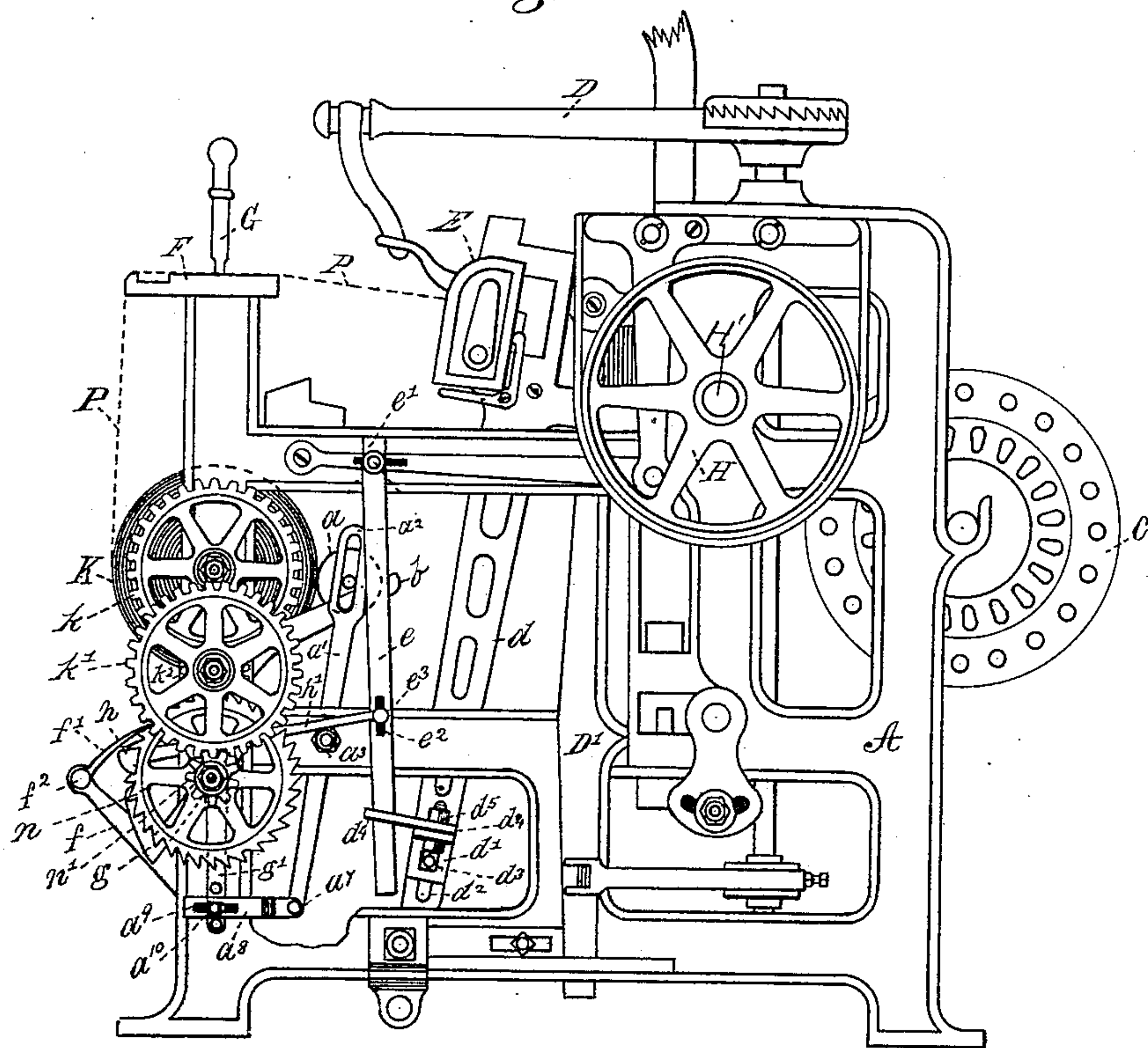


2 Sheets—Sheet 1.

