

(No Model.)

2 Sheets—Sheet 1.

J. M. MERROW.
CROCHETING MACHINE.

No. 441,315.

Patented Nov. 25, 1890.

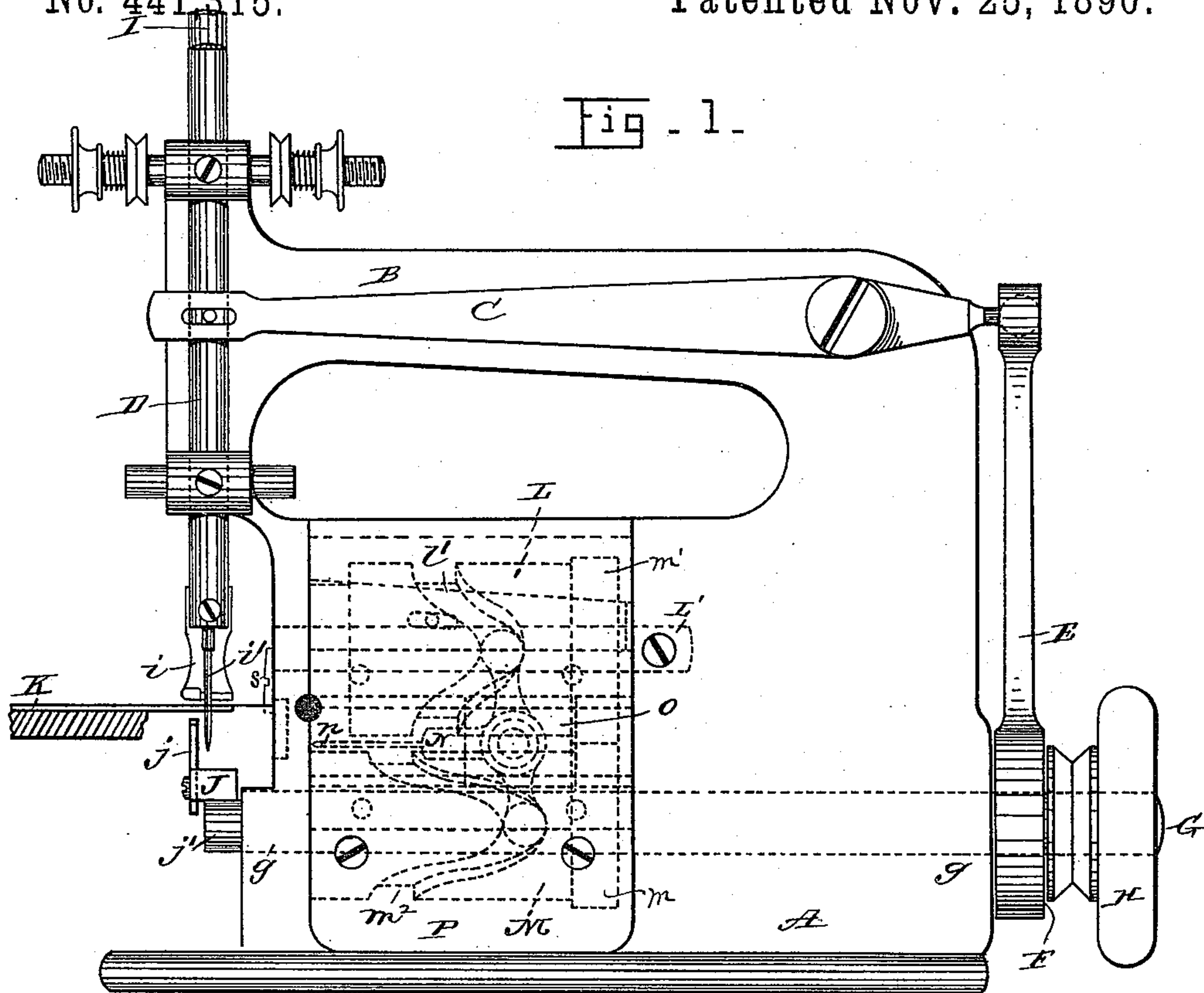
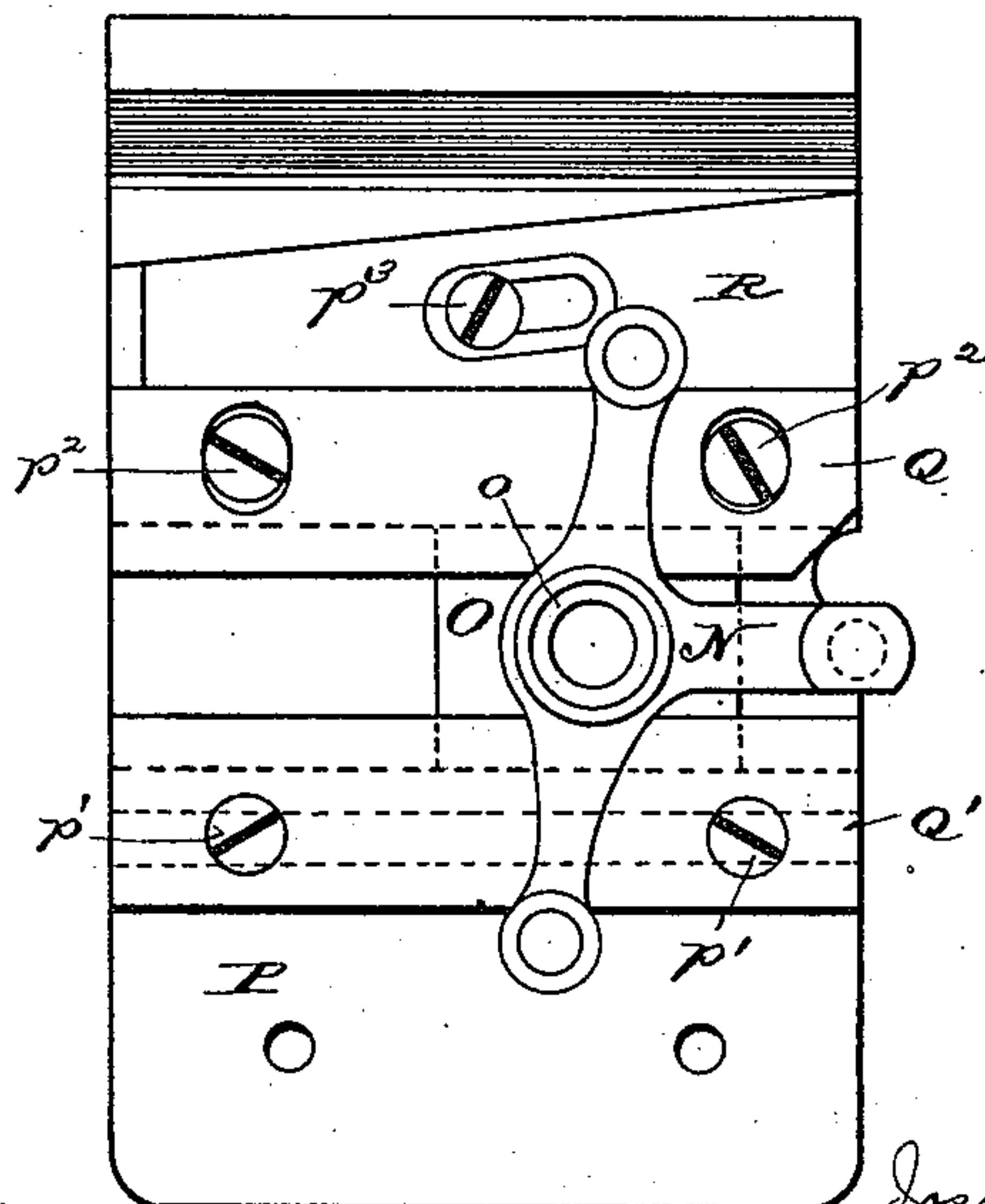


