O. L. OWEN.

PATTERN MECHANISM OF LOOMS.

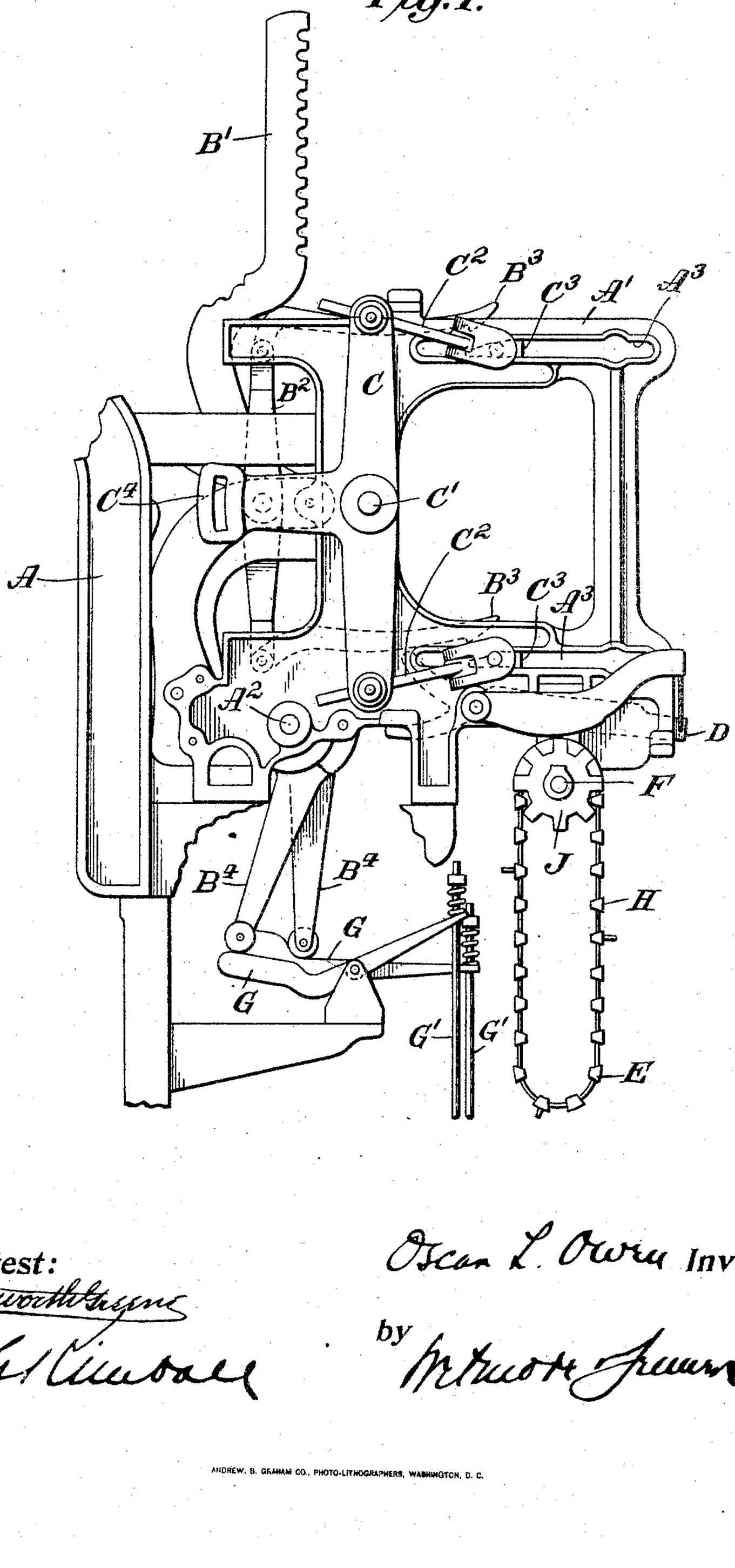
APPLICATION FILED SEPT. 28, 1906.

928,278.

Patented July 20, 1909.

