

No. 755,958.

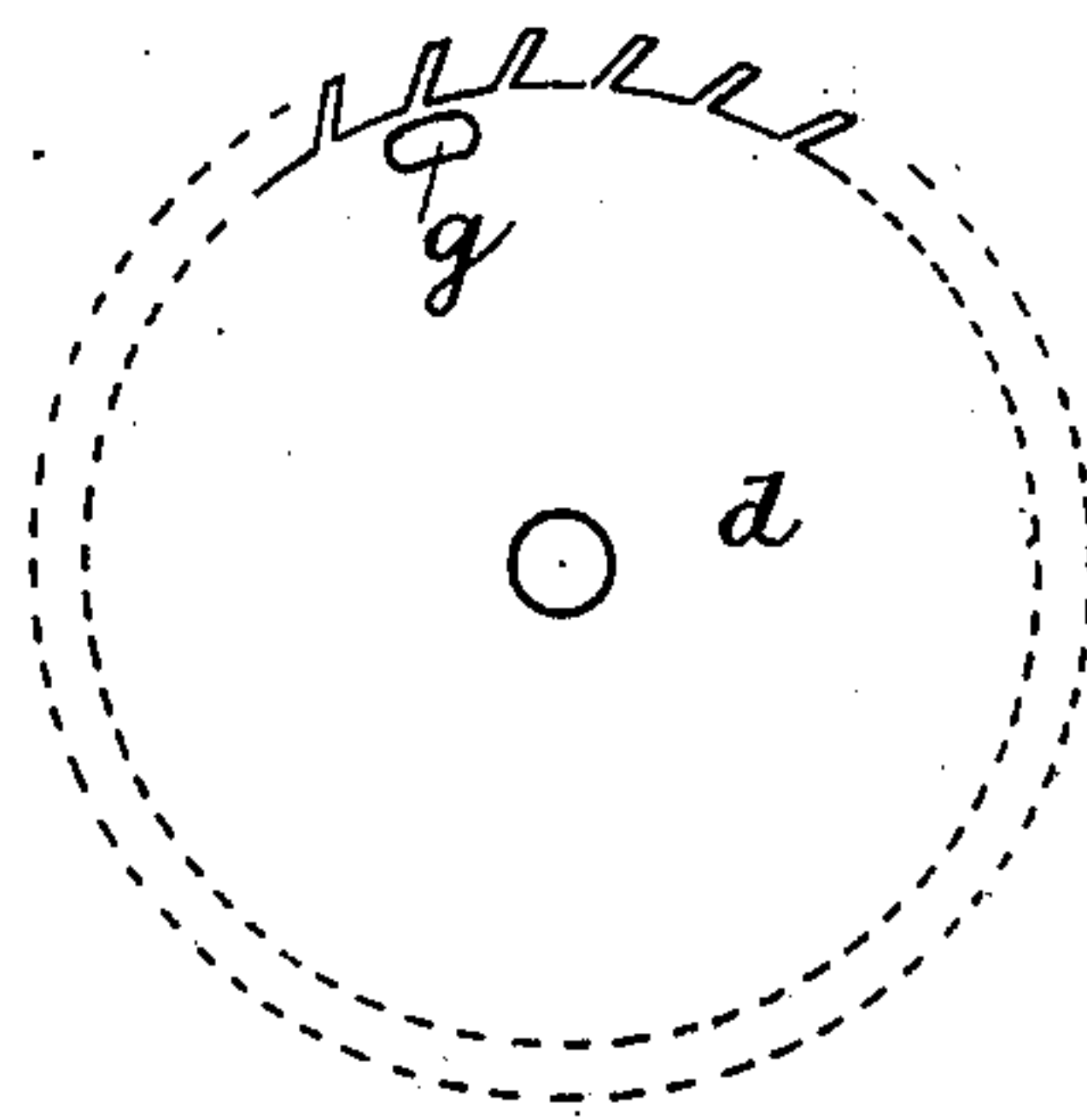
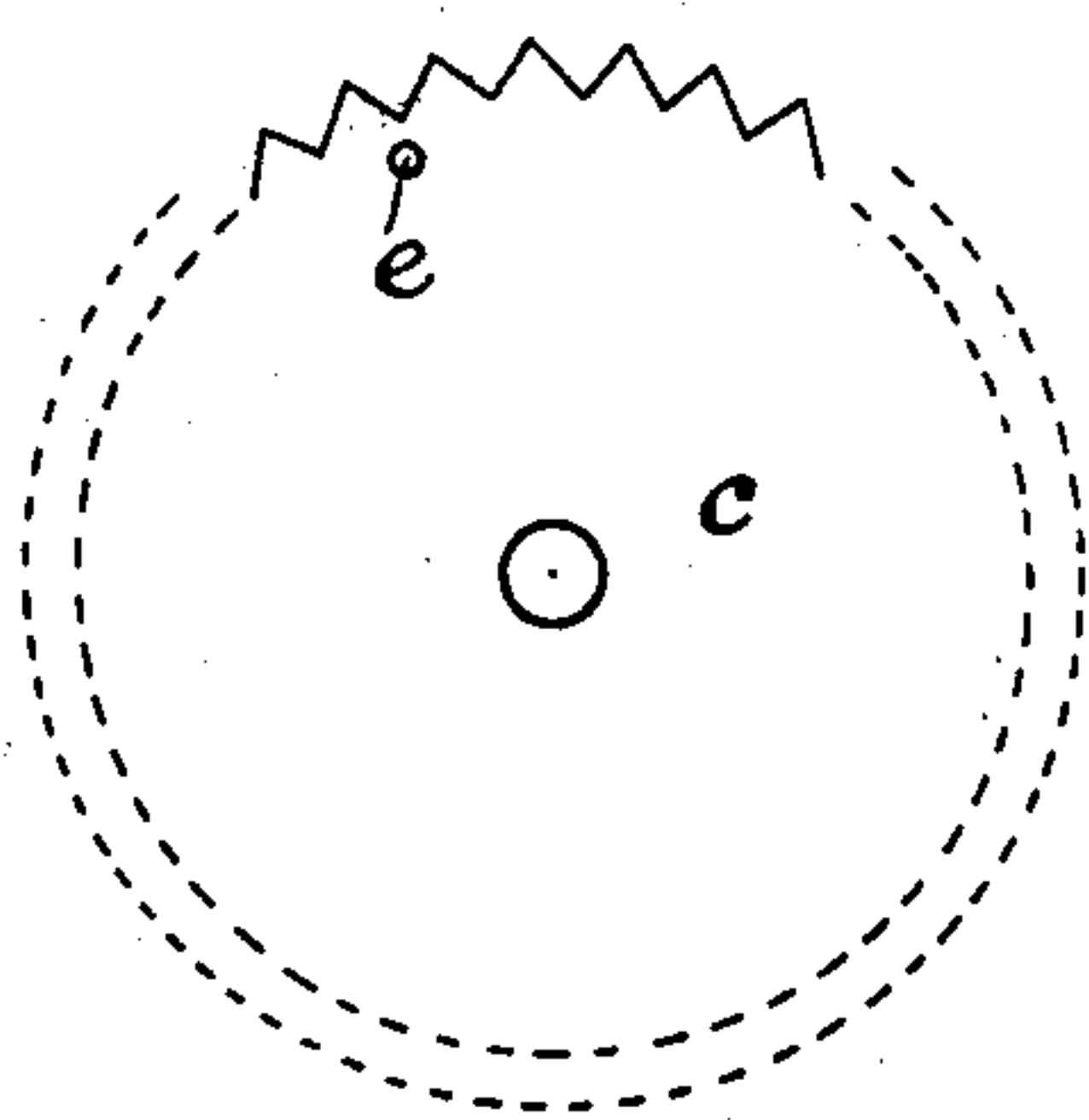
