

No. 703,080.

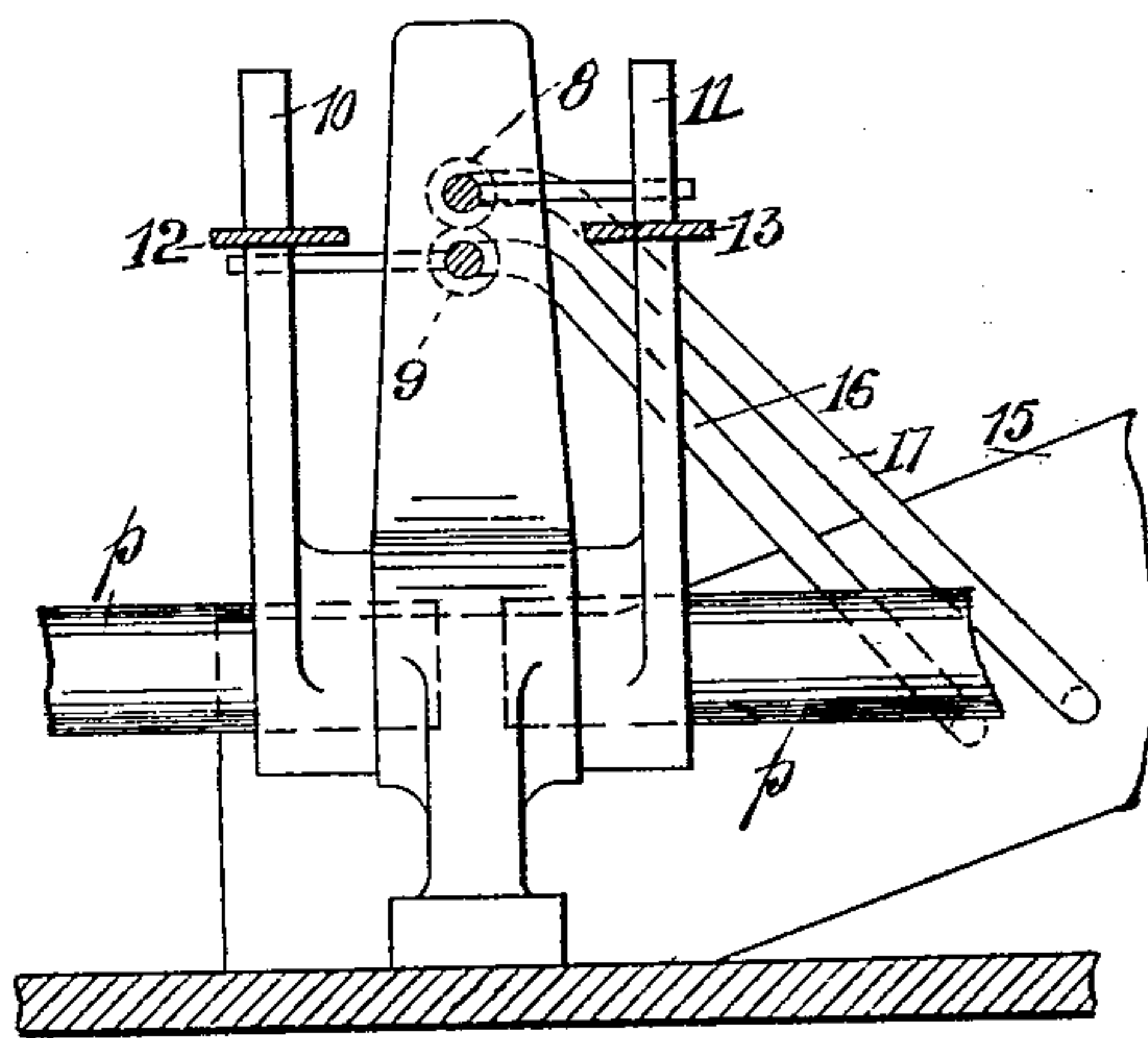
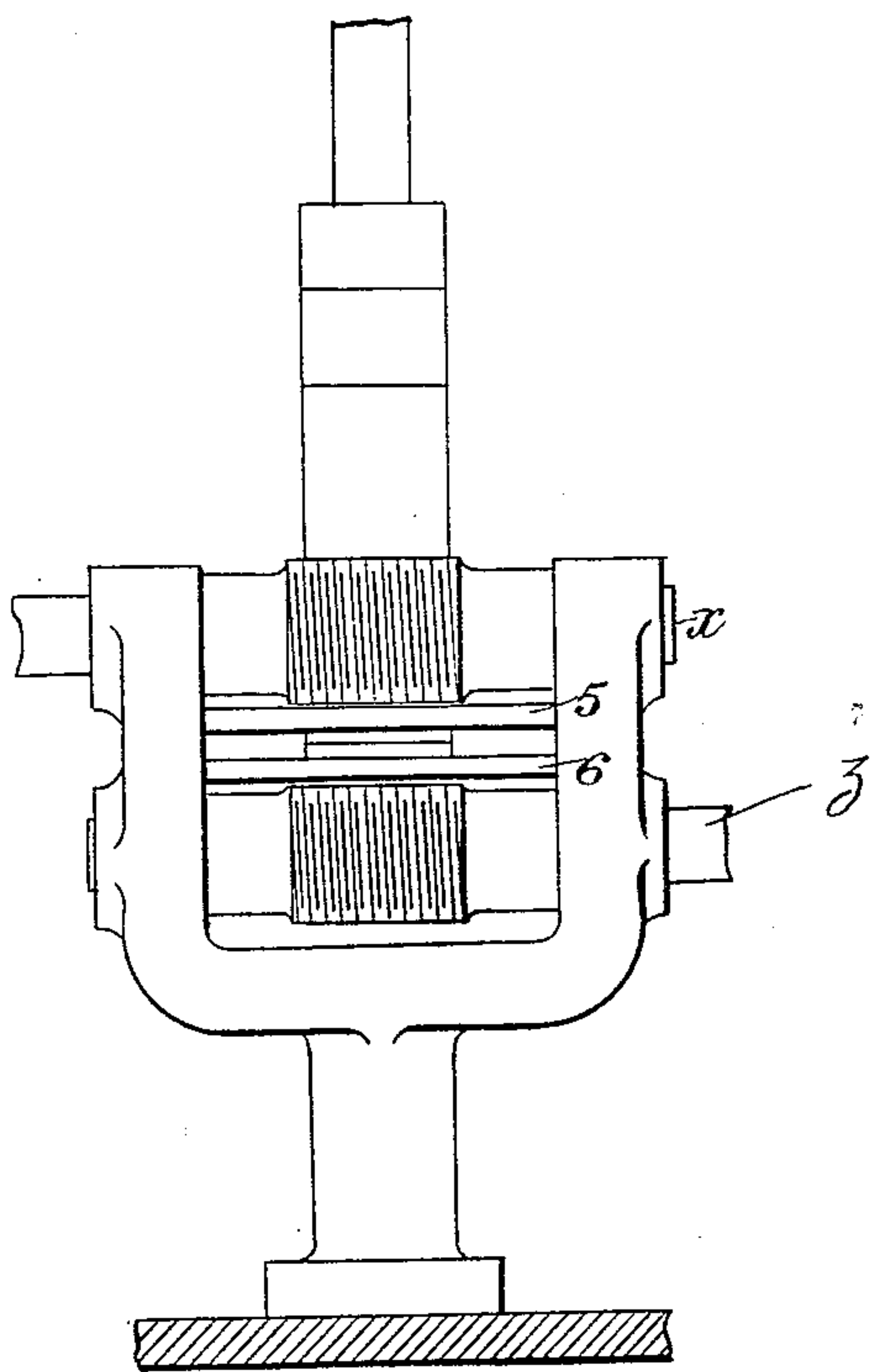
