

No. 641,582.

Patented Jan. 16, 1900.

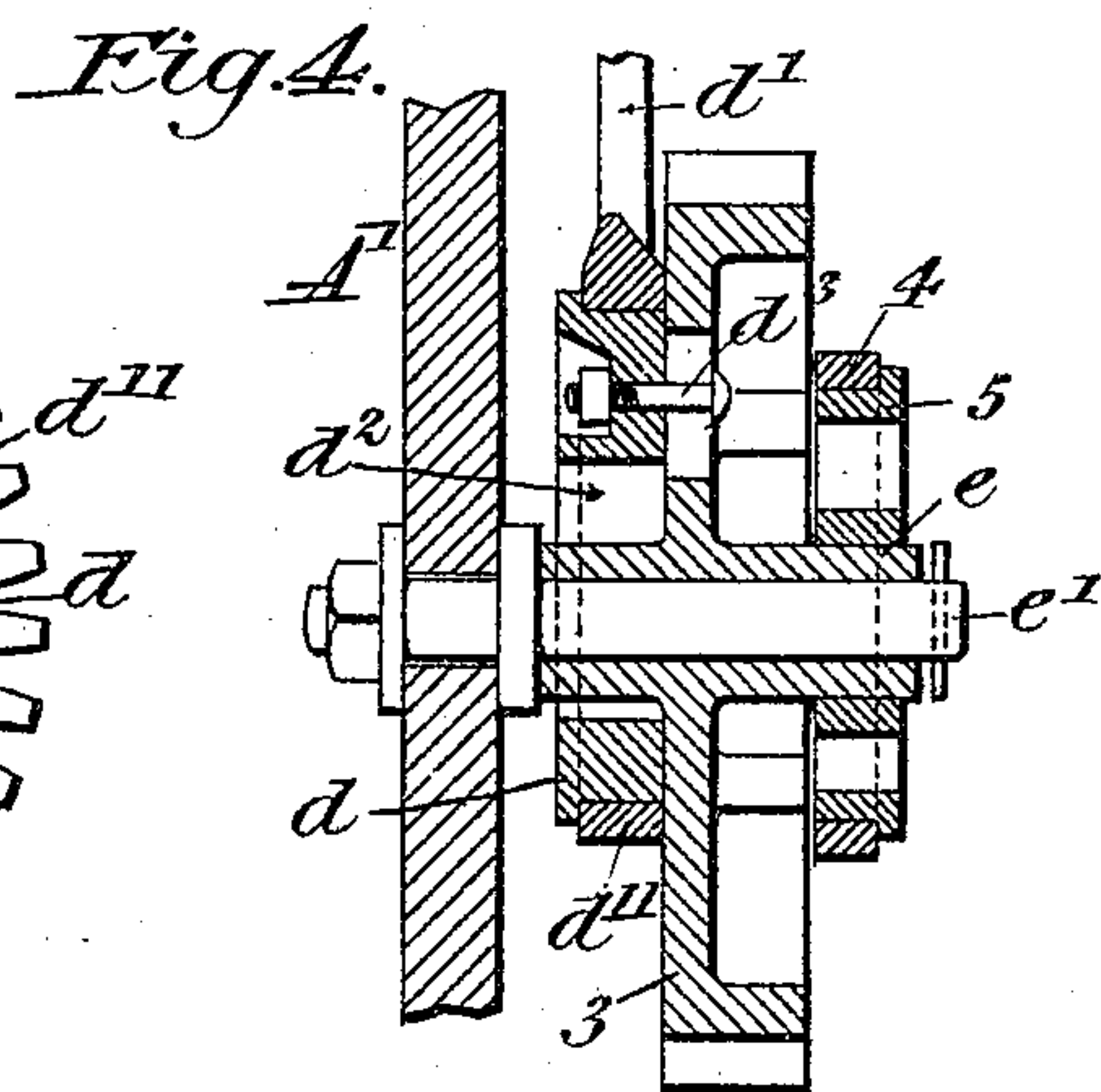