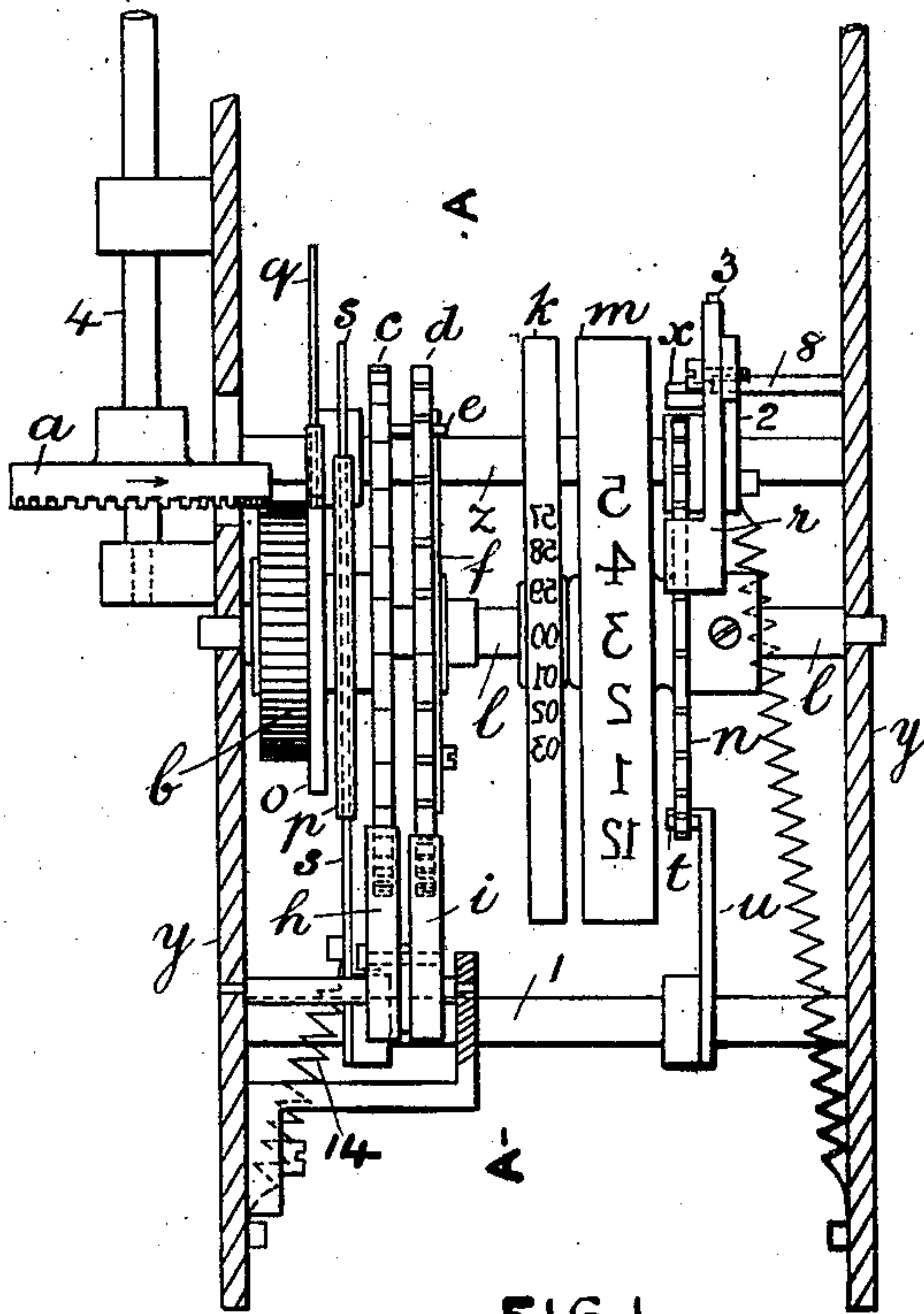
PATENTED MAR. 29, 1904.