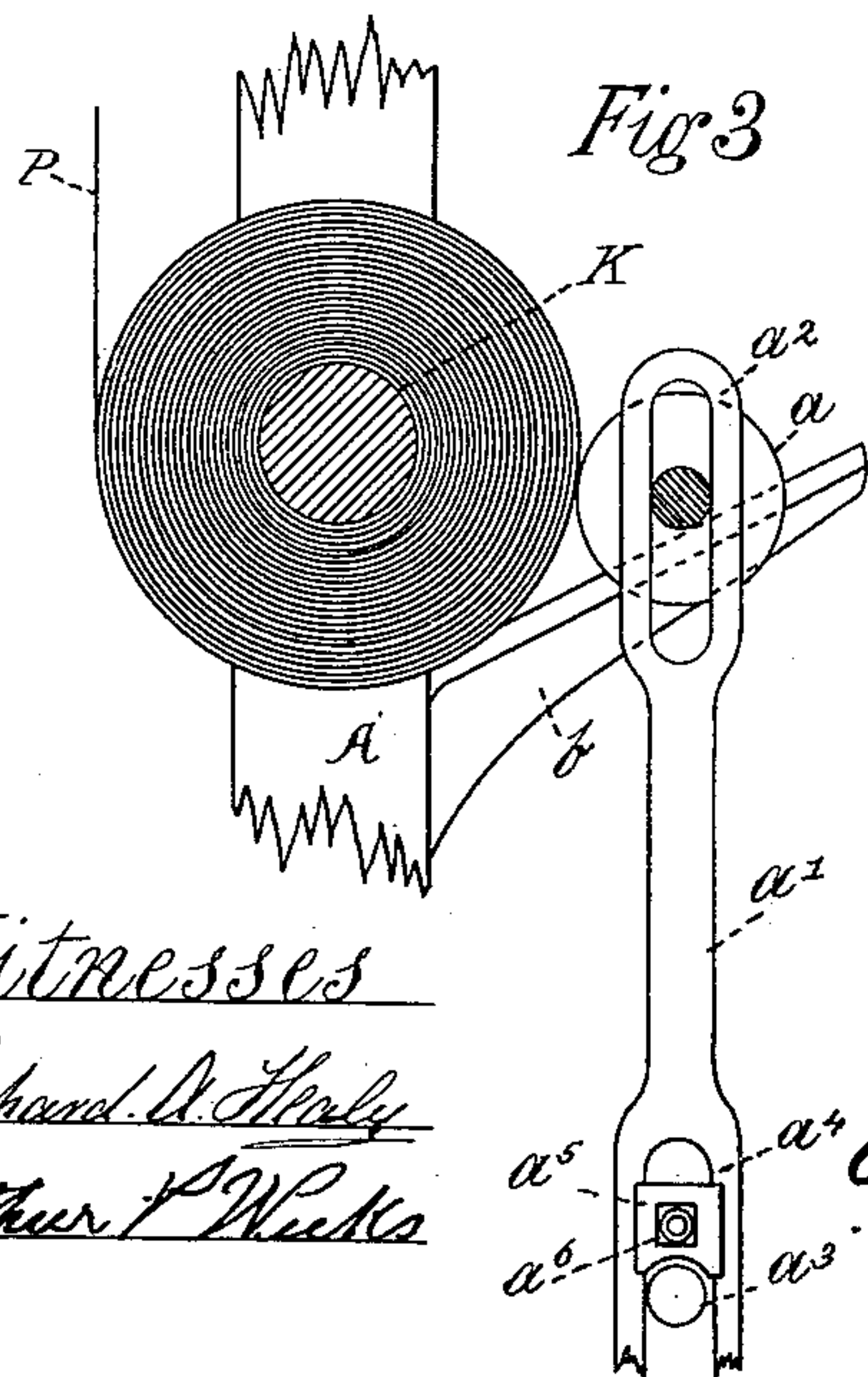
TAKE UP MECHANISM FOR LOOMS.

Patented Dec. 22, 1885.

