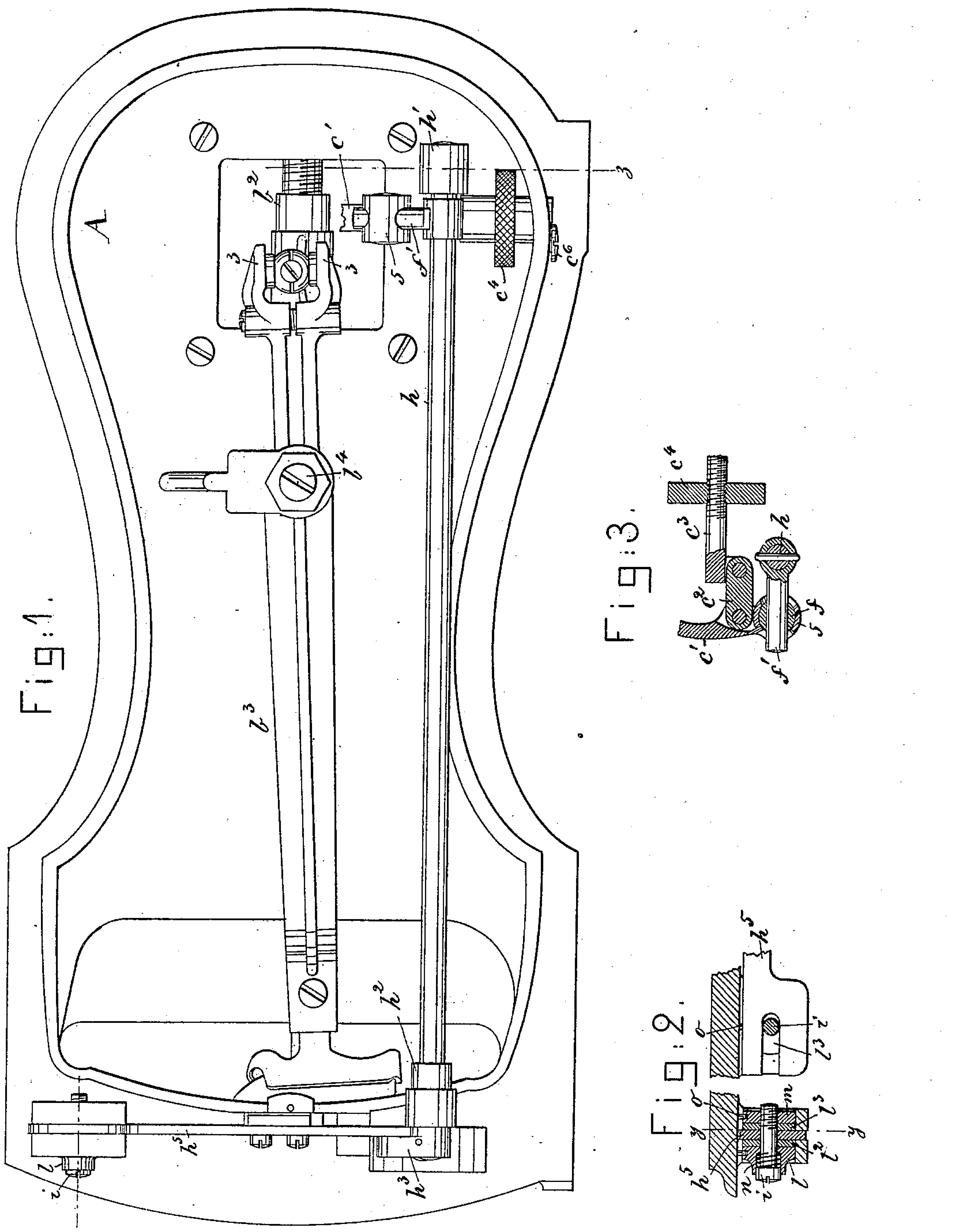
(No Model.)

2 Sheets—Sheet 1.

A. E. WALLACE.

SEWING MACHINE.

No. 246,698. Patented Sept. 6, 1881.



Witnesses.

L. F. Connor

W. H. Sigston.

Inventor.

Albert E. Wallace

by Crosby & Gregory Attys.

N. PETERS. Photo-Lithographer. Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

A. E. WALLACE.

SEWING MACHINE.

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Fig. 8.