J. J. STOCKALL, JR.
WORKMAN'S TIME RECORDER.

APPLICATION FILED NOV. 18, 1902.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:

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Stephen Edward Gungor

Inventor:

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4 SHEETS—SHEET 2.

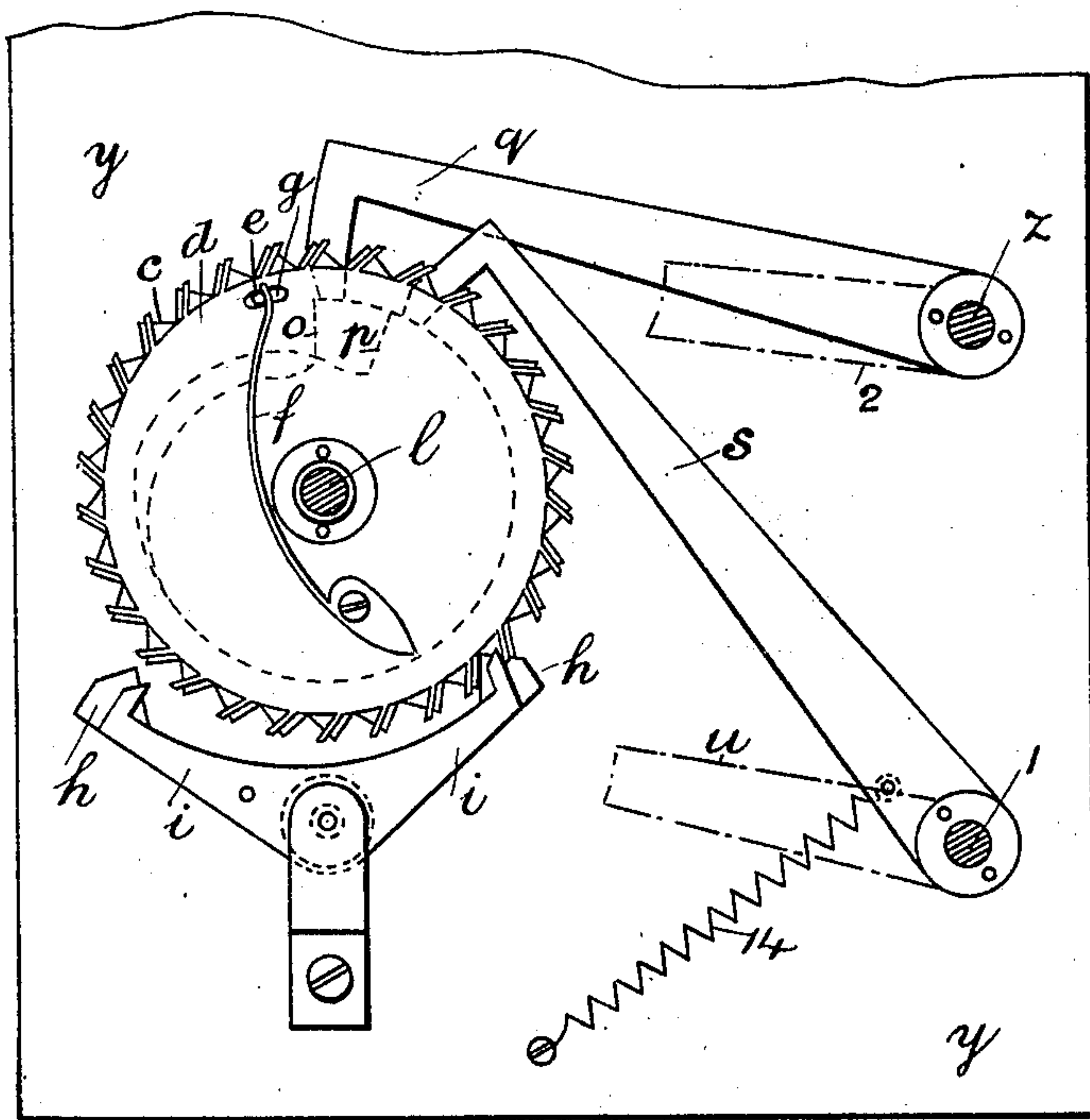


FIG. 2.

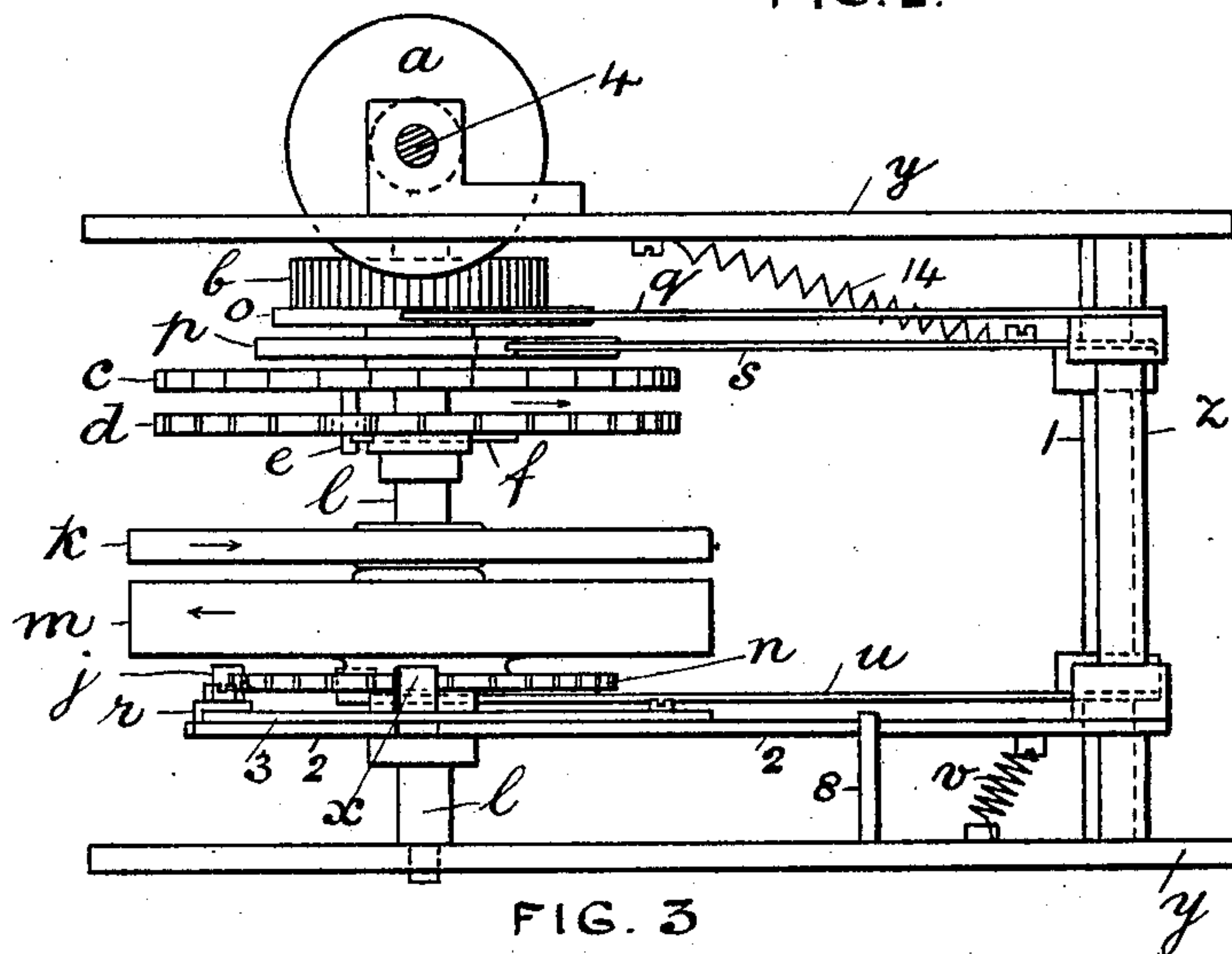


FIG. 3

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4 SHEETS—SHEET 3.