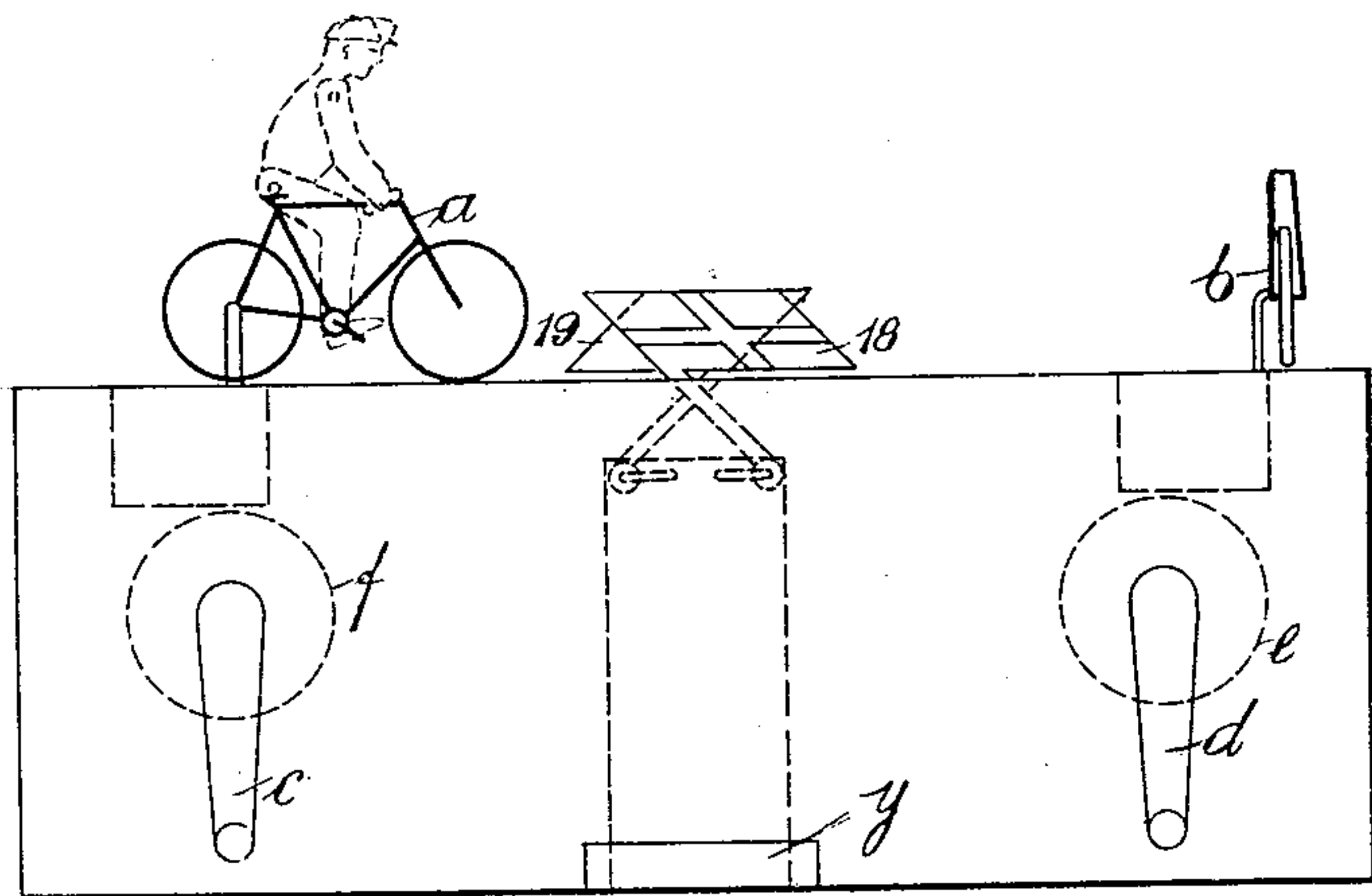
Patented June 24, 1902.