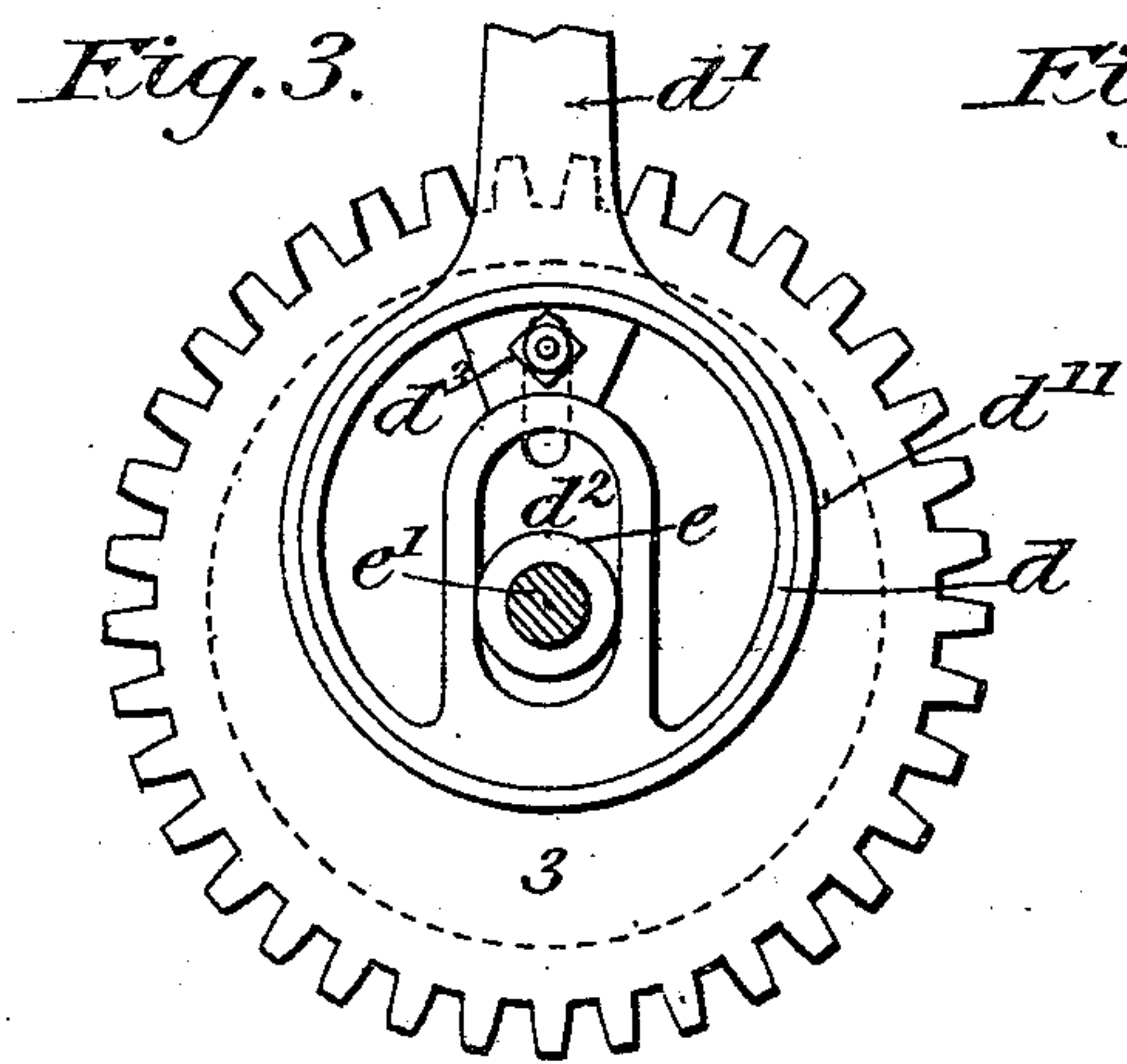
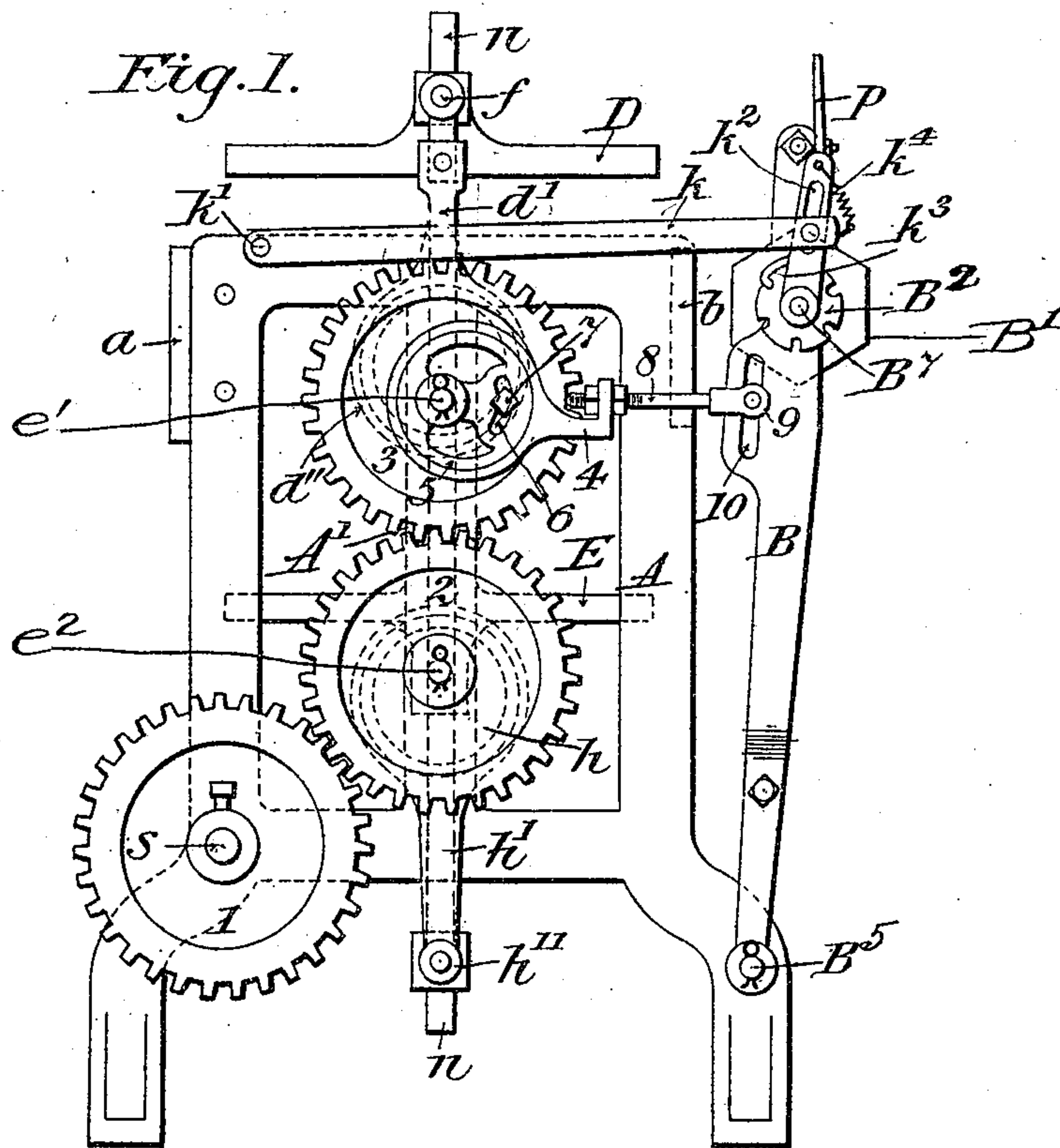
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JACQUARD MACHINE FOR LOOMS.

