

E. ROBINSON, C. F. ROBINSON & J. E. H. ANDREW.

Improvement in Machinery for the Manufacture of Tobacco.

No. 129,751.

Patented July 23, 1872.

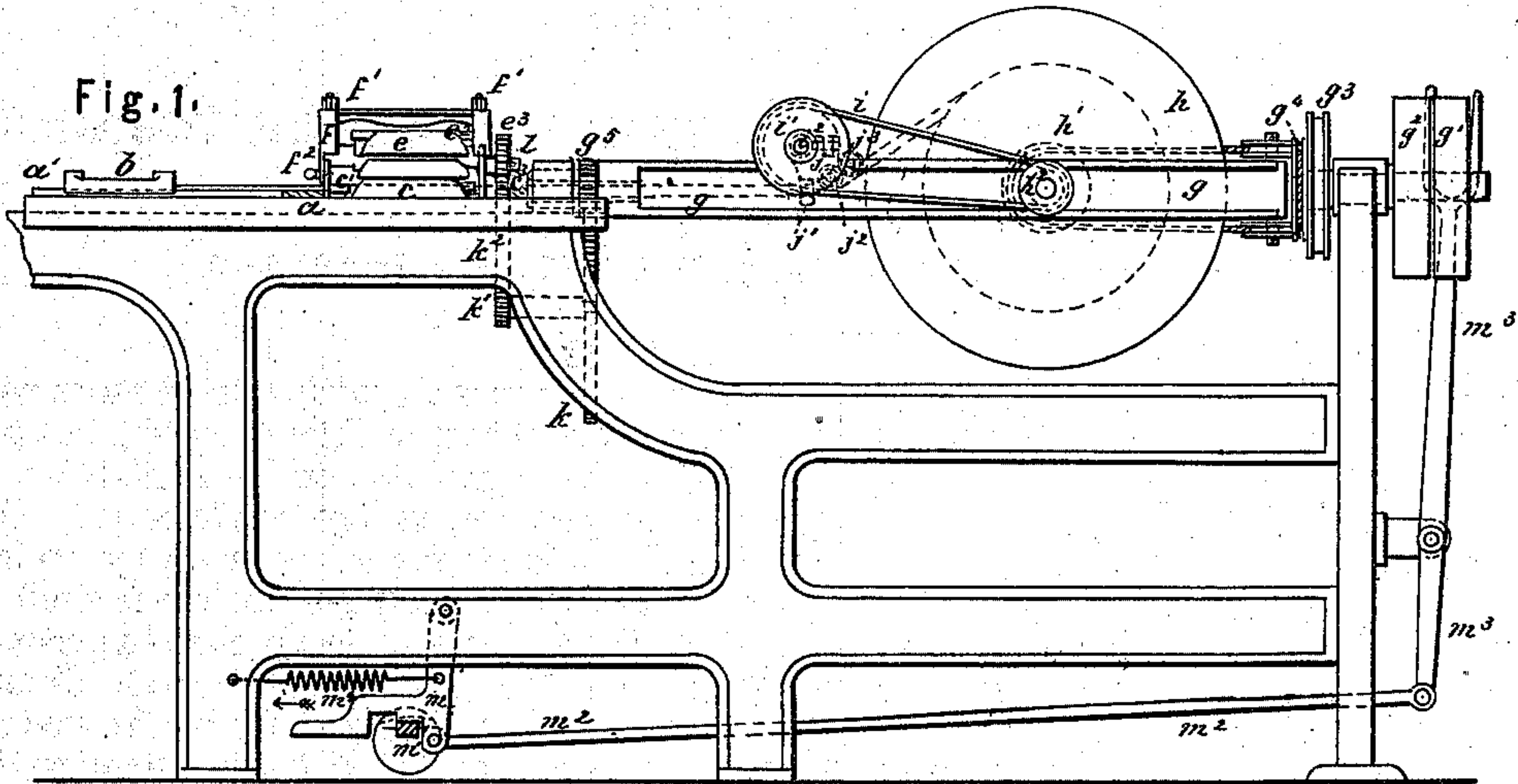


Fig. 3.

