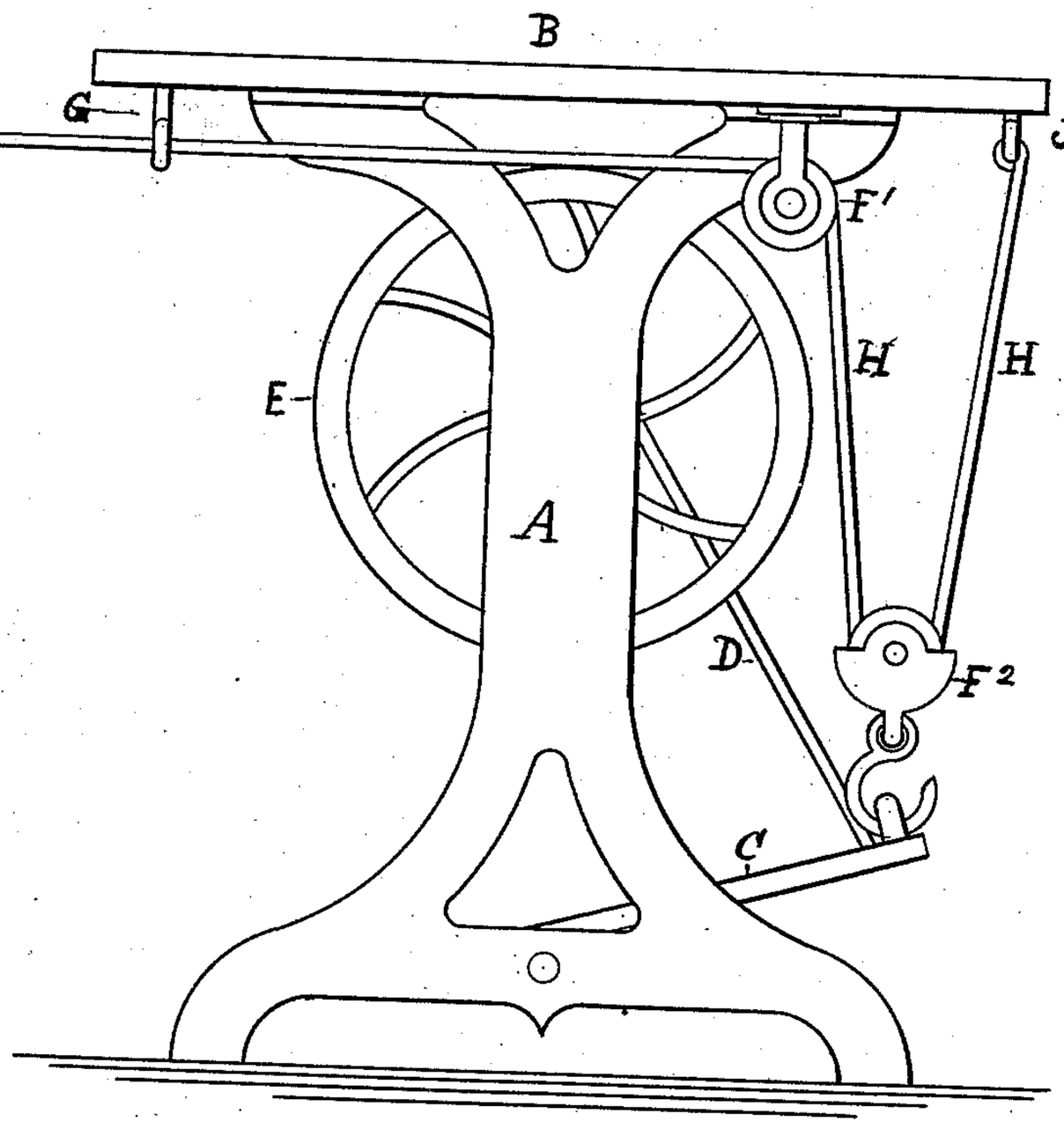
2 Sheets—Sheet 1.

A. S. GEAR.

Calisthenic Motor.

No. 221,959. Patented Nov. 25, 1879.

Fig. 1.



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Alonzo S. Gear

2 Sheets—Sheet 2.

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Calisthenic Motor.

No. 221,959. Patented Nov. 25, 1879.

Fig. 2.