G. D. PALMER & H. HARTLEY.
COIN CONTROLLED MECHANICAL TOY.

(Application filed Oct. 23, 1900.)

(No Model.)

6 Sheets—Sheet 1.



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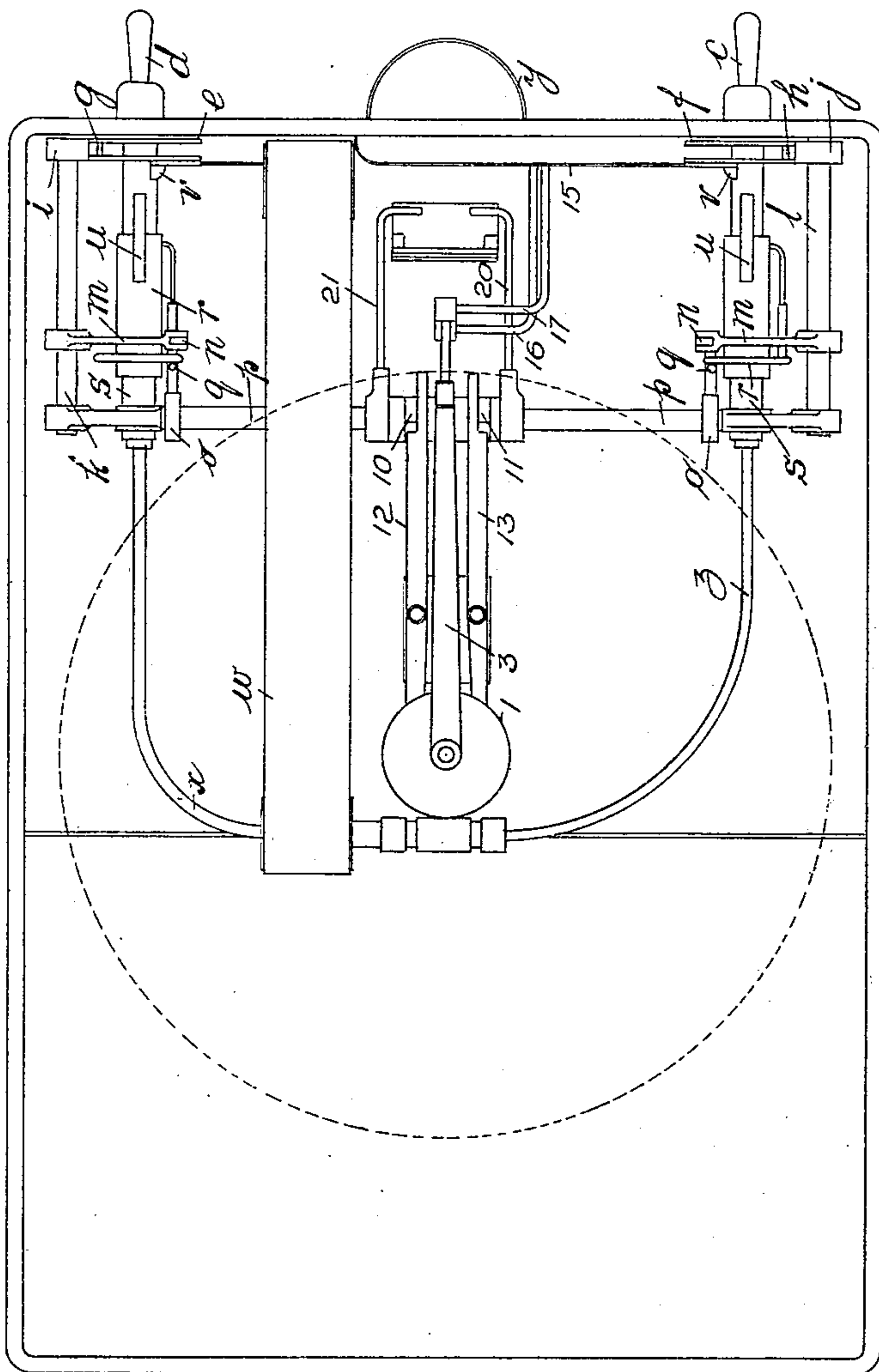
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6 Sheets—Sheet 2.