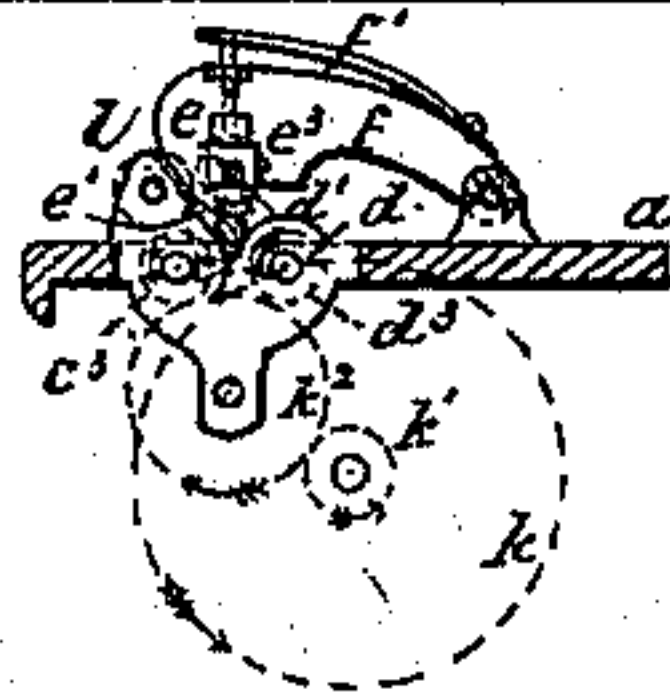


Fig. 2.

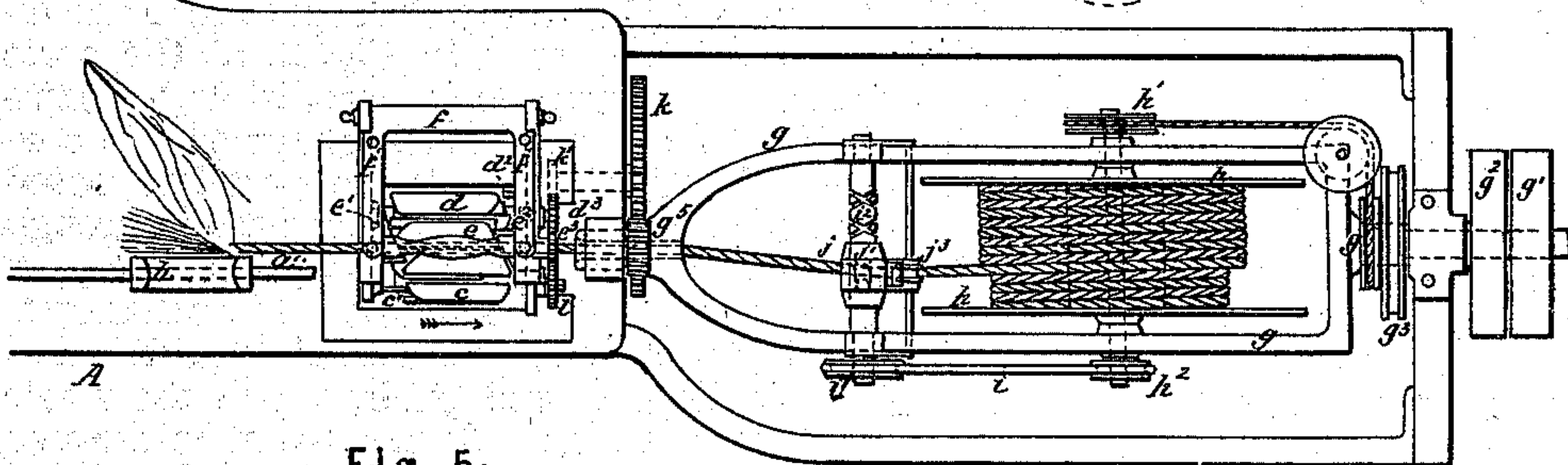


Fig. 5.

