

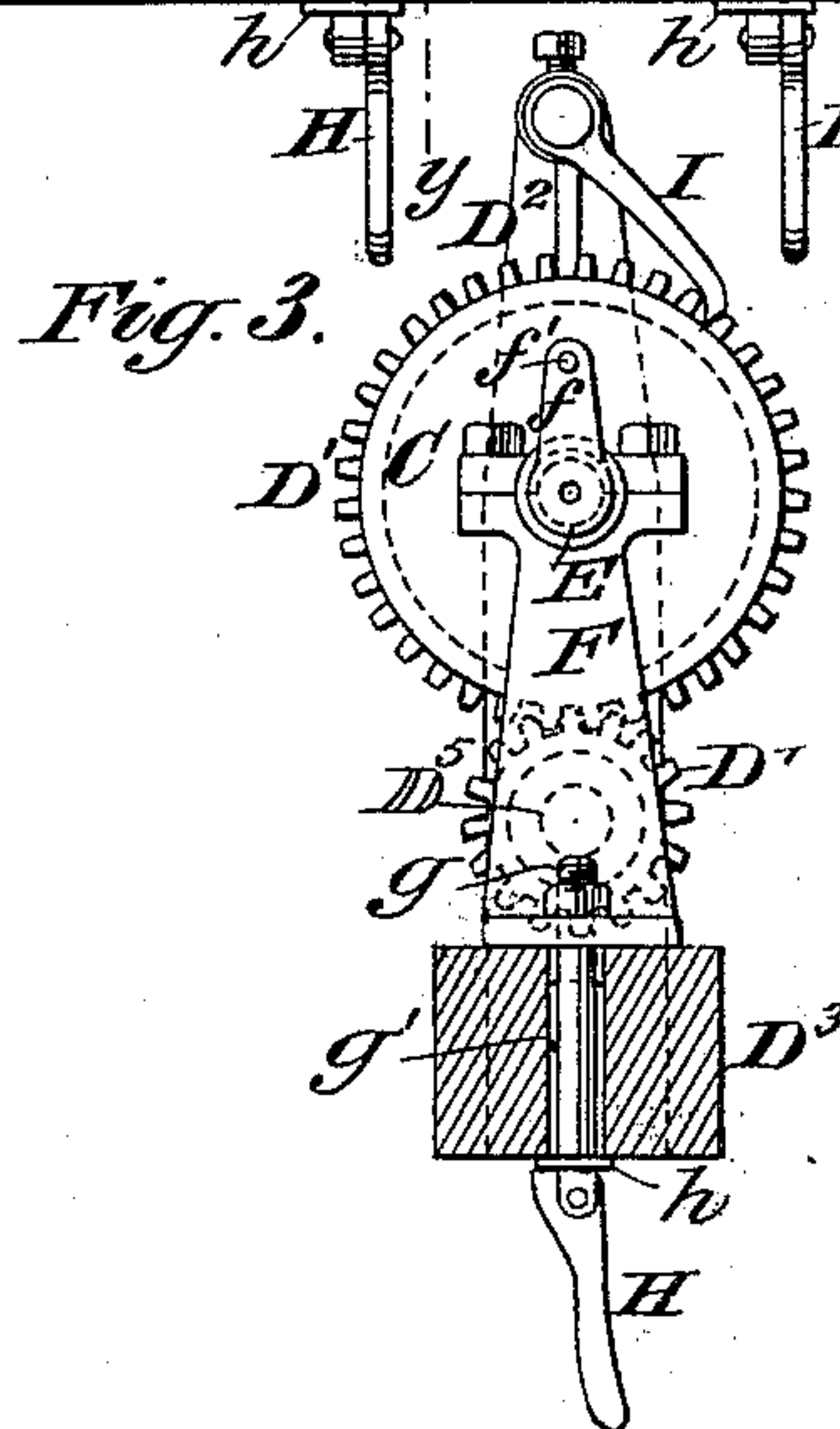
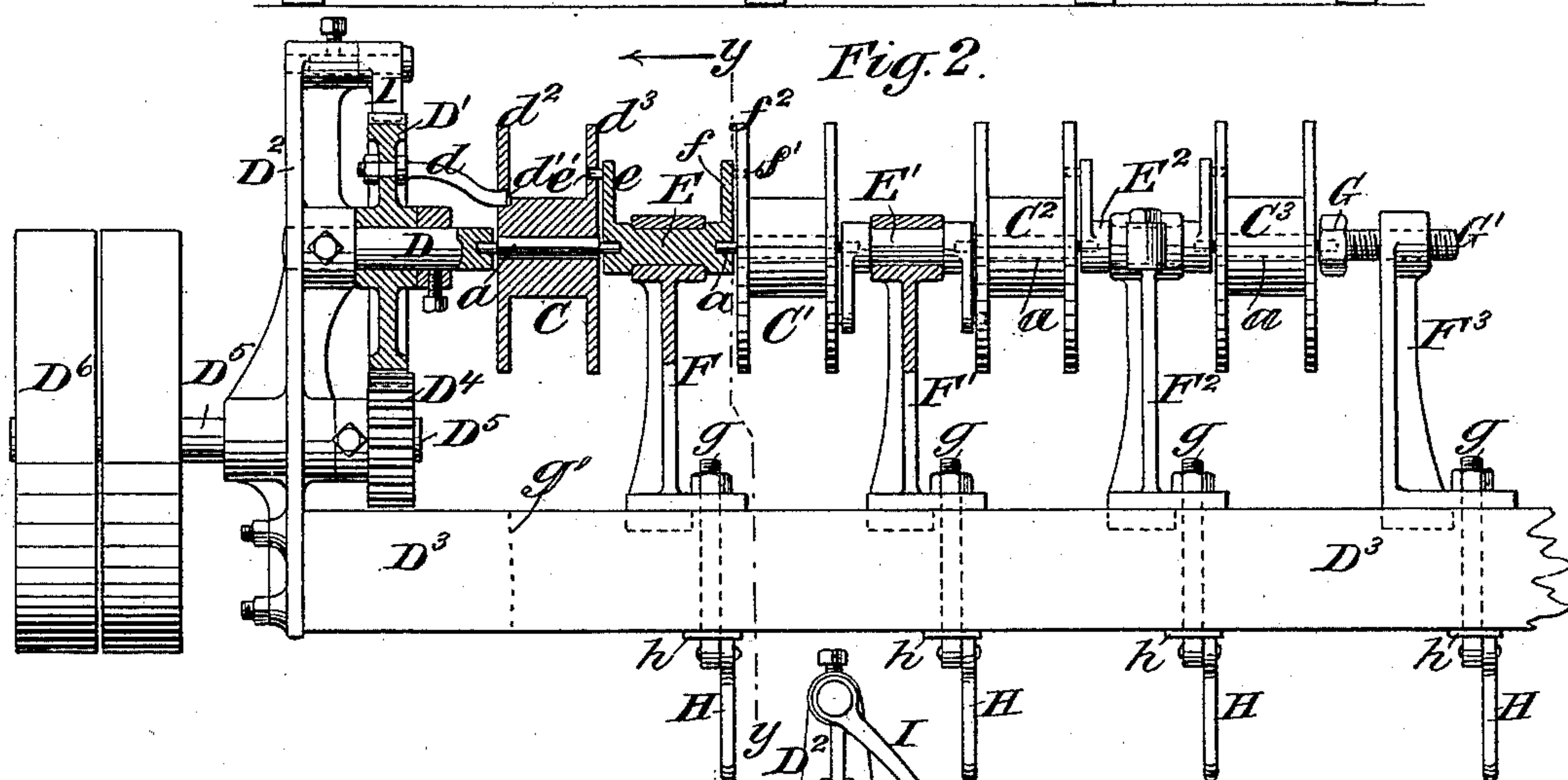
