Aug. 2, 1932. F. E. PFEIFFER 1,869,613

AUTOGRAPHIC REGISTER

Filed Aug. 21, 1930 5 Sheets-Sheet 1

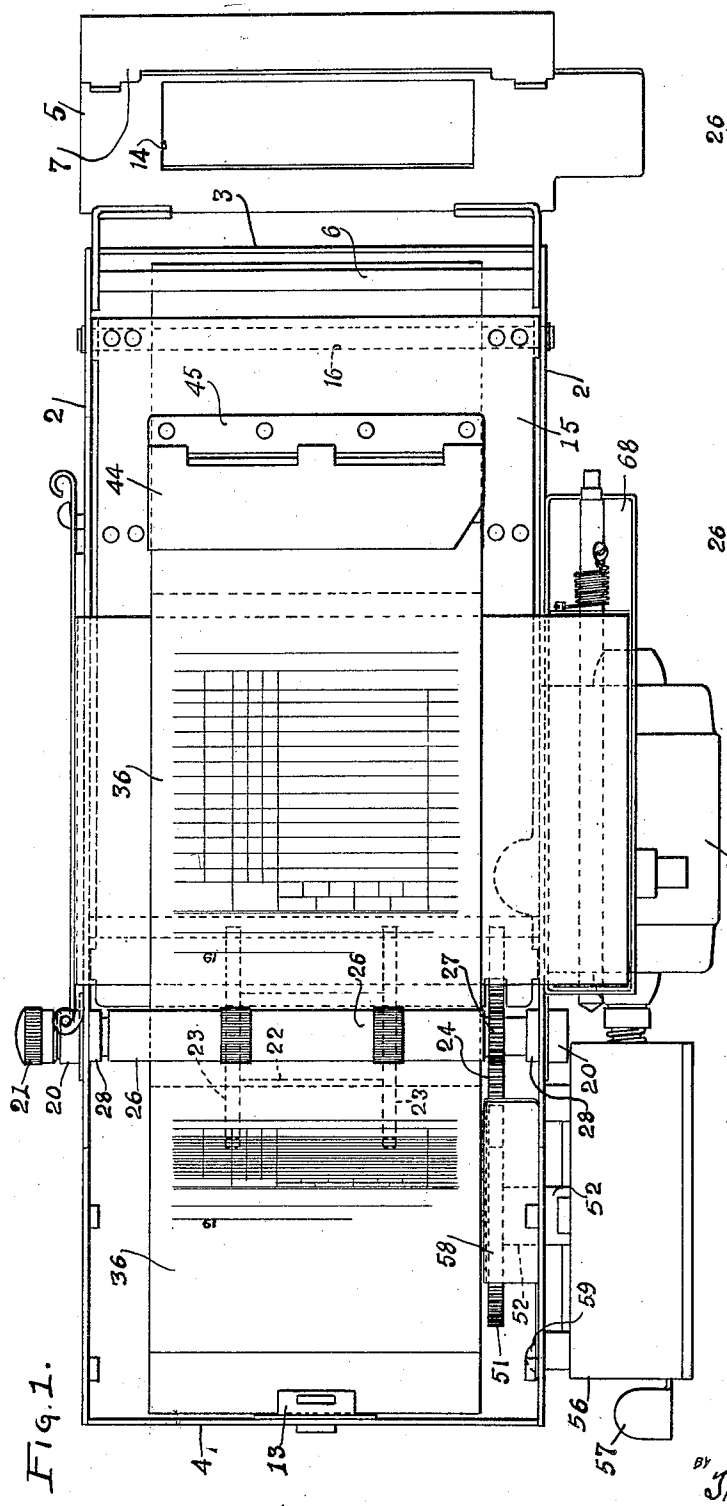


Fig. 1.

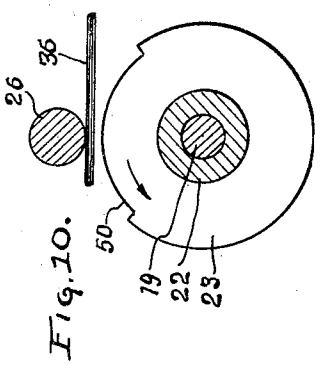


Fig. 10.