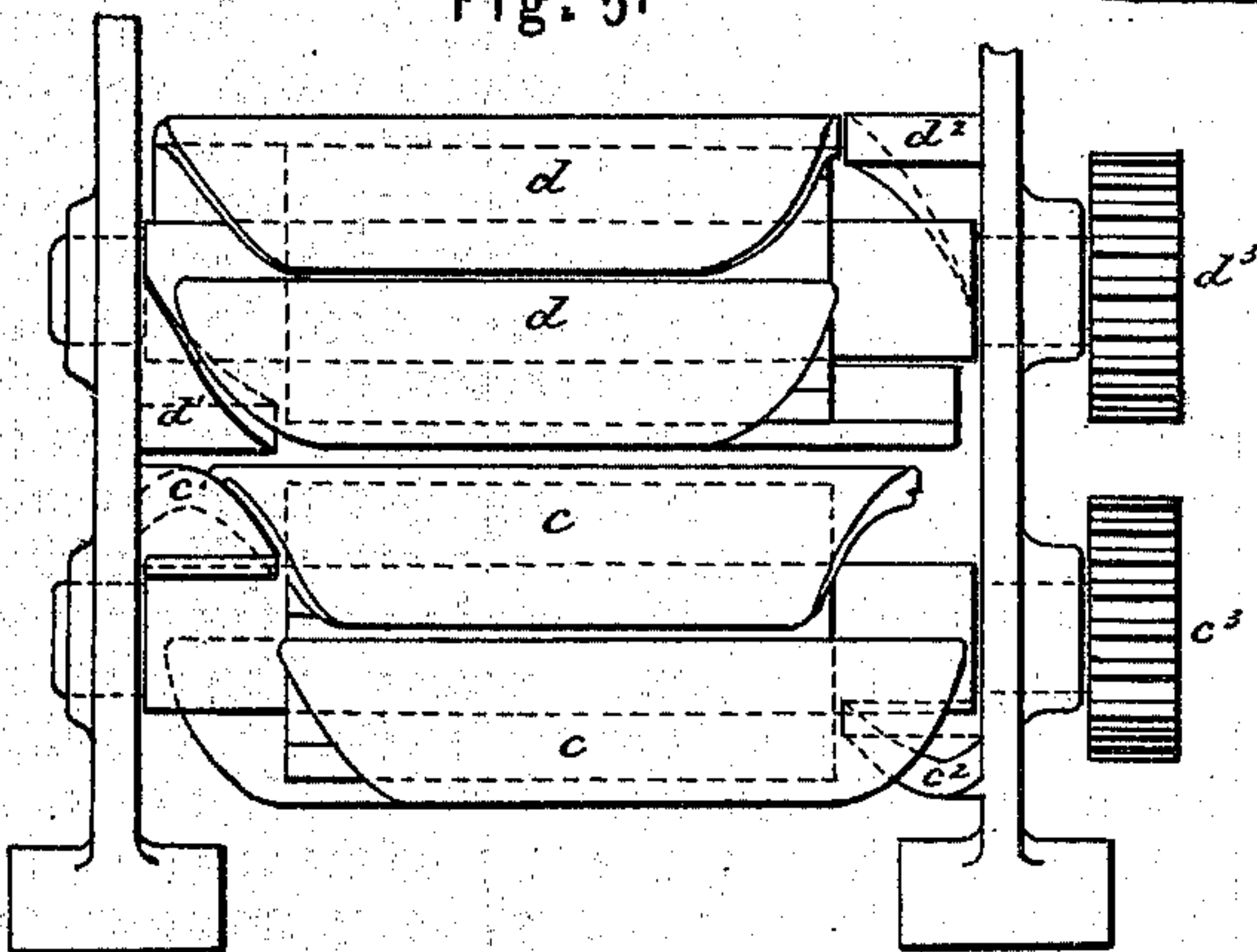