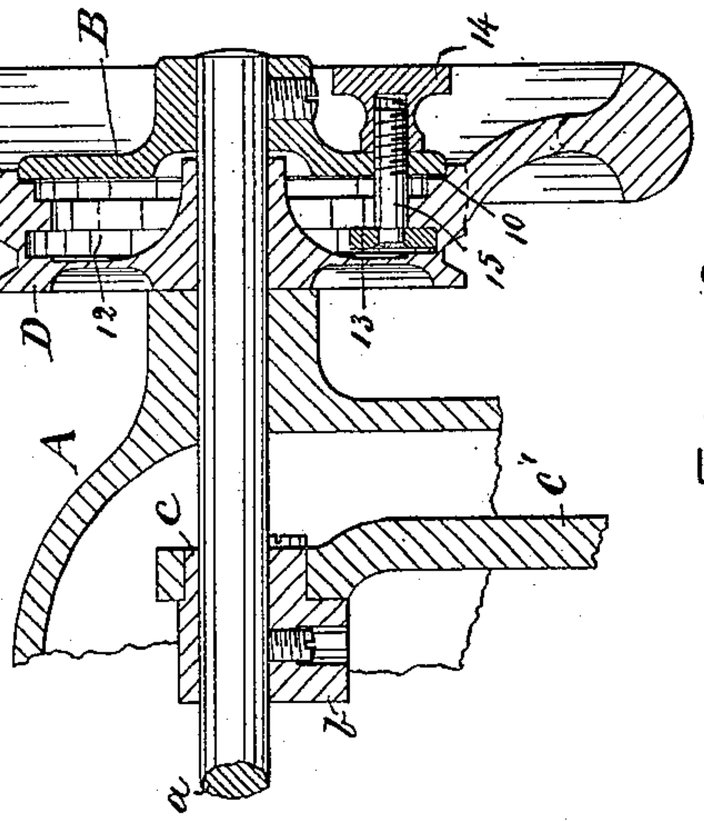


Fig. 9.

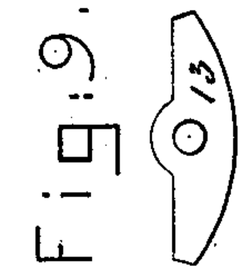


Fig. 7.

