

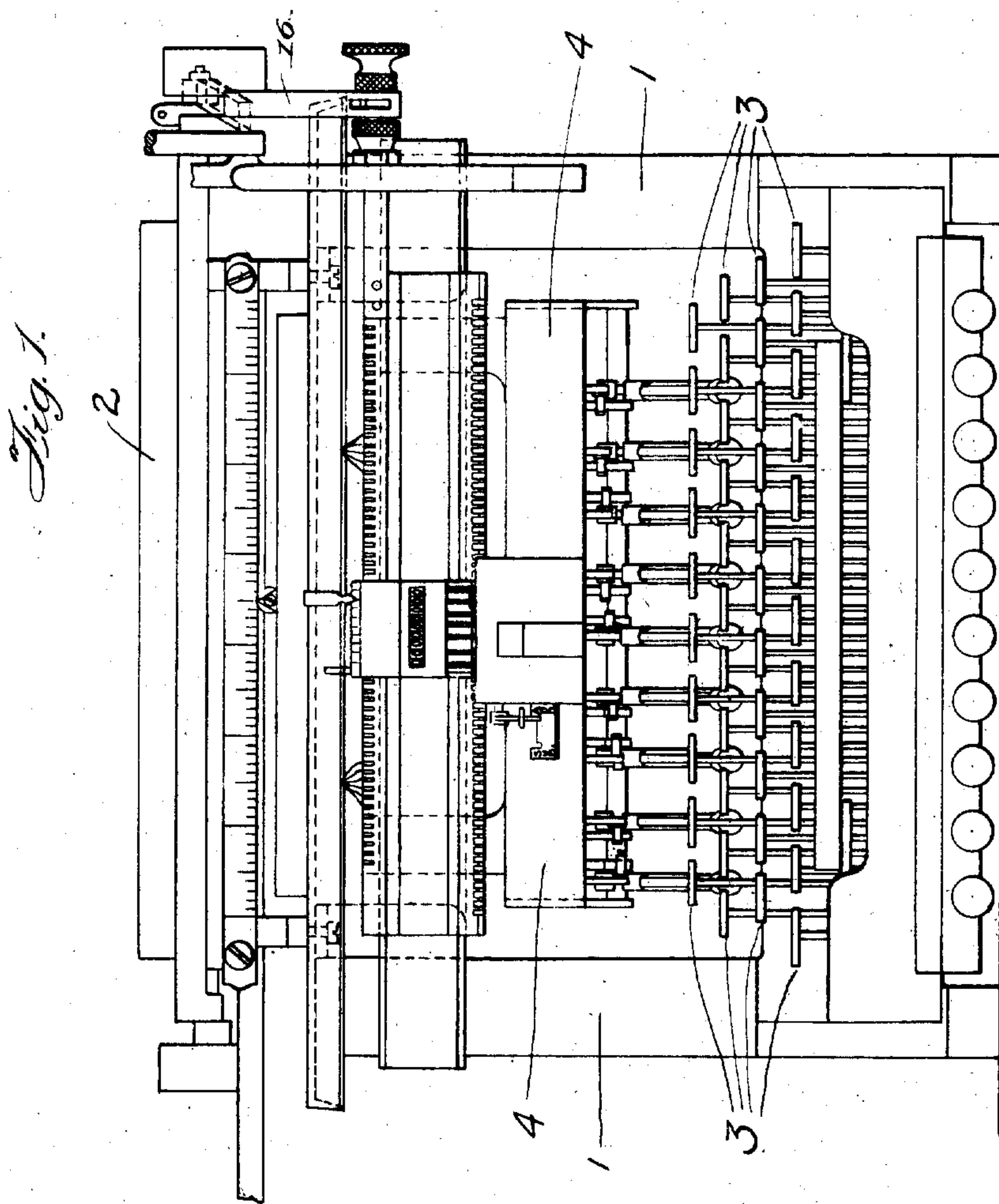
No. 896,871.

PATENTED AUG. 25, 1908.

J. C. WAHL & H. E. GOLDBERG.
CALCULATING MACHINE.

APPLICATION FILED MAR. 16, 1908.

5 SHEETS—SHEET 1.



Witnesses:

Edw. Perry
W. P. Kilroy

Inventors

John C. Wahl
Hyman E. Goldberg

By *Chever & Cox*

Atty.

No. 896,871.

