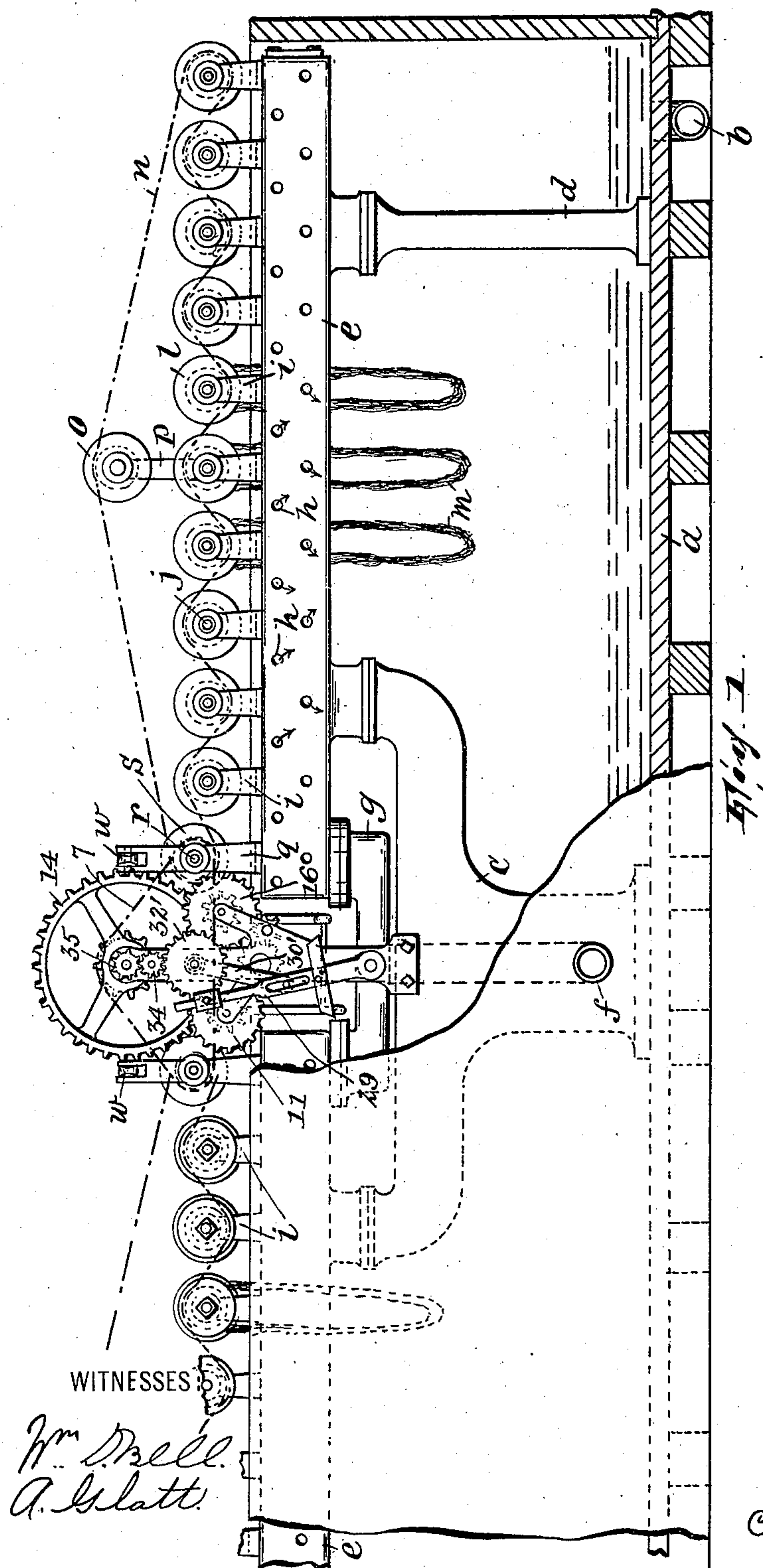


No. 846,940.

PATENTED MAR. 12, 1907.

H. PATTYN.  
DYEING APPARATUS.  
APPLICATION FILED APR. 26, 1906.

3 SHEETS—SHEET 1.



WITNESSES:

Wm. Bell.  
A. Blatt.

INVENTOR,

Anni Pattyn.