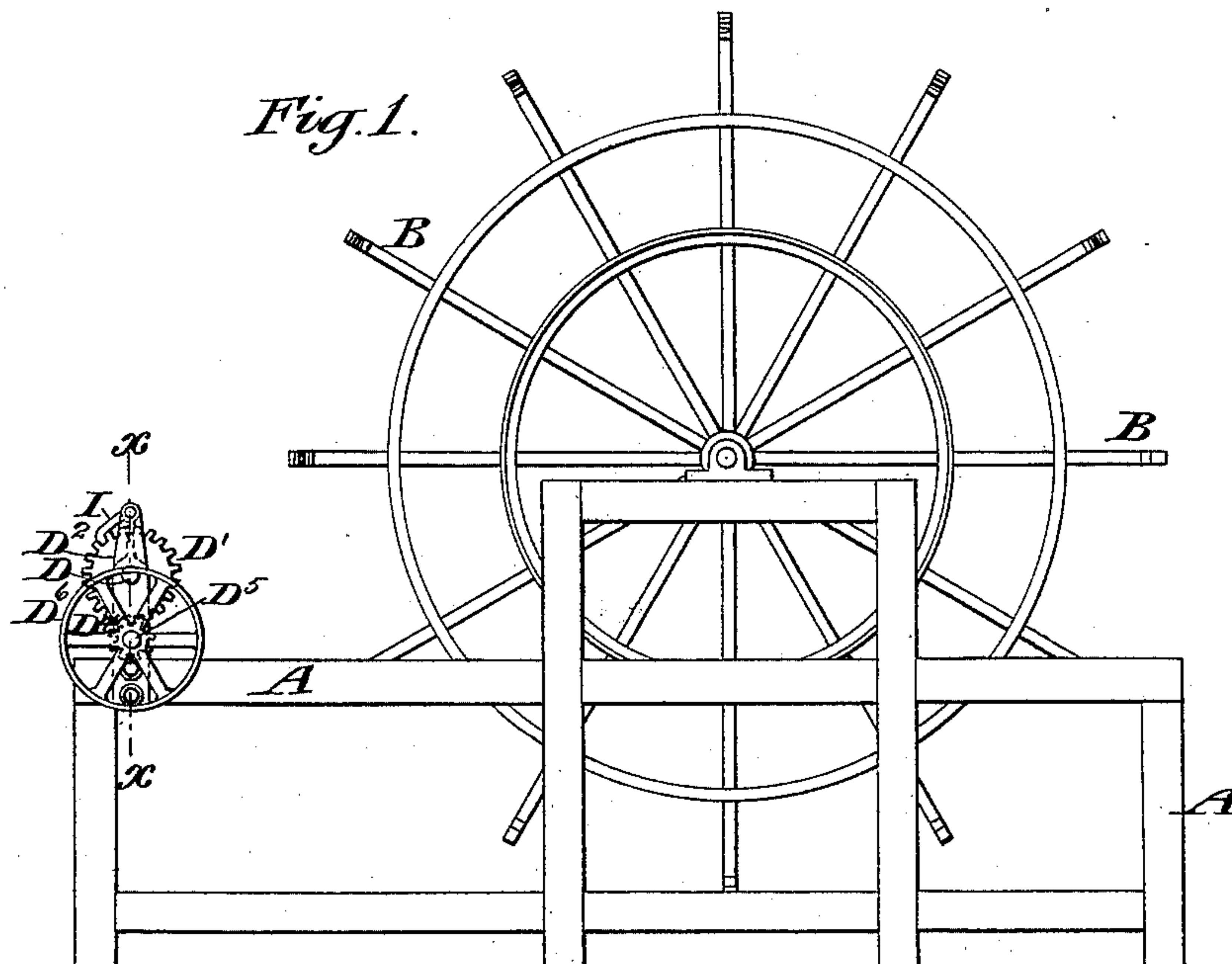
(No Model.)