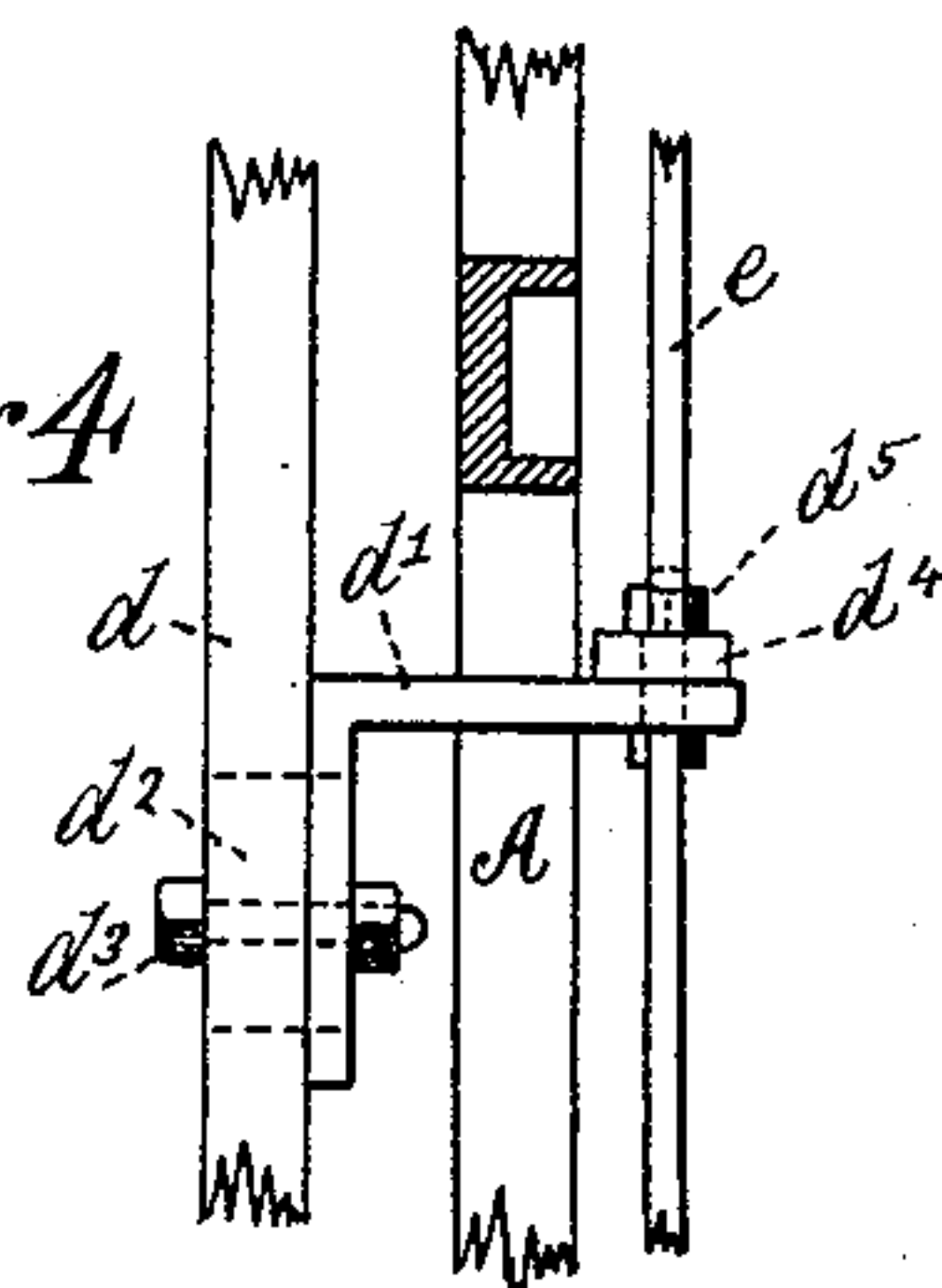
*Fig1*



*Fig 3*



*Fig 4*



Witnesses

Richard A. Herley  
Arthur F. Weeks

Inventor

John C Brooks

James F. Brooks

Frederick W Ball.

Harry Brooks  
Damen Gypsin cutting

(No Model.)