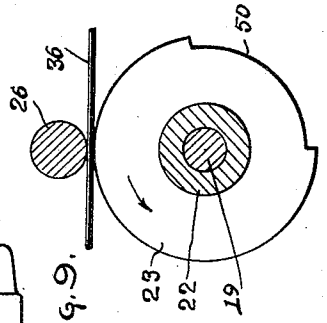


Fig. 9.

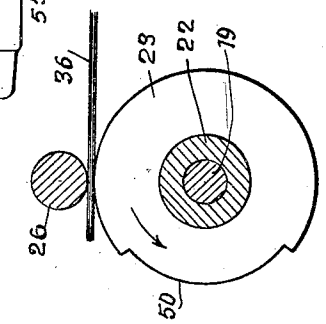


Fig. 8.

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AUTOGRAPHIC REGISTER

Filed Aug. 21, 1930 5 Sheets-Sheet 2

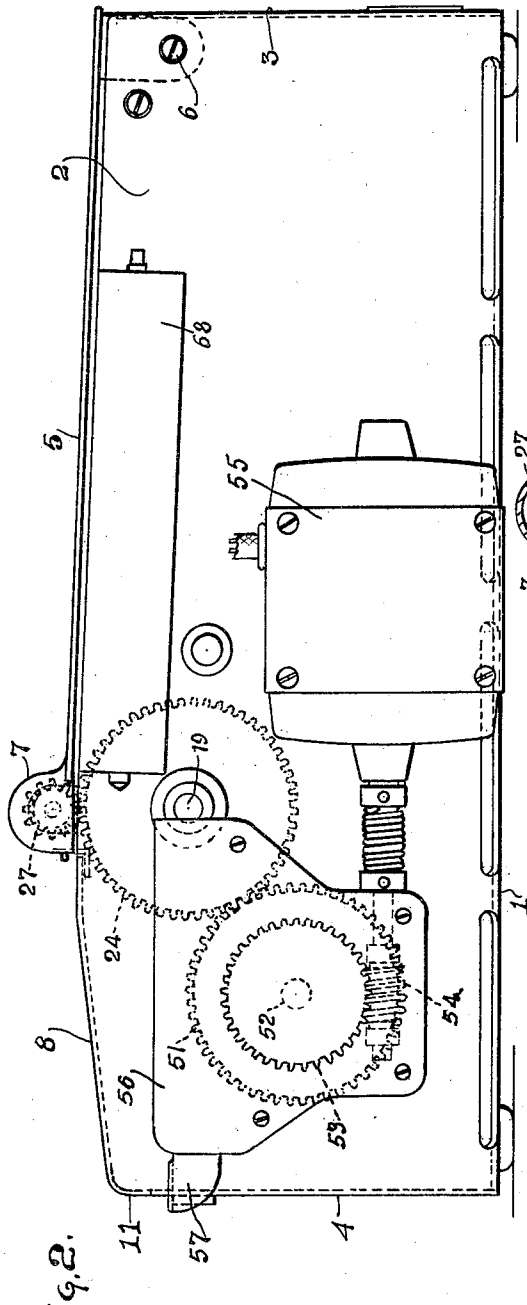


Fig. 2.