BY

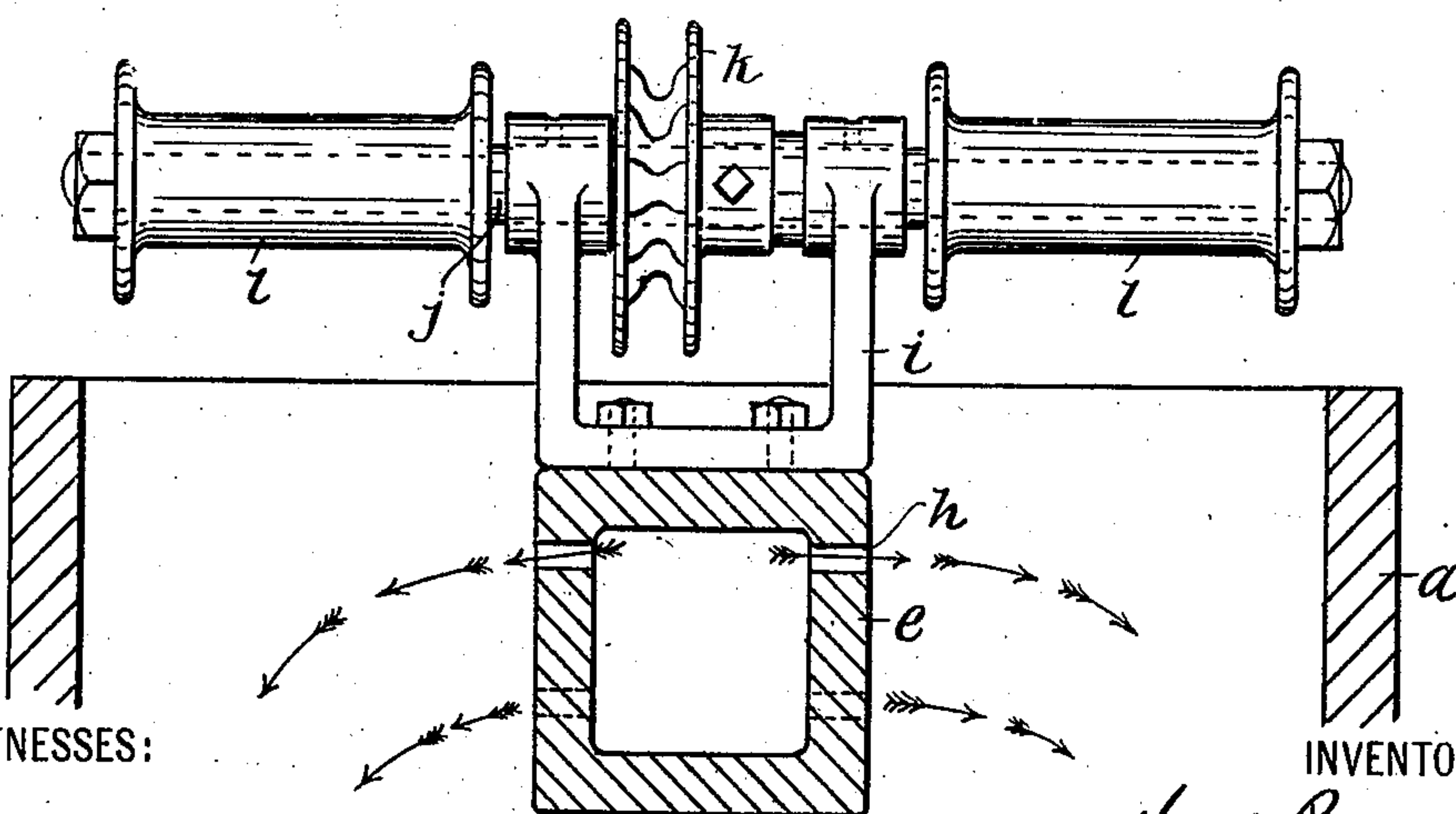
