

(No Model.)

2 Sheets—Sheet 1.

W. F. JAGIELSKI.
FANCY STITCH SEWING MACHINE.

No. 573,881.

Patented Dec. 29, 1896.

Fig. 1.

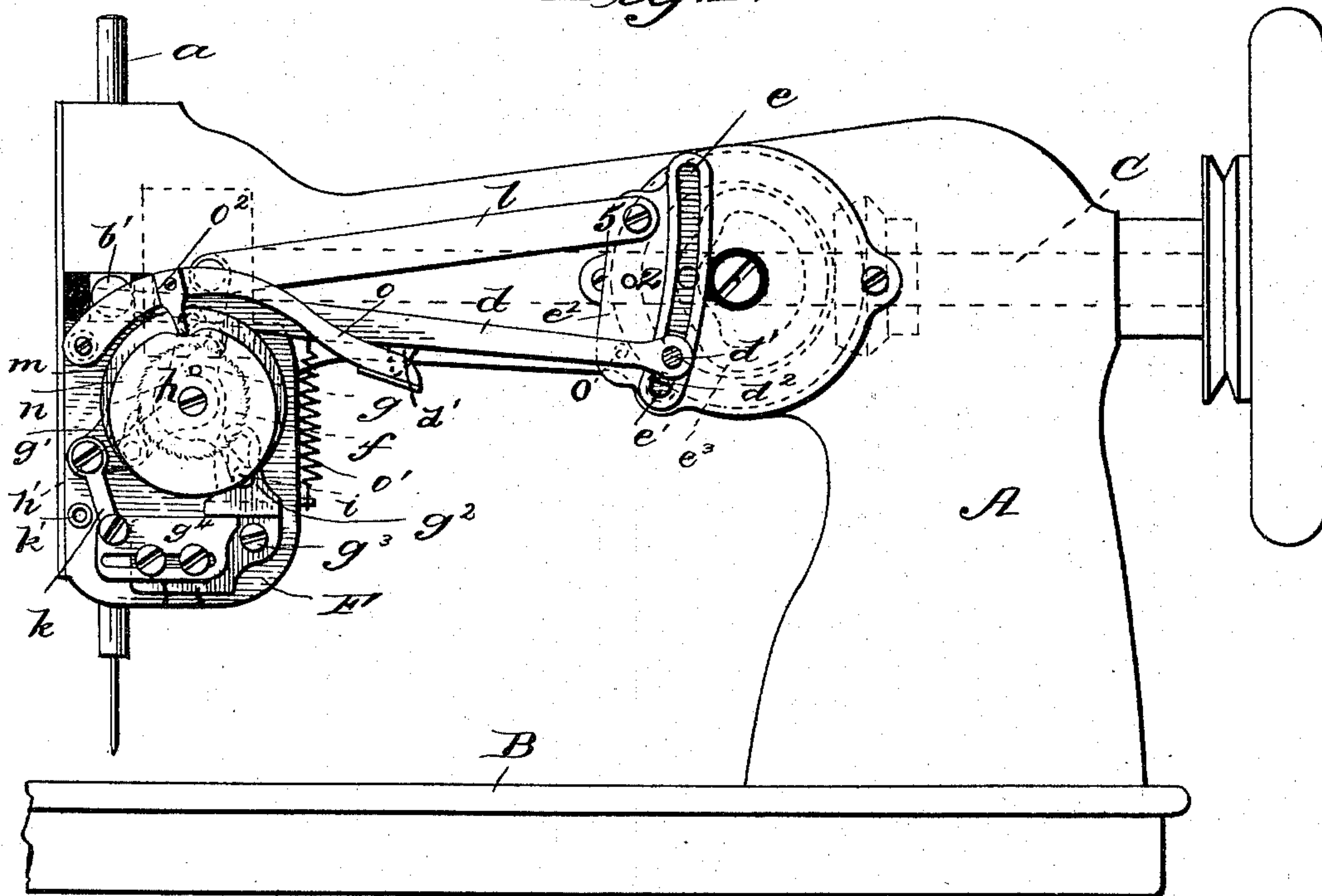
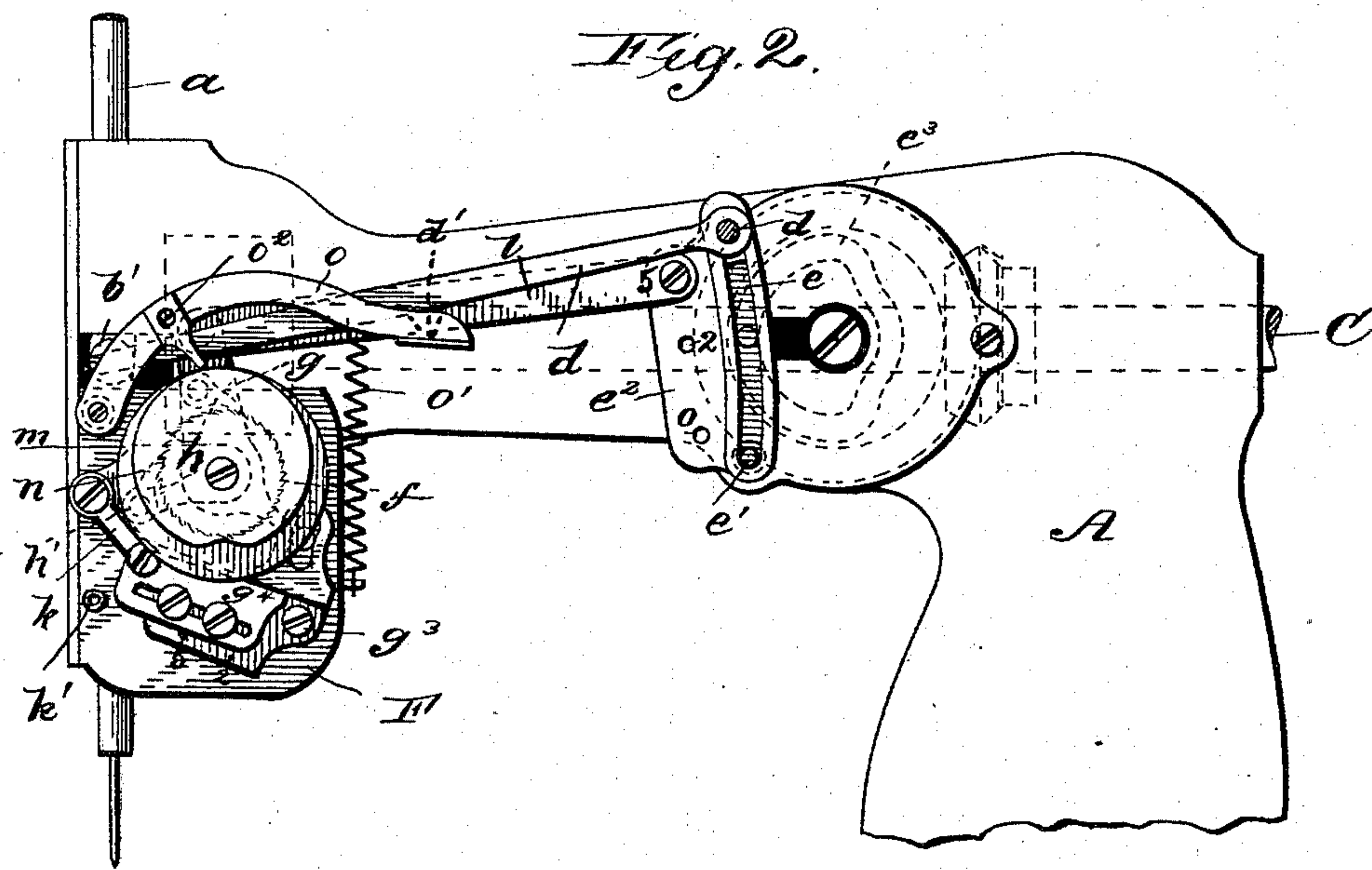


Fig. 2.



