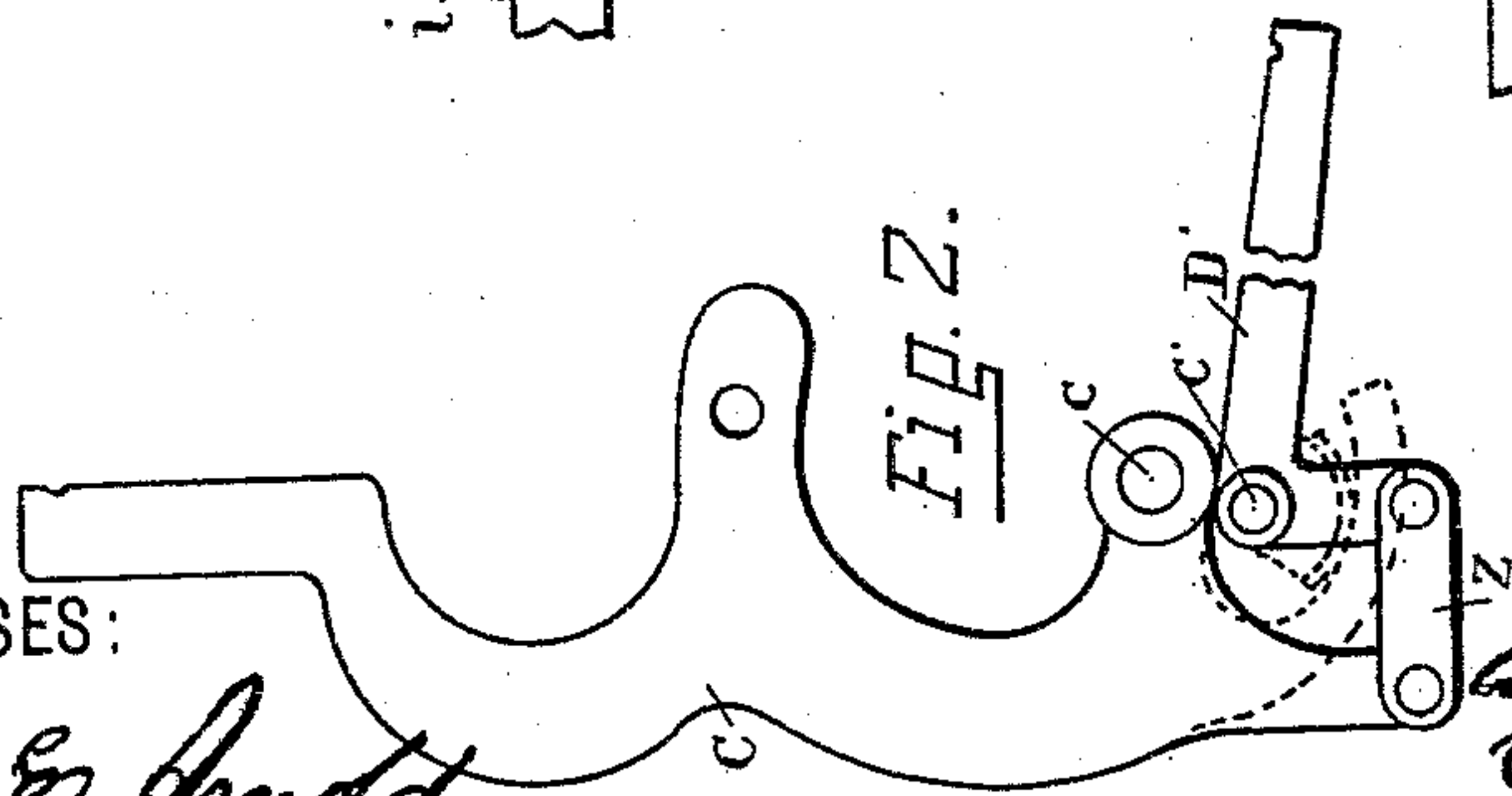
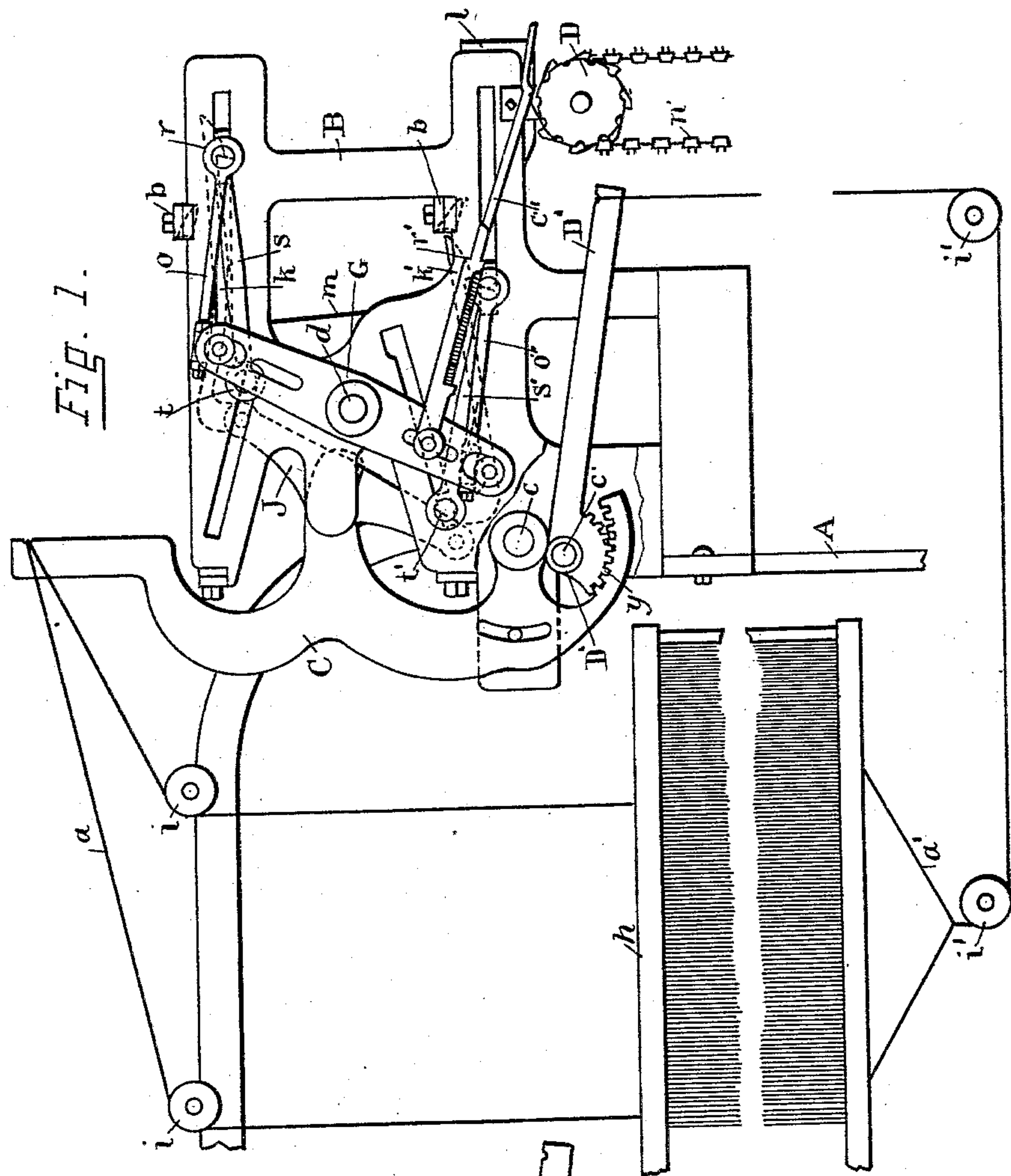