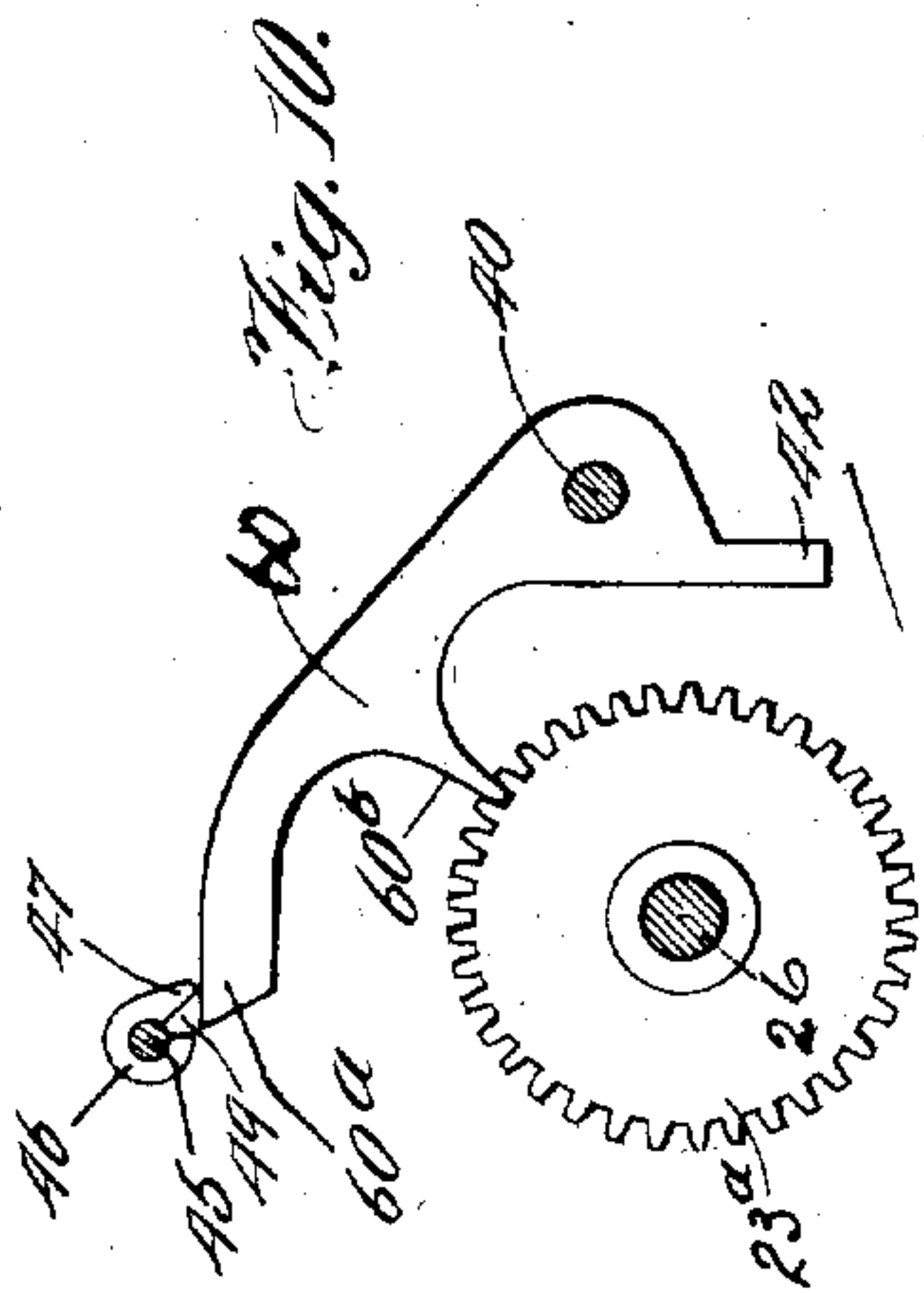
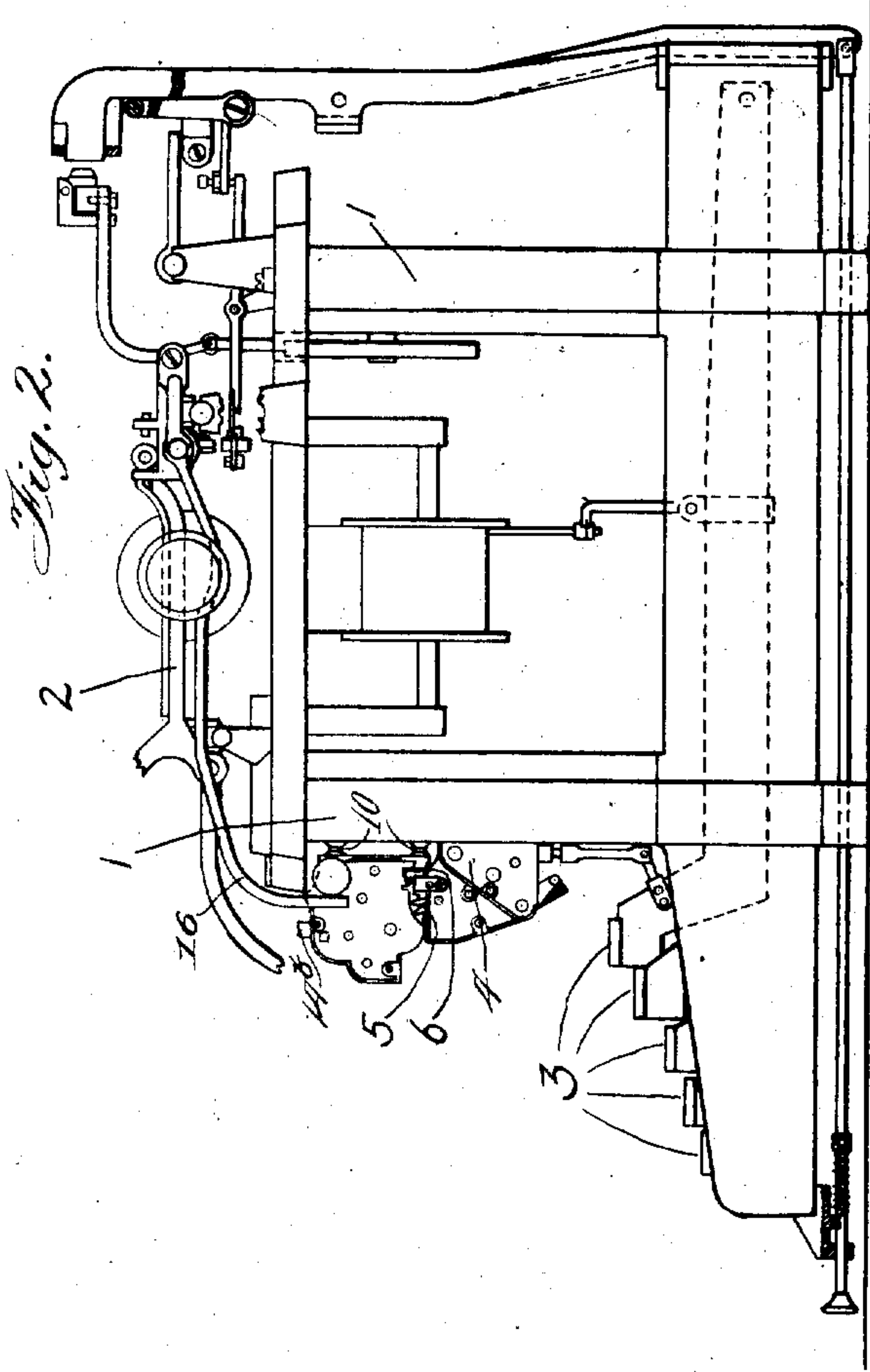
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5 SHEETS—SHEET 2.



Witnesses:

W. D. Perry
W. P. Kilroy

Inventors:

John C. Wahl
Hyman E. Goldberg

By *Chever & Cox* Attys.

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5 SHEETS—SHEET 3.

Fig. 4.

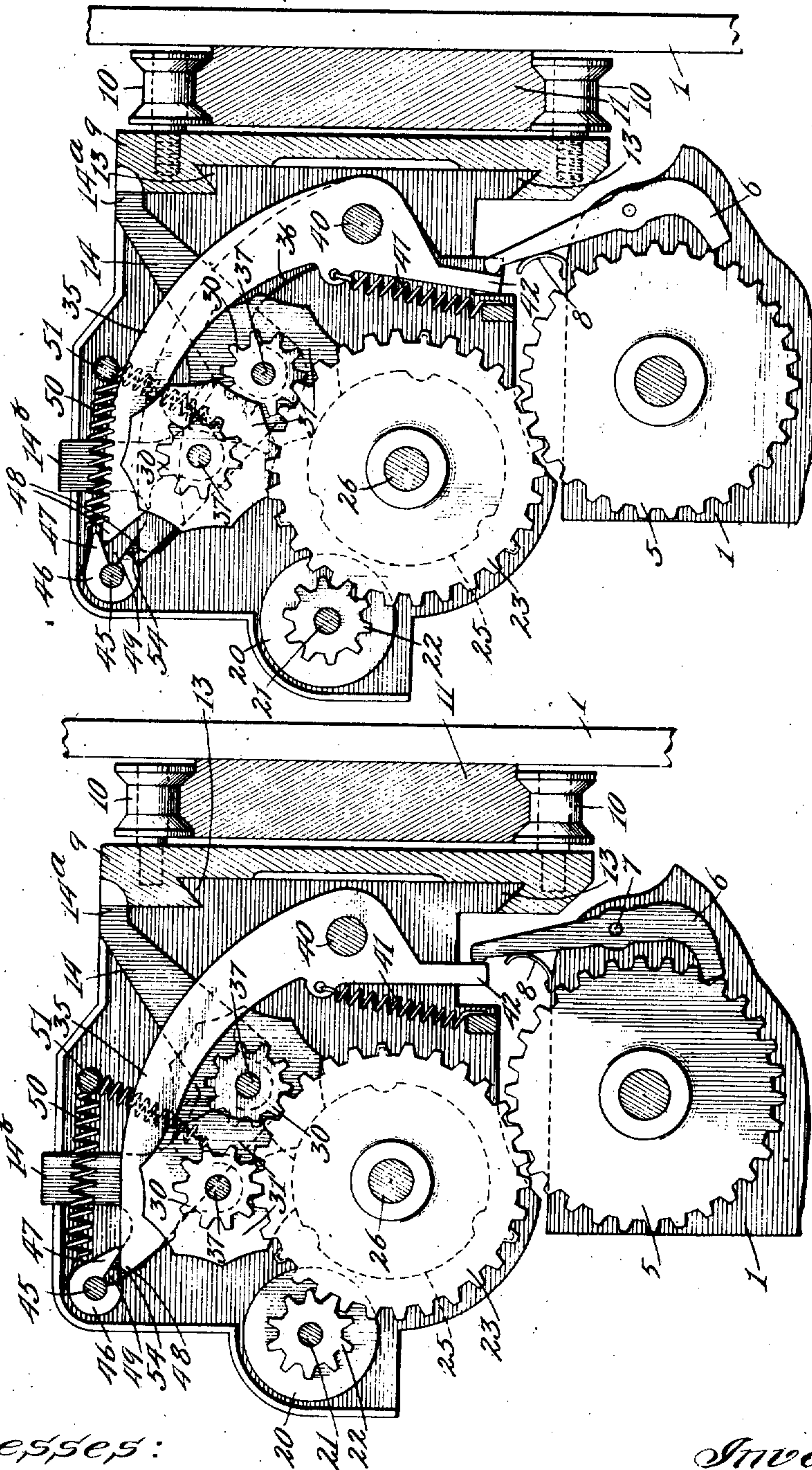


Fig. 3.