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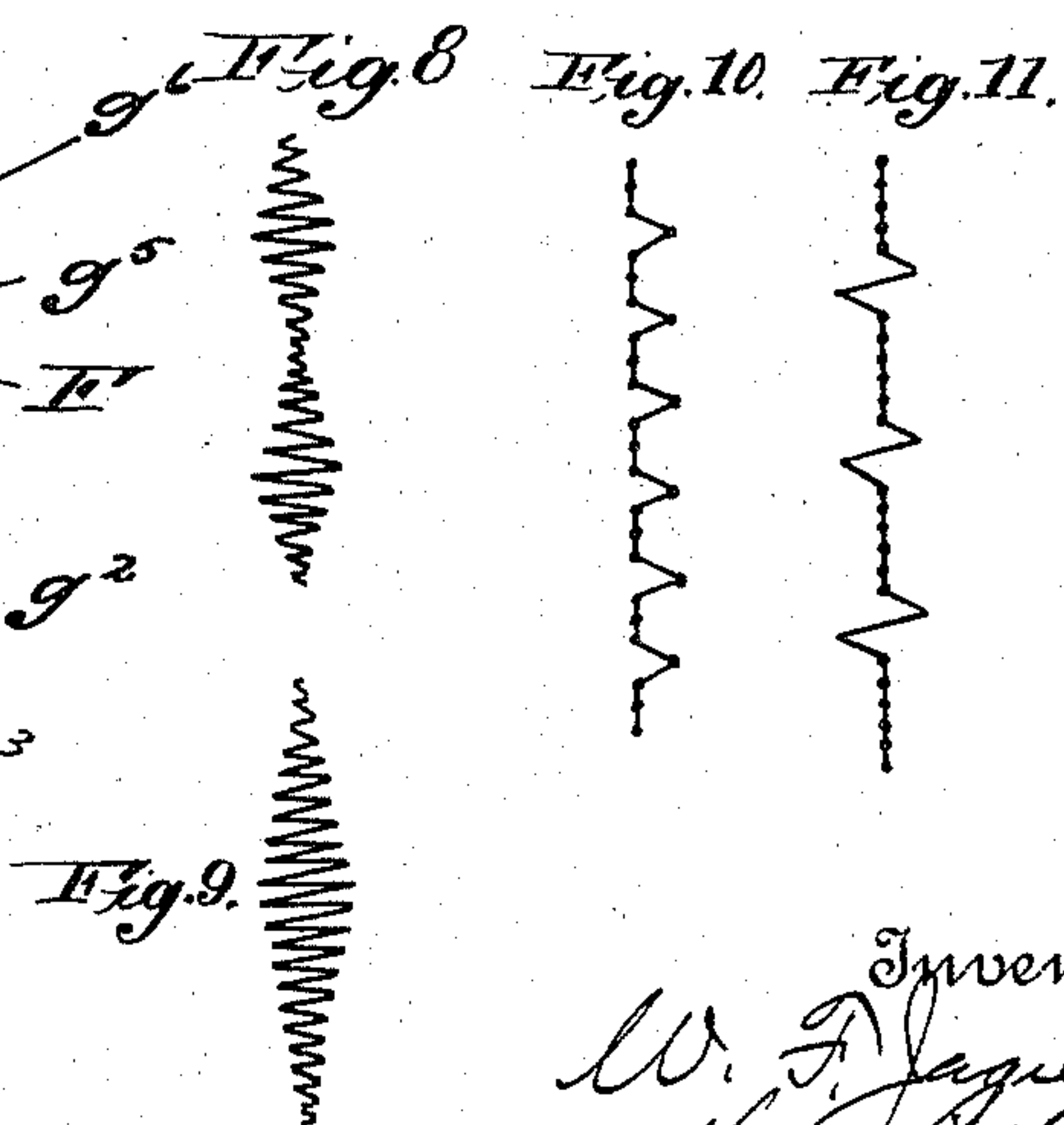
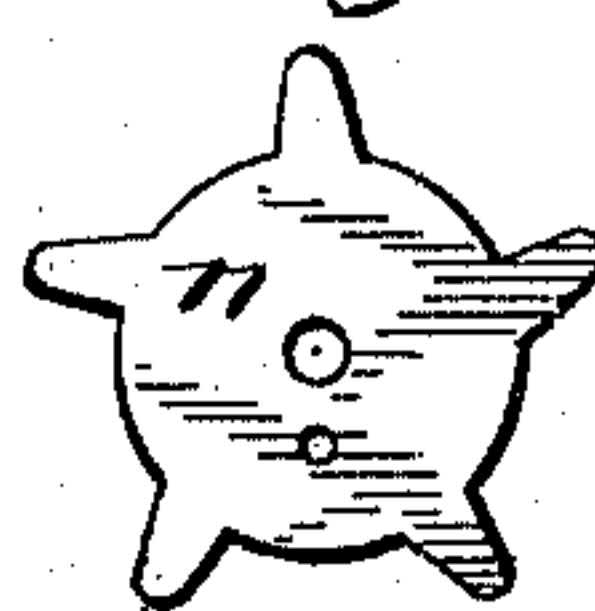