(Application filed Aug. 28, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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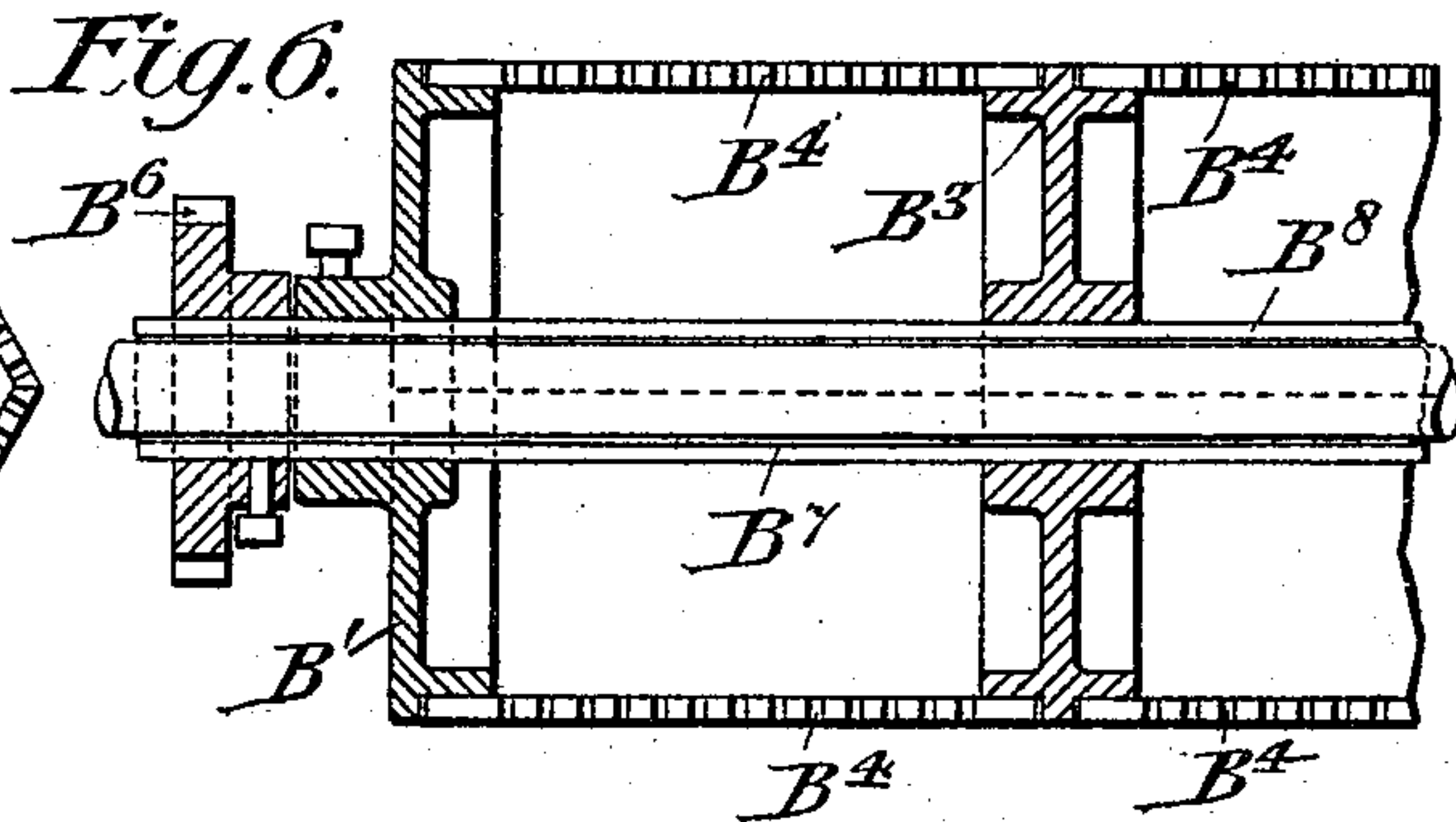
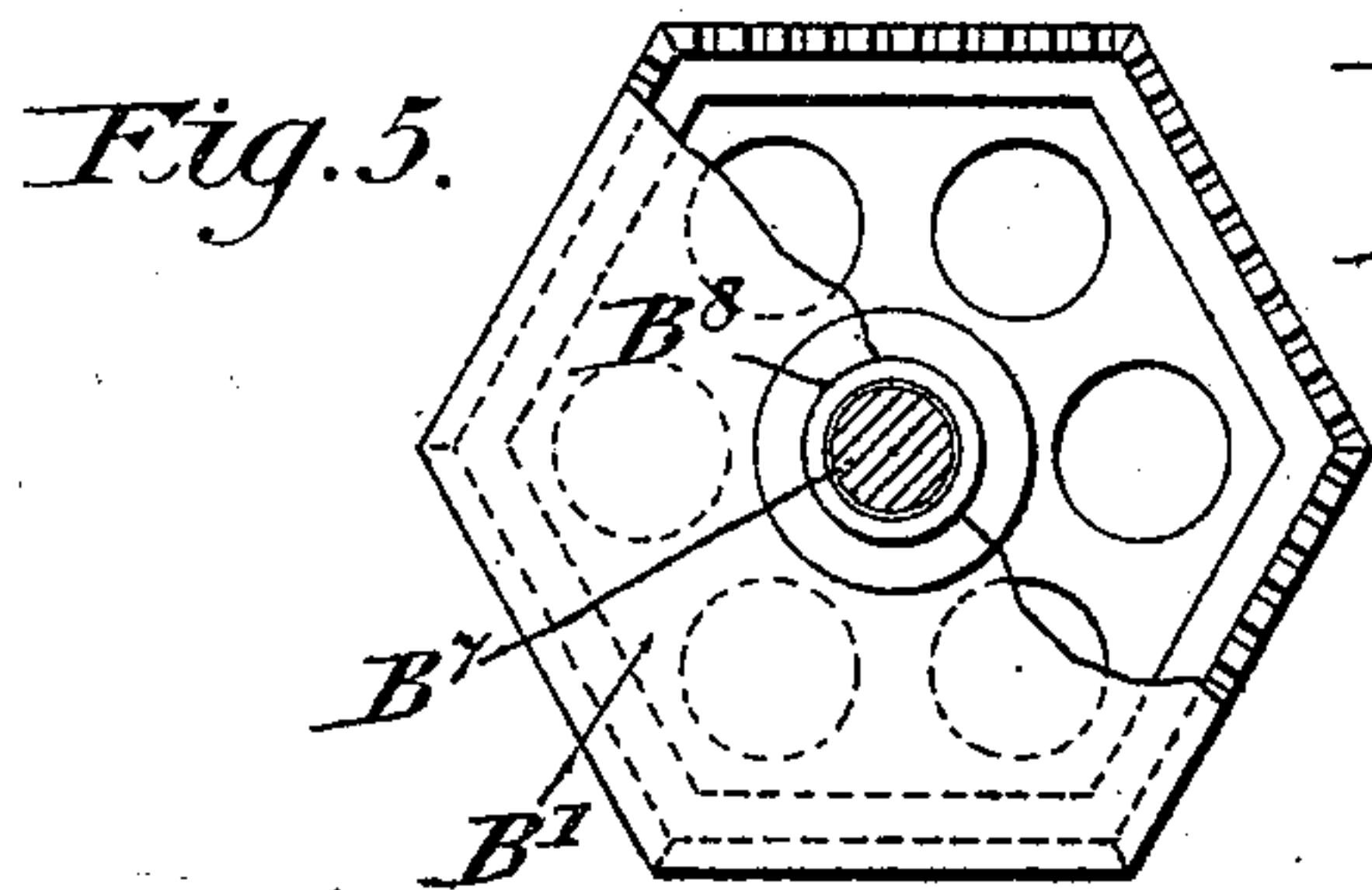
