

(No Model.)

2 Sheets—Sheet 1.

J. F. W. STAIRS.
MACHINE FOR SPINNING HEMP, &c.

No. 406,601.

Patented July 9, 1889.

Fig. 1.

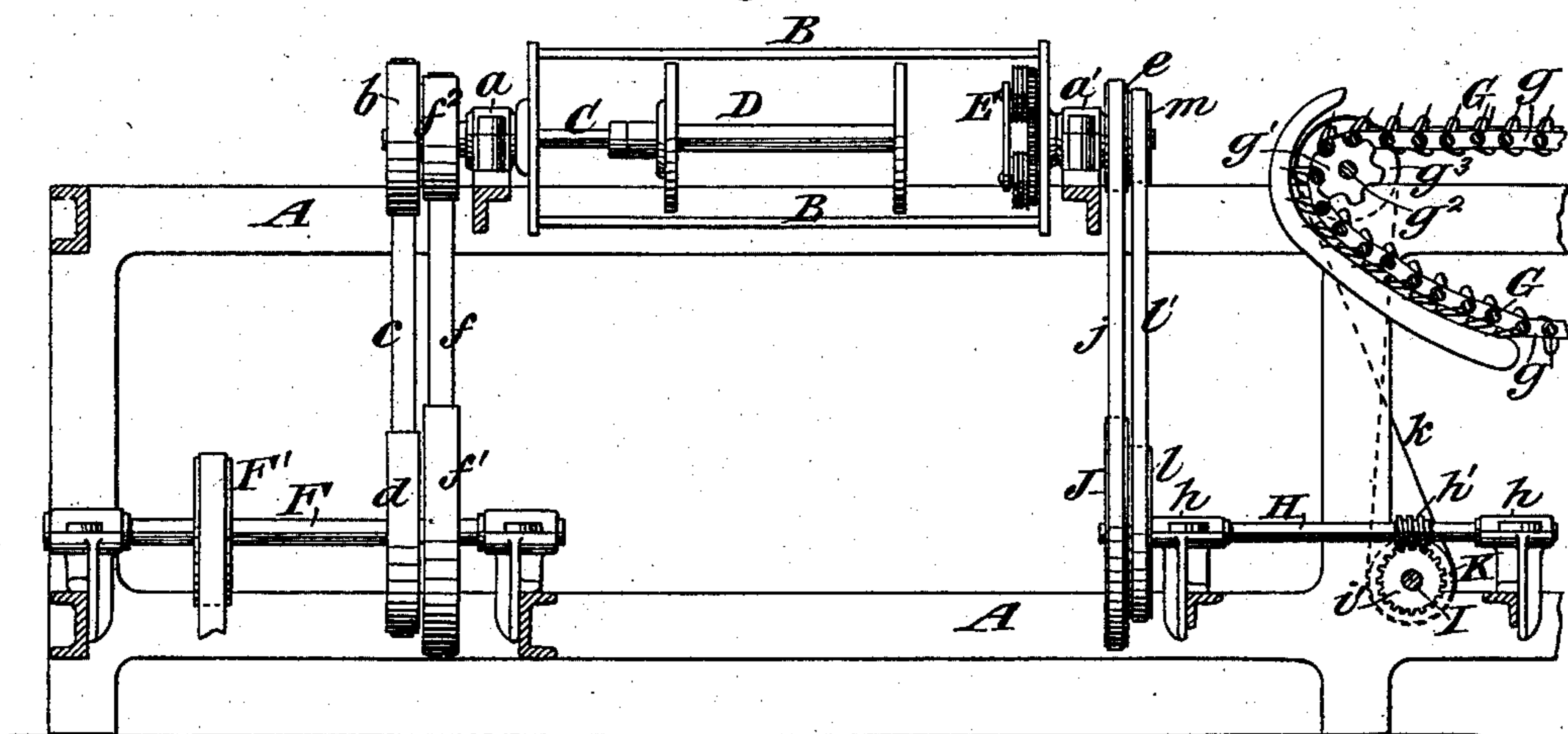
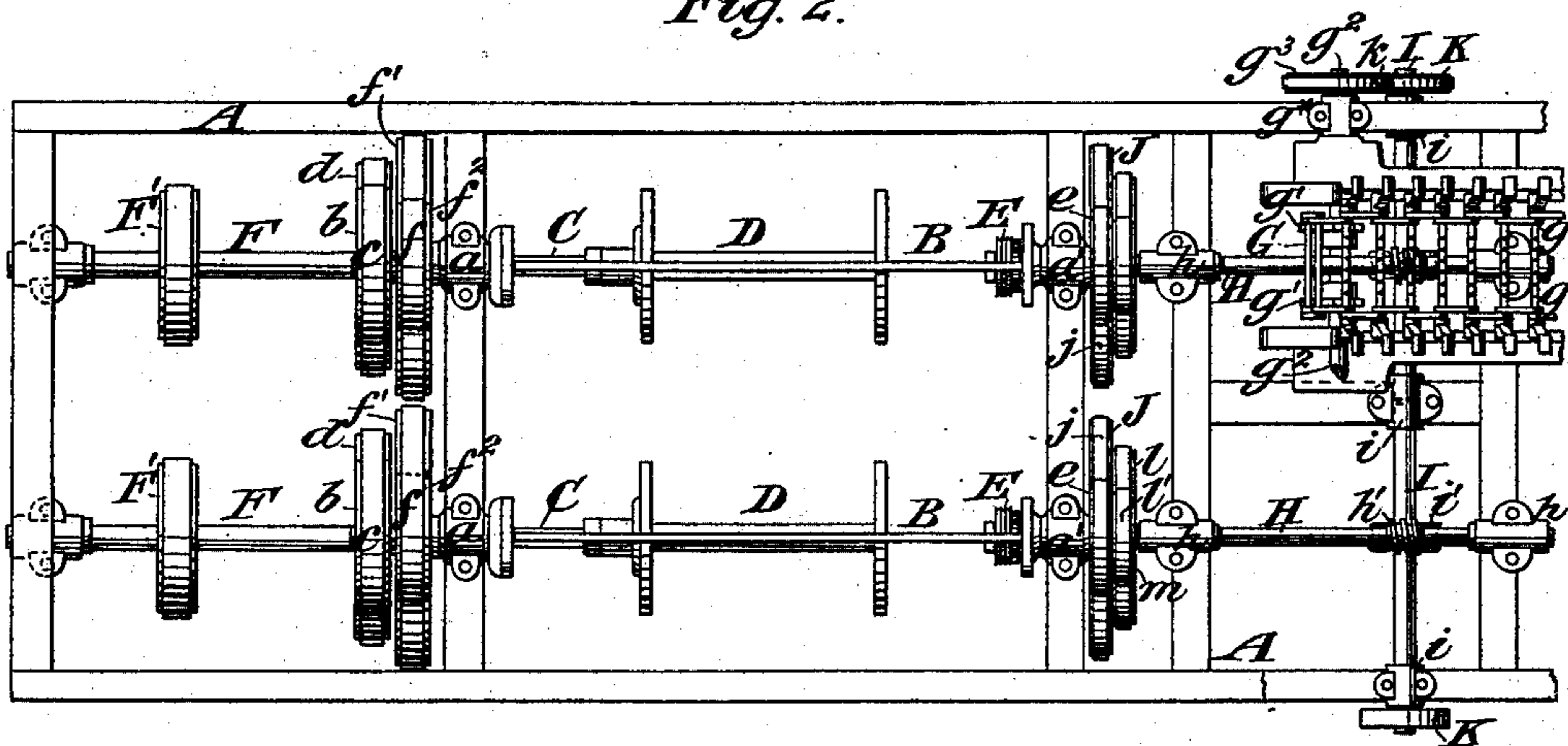


