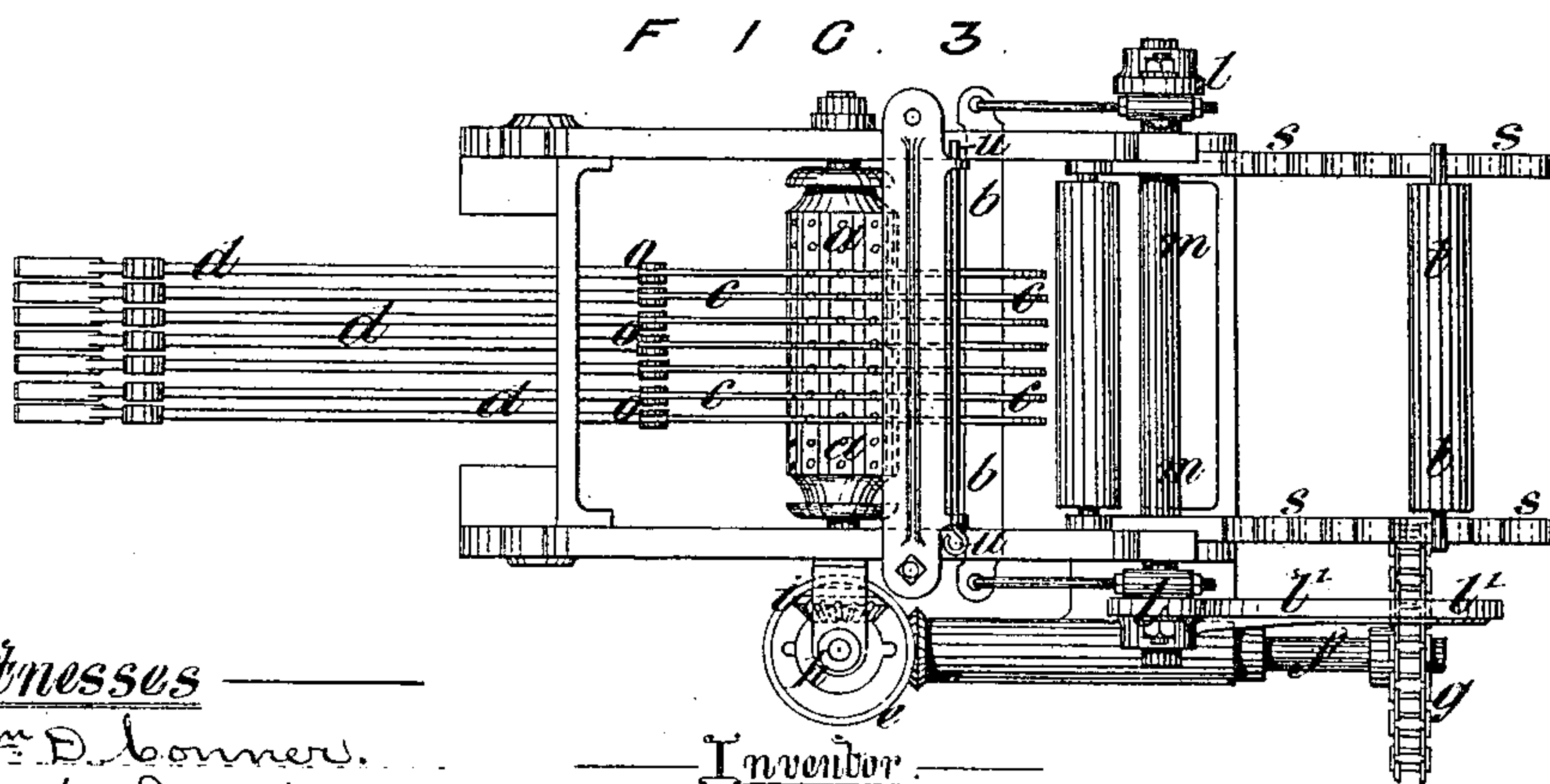
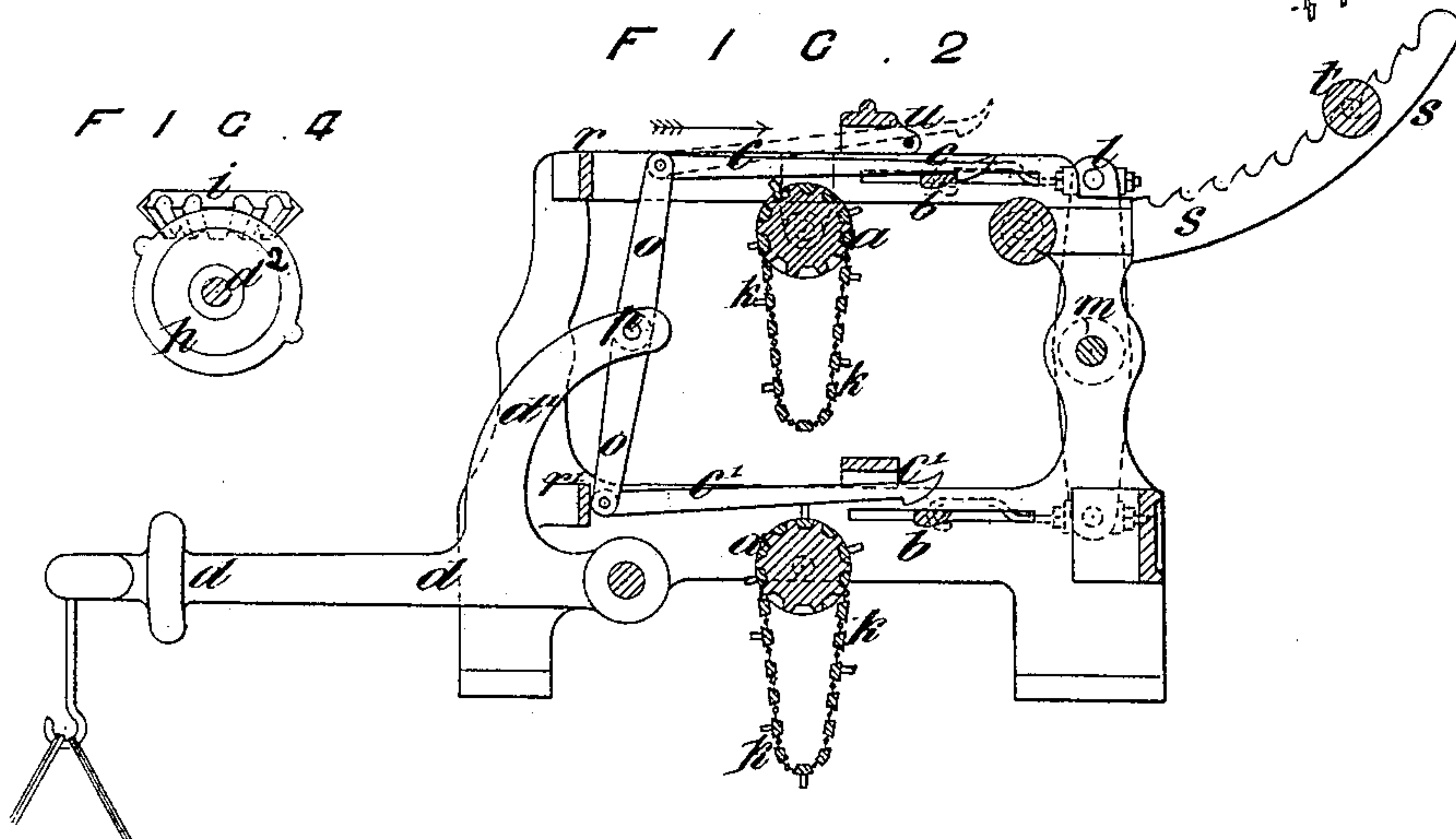