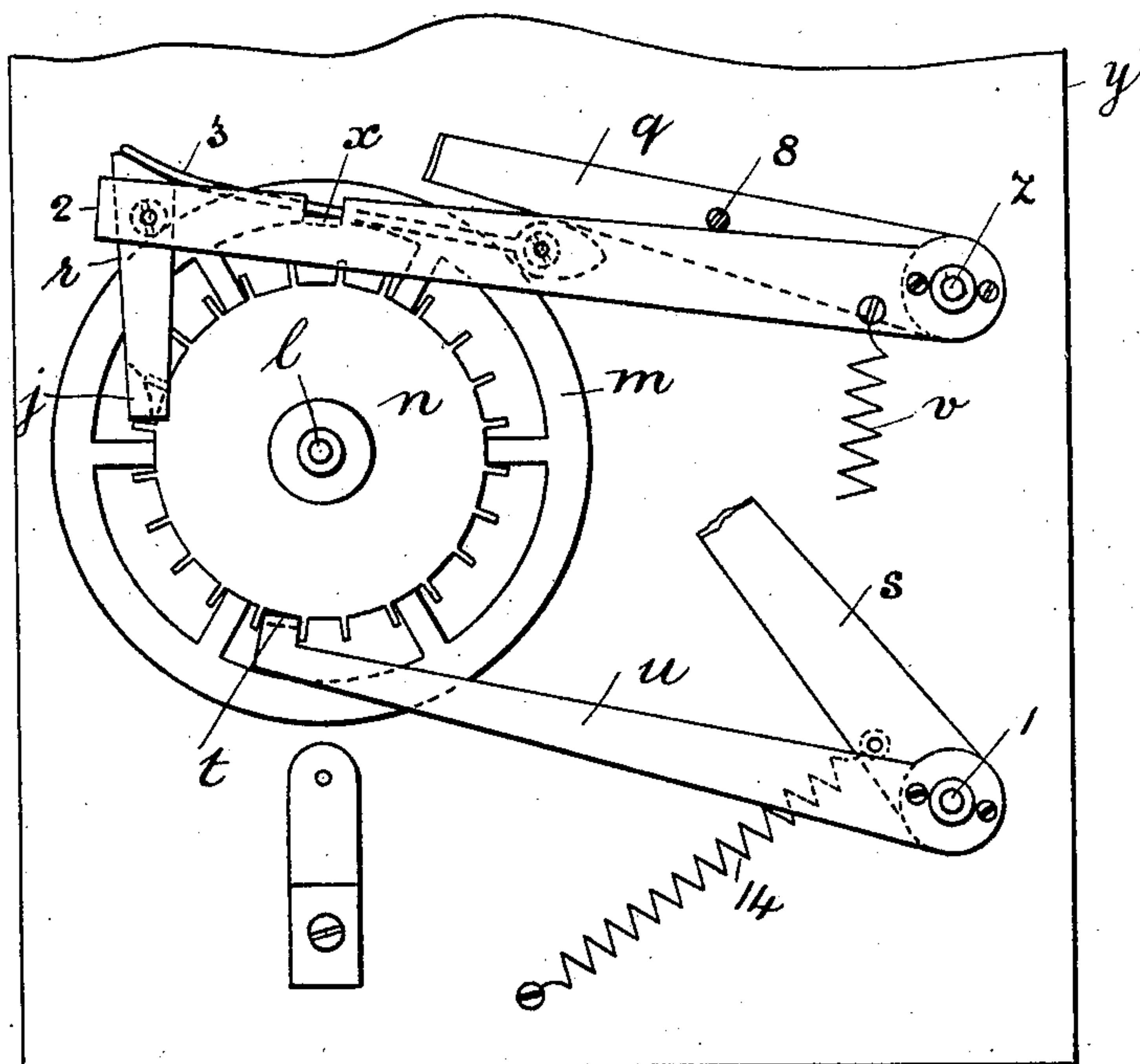


FIG. 4.

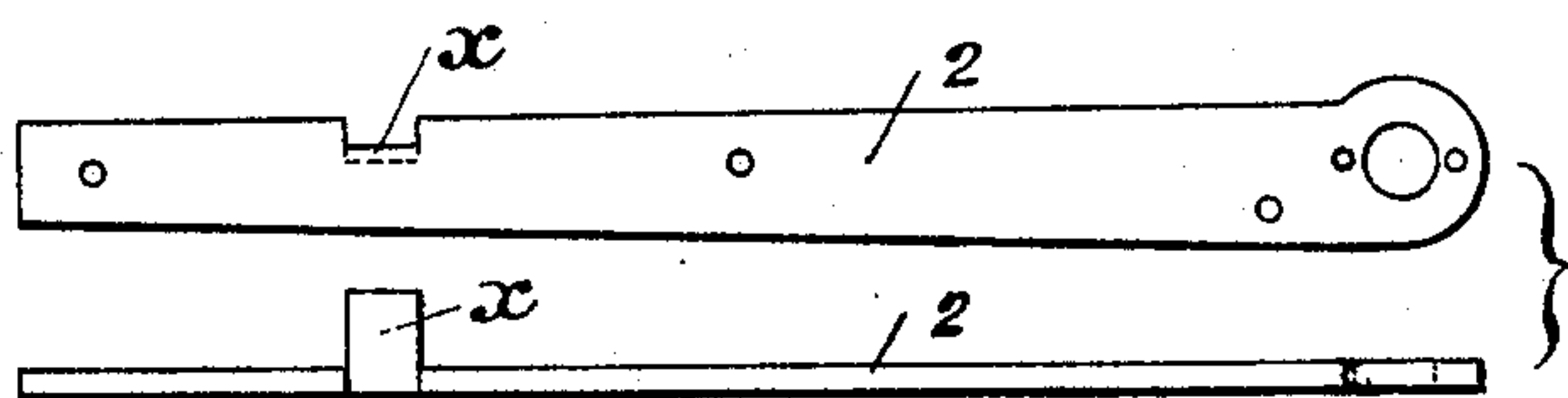


FIG. 5.