Fig. 2.



Witnesses

Thomas Durant.

E. H. Smith.

Inventor

Joseph M. Merrow.

By his Attorneys

Chas. & Chas.

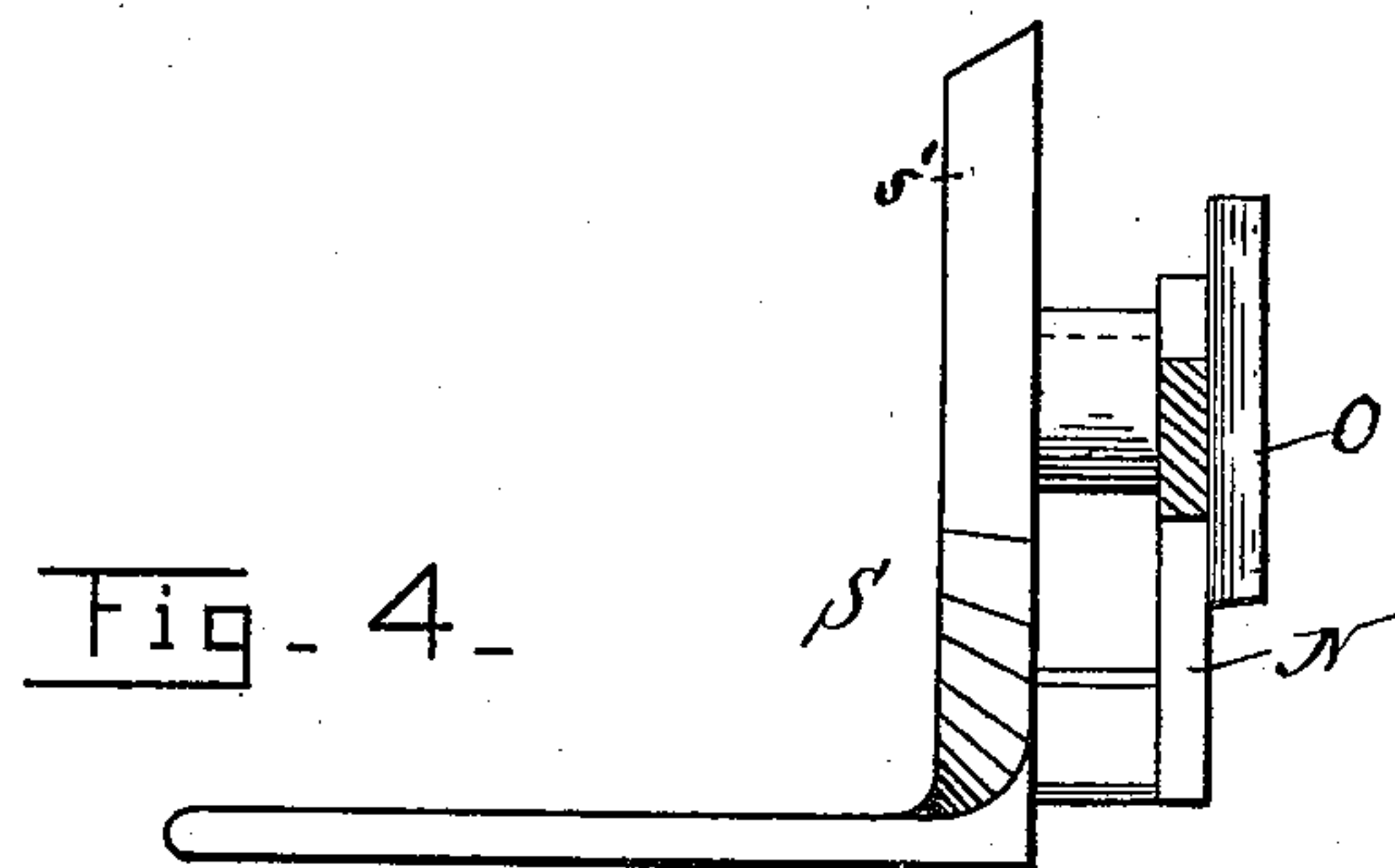
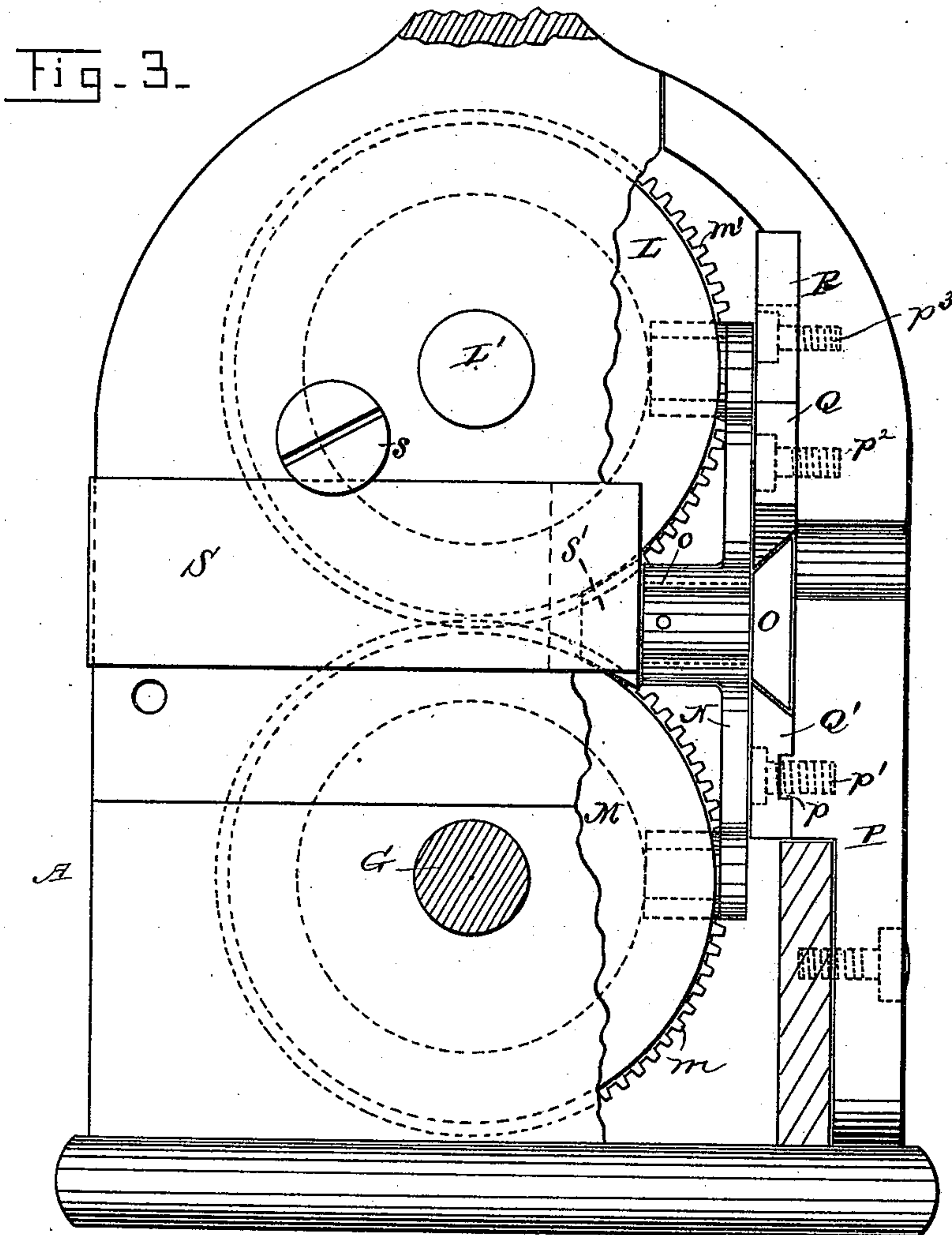
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Charles H. Hume.