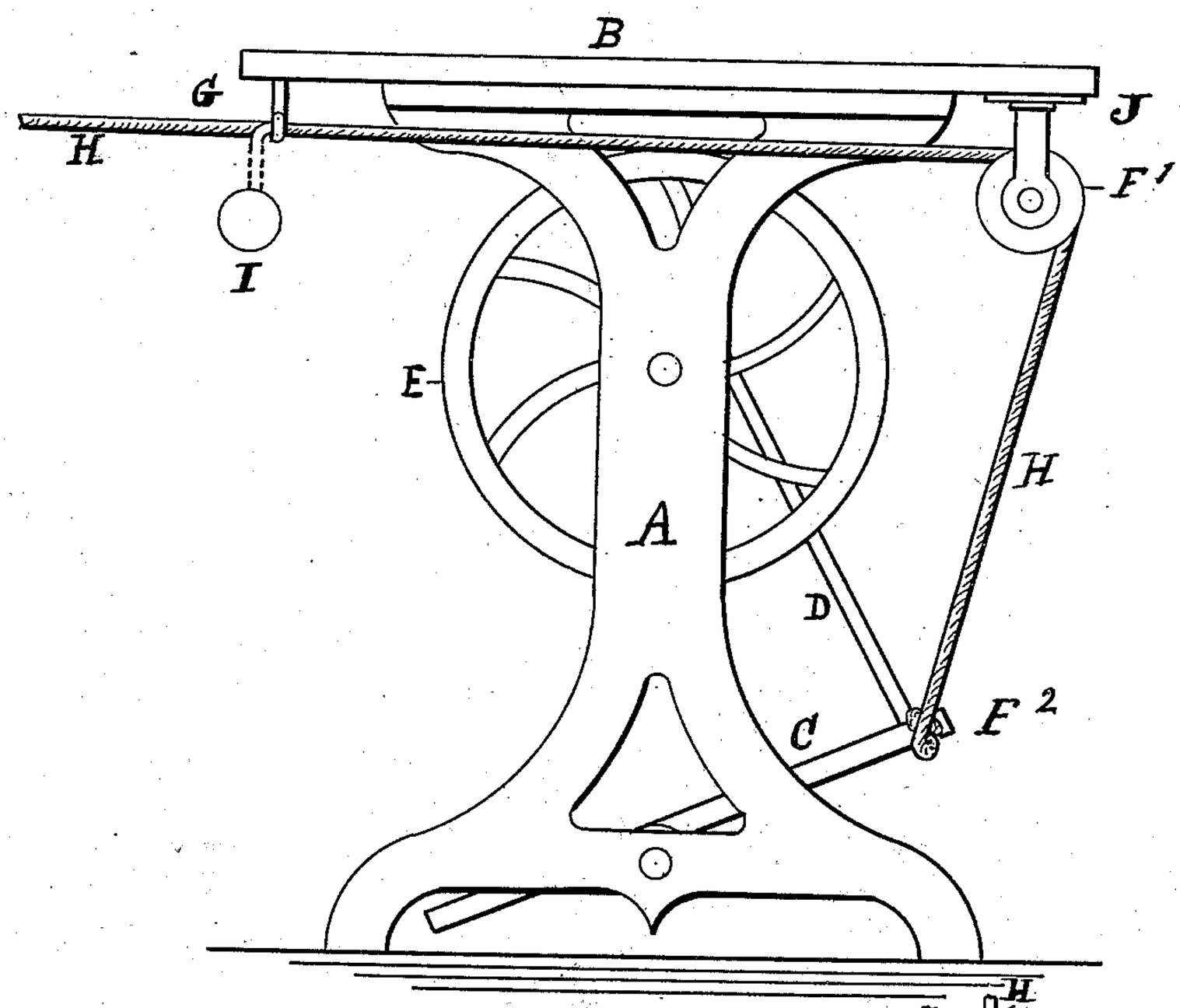
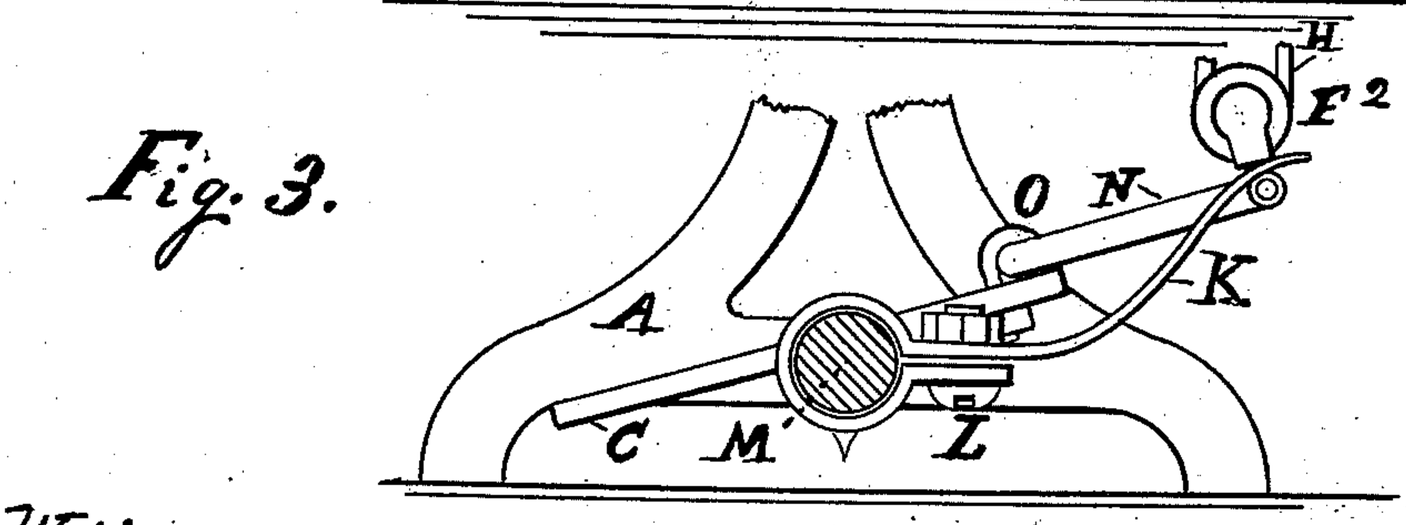