Witnesses:
D. D. Perry
W. Kilroy

Inventors
John C. Wahl
Hymen E. Goldberg
By Chever & Cox Attys

No. 896,871.

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J. C. WAHL & H. E. GOLDBERG.

CALCULATING MACHINE.

APPLICATION FILED MAR. 18, 1908.

5 SHEETS—SHEET 4.

Fig. 5.

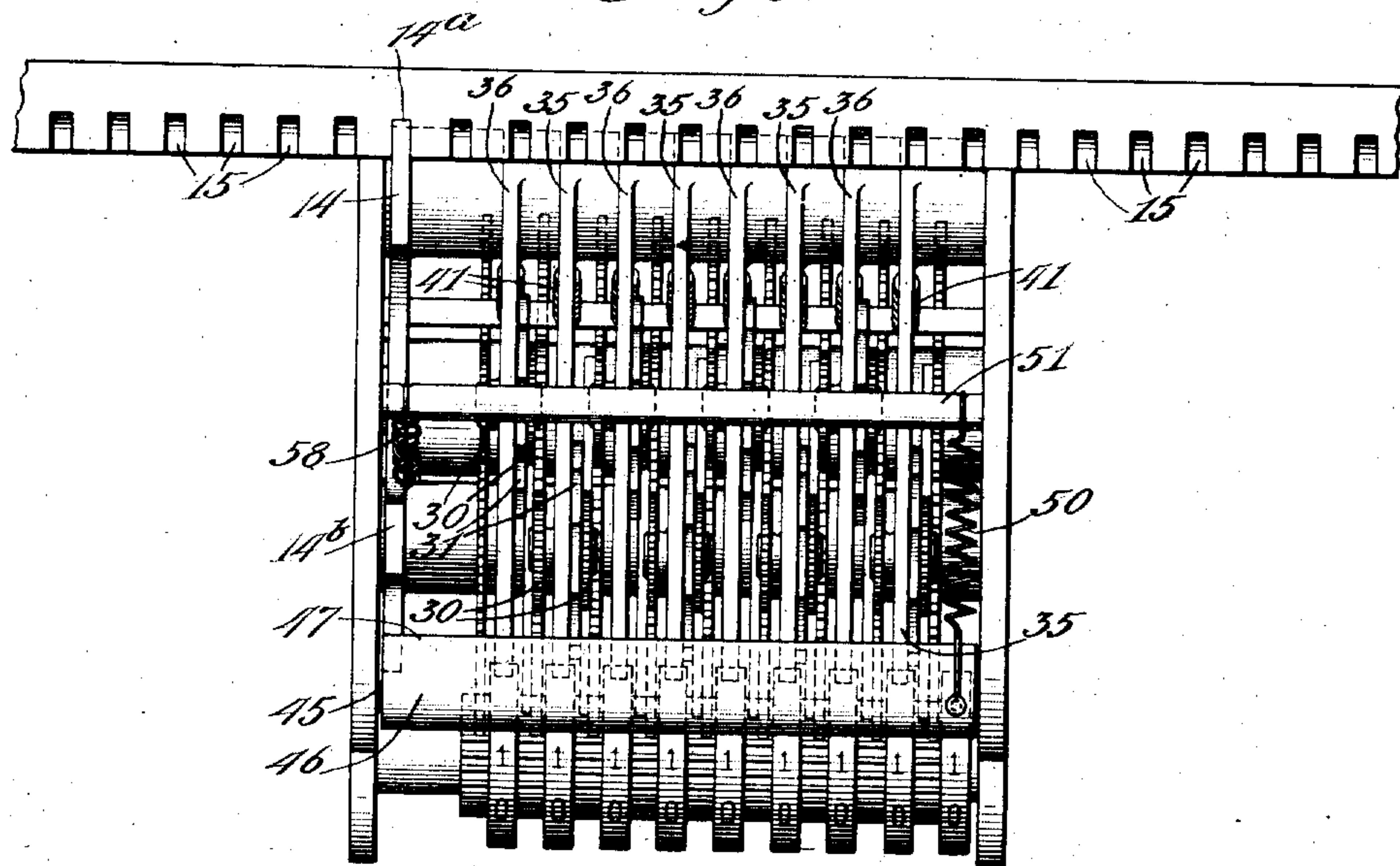


Fig. 6.

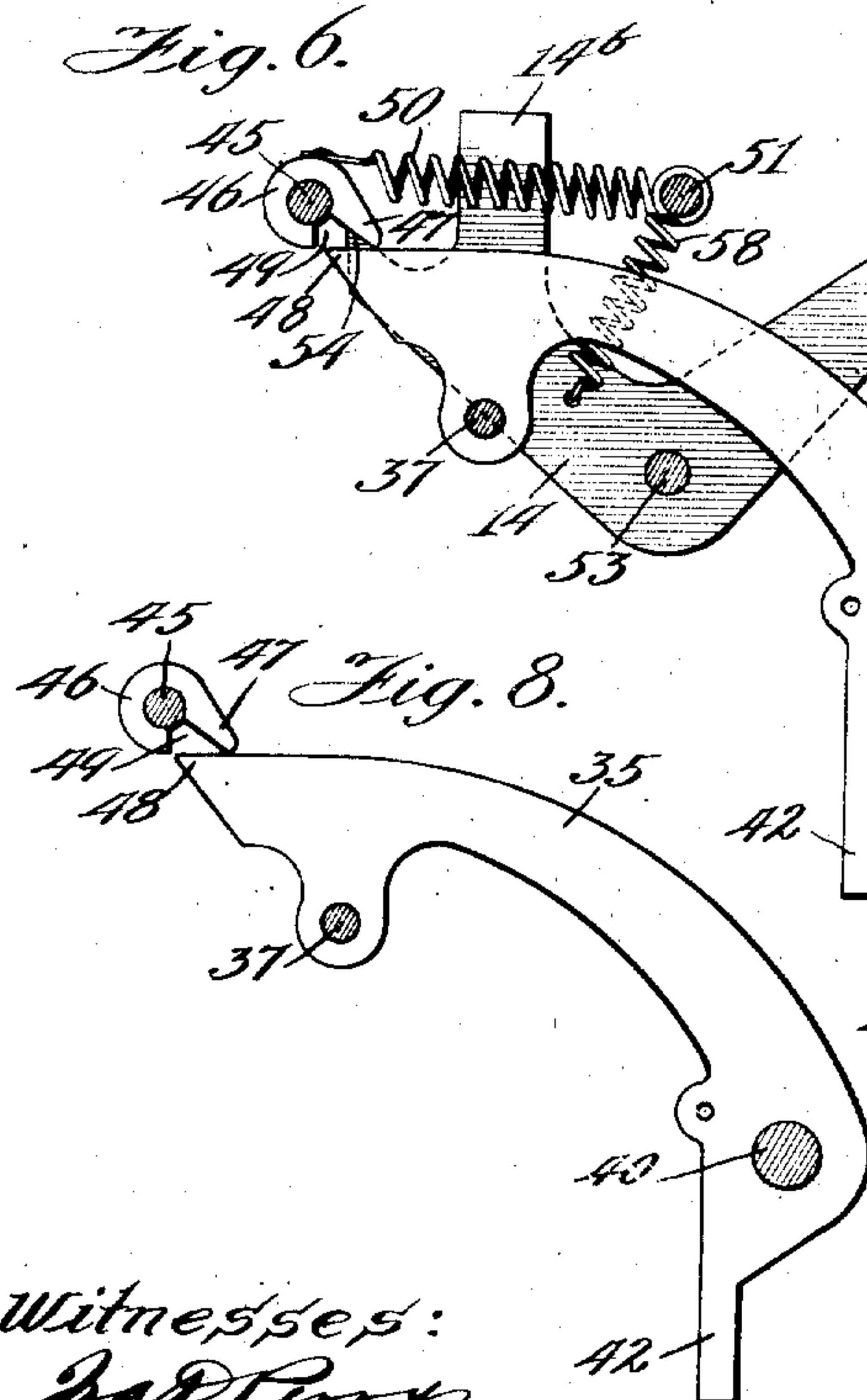


Fig. 8.

