

(No Model.)

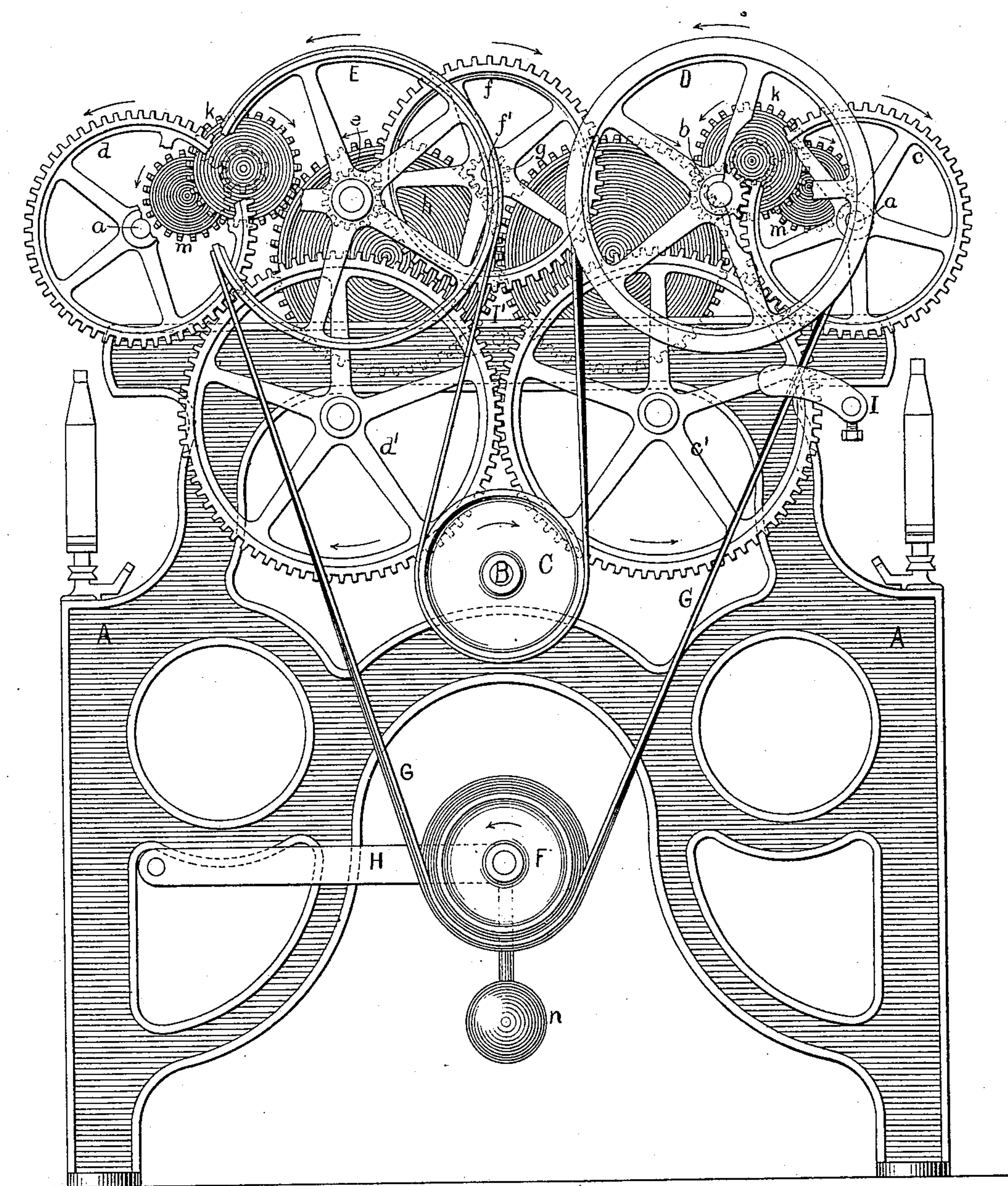
2 Sheets—Sheet 1.

S. A. JENKS.
RING SPINNING FRAME.

No. 246,613.

Patented Sept. 6, 1881.

Fig. 1,



WITNESSES

Wm A. Skinkle
Geo W. Buck

By *this* Attorney

INVENTOR

Stephen A. Jenks,
Wm B. Wood

(No Model.)

2 Sheets—Sheet 2.

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Fig 2.