3 SHEETS—SHEET 1.

Fig. 1.



Attest:

Edgeworth Bruyne

H. G. Underwood

Oscar L. Owen Inventor:

by Prescott Howard Attys.

O. L. OWEN.

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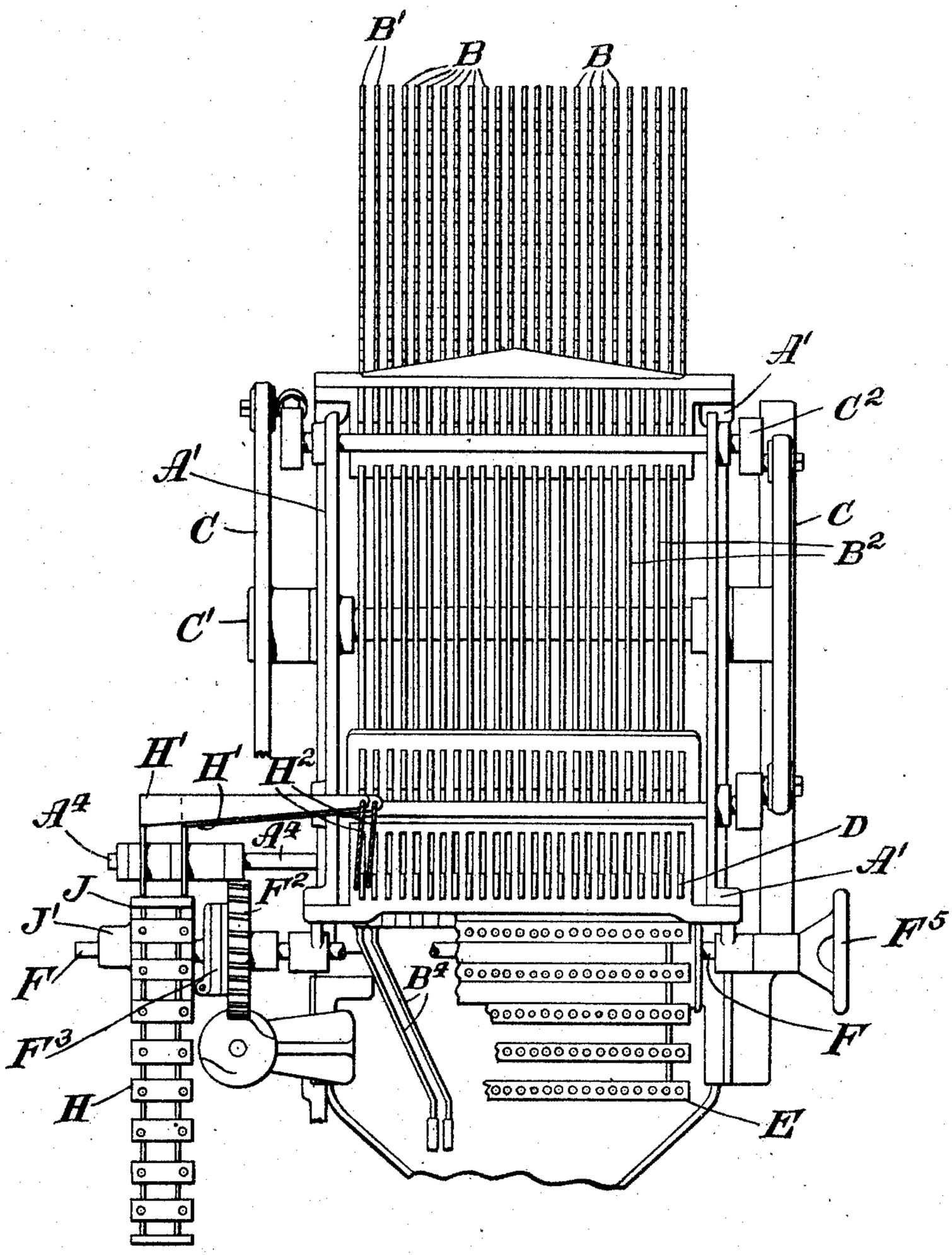
3 SHEETS—SHEET 2.