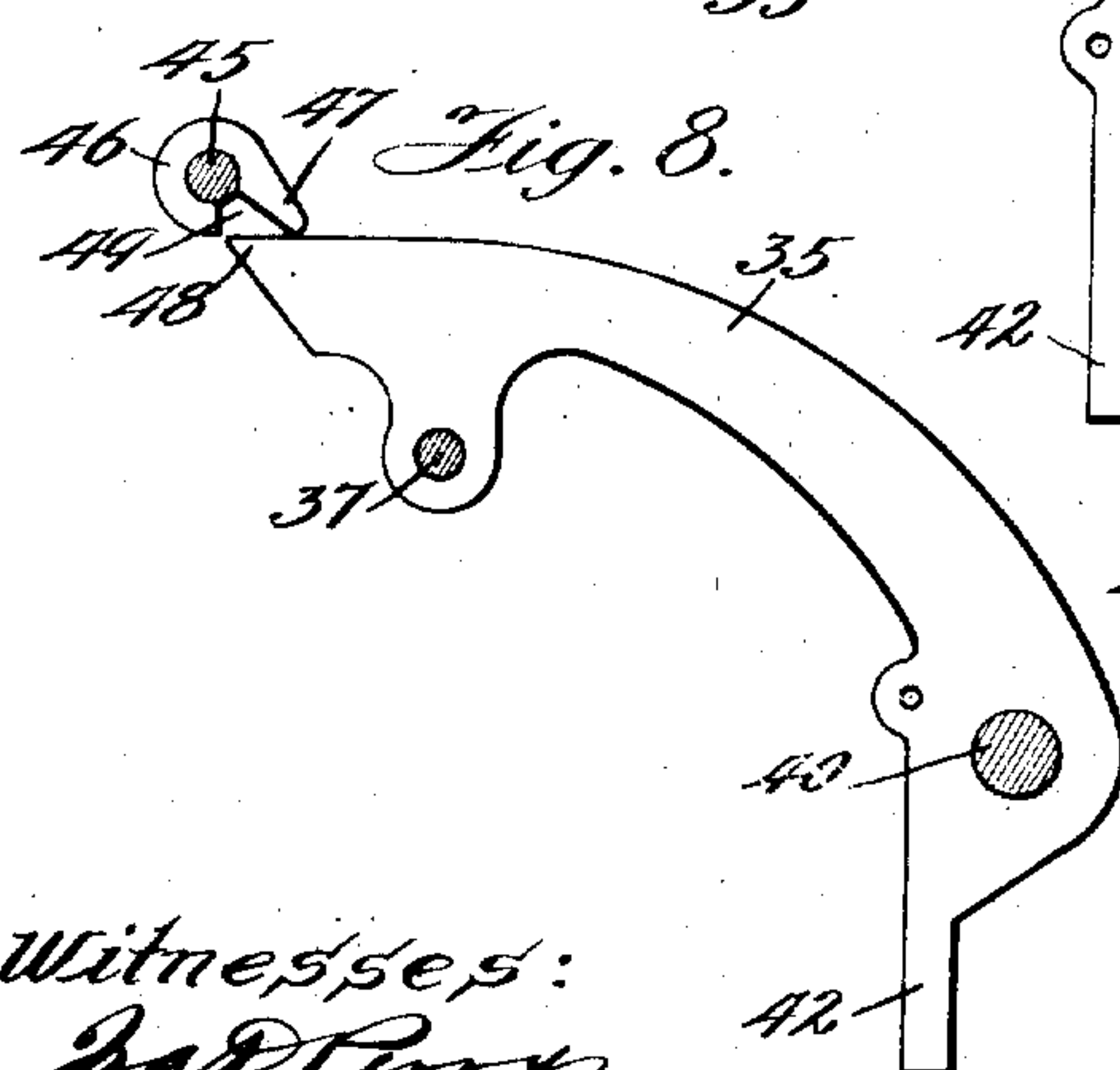


Fig. 7.

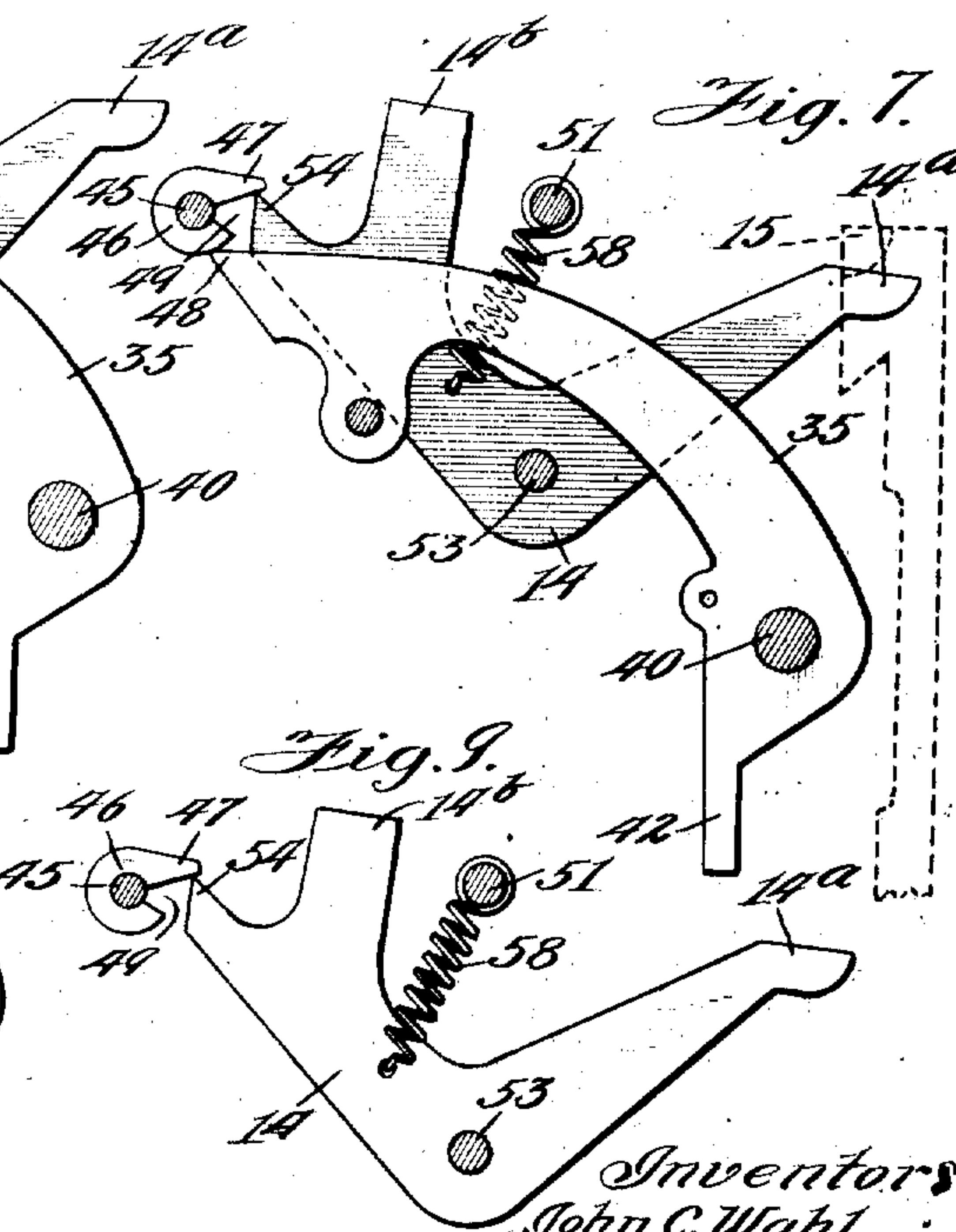
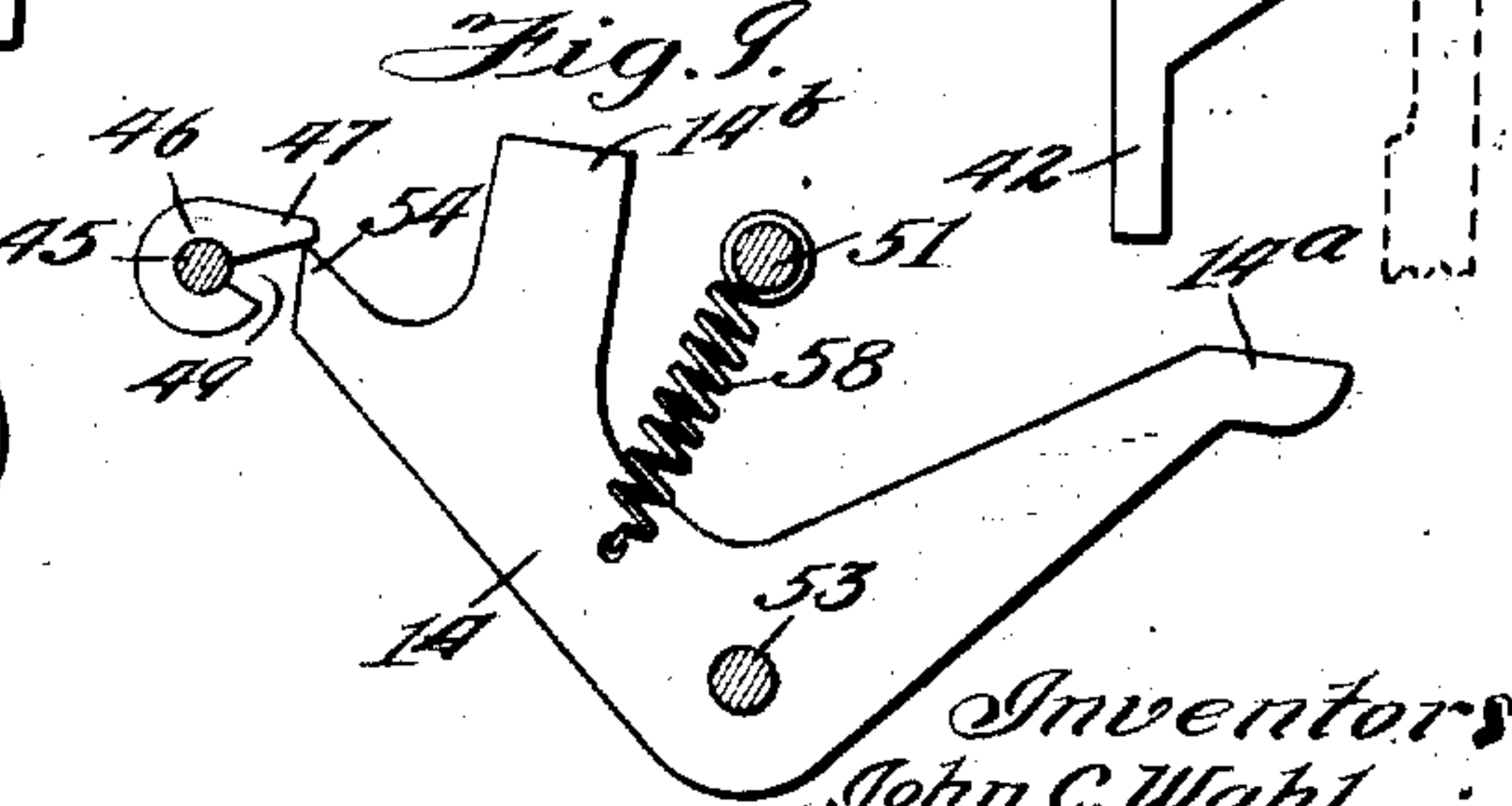