2 Sheets—Sheet 2.

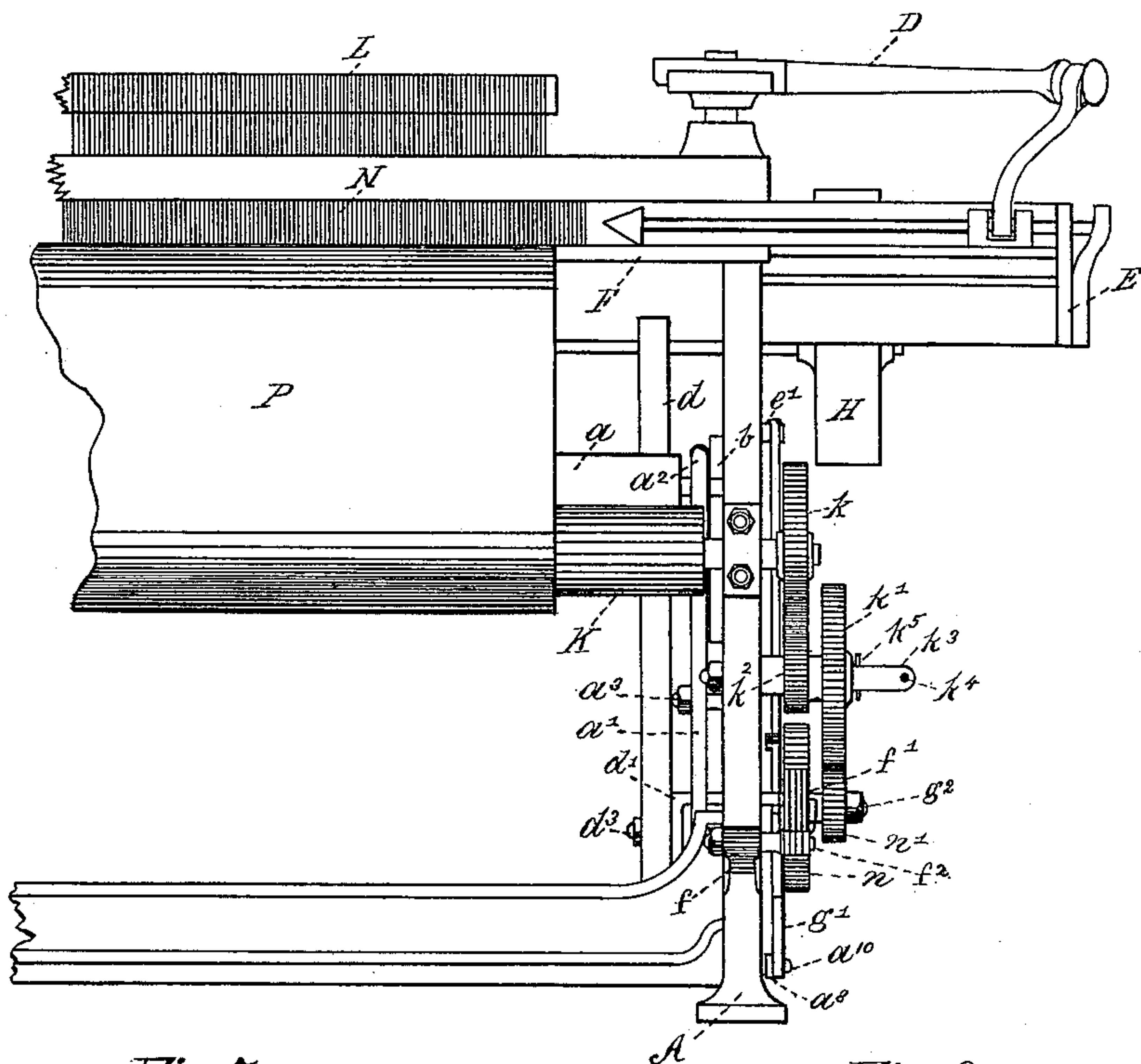
J. C. & J. F. BROOKS, F. W. BALL & H. BROOKS.

TAKE UP MECHANISM FOR LOOMS.

No. 332,782.