UNITED STATES PATENT OFFICE.

JOSEPH M. MERROW, OF MANSFIELD, CONNECTICUT.

CROCHETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 441,315, dated November 25, 1890.

Application filed May 20, 1890. Serial No. 352,524. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. MERROW, of Merrow, town of Mansfield, county of Tolland, and State of Connecticut, have invented certain new and useful Improvements in Crochet-Machines, of which the following is a specification.

My invention relates particularly to machines of the class illustrated and described in Patent No. 414,234, to Merrow and Stedman, under date of November 5, 1889.

The object of my present invention is to improve certain details of such machinery as will hereinafter be fully described, reference being had to the drawings forming a part of this specification, throughout which similar letters of reference indicate like parts.

Figure 1 is a vertical front view of a machine to which my present invention has been applied. Fig. 2 is a detached view of the cap or door reversed. Fig. 3 is an enlarged end view of a portion of the machine, parts being cut away to show the interior. Fig. 4 is a plan view of the angular guide.

A indicates the bed of the machine.

B indicates the needle-arm; C, the needle-operating lever; D, the needle-spindle; E, the eccentric-strap or connecting-rod; F, the eccentric; G, the main shaft; H, the hand-wheel; I, the presser-foot spindle; *i*, the presser-foot; J, the feed-bar; *j*, the feed-dog, and K, the work-plate.

The parts hereinabove enumerated are substantially the same in construction as have heretofore been used in sewing-machines, and it is not deemed necessary to give herein a more complete description of such parts or of their operations.

L and M indicate cam-cylinders.

N indicates the looper-carrier; *n*, the looper or crochet-hook; O, the supporting-block for the looper-carrier; P, the cap or door.