Fig. 9.



Witnesses:
Wm. D. Perry
W. P. Kilroy

Inventors
 John C. Wahl
 Hyman E. Goldberg
 By *Chever & Cox* Attys.

No. 896,871.

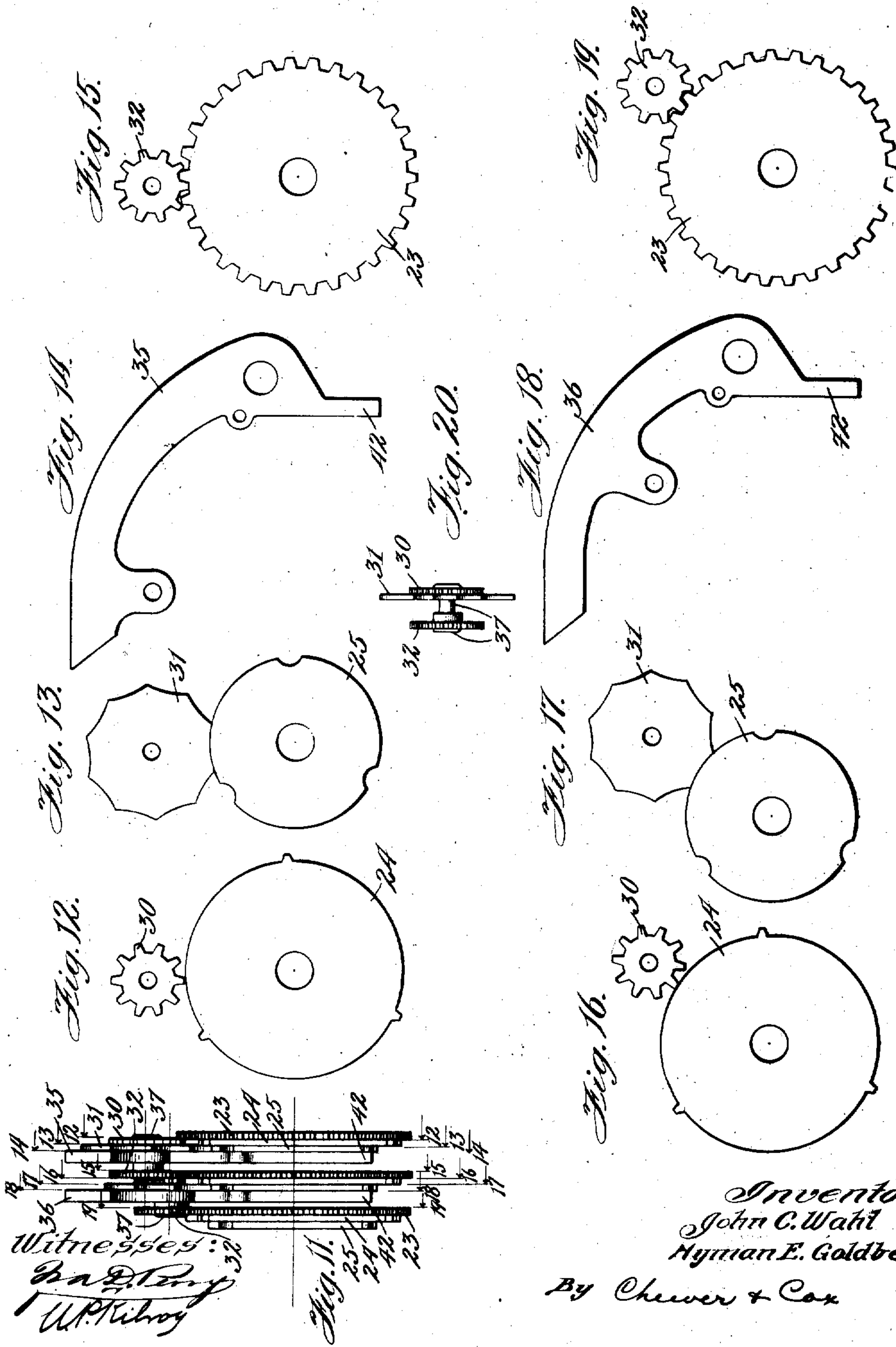
PATENTED AUG. 25, 1908.

J. C. WAHL & H. E. GOLDBERG.

CALCULATING MACHINE.

APPLICATION FILED MAR. 16, 1908.

6 SHEETS—SHEET 5.



Inventors
John C. Wahl
Hymian E. Goldberg
By Chewer & Cox

UNITED STATES PATENT OFFICE.

