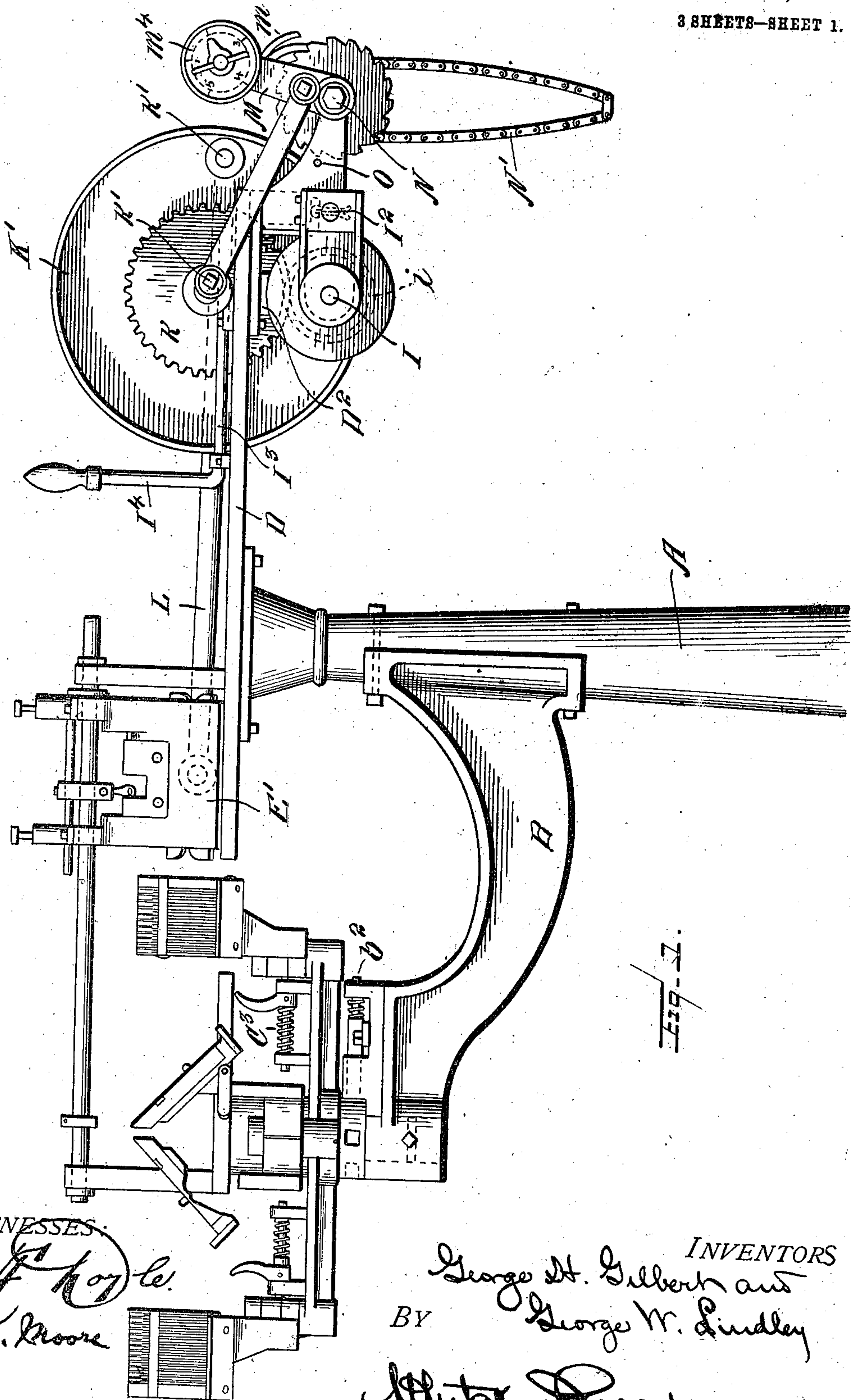


996,036.

APPLICATION FILED FEB. 26, 1909.

Patented June 20, 1911.