— FIG. 2 —

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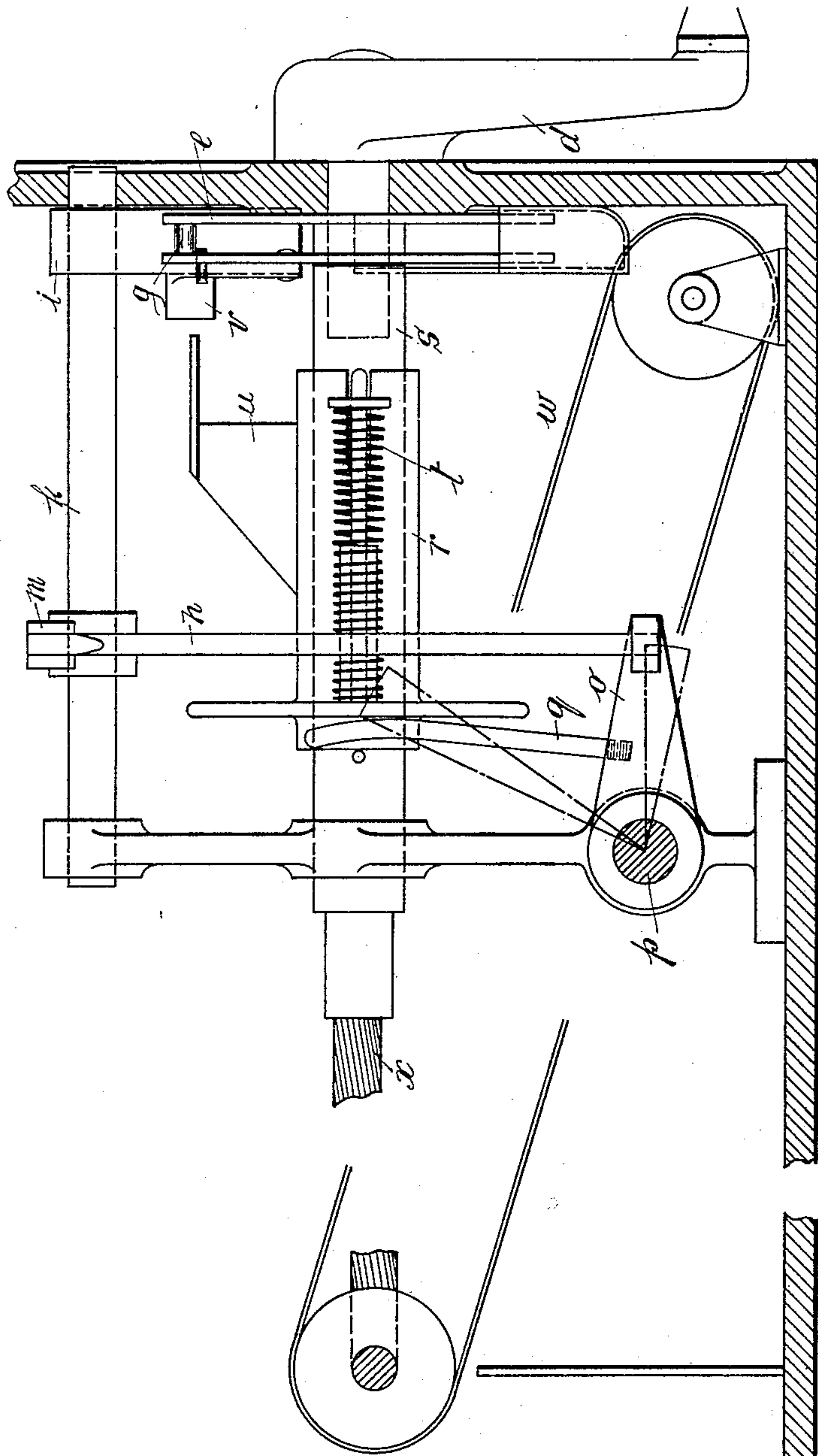
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6 Sheets—Sheet 3.