Fig. 2.



Attest:

Edgeworth Greene

H. G. Underwood

Inventor:

Oscar L. Owen

by Munn & Co. Attys.

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

O. L. OWEN.

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3 SHEETS—SHEET 3.

Fig. 3.

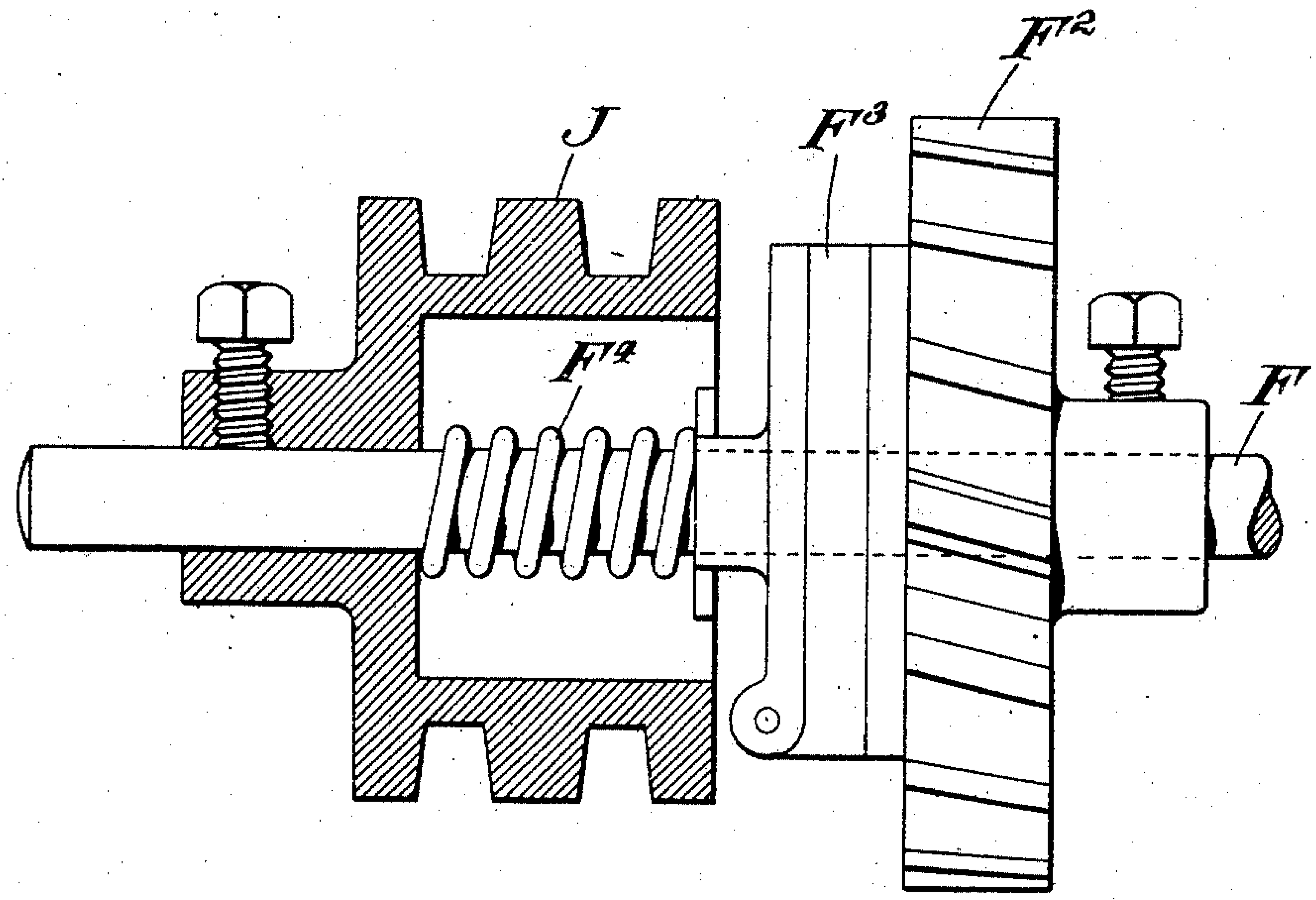
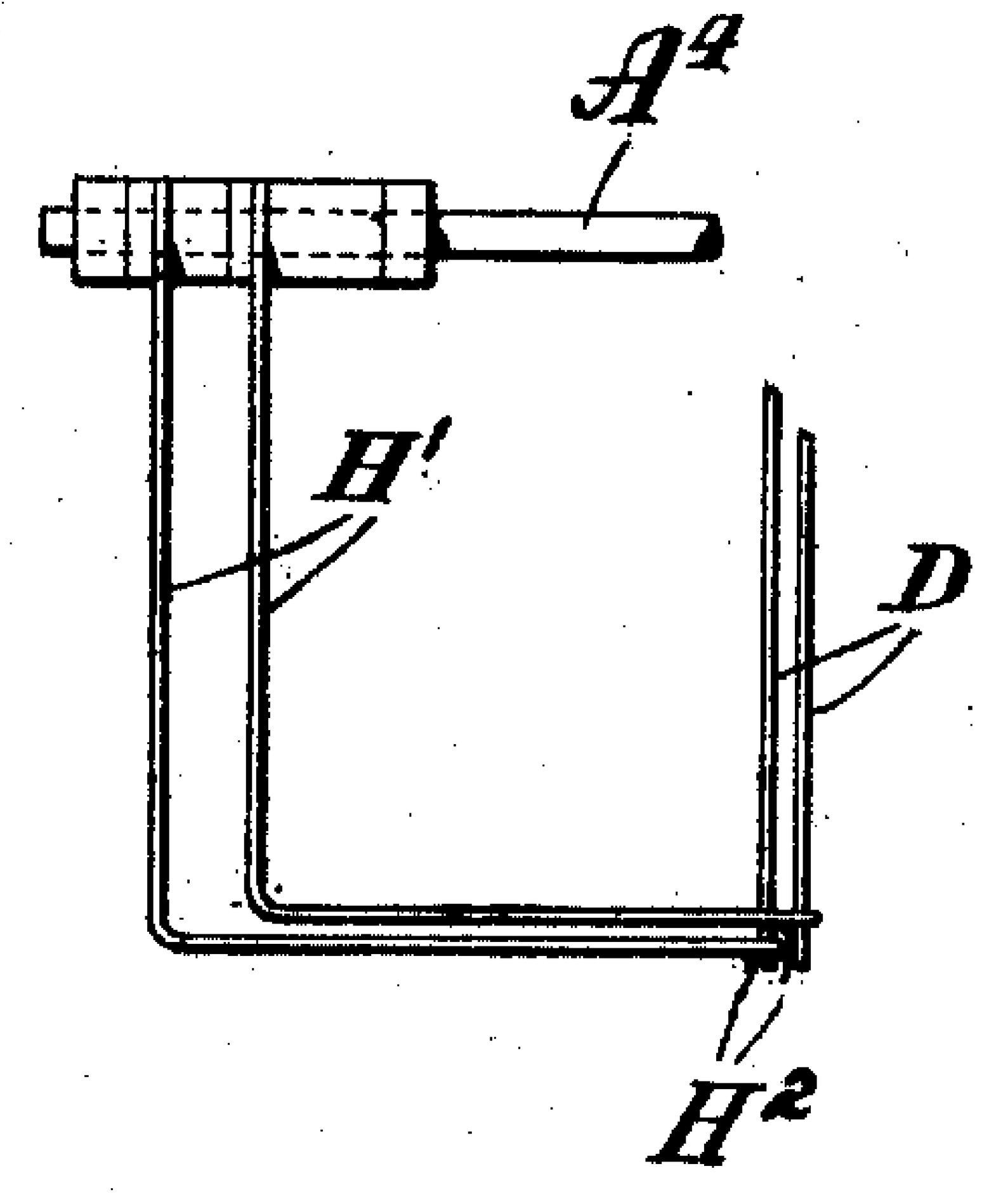


Fig. 4.



