

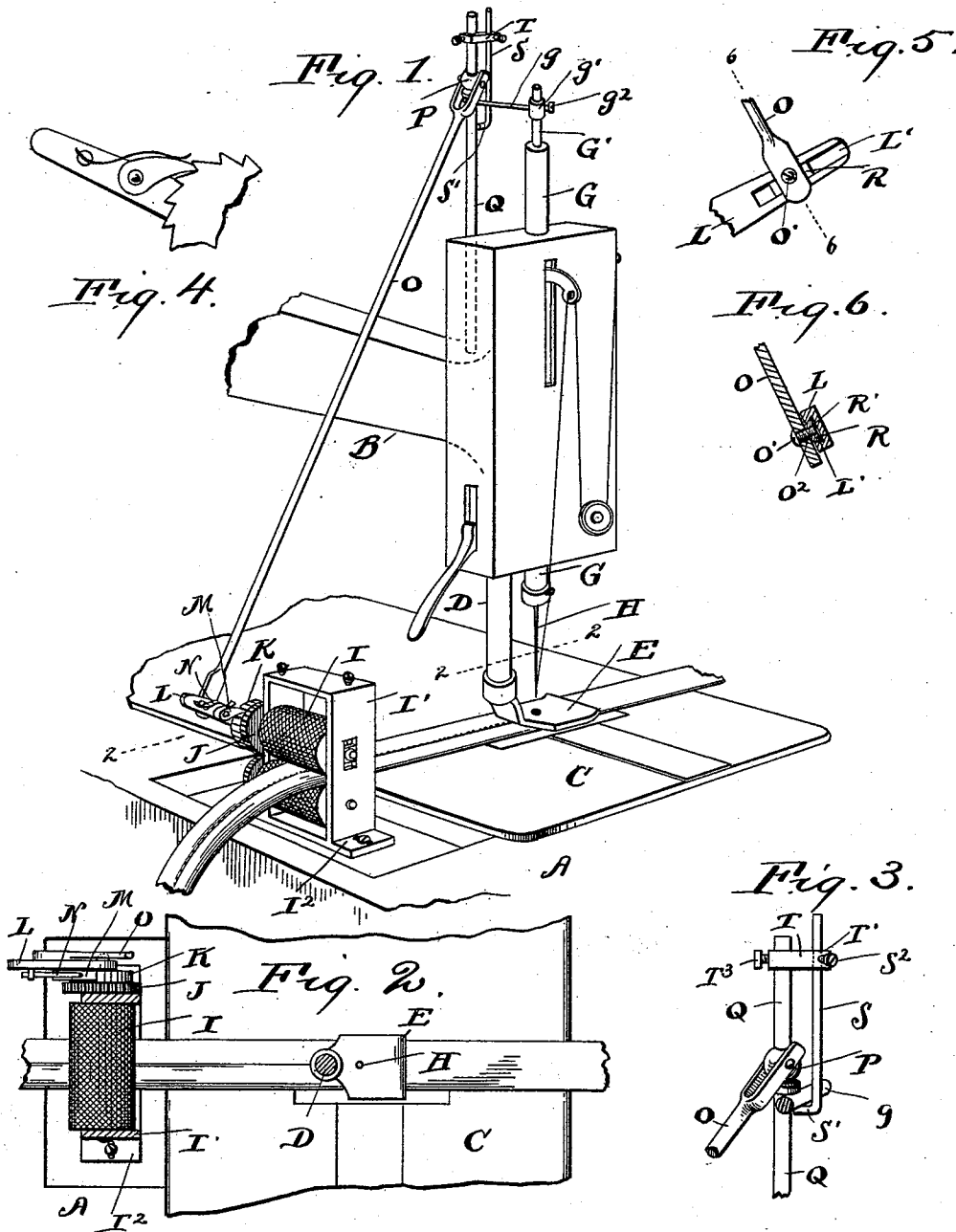
(No Model.)

T. McGOWAN.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 541,567.

Patented June 25, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMSON MCGOWAN, OF CLEVELAND, OHIO.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 541,567, dated June 25, 1895.

Application filed February 23, 1894. Serial No. 501,164. (No model.)