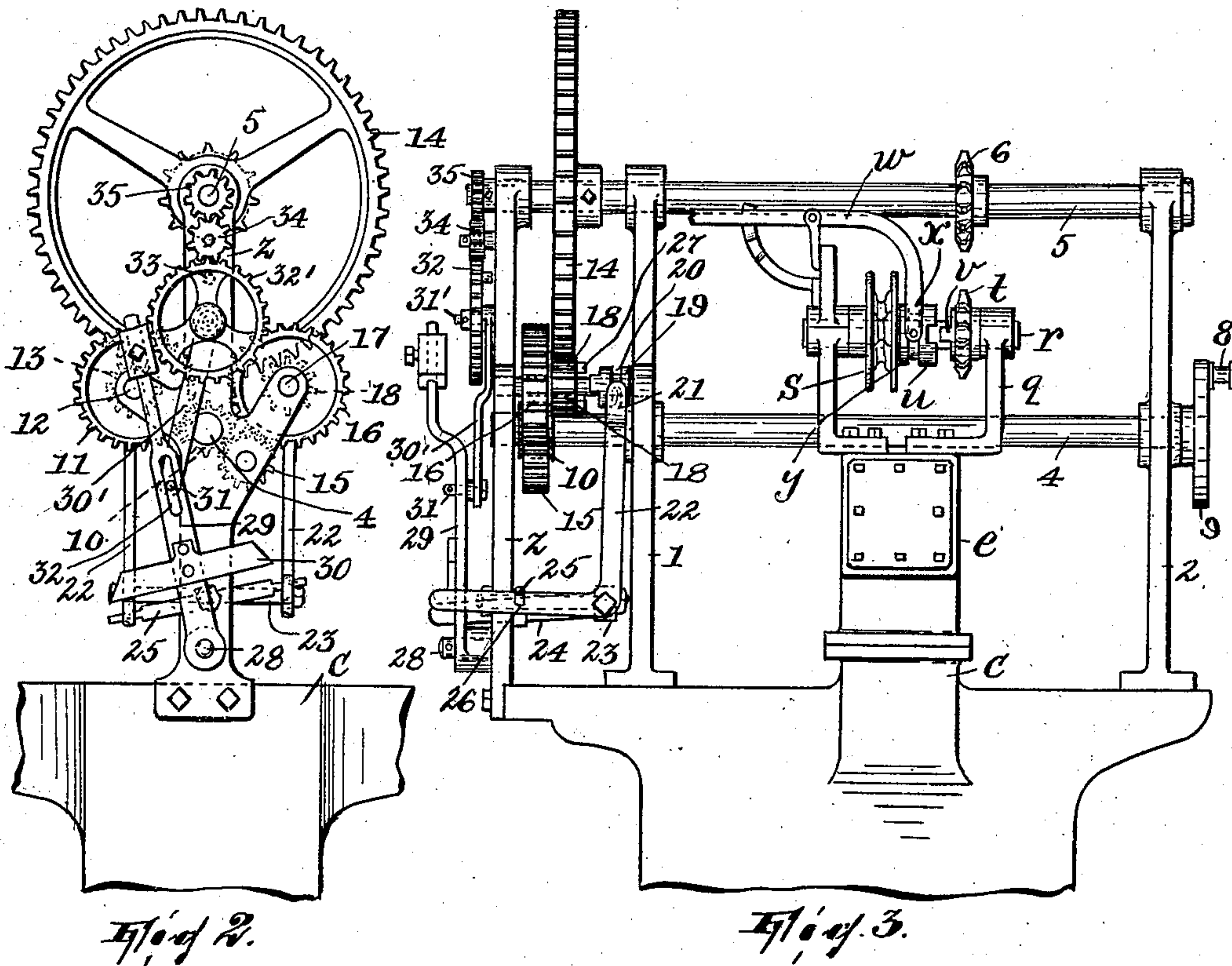
BY  
*Garth & Leeward,*  
ATTORNEYS.