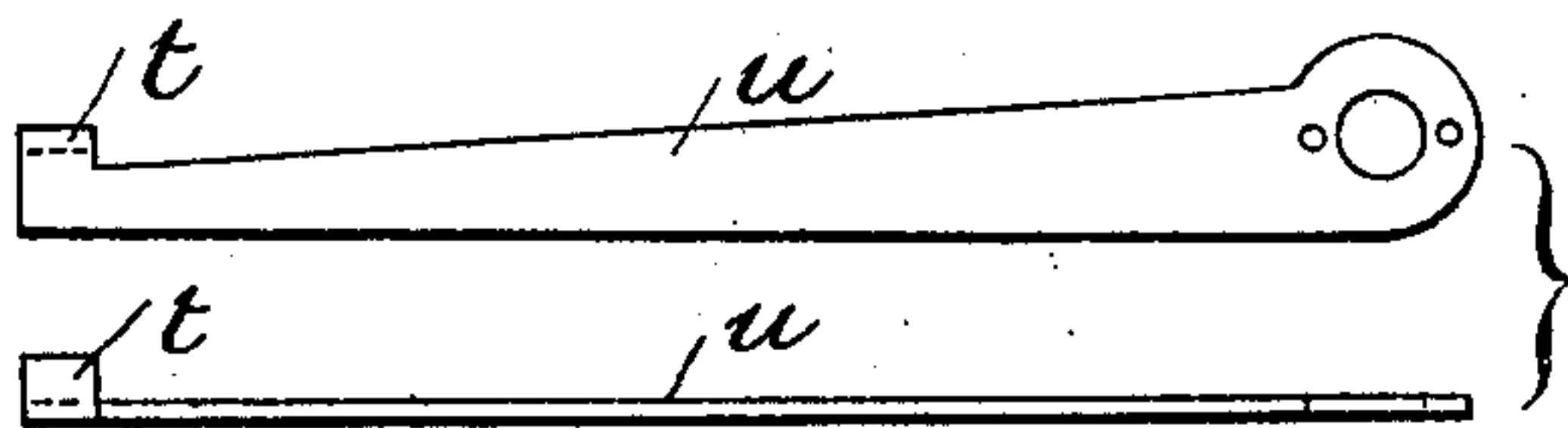


FIG. 6.

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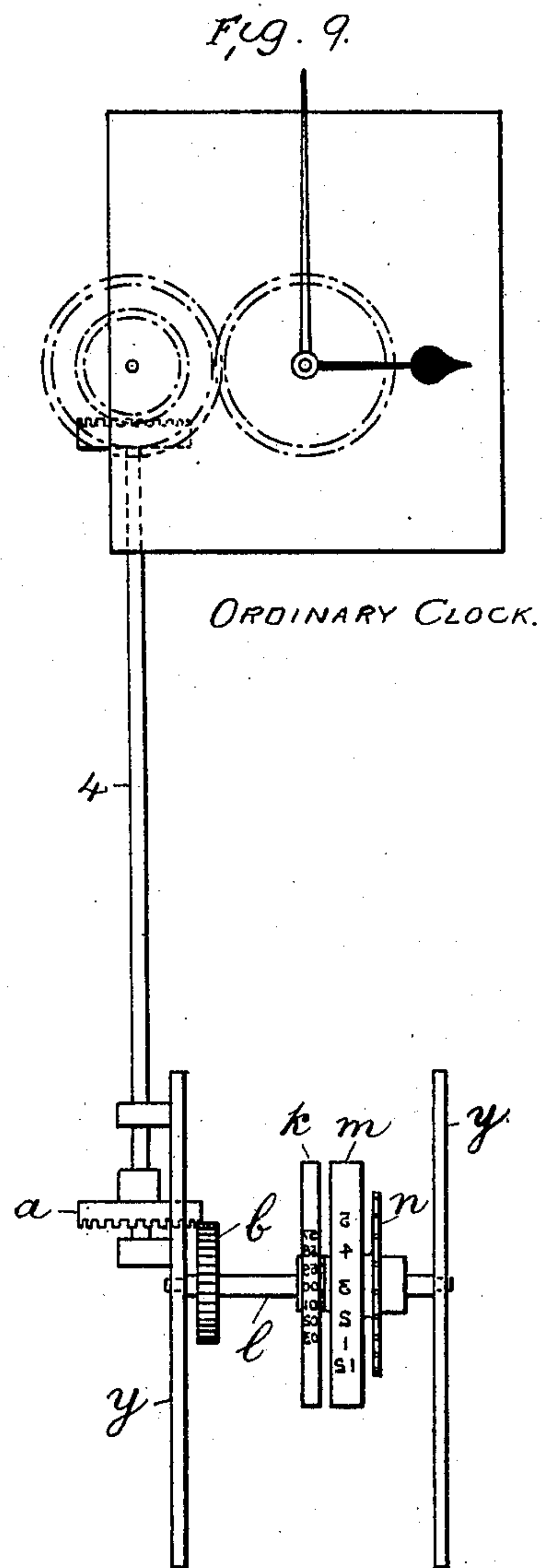
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APPLICATION FILED NOV. 18, 1902.