Q Q' indicate gibs, R an adjusting-wedge, and S the adjustable angular guide.

The main shaft G is journaled in the frame of the machine at *g g*, and has secured to it a cam or eccentric *j'* for operating the feed mechanism. To the main shaft G is secured the cam M, upon one end of which is a spur-gear *m*, which meshes into the spur-gear *m'*, secured to the cam L, which is loosely supported upon the stud or arbor L', secured to

the frame of the machine. The irregular cam-grooves *l'* and *m'* act upon pins or projections upon the hook-carrier N to reciprocate the same in directions to and from the needle *i'*, and said cam-grooves are of such form as to swing the said hook-carrier N upon the pivot formed upon or secured to the sliding block O.

By the rotation of the main shaft G and the cams M and L the crochet-hook *n* is operated to grasp the thread from the needle above and below the work-plate K, and to interloop said thread at or beyond the edge of the fabric in a well-known manner.

The above is a general description of one form of crochet-machine; and I will now proceed to describe and explain the devices forming the subject of my present invention, which are particularly designed for supporting the crochet-hook carrier N.

The gib Q' is provided with a groove extending whole length upon one side and fitting upon the projection or tongue *p*, which latter is formed on or attached to the inner surface of the cap or door P, said gib being secured to the cap P by means of screws *p' p'*. The object of the tongue and groove is to prevent any vertical motion or misadjustment of the gib Q'. The upper edge of the gib Q is beveled to match the corresponding edge of the sliding block O. The gib Q is attached to the cap P by means of the screws *p² p²*, the holes for which are slotted in said gib to permit of its vertical adjustment, and the lower edge of said gib is beveled to fit the upper edge of the sliding block O. The wedge R is attached to the cap P by means of the screw *p³*, the hole for said screw being slotted in the wedge R to permit of longitudinal adjustment. A portion of the plain surface of the cap P forms a support for one side of the sliding block O, while the two gibs with their beveled edges support said block vertically and hold it in contact with the cap P. The sliding wedge R is used for the purpose of adjusting the gib Q and retaining it in its proper position.

Owing to the very rapid motion of the sliding block O, it is subjected to considerable wear, as are the guides Q Q'. Moreover, it becomes very necessary that said block should be accurately guided, but without allowing

so much lateral movement or play, as will result in chattering due to lost motion. To obviate this and secure accurate fitting of the block within its guides and to permit the latter to be adjusted to compensate for wear, one of the gibs Q is made adjustable, as described.

The crochet-hook carrier N is placed loosely upon the cylindrical portion *o* of the sliding block O, and is retained or held in place by means of the angular piece S, one side of which is placed in contact with said hook-bar N, the other side or end of said piece S being held in a groove in the end of a machine, where it is adjustably secured by a screw *s*, as shown in Fig. 3.

The angle-piece S when properly adjusted prevents all "end chase" of the looper-carrier N upon the part *o* of the sliding block O. The gibs or ways on which block O reciprocates may be applied to any stationary portion of the frame or casing in position to hold and maintain the vibratory hook-carrier in operative relation with its controlling devices; but I prefer to apply said guides to a movable or removable section P, forming part of the casing for surrounding and inclosing the carrier and its operating devices. It will be observed that by this arrangement of parts the vibrating carrier and its reciprocating support are sustained entirely upon the movable section P, so that by simply withdrawing said section of the casing the hook-carrying mechanism may be separated and removed from its actuating devices without dismemberment or alteration, and the several parts can then be adjusted, repaired, or renewed or the whole replaced and at once fitted in operative relation to the other parts of the machine by returning the section P to position. This provision for the withdrawal and replacement of the hook-carrying mechanism is of considerable importance, as the parts constituting such mechanism are subjected to the greatest amount of wear and require more attention than any other portions of the machine.

The inner end or face of the hook or looper carrier reciprocates in contact with a fixed guiding-surface, (angle-piece S,) against which it is held by the section P, when the latter is in position, thus obviating the necessity for other means for confining said carrier upon its pivotal support and at the same time furnishing an efficient means for taking up wear and preventing lost motion.

One limb of the angle-piece S rests in a groove or guide in the front of the frame, the screw *s* serving to hold it in adjusted position, while the other limb of the angle-piece is projected within the frame or casing and stands parallel with the cam-cylinders and the sliding block O, so that the inner face of carrier N, pivoted on said block, will be reciprocated along and parallel with the face of the inner limb of angle-piece S, which latter thus serves to hold the carrier on its pivot *o*.