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3 SHEETS—SHEET 2.



WITNESSES:

Wm. M. Bell.  
A. G. Latt.

Fig. 4.

INVENTOR,

Henri Pattyn,

BY

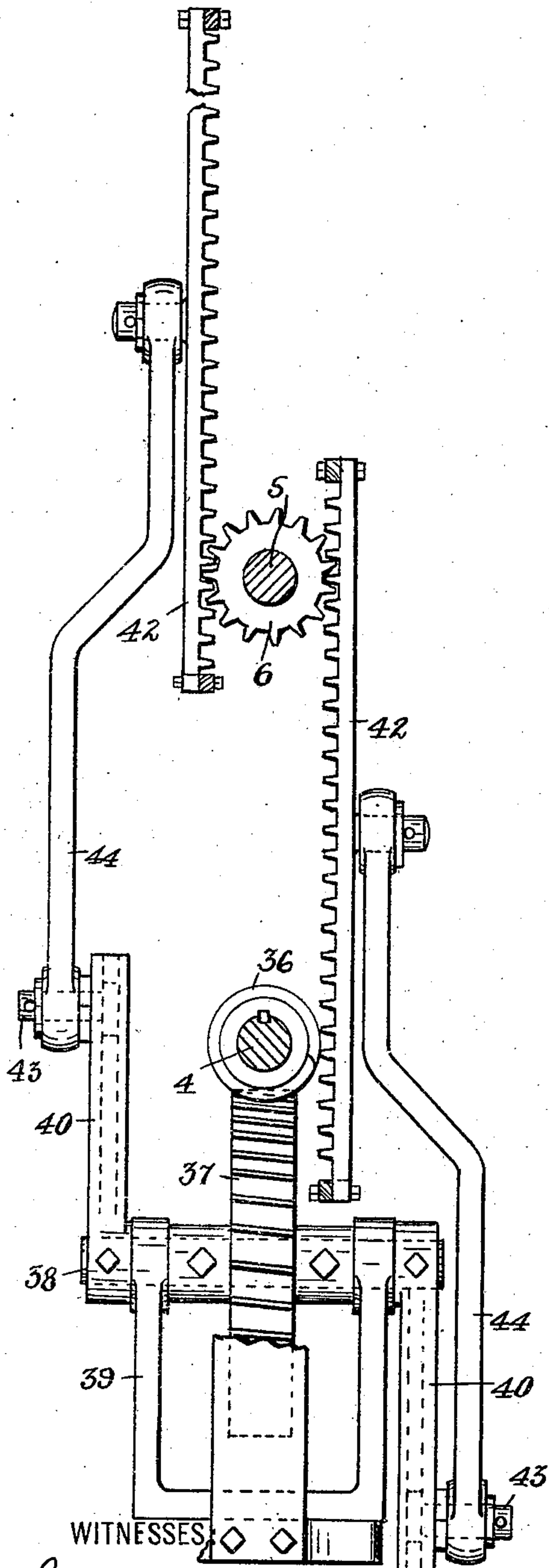
Garth Steward,  
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No. 846,940.

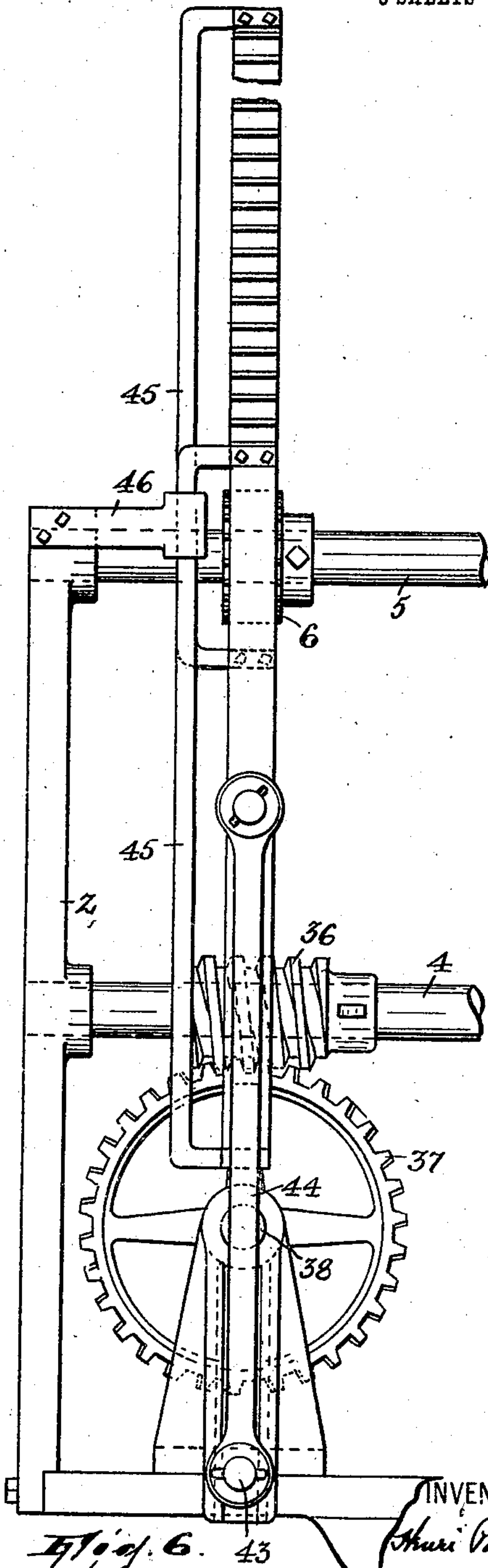
PATENTED MAR. 12, 1907.

