

(No Model.)

2 Sheets—Sheet 1.

L. G. CAREAGA Y SAENZ.

APPARATUS FOR TRANSMITTING POWER.

No. 321,083.

Patented June 30, 1885.

Fig. 1.

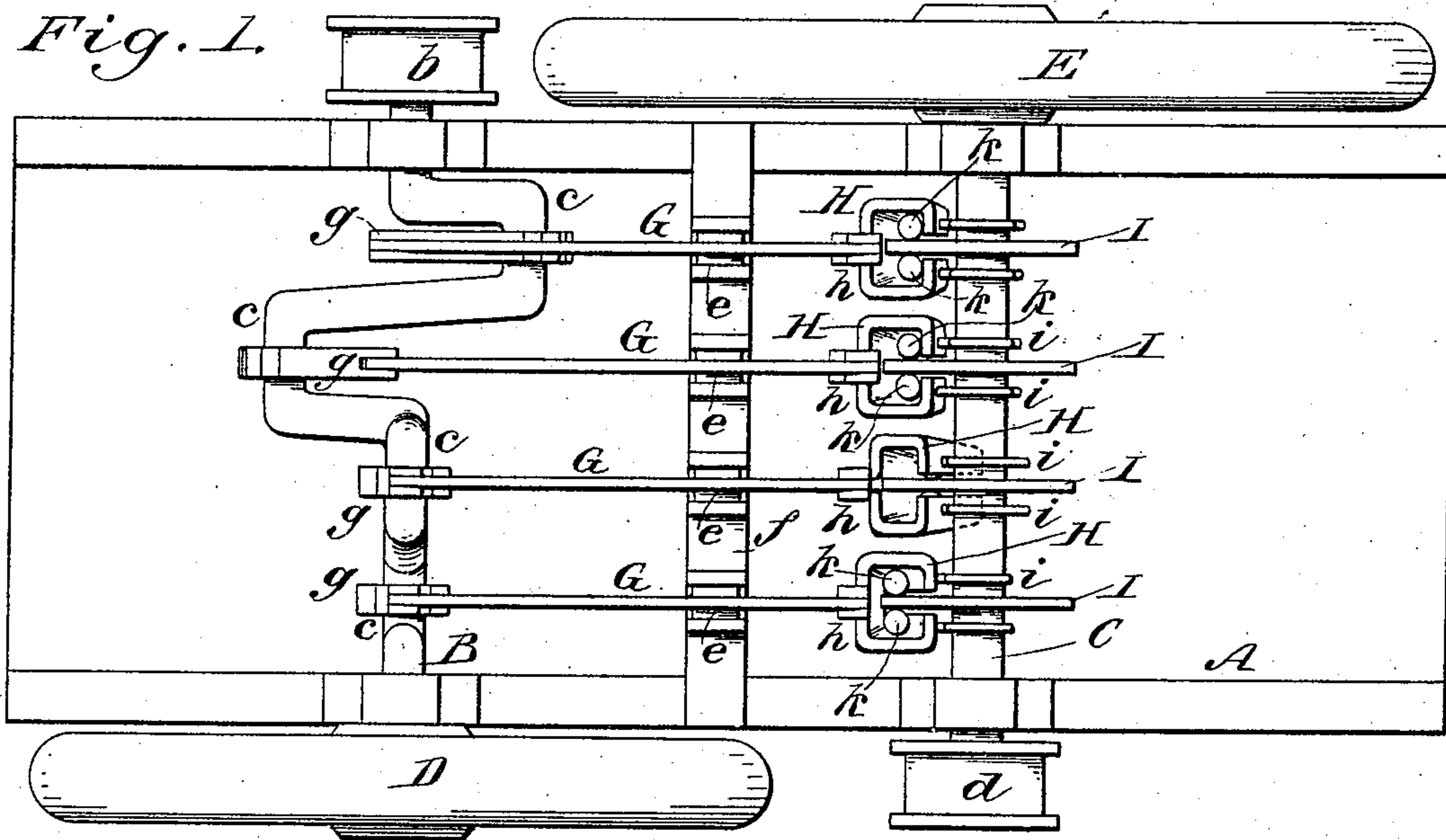
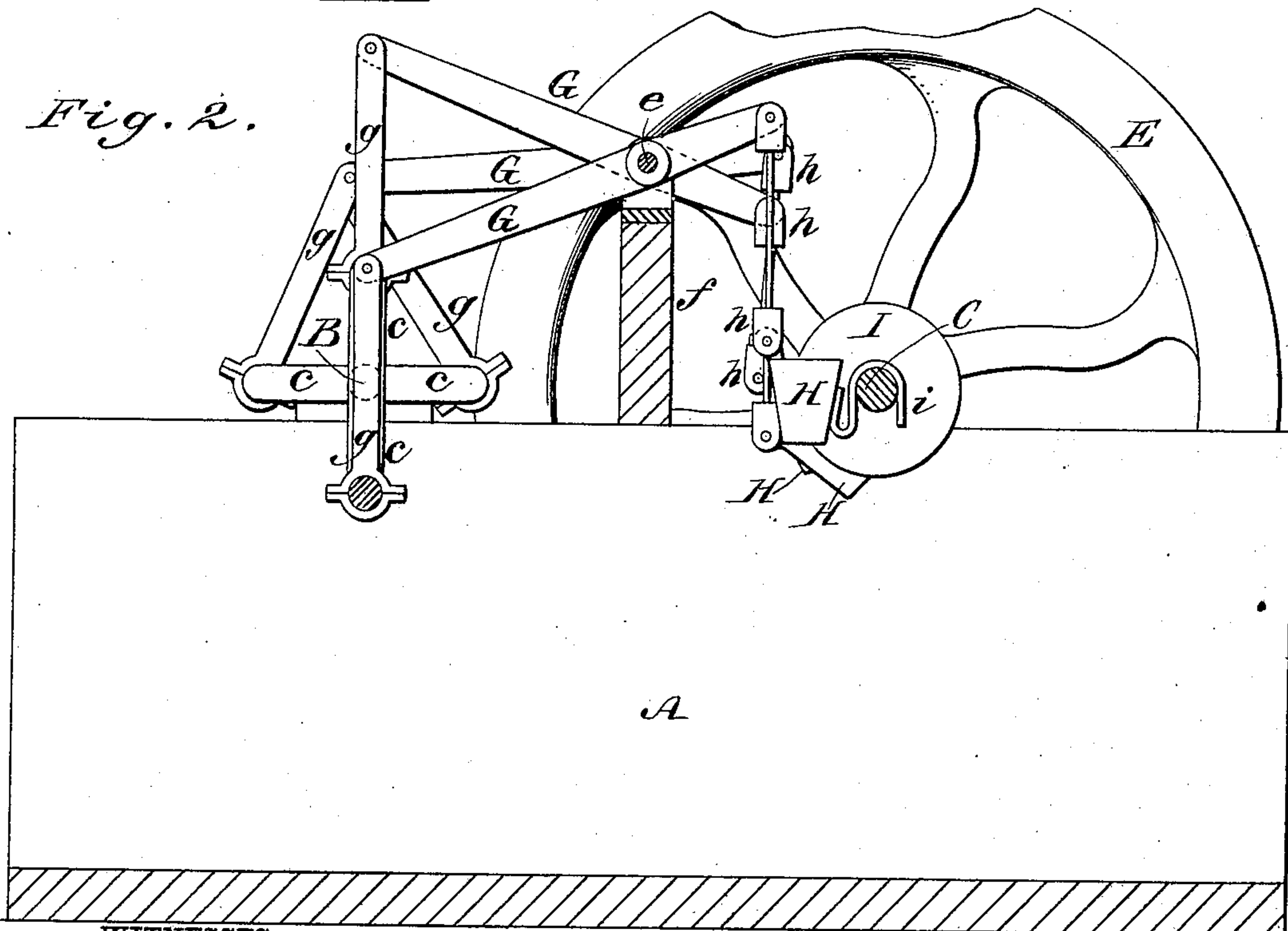