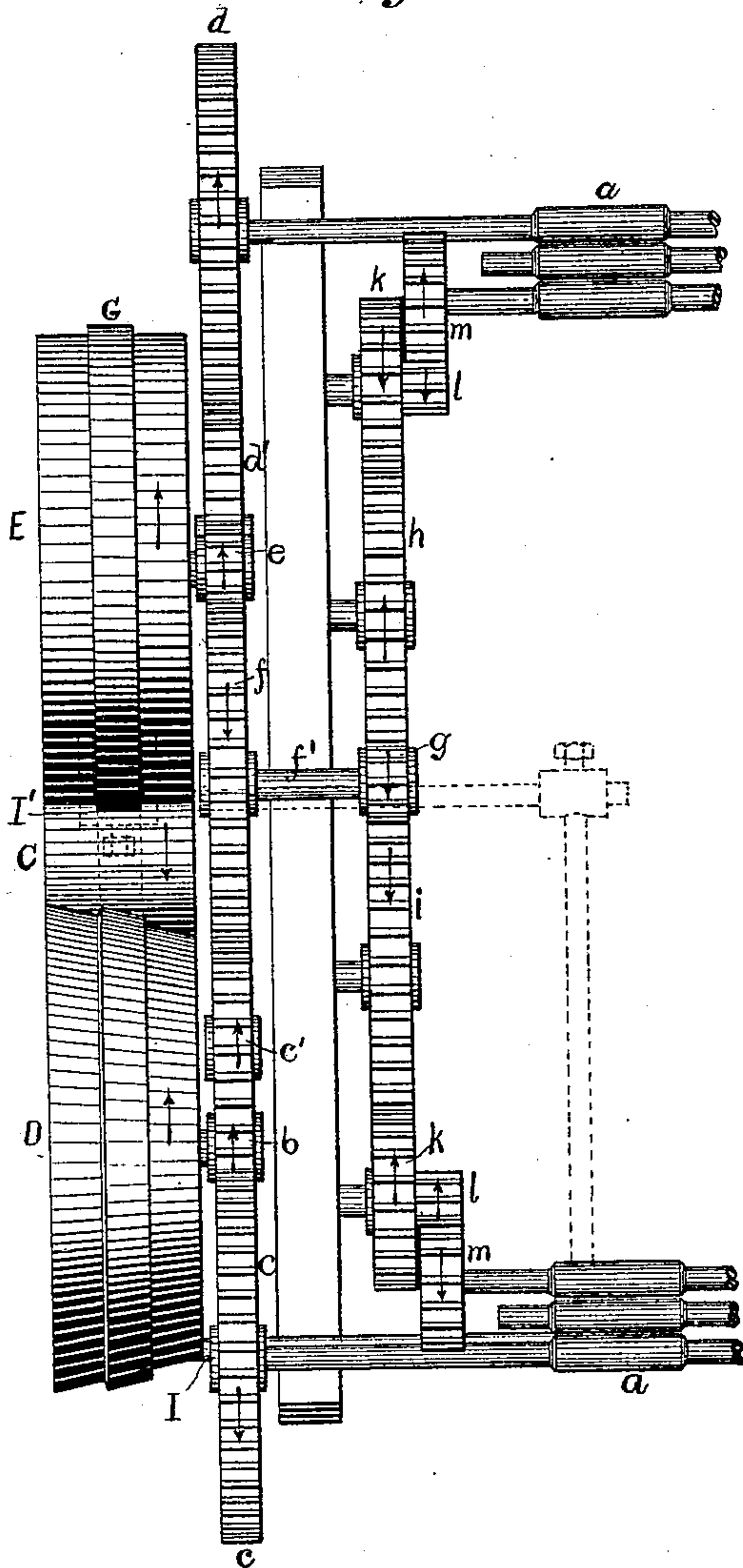
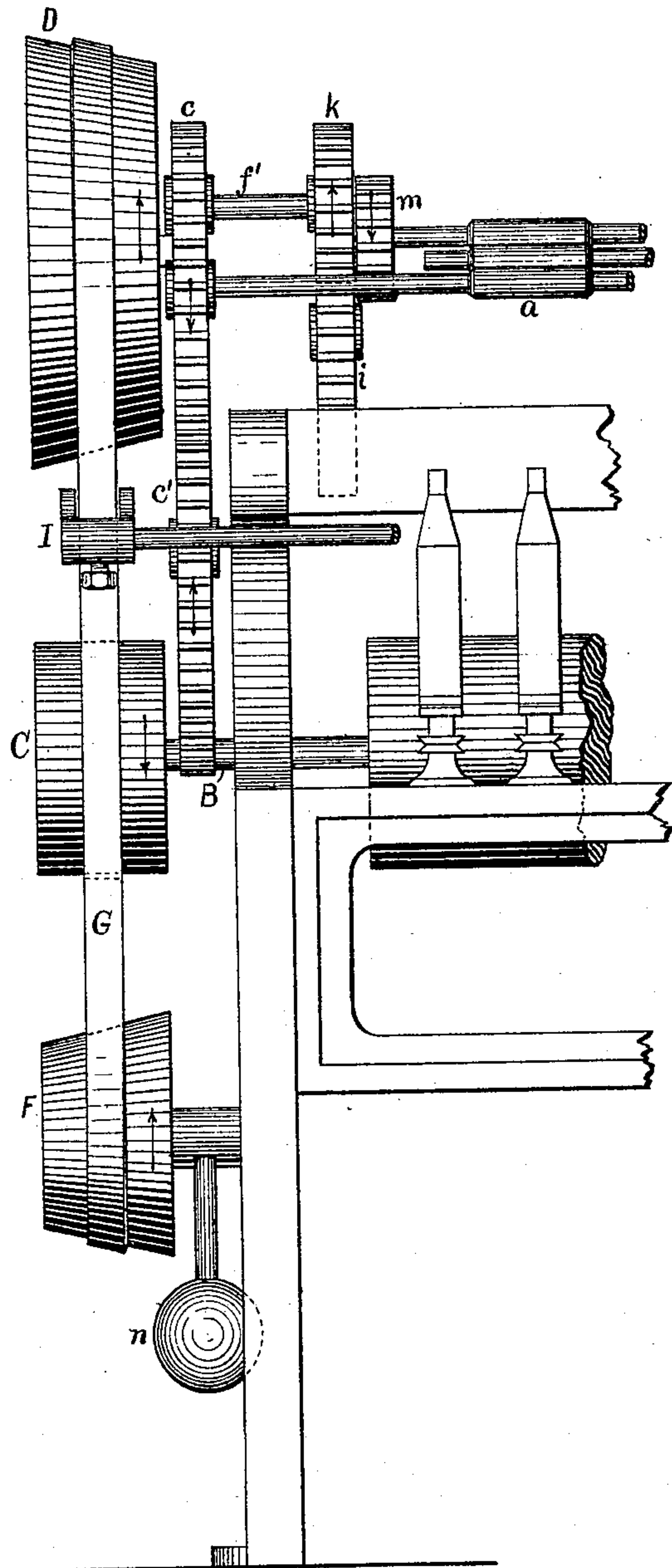