W. BAMFORD.

WARP BEAMING MACHINE.

No. 405,654.

Patented June 18, 1889.



Witnesses:

Olundgren
John Bickel

Inventor
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by attorneys
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UNITED STATES PATENT OFFICE.

WALTER BAMFORD, OF PATERSON, NEW JERSEY.

WARP-BEAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 405,654, dated June 18, 1889.

Application filed April 8, 1889. Serial No. 306,348. (No model.)

To all whom it may concern:

Be it known that I, WALTER BAMFORD, of Paterson, in the county of Passaic and State of New Jersey, have invented a certain new and useful Improvement in Warp-Beaming Machines, of which the following is a specification.

My improvement relates to beaming attachments for warping-mills adapted to beam the warp for narrow-warp looms.

I will describe my improvement in detail and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is an end elevation showing a winder and a portion of a beaming attachment embodying my improvement. Fig. 2 is a side elevation partly in a vertical section and illustrating my improvement, the section being taken on the line $x x$, Fig. 1. Fig. 3 is a vertical section taken on the line $y y$, Fig. 2, and looking in the direction of the arrow, Fig. 2.

Similar letters of reference designate corresponding parts in all the figures.

A designates the main frame of the machine. In this frame I have shown mounted a winder B, which may be of the usual or any desired construction. From the winder B the warp is wound upon a series of beams C C' C² C³. I have only shown four of such beams; but I may employ any desired number. Each of the beams is, as shown, provided with a spindle a , extending axially through it. The ends of the spindle a constitute journals, upon which the beams may rotate. The beam C is journaled upon one side in a bearing formed in a shaft D, which shaft is secured by a set-screw in a bracket D², mounted upon a stretcher D³, forming part of the frame of the machine. Upon the shaft D is loosely mounted a gear-wheel D', which gear-wheel derives motion from a gear-wheel D⁴, mounted upon a shaft D⁵, journaled in the bracket D². The shaft D⁵ derives motion from a driving-pulley D⁶. The beam C is journaled upon its other side in a bearing formed in a short shaft E, which shaft is journaled in a bracket F, movably secured near its lower end to the stretcher D³. Motion is transmitted to the beam C from the gear-wheel D', by means of an arm d , rigidly se-

cured near one end to said gear-wheel and at its other end extending loosely into a socket d' , formed in a flange d^2 of the beam. Motion is transmitted from the beam C directly through the short shaft E. The shaft E is provided with a crank e , having a pin e' extending loosely into a socket formed in a flange d^3 .

