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P. FABISCH.

AUTOMATIC STOP MECHANISM FOR BUTTONHOLE SEWING MACHINES.

(Application filed Jan. 30, 1902.)

(No Model.)

Fig. 1.

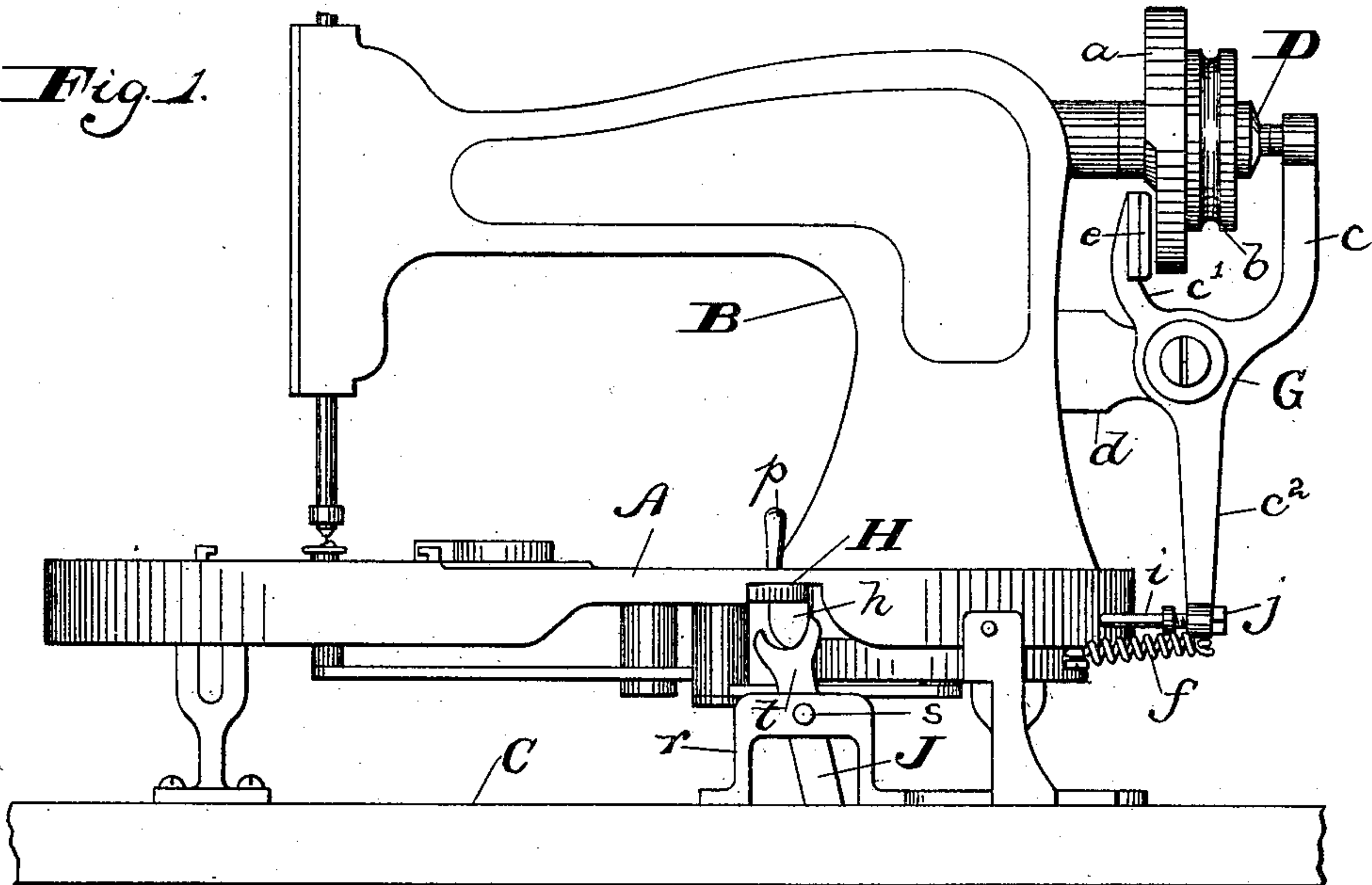


Fig. 2.