NO MODEL.

4 SHEETS—SHEET 4.



WITNESSES

C. M. Madleton
Edward Sarton

INVENTOR

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ATTORNEYS

UNITED STATES PATENT OFFICE.

JAMES JOHN STOCKALL, JR., OF LONDON, ENGLAND.

WORKMAN'S TIME-RECORDER.

SPECIFICATION forming part of Letters Patent No. 755,958, dated March 29, 1904.

Application filed November 18, 1902. Serial No. 131,840 (No model.)

To all whom it may concern:

Be it known that I, JAMES JOHN STOCKALL, Jr., a subject of the King of Great Britain, residing at London, England, have invented certain new and useful Improvements in and Relating to Workmen's Time-Recorders and the Like; 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.

This invention relates to workmen's time-recorders, and more especially to that class wherein the type-wheels are caused to revolve through the medium of the mechanism of an ordinary clock-train, the type being thereby brought successively into the printing-line in such a manner that they read in unison with the time indicated by the clock.

Hitherto in practice indifferent results, including bad alinement, have been obtained, due partly to the sluggish manner in which the type are brought into the printing-line, partly on account of the excessive and intermittent power required to drive the mechanism and partly on account of the necessity for the employment of extra or duplicate type, causing irregular and frequently incorrect printing upon the time-card. The defects above indicated I remedy by means of the dead-beat device, hereinafter more fully described, whereby a comparatively small and constant amount of driving power is absorbed and which is capable of sending the desired type instantaneously into the printing-line at the expiration of the days, hours, and minutes, respectively, and is capable of retaining such type in position until the moment arrives for it to change.

Figure 1 of the accompanying drawings illustrates in front elevation, partly in section, the mechanism for carrying out my invention. Fig. 2 is a section on line A A of Fig. 1. Fig. 3 is a plan view of the mechanism. Fig. 4 is a section on line B B of Fig. 3; Figs. 5, 6, 7, and 8, respectively, detail views of certain parts

of the mechanism. Fig. 9 shows a common clock in connection with the invention.

I have not shown the ordinary clock-train of the apparatus; but it will be understood that motion is imparted by such train to my improved mechanism by means of the spindle 4, Figs. 1 and 3, and the crown-wheel *a*, which wheel is caused to make a complete revolution once in every hour.

l is a spindle or arbor upon which the minute-printing type-wheel *k* and its escapement-wheel *d* are fixed, and upon which spindle the cog-wheel *b*, two hour-controlling cams *o* and *p* and minute-escapement-controlling wheel *c*, pinned together, are loosely journaled. The hour-printing type-wheel *m*, with its locking-wheel *n* attached, also pinned together, are loosely journaled upon the spindle *l*. I provide the escapement-controlling wheel *c* with a pin *e*, passing through a slot *g* in the escapement-wheel *d*, which pin is in contact with the spring *f*, fixed on the escapement-wheel in such a manner that when rotation is imparted to the escapement-controlling wheel *c* by the cog-wheel *b* the pin *e* compresses the spring *f*. Under the escapement-controlling wheel *c* I pivot the controlling-escapement *h*, and under the escapement-wheel *d* I pivot the escapement *i*. The controlling-escapement *h* and the escapement *i* are pinned together and pivoted both upon the same spindle. The controlling-escapement *h* engages the V-shaped notches of the escapement-controlling wheel *c* and the simple escapement *i* engages the teeth of the escapement-wheel *d*. For the purpose of operating the hour-wheel *m* I pivot at convenient positions on the frame *y* two rocking spindles *z* and *l*, each spindle being provided with an arm or lever *q* and *s* in engagement with the hour-controlling cams *o* and *p*, respectively. The said levers are each provided with a spring *v* and 14, secured to the frame *y*, as seen in Fig. 1, the function of the said springs being to retain the levers in contact with their cams. I fix to the spindle *z* the spring-pawl