To all whom it may concern:

Be it known that I, THOMSON MCGOWAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Sewing-Machine Feeds; and I 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 pertains to make and use the same.

My invention relates to improvements in sewing-machine-feeds; and it consists in certain features of construction and in combinations of parts hereinafter described and pointed out in the claims.

A preferable construction of sewing-machine-feed, embodying my invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view in perspective of a portion of the table and head of a sewing-machine and my improved feed. Fig. 2 is a top plan, partly in section, on line 2 2, Fig. 1. Fig. 3 is a view in perspective of a portion of the feeding mechanism. Figs. 4 and 5 are elevations in detail hereinafter described; and Fig. 6 is a transverse section on line 6 6, Fig. 5.

Referring to the drawings, A designates the table of a sewing-machine; B, the overhanging arm or goose-neck of the head of said machine; C, the bed-plate of the sewing-machine-head; D, the presser-bar; E, the presser-foot; G, the needle-bar, and H the needle.

A suitable distance rearward of the presser-foot and arranged in line with, but transversely of, the path of the work, are located two feed-rollers I, the one above the other, and suitably supported from and between housings or standards I'. Said rollers are adapted to engage opposite sides of the work, respectively, and the rollers are preferably so arranged relative to the top surface of the bed-plate of the sewing-machine-head that the work shall pass from the needle to the feed-rollers in a horizontal or approximately horizontal plane.

The feed-rollers are milled, toothed, or otherwise roughened, upon their peripheral surface, to render them capable of taking hold of or biting the work as required in order to positively feed the work.

The rollers are rotated intermittently in the direction required to feed the work in any

suitable manner, but are preferably operated by mechanism actuated through the needle-bar of the sewing-machine, and, to this end, I provide as follows: The feed-rollers, at one end, are intergeared with each other, as at J, so that when motion is communicated to one of said rollers, the other roller shall also be rotated, but in an opposite direction. A ratchet-wheel K is fixed or operatively mounted upon one of the trunnions of one of the feed-rollers, and, loosely mounted upon the same trunnion, at the outer side of said ratchet-wheel is a lever L, to the side whereof adjacent to the ratchet-wheel, is suitably secured a pawl, M, that is adapted to engage the teeth of said wheel and operate the latter as required in order to communicate motion to the feeding-rollers. A spring, N, that engages and acts to retain the pawl in engagement with the ratchet-wheel is preferably secured to lever L. Lever L is operatively connected, by means of a bar or link O, with a collar, P, that is slidably mounted upon an upright post Q rigid with the overhanging arm or goose-neck of the sewing-machine-head. Link O, at its lower end, is pivotally connected to lever L, and, at its upper end, is pivoted or swiveled to sliding-collar P. The arrangement of parts is such that as said sliding-collar and the upper end of the link are elevated, as hereinafter described, the aforesaid lever is actuated in the direction to cause the pawl, that it carries, to move the ratchet-wheel in the direction to actuate the feed-rollers as required to feed the work, and when said sliding-collar and link again descend the pawl shall be lowered one or more notches of the ratchet-wheel into position for the next succeeding movement of the feed-rollers. The pivotal connection of bar or link O to lever L is preferably adjustable endwise of said lever so that the throw of the lever and consequently the amount of feed that is transmitted to the feed-rollers through the aforesaid pawl and ratchet-wheel, is increased or decreased according as said pivotal connection is adjusted farther from or toward the axis of said lever.

A preferable construction is shown in Figs. 5 and 6, wherein bar or link O is pivotally secured to a slide R that is adjustable endwise of a slideway L' formed within and arranged longitudinally of lever L, the bar or link being secured to said slide by means of

a screw O' that extends easily (see Fig. 6) through a hole O² in the bar or link and engages a correspondingly threaded hole R' in the slide, by which construction, it will be observed that, by loosening the screw, the slide is rendered free to be adjusted endwise of the slideway, and is secured in the desired adjustment by tightening the screw.