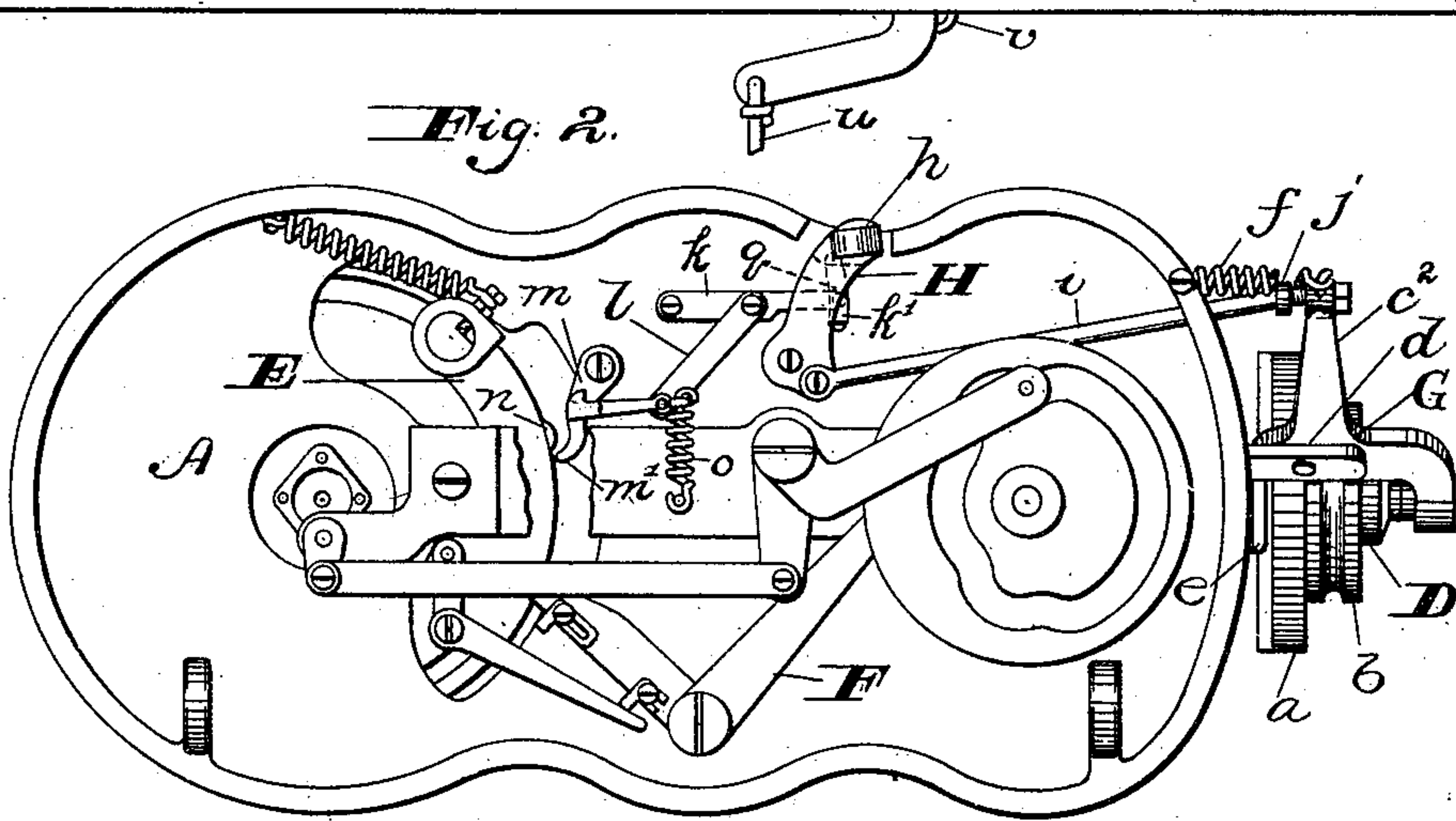


Fig. 4.