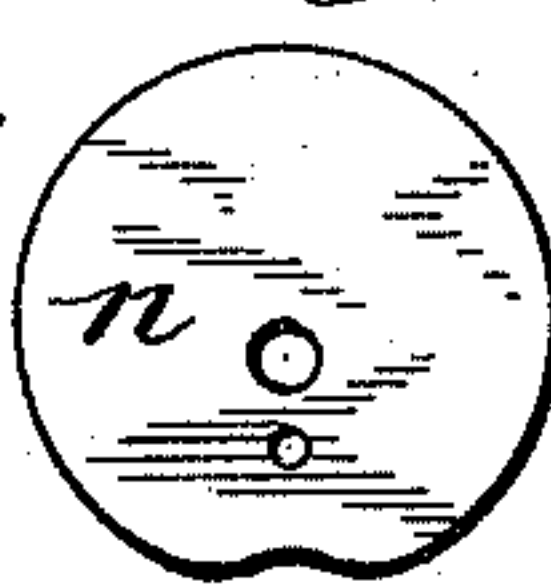
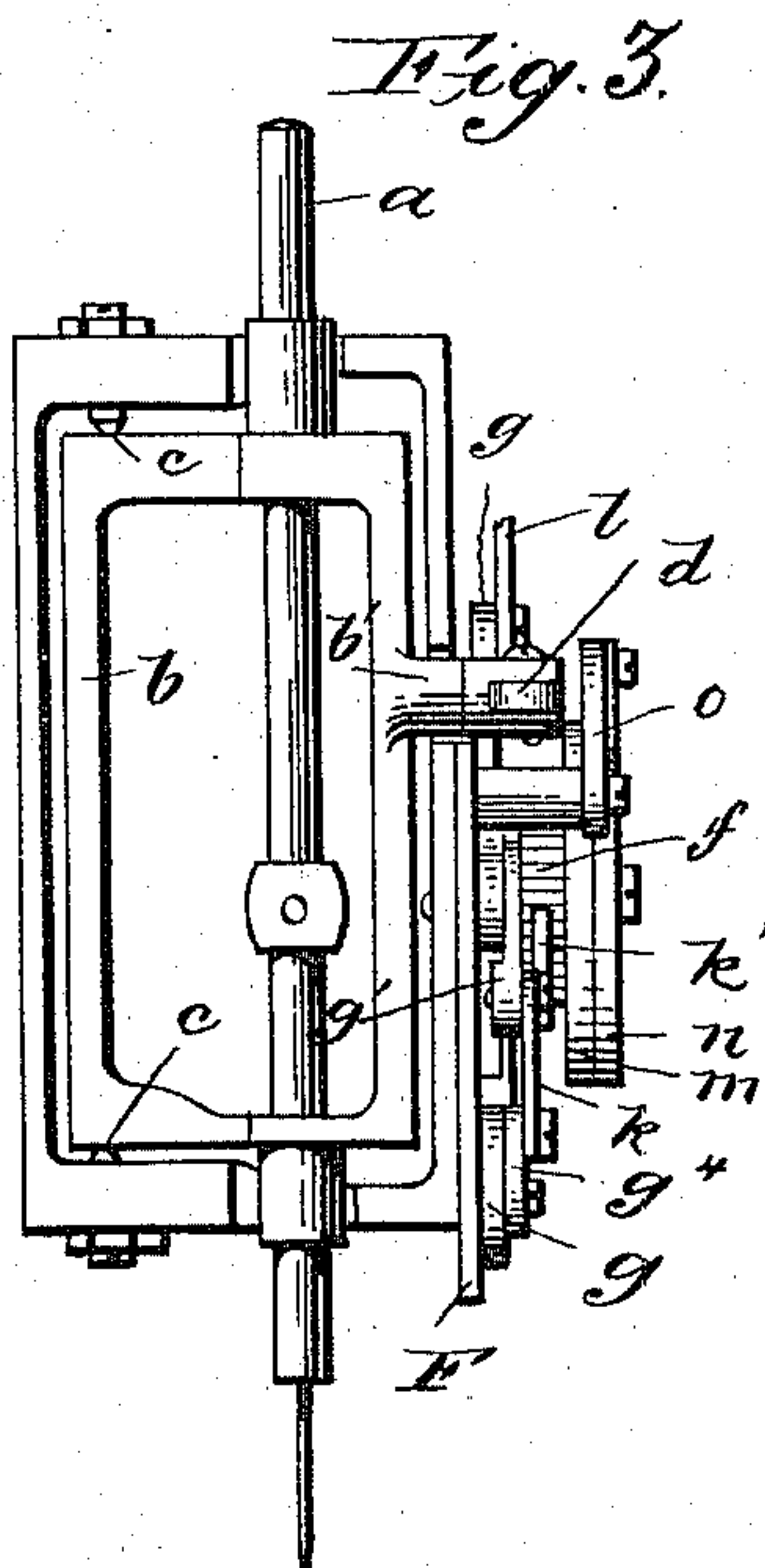
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2 Sheets—Sheet 2.