Fig. 2.



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by attorneys
Brown & Gidwold

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Fig. 3.

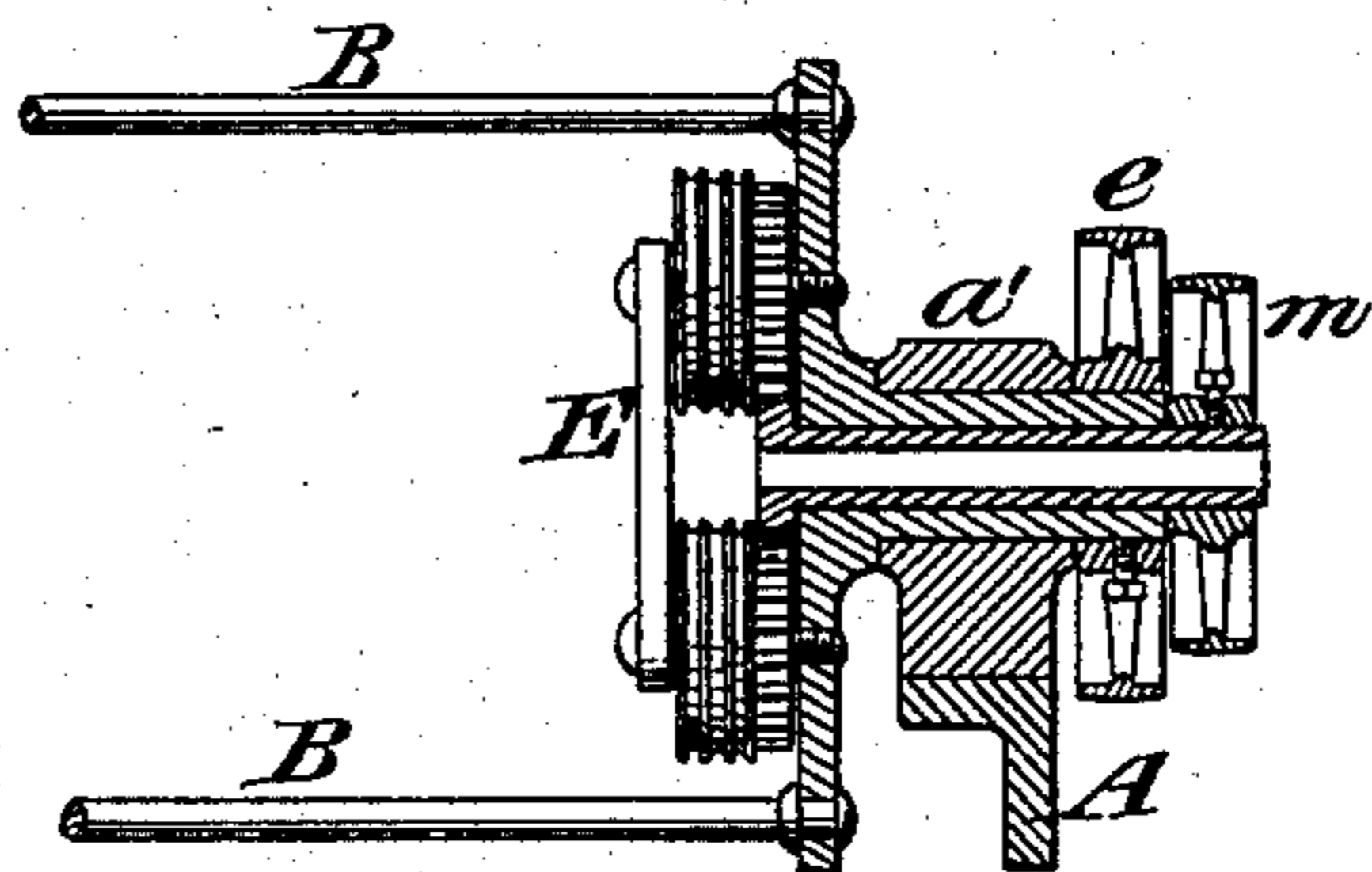
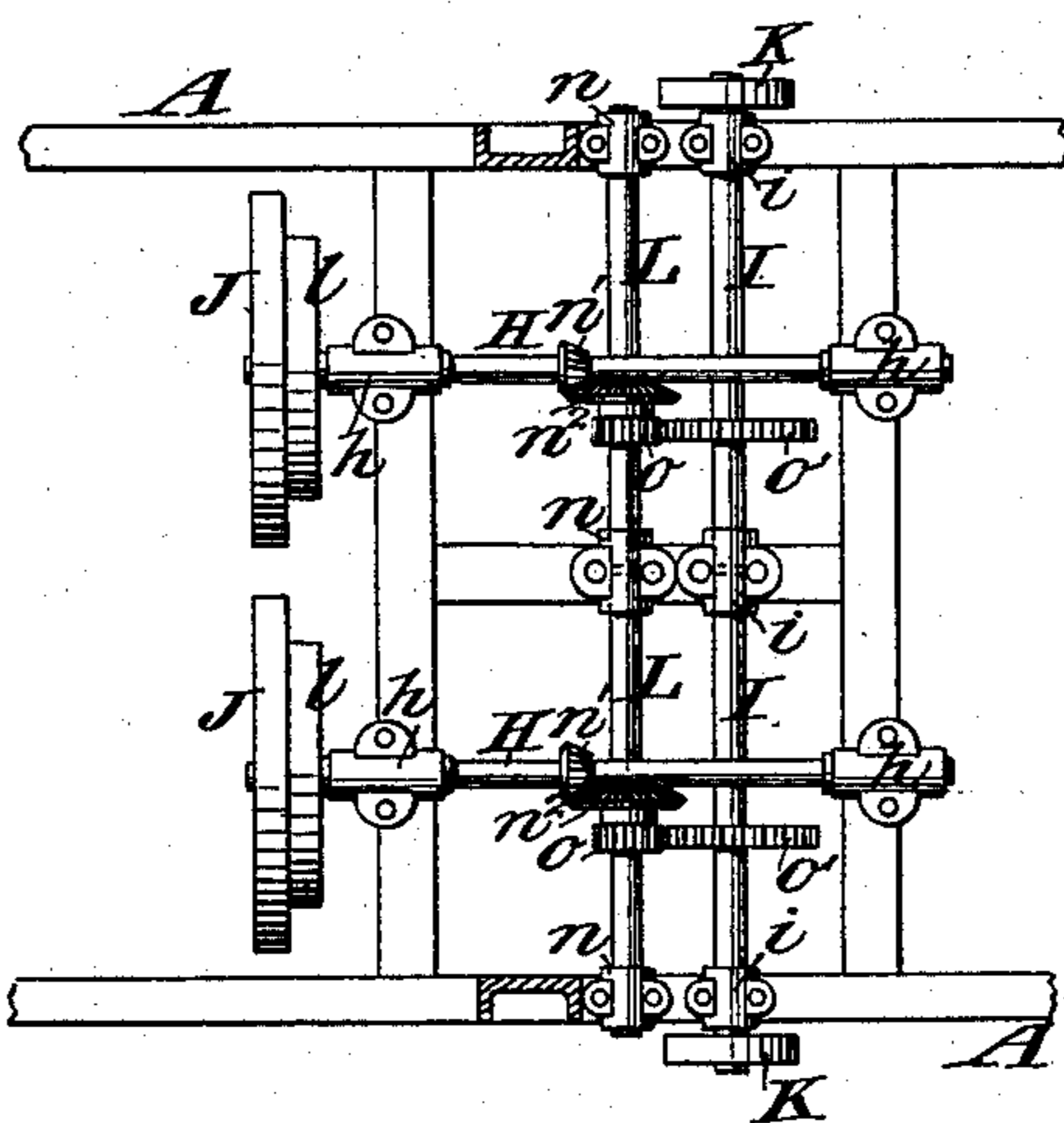