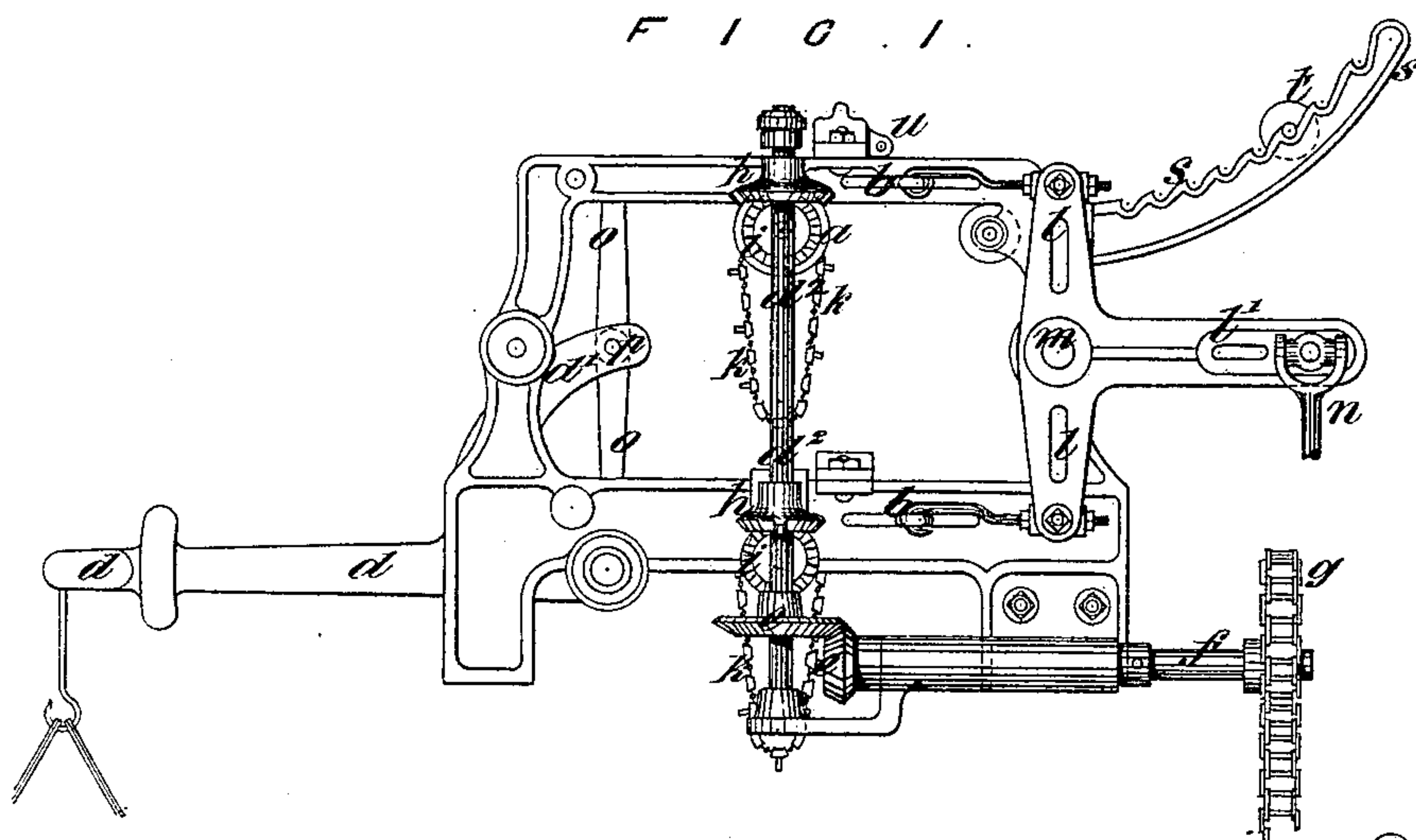