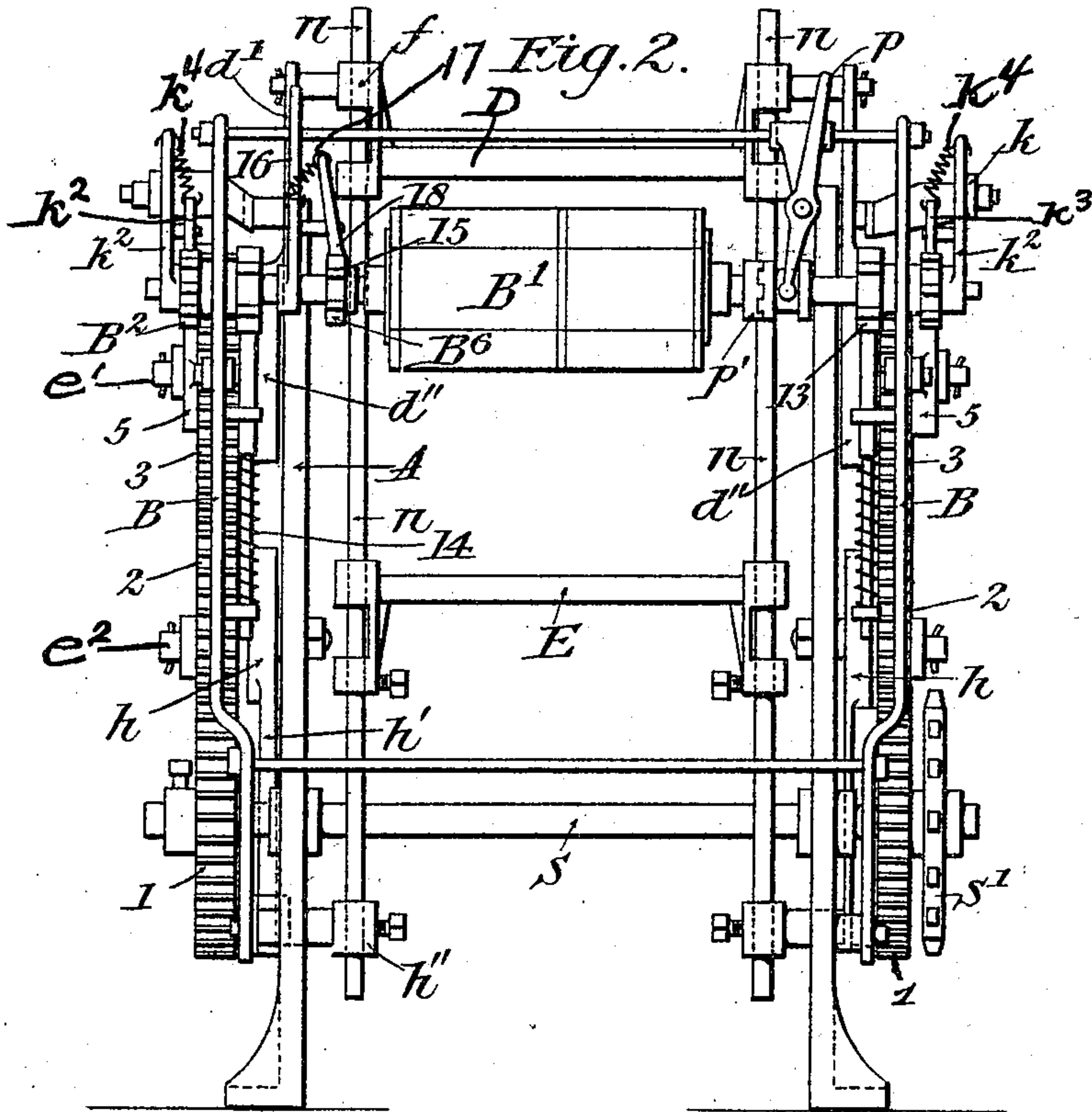
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(No Model.)

