the hook H over to the left, so that the left-hand cylinder is likewise turned in its descent and in the same manner. The card-cylinders are thus alternately turned by a hook common to both.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is as follows:

1. In combination, hooks, means, substantially as described, to operate said hooks, lever R, links connecting said hooks and lever R, harness-actuating lever N, and link P, connecting said lever R and lever N.

2. In combination, the card-cylinders of a Jacquard machine, the arms D D, attached to the frame, and the spring S, connecting said arms, substantially as and for the purpose described.

3. In combination, the card-cylinders of a Jacquard machine, the arms D D, attached to the frame, and the spring S, connecting said arms and hook H, all constructed and operating substantially as and for the purpose described.

WILLIAM P. UHLINGER.

Witnesses:

BUTLER KENNER HARDING,  
HOWARD QUICK.