It will be readily seen that when the beam C is rotated by the gear-wheel D' a corresponding rotation of the shaft E will ensue. Motion is transmitted from the shaft E to the beam C', the said shaft being provided at its end farther from the beam C with a crank-arm f , provided with a pin f' , extending loosely into a socket in a flange f^2 of the beam C'. The beam C' is journaled upon one side in the shaft E, in manner similar to that previously described, and at its other side in a shaft E', similar to the shaft E in all respects, and mounted in a bracket F', similar to the bracket F. Motion is transmitted from the shaft E' to the beam C² in manner similar to that previously described, and the beam C² is journaled in the shaft E' and in a shaft E², similar to the shafts E E'. The beam C² transmits motion to the shaft E², as before described. The shaft E² is journaled in manner similar to the shafts E E' in a bracket F². The beam C³ is journaled upon one side of the shaft E², and derives motion from said shaft in manner similar to that previously described. The beam C³ is journaled upon its other side in a head G, mounted upon a screw G', which screw engages a suitable screw-threaded aperture in a bracket F³, mounted similarly to the brackets F F' F². It will therefore be seen that all the beams rotate in unison, and also that each is independent of the other, except for the means employed for transmitting motion from one to the other.

It is desirable to be able to readily remove or put in place any or all of the beams. To accomplish this, it is necessary to cause longitudinal movement of the shaft E² E' E in the order named, so that the beams may be readily connected or disconnected from the cranks on the respective shafts. To accomplish the removal of the beam C³, the head G may be moved backwardly with the screw G', so as to

remove the journal of the beam from the head, when the beam may be readily disengaged, or the bracket F^3 may be moved along in the direction of the length of the stretcher D^3 . To remove beam C^2 , the bracket F^2 , supporting the shaft E^2 , is moved along upon the stretcher D^3 in the direction of the length of the latter, and so on throughout the series, the brackets being moved one after the other.

10 In order to provide for a ready locking and unlocking of the brackets upon the stretcher D^2 , so that they may be secured into position or moved along on the stretcher, I have shown bolts g , which bolts engage the feet of the

15 brackets and extend downwardly through the longitudinal slot g' , extending through the stretcher D^3 . Upon their lower ends the bolts are pivotally connected to cam-locking levers H , which cam-locking levers are shown more

20 clearly in side elevation in Fig. 3, in which position the bracket is shown as locked to the stretcher. Between the upper ends or cam-surfaces of the levers I have shown arranged washers h , surrounding the bolts, and against

25 which the cams on the levers will contact. To unlock the brackets, the levers are simply rocked upwardly, when the strain upon the bolts will be loosened, and the brackets may then be moved along.

30 Mounted upon the bracket D^2 , I have shown a stop-pawl I for preventing the rotation of the gear-wheel D' in the wrong direction.

Although I have illustrated my beaming attachment as combined with a winder, it is

35 quite apparent that the beaming might be done from a long beam instead of using a winder.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a warping attachment, the combination, with driving mechanism, of a number of narrow beams upon which warp to be beamed is delivered, separate shafts in which said beams are loosely journaled, loose connections between said shafts and the beams, whereby motion is transmitted throughout the series, and movable brackets in which said shafts are journaled, substantially as specified.

2. In a warping attachment, the combination, with driving mechanism comprising a gear-wheel provided with an arm, of a number of narrow beams upon which warp to be beamed is delivered and with one of which said arm has a loose connection, separate shafts in which said beams are loosely journaled, loose connections between said shafts and the beams, whereby motion is transmitted throughout the series, and movable brackets in which said shafts are journaled, substantially as specified.

3. In a warping attachment, the combination, with driving mechanism, of a number of narrow beams, separate shafts in which said beams are loosely journaled, loose connections between said shafts and beams, brackets in which said shafts are journaled, a stretcher provided with a longitudinally-extending slot, bolts secured to said brackets and extending through said slots, and cam-levers pivotally connected to said bolts below the stretcher, substantially as and for the purpose specified.

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Witnesses:

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