

No. 798,550.

PATENTED AUG. 29, 1905.

J. WILKINSON.

WINDING MOTION FOR SELF ACTING MULES.

APPLICATION FILED MAR. 9, 1904.

4 SHEETS—SHEET 1.

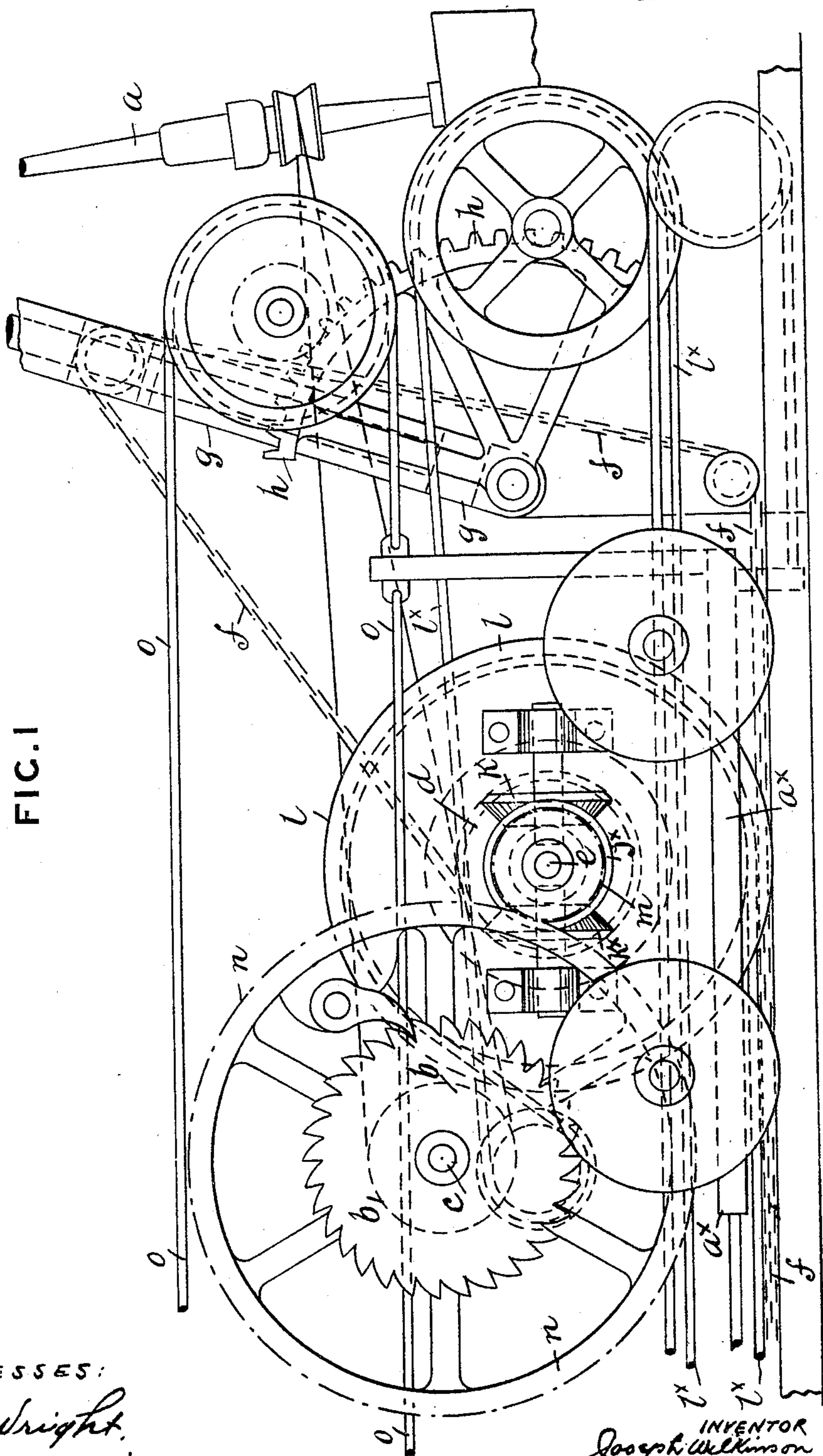


FIG. 1

WITNESSES:

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E. W. Collins

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BY *Howard and Howard*
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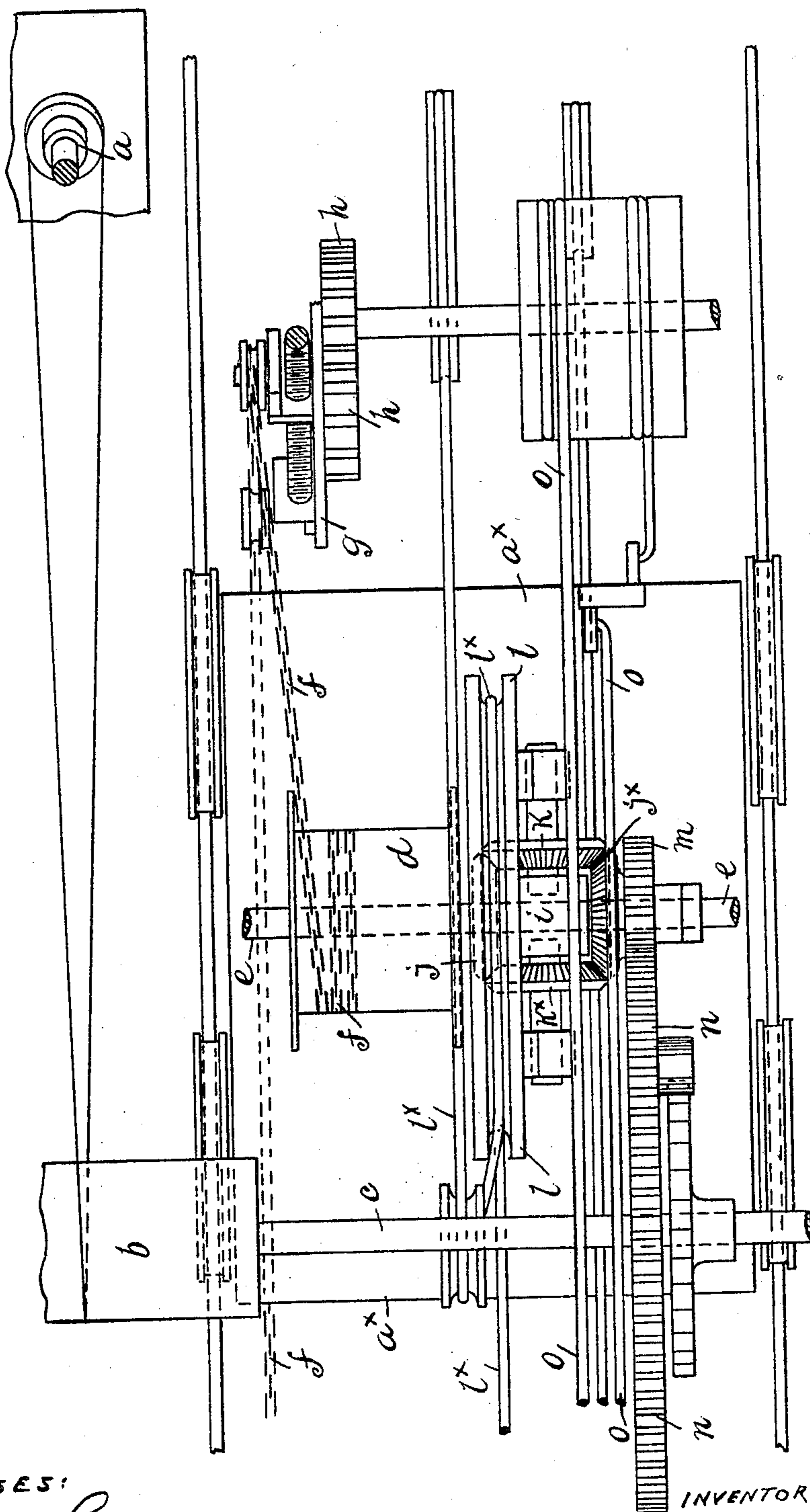
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4 SHEETS—SHEET 2.