3 SHEETS—SHEET 1.



~~WITNESSES~~

H. F. Foye.

J. K. Moore

INVENTORS

George H. Gilbert and
George W. Lindley

BY

Arthur Ross

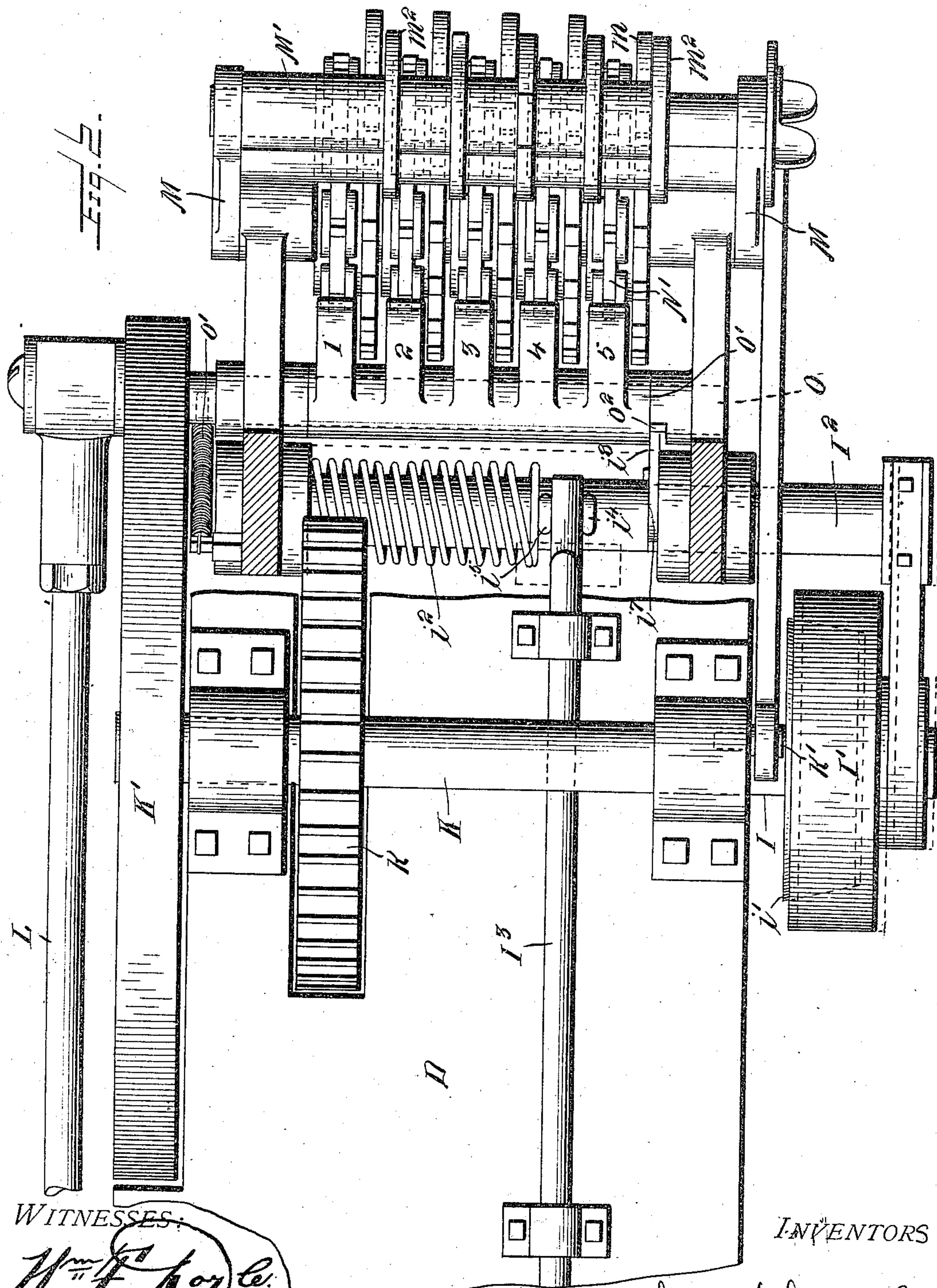
Attorneys

G. H. GILBERT & G. W. LINDLEY.
PATTERN MECHANISM FOR GLOVE KNITTING MACHINES.

996,036.