2 Sheets—Sheet 2.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN DEAN, OF PATERSON, NEW JERSEY, ASSIGNOR OF TWO-THIRDS TO  
JOHN F. KERR AND GEORGE SIMPSON, OF SAME PLACE.

## JACQUARD-MACHINE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 641,582, dated January 16, 1900.

Application filed August 28, 1899. Serial No. 728,818. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN DEAN, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Driving Mechanism for Jacquard-Machines for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The object of my invention is to provide an improved driving mechanism for jacquard-machines which will be at once simple in construction, durable, and cheap.

15 The invention relates to that particular style of jacquard-machine known as a "rise-and-fall" machine.

Various styles of mechanism have been employed to operate the upper and lower hook-plates of the rise-and-fall jacquard-machines so that they are moved simultaneously in opposite directions away from each other and toward each other alternately or to move one at a time, letting the other remain stationary.

25 In all or most all of the mechanisms known the hook-plates are caused to dwell or rest for a short space of time between each upward and downward movement, the object being to give the shuttle a fair opportunity to pass completely through the shed, while the opposite planes thereof remain separated sufficiently to give it unobstructed passage.

35 In nearly all cases a jerky and shaky motion is given to the loom, which causes a considerable strain on the various parts of the loom.

One of the main objects of my invention is to do away as far as possible with this strain and jerky shaky motion by imparting a smooth rotary motion to the power-applying devices of jacquard-machines.

Another object of my invention is to provide simple and convenient means of adjustment for regulating the action or the rise and fall of the hook-plates.

45 My invention consists in certain novel, useful, and improved combinations of parts, all as hereinafter is made clearly to appear, and it first will be fully described with reference to the accompanying drawings and then will be particularly pointed out and precisely defined in the claims appended to this specification and forming part hereof.

The two sheets of accompanying drawings show in elevation and in detail portions of a jacquard-machine with my invention applied thereto, enough, it is thought, being shown to indicate clearly the nature and purposes of my invention.

In the accompanying drawings, in which similar letters and figures of reference indicate like parts, Figure 1 is a side elevation of a jacquard-machine, showing my improved mechanism for operating the hook-plates and batten. Fig. 2 is a front elevation of the same. Fig. 3 is a detail view of one eccentric on back of top gear-wheel. Fig. 4 is an enlarged detail showing a section through the gear-wheels and eccentrics. Fig. 5 is an end view of cylinder, part sectional; and Fig. 6 is a longitudinal sectional view of card-cylinder, showing the construction thereof.

In the drawings, A represents the side framing of a jacquard-machine, and A' a center rib thereof.

Gear-wheels 2 and 3 are mounted on studs  $e^2$   $e'$  at each end of the jacquard-machine, so as to intermesh one with the other, as shown in the drawings.

The jacquard-machine is provided with a shaft S, and on each end thereof is secured the gear-wheel 1, so as to intermesh with the gear-wheel 2. On one end of said shaft S is also secured a sprocket-wheel S', by which it is driven from the main shaft of the loom.

A rocking batten B is secured at its lower end B<sup>5</sup> pivotally and is provided at its top end with bearings for the shaft B<sup>7</sup> of the card-cylinder.

B<sup>4</sup> indicates the sides of the card-cylinder, and B' the ends thereof.

On the shaft of the card-cylinder is also secured a ratchet-wheel B<sup>2</sup>.

A lever  $k$  is secured to the machine-frame by pivot  $k'$ , its other end being secured in the slot of a lever  $k^2$ . The lower end of the lever  $k^2$  is pivotally secured on the shaft B<sup>7</sup> and operates the pawl  $k^3$ , a spring  $k^4$  connecting the top of the pawl  $k^3$  with the top of the lever  $k^2$ . As the batten B moves backward and forward the card-cylinder is caused to revolve.

A lever  $p$  is used to operate a clutch  $p'$  to throw the card-cylinder in and out of action for turning cards.



The card-cylinder is constructed with a center disk  $B^3$ , which serves as a strengthening-partition and with the ends  $B'$  of the cylinder forms a framework on which are secured the perforated plates  $B^4$ . The ends  $B'$  of the cylinder are secured to the sleeve  $B^8$ , and the said ends and center disk  $B^3$  are provided with flanges upon which the perforated plates  $B^4$  rest and to which they are secured.

10 The ratchet-wheel  $B^6$  is also secured to the sleeve  $B^8$ .

The upper and lower hook-plates or knife-tray frames are indicated in the drawings by the letters D and E, respectively, as shown in Figs. 1 and 2.

The eccentric which drives the cylinder is located on the outer face of the upper gear-wheel 3 and is indicated in the drawings by the numeral 5 in Fig. 1, in which one end of the jacquard-machine is shown. The eccentric is adjusted by means of the screw 7, which passes through the adjusting-slot 6 and is provided with a square head. An eccentric-arm 8 is provided on one end with screw-threads and is screwed into the eccentric-strap 4. The other end is loosely secured by a pin 9 in the slot 10 in the batten B, so as to permit of vertical adjustment in said slot.