FIG. 2



WITNESSES:

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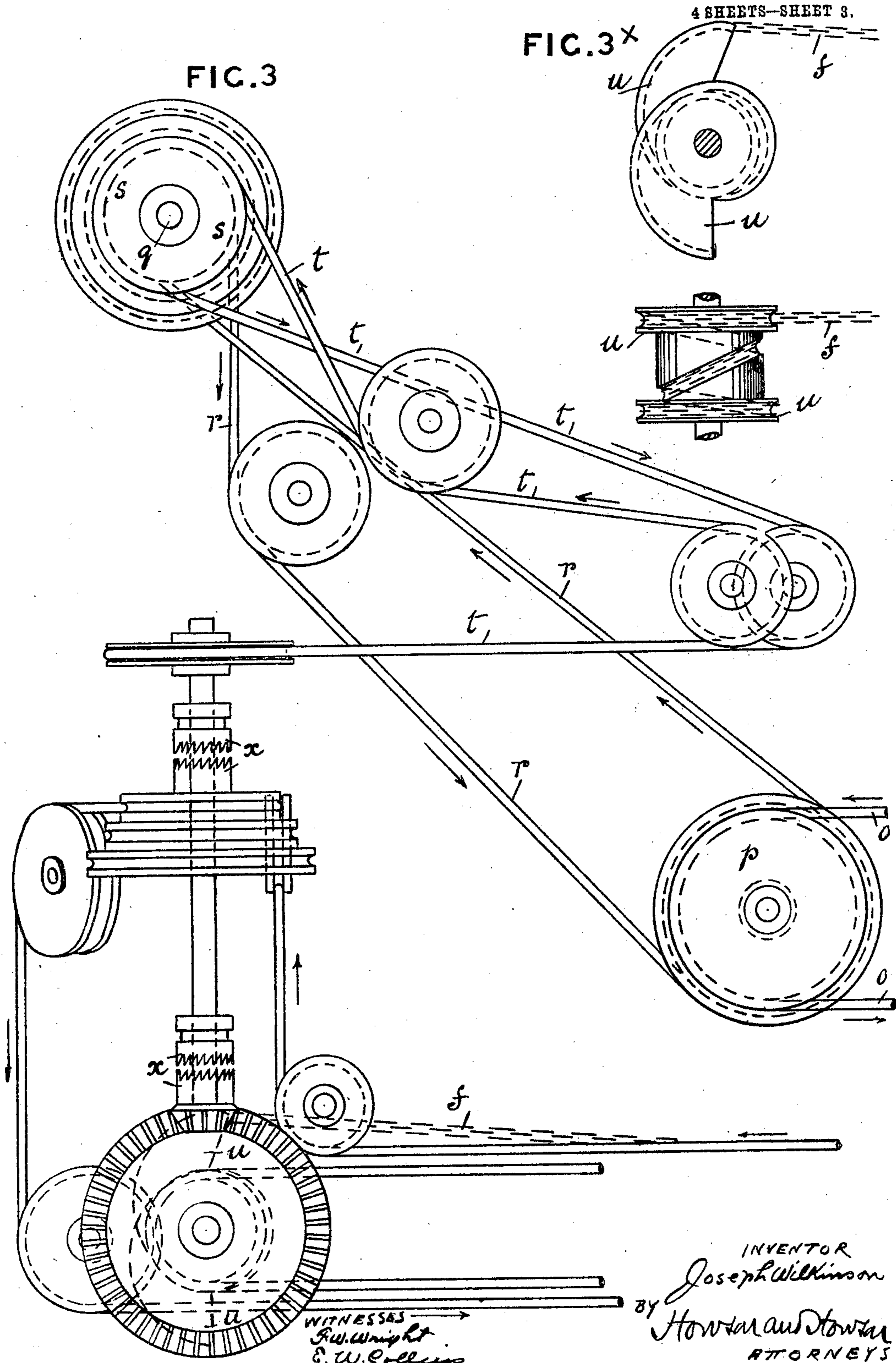
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4 SHEETS—SHEET 3.