JOHN C. WAHL AND HYMAN E. GOLDBERG, OF CHICAGO, ILLINOIS, ASSIGNORS OF ONE-HALF TO GOLDBERG CALCULATING MACHINE COMPANY AND ONE-HALF TO WAHL ADDING MACHINE COMPANY, BOTH OF CHICAGO, ILLINOIS, CORPORATIONS OF ILLINOIS.

CALCULATING-MACHINE.

No. 886,871.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed March 16, 1908. Serial No. 421,288.

To all whom it may concern:

Be it known that we, JOHN C. WAHL and HYMAN E. GOLDBERG, citizens of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Calculating-Machines, of which the following is a specification.

This invention relates to calculating machines including calculating attachments to typewriters and is more especially concerned with certain safety devices connected with the totalizer as will hereinafter more fully appear.

In the accompanying drawings where similar reference characters denote similar parts: Figures 1 and 2 are front and end views respectively of mechanism embodying the invention. Figs. 3 and 4 are sectional views of the totalizer and parts directly associated therewith. The views show different positions of the swingholders, the swingholder lock and the arm by which the swingholders are operated. Fig. 5 is a plan view of the parts shown in Figs. 3 and 4. Figs. 6 and 7 are side views of a swingholder, and swingholder lock and of the latch which operates the swingholder lock and also prevents the totalizer from slipping sidewise upon the truck. Fig. 8 is a side view of the swingholder and lock. Fig. 9 is a side view of the latch and swingholder lock. Fig. 10 is a side view of the detent which locks the units carrying wheel and corresponds in certain respects to the swingholders which support the carrying pinions. Fig. 11 is a front elevation of some of the carrying wheels, carrying pinions and swingholders showing their relative positions. Figs. 12 to 19 are sectional views taken on the lines 12-12 to 19-19 inclusive in Fig. 11. The views are all taken looking from right to left as indicated by the arrows in Fig. 11. Fig. 20 shows a carrying pinion.

Although this invention is not restricted to so called "typewriter calculating attachments", it has special merit when used in this connection and therefore a typewriter attachment has been selected to illustrate the invention. The particular form of typewriter shown is a Remington and has a stationary framework 1 which supports a traveling carriage 2 and is provided with letter and numeral keys 3. As the Remington

type of machine is well known, no description is necessary except to say that the carriage travels laterally from right to left when the keys are operated.

In the calculating attachment chosen for illustration, a differential mechanism 4, which includes a master wheel 5, is so constructed and so connected to the numeral keys that when a key is depressed said wheel will rotate an amount corresponding to the value of the key struck. As the particular form of differential mechanism is not essential in the present invention, a detailed description is unnecessary here but may be found, for example, in the application of John C. Wahl, filed October 23, 1905, Serial No. 283,887.

The master wheel is rotatable but not laterally movable, and in the present design serves to operate both the carrying wheels (hereinafter described) and the arm 6, which arm in turn operates the swingholders in the manner hereinafter described. Arm 6 is pivoted upon a stationary pin 7 mounted in the framework 1 and is wedge shaped at its lower extremity where it enters between the teeth of master wheel 5 in such manner that the rotation of said master wheel in either direction will swing the arm about its pivot. By preference a spring 8 urges arm 6 in a clockwise direction so that normally the arm will occupy the position shown in Fig. 3 in which the lower extremity is between two adjacent teeth of the wheel, but when said wheel is rotated so as to bring a tooth instead of a space opposite to it said arm occupies a position shown in Fig. 4. The essential feature of said arm and its operating means is that when the master wheel 5 is in normal rest position the arm will be non active upon the swingholder but when said master wheel is rotating or a tooth is in contact with the arm, the latter will be active upon the swingholder to raise the carrying pinion from the carrying wheel as shown in Fig. 4. The particular manner of accomplishing these relative actions is immaterial and an advantageous construction for accomplishing the result in another manner is shown and described in the applications of John C. Wahl, filed April 17, 1905, Serial No. 265,141, and October 23, 1905, Serial No. 283,887.

The totalizer is supported upon a truck 9 provided with rollers 10 adapted to travel upon the track or way 11 rigidly secured to the framework 1. The operating parts of the totalizer are supported in a casing which includes the side walls 12. In the design here shown the truck has a dovetail groove adapted to receive the dovetails 13 formed on said walls. This holds the totalizer upon the truck and at the same time permits it to slide laterally thereon for adjustment. Side-wise movement of the totalizer upon the truck is prevented by means of a latch 14 having a finger 14^a adapted to enter the notches 15 in said truck.

The truck is connected to the arm 16 which is rigidly fastened to the typewriter carriage 2 so that when the carriage travels from side to side of the typewriter the totalizer truck does likewise.

In the totalizer, a set of figure wheels 20 is mounted upon the shaft 21 carried by the totalizer walls 12. Upon the side of each figure wheel is fastened a gear wheel 22 which is adapted to mesh with the gear section 23 of the associated carrying wheel. Each carrying wheel is composed of three sections, a gear section 23, a carrying section 24 and a locking section 25. These are so arranged that when viewed from the right, as indicated by the arrows in Fig. 11, the section 23 comes first, the section 24 second, and the section 25 last. These sections are either rigidly fastened together or constructed of a single piece. Coöperating with the carrying wheels are carrying pinions each of which consists of three sections to wit, a gear section 30 adapted to be rotated by the carrying section 24, a locked section 31, adapted to coöperate with the locking section 25, and a gear section 32 adapted to coöperate with the gear sections 23, as shown in Figs. 12, 13 and 15 respectively. The sections of the pinions are either rigidly fastened together or are constructed of a single piece and the parts are so arranged that the sections 30 and 31 of a given pinion coöperate with one carrying wheel while the section 32 coöperates with the carrying wheel of next higher order.

The precise construction of the carrying wheels and carrying pinions is unimportant, the essential idea being that when the parts are in mesh, the movement of one carrying wheel will be suitably "carried" to the carrying wheel of next higher order in the well known manner. In the present totalizer when a given carrying wheel rotates ten spaces the carrying wheel of next higher order will be rotated one space and will in the meantime be locked by the carrying pinion. The construction is therefore such that when the carrying pinions are in mesh with the carrying wheels, the totalizer is locked from one end to the other and the rotation of any car-

rying wheel independently of the carrying wheels of lower order is impossible. But such rotation is necessary in order to permit the master wheel to operate the totalizer in its different ordinal places, and mechanism is therefore provided for releasing the carrying wheel at the acting point by withdrawing or unmeshing therefrom the carrying pinion which connects it with the carrying wheel of next lower order. This meshing and unmeshing of the carrying pinions is accomplished by mounting them on the swingholders 35 and 36 whereon the carrying pinions are freely rotatable. These swingholders are shown separately in Figs. 14 and 18. The swingholders all perform the same function but each varies in design from the one located to the left and right of it in order to hold the alternate carrying pinions at different points on the circumference of the carrying wheels. This arrangement is desirable for certain reasons, the most important of which is that it affords more room for the parts and makes it possible to make the totalizer more compact than it otherwise could be without reducing the size of the parts. The swingholders are all independently rotatable upon the shaft 40 fixed in the totalizer walls 12. Tension springs 41 each having one end fastened to the totalizer casing and the other end to a swingholder, urge swingholders in such direction as to hold the carrying pinions in mesh with the carrying wheels. The swingholders each have an extension 42 adapted to be acted upon by the arm 6 to raise the carrying pinions out of mesh with the carrying wheels. The construction is such that whenever the master wheel 5 engages a carrying wheel 23 and is rotated, it will act upon the arm 6, which will in turn act upon that particular swingholder 42, which carries the carrying pinion which locks said engaged carrying wheel 23. The mechanism thus far described has been shown and described in the aforesaid Wahl applications (except as to the particular method of operating the arm 6), and is not herein claimed. The parts which are herein claimed as new and which embody the present invention will now be described.