(No Model.)

W. WILLIAMSON.  
LOOM DOBBY.

No. 386,731.

Patented July 24, 1888.



Witnesses —  
Wm. D. Bonner.  
David S. Williams

Inventor —  
William Williamson  
— by his attorneys —  
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# UNITED STATES PATENT OFFICE.

WILLIAM WILLIAMSON, OF PENDLETON, NEAR MANCHESTER, COUNTY OF LANCASTER, ENGLAND.

## LOOM-DOBBY.

SPECIFICATION forming part of Letters Patent No. 386,731, dated July 24, 1888.

Application filed June 21, 1887. Serial No. 242,019. (No model.) Patented in Eng'and September 21, 1885, No. 11,189.

*To all whom it may concern:*

Be it known that I, WILLIAM WILLIAMSON, a subject of the Queen of Great Britain and Ireland, and residing at Pendleton, near Manchester, county of Lancaster, England, have invented certain Improvements in Loom-Dobbies, (for which I obtained a patent in Great Britain, No. 11,189, dated September 21, 1885,) of which the following is a specification.

My said invention relates to the dobbies which are used in conjunction with looms for weaving textile fabrics; and it consists in improvements whereby the construction of such dobbies is simplified, their working rendered more certain and efficient, and their cost reduced. In certain existing types of dobbies now in common use the hooks which actuate the jack-levers are arranged horizontally and are caused to engage with or remain clear of the sliding knives by means of needles and other intermediate tackle, which are operated from a pegged barrel or chain of cords.

The object of my invention is to dispense with the said intermediate arrangements and to raise and lower the sliding hooks by bringing them into direct contact with the pegs of the pattern-chain on the barrel or barrels without the interposition of either needles or springs.

My invention will be most clearly understood when described with reference to the accompanying drawings, in which—

Figure 1 represents a side elevation, Fig. 2 a longitudinal sectional elevation, and Fig. 3 a plan view, of a dobby constructed in accordance with my invention.

In the said figures, *aa* are two pattern chain barrels; *b b* are the knives; *c c'* are the hooks or griffs, and *d d* are the jacks or levers, from which the healds are suspended, as is usual.