— FIG. 3 —

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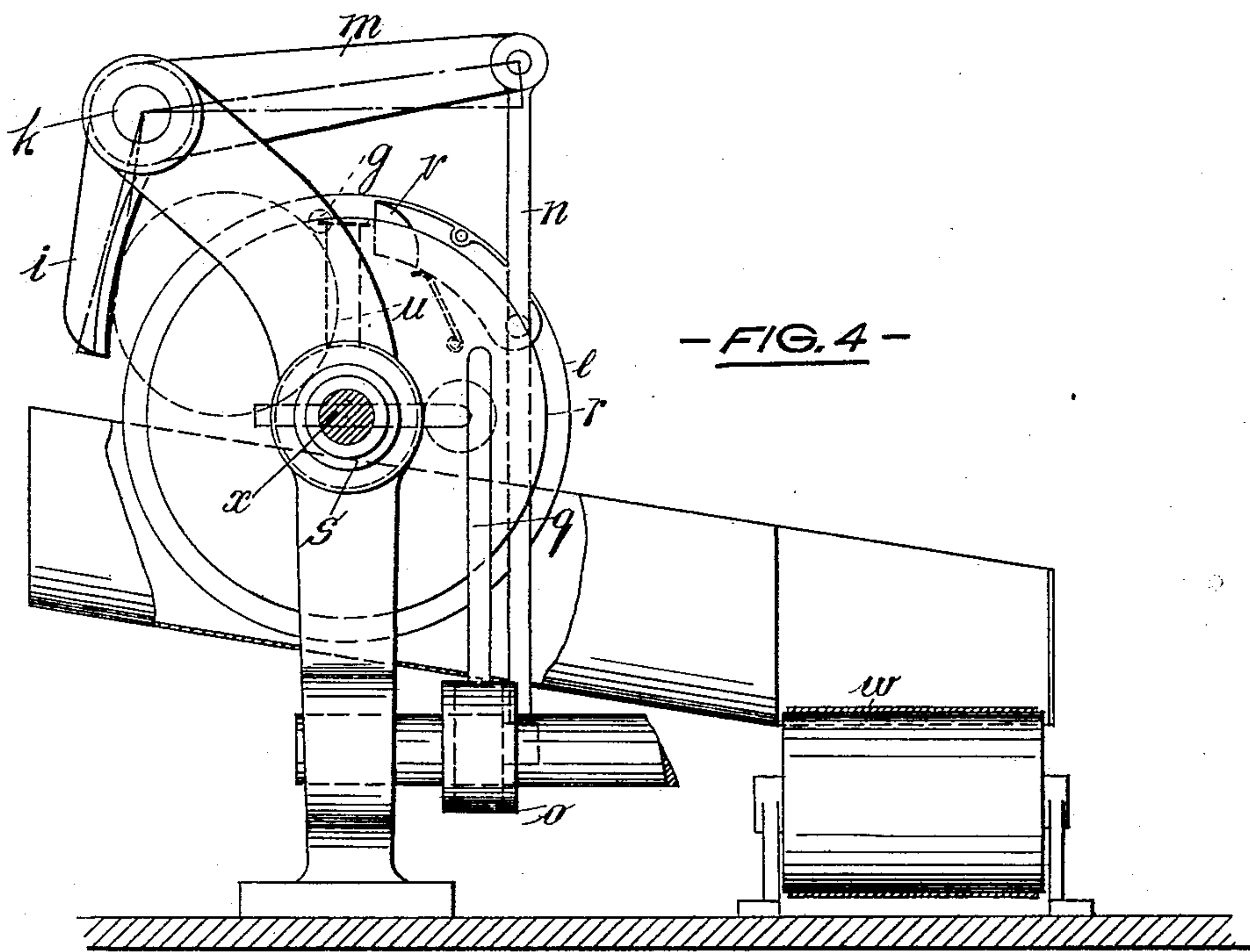
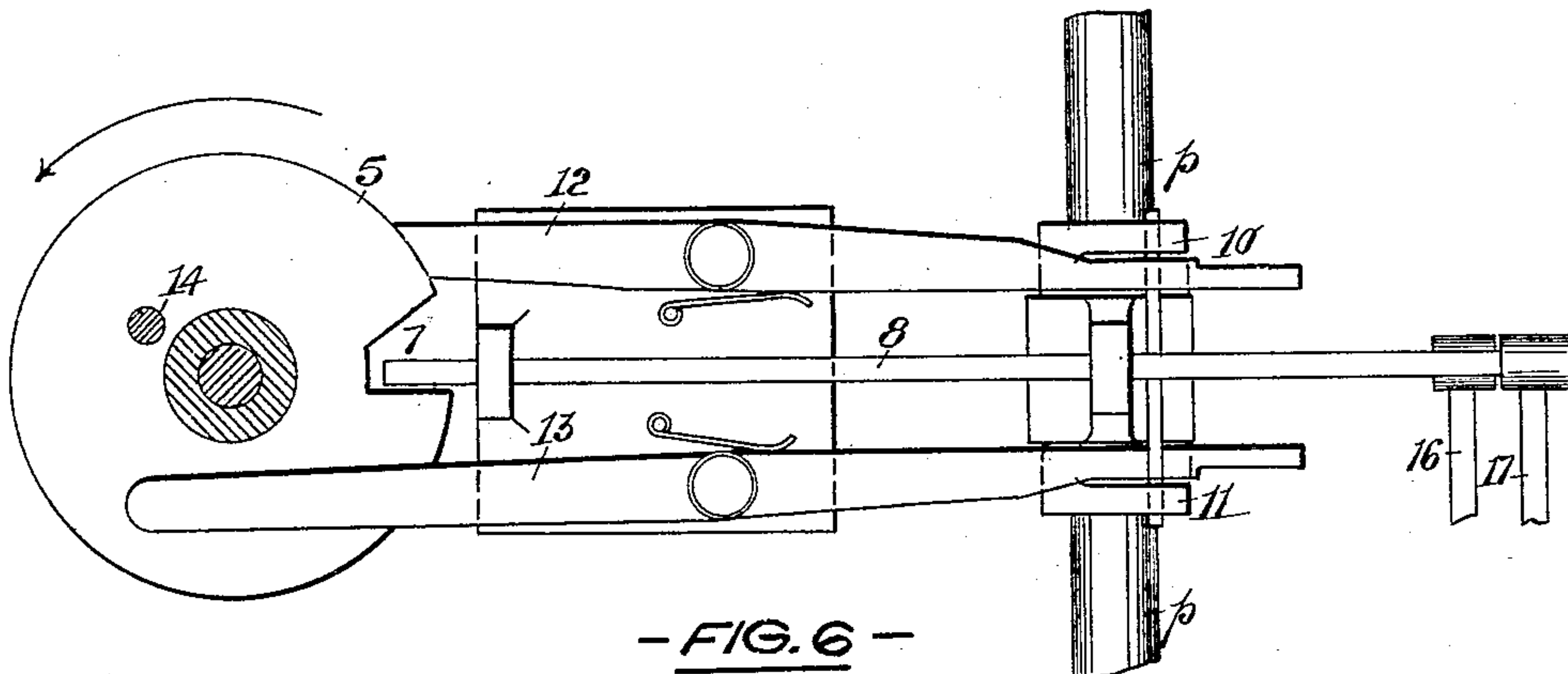
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6 Sheets—Sheet 4.