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN FITZ WILLIAM STAIRS, OF HALIFAX, NOVA SCOTIA, CANADA.

MACHINE FOR SPINNING HEMP, &c.

SPECIFICATION forming part of Letters Patent No. 406,601, dated July 9, 1889.

Application filed April 19, 1889. Serial No. 307,734. (No model.)

To all whom it may concern:

Be it known that I, JOHN FITZ WILLIAM STAIRS, a subject of the Crown of Great Britain, residing at Halifax, Nova Scotia, in the Dominion of Canada, have invented a new and useful Improvement in Machines for Spinning Hemp, &c., of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to that class of spinning-machines known as the "jenny," in which the slivers presented to the fliers are drawn through a chain or series of gill-pins. In such machines as commonly constructed 15 the gill-pin bars, the fliers, and the capstan which draws the yarn from the gill-pin bars into the fliers are all driven by belts, which derive motion independently of each other from the main shaft of the machine, and if 20 there is any slip in any of the belts there is a tendency to variation of the relative speeds of the gill-pin bars, the flier, and the capstan, and consequently a tendency to produce a want of uniformity in the size of the yarn 25 spun. It has been for this purpose that an automatic regulator has been applied between the capstan and the gill-pin bars.

The object of my improvement is to dispense with what is known as the "automatic regulator" and to obtain a machine of simpler construction, in which the difficulty hereinabove mentioned of producing a uniform yarn is overcome. This I accomplish mainly by driving the gill-pin bars from the flier itself.

35 I will now proceed to describe my improvement with reference to the drawings, and afterward point out its novelty in claims.

Figure 1 is a longitudinal vertical sectional view of a jenny embodying my invention, the greater portion of the series of gill-pin bars being omitted as unnecessary for the illustration of the improvement. Fig. 2 is a plan corresponding with Fig. 1. Fig. 3 is an axial sectional view of one of the flier-heads and the capstan and of the bearing for the said head. Fig. 4 is a plan illustrating a modification of the gearing for driving the gill-bars.

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

50 A designates the framing of the machine, B B the fliers, C C the spindles, D D the bobbins, and E E the capstans, all constructed

and combined as in well-known jennies now in use.