It will be observed that the part *s'* of the angle-piece lying between the cam-cylinders constitutes the guide proper, the outer limb or plate of the angle-piece S serving merely as a convenient means for supporting and adjusting said inner limb or guide *s'*. In the illustration given the inner limb *s'* is made somewhat narrower and thicker than the outer limb or plate, so that it may readily be accommodated in the space between the carrier N and the two cam-cylinders, while the wider portion or outer limb furnishes a wide bearing on the frame. It will also be observed that the guide *s'* serves not only to sustain the carrier upon the pin or pivot of sliding block O, but it also serves by engaging the outer end of looper-carrier N—i. e., that part in which the crochet-hook is fastened—to guide and hold the crochet-hook toward the needle and in position to cause it to engage the thread carried by the needle.

Having thus described my invention, what I claim as new is—

1. In a machine such as described, the combination, with the reciprocating block or support provided with an undercut or dovetailed guide, the oscillating carrier pivotally mounted upon said support, and actuating devices controlling the movements of said carrier, of the gibs attached to the frame and forming ways for the block, one of said gibs being fixed and held from movement, the other laterally adjustable and sustained in position parallel with the first-named gib by a wedge, substantially as described.

2. In a machine such as described, the combination, with the carrier, reciprocating block or support, and actuating mechanism, of the ways upon which said block is reciprocated, the same comprising a removable gib held in position by a longitudinal rib and an adjustable gib backed by a wedge and held parallel with said first-named gib, and a dovetail or undercut guide or rib on the reciprocating block received between the inclined parallel surfaces of the gibs and the face of the support, substantially as described.

3. In a machine such as described, the combination, with the hook-operating mechanism comprising a carrier loosely pivoted upon a block or support guided to reciprocate on ways and controlled by actuating devices, such as cams, of a fixed guiding-surface engaging the carrier to retain it in position upon its pivot, substantially as described.

4. In a machine such as described, the combination of a block or support guided to reciprocate on ways applied to a removable section of the frame and provided with a pivot or journal, an oscillating carrier mounted upon said pivot and projecting to or beyond the end thereof, actuating devices engaging the carrier, and a fixed surface parallel with the line of movement of the said reciprocating block or support and engaging the carrier when in position to hold it upon its pivot, substantially as described.

5. In a machine such as described, the combination, with a thread-carrier, a looper, and actuating devices for controlling the looper mechanism, and a frame inclosing the looper-actuating devices, of an oscillatory reciprocating looper-carrier guided and supported upon a removable section of the frame, substantially as described.

6. The combination, with the thread-carrier, a looper and actuating devices for the looper mechanism, and a frame or casing inclosing the said looper-actuating devices, of a looper-carrier pivotally attached to a reciprocating support and engaging the actuating devices and guides or ways for said support, mounted upon a removable section of casing inclosing the actuating devices, substantially as described.

7. The combination, with the thread-carrier, looper, rotating cams, and casing inclosing the latter, of an oscillatory reciprocating looper-carrier supported wholly upon a removable section of said casing, substantially as described.

8. The combination, with a thread-carrier, looper, and rotating cams controlling the movements of the looper, of a looper-carrier pivoted upon a block or support, the latter reciprocating on ways applied to a removable section of the frame, and a fixed guiding or retaining surface against which the carrier operates, substantially as described.

9. The combination, with the thread-carrier, the looper, and the looper-actuating cams, of the oscillatory reciprocating looper-carrier, the block or support upon which said carrier is pivoted, the adjustable gibs or guides on which said block reciprocates, and the adjustable guide-bar engaging the carrier to maintain it in position upon its pivot, substantially as described.

10. The combination, with the rotating cams and the oscillatory reciprocating looper-carrier supported upon a removable section of the casing, of the angular guide secured to the front of the casing and having one arm projecting within the casing to form a guide for the inner side of the looper-carrier, substantially as described.

11. In a machine such as described, the combination, with the thread-carrier and the oscillating looper-carrier supported to reciprocate on guides or ways, of a guiding-surface engaging the outer or forward portion of the carrier to hold the looper up to the thread-carrier and insure its engaging the thread, substantially as described.

JOSEPH M. MERROW.

Witnesses:

CHAS. F. THAYER,
GEO. E. PARSONS.