No. 573,881.

Patented Dec. 29, 1896.



Witnesses

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UNITED STATES PATENT OFFICE.

WLADISLAW FRANZISCUS JAGIELSKI, OF HANOVER, GERMANY, ASSIGNOR
TO THE SINGER MANUFACTURING COMPANY, OF NEW JERSEY.

FANCY-STITCH SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,881, dated December 29, 1896.

Application filed June 26, 1896. Serial No. 597,011. (No model.) Patented in Germany November 15, 1895, No. 87,791; in Austria December 30, 1895, No. 45/4,839, and in Hungary January 14, 1896, No. 4,907.

To all whom it may concern:

Be it known that I, WLADISLAW FRANZISCUS JAGIELSKI, a subject of the King of Prussia, German Emperor, and a resident of Hanover, in the Province of Hanover, Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Fancy-Stitch Sewing-Machines, (for which I have obtained a patent in Germany, No. 87,791, dated November 15, 1895; in Austria, No. 45/4,839, dated December 30, 1895, and in Hungary, No. 4,907, dated January 14, 1896,) of which the following is a specification.

This invention relates to that class of sewing-machines in which the needle-bar and needle are moved horizontally for the purpose of producing overseaming or fancy stitching, and has for its object to provide an improved automatic mechanism for controlling the horizontal movements of the needle-bar and needle to produce different patterns of fancy or ornamental stitching.

In the accompanying drawings, Figures 1 and 2 are side elevations illustrating a well-known type of sewing-machine embodying the invention, the parts being in different positions in the two views; and Fig. 3 is a front end view of the same. Figs. 4 and 5 are detail views illustrating more particularly the attachment to which the invention relates, and Figs. 6 and 7 illustrate different forms of templates or pattern cams or wheels which may be used interchangeably with the attachment. Figs. 8, 9, 10, and 11 illustrate a few of the different forms of fancy stitching which may be made with the machine to which the invention relates.