It has been mentioned that when a carrying wheel is to be rotated, the pinion connecting it with the carrying wheel of lower order must be unmeshed. It is obvious however, that all the carrying pinions of higher order must be positively held in mesh in order that the carrying action may occur. We have provided novel means for automatically locking the remaining swingholders in place the moment the swingholder at the acting point rises. And this locking means constitutes one of the features of novelty of this invention. Upon a shaft 45 fastened in the totalizer walls 12 is a universal locking bar 46

which extends across all of the swingholders as best indicated in Figs. 3 to 8 inclusive. Said bar is freely rotatable upon its shaft and is cylindrical except for a lip 47 which extends across the teeth or extensions 48 of the swingholders, and a notch 49 which is provided for clearing the rising swingholder. The parts are so designed that when any swingholder rises from normal meshing position, the tooth 48 on said rising holder will engage the lip 47 of the locking bar and immediately bring the cylindrical portion of said bar over the teeth of all of the remaining swingholders, thereby preventing their rising. Consequently as soon as any swingholder is raised, all of the remaining swingholders are effectually locked in such position as to hold their carrying pinions in mesh with the carrying wheels. A spring 50 which is fastened at one end to the locking bar 46 and at the other end to a rod 51 fastened in the side walls 12 tends to return the locking bar to normal position shown in Figs. 3, 6 and 8, in which position it permits any one of the swingholders to rise.

As an additional feature of this invention means are provided for throwing the locking bar into active locking position whenever the totalizer is completely removed from the totalizer truck 9. It sometimes becomes desirable to thus remove the totalizer and yet carefully preserve the total appearing thereon. This is accomplished in our mechanism by means of a latch 14 pivoted upon a stud 53 fastened in one of the side walls. Said latch has a tooth 52 similar in design and function to the swingholder teeth 48. A spring 58 is fastened at one end to said latch and at the other end to bar 51 in such manner that the spring will tend to hold the latch in a position where it will act upon the lip 47 of the locking bar to hold the swingholders depressed as shown in Fig. 7. As previously described, the latch 14 has a finger 14^a adapted to lodge within the slots 15 of the truck 9. The parts are so proportioned that when said finger is in engagement with the truck, it will be held up and the tooth 54 will be held down out of engagement with lip 47, as shown in Fig. 6. But when said truck is absent because of the removal of the totalizer therefrom, said finger will be permitted to drop and lift the tooth 54 to act upon the locking bar 46 as shown in Fig. 7. Thus when the totalizer is upon the truck the latch 14 will be held in non active position but when said totalizer is removed, said latch will automatically, under the influence of spring 58, drop to acting position to hold the bar 46 in locking position, thus preventing rotation of the wheels of the totalizer.

In order to permit the finger 14^a to be lifted to admit of lateral adjustment of the totalizer upon the truck or complete removal

therefrom, a handle 14^b is formed in convenient position upon the latch as indicated for example in Figs. 6 to 9.

It has been indicated that the totalizer will be completely locked in all of its parts when the carrying pinions are in mesh, provided the units carrying wheel is held from rotating. Means for thus locking the units carrying wheel are provided and are shown in Fig. 10 wherein a locking member 60, pivoted upon the shaft 40, has a detent tooth 60^b adapted to engage the teeth of the gear section 23^a of the units carrying wheel. Said locking member has a tooth 60^a adapted to operate and to be locked by the locking bar 46 and has an extension 42 for engagement by the operating arm 6, in which respects it is like the swingholders 35 and 36.

What we claim as new, and desire to secure by Letters Patent, is:

1. A totalizer having carrying wheels, carrying pinions for cooperating with them to carry, a movable supporting member for supporting each carrying pinion and bringing it into and out of cooperative relation with the carrying wheels, and locking means adapted to be operated by one movable supporting member for preventing movement of the others.

2. A totalizer having carrying wheels, carrying pinions adapted to mesh with them, swingholders adapted to bring said pinions into and out of mesh with said wheels, and locking means operative by said swingholders for locking in place the ones not moving simultaneously with them.

3. A totalizer having carrying wheels, swingholders, carrying pinions mounted on said swingholders and adapted to be moved by them into and out of engagement with said carrying wheels, and locking means adapted to be operated by any number of said swingholders for holding the remaining swingholders in place.

4. In a totalizer, the combination of carrying wheels, swingholders, carrying pinions mounted on said swingholders and adapted to be moved by them into and out of engagement with said carrying wheels, and a locking member for locking said swingholders in normal position, said locking member being rendered operative by any one of said swingholders in its movement from normal position.

5. In a totalizer, the combination of carrying wheels, swingholders, carrying pinions mounted on said swingholders and adapted to be moved by them into and out of engagement with said carrying wheels, said carrying wheels and pinions being so constructed that a carrying wheel of given order will be rotated intermittently, to carry, and will in the meantime be locked by the carrying pinion and carrying wheel of next lower or-

der, and a locking member for locking said swingholders in normal position in which the carrying pinions are in engagement with their carrying wheels, said locking member being rendered operative by any one of said swingholders in its movement from normal position.

6. In a totalizer, the combination of carrying wheels, carrying pinions, swingholders adapted to move said carrying pinions into and out of engagement with said carrying wheels, and a rotatable locking bar for locking said swingholders in place, with their carrying pinions in engagement with the carrying wheels, said locking bar being adapted to be rotated by a moving swingholder to lock the unmoved swingholders.

7. In a totalizer, carrying wheels, carrying pinions, pinion-supporting members adapted to move to bring said pinions into and out of engagement with said carrying wheels, locking means adapted to be operated by a moving one of said supporting members to hold the unmoved ones in place, and means for returning said locking means to its non-locking position after having thus been operated.

8. In a totalizer, carrying wheels, carrying pinions, swingholders for supporting said pinions to move them into and out of engagement with the carrying wheels, a locking member for locking the swingholders in normal position with the carrying pinions in engagement with the carrying wheels said locking member normally occupying a position permitting movement of said swingholders, said locking member being adapted to be moved to locking position by a swingholder in its motion from normal position, and means for returning said locking member to normal position.

9. In a totalizer, carrying wheels, carrying pinions, swingholders for supporting said pinions to move them into and out of engagement with the carrying wheels, a locking bar adapted to be operated by the movement of one or more of said swingholders to lock the unmoved swingholders in place and a spring adapted to return said locking bar to its non locking position.

10. In a totalizer, carrying wheels and carrying pinions adapted to make positive gear connections with each other whereby a given totalizer wheel may be intermittently rotated and locked in the meantime, swingholders each supporting a carrying pinion and adapted to move it into and out of mesh with the carrying wheels, and a universal locking bar operative upon all of the swingholders, said locking bar normally occupying a non locking position and being adapted to be moved by any number of said swingholders to locking position, and means tending to return said locking bar to non locking position.

11. In a totalizer, carrying wheels and car-

rying pinions adapted to make positive geared connection with each other whereby a given carrying wheel is intermittently rotated and in the meantime locked, and swingholders adapted to support said carrying pinions in a plurality of groups located at different points with respect to the periphery of said carrying wheels, said swingholders being each adapted to move its carrying pinion into and out of engagement with the carrying wheels, a locking bar adapted to be moved by any one of said swingholders to locking position, said locking bar being adapted to hold in place all of the unmoved swingholders.

12. In a totalizer, carrying wheels, carrying pinions adapted to mesh with them, swingholders adapted to move said pinions into and out of engagement with said wheels and a substantially cylindrical rotatable locking bar having a lip whereby any of the swingholders may rotate the bar to locking position with its cylindrical portion opposed to the unmoved swingholders to prevent motion of said unmoved swingholders.

13. In a totalizer, carrying wheels, carrying pinions adapted to mesh with them, swingholders adapted to move said pinions into and out of engagement with said wheels, a substantially cylindrical rotatable locking bar having a lip whereby any of the swingholders may rotate the bar to locking position with its cylindrical portion opposed to the unmoved swingholders to prevent motion of said unmoved swingholders, and a spring adapted to urge said locking bar to rotate to its non locking position.