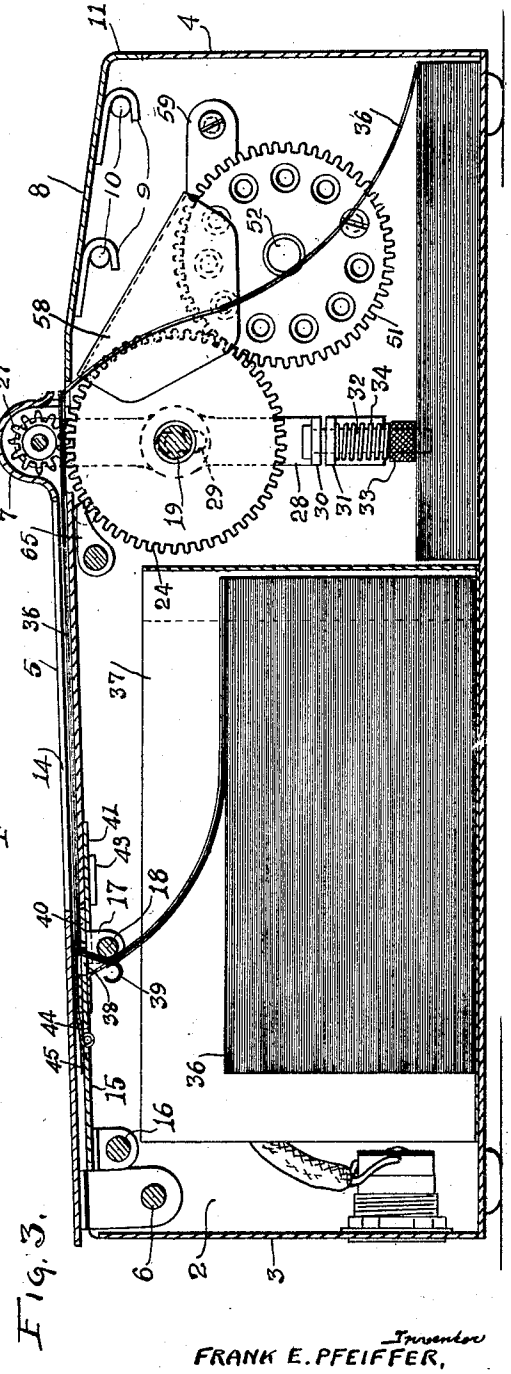


Fig. 3.

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AUTOGRAPHIC REGISTER

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Fig. 4.

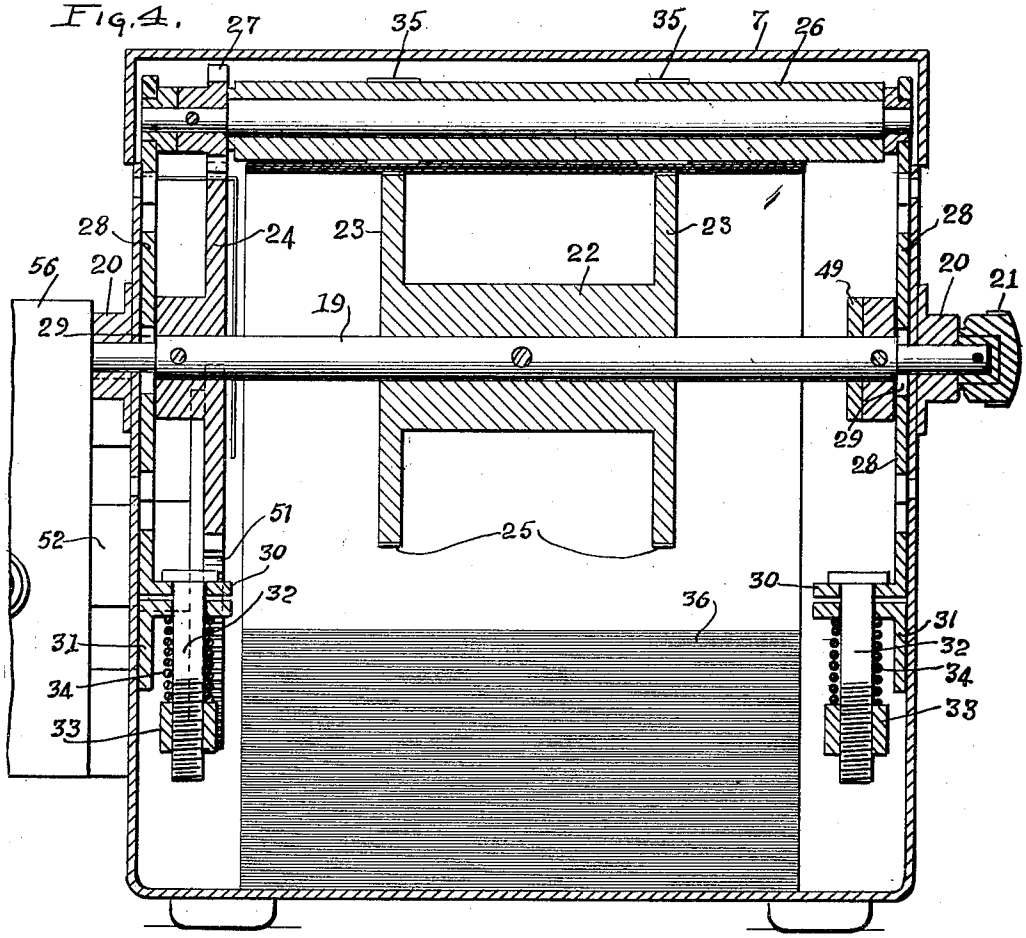
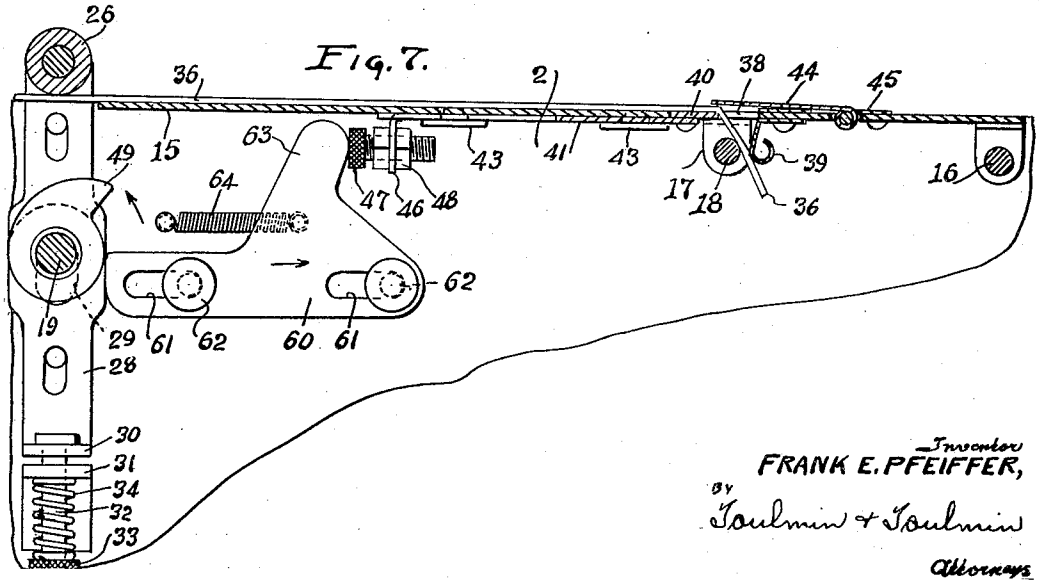


