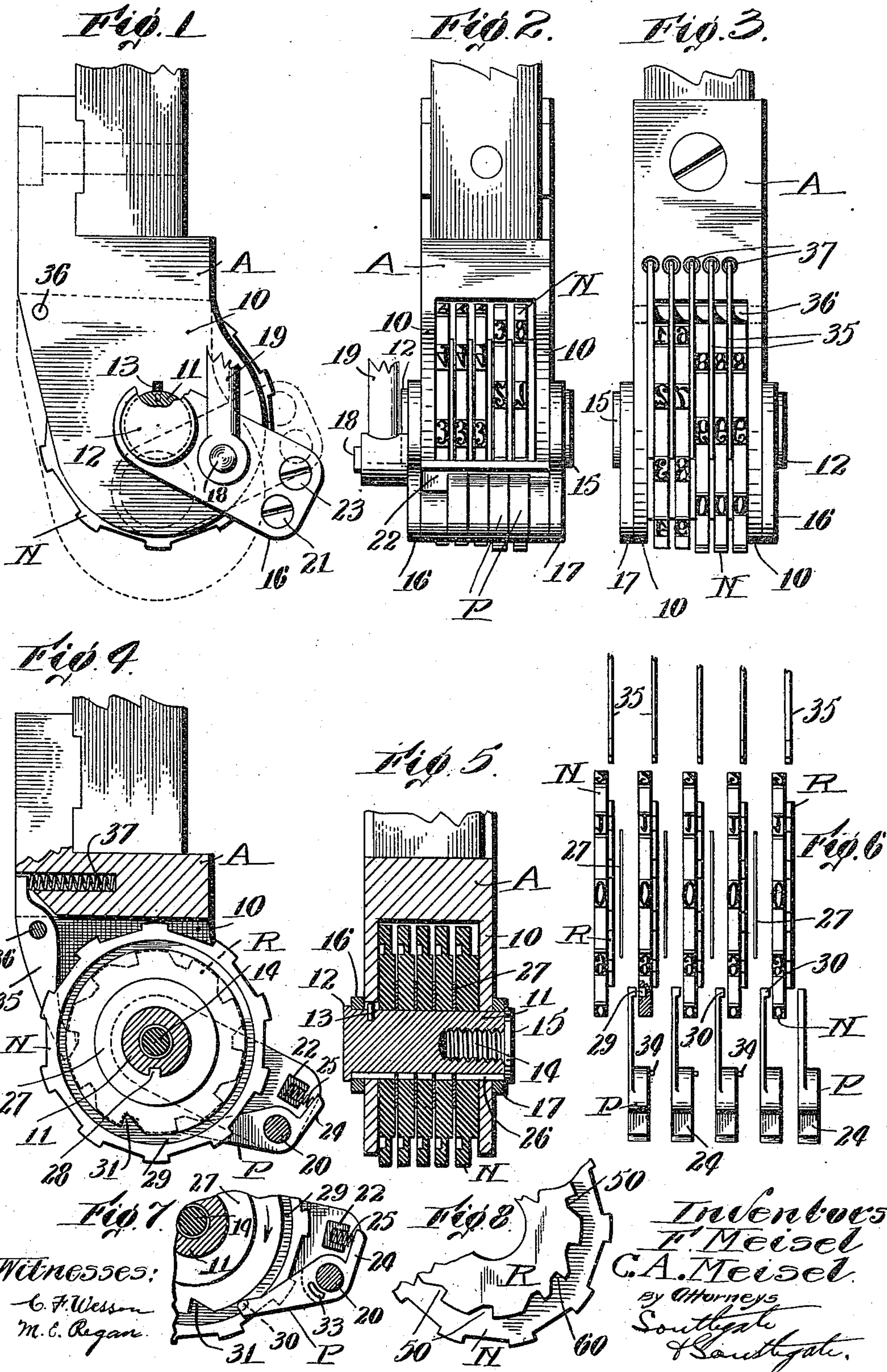


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 NUMBERING HEAD.  
 APPLICATION FILED DEC. 21, 1907.

989,860.

Patented Apr. 18, 1911.





# UNITED STATES PATENT OFFICE.

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## NUMBERING-HEAD.

989,860.

Specification of Letters Patent.

Patented Apr. 18, 1911.

Application filed December 21, 1907. Serial No. 407,561.

*To all whom it may concern:*

Be it known that we, FRANCIS MEISEL and CHARLES A. MEISEL, citizens of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Numbering-Head, of which the following is a specification.

This invention relates to improvements in the construction of numbering heads such as are used for printing numbers consecutively. In devices of this character difficulty is met in preventing improper printing particularly by the numbering disks which print the larger numbers, as the hundreds, thousands, tens of thousands, etc.