FIG. 3^x

FIG. 3



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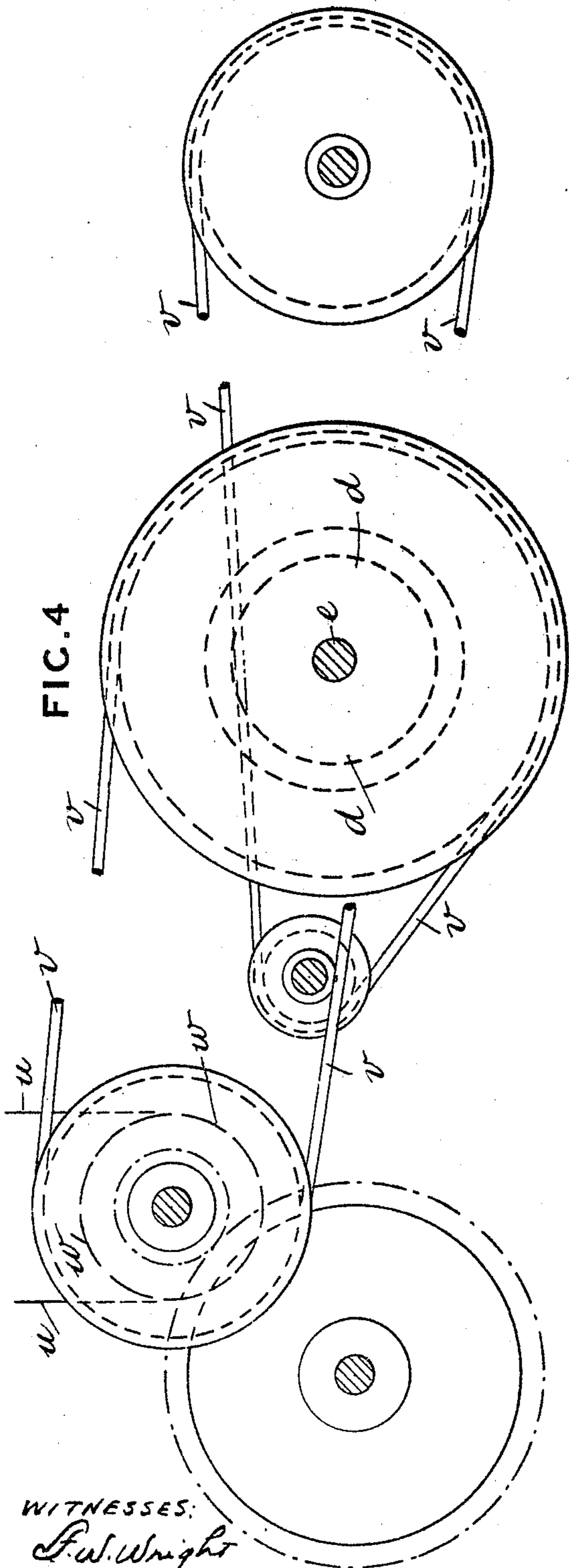
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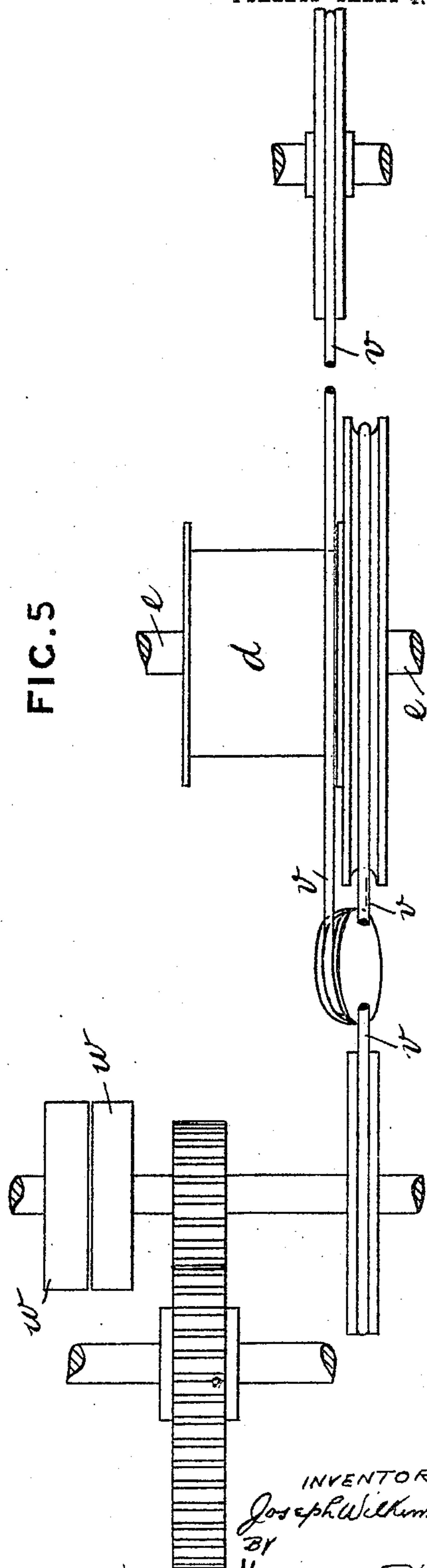
4 SHEETS—SHEET 4.