Fig. 7.



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AUTOGRAPHIC REGISTER

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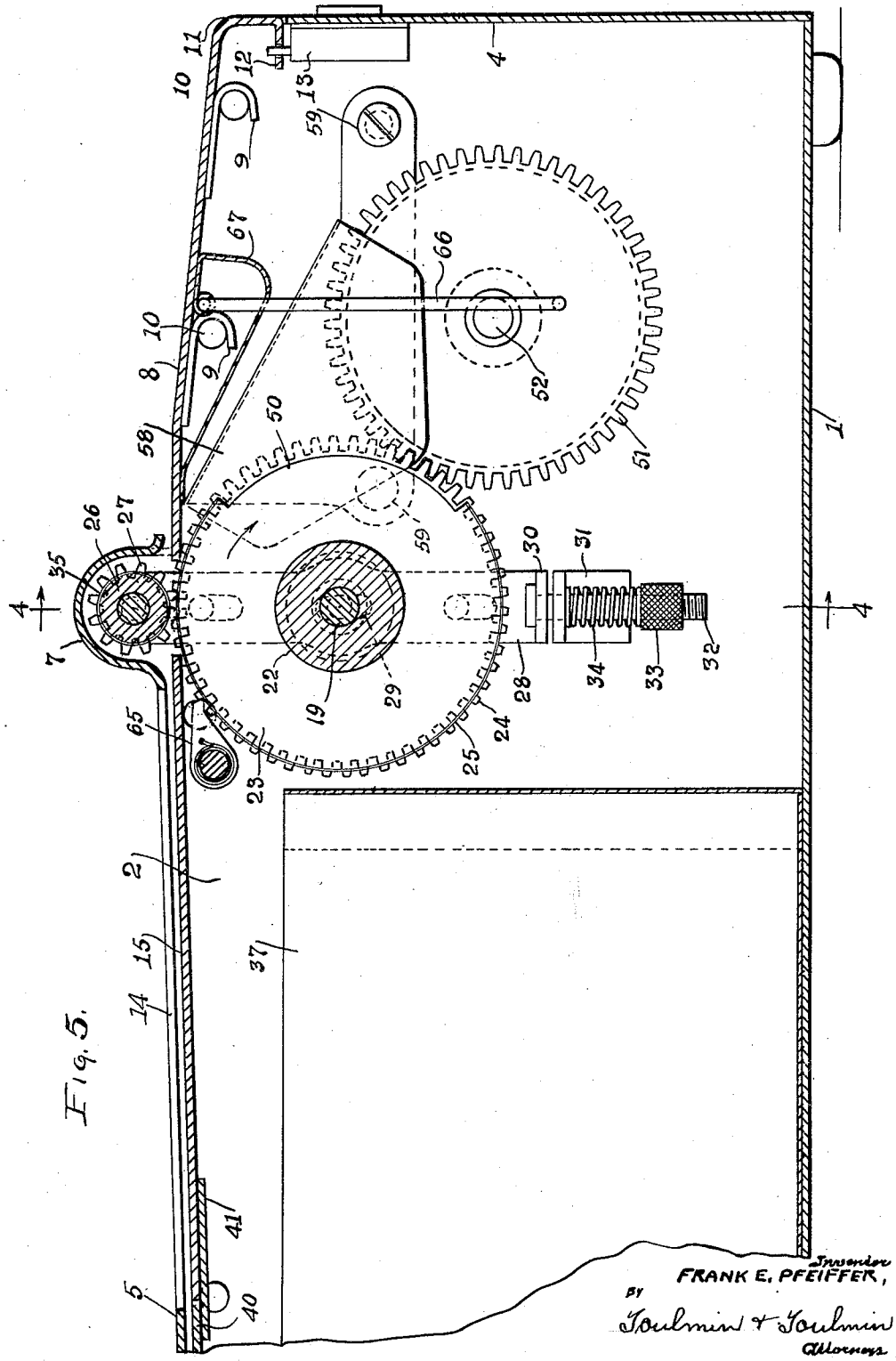