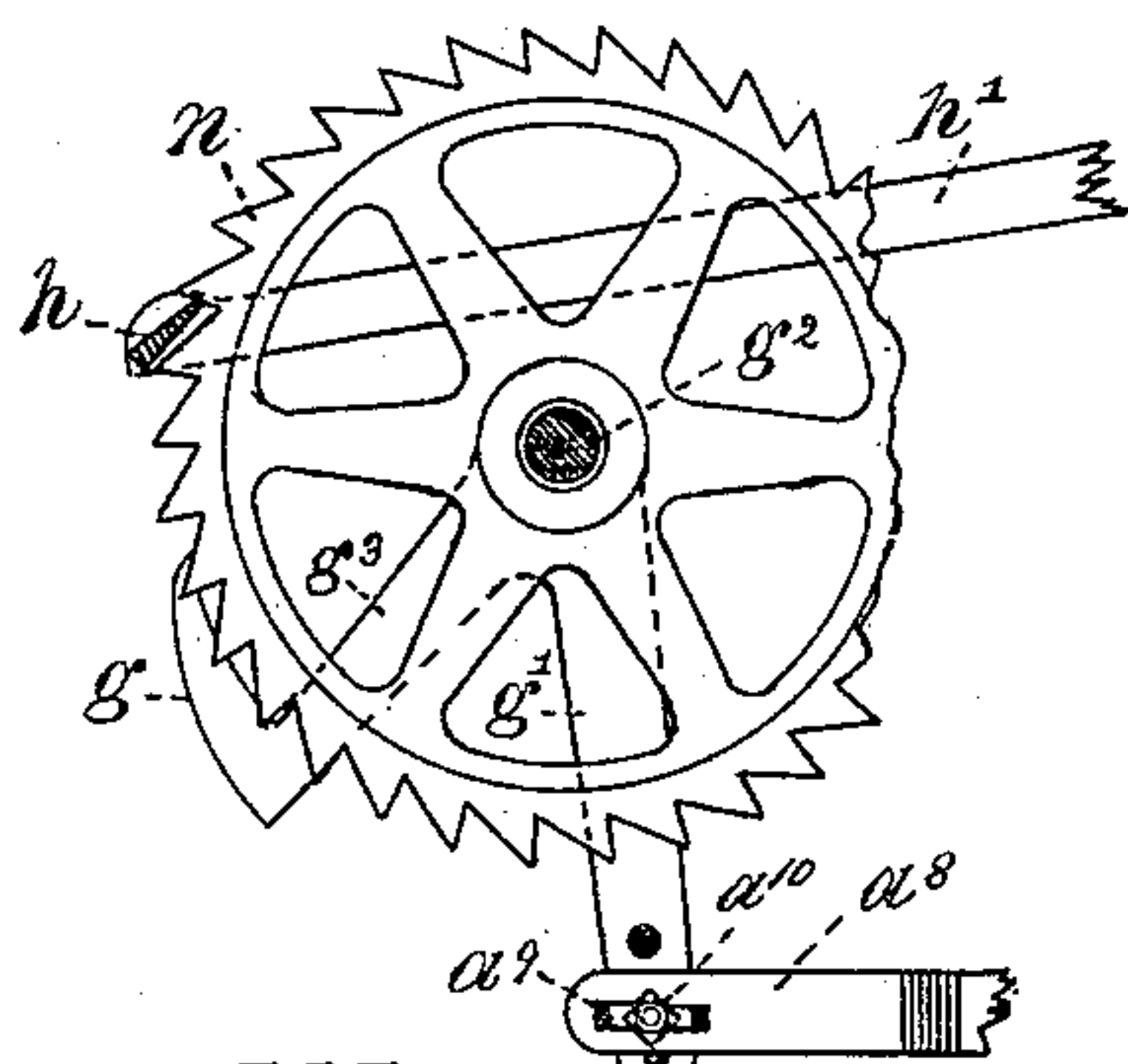
Patented Dec. 22, 1885.