Secured to the cylinder-shaft  $B^7$  are stop ratchet-wheels 13, as shown in Fig. 2, which are operated upon by the holding pawl and spring 14, as shown in same figure, at every movement of the cylinder and serve to keep the cylinder in proper position in relation to the needle-board  $b$  as the cylinder revolves.

When the clutch  $p'$  is disengaged and it is desired to turn the cylinder by means of the ratchet-wheel  $B^6$ , it is done by means of the operating-lever 16, which is connected to the pawl 18 by means of the spring 17, as shown in Fig. 2.

If for any reason it is desirable to turn the card-cylinder by itself independently of the running of the machine, the clutch  $p'$  is disengaged by the manipulation of the lever  $p$ , and the cylinder may then be revolved by turning the ratchet  $B^6$ , which is done by the manipulation of the lever 16, which operates the pawl 18 of the ratchet  $B^6$ , the lever and the said pawl being connected by the spring 17.

The upper hook-plate D is operated or caused to rise and fall by means of the upper eccentric  $d$ , having a rod  $d'$  and the strap  $d''$ . The gear-wheel 3 is mounted on the stud  $e'$ , the eccentric 5 being secured to its outer face and the eccentric  $d$  being secured to its inner face, the long collar  $e$  of the wheel 3 passing through said eccentrics, the eccentric  $d$  having an elongated slot  $d^2$  to permit adjustment as required. The eccentric  $d$  is secured to gear 3 by a bolt  $d^3$ , passing through a radial slot in gear 3. The rod  $d'$  is connected to the upper hook-plate D at the joint  $f$ .

The lower knife or hook-plate E is oper-

ated by the lower eccentric  $h$ , which, like the upper eccentric  $d$ , is secured on the gear-wheel 2.

Both the upper and lower eccentrics which operate the knives or hook-plates are located inside of the gear-wheels 2 and 3. The lower eccentric  $h$  has the rod  $h'$ , which is secured at the joint  $h''$  to the rod  $n$ . To the rod  $n$  is secured the lower knife or hook-plate E, and the plate D slides on the rods  $n$ . In the drawings,  $a$  is a spring-box, and  $b$  is a needle-board, as indicated in Fig. 1.

My driving mechanism for jacquard-machines operates as follows: Power being communicated to the shaft S, the gear-wheels 1 on the ends thereof revolve, causing the upper gear-wheels 2 and 3 also to revolve, and the batten holding the card-cylinder is caused to oscillate by means of the eccentric on the outer face of the upper gear-wheels 3. The upper hook-plate D is caused to rise and fall by means of the upper eccentric  $d$  on the inner face of the gear-wheel 3, said eccentric having a rod  $d'$  and the strap  $d''$ , and the lower knife or hook-plate E is operated by the lower eccentric  $h$ , which is secured on the inside of the gear-wheel 2.

With this description of my invention, what I claim is--

1. The frame of the jacquard-machine provided with studs on each end, and the intermeshing wheels mounted upon said studs, and having on their inner sides long-necked hubs or collars, in combination with eccentrics adjustably secured to the sides of said intermeshing wheels, the hook-plates and rods connected with said eccentrics for operating the hook-plates, all constructed substantially as set forth.

2. In a jacquard-machine the driving-shaft provided with a gear-wheel at each end, the frame provided with two studs at each end, the intermeshing wheels carried by the studs and provided with long collars or hubs in combination with eccentrics suitably secured to the sides of said intermeshing wheels, the hook-plates, rods connecting the eccentrics and hook-plates, the batten carrying the pattern-cylinder, an eccentric on the outer face of each upper gear-wheel, and rods connecting the said eccentrics and batten to rock it, constructed substantially as set forth.

3. In a jacquard mechanism, the combination of the upper and lower hook-plates, with intermeshing wheels having eccentrics thereon, and connections between said eccentrics and hook-plates, for operating said hook-plates.

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

JOHN DEAN.

Witnesses:

J. F. BOICE,

WALTER FREESTONE.