Attest:
Edgeworth Greene
H. G. Kimball

Oscar L. Owen Inventor:
by McTurnor & Greene Attys.

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OSCAR L. OWEN, OF WHITINSVILLE, MASSACHUSETTS, ASSIGNOR TO WHITIN MACHINE WORKS, OF WHITINSVILLE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

PATTERN MECHANISM OF LOOMS.

No. 928,278. Specification of Letters Patent. Patented July 20, 1909

Application filed September 28, 1906. Serial No. 336,524.

To all whom it may concern:

Be it known that I, OSCAR L. OWEN, a citizen of the United States, residing at Whitinsville, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Pattern Mechanisms of Looms, of which the following, taken in conjunction with the drawings which form a part hereof, is a full, clear, and concise specification.

The invention herein disclosed relates to improvements in pattern mechanisms of looms which employ pattern controlling devices for both the filling and the warp, and consists in the novel arrangement of the pattern chains for such purpose and in the construction and disposition of the means for driving the same and the connections of the parts operated by them, as will be hereinafter described, whereby the entire pattern defining means of the loom is composed of few parts which occupy small space on the loom frame, but is yet simple of comprehension and adapted to be readily inspected or manipulated by the ordinary weaver.

The invention also affords the advantage of being capable of application to existing looms without substantial change in their construction and can be applied to the dobbies of fancy pattern looms in the first instance at low cost.

Referring to the accompanying drawings, which illustrate so much of a loom and ordinary dobby as is necessary for explaining my invention, Figure 1 is a side view in elevation of a dobby having my invention applied to it; Fig. 2 is a front view of Fig. 1, with parts broken away for convenience; Fig. 3 is an enlarged sectional detail of the chain drum for the drop-box pattern; and Fig. 4 is a detail in plan of the operating connections between the drop-box pattern chain and the indicator levers.

The dobby comprises, as usual, the two side frames A′, A′ secured to the loom frame A, a part of which is shown in Fig. 1. The series of levers B, B′ is fulcrumed on the cross shaft A^2 and said levers carry the jack levers B^2 which are supplied at their upper and lower ends with the jack hooks B^3. The actuator arms C, mounted on the transverse rock-shaft C′, through their connections C^2, reciprocate the knife bars C^3 back and forth in the slots A^3 of the frame, the actuator arms being driven in the usual manner by a connection rod (not shown) which is attached to the crank C^4 in well understood manner. The jack hooks B^3 are selectively brought into connection with the reciprocating knife bars C^3, under the call of the pattern, by means of their usual connections with the indicator levers, which levers are shown at D and are pivoted within the dobby frame so that they rest upon or over the pattern chain E. This pattern chain is carried by its drum E′ on the pattern shaft F and the latter protrudes at both ends beyond the side frames A′, A′. The gear F^2 idly mounted on the pattern shaft is adapted to drive the shaft through the slip clutch F^3 which latter is of ordinary construction, held against the side of the gear by means of the helical spring F^4 which surrounds the shaft. At its opposite end the shaft carries a hand-wheel F^5 by means of which it, and the pattern chain, can be manually adjusted against the friction of the slip clutch.

In the operation of the foregoing parts certain of the indicator levers are lifted and certain of them left quiet, in accordance with the arrangement of the pegs on the pattern chain traveling beneath them, which causes the corresponding levers B to become coupled with the reciprocating knife bars C^3 and thereby swung forwardly. The upper ends of the levers are connected in the usual way with the harness mechanism of the looms and their forward movement therefore causes the predetermined operation of the harnesses.