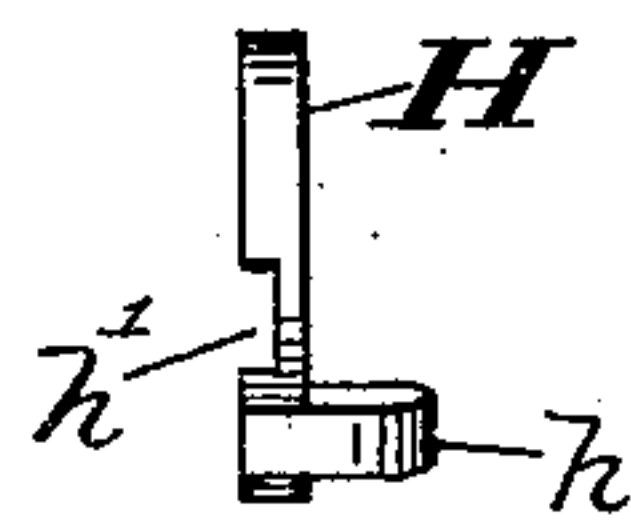
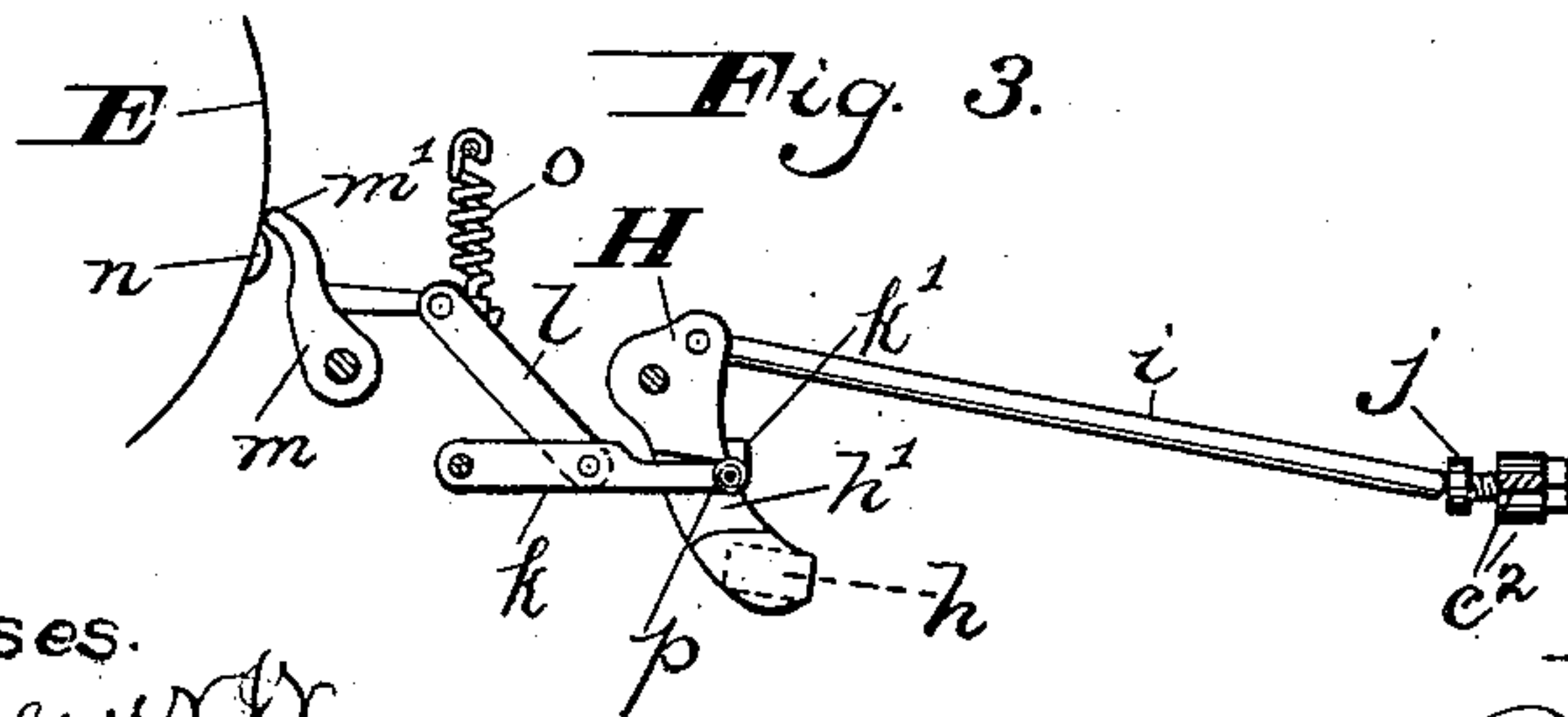


Fig. 3.