Fig. 3.



WITNESSES

Wm. A. Skinkley
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By his Attorney

INVENTOR

Stephen A. Jenks.

Stephen A. Jenks

UNITED STATES PATENT OFFICE.

STEPHEN A. JENKS, OF CENTRAL FALLS, RHODE ISLAND.

RING-SPINNING FRAME.

SPECIFICATION forming part of Letters Patent No. 246,613, dated September 6, 1881.

Application filed March 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN A. JENKS, of Central Falls, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in Ring-Spinning Frames; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete
10 description of my invention.

My said improvements are specially applicable to that class of ring-spinning frames which have two sets of rolls and are adapted to the production of "filling," because they embody means for variably speeding the drawing-rolls or the delivery-rolls, or both, for attaining uniformity in the size and twist of the yarn, notwithstanding the varying conditions incident to the operation of the traverse or "copping" motion and the gradual increase in diameter of the wound bobbins.

Heretofore in frames intended for operation as described the roll-gearing has been operatively connected with the main shaft of the machine by a variety of methods, which I will briefly
25 describe as follows: Each of the two sets of rolls has had a belt-pulley operatively connected with each other by a single belt passing around a loose or idle pulley below the main shaft, and with these there was a second loose pulley above the main shaft. These pulleys were all straight-faced, and the graduated rotation of the rolls was effected by means of a cone-pulley on the main shaft, connected by
35 a second belt with a loose cone-pulley connected to the second plain pulley before referred to, all as illustrated in Letters Patent of the United States No. 16,028, November 4, 1856. The same number of pulleys, and two
40 belts similar in character, but differing in their relative arrangement, are illustrated in Letters Patent of the United States No. 27,434, March 13, 1860. In the machine shown in said Letters Patent one of the belt-pulleys is geared to rolls in both sets of rolls; but two additional belt-pulleys are employed, each of which is geared to the rolls in its particular set which are not geared to the first-mentioned pulley. Other arrangements involving the use of two or more
50 belts and trains of high-speed gearing are illus-

trated in Letters Patent of the United States Nos. 186,322, 186,323, 186,324, and 186,325, all dated January 16, 1877, to which reference may be had, if need be, for a more complete understanding of the state of the art in this connection prior to my invention.

The objects of my invention are to obviate the noise, wear, and tear incident to high-speed gearing, and to lessen the expense and annoyance incident to a multiplicity of belts. Instead of having any one belt-pulley peculiar to either set of rolls, I employ pulleys and connecting-gear which respectively drive a portion of the rolls of both sets, and am thereby enabled to rely upon one belt for communicating motion from the main shaft to all the rolls, coupled with the desired capacity for effecting the graduated rotation of a certain roll or rolls in each set.