In accordance with my invention, certain of the levers, such as B′, are not intended to be brought into operation by the pattern chain E as above described, although they may be so controlled if desired. These levers B′ have depending arms B^4 extending below the fulcrum shaft A^2 and into engagement with one or more horizontal lifter levers G, G. These last mentioned levers are appropriately fulcrumed on a stationary bracket of the loom frame and are connected at their free ends with the lifter rods G′, G′, which latter are the usual means whereby the drop-box motion (not herein shown) is brought into place for shifting the shuttle boxes and thereby changing the filling pattern. The arms B^4 engage with the said levers by means of the rollers at their ends, which roll over the curved cam surfaces of

the levers, causing them to rock in a vertical direction.

The indicating levers D, which correspond in position to the pattern levers B′, B′, although located in position where they might be actuated by pegs in the pattern chain E as above mentioned, are connected for operation by separate means located on the opposite or rear side of the dobby frame A′. Such means comprise a second pattern chain H on a drum J, secured to the extended projecting end of the shaft F beyond the drive gear F^2 and driven thereby through the slip clutch the same as the chain E. The two chain levers H′, H′ or auxiliary indicator levers which are pivoted on the fixed stud A^4, extend over the chain H in position to be operated by the pegs or protuberances thereon, and at their forward ends are turned in a lateral direction (Fig. 4) around the front edge of the dobby frame to a point somewhat above the protruding ends of the indicator levers D above referred to, and to which they are respectively connected by the links H^2. The connecting levers H′ are of slightly different proportions as shown, in order that they will not interfere.

The chain drum J is secured to the shaft F by its boss J′ and is recessed on its side nearest the dobby frame so that the spring and adjacent parts of the slip clutch F^3 may be compactly housed within it. The inside of the drum J also forms the rear abutment of the spring.

In operation the shed pattern chain E and the drop-box pattern chain H are driven in obvious manner by the same shaft, the former controlling the warp pattern in the ordinary manner and the latter controlling the filling pattern by means of the levers H′ and their connections with the levers B′, B′ as above described; but each can be separately made up and be of different lengths, if desired, and in case of a mis-pick or any other cause necessitating the turning back of the chains they may be rotated by hand in unison and without confusion of the patterns by utilizing the hand-wheel F^5.

Having described my invention, what I claim and desire to secure by United States Letters Patent, is:

1. In a loom pattern mechanism a dobby comprising two upright side-frames containing between them a series of upright oscillatory levers formed for operative connection with the heddles and certain of said levers having depending arms adapted for connection to the drop-box motion, and means for selectively operating said levers including a pattern chain disposed between said side frames, a clutch-driven chain shaft therefor and a series of indicator levers engaged by said chain, in combination with a drum on said chain shaft adapted for carrying a filling pattern chain, and a second series of indicator levers operated thereby and having connection with certain of the aforesaid indicator levers.

2. In a loom pattern mechanism, the combination with a series of indicator levers having suitable connections for controlling the pattern of the loom; and a drum adapted to carry a pattern chain for selectively operating said levers, of auxiliary indicator levers connected to certain of said first named levers and a separate pattern chain drum for operating said auxiliary levers.

3. In a loom pattern mechanism, the combination with the loom dobby comprising a series of chain levers and a pattern chain for defining the action thereof, of the pattern shaft upon which said chain is carried extended beyond the dobby frame, a second chain carried on the extended end of said shaft, chain levers for said second chain, operating connections from said chain levers on the outside of the dobby frame connected with certain of the chain levers within the frame and means connecting said last named levers to control the drop-box motion.

4. In a loom pattern mechanism, the combination with the dobby frame, the harness levers and indicator levers thereof adapted to be operated by a pattern chain of a filling pattern drum and auxiliary indicator levers therefor having their ends laterally turned toward said harness indicator levers and connections between the latter and the said ends of the auxiliary indicator levers.

5. In a loom pattern mechanism, a pattern shaft and two pattern chain drums secured thereto, in combination with a drive gear for said shaft located intermediate of said drums and idly mounted thereon, a friction clutch for connecting said harness gear and shaft and a spring for said clutch housed within one of said pattern chain drums.

In testimony whereof, I have signed my name to the specification in the presence of two subscribing witnesses.

OSCAR L. OWEN.

Witnesses:

HARMON O. NELSON,

JOSEPH B. ADAMS.