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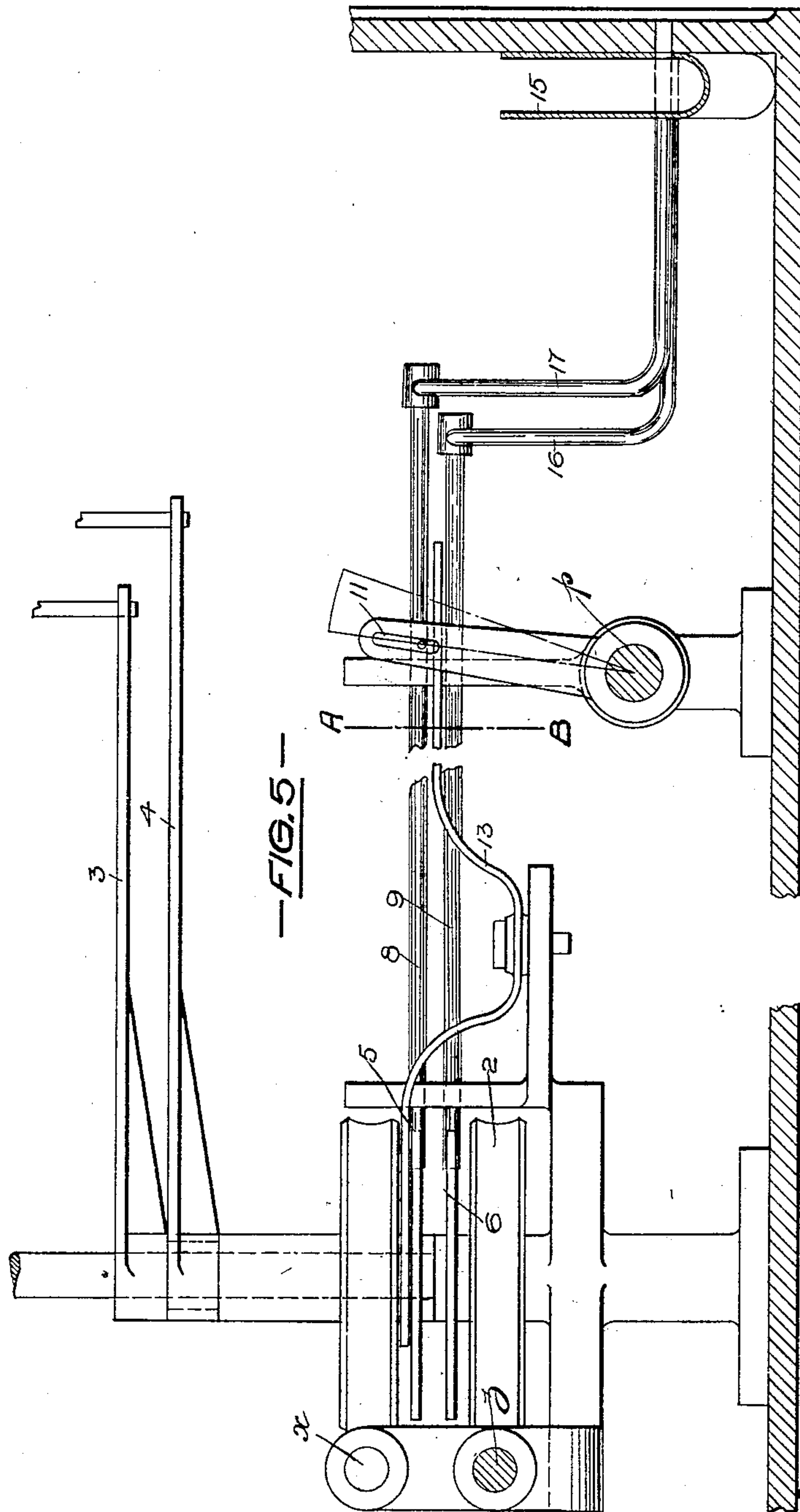
Patented June 24, 1902.

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(Application filed Oct. 23, 1900.)

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6 Sheets—Sheet 5.



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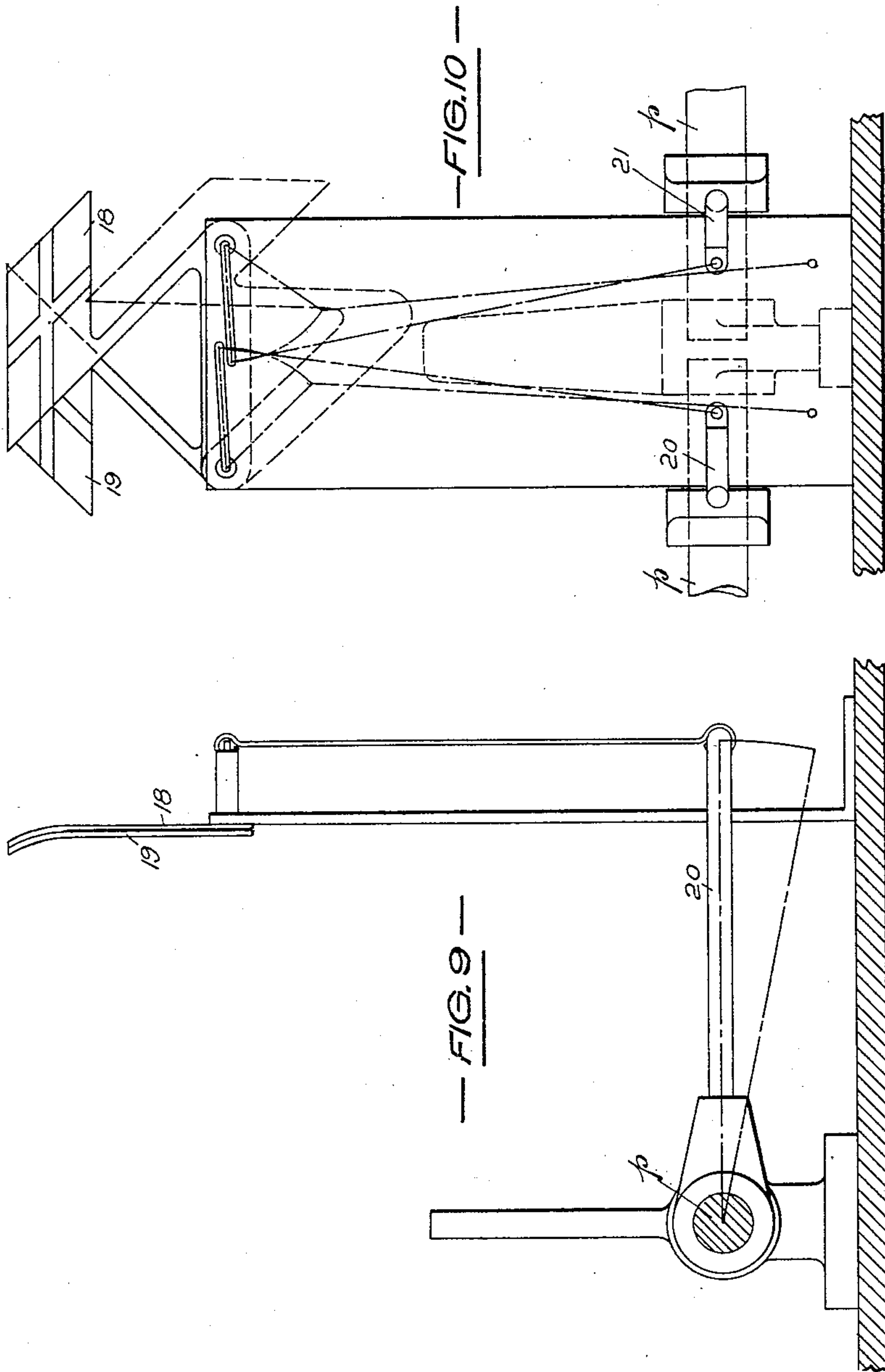
Patented June 24, 1902.