*Fig 2*



*Fig 5*

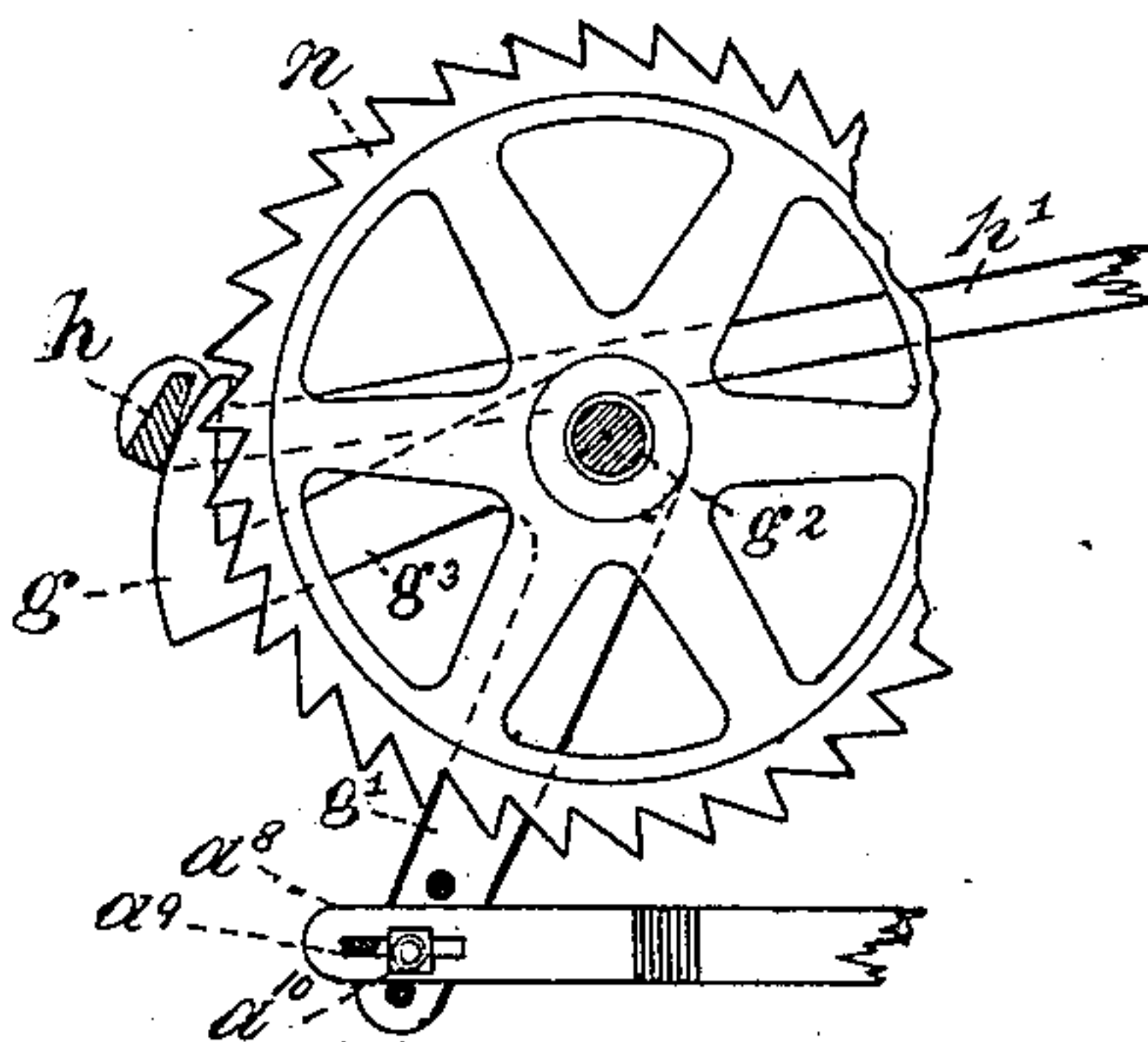
*Fig 6*



Witnesses

Richard D. Healy

Arthur Hicks



Inventor

John C Brooks

James L. Brooks

Frederick W Ball.