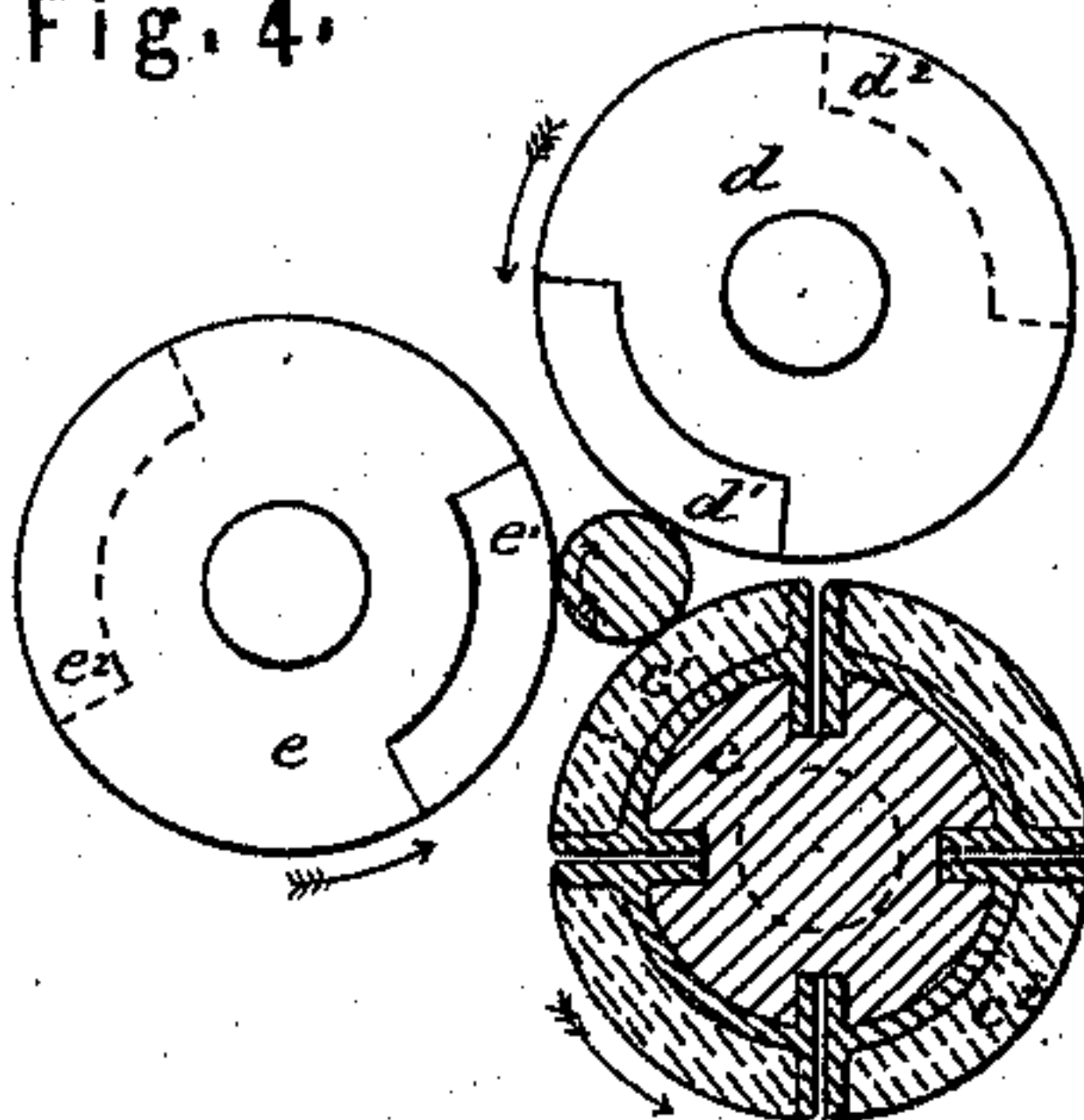


Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

ELIJAH ROBINSON, CHARLES F. ROBINSON, AND JAMES E. H. ANDREW, OF STOCKPORT, ENGLAND.

## IMPROVEMENT IN MACHINERY FOR THE MANUFACTURE OF TOBACCO.

Specification forming part of Letters Patent No. 129,751, dated July 23, 1872.

*To all to whom it may concern:*

Be it known that we, ELIJAH ROBINSON, CHARLES FREDERICK ROBINSON, and JAMES EDWARD HYDE ANDREW, all of Stockport, in the county of Chester, in England, have invented certain new and useful "Improvements in Machinery for Twisting, Compressing, and Rolling Tobacco;" and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawing forming part of this specification.

Our invention consists in the combination of three rollers, the surfaces of which are solid or made of segments, to which lateral to-and-fro motions are given by cams or other equivalents connected to the stands on which the axles of the rollers rotate. The tobacco to be operated upon occupies the central space between the three rollers, and it is carried through the machine by the lateral to-and-fro motions given to the rollers or segments.

In manufacturing roll or twist tobacco the filler and the covering-leaves are laid on a table connected to the machine. The filler is placed in the cover, and they pass together between the rollers, the action of which twists and compresses the tobacco into a roll or twist, which is carried forward and wound on a bobbin. The bobbin revolves in an open frame, and the guide is traversed to and fro to distribute the twist of tobacco on the surface of the bobbin.

### *Description of the Drawing.*

Figure 1 is an elevation, Fig. 2 a plan, and Fig. 3 an end view of our improved machinery. Figs. 4 and 5 are detached views of part of the same.

*a* is the table upon which the tobacco to be operated upon is laid. On this table is the rib *a'*, on which the sliding rest *b* is free to move to and fro. *c* and *d* are the two lower segmental rollers, the axles of which revolve in stationary bearings, and *e* is the top roller, the axle of which revolves in sliding bearings fitting in the swing-frame *f*. Each of these sliding bearings is acted upon by a spring, *f*<sup>1</sup>, pressing on a pin communicating with the bearing. These springs put an elastic pressure on the tobacco. Each of the segment-roll-

ers consists of an axle with two or more segments, as shown best in Figs. 4 and 5; but the number of the segments can be varied; or, in some cases, the rollers are made solid. The outer shell of the segments is made by preference of hard wood fitting in an inner shell of cast-iron, the projections on which fit in grooves in the axle. The segments of the rollers *c* and *d* are moved laterally to and fro by the wedge-shaped cams *c*<sup>1</sup> *c*<sup>2</sup> and *d*<sup>1</sup> *d*<sup>2</sup>, cast or fixed to the bearings in which the axles of the rollers revolve, and the segments of the roller *e* are moved in the same manner by cams *e*<sup>1</sup> and *e*<sup>2</sup>, fixed to the swing-frame *f*. The tobacco occupies the central space between the rollers *c*, *d*, and *e*, and the cams *c*<sup>1</sup>, *d*<sup>1</sup>, and *e*<sup>1</sup> are all so placed that they move the segments in the direction of the arrow in Fig. 2, at the parts where they touch the tobacco, while the cams *c*<sup>2</sup>, *d*<sup>2</sup>, and *e*<sup>2</sup> move them back, or in the contrary direction. After the tobacco has passed beyond the segment-rollers it passes through the hollow trunnion of the open frame *g*, in which the bobbin *h* revolves. The other trunnion of the frame *g* is provided with fast and loose pulleys *g*<sup>1</sup> and *g*<sup>2</sup>, by which the whole machine is driven. To this trunnion are also fixed the ordinary friction-brake pulley *g*<sup>3</sup> and the grooved pulley *g*<sup>4</sup>, around which passes a band for driving the pulley *h*<sup>1</sup> on the axle of the bobbin *h*. To the other end of the axle of the bobbin is fixed the pulley *h*<sup>2</sup>, which, by means of the band *i*, gives motion to the pulley *i*<sup>1</sup> fixed to the double screw *i*<sup>2</sup>. This double screw gives a traversing to-and-fro motion to the guide *j* for distributing the tobacco evenly on the bobbin by means of a swivel T-headed stud connected to the guide and taking into the thread of the double screw. The guide is provided with an eye or holder, *j*<sup>1</sup>, through which the tobacco passes, and with two rollers, *j*<sup>2</sup> and *j*<sup>3</sup>, to guide the tobacco onto the bobbin, the latter roller, *j*<sup>3</sup>, being mounted on an axle supported in the open frame *g*; or a spout may be used instead of the rollers *j*<sup>2</sup> and *j*<sup>3</sup>. The diameters of the pulleys *h*<sup>2</sup> and *i*<sup>1</sup> may be varied, according to the thickness of the tobacco, so as to distribute it evenly over the surface of the bobbin *h*; or the double screw *i*<sup>2</sup> may be driven by bevel-pinions or other suitable gearing.