H PATTYN.  
DYEING APPARATUS.  
APPLICATION FILED APR. 26, 1906.

3 SHEETS—SHEET 3.



WITNESSES:  
*Wm. Drell, Fig. 5.*  
*A. Blatt*



*Fig. 6.*

INVENTOR  
*Huri Pattyn*  
BY  
*Arthur L. Howard*  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

HENRI PATTYN, OF PATERSON, NEW JERSEY.

## DYEING APPARATUS.

No. 846,940.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed April 26, 1906. Serial No. 313,779.

*To all whom it may concern:*

Be it known that I, HENRI PATTYN, a citizen of the Republic of France, residing in Paterson, county of Passaic, State of New Jersey, have invented certain new and useful Improvements in Dyeing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to machines for dyeing, washing, mercerizing, or otherwise similarly treating silk skeins and the like, and consists in certain improvements having for their objects to render the machine more positive in action, to cause it to perform its work on the skeins with greater uniformity, whereby the treatment of the skeins is regular, and to reduce the power necessary to operate the machine.

My invention will be found fully illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation of the improved machine, a part thereof being shown in section. Fig. 2 is a view in front elevation, somewhat enlarged, of the driving means. Fig. 3 is a view in side elevation of what is shown in Fig. 2. Fig. 4 is a vertical sectional view taken between two pairs of skein-holders or bobbins, and Figs. 5 and 6 are respectively a front and a side view of a modified form of drive mechanism.

In said drawings, *a* is a tank having a suitable discharge *b*. In this tank is arranged a pedestal *c* and two auxiliary pedestals *d*, the pedestal *c* and each pedestal *d* carrying a box *e*. Each box *e* is supplied with a fluid for treating the skeins by a pipe *f*, having branches *g* leading into the boxes. The boxes are formed with perforations *h* on the sides thereof, so that the liquid for treating the skeins is forced out of the sides of said boxes in small streams. On the top of each box is arranged a series of brackets *i*, each forming bearings for a shaft *j*, carrying a sprocket-wheel *k* and two bobbins *l*. The skeins *m* are hung on these bobbins, and while the bobbins are rotating alternately in reverse directions, as hereinafter described, the skeins are soaked by the small streams issuing from the perforations *h*.

*n* is an endless chain which extends alter-

nately over and under the successive sprockets *k* in its lower stretch and in its upper stretch over an idler *o*, carried by an extension *p* of one of the brackets *i*. At the inner end of each row of brackets *i* is a bracket *q*, in which is journaled a shaft *r*, carrying two sprocket-wheels *s* and *t*, the former of which is splined on the shaft and the latter fixed thereon. The inner ends of the chains *n* extend each over a sprocket-wheel *s*. *u* and *v* are the component parts of a clutch, respectively carried by the sprocket-wheels *s* and *t*. The shaft *r* being rotated, the corresponding chain *n* will be driven, according to whether or not the clutch members are engaged or disengaged. The sprocket-wheel *s* is moved to effect the engagement or disengagement of said clutch members by means of a lever *w*, fulcrumed in the bracket *q* and having a fork *x* engaging in the peripheral groove *y* of the clutch member *u*.

*z*, *1*, and *2* designate three brackets arranged in alinement with each other, and in these brackets are journaled a drive-shaft *4* and a counter-shaft *5*. The counter-shaft carries a sprocket-wheel *6*, over which and the sprocket-wheel *t* extends an endless chain *7*. Power for driving the machine is taken in through a crank-pin *8* on a crank *9*, secured on one end on the shaft *4*, and on the other end of said shaft is a pinion *10*. This pinion meshes with a pinion *11*, fixed on a stub-shaft *12*, mounted in brackets *z* and *1* and having journaled on it a smaller pinion *13*, which meshes with a gear *14*, carried by shaft *5*. The pinion *10* also meshes with a pinion *15*, in turn meshing with a pinion *16*, fixed on a shaft *17*, journaled in the bracket *z* and *1* and carrying, loosely mounted thereon, a pinion *18*, meshing with the gear *14*. Thus according as either the pinion *13* or *18* is made to rotate with its shaft *12* or *17* so the rotary movement imparted by shaft *4* to shaft *5* will be in either one direction or the other.