Fig. 3.



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Inventor:

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UNITED STATES PATENT OFFICE.

ALONZO S. GEAR, OF NEW YORK, N. Y.

IMPROVEMENT IN CALISTHENIC MOTORS.

Specification forming part of Letters Patent No. **221,959**, dated November 25, 1879; application filed April 19, 1879.

To all whom it may concern:

Be it known that I, ALONZO S. GEAR, of the city, county, and State of New York, have invented a Calisthenic Motor for Hand and Foot Power Machines; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to a new manner of propelling machines by hand-power or by hand and foot power combined.

Although my device is applicable to all machines operated by foot or hand, I prefer to describe it as especially adapted to sewing-machines.

Heretofore steam, clock-work, hydraulics, electricity, and a variety of spring contrivances have been used to propel sewing-machines; but not one of them has given positive satisfaction, on account of its cost, inadaptability to various machines, and injurious results from operating the same.

The object of my invention is to provide an actuating device for propelling a machine by hand in lieu of the foot, or to alternate from one to the other at will, and to obviate the injurious effects of propelling machines by treadle or foot power; also, to lessen the labor now required to be exerted to successfully operate treadle and hand power contrivances.

My device is calisthenic in its operation, and the male or female adult or child operating it obtains calisthenic benefits by developing the muscles and expanding the chest and lungs.

The invention consists in the arrangement of a pulley or pulleys, lever or angle-levers, cord or cords connected with the treadle, or lever used in lieu thereof, of a machine heretofore or to be propelled by foot or hand power, whereby the machine may be propelled by either the hand or foot at pleasure, jointly or alternately; and to do this I fasten to the table of the machine, or to any required place, a rigid, flexible, flexible swivel-pulley, or a rigid or a swivel lever or levers. I then attach a cord to a treadle, or to a lever used in lieu thereof, and pass said cord over said pulley or pulleys, and thence beneath, above, through, or along the sides or ends of said machine, or an arrangement to a convenient distance to be operated. On the end of the cord I attach a suitable actuating contrivance, as a handle, to the same.

In lieu of the cord herein specified, a rod and cord may be substituted. Said rod may be connected to the treadle, or to the lever used in lieu thereof, and to a rocking lever or angle-lever in place of the pulley or pulleys, and terminate in a flexible cord, or vice versa.

The actuating cord or rod may be, if desired, supported by a hook, or pass through an eye or eyes, or a pulley or pulleys, fixed to machine or to any other convenient place to guide the same. Said actuating-cord or actuating cord and rod can be substituted by an inflexible jointed connection.