14. In a calculating machine, the combination with a differential mechanism, of a totalizer traveling relatively thereto, said totalizer comprising carrying wheels, carrying pinions, adapted to mesh with said carrying wheels, swingholders for supporting said pinions and adapted to move them into and out of mesh with the carrying wheels and locking means for locking the swingholders in normal position with the carrying pinions in mesh with the carrying wheels, said locking means being adapted to be moved to locking position by the swinging movement of a swingholder, said differential mechanism including means for thus swinging the swingholder at the operating point in the totalizer, all the swingholders thus being locked in place except the swingholder at the operating point.

15. In a calculating machine, the combination with a differential mechanism of a totalizer traveling relatively thereto and adapted to be operated thereby, said totalizer comprising carrying wheels, carrying pinions, swingholders for moving said pinions into and out of mesh with said carrying wheels, means in the differential mechanism

for acting upon the swingholder at the operating point in the totalizer to bring the supported carrying pinion out of mesh with its carrying wheels, and the rotatable locking bar adapted to be rotated to locking position by the swinging movement of said swingholder, said locking bar when in locking position being adapted to hold all of the unmoved swingholders in place.

16. In a calculating machine, the combination with a differential mechanism of a totalizer traveling relatively thereto and adapted to be operated thereby, said totalizer comprising carrying wheels, carrying pinions, swingholders for moving said pinions into and out of mesh with said carrying wheels, means in the differential mechanism for acting upon the swingholder at the operating point in the totalizer to bring the supported carrying pinion out of mesh with its carrying wheels, said swingholders normally occupying a position to hold the carrying pinions in mesh with the carrying wheels, a locking bar adapted to lock all of the swingholders in their normal position, said locking bar being spring urged to normally occupy a non locking position and being adapted to be rotated to locking position by the swinging movement of the swingholder at the operating point in the totalizer.

17. In a calculating machine, a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck, and adapted to be operated by said differential mechanism, said totalizer including carrying members and locking means for locking them, and a latch normally tending to put the locking means in locking condition, said latch being retractable whereby it may be rendered inactive.

18. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck, and adapted to be operated by said differential mechanism, said totalizer including carrying members and locking means for locking them, and a latch normally tending to put the locking means into locking condition, said latch being adapted to be rendered inactive by the truck when the totalizer is in position thereupon.

19. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck, and adapted to be operated by said differential mechanism said totalizer including carrying members and locking means for locking them, and a latch normally tending to put the locking means into locking condition, said latch being adapted to be rendered inactive by the hand of the operator.

20. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck and adapted to be operated by said differential mechanism, said totalizer including carrying wheels, carrying pinions for alternately locking and rotating them and swingholders for moving said carrying pinions into and out of engagement with said wheels, and locking means for locking said swingholders in normal position in which the carrying pinions are in engagement with the carrying wheels, and a latch normally tending to put said locking means into locking condition, said latch being retractable, whereby it may be rendered inactive.

21. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck and adapted to be operated by said differential mechanism, said totalizer including carrying wheels, carrying pinions for alternately locking and rotating them and swingholders for moving said carrying pinions into and out of engagement with said wheels, and locking means for locking said swingholders into normal position in which the carrying pinions are in engagement with the carrying wheels, and a latch normally tending to put said locking means into locking condition, said latch being retractable, and adapted to be rendered inactive by the truck when the totalizer is in position thereupon.

22. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck, and adapted to be operated by said differential mechanism, said totalizer including carrying members and locking means for locking them, and a trip member normally tending to put the locking means into locking condition, said latch being retractable whereby it may be rendered inactive, said latch being adapted to cooperate with said truck to prevent sidewise slipping of the totalizer with reference thereto.

23. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck, and adapted to be operated by said differential mechanism, said totalizer including carrying members and locking means for locking them, and a latch normally tending to put the locking means in locking condition, said latch being adapted to be rendered inactive by the truck when the totalizer is in position thereupon, said latch being adapted to cooperate with said truck to prevent sidewise slipping of the totalizer with reference thereto.

24. In a calculating machine, the combi-

nation of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck and adapted to be operated by said differential mechanism, said totalizer including carrying wheels, carrying pinions for alternately locking and rotating them and swingholders for moving said carrying pinions into and out of engagement with said wheels, and a movable locking bar adapted to be moved to locking position by the motion of any one of the swingholders for locking the remaining swingholders in place, and a latch normally tending to hold said locking bar in locking position, said latch being adapted to be held by the truck in non acting position when the totalizer is in place thereupon.

25. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck and adapted to be operated by said differential mechanism, said totalizer including carrying wheels, carrying pinions for alternately locking and rotating them and swingholders for moving said carrying pinions into and out of engagement with said wheels, and a rotatable locking bar mounted in the totalizer and moving laterally therewith and adapted to be rotated to lateral position by the motion of any one of the swingholders for locking the remaining unmoved swingholders in place, and a latch normally tending to hold said locking bar in locking position, said latch being adapted to be held in non acting position by the truck when the totalizer is in place thereon.

26. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck and adapted to be operated by said differential mechanism, said totalizer including carrying wheels, carrying pinions for alternately locking and rotating them and swingholders for moving said carrying pinions into and out of engagement with said wheels, and a rotatable locking bar mounted in said totalizer, said bar being adapted when in normal position to permit movement of the swingholders from their normal position in which the carrying pinions are in engagement with the carrying wheels, and said locking bar being adapted to be rotated to locking position to prevent the movement of any of the unmoved swingholders from normal position, said locking bar being adapted to be engaged by any one of the swingholders for rotating said locking bar into locking position whereby the movement of any one of the swingholders will cause the remaining swingholders to be locked in unmoved position, a spring urging said locking bar to said normal position and a latch also mounted in said total-

izer and normally tending to rotate said locking bar to locking position, said latch being adapted to be held in non acting position by the truck when the totalizer is in position upon said truck.

27. In a calculating machine, the combination of a differential mechanism, a truck traveling relatively thereto, and a totalizer removably mounted on said truck and adapted to be operated by said differential mechanism, said totalizer including carrying wheels, carrying pinions for alternately locking and rotating them and swingholders for moving said carrying pinions into and out of engagement with said wheels, and a rotatable locking bar mounted in said totalizer, said bar being adapted when in normal position to permit movement of the swingholders from their normal position in which the carrying pinions are in engagement with the carrying wheels, and said locking bar being adapted to be rotated to locking position to prevent the movement of any of the unmoved swingholders from normal position, said locking bar being adapted to be engaged by any one of the swingholders for rotating said locking bar into locking position whereby the movement of any one of the swingholders will cause the remaining swingholders to be locked in unmoved position, a spring urging said locking bar to said normal position and a latch also mounted in said totalizer and normally tending to rotate said locking bar to locking position, said latch being adapted to be held in non acting position by the truck when the totalizer is in position upon said truck, said latch also being adapted to cooperate with said truck to hold said totalizer in any desired position laterally upon said truck.

28. A totalizer having carrying wheels, carrying pinions adapted to mesh with them, swingholders adapted to bring said pinions into and out of mesh with said wheels, a detent for locking and releasing the carrying wheel of lowest order, and locking means for locking said swingholders and said detent in normal position in which said pinions and detent are in engagement with the carrying wheels, said locking means being normally in non locking position and being adapted to be put into locking position by said detent and by any one of said swingholders.

29. A totalizer having a series of cooperating carrying wheels normally in engagement with each other, releasing means for breaking the connection between the carrying wheel at the operating point and the one of next lower order, and mechanism for locking the remaining carrying wheels in engagement with each other, said locking mechanism being adapted to be operated by said releasing means.

30. A totalizer having carrying wheels,

carrying pinions for coöperating with them
to carry, said carrying wheels and carrying
pinions being normally in engagement with
each other, releasing means for breaking the
5 connection between the carrying wheel at the
operating point and the pinion which con-
nects it to the carrying wheel of next lower
order, and mechanism for locking the re-
maining carrying wheels and pinions in en-

gagement with each other, said locking mech- 10
anism being adapted to be operated by said
releasing means.

JOHN C. WAHL.
HYMAN E. GOLDBERG.

Witnesses:

E. BOTKIN,
B. O. KING.