In order to automatically reverse shaft *5*, so as to intermittently rotate the spools in reverse directions, the following mechanism is employed. On shaft *12* (and *17*) is splined a clutch *19*, having a peripheral groove *20*, with which engages a fork *21* of a bell-crank lever *22*. There are two of the levers *22*, one for each clutch *19*, and each is fulcrumed in the end of a cross-arm *23*, carried by a stud *24* on the bracket *z*. The bell-crank levers are connected by a lever *25*,



having its ends extending through holes 26 in the levers 22 and fulcrumed in its middle portion on the stud 24. Thus according as one lever 22 is rocked in one direction the other will rock in the other direction. The pinions 13 and 18 are each formed with a clutch 27, adapted to be engaged by the corresponding clutch 19. On a stud 28 is fulcrumed a weighted lever 29, carrying a cross-arm 30, which extends over the horizontal portions of the bell-crank levers 22. 30' is another lever having a pin 31 working in a slot 32 on the lever 29, the lever 30' being fulcrumed on a stud 31'. 32 is a pinion carrying a pin 33, adapted to engage the lever 30' to move the same on its fulcrum. The pinion 32 is journaled on the stud 31' and is operatively connected with shaft 5 by the pinions 34 and 35. The operation of this reversing mechanism is substantially as follows: Shaft 4 being rotated and levers 29 and 30' being in the positions shown, the clutch 19 corresponding to pinion 13 is co-operating with the clutch 27 of said pinion to interlock the latter with its shaft 12, so that the rotary motion of the shaft 4 is transmitted to shaft 5 through pinion 10, pinion 11, shaft 12, clutch members 19 and 27, pinion 13, and gear 14. Shaft 5 continues rotating in the direction which it has now assumed until the pin 33 brings up against lever 30', whereupon said lever is shifted, and thus shifts lever 29. Thereupon the cross-arm 30 operates to depress the right-hand bell-crank lever 22, Fig. 2, and elevate the other, which causes the right-hand clutch members 19 and 20 to engage with each other and the left-hand clutch members 19 and 20 to disengage, so that the power is now transmitted to shaft 5 through pinions 10, 15, and 16, clutch members 19 and 27, and pinion 18 and gear 14, the direction of rotation of the shaft being reversed.

In the modified form of the reversing mechanism shown in Figs. 5 and 6 the drive-shaft 4 carries a worm 36, in mesh with a worm-wheel 37, mounted on a shaft 38, which is journaled in a bracket 39, said shaft carrying oppositely-extending cranks 40. On the shaft 5 is the pinion 6. 42 designates racks engaged with the pinion 41 and connected with the crank-pins 43 of the cranks by pitmen 44. Each rack has a strap 45 arranged to be guided in a bracket 46 on the bracket 2. In the operation of this reversing mechanism the rotary motion transmitted to the shaft 38 through the parts 36 and 37 will cause the racks to reciprocate, their movement being in relatively reverse directions

on account of the arrangement of the cranks. The effect will be to rotate shaft 5 alternately in reverse directions.

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

1. The combination of a tank, a hollow body arranged therein and having lateral discharge-openings, means for supplying a treating liquid to said body, a series of brackets carried by said body, bobbin-carrying shafts journaled in said brackets and projecting beyond the sides of said body, bobbins arranged on the projecting ends of said shafts, and means for rotating said shafts and the bobbins carried thereby, substantially as described.

2. The combination of a tank, a hollow body arranged therein and having lateral discharge-openings, means for supplying a treating liquid to said body, a series of brackets carried by said body, bobbin-carrying shafts journaled in said brackets and projecting beyond the sides of said body, bobbins arranged on the projecting ends of said shafts, and means for rotating said shafts and the bobbins carried thereby, alternately in reversed directions, substantially as described.

3. The combination of a tank, a hollow body arranged therein and having lateral discharge-openings, means for supplying a treating liquid to said body, rotary bobbin-carrying shafts, means for supporting said shafts above said openings, bobbins arranged on said shafts and projecting beyond the sides of said body, and means for rotating said shafts and the bobbins carried thereby, substantially as described.

4. The combination of a tank, a hollow body arranged therein and having lateral discharge-openings, means for supplying a treating liquid to said body, rotary bobbin-carrying shafts, means for supporting said shafts above said openings, bobbins arranged on said shafts and projecting beyond the sides of said body, a flexible driving device extending alternately over and under said shafts, and means for moving said driving device alternately in reverse directions, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of April, 1906.

HENRI PATTYN.

Witnesses:

JOHN W. STEWARD,  
WM. D. BELL.