The two chain-barrels receive motion from a vertical shaft, *d'*, which is connected by bevel-gearing *e* with a shaft, *f*, which is mounted in a bracket attached to the framing of the dobby. Upon the outer end of this shaft is secured a chain-wheel, *g*, which is connected by means of a pitch chain with a chain-wheel fixed upon the tappet-shaft or the crank-shaft of the loom, as preferred, the said wheel being made of a size suitable to the shaft upon which it is fixed. Upon the

shaft *d'* are fixed two bevel-wheels, *h h*, each of which is formed with two teeth only, as indicated on a larger scale in Fig. 4, which is a plan view of this part of the gearing. The wheel *h* imparts an intermittent motion to a wheel, *i*, which is fixed upon the chain-barrel shaft. In the example the wheel *i* is formed with, say, eight recesses, with which the teeth upon the wheel *h* alternately engage, so that the wheel *i* is caused to make one-eighth of a revolution twice during one revolution of the wheel *h* and to remain at rest for short intervals of time between such movements, as in the cases of similar parts already in use in loom apparatus. It will be seen that the wheels *h h* are fixed in such positions upon their shaft as to act alternately, whereby the two chain-barrels are caused to move alternately.

The pattern-chains *k k*, which are carried by the chain-barrels, are in the example of an ordinary description, and consist of bars furnished with projecting pegs and linked together, the pegs being disposed according to the pattern which the loom is required to produce, as is well understood. At each movement of either chain-barrel a fresh bar in the chain is brought below the row of griffs *c*, and wherever a peg is thereby brought below any one of the said griffs such griff is raised, as indicated in the lower part of Fig. 2, the griffs not meeting with pegs remaining down, as indicated in the upper part of the same figure.

The two knives *b b* slide in slots in the framing and are connected with the arms of two levers, *l l*, which are fixed upon the ends of a rocking shaft, *m*, mounted in bearings in the framing, the arrangement being such as that when the said shaft is caused to rock to and fro in its bearings the two knives are moved to and fro, one knife moving at all times in a direction contrary to that of the other knife. One of the levers *l* is formed with a third arm, *l'*, which projects at right angles, or thereabout, from the other arms, and is connected by means of a link or rod, *n*, with a crank or eccentric upon the tappet-shaft, or it might be with a bottom lever receiving motion from such shaft, whereby the shaft *m* is caused to rock in its bearings and the two knives are caused to move to and fro.



The action of the parts is as follows: During the working of the loom the knives are caused to slide to and fro in their bearings, each knife making a double movement—say, for example, 5 from right to left and from left back again to right—in the time required by the loom to make two picks. In the same time each of the two chain-barrels makes a step movement. All the griffs which are raised by the pegs on 10 the pattern chain clear the knife as it moves in the direction indicated by the arrow. Any griff which is not so raised engages with the knife which comes in contact with the hook at the end of the griff, and the latter is drawn 15 by the knife in the indicated direction. The top and bottom griffs, *c c'*, are coupled together in pairs by means of a lever, *o*, the two griffs being hinged to the two ends of the said lever. The said lever is mounted upon a hinge-pin, 20 *p*, fixed in an arm, *d'*, which projects from the jack, each jack being thus connected with a pair of griffs. When both griffs are disengaged from the two knives, the connected jack drops until the ends of the lever *o* bear against 25 two fixed bars, *r r'*, the suspended heald being then at the bottom of the shed.

In Fig. 2 the top griff, *c*, is being drawn in the direction indicated by the arrow, and the lower end of the lever *o*, bearing against the 30 fixed bar *r'*, uses this bar as a fulcrum, and the connected jack is lifted for one pick of the loom. For the next pick the bottom barrel would make a movement and the jack would be lowered if the other griff, *c'*, in the pair were 35 raised by a peg, or the jack would be lifted if the said griff were not so raised. The hooks or griffs may be operated in the cases of suffi-

ciently simple patterns by means of pegs or projections upon a peg or pattern barrel. The curved racks *s s* sustain a roller, *t*, which is 40 used to hold up the slack of the pattern-chain in cases wherein the said chain would be so long as to extend to the lower griffs if not kept out of the way. In case all the griffs are are not required for simple patterns those not 45 required can be sustained out of action by means of a rod, *u*, as indicated by the dotted lines in the upper part of Fig. 2.

What I claim as my invention is—

1. The combination of pattern chains or barrels, reciprocating knives, and operating de- 50 vices therefor, with hooks or griffs on which the pattern chains or barrels act directly, levers *o*, to which the hooks or griffs are pivoted, fixed stops *r r'* on the frame, and jacks to 55 which the levers are pivoted, all substantially as described.

2. The reciprocating knives, operating de- vices therefor, pattern chains or barrels hav- 60 ing bevel-gears *i* on their shafts, and a shaft carrying wheels *h*, having spaced projections, in combination with hooks or griffs on which the pattern chains or barrels act directly, le- 65 vers to which the hooks or griffs are pivoted, fixed stops *r r'* on the frame, and jacks to which the levers *o* are pivoted, all substan- tially as described.

In testimony whereof I have signed my name to this specification in the presence of two sub- scribing witnesses.

W. WILLIAMSON.

Witnesses:

DAVID FULTON,  
ARTHUR LEDGER.