Fig. 5.

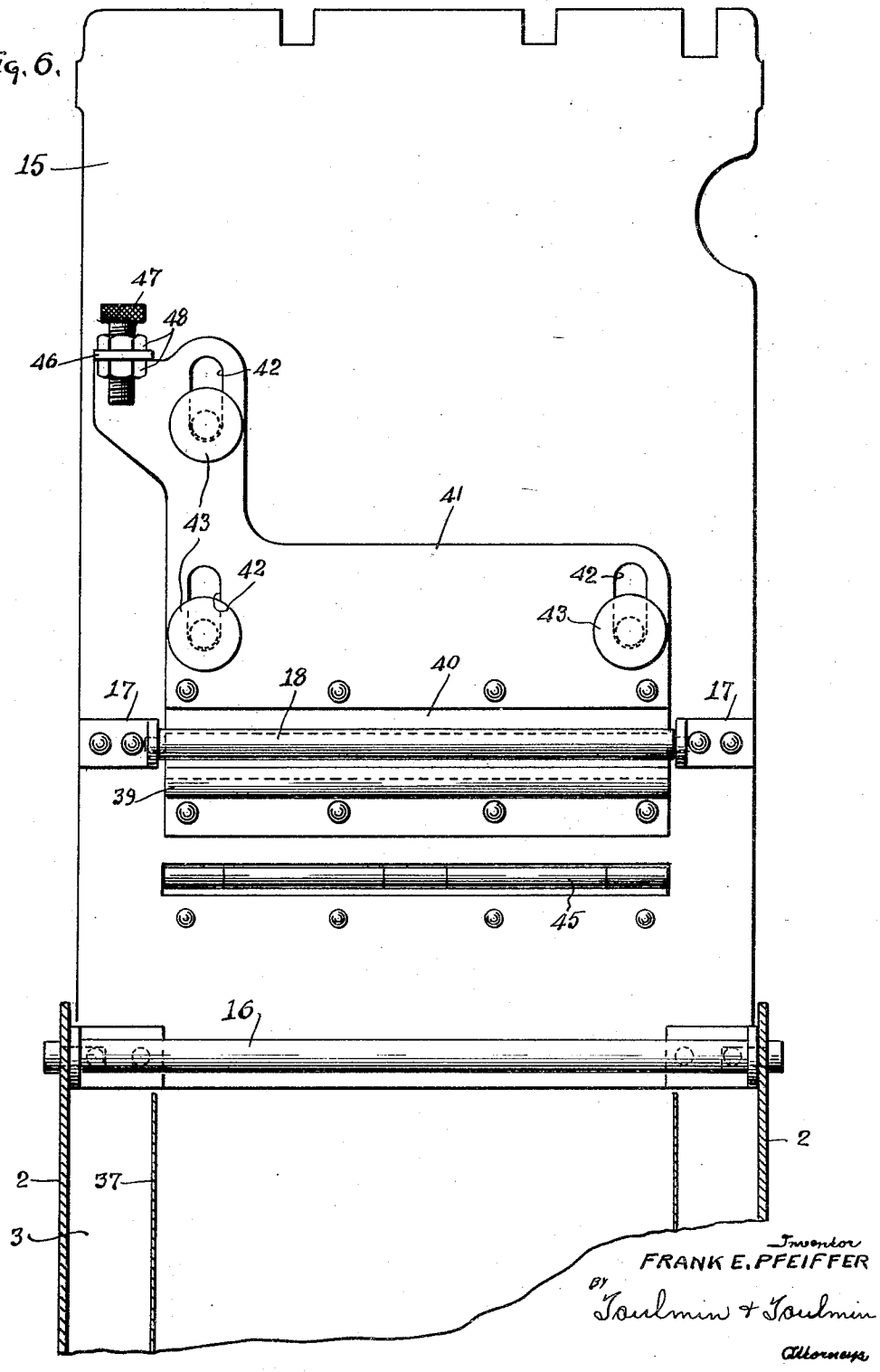
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AUTOGRAPHIC REGISTER