The mode of communicating the requisite rotary motion to the segment-rollers *c*, *d*, and *e* is as follows: To the hollow trunnion of the open frame *g* is fixed a pinion, *g*<sup>5</sup>. This pinion drives the wheel *k*, (see Fig. 3,) fixed on the same shaft as the change-pinion *k*<sup>1</sup>, which drives the wheel *k*<sup>2</sup>, gearing into the pinions *c*<sup>3</sup> and *d*<sup>3</sup> on the axes of the rollers *c* and *d*, and the pinion *c*<sup>3</sup> gears into the intermediate pinion *l*, which drives the pinion *e*<sup>3</sup> on the axle of the roller *e*. The driving-strap is held upon the fast pulley *g*<sup>1</sup> by the drop-catch *m* acting on the weighted treadle-lever *m*<sup>1</sup>. The catch *m* is connected by the link *m*<sup>2</sup> to the lower end of the strap fork-lever *m*<sup>3</sup>. When it is requisite to stop the machine the attendant depresses the treadle to release the catch *m*, which is then drawn in the direction of the arrow by the spring *m*<sup>4</sup>, and so moves the driving-strap from the fast to the loose pulley.

The mode of operation is as follows: The spinner stands at A in Fig. 2, and the assistants at B and other points round the table. The filler and the covering-leaves being placed on the table, the assistant at B spreads out the covering-leaves or wrapper and places the end of the wrapper to the filler, which filler the spinner supplies and holds against the sliding rest *b*. The rotary motion of the segment or other rollers *c*, *d*, and *e* twists the tobacco and causes the wrapper to be wound over the filler, and the rest *b*, being movable, enables the spinner to regulate its position according to the quantity and quality of the filler and wrapper. The lateral motion of the surface of the segments or rollers *c*, *d*, and *e* traverses the roll of tobacco toward the bobbin, on which it

is wound, as before described. The combined rotary and traversing motions of the rollers *c*, *d*, and *e* consolidate and roll the tobacco and put the desired face to the twist. The roller *e* is lifted off the tobacco when starting the machine or for other purposes. When the machine is at work the swing-frame is held down by the stud *f*<sup>2</sup>. (See Fig. 1.)

Having thus stated the nature of our invention, and described the mode of performing the same, we wish to remark that we do not intend to limit ourselves to the details given, as they may be varied or modified; but

What we desire to secure by Letters Patent of the United States is—

1. The combination of the movable feeding-rest *b*, the twisting and compressing rolls *c*, *d*, and *e*, and the revolving frame *g*, supporting the bobbin on which the tobacco is wound, as shown and described.

2. The movable rest *b* for guiding the tobacco to the apparatus by which it is compressed or twisted, as shown and described.

3. The rollers *c*, *d*, *e*, with or without segments, having their axes parallel or nearly parallel to each other, the surfaces of the rollers being moved to and fro by cams, as shown and described.

In testimony whereof we have hereunto set our hands before two subscribing witnesses.

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Witnesses:

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