feed-lever 2 in addition to the cam-lever *q*, and I attach to the spindle *l* the locking-lever *u*, in addition to the cam-lever *s*. The feed-lever 2 is provided with the feed-pawl *r*, pivoted thereto, and the feed-pawl *r* is so controlled by the spring 3 that its tendency is always to remain in contact with the locking-wheel *n*. The feed-pawl *r* is provided with a projection *j* for the purpose of engaging the teeth of the locking-wheel *n*, and the feed-lever 2 is also provided with the projection *x* (see Fig. 5) for the purpose of regulating and locking the locking-wheel *n* at each feed. The locking-lever *u* is provided at its extremity with the projection *t* (see Fig. 4) for the purpose of locking the locking-wheel *n*, as hereinafter more fully described. The locking-wheel *n* is provided with twenty-four teeth, forming twenty-four spaces, and is fixed to the hour-wheel *m*, both being loosely journaled upon the spindle *l* and revolving thereon in an opposite direction therewith when fed. Rotation is imparted to the spindle *l* through the spring *f* and the pin *e* only by means of the vertical shaft 4, rotated by the clock-train and provided with the crown cog-wheel *a* in gear with the cog-wheel *b*.

8 is a stop-pin for the purpose of limiting the upward movement of the feed-lever 2.

The action of the apparatus is as follows: The crown-wheel *a* is rotated by the clock-train at the constant speed of one revolution per hour, rotating the cog-wheel *b* (with which it is in gear) at the same rate. The escapement-controlling wheel *c* and the escapement-wheel *d* each have thirty teeth. As the escapement-controlling wheel *c* is rotated the pin *e* thereon compresses the spring *f*, attached to the escapement-wheel *d*, until the escapement-controlling wheel *c* has revolved a distance equal to half of one of its teeth, by which time one of the V-shaped pallets of the controlling-escapement *h* is forced out from the V-notch of the escapement-controlling wheel *c*, which imparts a rocking motion to the escapement *h* and throws the opposite V-shaped pallet of the controlling-escapement into engagement. During such rocking motion the ordinary escapement *i* has released one of the teeth of the escapement-wheel *d*, and has thus arrested the rotation thereof, such rotation having been effected solely by the spring *f* thereon. The distance between the pallets is such that at each rock of the escapement the escapement-wheel is permitted to revolve to the extent of half a tooth, or one-sixtieth of its circumference. Thus at the expiration of each minute a fresh number springs instantaneously into the printing-line and remains in position until the time arrives for the change. The escapement-wheel *d* and

the minute-type wheel *k* are fixed upon the spindle *l*. The type-wheel *m*, carrying the hour-type, and its locking-wheel *n* are fixed to one another and are loosely journaled upon the spindle *l* and are rotated step by step in the following manner: The two coupled cams *o* and *p*, which revolve once in every hour, are set one in advance of the other in such a manner that the cam *o* shall first release its lever *q*, leaving the spring-pawl *r* supported upon one of the teeth of the wheel *n* in readiness to feed. The locking-cam *p* now releases its lever *s*, disengaging the projection *t* of the locking-lever *u* from between the teeth of the locking-wheel, which being now free is fed round one twenty-fourth part of its circumference under the influence of the spring *v*, which causes the feed-lever 2 to fall until the projection *x* thereon comes to rest in a space between the teeth of the locking-wheel *n*. The locking-wheel, therefore, also performs the function of a feeding-wheel.

It is obvious from the above description that although the cog-wheel *b* is revolved at a constant rate the arbor *l* is fed round intermittently at the expiration of each minute, and being absolutely quiescent during the intervals there can be no backlash, nor can backlash be caused by the cams, inasmuch as they are free on the spindle.

I claim—

1. In a workman's time-recorder, the combination with the spindle, means for revolving the same, type-wheels mounted on said spindle and escapement-controlling wheels carried by said spindle, of a locking-wheel for one of said type-wheels, a locking-lever and a feed-lever engaging said locking-wheel, a cam carried by said spindle and adapted to operate said feed-lever and a second cam in the rear of the first cam and adapted to operate said locking-lever, substantially as described.

2. In combination in a workman's time-recorder a cog-wheel driven by the clockwork of the apparatus and together with two snail-cams and a V-notched controlling escapement-wheel mounted loosely upon a common spindle, a pin fixed in such controlling escapement-wheel, an escapement-wheel fixed to the before-mentioned spindle and furnished with a slot through which the aforesaid pin projects, a spring fixed to the aforesaid escapement-wheel and engaging with the aforesaid pin, a controlling-escapement in conjunction with the controlling escapement-wheel, an escapement in conjunction with the escapement-wheel, a type-wheel (for printing the minutes) fixed to the aforesaid spindle, a type-wheel (for printing the hours) with a feed-wheel attached loosely and journaled upon the said spindle, a spring-urged rocking spindle suit-

ably pivoted and provided with a lever in engagement with one of the aforesaid snail-cams, and with a feed-lever provided with a spring-pawl and a locking projection, a stop
5 to limit the upward movement of the feed-lever, a further spring-urged rocking spindle suitably pivoted and provided with a lever in engagement with the other aforesaid snail-cam, a locking-lever also attached to said rocking spindle, and provided with a projection

for engaging the spaces between the teeth of the aforesaid locking-wheel, substantially as and for the purposes described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JAMES JOHN STOCKALL, JR.

Witnesses:

CHARLES SEPTIMUS BERTHON,
STEPHEN EDWARD GUNYON.