(No Model.)

G. W. STAFFORD & C. H. POLAND.
SHEDDING MECHANISM FOR LOOMS.

No. 414,600.

Patented Nov. 5, 1889.



WITNESSES:

James E. Arnold
L. P. Kidd

INVENTOR

George W. Stafford

Chas. H. Poland

BY

Benz Arnold

ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE W. STAFFORD AND CHARLES H. POLAND, OF PROVIDENCE, RHODE ISLAND.

SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 414,600, dated November 5, 1889.

Application filed August 15, 1889. Serial No. 320,869. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. STAFFORD and CHARLES H. POLAND, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Shedding Mechanisms for Looms; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of shedding mechanisms for looms known as "dobbies."

The dobby form of shedding mechanism is to a considerable extent taking the place of the cam-and-treadle motion, because it is lighter and consequently admits of a higher rate of speed, and its capacity for readily producing a variety of patterns, though short of that of the jacquard, is still far in advance of that of the cam and treadle.

Dobbies are to a large extent being applied to looms already in use for plain work, because of their small cost and capacity for being readily changed from one pattern to another; and for the purpose of applying them to looms already in use it is necessary to accommodate them to the room already occupied by the loom. It has been found more advantageous for several reasons to place the dobby at the end of the loom rather than over it, where the oil and dirt from the dobby are liable to injure the work in the loom; but in putting the dobby on the end of the loom it has been found that the form of harness-lever heretofore frequently used in the dobby is too long and extends too far into the alley between the looms, and also makes it inconvenient to operate the pattern-chain.

The object of this invention is to obviate this difficulty, which is done by making use of a compound harness-lever composed of two simple levers connected and combined with the other parts of the dobby and with the harness-cording, as will hereinafter be explained.

The construction of a dobby constructed in accordance with our invention is illus-

trated in the accompanying drawings, in which—

Figure 1 shows a vertical section of part of a loom and the dobby, and Fig. 2 shows a modification of the compound harness-lever.

In the drawings, A is the end frame of the loom, and B the frame of the dobby.