A denotes the bracket-arm, and B the work-plate, of the machine. Journaled in the upper portion of the bracket-arm is the driving-shaft C, operatively connected in the usual manner at its forward end with the needle-bar *a*, which reciprocates vertically in a horizontally-swinging frame *b*, pivoted on center screws *c* and provided with a lug or projection *b'*, extending outward through a slot in the frame of the machine, and to which is jointed the forward end of a connecting-rod *d*, the rear end of which is provided with a

pin *d'*, on which is a slide or block *d*², entering a slot or groove *e* in a lever *e*², pivoted at its lower end at *e'* to the frame of the machine, said lever being operated by means of a cam *e*³, into the groove of which a pin on the said lever extends. The cam *e*³ is geared to the driving-shaft so as to make one rotation to each two rotations of said shaft. The lever *e*² is provided with a series of holes, as 0 2 5, at varying distances from its fulcrum, and any one of which may be entered by an attaching-screw at the rear end of a link *l* to join said link to said lever.

The forward end of the link *l* is joined to a lever *g*, swinging on a stud *f'*, supported by the plate F, which is in turn secured to the forward end of the arm A, said lever *g* being provided with a spring-pressed pawl *h*, engaging a ratchet-wheel *f*. Connected with said ratchet-wheel to rotate therewith is a disk or plate *m*, with which rotates a cam or pattern wheel *n*, and the periphery of the latter is engaged by a lug or projection *o*² on a lever *o*, said lug or projection being held in contact with said cam or pattern wheel by a spring *o'*.

The free end of the lever *o* extends beneath a lug *d'* on the connecting-rod *d*, and thus as the said lever *o* is raised and lowered during the rotation of the cam or pattern wheel the sliding block *d*² will be raised and lowered in the slot of the lever *e*², thereby moving the said block nearer to or farther from the fulcrum of said lever for the purpose of imparting variable horizontal movements to the needle-bar frame *b* and to the needle-bar reciprocating vertically therein.

Fulcrumed on the stud *f'* is a lever *g'*, provided with a spring-pressed pawl *h'*, engaging the ratchet-wheel *f*. The lever *g* is provided with an arm *g*⁵, having a pin or roller-stud *i* entering a slot *g*⁶ of a bell-crank lever *g*², pivoted at *g*³ to the plate F. The lever *g*² is provided with a plate *g*⁴, which may be secured in any desired position of adjustment relative to the bell-crank lever *g*² by means of the set-screws *g*⁷, passing through a slot in said plate.

To the outer end of the lever *g'* is jointed

one end of a link k , the other end of which may be attached to the plate F at the boss k' if the said lever g' is to be held stationary, and in such case the pawl h' will merely serve as a detent-pawl to prevent the backward rotation of the ratchet-wheel f . If, however, it be desired to rotate the ratchet-wheel f more rapidly than would be done by the pawl h , carried by the lever g , the lower end of the link k is uncoupled from the boss k' and is attached to the plate g^4 , which is a rigid part of the bell-crank lever g^2 , and in such case a vibrating movement will be imparted to the lever g' , so that the pawl h' , carried thereby, will serve as a feeding-pawl, acting alternately with the pawl h , and thus said ratchet-wheel will be turned more or less at each stroke of the needle-bar, the extent of the feeding movement of the said ratchet-wheel imparted thereto by the pawl h' depending upon the position of adjustment of the plate g^4 on the lever g^2 . Thus if it be desired to impart a feeding movement equal to two teeth of the ratchet-wheel by the pawl h' at each vibration of the lever e^2 the said plate g^4 will be so adjusted that the index thereon will be opposite the mark "2" on the lever g^2 ; but if it be desired to impart a feeding movement equal to five teeth on the ratchet-wheel at each vibration of the said lever g^2 the said plate g^4 will be so adjusted that the index carried thereby will be opposite the mark "5" on the said lever g^2 .

The extent of the vibrating movements of the lever g , and consequently of the feeding movements of the pawl h carried thereby, may be varied or entirely suspended, according to the position of connection of the rear end of the link l to the lever e^2 . Thus if it be desired to entirely suspend the feeding movements of the ratchet-wheel by said lever g the link l may be attached at its rear end to the lever e^2 at the hole 0, and if it be desired to impart a feeding movement to the said ratchet-wheel by the said lever g of either two or five teeth of said ratchet-wheel at each vibration of the lever e^2 the rear end of the link l will be attached to the said lever e^2 either at the hole 2 or the hole 5, as the case may be.