APPLICATION FILED FEB. 26, 1909.

Patented June 20, 1911.
3 SHEETS—SHEET 2.



WITNESSES:

J. H. Poy Co.
J. K. Moore

INVENTORS

BY

George H. Gilbert & Co.
George W. Lindley

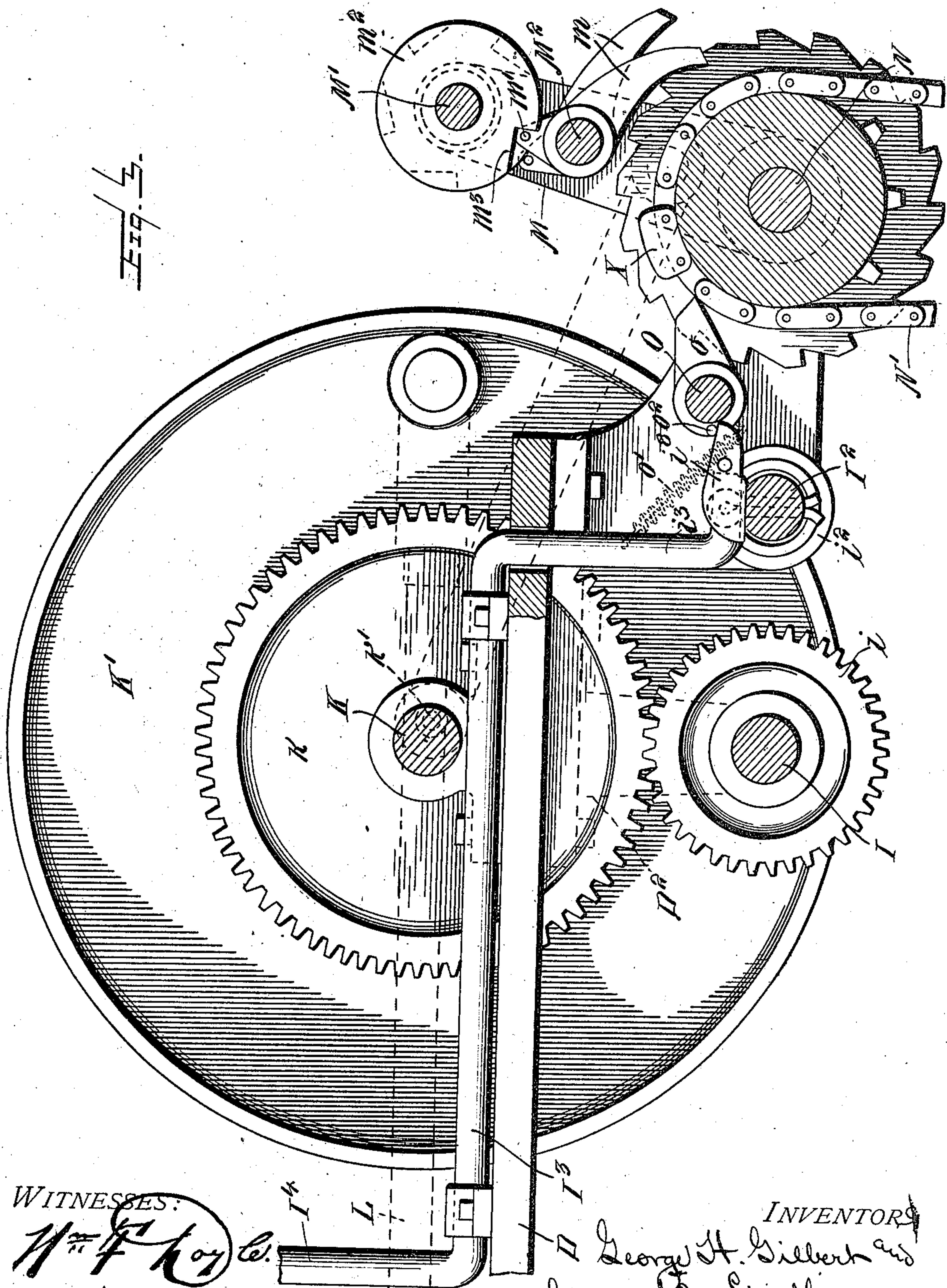
Whitman & Wood Attorneys

996,036.