The principal object of this invention is to overcome this difficulty in an efficient and simple way. This object is preferably secured by providing a separating washer between each of the numbering disks arranged so that no two numbering disks will frictionally bear on each other, by providing means for controlling the operating pawls so that they will be prevented from improper printing, and by causing the pawl for operating the units numbering disk to operate independently of all the other pawls.

Further objects and advantages of the invention will appear hereinafter.

One embodiment of the invention is illustrated in the accompanying drawing in which—

Figure 1 is a side elevation. Fig. 2 is a rear elevation. Fig. 3 is a front elevation. Fig. 4 is a sectional elevation showing the units numbering disk. Fig. 5 is a cross sectional elevation. Fig. 6 is a view showing the parts separated to illustrate the coöperation. Fig. 7 is a detail view of one of the operating pawls for one of the large numbering disks, and Fig. 8 is a side view showing one of these large numbering disks in detail.

A is a support, which can be secured to a reciprocating head or to a rotatable part in the usual manner. The support is cut away so as to have two sides 10—10. Fitted in these sides is a shaft 11 provided with a head or collar 12. The shaft 11 is provided with a pin 13 which fits in a notch cut in one side 10 whereby the shaft is held from rotating. A screw 14 is threaded into the end of the shaft 11 and said screw is provided with a large head 15.

Fitted on the shaft 11 and between the

collar 12 and one of the sides is a swinging arm 16 and similarly fitted between the other side and the head 15 is a corresponding arm 17. The arm 16 has a projecting stud 18 on which the operating link 19 is fitted. Extending between the arms 16 and 17 is a shaft 20 on which the operating pawls P are mounted. This shaft 20 is held in place in the arms 16 and 17 by screws 21. A square shaft 22 is similarly held between the arms 16 and 17 by means of screws 23. The operating pawls P are loosely fitted on the shaft 20 and each pawl is provided with an extending arm 24 engaging which is a spring 25 housed in a hole in the square shaft 22 as shown particularly in Fig. 7. The shafts 20 and 22 hold the arms 16 and 17 together so as to constitute the pawl carrying frame.

The numbering disks N are loosely mounted on the shaft 11 and five of such disks are shown, although any number may be used. Each numbering disk is provided with a series of numbers from 0 to 9 inclusive. The shaft 11 has a key way 26 cut therein and fitting on said shaft 11 is a series of separating washers 27 one of which is between each pair of numbering disks. Each washer or separating disk 27 has a projection 28 engaging the key way 26 in the shaft 11 whereby the washers or disks 27 are prevented from rotating and whereby the numbering disks are separated from each other, and one numbering disk cannot frictionally turn any of the others. Each numbering disk is provided on one side thereof with a ratchet wheel R which ratchet wheels are engaged by the operating pawls P. The units numbering disk has notches or teeth corresponding to the numbers on said disk, while each of the other numbering disks has in addition to these one extra notch between two of the regular notches arranged to hold the disks out of printing position, until the next lower disk has printed figure 9 the first time, as will appear below. When the units wheel is moved to print 0 the first time the tens disk is moved to print one. When the tens disk has printed 9 and is moved to print 0 the first time, the hundreds disk is moved to bring figure one in position to print, and so forth.

In order to hold each pawl except the units pawl in inoperative position except when the next lower disk moves from the



9 to the 0 position, the following mechanism is provided. Each numbering disk has a cam groove 29 on the side thereof opposite the ratchet wheel and each pawl P except the pawl which operates the units numbering disk is provided with a lug 30 running in the cam groove 29, of the numbering disk printing the digits in the next lower column. Each groove 29, is provided with a depression 31 to allow the lug 30 of the next higher disk to drop toward the center. By this arrangement each of the pawls, except that for the units disk, is held out of operation by the numbering disk next below the numbering disk which that pawl operates and is allowed to operate only when its lug 30 drops into the depression 31 of the next lower disk. By this arrangement the tens printing disk will be turned only when the units disk turns from 9 to 0, and the hundreds numbering disk will be turned only when the tens numbering disk is turned from 9 to 0, etc. To additionally guard against the improper operation of the pawls the following arrangement is provided. Each pawl above the units pawl is provided with a slot 33 on one side and each one above the tens pawl with a pin 34 on the other side which fits into the slot of the pawl next below the same. These slots and pins are so arranged that when the tens pawl is held out of operative engagement with its ratchet wheel on the side of the tens numbering disk by the lug 30 engaging the circular part of the cam in the units numbering disk, all the pawls above the tens pawl will also be held out of operation, and will be allowed to operate only when the tens pawl operates. The hundreds pawl will similarly hold the pawls above the same from operating except at the time when the hundreds pawl operates, and so on. Thus no pawl can operate unless all of the pawls below the same operate at the same time. This arrangement secures the correct operation of the numbering disks.