It will thus be understood that the invention provides means whereby a large range of feeding movements differing in extent may be imparted to the cam or pattern wheel, by which the horizontal movements of the needle-bar and needle are controlled, so that a large range of automatically-varied ornamental stitching may be produced, and this range of ornamental stitching may be widely varied to any desired extent by providing interchangeable cam or pattern wheels n of different shapes, as will be readily understood. The cam or pattern wheel n (shown in Figs. 1, 2, 4, 5, and 6) is made as a plain eccentric with a slight notch or indentation at one portion of its periphery, and by means of this cam or pattern wheel ornamental stitching, such as is shown in Figs. 8 and 9, may be pro-

duced, the different figures depending upon the extent of the feeding movements imparted to the ratchet-wheel f , by which the said cam or pattern wheel is controlled.

The pattern-wheel shown in Fig. 7 is constructed as a star-wheel, and by means of this last-named pattern-wheel ornamental stitching, such as shown in Figs. 10 and 11, may be produced according to the kind of feeding movements which may be imparted to the said ratchet-wheel.

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

1. In a sewing-machine, the combination with a horizontally-movable needle-bar frame and a needle-bar to reciprocate vertically therein and to be moved horizontally thereby, of a vibrating lever, a connecting-rod joining said lever to the said needle-bar frame, a ratchet-wheel, a cam or pattern wheel rotated by said ratchet-wheel, intermediate connections controlled by said cam or pattern wheel whereby the extent of the horizontal movements of the said needle-bar may be automatically varied, two pawl-carrying levers connected with said vibrating lever, and means by which one of said levers may be thrown out of operation while the other continues to work; whereby, at the will of the operator feeding movements may be imparted to said ratchet-wheel either at each vertical reciprocation of the needle-bar or at each alternate reciprocation thereof.

2. In a sewing-machine, the combination with a horizontally-movable needle-bar frame and a needle-bar to reciprocate vertically therein and to be moved horizontally thereby, of a vibrating lever, a connecting-rod joining said lever to the said needle-bar frame, a ratchet-wheel, a cam or pattern wheel rotated by said ratchet-wheel, intermediate connections controlled by said cam or pattern wheel whereby the extent of the horizontal movements of the said needle-bar may be automatically varied, two pawl-carrying levers connected with said vibrating lever, means by which one of said levers may be thrown out of operation while the other continues to work, whereby, at the will of the operator feeding movements may be imparted to said ratchet-wheel either at each vertical reciprocation of the needle-bar or at each alternate reciprocation thereof, and means for varying the throw of that one of the said pawl-carrying levers which is adapted to be thrown out of operation.

3. In a sewing-machine, the combination with a horizontally-movable needle-bar frame and a needle-bar to reciprocate vertically therein and to be moved horizontally thereby, of the vibrating lever e^2 , the rod d by which said lever is operatively connected with the said needle-bar frame, the ratchet-wheel f , the cam or pattern wheel n rotating with said ratchet-wheel, the pawl-carrying lever g , the link l by which said pawl-carrying lever is

connected with the said lever e^2 , the pawl-carrying lever g' and the bell-crank lever g^2 operated from the said lever g and operatively but detachably connected with the said lever g' .

4. In a sewing-machine, the combination with a horizontally-movable needle-bar frame, and a needle-bar to reciprocate vertically therein and to be moved horizontally thereby, of the vibrating lever e^2 , the rod d by which said lever is operatively connected with the said needle-bar frame, the ratchet-wheel f , the cam or pattern wheel n rotating with said ratchet-wheel, the pawl-carrying lever g , the link l by which said pawl-carrying lever is connected with the said lever e^2 , the pawl-

carrying lever g' and the bell-crank lever g^2 operated from the said lever g and operatively but detachably connected with the said lever g' , the said lever g^2 being provided with the adjustable plate g^4 the position of which determines the extent of feeding movements imparted to said ratchet-wheel by the said pawl-carrying lever g' .

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 6th day of June, 1896.

WLADISLAW FRANZISCUS JAGIELSKI.

Witnesses:

ALEXANDER SPECHT,
MAX KAEMPF.