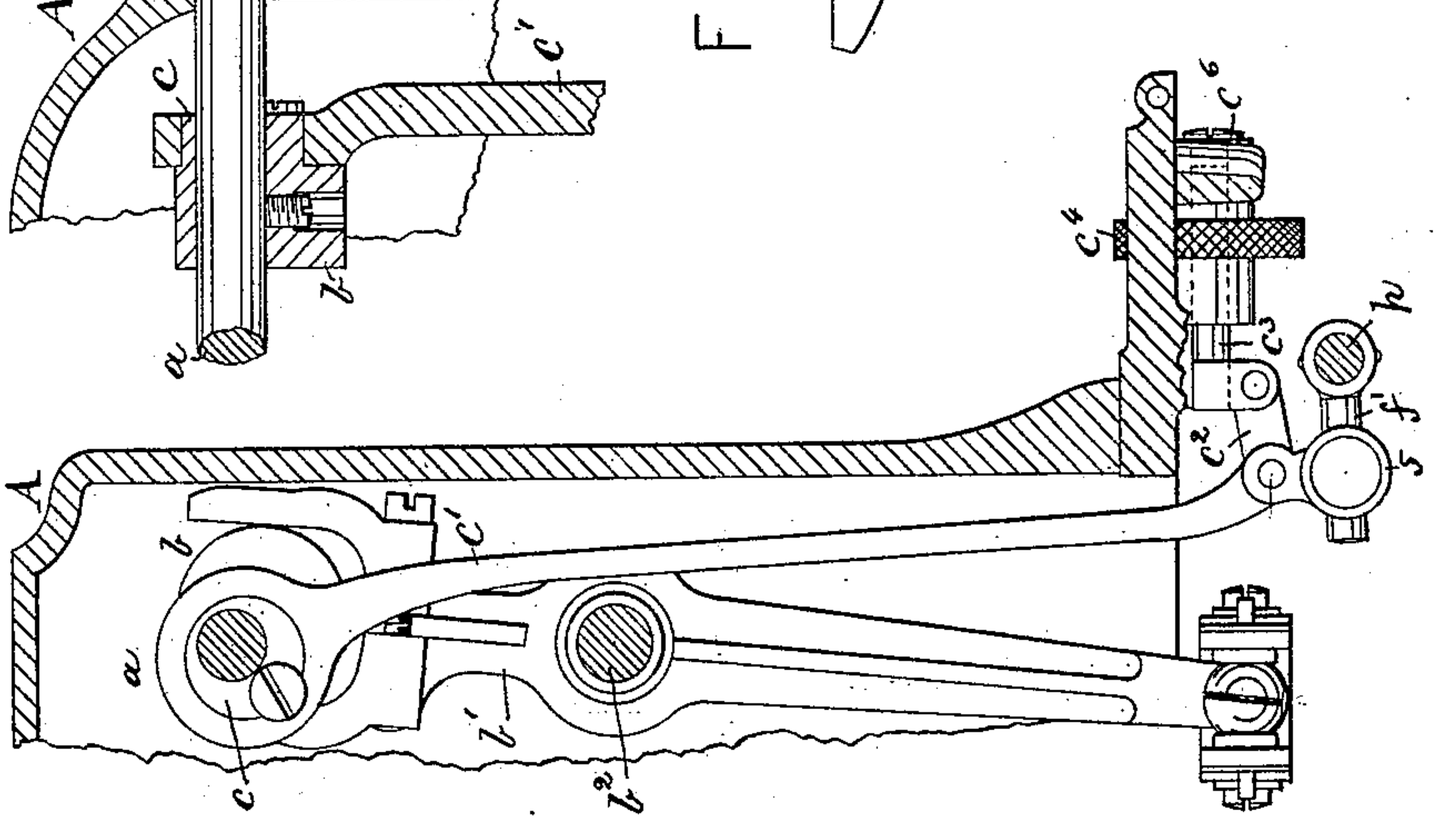


Fig. 6.

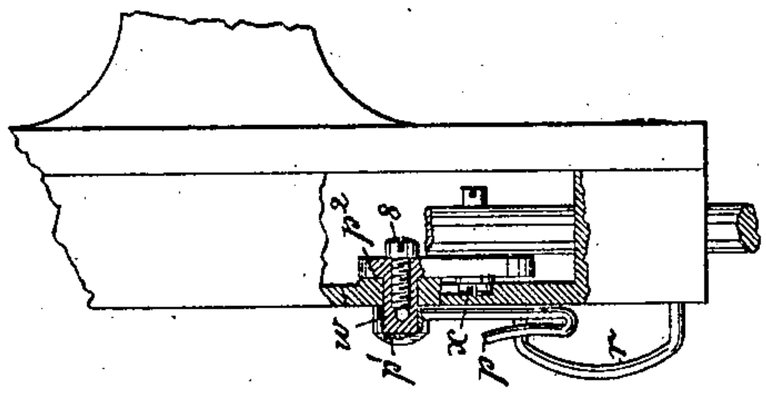
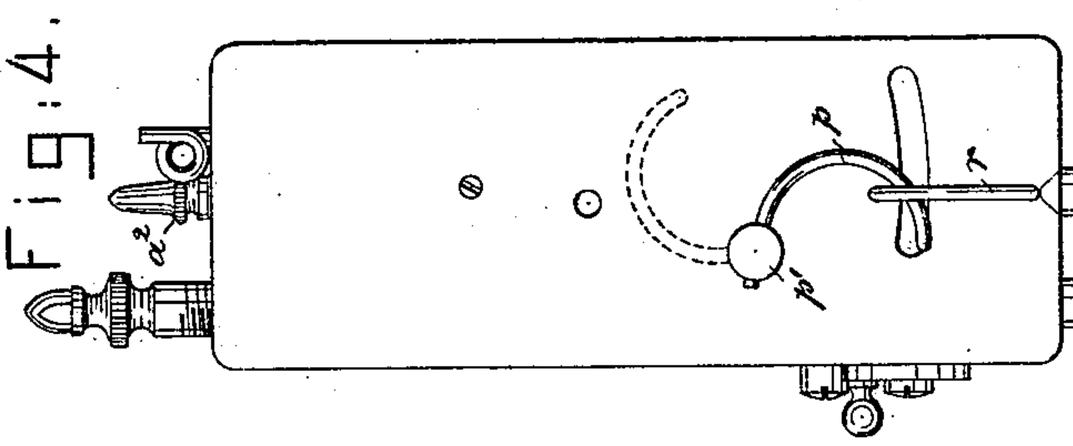


Fig. 4.