The flier-journals are supported in boxes *a* 55 *a'* on the framing A in the usual manner. One of the journals of each is furnished with a pulley *b*, through which it receives rotary motion from one of the counter-shafts F F of the machine, the motion being transmitted 60 by a belt *c* from a pulley *d* on the counter-shaft in a manner well understood. The journal at the other end of the flier has fast upon it a pulley *e*, which serves the purpose of driving both the endless series of gill-pin 65 bars G and the capstan E, as will be hereinafter described. The spindles are represented as driven in the usual way by belts *f* from pulleys *f'* on the counter-shafts F to pulleys *f''* on the spindles themselves. The counter- 70 shafts F may be driven in the usual manner by belts running from the main shaft to their respective pulleys F'.

The endless series of gill-pin bars G may be of any suitable kind, and driven and carried in any suitable manner. In the example 75 represented they are supported in endless gill-bar chains *g*, running on chain-wheels *g'* on carrying-shafts *g''*, supported in bearings *g''** on the framing A. One of the shafts *g''* for 80 each series of gill-pin bars—namely, that nearest the flier—is shown in the drawings, that being the one through which motion is given to the gill-pin bars, and the only one involved in my invention. The other of said 85 shafts (not shown) is driven in the usual way by the gill-bar chains *g*.

I will now describe the means through which the gill-pin bars and the capstan are driven from the flier by means of the pulley 90 *e*, hereinbefore mentioned, on one of the flier-journals.

H H designate horizontal shafts, one for each flier and its corresponding series of gill-pin bars, arranged in bearings *h* on the lower 95 part of the framing A parallel with the axis of the fliers and the direction of the run of the gill-pin bars. Below these shafts H H transverse shafts I I are arranged in suitable bearings *i* on the framing A. In the exam- 100 ple of my invention shown in Figs. 1 and 2 the shafts I I are geared to those H H by means of endless screws *h'* on the shafts H H and worm-gears *i'* on the shafts I I.

The shafts H H are each furnished with a pulley J to receive a belt *j* from the pulley *e*, before mentioned, on its respective flier, and the shafts I I are each furnished with a pulley K, from which a belt *k* runs to a pulley *g*³ on the carrying-shaft *g*² of its respective series of gill-pin bars. The belt *j* drives the shaft H, and the endless screw *h*¹ drives the worm-gear *i*¹ and the shaft I, and the belt *k* drives the carrying-shaft of the endless chain of gill-pin bars. It will thus be seen that the gill-pin bars are driven through their respective flier. The same shaft H through which the flier drives the gill-pin bars also serves to drive the capstan E of the flier through a pulley *l* on the shaft H, a pulley *m* on the flier, and a belt *l'*, running from the pulley *l* to the pulley *m*.

In the example of my invention shown in Fig. 4 a third shaft L is used between each of the two shafts H and I, the said shaft being arranged parallel with I in bearings *n* in the lower part of the framing A, and being geared with the shaft H by means of bevel-gears *n'* *n*² and geared with the shaft I by means of spur-gears *o* *o'*. The shaft H, receiving motion from the flier through the pulleys *e* and J and belt *j*, transmits motion to the carrying-shaft *g*² of the gill-pin bars through the bevel-gears *n'* *n*², shaft L, spur-gears *o* *o'*, shaft I, pulleys K, belt *k*, and pulley *g*³.

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

1. The combination, with the endless series of gill-pin bars and the flier, of mechanism, substantially as herein described, interposed between the flier and said series of bars for the purpose of driving the said bars from the flier, substantially as herein described.

2. The combination, with the gill-bar chains and their carrying-shafts and the flier, of mechanism, substantially as herein described, between the flier and one of the said carrying-shafts whereby the movement of the gill-pins is derived from the flier, substantially as and for the purpose herein described.

3. The combination, with the main shaft, the flier, the capstan therein, the gill-bar chains, and one of the carrying-shafts *g*² for the latter, of a shaft H between the flier and capstan and one of the said carrying-shafts, a pulley *e* on the flier, a pulley *m* on the capstan, pulleys J *l* on the said shaft H, belts *j* *l'* between the said pulleys *e* J and the said pulleys *l* *m*, respectively, and gearing, substantially as described, between the said shaft H and the carrying-shaft *g*², whereby the gill-pin bars and the capstan are both driven from the flier, all substantially as herein set forth.

JOHN FITZ WILLIAM STAIRS.

Witnesses:

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