FIG. 4



WITNESSES:
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FIG. 5



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UNITED STATES PATENT OFFICE.

JOSEPH WILKINSON, OF OLDHAM, ENGLAND.

WINDING-MOTION FOR SELF-ACTING MULES.

No. 798,550.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed March 9, 1904. Serial No. 197,286.

To all whom it may concern:

Be it known that I, JOSEPH WILKINSON, a subject of the King of Great Britain and Ireland, residing at Acre Lane, Oldham, in the county of Lancaster, England, have invented a new and useful Winding - Motion for Self-Acting Mules, of which the following is a specification.

In the ordinary self-acting mules as hitherto constructed the winding of the yarn onto the spindles as the spindle-carriage runs in to the roller-beam is effected by means of a tin roller which is carried by the spindle-carriage and round which the endless bands for driving the spindles pass, and motion is given to the tin-roller shaft by means of the winding-chain, one end of which is wound round and fastened to a drum or scroll carried on the winding-shaft, which is mounted in suitable bearings in the spindle-carriage frame or "square." On the same shaft a spur-wheel is mounted gearing with a spur-pinion loose upon the tin-roller shaft. The revolution of the spindles is therefore obtained by the running in of the carriage, and the tension of the yarn has the effect of resisting the forward motion of the carriage or even a tendency to pull it back.

According to my invention I introduce an arrangement of wheels known as a "sun-and-planet" motion, and I govern the speed of the winding by the "quadrant" and a scroll, which I drive by means of suitable gearing from the head-stock or from the counter-shaft direct, (instead of from the carriage itself, as heretofore), so that the tension of the yarn as it is being wound onto the spindles assists to draw in the spindle-carriage instead of resisting the same as heretofore.

The manner in which my said invention is to be performed or carried into practical effect will be readily understood on reference to the three sheets of drawings hereunto annexed and the following explanation thereof.