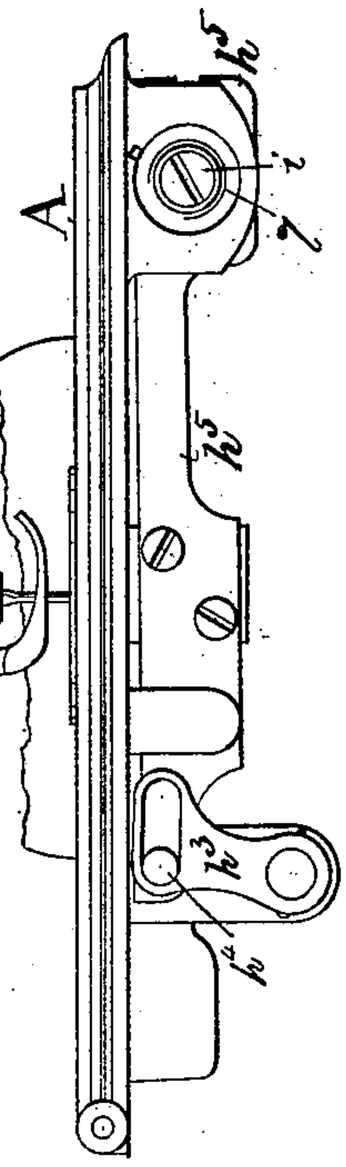
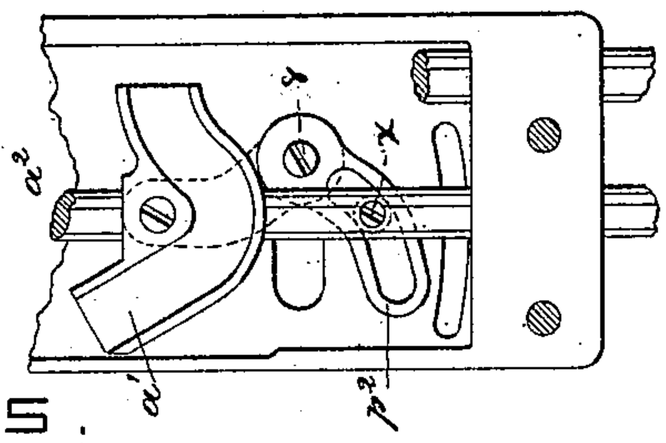


Fig. 5.



Witnesses.

L. F. Connor.

W. H. Leighton.

Inventor.

Albert E. Wallace

by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

ALBERT E. WALLACE, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE WEED SEWING MACHINE COMPANY, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 246,698, dated September 6, 1881.

Application filed May 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. WALLACE, of Hartford, county of Hartford, State of Connecticut, have invented Improvements in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to a sewing-machine of the class making a lock-stitch with a needle and shuttle, and has for its object improvements in its construction, whereby the parts are simplified.

My invention is an improvement in that class of lock-stitch machines wherein the shuttle is carried by a horizontally-vibrating lever actuated from a vertical lever of the first order vibrated by a cam or eccentric.

My invention consists in improvements in means for operating the feeding-bar and regulating its movements without lost movement; also, in an improvement in the take-up; also, in the combination, with the feeding-bar, of friction device to hold the feeding-bar except when moved positively; also, in improvements in devices for permitting the driving-wheel to be loosened from the main or needle-bar actuating-shaft.

Figure 1 represents an under-side view of a sewing-machine containing my invention. Fig. 2 represents vertical cross and longitudinal sectional details of the friction device for holding the feed-bar and the end support for the feed-bar. Fig. 3 is a sectional detail of the feed-adjusting device detached from the machine; Fig. 4, a front elevation of the machine, to show the take-up; Fig. 5, an interior detail of the head of the machine, to illustrate the take-up; Fig. 6, a detail of the head, broken out to show the take-up; Fig. 7, a vertical cross-section of the rear part of the machine on the dotted line *z*, Fig. 1, and the vertical lever of the shuttle-moving devices, looking toward the front of the machine. Fig. 8, a sectional detail of the loose-wheel connection; and Fig. 9, a detail, to be referred to.

The frame A of the machine (of suitable shape) supports the rotary shaft *a*, provided at its front end with any usual crank-pin to enter the grooved block *a'*, secured to the needle-bar, all as common. This shaft has upon it two cams, *b c*, made in one or two pieces. The cam *b* enters between the forks at the upper end of the usual vertical lever, *b'*, pivoted at b^2, and vibrates the said lever, causing it, with its ball-like end, to vibrate the horizontal shuttle-carrying lever b^3, pivoted at b^4, all as usual. The cam *c* enters an opening of the link *c'*, provided at its lower end with a socket, 5. The link *c'* is jointed to a link, c^2, the outer end of which, in turn, is jointed to the screw c^3 of the feed adjusting or controlling device, having upon it the milled nut c^4, a portion of the periphery of which is extended up through a slot in the bed of the machine just sufficient in width to receive it, the periphery of the said nut being easily reached by the operator to turn the said nut and cause it to move the screw horizontally, while the nut has only a movement of rotation.