The upper end of the needle-bar of the sewing-machine carries a laterally-extending arm or member *g* that is adapted to engage the underside of sliding-collar P, and the arrangement of parts is such that, upon the elevation or disengagement of the sewing-machine needle from the work, said arm *g* of the needle-bar shall come into engagement with said sliding-collar, and shall thereupon lift said collar to effect the operation of the feeding-mechanism. The upper end of the needle-bar is preferably reduced in thickness, as at G', and arm or member *g*, at its inner end, terminates in a sleeve *g'* that is mounted upon and adjustable endwise of said reduced portion of the needle-bar and is secured in the desired adjustment by means of a set-screw *g*² that engages said reduced portion of the needle-bar through a correspondingly-threaded hole in the aforesaid sleeve. By means of the adjustability of said laterally-extending arm or member of the needle-bar the stroke of link O is capable of being lengthened or shortened, as desired. A suitable guide for holding the aforesaid laterally-extending arm or member of the needle-bar, in engagement with the under side of sliding-collar P in the up-and-down movement of said link and collar, is preferably provided, said guide consisting preferably of an upright rod or member S that is located in suitable proximity to and suitably supported from post Q. Guide S, at its lower end, is bent laterally, as at S', to form a rest for the laterally-extending arm or member of the needle-bar, when said arm is in its lowermost position, and is adjustable vertically, the same extending through a vertical hole T' in an arm T mounted upon the upper end of post Q and being secured in the desired adjustment by means of a set-screw S² that engages said guide through a correspondingly-threaded hole in said arm. Arm T is preferably adjustable also, the same being preferably secured to post Q by means of a set-screw T³, that engages the post through a correspondingly-threaded hole in the arm. The feed-rollers are also preferably adjustable longitudinally, or in a direction transversely of the path of the work, and, to this end, the uprights or standards that support said rollers, are rigid with a plate I² that is adjustably secured, by means of bolts or screws I³, to the sewing-machine-table, the bolt or screw-holes in said plate being elongated in the direction required to accommodate said adjustment.

What I claim is—

1. In a sewing-machine feed, the combination with the overhanging arm B of a sewing-machine-head, needle-bar, presser-bar, a feed-

ing-roller located rearward of the presser-bar, of an upright post Q rigid with the aforesaid arm, a sliding-collar mounted upon said post, a link operatively connected with the aforesaid roller and pivotally secured to the aforesaid collar, suitable means for effecting the elevation or disengagement of the needle from the work, all arranged and operating substantially as and for the purpose set forth.

2. In a sewing-machine-feed, the combination of the needle-bar, presser-bar, a feeding-roller located rearward of the presser-bar, a ratchet-wheel operatively connected with said roller, a lever fulcrumed to any suitable support, a pawl carried by said lever and adapted to engage and turn the ratchet-wheel in the direction to cause the feeding-roller to perform its function, a stationary upright member, a sliding-member mounted upon and capable of reciprocation endwise of said upright member, a link pivoted to said sliding-member and operatively connected with the aforesaid lever, and suitable means carried by the needle-bar for engaging and elevating said sliding-member upon the elevation or disengagement of the needle from the work, substantially as set forth.

3. In a sewing-machine-feed, the combination of the needle-bar, presser-bar, a feeding-roller located rearward of the presser-bar, mechanism for actuating said roller, a stationary upright member, a member slidably mounted upon said upright stationary member, a link operatively connecting said sliding-member with the aforesaid roller-actuating-mechanism, and an arm carried by the needle-bar for engaging and actuating said sliding-member in the direction to effect the operation of the feeding-roller, and suitable means for retaining said needle-bar or arm in engagement with the sliding-member, substantially as set forth.

4. In a sewing-machine-feed, the combination of the needle-bar, presser-bar, a feeding-roller located rearward of the presser-bar mechanism for actuating said roller, a stationary upright member rigid with the overhanging arm of the sewing-machine head, a member slidably mounted upon said upright stationary member, a link operatively connecting said sliding-member with the aforesaid roller-actuating-mechanism, an arm on the needle-bar for actuating said sliding-member in the direction to effect the operation of the feeding-roller, an upright guide for said arm to retain the latter in engagement with the aforesaid sliding-member, said upright guide being adjustable vertically, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 28th day of December, 1893.

THOMSON MCGOWAN.

Witnesses:

C. H. DORER,
WARD HOOVER.