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UNITED STATES PATENT OFFICE.

GEORGE DAVID PALMER AND HENRY HARTLEY, OF BIRMINGHAM, ENGLAND.

COIN-CONTROLLED MECHANICAL TOY.

SPECIFICATION forming part of Letters Patent No. 703,080, dated June 24, 1902.

Application filed October 23, 1900. Serial No. 34,020. (No model.)

To all whom it may concern:

Be it known that we, GEORGE DAVID PALMER and HENRY HARTLEY, subjects of the Queen of Great Britain and Ireland, and residents of Clarence Chambers, Corporation street, in the city of Birmingham, England, have invented certain new and useful Improvements in Coin-Controlled Mechanical Toys, (for which we have filed applications in Great Britain, No. 6,026, bearing date March 31, 1900; in France, No. 290,027, bearing date June 30, 1900, and in Germany, bearing date June 14, 1900,) of which the following is a specification.

This invention consists of improvements in mechanical toys of the type in which figures are caused to travel around a circular track by the operation of hand-power mechanism which is normally locked or prevented from movement, but is freed for movement by the insertion of coins, and in which a coin is returned for the winning operator.

The object of our invention is to provide, in combination with each rotatable operating-handle on the exterior of the machine, an independent set of driving, indicating, and coin-returning mechanism which by the mere act of inserting the coin is so connected with the said handle as to partake of its movement.

Referring to the accompanying sheets of explanatory drawings, Figure 1 is a front elevation, and Fig. 2 a plan, (with the top plate removed,) showing a toy cycle-racing machine having our invention applied thereto. Figs. 3 to 10, inclusive, represent, to a larger scale, various details of the machine. Fig. 3 is a side elevation showing the clutch device, and Fig. 4 an end elevation of the same. Fig. 5 is a side elevation of the locking device, and Fig. 6 a plan of the same. Fig. 7 is an end elevation, and Fig. 8 a sectional end elevation on the line A B, Fig. 5, showing a portion of the locking device and also the coin-retaining device. Fig. 9 is a side elevation, and Fig. 10 a front elevation, showing the mechanism for indicating the winning figure.

The same reference characters in the different views indicate the same parts.

The machine illustrated is constructed for but two cycle-racing figures, as *a* and *b*. For

the respective operation of the said figures rotatable handles, as *c* and *d*, are provided on the exterior of the front end of the machine-casing. On the inner side of the front end of the casing, through which the short spindles of the operating-handles project, we fix on each side of the said spindles a coin-catch wheel, as *e* and *f*, consisting of a pair of circular disks with a cross-pin, as *g* and *h*, respectively. Immediately over or above each of the said wheels *e* and *f* a slot or aperture is made through the top plate of the machine-casing for the insertion of the two coins necessary to release or free the two sets of figure-operating mechanism. Each coin falls through the slot in which it is inserted and passes between the disks of the catch-wheel beneath it; but the coin is arrested or prevented from passing right through the catch-wheel by a projection or an arm, as *i* or *j*, the said projections or arms being fixed at one end to the pivot-shafts *k* and *l*, respectively, while the opposite or free ends of the arms are adjacent to the catch-wheels *e* and *f*, respectively.

On turning the handles after the insertion of the coins the cross-pins *g* and *h* are caused to abut against the peripheries of the respective coins, which latter transmit the force so imposed upon them to the catch projections *i* and *j*, respectively, and the latter being thus caused to turn aside by a rotary movement with their pivot-pins *k* and *l* the coins will fall through the catch-wheel. The lateral movement imparted to each of the pivoted catch projections is also transmitted, by means of the lever *m*, rod *n*, and lever *o*, to a rock-shaft *p*. As the lever *o* is depressed (by the movement of the catch projection *i* to the dotted-line position indicated at Fig. 3) the upper end of the stalk *q*, projecting from the lever *o*, is moved angularly to the right hand, as is also indicated by the dotted lines at Fig. 3. By such movement of the stalk *q* the clutch-sleeve *r* (which can rotate only with the hollow spindle *s*, on which it is mounted) is caused to slide along the hollow spindle *s* (against the action of a spring *t*) until a projection *u* from the spindle is pressed into engagement with a corresponding projection *v* from the coin-catch wheel *e*, and thus the

clutch-sleeve *r* and the hollow spindle *s*, on which it is mounted, are caused to revolve with the operating-handle *d*.

The coin which falls through the catch-wheel *e* passes down a chute onto a belt or conveyer *w*, driven from the flexible shaft *x*, and is thereby carried to the till or exchequer at the rear part of the machine-casing; but the coin which falls through the catch-wheel *f* passes down another chute or trough 15, to be subsequently delivered through the discharge-aperture in the front of the machine-casing, as hereinafter described, or we sometimes dispense with the aforesaid belt or conveyer *w* and cause the coin to fall from the chute beneath the catch-wheel *e* into the portion of the machine-casing (which then forms the till or exchequer) directly under the bottom of the said chute.