Filed Aug. 21, 1930 5 Sheets-Sheet 5

Fig. 6.



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UNITED STATES PATENT OFFICE

FRANK E. PFEIFFER, OF DAYTON, OHIO, ASSIGNOR TO THE EGRY REGISTER COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO

AUTOGRAPHIC REGISTER

Application filed August 21, 1930. Serial No. 476,792.

This invention relates to autographic registers, and has for its object to provide in connection with an autographic register a rear alignment means for aligning a plurality of superimposed sheets.

It is also an object of this invention to provide such aligning means in connection with a writing table, and one that is operated by a sheet feeding and ejecting means.

It is particularly the object of this invention to provide in connection with sheet feeding and ejecting means, a roller or disc which has in the periphery thereof a cutaway portion cooperating with a companion rotating member for ejecting the sheets, and when the two members are positioned with relation to each other so that the cooperating member is opposite the cutaway part, the sheets are not fed or ejected, and during this period of rest or released condition of the sheets the alignment takes place and is operated by a continuous operation of the feeding means.

It is particularly the object of this invention to provide in connection with an autographic register, a continuously operating sheet feeding and ejecting means so constructed that during the period of its operation the sheets are released, and during this period of release a rearwardly located aligning means is operated for aligning the sheets.

It is especially the object of this invention to provide in connection with an autographic register sheet ejecting means adapted to release the sheets without relative movement of one in relation to the other.

These and other advantages will appear from the following description taken in connection with the drawings.

Referring to the drawings:

Figure 1 is a top plan view of the autographic register with the lid in elevated position.

Figure 2 is a side elevation of the autographic register showing the electric motor for operating the register and the housing for containing the gearing.

Figure 3 is a vertical longitudinal section through the register showing the means for operating the sheet feeding and ejecting means.

Figure 4 is a vertical section through the housing showing the two cooperating sheet feeding and ejecting means.

Figure 5 is a longitudinal section through the sheet feeding end of the register housing.

Figure 6 is a view showing the writing table in an elevated position. This view also shows an adjacent part of the register in section.

Figure 7 is a longitudinal view through a part of one side of the register housing showing the means by which the aligning plate is operated.

Figures 8, 9 and 10 are different views showing the relative positions of the feeding discs.

The present invention relates to autographic registers that are operated either manually or by means of an electric motor. The essential parts of the autographic register are inclosed within a housing or casing, having a bottom 1, sides 2, a front end 3 and a rear end 4. To the front end is pivoted a lid 5 on a pivot member 6. The rear end of the lid is bent up, as indicated by the numeral 7, to form a loop or housing for the upper of the sheet feeding and ejecting rollers.