Retaining pawls 35 are loosely pivoted on a shaft 36 secured between the sides 10—10 and each of said pawls is forced by a spring 37 housed in the projecting part of the support A to engage its ratchet wheel. These pawls are so shaped as to prevent any backward rotation of any of the numbering disks, and when the instrument is first set up they are in the extra notches 60 so that they hold each disk from starting to rotate from their non-printing position until the next one below has moved for the first time from 9 to 0.

It is to be observed that as the pawl operating the units disk acts independently of all the other pawls, any wear on the face thereof which rests on the ratchet wheel, will not affect the correct working of the machine.

By these arrangements the correct operation of the numbering disks is secured.

Other arrangements may be made for practicing our invention without departing from the scope thereof as expressed in the claims.

Having thus fully described our invention, what we claim and desire to secure by Letters-Patent is:—

1. In a device of the class described, the combination of a shaft, a series of numbering disks rotatable thereon, having a ratchet wheel on one side and a cam groove on the opposite side, a member oscillatable on said shaft, pawls carried by said member and entering said grooves, and washers held in stationary position between the disks.

2. In a numbering head, the combination of a series of numbering disks, each having a ratchet wheel, certain of said ratchet wheels having an extra notch between two of the teeth thereof, a pawl for each wheel adapted to hold the same in inoperative non-printing position when in said extra notch, cams on said disks each having a depression, operating pawls having lugs adapted to follow said cams and enter said depressions and means on said pawls for preventing the lugs of the higher pawls falling into said depressions when any lower pawl is in inoperative position.

3. In a numbering head, the combination of a series of numbering disks, each having a ratchet wheel, certain of said ratchet wheels having an extra notch between two of the teeth thereof, a pawl for each wheel adapted to hold the same in inoperative position when in said extra notch, operating pawls each having a lug, and cams on certain of said numbering disks for receiving and guiding the lugs of said pawls to hold them in inoperative position, said cams each having a depression for allowing the pawl to drop into operative position.

4. In a numbering head, the combination of a series of numbering disks, each having a ratchet wheel provided with teeth and notches equally spaced apart entirely around it, certain of said ratchet wheels having an extra notch between two of the notches thereof, an operating pawl for each wheel, each adapted to enter the notches of one wheel to operate that wheel, and a holding pawl adapted to engage the teeth and to enter the extra notch in the same wheel to hold the same in inoperative position when in said extra notch.

5. In a numbering head, the combination of a series of independently rotatable numbering disks each having a ratchet wheel and a cam fixed thereon, certain of said ratchet wheels having an extra notch between two of the teeth thereof, a separate operating pawl for each wheel having a projection adapted to enter the notches to operate the wheel, and holding pawls adapted to enter the extra notch to hold the wheel in inoperative non-printing position, each



operating pawl having a lug guided by the cam of the next wheel.

6. In a numbering head, the combination of a series of numbering disks, a ratchet wheel for each disk, certain of said ratchet wheels having an extra notch between two of the notches thereof, a pawl adapted to hold each wheel in inoperative position when in said extra notch, operating pawls each having a lug, and cams rotatable with certain of said numbering disks for receiving and guiding the lugs of said pawls to hold them in inoperative position, said cams having means for allowing the pawl to drop into operative position.

7. A numbering head comprising a series of numbering disks, each having a ratchet wheel, an operating pawl for each disk, and means for actuating the pawl for the units disk independently of the other pawls whereby wear between said units pawl and its ratchet wheel will not affect the correct working of the head.

8. In a device of the class described, the combination of a non-rotatable shaft, a frame comprising two arms journaled on said shaft and adapted to oscillate thereon, a shaft and a bar secured at their ends to

said arms, pawls pivoted on said shaft and having projections extending toward the bar, a plurality of springs on the bar, each bearing on one of said projections, and numbering disks having ratchet wheels rotatably mounted on the non-rotatable shaft, said pawls being adapted to engage and operate said ratchet wheels as the frame oscillates.

9. A numbering head comprising a series of numbering disks, each having a ratchet wheel, an operating pawl for each disk, all of said pawls being pivoted to swing through the same arc, means for actuating the pawl for the units disk, and means for actuating the other pawls independently of the units pawl whereby wear between said units pawl and its ratchet wheel will not affect the correct working of the head.

In testimony whereof we have hereunto set our hands, in the presence of two subscribing witnesses.

FRANCIS MEISEL.  
CHARLES A. MEISEL.

Witnesses:

GEO. R. SLADER,  
A. M. JOHNSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."