APPLICATION FILED FEB. 26, 1909.

Patented June 20, 1911.

3 SHEETS—SHEET 3.



~~WITNESSES:~~

N^o 7407 C.

J. K. Moore

INVENTORS

George H. Gilbert and
George W. Lindley

Mutkins & Frost Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE H. GILBERT AND GEORGE W. LINDLEY, OF PHILADELPHIA, PENNSYLVANIA;
SAID LINDLEY ASSIGNOR TO JAMES LECKIE & SON COMPANY, OF CAMDEN, NEW
JERSEY, A CORPORATION OF NEW JERSEY.

PATTERN MECHANISM FOR GLOVE-KNITTING MACHINES.

996,036.

Specification of Letters Patent. Patented June 20, 1911.

Original application filed April 14, 1908, Serial No. 427,074. Divided and this application filed February 26, 1909. Serial No. 480,097.

To all whom it may concern:

Be it known that we, GEORGE H. GILBERT and GEORGE W. LINDLEY, citizens of the United States, residing at Germantown, Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pattern Mechanism for Glove-Knitting Machines; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our present invention is a part of a knitting machine more especially designed for knitting the fingers of gloves and consists of a pattern mechanism that can be set for the different lengths of the fingers of the glove, and will arrest the operation of the knitting machine when the requisite length of tubular web has been knitted. The knitting machine here referred to is made the subject of application Serial No. 427,074 of which the present application is a division.

The main purpose of our said invention is to enable the operator, after running on the appropriate stitches of the previously knitted hand of the glove and the knitting of the tube for the finger has begun, to set the pattern mechanism so that the knitting will be automatically stopped when the proper length has been reached, in order that the operator may give his or her entire attention to the running on of stitches of another hand on another needle bed.

In the accompanying drawings we have shown the best form in which we have contemplated embodying our invention and said invention is fully disclosed in the following description and claims.

In these drawings, Figure 1 is a side elevation of our entire machine. Fig. 2 is a top or plan view of the pattern mechanism thereof, and Fig. 3 is a longitudinal vertical section of the same.

In these figures of drawing, A is the supporting standard, B is an arm secured to the standard A for supporting the sectional needle beds forming a part of our machine which are, as shown, straight beds of the double inclined type.

D is the bed plate of the machine and E'

is the double inclined cam slide of the machine coöperating with the needle beds.

In brackets D² secured to the underside of the bed plate D, is mounted the power or driving shaft I. This shaft is provided with a gear *i* which meshes with a gear *k* on a counter shaft K. To this latter shaft is secured the crank disk K'. A pitman L connects the crank pin of said disk with the cam slide and gives the necessary reciprocating movement thereto. To the end of shaft K opposite that on which the crank disk is secured, a pin *k'* is connected so as to act as a crank or the shaft is provided with an eccentric. Said crank pin or eccentric is connected with a pawl carrying frame M pivotally mounted on shaft N, mounted in extensions of the brackets D². In this pawl frame are mounted a shaft M' and a rod M². On the shaft N are movably mounted a series of five ratchet wheels 1, 2, 3, 4, 5. Rigidly secured to each ratchet or made integrally therewith is a sprocket carrying a pattern chain N'. On the rod M² are journaled five gravity pawls *m*. The upper end of each pawl is provided with a pin *m'* extending on one side of the pawl. To shaft M' are secured five pawl controlling disks *m*². The disks are of such size that when the periphery of the same bears upon the pin *m'* of its corresponding pawl, such pawl will be raised out of engagement with its ratchet, and the vibration of the pawl carrying frame will not effect any movement of its ratchet. Each of the disks *m*² has a portion of its periphery cut away as at *m*³. The cut away portion of each is located at a different point around the shaft M' as indicated in dotted lines on the only disk seen in Fig. 3, so that only one pawl and ratchet will be in operation at the same time. On the front side of the machine, the frame M is provided with the index disk *m*⁴ surrounding the end of the shaft M'.