Extending rearwardly from the part 7 is a lip 7′ adapted to be engaged by a rear lid member 8, which is slidably supported on the rear end of the register housing or casing. Beneath the lid 8 and on each side thereof are loop members 9 which engage pins 10 in the sides of the housing for the purpose of holding the lid in position on the housing. These loops and pins are shown in Figure 5. The rear end of the lid 8 is bent down at 11 to form a continuation of the rear of the casing.

Extending inwardly from the part 11 is a bracket 12 which has a hole therein to receive a latch or lock member 13 located on the rear end 4. This lock or latch member is operated by a suitable key. In Figure 5 the parts are shown in locked position. In order to remove the lid 8 the lock is withdrawn from the bracket 12, after which the lid can be withdrawn backwardly so that the loops disengage from the pins 10. The front end of the

lid 8 engages rearward lips 7′ on the lid 5 so that whenever the lid 8 is in place the lid 5 is locked against movement. All of these parts are held in position by means of the loops 9, pins 10 and the lock member 13. The lid 5 has the usual opening 14 for writing purposes.

Pivoted to the side walls of the housing, adjacent the pivot 6 but rearwardly therefrom, is a writing table 15 pivoted at the point 16. This table has transversely therethrough an opening, later to be described. Adjacent this opening and on each side thereof is a bracket 17 which supports a roller 18 around which paper or sheets of paper pass to the top of the table. In the rear end of the housing is mounted a shaft 19, as shown in Figure 4. Each end of this shaft is mounted in a bearing 20, suitably supported by the sides of the housing. On one end of the shaft 19 and without the housing is a knob or handle 21 by which the shaft may be rotated. The other end of the shaft extends into a housing located on one side of the autographic register housing in which stop and control mechanisms are located. The particular forms of the stop and control mechanisms are not the subject-matter of this application.

On the inside of the autographic register housing, adjacent the intermediate part of the shaft 19, is a spool member 22 which has on each end a disc 23 integral therewith. While the discs are shown integral with the spool body yet they may be in separate parts and attached thereto by any suitable means. On one end of the shaft 19, adjacent one of the walls of the register housing, is a gear 24 which is suitably meshed with another gear for rotating the shaft and the discs 23. This gear also meshes with another gear 27 on a cooperating roller 26.

In order that the discs 23 and the roller 26 may cause the paper to be fed and ejected there is provided on the periphery of each a roughened surface. The numeral 25 is used to indicate the roughened or knurled surfaces of the peripheries of the discs, while the numeral 35 is used to indicate a similar surface or surfaces on the roller 26. The ends of the roller 26 are supported in bearings in the upper end of each of two plates 28 mounted on the inside of the casing or housing for a limited amount of vertical movement, so that the roller 26 may be elevated slightly away from the discs 23. In each of the plates 28 is a vertical slot 29 in which the end of the shaft 19 moves as the plates move up and down. The shaft 19 thus provides a guide means in the vertical movement of the plates. Other guide means may be provided in connection with the sides of the housing, such as pins or projections fitting in slots in the side plates.

The lower end of each side plate 28 is bent at a right angle away from the wall or side of the housing to form a bracket 30. Immediately below the bracket 30 is a fixed bracket 31 attached to the side of the housing. Extending through these two brackets is a bolt 32, the head of which rests upon the bracket 30. On the end of the bolt opposite the head is a nut 33, and between this nut and the bracket 30 is a spring 34, which tends to hold the plate in its lower position and at the same time hold the roller 26 in its lower position in contact with either the discs 23 or the sheets of paper between the discs and the roller.

The numeral 36 is used to designate a bale or fold of a plurality of superimposed sheets of paper adapted to be fed through the sheet feeding and ejecting means. These sheets are contained within a box 37 located in the front end of the housing. As the sheets are fed over the table they pass around the roller 18, over the top of the table and between the sheet feeding means composed of the roller 26 and the spool 22. For the purpose of providing an opening through which the sheets of paper pass, and space for the location of the aligning apparatus, there is provided in the table a transverse opening 38, above mentioned. Adjacent this opening, and between it and the rear of the housing, is a guide loop 39 which serves to hold the sheets of paper against the roller 18 during the feeding of the sheets of paper.

Located within the transverse opening 38 is an aligning plate 40 adapted to move longitudinally of the writing table in the opening 38. This aligning plate is supported by a slide plate 41 which has therein a plurality of slots 42 which receive guide pins 43 located in the table. The guide pins have heads thereon to hold the slide plate in engagement with the table. The slide plate is located beneath the table and the aligning plate is so attached thereto that the aligning plate has its upper surface in substantial alignment with the upper surface of the writing table.