Witnesses.

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PHILIP FABISCH, OF BALTIMORE, MARYLAND.

AUTOMATIC STOP MECHANISM FOR BUTTONHOLE-SEWING MACHINES,

SPECIFICATION forming part of Letters Patent No. 713,079, dated November 11, 1902.

Application filed January 30, 1902. Serial No. 91,821. (No model.)

To all whom it may concern:

Be it known that I, PHILIP FABISCH, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Automatic Stop Mechanism for Buttonhole-Sewing Machines, of which the following is a specification.

This invention relates to buttonhole-sewing machines; and its object is to provide in a machine of this character an improved mechanism for automatically stopping the machine when the working of the buttonhole has been completed.

The invention consists in certain constructions, arrangements, and combinations of the parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a buttonhole-sewing machine provided with my improved automatic stop mechanism. Fig. 2 is a bottom plan view thereof. Fig. 3 is a top diagrammatic view of the stop mechanism. Fig. 4 is a detail view of the clutch-actuating lever.

Referring to the drawings, A designates the bed-plate, and B the arm, of a buttonhole-sewing machine of the ordinary type, and C designates the table on which the machine is mounted.

Journalled in the machine-arm B is a horizontal driving-shaft D, which operates the feed-wheel E by means of the vibrating feed-lever F and which also operates the other parts of the stitch-forming mechanism, which it is not deemed necessary to fully illustrate or describe, as it forms no part of the present invention except in combination with the automatic stop mechanism. The said driving-shaft D is provided with a clutch mechanism comprising a fly-wheel *a*, fast on said shaft, and a driving-pulley *b*, loose on said shaft and having a friction-face adapted to contact with the fly-wheel. The driving-pulley, which is intended to be driven continuously by any suitable power, is pressed into frictional engagement with the fly-wheel *a* by one of the upwardly-extending arms *c* of a Y-shape lever G, fulcrumed on a bracket *d*, secured to the machine-arm B. The other upwardly-extending arm *c'* of said lever carries a brake

device *e*, adapted for frictional engagement with the fly-wheel to stop the driving-shaft at the same time the lever-arm *c* removes its pressure from the driving-pulley *b*, and the downwardly-extending arm *c''* of said lever is secured to one end of a coil-spring *f*, whose other end is secured to the bed-plate A, the said spring tending to pull said lever into position to release the driving-pulley from the fly-wheel and to apply the brake device. In combination with these parts of the machine hereinbefore described I have provided an improved mechanism which will hold the clutch-operating lever G against the tension of the spring *f* in position to press the driving-pulley *b* against the fly-wheel *a* until the buttonhole has been worked and which will then at once automatically allow the said spring to pull said lever, whereby to remove the pressure from the driving-pulley and apply the brake to stop the machine. This mechanism will now be described.

A lock-arm H is pivotally mounted on the lower face of the machine bed-plate A so as to move in a plane parallel with said face, and said lock-arm is provided at its free end with a downwardly-projecting lug *h* for a purpose presently described, and is also provided in that side adjacent the face of the bed-plate with a notch or recess *h'*, as best seen in Fig. 3. To the said lock-arm is pivotally connected one end of a rod *i*, whose other end projects out through a down-flange or rim of the bed-plate in juxtaposition to an adjustable bearing-head *j* on the end of the downwardly-extending arm *c''* of the clutch-operating lever G, so that when said lock-arm H is moved in a direction to push said rod the latter will move said clutch-operating lever G against the action of its spring, and thereby throw the clutch into position to start and operate the machine. In order to hold said lock-arm H in the position necessary to operate the machine, as just described, a detent *k* is provided. Said detent is also pivotally mounted at one end on the lower face of the bed-plate A between the lock-arm H and feed-wheel E, and the other end of said detent extends into the notch *h'* of said lock-arm and is provided with a hook or catch *k'*, adapted to take over the end of said notch, as indicated in Figs. 2 and 3, whereby to pre-