On Sheet 1 on the annexed drawings Figure 1 is a side elevation, and Fig. 2, Sheet 2, a plan view, of that part of my improved winding-motion which is connected with the spindle-carriage. On Sheet 3 of the drawings Fig. 3 is a side elevation of the corresponding part of my improved winding-motion, which is connected to and driven from the head-stock; and Fig. 3^x is a detached view of the double scroll hereinafter particularly referred to; and on Sheet 4 of the drawings Fig. 4 is a side elevation, and Fig. 5 a plan view, of an

alternative arrangement of driving, which may be actuated direct from the line-shaft.

Referring to Figs. 1 and 2, the line a^x represents the end of the spindle-carriage or square. a is one of the spindles. b is the tin roller, which drives the same by means of endless bands in the usual manner. c is the tin-roller shaft. d is the winding-on drum, which is loose on the shaft c and is driven by a sun-and-planet motion, as hereinafter described; e , the drum-shaft; f , the winding-on chain; g , the quadrant-arm, and h the quadrant. One end of the chain f is secured to the drum d , as usual, and the other end to the double scroll u , (see Fig. 3^x.) and its motion is controlled in the usual manner by the action of the quadrant h . i is my improved sun-and-planet arrangement, consisting of four bevel-wheels j j^x and k k^x . The two sun-wheels j j^x are mounted loosely upon the winding-on drum-shaft e , and the two planet-wheels k k^x are mounted on spindles carried by the face and boss of the grooved pulley l . The sun-wheel j is secured to the winding-on drum d , and the sun-wheel j^x is fixed to the boss of the spur-pinion m , which is loose upon shaft e and is in gear with the spur-wheel n , mounted on the tin-roller shaft c . o o is the rope or band which governs the going out and running in of the spindle-carriage. The grooved pulley l is driven from the counter-shaft by means of the endless cord l^x . On reference to Fig. 3 it will be seen that one loop of the carriage-band o passes round a carrier-pulley p , carried by the head-stock or frame and driven from the counter-shaft q by means of the band r , passing around the pulley s on the said shaft. This shaft q also by means of another band t drives the ordinary reversing motion, with catch-boxes w for actuating the special double reversed scroll u , to which the head-stock end of the winding-on chain f is connected. The arrows on the drawings show the direction in which the relative bands are traveling. Fig. 3^x on Sheet 3 shows detached views of the double cam u . The grooved band-pulley l (which carries the planet-wheels k and k^x on its face) is driven by a rope l^x either from the counter-shaft or from any other fixed point on the head-stock; but it will be obvious that the tin roller b , which drives the spindle, can only be set in motion for winding the cops when the bevel-wheel j (which, as before stated, is fast to the chain-drum d) is held fast by the action of the quadrant-

arm *g* and chain *f*. This only happens when the spindle-carriage commences to "run in" to the rollers. Then the bevel-wheel *j*, being held fast, causes the wheels *k*, *k*^x, and *j*^x to re-
5 volve, and the latter being fast to the pinion *m* causes it to drive the wheel *n*, which in the usual manner (by means of the catch and ratchet-wheel shown at Figs. 1 and 2) drives the shaft *c*, on which the tin roller *b* is keyed
10 fast.

Fig. 4, Sheet 4, shows an alternative arrangement whereby the winding-on shaft may be driven from a line-shaft by means of a belt *u*, passing around a driving-pulley *w* and
15 an endless band *v*.

I claim as my invention—

The improved winding-motion for self-act-

ing mules, comprising a carriage, a winding-on drum and tin roller thereon, a sun-and-planet motion connecting the drum and roller, 20 a quadrant, a double reversed scroll mounted upon a shaft on the head-stock, means for driving this scroll, and a winding-chain, one end of which is wound round the winding-on drum and the other is attached to the scroll, 25 after passing over the quadrant.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH WILKINSON.

Witnesses:

THOS. PRESCOTT,

JNO. HUGHES.