The outward movement of the screw c^3 is regulated by the head of the stop-screw c^6.

The socket 5 receives within it a short cylinder, *f*, provided with a hole to receive the arm *f'*, pinned or otherwise secured to the feed-operating rock-shaft *h*, supported in bearings h' h^2, and having at its other end a slotted arm, h^3, such as now used in the well-known "Weed" sewing-machine, it engaging the pin h^4 of the usual feed-bar, h^5.

The rear end of the feed-bar (see Fig. 2) is slotted to fit over a screw, *i*, which supports the feed-bar during its movements. This screw is extended through a spring, *n*, disk *l*, a leather or other washer, l^2, then through the slot in the feed-bar, and another washer, l^3, and screwed into a loose disk, *m*.

The disks *l m* are prevented from rotating by means of the guide-pins *o;* but they may move longitudinally, as the screw is made to compress the spring *n* to thus cause the washers l^2 l^3 to pinch the feed-bar more or less and prevent it being moved, except positively for just the distance intended.

The take-up arm *p* is shown as made of a wire, bent, as shown in Figs. 4 and 6, and adapted to vibrate in front of the head of the machine from the dotted to the full line position, Fig. 4, and draw the needle-thread back with it through the staple *r* when taking up the slack in the needle-thread.

The arm *p* is inserted through a hole in a cap, *p'*, slipped over the end of a stud, *w*, forming part of the slotted arm p^2 of the take-up, the

slot in the said arm receiving a roll on a stud, *x*, connected with and projecting from the front side of the needle-bar.

The screw 8, extended through the stud *w*, impinges against the arm *p* and holds it firmly in place. The said arm *p*, stud *w*, and arm p^2 constitute the take-up proper. This take-up is operated positively in both directions from the needle-bar to furnish slack in the needle-thread for the passage of the shuttle when the needle is below the fabric and take up the slack in the needle-thread and draw the stitch taut as the needle-bar and needle rise, the take-up remaining stationary in its dotted-line position, Fig. 4, during the last portion of the ascent and the first part of the descent of the needle-bar.

The shaft *a* has fixed to its outer end the friction-disk B, the periphery of which is entered into a recess in, and so as to bear against, an annular shoulder, 10, made at the outer face of the belt receiving or driving wheel D, placed loosely on the said shaft *a*. The hub of this wheel has an annular groove, 12, which receives a shoe, 13. (See Figs. 8 and 9.) A screw-shank, 15, extended from this shoe through a hole in the friction-plate B, receives a thumb-nut, 14. This shoe, shank, and thumb-nut constitute the loose-wheel locking device. The shoe once inserted in the annular groove 12 remains there and acts as a head for the shank 15, so that as the nut 14 is turned the wheel D may be drawn more or less closely against the fast friction-disk B. When held closely to the said disk the wheel takes hold of and drives the disk and shaft, but at all other times, as when the wheel is released from driving-pressure against the said disk, the wheel D runs loose on and the shaft *a* remains at rest.

I claim—

1. The shaft *a*, its eccentric or cam, link *c'*, provided with socket 5, link c^2, screw c^3, and nut c^4, combined with the feed-bar rocker-shaft and its arms *f'* and h^3, substantially as described.

2. The link *c'*, provided with the socket 5, and the link c^2, combined with the screw c^3, pivoted to the said link, and with the nut extended up through a slot in the bed of substantially the same width as the said nut, as and for the purpose set forth.

3. The feed-bar, slotted at one end, combined with the friction devices composed of the two disks and screw, spring, and washers, substantially as described.

4. The take-up composed of the slotted arm p^2, its stud *w*, and arm *p*, connected with the said stud, as described, combined with the needle-bar and its stud, to enter the slot of the arm p^2 and operate the take-up positively, as set forth.

5. The shaft *a* and friction-disk fast thereon, and the wheel-locking device composed of the shoe, shank, and nut, combined with the wheel D, grooved to receive the said shoe, and shaped to be drawn closely in contact with the said friction-disk, substantially as and for the purpose described.

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

ALBERT E. WALLACE.

Witnesses:

J. L. BLANCHARD,

JNO. KNOUS.