To the end of the shaft is secured a means for turning the same and associated therewith is a pointer turning with the shaft. The means for turning the shaft M' may be of any preferred form. In this instance it is shown as being of substantially the form of the wings of a winged nut, to be grasped

and turned by the forefinger and thumb of the operator. Five points are marked on this index disk and are preferably designated to indicate the different ratchets 1, 2, 3, 4 and 5, the arrangement being such that when the pointer is turned to the mark designated 1, the disk controlling the pawl of ratchet 1, will be in position to actuate such ratchet, and when turned to the mark 2, the ratchet 2 will be operated, and so on.

In the brackets supporting the shaft N is also journaled the shaft O, on which is rigidly secured the sleeve O' having five fingers extending toward the shaft N, one in line with each of the sprockets on said shaft. On each of the sprockets is carried a pattern chain N' and a spring o' is connected to the shaft O and the bracket, so as to maintain each finger in contact with its pattern chain. The driving shaft I projects outwardly beyond the bed plate at the front of the machine and upon this projecting part of the shaft is rigidly secured a tapering friction disk i'. Loosely mounted on the shaft I in close juxtaposition to the disk i' is the band pulley I' having a tapering recess for engaging the tapering disk i' and forming therewith a friction clutch. The pulley I' has a grooved hub and two arms or a fork secured to a sliding bar or rod I² engage this groove. The bar I² is mounted in the brackets supporting the ratchet shaft N so as to be capable of endwise movement and is provided with a spring i² tending to move the bar toward the front of the machine. A rod or shaft I³ is mounted in bearings on the top of the bed plate of the machine and has a downwardly extending arm i³, the lower end of which is provided with means to engage the rod or shaft I² and when desired move it against the force of the spring i². In this instance the lower end is bent at right angles and extends over the shaft I² between two projections extending upward from the shaft. In this instance such projections are formed by two cotters i⁴ and i⁵. The opposite end of the rod or shaft I³ is provided with an upwardly extending arm I⁴ by which the rod or shaft can be turned to move the rod I² rearwardly and force the band pulley I' into frictional engagement with the disk i' to give motion to the driving shaft I. The rod I² is provided with an upwardly extending shoulder or projection i⁷, and a detent i⁸ is pivoted to the bracket at the front of the machine and adapted by gravity to drop behind the shoulder i⁷ when the machine is set in motion. The end of the detent i⁸ extending to the right of its pivot (see Fig. 3) is in the path of a pin o² on the sleeve O' and when the shaft O and sleeve O' are moved against the force of the spring o' the pin o² presses downward on the right hand end of the detent i⁸, raising its opposite end from engagement with the

shoulder i⁷, permitting the spring i² to move the rod I² forward, opening the clutch and stopping the machine.

Each of the pattern chains N' is provided with a riser X (see Fig. 3) and is normally just beyond the point of the finger o, bearing upon the chain. When the machine has been put in motion it continues to knit until the riser of the pattern chain moved by its appropriate pawl comes beneath its finger o, when the detent i⁸ is actuated and the rod I² released and the machine stopped. The chains are of different lengths, one being of a length to stop the machine when it has knitted a tubular web long enough for the thumb of the glove, one for the fore finger, and so on.

The finger to be knitted is determined by turning the shaft M' to bring the pointer on the index to the proper mark when the machine is put in motion by turning shaft I³ to close the clutch, and it will then be stopped when the proper length of tube has been completed.