The several features of my invention, after being fully described, will be designated in detail in the claims hereunto annexed.

Referring to the drawings, of which there are two sheets, Figure 1, Sheet 1, represents, in end view, so much of a ring-frame as is necessary to illustrate my invention applied thereto. Fig. 2, Sheet 2, represents the same in plan or top view. Fig. 3, Sheet 2, represents the same in side view.

The end plate, A, of the frame is as usual cast in one piece, and provided with suitable bearings, pillars, ears, and studs for mounting the rolls and the requisite shafting, pinions, &c. The driving-shaft B is located as heretofore, and has at its outer end the plain pulley C.

It will be understood that in some cases the front or delivery rolls only in each set of rolls are variably driven, and in other cases the front rolls are regularly driven and the rear rolls driven variably, and it has also been proposed to variably drive all of the rolls. My improvements are applicable in either of the cases indicated. As shown in the drawings for the purposes of illustration, the front or delivery rolls, *a*, in both of the two sets are variably driven. The conical belt-pulley D is mounted upon a stud, and is directly geared to the front roll of the right-hand set of rolls, Fig. 1, by pinion *b*, connected with the pulley

and gear *c* on said front-roll shaft, and the gear *d* on the front-roll shaft of the left-hand set is geared to gear *c* by the intermediate gears *c'* and *d'*. The plain belt-pulley *E* is also
 5 mounted upon a stud, and has a gear, *e*, connected therewith which meshes with gear *f* on shaft *f'*, carrying a small gear, *g*, meshing with gear *h*. The two gears *h* and *i* mesh together, and are respectively geared to and drive the
 10 middle and rear rolls of the two sets of rolls, *via* gearing at each side of the frame, composed of the gear *k* and pinion *l* connected therewith, (mounted on a stud,) meshing with a gear, *m*, on the rear-roll shaft, this latter driving the
 15 middle roll by means of the usual gearing at the opposite end of the machine.

It will be seen that if the conical pulley *D* and plain pulley *E* be respectively shifted in position the front rolls of both sets will be
 20 driven with uniformity and the rear rolls in both sets be variably driven.

The idle or loose pulley *F* is located beneath the pulley *C* on the main shaft, and is preferably conical in form to correspond with conical pulley *D*. The belt *G* is a continuous one,
 25 passing around and beneath the pulley *C*, around and above the pulleys *D* and *E*, thence around and beneath the conical idle or loose pulley *F*.

30 The maintaining of the belt at proper tension is of practical consequence, because of its length and its numerous turns, and I therefore provide for tightening the same by mounting said idle-pulley in vertically-movable bearings,
 35 and employ means for pressing the same downward against the lifting tendency of the belt. A screw with a hand-wheel for forcing the pulley downward may be employed; but I prefer to render it automatic in its operation by
 40 mounting said loose pulley upon the outer end of the lever *H*, and provide the latter with the weight *n*. The automatic shipper *I*, which controls the belt *G* with relation to its position on the conical pulley *D*, is as heretofore—for

instance, as shown in United States Letters 45 Patent of George Draper, No. 186,324, January 16, 1877.

It will be readily seen that if it be desirable to variably drive all of the rolls in each set both of the upper pulleys may be conical; but
 50 in order to well control the belt in its relations to the pulley *E* a shipper-fork would be provided, as indicated in dotted lines at *I'*, which could be connected with the shipper-rod on which the shipper-fork *I* is mounted, and, if pulley *E* is conical and the pulley *D* plain, it would
 55 be advisable to locate the shipper-fork *I* at the point indicated at *I'*. The loose pulley *F*, being mounted upon a weighted lever, as shown, need not necessarily be conical, because, if said
 60 loose pulley have a straight face, the slack in the belt incident to its varying position on conical pulley *D* would be readily disposed of.

Having thus described my invention, I claim as new and desire to secure by Letters Patent— 65

1. In a ring-spinning frame having two sets of variably-driven rolls, the combination, with a pulley on the main shaft, of two pulleys (one or both conical) respectively geared to one or more rolls in each set of rolls and a loose pulley, substantially as described, whereby one
 70 belt may be relied upon for engaging with all of the pulleys for driving the rolls, as set forth.

2. In a ring-spinning frame having two sets of variably-driven rolls, the combination, with
 75 a pulley on the main shaft, of two pulleys (one or both conical) respectively geared to one or more rolls in each set of rolls and a loose pulley mounted upon a weighted lever, substantially as described, whereby one belt may be
 80 relied upon for engaging with all of the pulleys for driving the rolls and maintained at even tension, as set forth.

STEPHEN A. JENKS.

Witnesses:

A. C. GRUM, Jr.,
 W. H. C. SMITH.