Harry Brooks

John Baptis City



# UNITED STATES PATENT OFFICE.

JOHN C. BROOKS, JAMES F. BROOKS, AND FREDERICK W. BALL, OF PATER-  
SON, N. J., AND HARRY BROOKS, OF FALL RIVER, MASS.

## TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 332,782, dated December 22, 1885.

Application filed May 26, 1884. Serial No. 132,727. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN C. BROOKS, JAMES F. BROOKS, and FREDERICK W. BALL, subjects of Queen Victoria, and residents of Paterson, Passaic county, State of New Jersey, and HARRY BROOKS, a subject of Queen Victoria, and a resident of Fall River, Bristol county, State of Massachusetts, have invented a new and useful Improvement in Take-Up Mechanism for Looms, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The object of our invention is the production of an improved take-up mechanism for looms, by means of which the movement given to the take-up roller will be so regulated as to take up the woven fabric at the same rate of speed in the various stages of its growth as the woven fabric is wound thereon.

The invention consists in devices illustrated in the drawings, and hereinafter fully explained, and pointed out in the claims.

Figure 1 of the drawings shows one end of an ordinary loom in elevation with our improved take-up mechanism attached. Fig. 2 is a front elevation of a part of the loom, showing our improved take-up mechanism attached thereto. Fig. 3 is a detached view of the take-up and friction rolls, showing their supports in elevation, the take-up roller being in section and filled with woven fabric. Fig. 4 shows portions of the lay-sword, loom-frame, and take-up lever, and the bracket attached to the lay-sword. Figs. 5 and 6 are detached views of portions of the mechanism, the parts being represented in different positions.

$e$  represents a depending lever the top of which is pivoted on a bracket or stud,  $e'$ , secured to the frame of the loom in the usual way. The lower end of the lever  $e$  is adjustably connected with the lay-sword  $d$  by a slotted plate,  $d^1$ , which plate is secured to the outer end of a bracket,  $d'$ , by a bolt,  $d^5$ , the bracket  $d'$  being secured adjustably to the sword  $d$  by a bolt and screw-nut,  $d^3$ , the bolt passing through a slot,  $d^2$ , in the sword. As shown in Figs. 1 and 4, the lever  $e$  is provided centrally with a slot,  $e^2$ , in which slot there is secured adjustably the rear end of an arm,  $h'$ . The

arm  $h'$  is provided on its forward end with a hook,  $h$ , the hook  $h$  being arranged to engage the ratchet-wheel  $n$ . The arm  $h'$  is secured adjustably in the slot  $e^2$  by a bolt and screw-nut,  $e^3$ .

To the frame A there is pivoted on a stud,  $a^3$ , a lever,  $a'$ , having an enlargement at the top of the same, in which enlargement there is formed a loop,  $a^2$ , to accommodate the journal of a friction-roller,  $a$ , that is arranged on inclined brackets  $b$ , bolted to the frame of the loom. The lower end of the lever  $a'$  is pivoted to a link,  $a^8$ , by a pivot-bolt,  $a^7$ , the forward end of the link  $a^8$  being provided with a slot,  $a^9$ , through which slot there is passed a bolt,  $a^{10}$ , which adjustably connects link  $a^8$  to an arm,  $g'$ . The arm  $g'$  is a part of a bell-crank that is pivoted on a stud,  $g^2$ , Figs. 5 and 6. The arm  $g^3$  of the bell-crank is provided at its outer end with a guard,  $g$ . There is suitably secured to the frame A a projecting arm or bracket,  $f$ , on the outer upper end of which arm are arranged pawls  $f'$ , mounted on the pivot-bolt  $f^2$ , and adapted to engage the ratchet-wheel  $n$ . The wheel  $n$  is provided with a pinion,  $n'$ , and the said wheel  $n$  and its pinion  $n'$  are journaled on the stud  $g^2$ . The pinion  $n'$  meshes with a gear-wheel,  $k'$ , which is provided with a pinion,  $k^2$ , and is journaled on a stud,  $k^3$ . The pinion  $k^2$  meshes with a gear-wheel,  $k$ , arranged on and secured to the end of the cloth or take-up roller K. The lay-sword  $d$  is suitably pivoted at its lower end in a bracket that is secured to the frame of the loom, and operated in the usual manner.