In operating the machine the operator is located at the front of the machine. Supposing that the machine is provided with four needle beds, the operator withdraws the locking bolt of the needle bed immediately in front of the operator and moves a bed to the position desired and applies thereto the knitted web of the hand for the knitting of the desired finger; the beds are then turned to normal position and the bolt C³ permitted to lock them. The bolt b² locking the spider is then withdrawn and the spider is given one quarter turn to bring the bed to which loops have been applied, into operative alinement between the bed plate D and plate D' and have the same locked in that position. The operator then turns shaft M' to bring the pointer to the mark indicating the ratchet desired and the arm I⁴ is drawn toward the front of the machine bringing the band pulley into frictional engagement with pulley I and permitting the detent i⁸ to drop behind the shoulder i⁷. The machine now knits the finger and during this interval of time the operator applies another knitted web to the needles of the needle bed immediately in front. When the machine has knitted the finger to the length determined by the pattern chain in motion at that time, the riser of the same stops the machine. The spider is then turned to bring the needle bed to which a knitted web has been applied, into position and the operation is repeated.

What we claim and desire to secure by Letters Patent is:—

1. In a knitting machine, the combination with the knitting devices and their actuating mechanism, of a series of independent pattern chains for controlling the stopping of the said mechanism, actuating devices for

said chains including a series of pawls and controlling mechanism holding all of said pawls but one out of action, substantially as described.

5 2. In a knitting machine, the combination with the knitting devices, of a series of independently movable pattern chains, a series of pawls and ratchets for actuating said pattern chains and controlling means for
10 said pawls holding all but one of said pawls and ratchets out of operation, substantially as described.

3. In a knitting machine, the combination with the knitting devices and their actuating means including a clutch, of a plurality
15 of automatically operating devices for unclutching the actuating devices from the knitting devices after knitting different predetermined lengths of web, and means for
20 selecting the desired stopping device, substantially as described.

4. In a knitting machine, the combination with the clutch, of a spring actuated device for separating the clutch members, a detent
25 for holding the clutch members in engagement, a series of independent pattern chains for releasing said detent and means for holding all of said pattern chains save one from movement, substantially as described.

30 5. In a machine for knitting the fingers of gloves, the combination with the knitting mechanism, of means for starting the said knitting mechanism, a plurality of devices for stopping said knitting mechanism, each
35 adapted to stop said knitting mechanism after a different predetermined length of web has been knit, substantially as described.

6. In a machine for knitting the fingers of gloves, the combination with the knitting
40 mechanism, of a plurality of means for arresting the operation of the knitting mechanism, each adapted to arrest the knitting mechanism after a different predetermined length of web has been knit, and manually
45 operated means for calling into action the desired stopping means.

7. In a machine for knitting the fingers of gloves, the combination with the knitting devices, of pawl and ratchet mechanism for

moving pattern chains for stopping the knitting devices at predetermined distances and
50 means for controlling the said pawl and ratchet mechanism to cause the stopping of the machine at different predetermined
55 points, substantially as described.

8. The combination with a clutch, of a spring actuated device for separating the clutch members, of a detent for holding the member of the clutch in engagement, a series
60 of independently moving pattern chains for releasing said detent, a series of pawls for actuating said pattern chain, and a controller holding all but one of said pawls out of operative position, substantially as described.
65

9. In a knitting machine, the combination of a series of pawls, ratchets and sprockets, of a pattern chain for each sprocket, each of
70 said chains having a riser thereon, a clutch and devices intermediate said pattern chains and clutch permitting each riser to separate the clutch members, substantially as described.

10. The combination with a series of ratchets and actuating pawls therefor, of a
75 shaft provided with a disk for each pawl, each disk constructed to have its peripheral surface hold its pawl out of operation, said disks having each a notch which permits the pawl to actuate its ratchet, substantially as
80 described.

11. The combination with a series of ratchets and actuating pawls therefor, of a shaft provided with a disk to normally engage and hold said pawls out of operation,
85 each of said disks being provided with a notch permitting its pawl to actuate its ratchet, such notches being also arranged to permit but one pawl to actuate its ratchet at the same time, substantially as described.
90

In testimony whereof we affix our signatures, in the presence of two witnesses.

GEORGE H. GILBERT.
GEORGE W. LINDLEY.

Witnesses:

CHARLES H. WEISS,
ZELIA WHITEMAN.