The flexible cord, or cord and rod, or inflexible rod, may be operated in a vertical or horizontal plane, or at any angle of said plane. The cord and pulleys, handle attached to cord, and eyes or hooks may be made of any suitable material, and of any size, shape, or length.

In constructing my device to be attached to a machine to be operated by hand-power only, it is obvious that the treadle is not required.

In such cases I fasten one end of the lever (which may be a spring) used in lieu of the treadle to the fixed shaft M, hereinafter described, and the pulley F^2 and pitman or connecting-rod connecting same to the crank of the shaft or wheel I fasten to the other end; or a rigid lever hung near one end may be used and made to turn on the fixed shaft M, and the pitman or connecting-rod and pulley F^2 fastened to the long arm of the lever, and one end of a spring fixed to the short arm of the same, and the other end fastened to the table, so that by pulling the rod and cord, or cord passing over either or both of the pulleys F' and F^2, the spring will be extended or compressed in the upward movement of the crank, and assisted in the downward movement of the same. This will be found of great benefit when a machine is being run slow for any reason.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 represents an end view of a sewing-machine, showing my improved actuating device. Fig. 2 shows a modification of

Fig. 1. Fig. 3 shows a broken sectional elevation, showing treadle and actuating-spring.

A is the frame of the machine. B is the top thereof. C is the treadle or lever. D is the connecting-rod to the crank of wheel E. F′ F² are pulleys. F′ is attached to the table of the machine. F² is attached to the treadle, or lever used in lieu thereof, as shown in Fig. 1; or both pulleys may be fastened to any convenient place. G is a hook or eye. H is the cord, or cord and rod. I is the actuating knob or handle. J is the staple or eye for attaching the fixed end of the actuating-cord, as shown in Fig. 1.

The staple or eye may be fixed in any required location, also may be transferred to any point required; or, in lieu of the devices shown in Fig. 1, the end of the actuating-cord may be fastened to the treadle or lever and pass over the pulley F′, as shown in Fig. 2. Any number of pulleys may be used to create power, (leverage.)

The operation of the device is as follows: When attached to a sewing-machine the machine is operated by pulling the actuating-knob attached to the cord, which causes the treadle, or lever used in lieu thereof, to rise, causing the connecting-rod or pitman to pass over the dead-center of the crank to which it is attached, and to fall by the momentum thus obtained, the operator allowing the actuating cord or rod to recede in its downward movement for that purpose; or a spring or weight may be connected, so that by compressing or expanding the spring or raising the weight in the upward movement the reverse movement will assist in continuing the revolution of the crank or wheel.

In Fig. 3, K is an adjustable spring, secured to the fixed shaft M by means of the screw L, or to side of frame. N is an adjustable extension to treadle C. O are the screw-hooks for securing the extension to treadle proper, the pulley F² being attached to the extension K. H is the actuating-cord. (See Figs. 1 and 2.)

I claim—

1. The combination of the actuating-connection H, the pulley or pulleys F′ F², and the treadle C, substantially as shown and described, for the purpose specified.

2. In combination with the treadle C, the actuating cord or cords H and the swivel pulley or pulleys F² F′, substantially as described and shown, for the purpose specified.

3. In combination with the treadle C and the connecting-rod D, connecting the treadle with the crank of the wheel or shaft E, the actuating cord or cords H and the pulley or pulleys F² F′, substantially as shown and described, for the purpose specified.

4. In combination with the fixed treadle-bar upon which the treadle oscillates, the spring K, operating on the treadle C, substantially as described and shown, for the purpose specified.

5. The actuating-spring K, in combination with the adjustable treadle-extension N, substantially as shown and described, for the purpose specified.

6. In combination with the actuating cord or cords H, the adjustable treadle-extension N and the pulley or pulleys F′ F², substantially as described and shown, for the purpose specified.

7. In combination with the cord or cords H, the pulley or pulleys F′ F² and the adjustable actuating-spring K, when constructed as described and shown, for the purpose specified.

8. In combination with the adjustable treadle-extension N, the cord H, the knob I, the pulleys F′, and the eye or staple J, substantially as described and set forth, for the purpose specified.

9. In combination with the treadle C, the adjustable treadle-extension N, the cord H, the knob I, the pulley or pulleys F′, and the hook G, substantially as described and shown, for the purpose specified.

ALONZO S. GEAR.

Witnesses:
EDGAR REED,
JOHN BLEUITT.