The harness-frame is designated by the letter *h*.

a a' is the cording connected with the top and bottom of the harness-frame and passing around sheaves *i i'* on the loom-frame, as usual. The cording *a* is connected with the upper or free end of a lever C, pivoted at the loom side, as shown, while cording *a'* is connected with the outer free end of a lever D', also pivoted at the loom side. The upper lever C is held on a rod or shaft *c*, located at the place where the usual lever is pivoted in ordinary dobbies, and the horizontal lever D' is placed on a shaft *c'* a little below the shaft of the lever C. In Fig. 1 the connection between the levers C and D' consists of a segment or curved arm extending out from the lower end of the lever C and partially under and around the end of the lever D', the inside face of this curved arm being provided with gear-teeth *y'*, which engage with similar teeth *y*, made on the periphery of a segment on the under side of the lever D', so that when the lever C is moved the lever D' will be moved through the medium of the gear-teeth, and if the pitch-line of the gear-teeth is twice as far from the pivot of the lever C as it is from the pivot of the lever D' the latter lever will have twice the angular motion that the lever C has, and consequently its free or outer end will need to be but half as long as the upper arm of lever C is in order to obtain the same extent of motion in operating the harness-frames.

The connection between the two levers C and D' may be made as shown in Fig. 2, in which a link *z*, pivoted at each end to the projecting lower ends of the levers, is used in place of the gear-teeth *y'* to convey motion from one lever to the other. By connecting together the adjacent ends of the levers C and D', and causing the said ends to move together in the same direction, the two levers

are caused to operate as one in effecting the movement of the harness-frame, the said levers constituting a compound harness-lever. My present construction enables me to shorten
 5 back the lower lever D' , to which the cord a' , that draws down the harness-frame, is attached, far enough to allow the pattern-chain n' to hang down freely. Moreover, it enables me to place the free or outer arm of said lever D' in a position approximately horizontal,
 10 and to extend the cording therefrom in a substantially vertical line to the outer guide-sheave i' , thereby obviating the well-known tendency of the cording to slacken when differences exist in the angles of the respective
 15 lengths extending from the guide-sheaves to the ends of the harness-lever.

A lever G , fast on the front end of the shaft d , mounted in the dobby-frame, is connected
 20 at both its upper and lower ends by the rods $o o'$ to the lifters $r r'$, which in turn are connected by the rods $s s'$ to the depressors $t t'$. The lifters $r r'$ and the depressors $t t'$ slide in slots in the frame B . The rods $o s$ and lever G have their counterparts on the other
 25 side of the dobby, so that both ends of the lifters and depressors are moved alike.

A vertical jack-lever J is pivoted on the lever C and has a long hooked latch $k k'$ pivoted to each end. These latches are made with
 30 hooks on the under sides of their free ends, which are so placed as to come over the lifters $r r'$. The plate-levers l are placed over the pattern-cylinder D , so as to be raised by the pins in pattern-chain n' as they pass under the said levers, which levers operate the
 35 lower hook-latches by direct contact and the upper ones by means of the wires m , to determine which shall be caught by the lifters $r r'$ and operate its jack-lever and harness-lever
 40 to raise the harness-frame connected to it.

Having thus described our improvements, what we claim as our invention is—

1. The combination, with a harness-frame
 45 and operating-connections therefrom, of two levers pivoted at the loom side and having their adjacent ends connected to move together and in the same direction, said operating-connections being connected with the
 50 free ends of said levers, as described.

2. The combination, with a harness-frame and cording connected with the top and bottom thereof, of a compound harness-lever composed of two simple levers pivoted at the loom side and having their adjacent ends connected to move together in the same direction,
 55 whereby the said two levers are caused to operate as one in effecting the movement of the harness-frame, said cording being connected with the free ends of said levers, as described.

3. The combination, with a harness-frame and cording connected with the top and bottom thereof, of a compound harness-lever composed of two simple levers pivoted at the loom side and having their adjacent ends connected to move together in the same direction,
 65 whereby the said two levers are caused to operate as one in effecting the movement of the harness-frame, said cording being connected with the free ends of said levers, and means connected with one of said levers for imparting movement thereto for effecting the movement of the harness-frame, all substantially as described.

4. The combination, with a harness-frame and cording connected with the top and bottom thereof, of a compound harness-lever composed of two simple levers pivoted at the loom side and having their adjacent ends connected to move together in the same direction,
 80 whereby the said two levers are caused to operate as one in effecting the movement of the harness-frame, said cording being connected with the free ends of said levers, a lever J , pivoted to one of said simple levers, hooked jacks pivoted to the opposite ends of said lever J , pattern devices for controlling the position of said hooked jacks, and lifters and depressors operating in connection with
 85 said jacks and lever J , all as and for the purposes described.

GEO. W. STAFFORD.
 CHARLES H. POLAND.

Witnesses:

WM. J. CHAPMAN,
 BENJ. ARNOLD.