Fig. 2.



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Fig. 3.

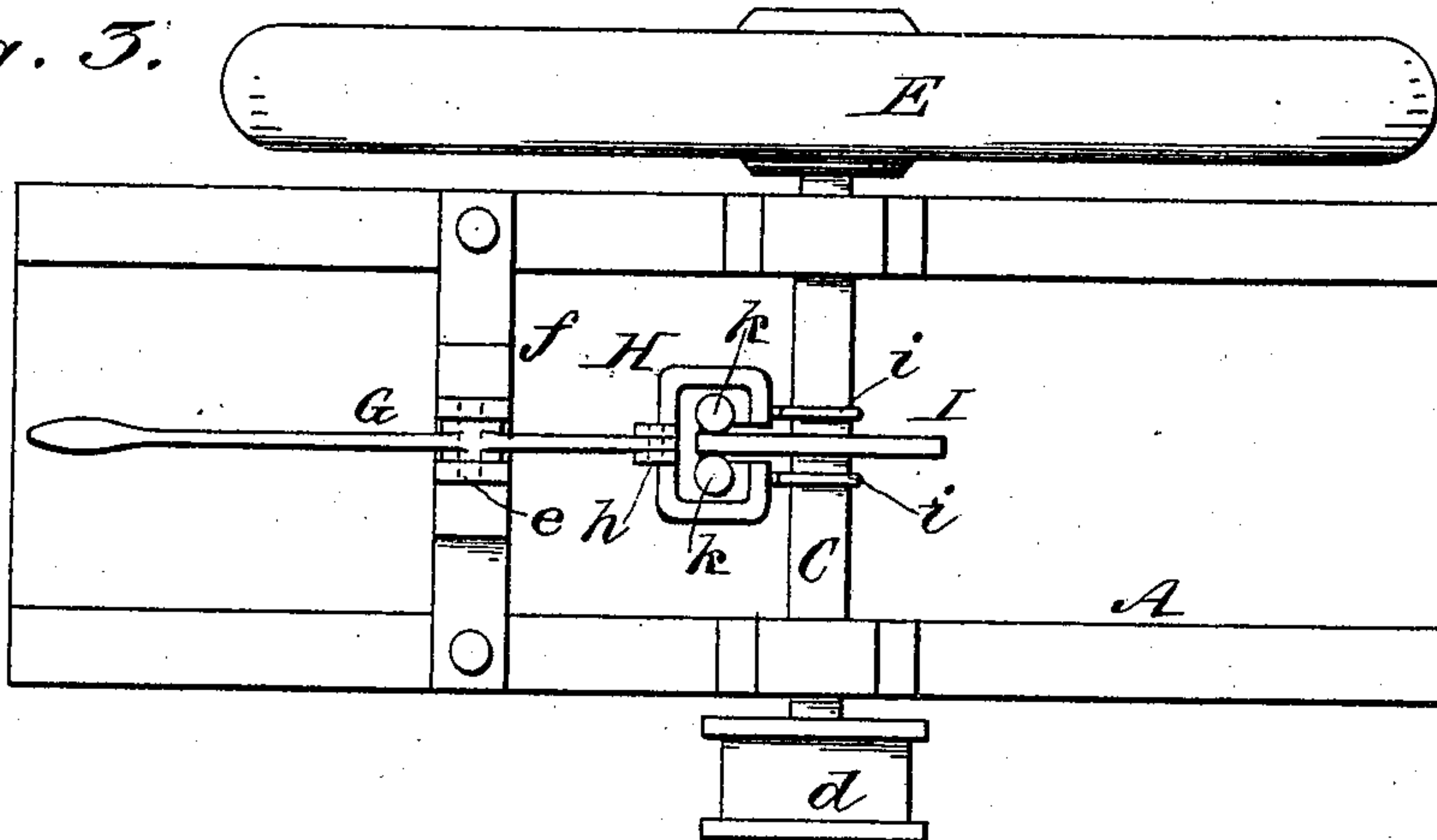
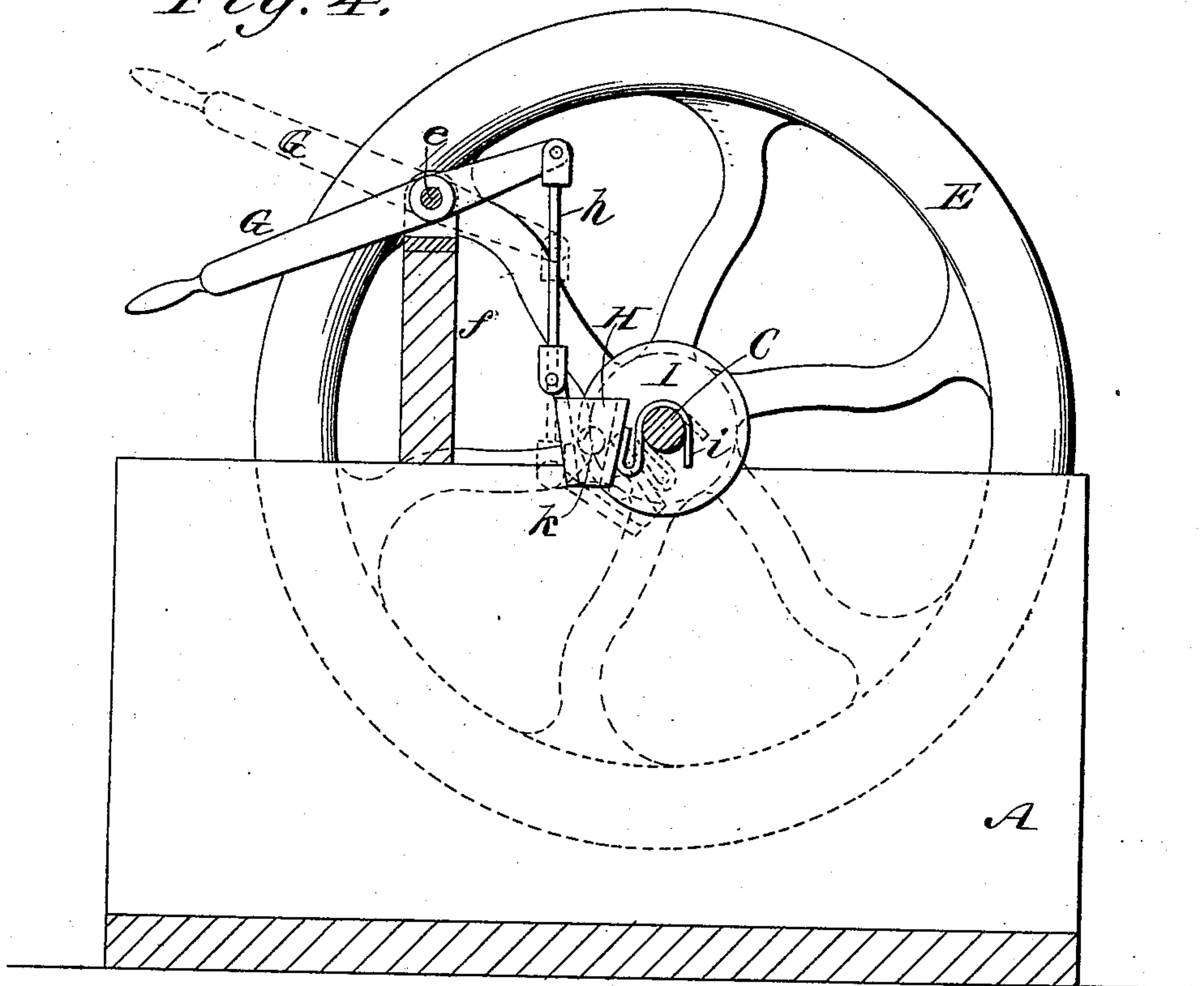


Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS G. CAREAGA Y SAENZ, OF PUEBLA, MEXICO.

APPARATUS FOR TRANSMITTING POWER.

SPECIFICATION forming part of Letters Patent No. 321,083, dated June 30, 1885.

Application filed May 29, 1885. (No model.) Patented in Mexico November 16, 1884.

To all whom it may concern:

Be it known that I, LOUIS G. CAREAGA Y SAENZ, of Puebla, Mexico, have invented certain new and useful Improvements in Apparatus for Transmitting Power, of which the following is a full, clear, and exact description.

This invention consists in novel means for transmitting power by mechanical action, and in which one or more reciprocating devices operating by friction grip in one direction and releasing hold when moving in a reverse direction, is or are used to communicate continuous rotary motion to a shaft on which is mounted a balance or fly wheel that by its inertia operates as a power-accumulator, and serves to secure for its shaft in a smooth and easy manner a powerful and continuous rotary motion applicable to any driving purpose that may be required, including all or various kinds of machinery. Said power accumulator and transmitter may either be actuated by steam or other external agent or by hand, as desired, according to the size of the apparatus and purpose it is designed for.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a plan of an apparatus for transmitting power embodying my invention as adapted to be driven by steam or other than hand-power, and Fig. 2 is a sectional elevation of the same. Figs. 3 and 4 show a plan view and sectional elevation, respectively, of a like apparatus suitable for actuation by hand-power.

Referring in the first instance more particularly to Figs. 1 and 2 of the drawings, A indicates a main frame, which may be of any suitable construction, and which has mounted on it two parallel shafts, B C, arranged at a proper distance from each other, the one in front of the other.