The flexible shafts *x* and *z* transmit the rotary motion of the respective handles to the worms which respectively gear with the worm-wheels 1 and 2, mounted upon separate spindles, standing vertically in the center of the machine and arranged the one within the other. Each spindle is provided with an arm or lever 3 or 4, to the outer ends of which are attached the figures *a* and *b* of bicycle-riders. The attachments to the levers pass up through a slot extending completely around the top plate of the machine-casing, which forms the racing path or track. Each worm-wheel has formed upon or attached to one side of it a gapped plate, as 5 or 6, having a slot or gap, as 7, into which enters one end of the locking or retaining bolt 8 or 9, and thus prevents movement of the figure until the wheel is released by the withdrawal of the said bolt. Such withdrawal is effected by the same movement of the shaft *p* with which the clutch-sleeve *r* is put into connection with the coin-catch wheel, as hereinbefore described, the movement being transmitted to the bolts through the slotted levers 10 and 11, which respectively engage with suitable lateral projections from the said bolts. The bolts are held in the withdrawn position by means of pivoted arms 12 and 13, respectively, whose notched outer ends are pressed laterally by suitable springs to cause them to engage with the upper edges of the levers 10 and 11.

By the rotation of the handles *c* and *d* the figures *a* and *b* are then caused to travel around the track at speeds corresponding with the rate of rotation of the respective handles. A pin projection, as 14, is provided from each of the cams 5 and 6 for the purpose of abutting against and pressing out one end of the pivoted arms 12 and 13, respectively, in order to withdraw their opposite ends from engagement with the levers 10 and 11; but the bolts cannot again enter into locking engagement with the cams until the figures have been moved completely around the track, when the slots will again fall into alignment with the ends of the bolts and so permit the latter to be pressed into them under the action of the

respective clutch-springs, as *t*, hereinbefore referred to. No further movement of the figures can then be effected until after the insertion of other coins.

The coin which passes through the catch-wheel *f* is held in a chute or trough, as 15, Figs. 5 and 6, by the projection therein of the extremities of the extensions 16 and 17 from the bolts 8 and 9, respectively, as shown by dotted lines at Fig. 5; but when the bolts enter into locking engagement with the cams 5 and 6, as hereinbefore described, the said projections are withdrawn from the chute and the coin then passes out through the delivery-aperture *y*. Thus, although two coins must be inserted in the machine, one of such coins is returned to the users of the toy.

The order of arrival of the figures at the end of the course is indicated by means of metallic flag-shaped pieces, as 18 and 19, Figs. 9 and 10, pivoted at the upper end of a bracket within the casing and each operated from the rocking shaft *p* of the particular set of mechanism with which it is connected by means of the projections 20 and 21 from the bosses fixed to the said shaft *p* and wires or rods connecting the said projections with the specially-formed zigzag-shaped pivoted stems of the flags. When the driving mechanism is in connection with the operating-handles, the flags are almost entirely below the track formed by the top plate of the machine-casing. Such position of one of the flags, 18, is shown by dotted lines at Fig. 10; but as each set of mechanism is released on the engagement of its retaining-bolt 8 or 9 with one of the cam-plates the movement of the corresponding rocking shaft *p* causes the particular flag in engagement therewith to pass up through a slot in the top plate to the full-line position shown. The tops of the flags have a curved form, as shown at Fig. 9, in order that the last flag to be elevated shall be pushed to the back of the first flag, thus clearly indicating which figure first arrived at the end of the course.

The two sets of handles, figures, and flags may be colored or otherwise marked to correspond with each other.

The top plate of the machine forming the track around which the figures move is inclosed by a dome-shaped glass cover.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In cycle-racing and like mechanical toys in which figures are caused to travel around a circular track by the operation of rotatable handles on the exterior of the machine-casing, the combination with each of the said handles of figure-driving mechanism a coin-catch wheel rotatable with the handle, an arm pivoted adjacent to the said catch-wheel, and a spring-clutch connection between the catch-wheel and the figure-driving mechanism, to which movement is transmitted from the catch-wheel through an inserted coin the said

pivoted arm and connecting rods and levers between the arm and the said clutch, substantially as described.

2. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and a figure-driving mechanism, connecting rods and levers between the said clutch and pivoted arm, and a locking-bolt having a pin engagement with one of the said levers and a gapped plate rotatable with the figure-driving mechanism, against which said locking-bolt abuts, substantially as described.

3. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and figure-driving mechanism, connections between the said clutch and pivoted arm, a locking-bolt and an extension-piece from the said bolt projecting within a coin-chute disposed beneath the said catch-wheel, substantially as described.

4. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and figure-driving mechanism, connections between the said

clutch and pivoted arm, a plate rotatable with the figure-driving mechanism and having a pin projecting therefrom, and a spring-controlled pivoted arm engaged at one end by the said projecting pin and at the opposite end by the said linkage, substantially as described.

5. In combination, the figure-driving mechanism, a handle and a coin-catch wheel rotatable together, an arm pivoted adjacent to the catch-wheel, a spring-clutch connection between the catch-wheel and figure-driving mechanism, linkage between the said clutch and pivoted arm, a flag with pivoted stem, and connections between the stem and the said linkage, substantially as described.

6. In combination, the plurality of toy figures, rotating mechanisms, free operating handles, connections between said handles and rotating mechanisms, indicating devices, and means whereby one of said indicating devices is operated upon the arrival of the corresponding figure at the termination, substantially as described.

In witness whereof we have hereunto set our hands in presence of two witnesses.

GEORGE DAVID PALMER.

HENRY HARTLEY.

Witnesses:

HERBERT BOWKETT,

W. SWINFEN COTTRELL.