vent the lock-bar from being moved in the reverse direction by the rod *i*. Intermediate of its ends the pivoted detent *k* is connected to one end of a link *l*, whose other end is connected to a tripping-dog *m*, which is pivotally mounted on the lower face of the bed-plate A adjacent the feed-wheel E and which is provided with a nose *m'*, which when the machine operates lies in the path of a shoulder *n* on the feed-wheel, so that when said shoulder comes into engagement with the said nose *m'* the latter will be moved to swing the detent out of locking engagement with the lock-arm H. A spring *o* is secured to the bed-plate A and also to the said tripping-dog and tends to draw the latter into the path of said shoulder *n*, and also tends to draw the detent into position to readily take over the end of the notch *h'* in the lock-arm H.

In order to retract the detent from locking engagement with the lock-arm H at any time independently of the feed-wheel, the said detent is provided at its catch end with a handle *p*, which extends upwardly through a slot *q* in the bed-plate within easy reach of the operator.

A bracket *r* is secured on the top of the table C just underneath the downwardly-extending lug of the lock-arm H. A foot-operated lever J is fulcrumed at *s* in said bracket, and its upper end is provided with a forked end *t*, meshing with said lug, and a wire *u* is secured to the lower end of said lever J and is also secured to a foot-treadle. (Not shown.) A spring *v* returns the lever J to its normal vertical position.

In practical operation the lever J is rocked by the foot of the operator, and thereby moves the lock-arm H—in the present instance, to the left—which causes the projecting end of the rod *i* to push against the downwardly-extending arm *c*² of the clutch-operating lever G, and thereby press the continuously-rotating driving-pulley *b* into frictional engagement with the fly-wheel *a* on the driving-shaft D and cause the latter to rotate. At the same time the said movement of the lock-arm H permits the catch end of the detent *k*, which rides on one wall of the notch *h'*, to take over the far end of the latter, as shown in Figs. 2 and 3, as soon as the notch passes beyond the catch, thereby preventing said lock-arm from moving in the reverse direction and holding the rod *i* rigidly against the clutch-operating lever. In this manner the drive-shaft D is caused to rotate. On account of the positive connection between the detent and tripping-dog the latter will when the detent is moved into locking engagement with the lock-arm

be swung into such position that its nose will lie in the path of the shoulder on the periphery of the feed-wheel E. The said shoulder is so located on the feed-wheel that just at the time the working of the buttonhole has been completed it (the shoulder) will contact with the nose of the dog and swing the latter so as to retract the detent from locking engagement with the lock-arm H, which will thus release said lock-arm and allow the coil-spring *f* to move the clutch-operating lever in a direction to stop the machine.

While the accompanying drawings illustrate one form of the invention, it is to be understood that changes in the details of construction may be made without departing from the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a buttonhole-sewing machine, the combination with the bed-plate, feed-wheel, and drive-shaft, of spring-released clutch mechanism for driving said shaft; a rod adapted to press against said clutch mechanism to move it into operative engagement with said shaft; a lock-arm pivotally mounted on the lower face of the bed-plate and connected to said rod and said lock-arm provided with a notch in its side adjacent the bed-plate; a foot-operated lever, J, adapted to move said lock-arm; a detent pivotally mounted on the lower face of the bed-plate and provided with a hooked end mounted in the notch of said lock-arm and adapted to take over the end of said notch; a pivoted tripping-dog adapted to be actuated by the feed-wheel; a link connecting said dog to said detent; and a spring, *o*, acting on said dog, as set forth.

2. In a buttonhole-sewing machine, the combination with the feed-wheel and drive-shaft, of spring-released clutch mechanism for driving said shaft; a rod adapted to press against said clutch mechanism to move it into operative engagement with said shaft; a pivoted lock-arm connected to said rod; a detent pivoted at one end and provided at its other end with a hook adapted to engage said lock-arm; a pivoted tripping-dog arranged to be actuated by the feed-wheel; and a link connecting said tripping-dog with said detent, as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

PHILIP FABISCH.

Witnesses:

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