Operation: The loom is supposed to be in motion. As the sword  $d$  moves it vibrates the lever  $e$  by means of plate  $d^1$ , and the lever  $e$  reciprocates the catch  $h$  over the teeth of the ratchet-wheel  $n$ . The catch  $h$ , in its engagement with the teeth of the ratchet-wheel  $n$ , imparts an intermittent movement to the ratchet-wheel  $n$ , the hook taking up more or less teeth in its movement, as arranged by its adjustment. The intermittent movement of the pinion  $n'$  imparts a like movement to the gear-wheel  $k'$  and pinion  $k^2$ , which in turn give a like motion to the gear-wheel  $k$  and cloth-roller K. As the fabric P is woven and



passes through the loom in the usual and well-known way, the same is wound on the roller K, which roller, as it increases in diameter by the accumulation of the woven fabric P thereon, forces rearward the friction-roller *a* and the upper end of the lever *a'*, and forces forward the lower end of lever *a'*, and by means of link *a<sup>8</sup>* moves forward the end of crank-arm *g'*, and raises or lifts the arm *g<sup>3</sup>* and its guard *g*, which action causes the upper end of the guard *g* to pass under the hook *h* to gradually raise the hook as the cloth-roller fills, and gradually reduce the operative stroke thereof by lessening the number of teeth of the ratchet-wheel, which are engaged by the hooks at each stroke. The roller K, when the same becomes filled with woven fabric, is removed from the loom in the usual way. The pawls *f'* are in constant engagement with the teeth of the ratchet-wheel *n*. These pawls, being of different lengths, hold the take-up and prevent a loss of the movement given to the ratchet-wheel. The vibratory stroke of the lever *e* is lengthened by unscrewing the bolt and nut *d<sup>3</sup>* and raising the bracket *d'* in the slot *d<sup>2</sup>*. The bracket *d'* is lowered when the vibratory stroke of the lever is to be shortened.

The effect of lengthening the stroke of the lever *e* in the manner stated will be to cause the hook *h* to engage at each stroke a greater number of teeth upon the ratchet-wheel *n* and increase accordingly the speed of the take-up

roller K. The opposite will be the case when the stroke of the lever *e* is shortened.

The loom has the usual driving-pulley, H, crank-shaft H', warp-roller C, picking-arm D, shuttle-box E, shipper-lever G, breast-beam F, picking-lever D', heddles L, and reed N.

Having described our invention, we claim and desire to secure by Letters Patent—

1. The combination, with the guard *g*, and arms *g<sup>3</sup> g'*, stud *g<sup>2</sup>*, and frame for supporting said stud, of the link *a<sup>8</sup>*, having slot *a<sup>9</sup>*, bolt *a<sup>10</sup>*, and lever *a'*, said lever having enlarged slotted end *a<sup>2</sup>*, roller *a*, and roller *k*, arms *b*, bolt *a<sup>3</sup>*, the hook *h*, the devices whereby the same is actuated, the ratchet *n*, and gearing between the same and the cloth-roller K, substantially as described.

2. The combination, with the guard *g*, the catch *h*, arm *h'*, lever *e*, having slot *e<sup>2</sup>*, bracket *e'*, the devices whereby guard *g* is actuated, and the bolt *e<sup>3</sup>*, of the lay-sword *d*, having slot *d<sup>2</sup>*, bracket *d'*, bolt *d<sup>3</sup>*, plate *d<sup>4</sup>*, bolt *d<sup>5</sup>*, as described, ratchet-wheel *n*, pinion *n'*, gear-wheel *k'*, pinion *k<sup>2</sup>*, stud *k<sup>3</sup>*, bracket *f*, pawls *f'*, pin *f<sup>2</sup>*, wheel *k*, roller K, and frame A, substantially as described.

JOHN C. BROOKS.

JAMES F. BROOKS.

FREDERICK W. BALL.

HARRY BROOKS.

Witnesses:

ARTHUR P. WEEKS,

JOHN INGLIS.