The shaft B is the one to which power is applied to drive the apparatus, as by a pulley, *b*, from a steam-engine or otherwise. Said shaft B is a crank one, it being constructed or fitted with any number of cranks, *c*, set at different angular positions in relation with each other, to equalize or distribute the power

transmitted from them. It may also be provided with a fly-wheel, D, to assist in giving a steady and easy action.

The shaft C is the one which is driven by the shaft B through friction means, as will be hereinafter described, and in which the power is accumulated by the inertia or aid of a heavy balance or fly wheel, E, mounted on said shaft. This shaft C forms the driving-shaft to any machinery to which the apparatus may be applied, the power being taken from it by a pulley, *d*, by gearing, or in any other suitable manner.

G G are a series of rocking beams or levers having their fulcrums *e* intermediate of the shafts B C, and being mounted on the main frame or standard *f*, erected thereon. The fulcrums *e* are arranged so that the arms of said levers which are nearest to the shaft B are longer than the arms on the opposite side of their fulcrums; but this is not an absolutely essential feature. The longer, or what may be termed the "back," arms of the levers are connected by rods *g* with the cranks *c* of the shaft B to rock the levers, and the front or opposite arms of the levers are connected by rods *h* with ball-holding cups, pockets, or receptacles H, which are connected by hangers *i* with the shaft C, so as to freely rock thereon. These receptacles or pockets H are of downwardly-tapering constructions internally, and are slotted on their sides next to the shaft C, to admit of a series of disks, I, fast on the shaft C, entering freely within them. Within said pockets or receptacles H loose metal or other balls, *k*, on opposite sides of the disks I, are inserted. These balls and disks constitute the friction devices by which the shaft is continuously rotated as the levers G are rocked or worked up and down, each tapering pocket H, as it descends, releasing the balls *k* from the friction grip or hold on the sides of the disk I, but as it ascends causing the balls, by being wedged between the sides of the pocket and the disk, to take a friction grip or hold on the disk, and so turn the shaft C in a direction corresponding with such motion of the pocket. Thus the balls in each pocket only serve to actuate the shaft C in a given direction; but by using a number of such pockets, as shown,

and connecting them with the differently-set cranks *c*, as described, so that the several pockets will rise and fall at different intervals, certain of the pockets by their contained balls will be rising to rotate the shaft C while the other pockets are falling and their balls released from grip, so as to exert no back action. This arrangement, too, and multiplicity of oppositely-moving pockets, admits of the shaft C being rotated in one and the same direction by or during the rotation of the shaft B in opposite directions.

By reversing the tapering construction of the pockets and closing their mouths, which would then be below, the same action and result would be obtained, only then the pockets, by their contained balls, would exert in their downward instead of in their upward movement a friction-grip on the disks to rotate the shaft carrying the disks. Said reciprocating tapering pockets, with their contained balls operating upon the disks attached to the shaft C, form a very smooth and efficient friction means for rotating said shaft; also, a very durable means, as the balls will be constantly changing their acting or wearing surfaces. Furthermore, the balance or fly wheel E on said shaft C, by its inertia, will accumulate power, and by making the pockets from the short arms of the levers G the power will be multiplied or increased.

Figs. 3 and 4 show the same principle of transmitting and accumulating power in an apparatus for operation by hand, there only being a single lever, G, which is worked by hand, a single tapering pocket or receptacle, H, with its contained balls *k*, and a single disk, I, on the shaft C, on which the balance-wheel E is mounted.

Various means may be used for reciprocating the ball receptacles or pockets, and these

latter may be arranged to work on either side of the shaft they are designed to give motion to and in different directions.

The velocity of the apparatus may be increased by providing one or more of the disks I with teeth on their peripheries, and causing the same to engage with a pinion or pinions on another shaft, from which the power may be taken, as required.

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

1. An apparatus for transmitting power in which is combined a rotatable shaft provided with a power-accumulating balance-wheel, one or more disks fast on said shaft, and one or more loose balls carrying reciprocating tapering pockets constructed to receive the disk or disks partly within them and between the balls in said pocket or pockets, substantially as specified.

2. The combination of the shaft C, one or more disks, I, mounted on said shaft, one or more tapering pockets, H, fitted to rock from the center of motion of said shaft, and constructed to receive the disks partly within them, and the loose balls *k k*, essentially as shown and described.

3. The shaft B, having a series of cranks, *c*, set in different angular relation with each other, in combination with the levers G, connected with said cranks, the shaft C, with its disks I and balance-wheel E, the rocking tapering pockets H, connected with said levers, and constructed to receive the disks I partly within them, and the loose balls *k k*, substantially as specified.

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