Slightly to the back of the guide loop 39 there is attached to the writing table a shutter 44 by means of a plate 45, to which it is hinged. Extending rearwardly from the slide plate 41 is an arm which has thereon a bracket 46 extending at a right angle to the main body of the slide plate. This bracket is provided with a hole to receive a screw 47, which is held to the bracket by means of nuts 48, one on each side of the bracket. By means of the nuts 48 the screw 47 may be adjusted longitudinally with relation to the slide plate 41.

For the purpose of operating the aligning plate and moving the slide plate 41 longitudinally of the writing table, there is provided on the shaft 19 a cam 49. This cam is shown in Figures 4 and 7. On each of the discs 23 there is a notch 50. This notch is shown in

Figures 5, 8, 9 and 10, and it is by means of this notch that the feeding of the sheets of paper at certain intervals in the cycle of operation ceases, and during this stoppage in the feeding or ejecting operation, the alignment is effected. This alignment is effected by means of the cam 49 contacting with a plate member through which the aligning plates are moved. These parts will be described later.

For the purpose of rotating the spool and the roller 26 there is provided a gear 51, which meshes with the gear 24. The gear 51 is mounted upon a short shaft 52 which extends through one side of the register housing into a control housing located without the register housing. On the shaft 52 is located a worm gear 53. This gear is without the register housing and within the control housing in mesh with a worm 54, which is either on a motor shaft or is operatively connected to the shaft of a motor 55.

The housing in which the control and stop mechanisms are located is indicated by the numeral 56 and is located on one side of the housing on one of the walls thereof. Extending into this housing for the purpose of releasing the stop member is a lever 57. The mechanism located within the housing is adaped to stop the operation of the feeding members at the end of each cycle of operation. In each cycle of operation the discs 23 rotate once, while the roller cooperating therewith rotates a greater number of times, depending upon its size in comparison with the size of the disc.

At the end of each cycle of operation the stop and control mechanisms, located within the housing 56, stop the rotation of the ejecting members. This stop action takes place regardless of whether the apparatus is operated by means of the hand member 21 or by means of the motor 55. In order to release the control and locking mechanisms the lever 57 is pushed down, after which the cycle of operation can be carried through either manually or by the motor.

Located within the rear end of the housing and extending over the upper parts of the peripheries of the gears 24 and 51 is a guard or protector 58 fastened to one side of the housing at 59. This guard or protector is for the purpose of preventing the paper coming in contact with the gears so that the paper would be marred or torn or smeared. For the purpose of moving the aligning plate longitudinally of the writing table there is provided on one side of the housing a slide member 60. This slide member has in each end thereof a slot 61 for pins 62, by which the slide member is held in place on the sides of the housing so that it may have a limited amount of longitudinal movement with relation to the housing.

The upper part of the slide member has an arm 63 extending somewhat forwardly for engagement with the screw member 47. The rearward end of the slide member 60 is so positioned that it will be engaged by the cam 49 at a certain period in the rotation of the shaft 19 and the spool 22 thereon. The relative position of the cam 19 in regard to the notches in the peripheries of the discs is such that at the time the notches come opposite the roller 26 the cam 49 engages the slide member 60 so that it is pushed forward in engagement with the screw 47 to move the aligning plate against the sheets of paper, so that the sheets are at this time brought into aligning position by means of the aligning plate.

The feeding of the paper is such that at this particular period of the cycle of operation a fold in the paper is adjacent the aligning plate so that as the feeding ceases and the aligning operation begins the aligning plate is forced into engagement with the superimposed sheets of paper at the point where the sheets are bent or creased. This is illustrated in Figure 7. In order to hold the slide member 60 in engagement with the cam 49 there is provided a spring 64, attached at one end to the slide member and at the other end to the side of the register housing.

In order to prevent any backward movement of the feeding members there is located on one end wall of the housing a pawl 65, and in order to properly guide the record sheets as they elevate the ejecting rollers, there is provided a paper guide 66 in the form of a loop of wire extending from the under side of the lid 8. Associated with this loop of wire is a plate 67 in the form of a loop, which also serves to guide the paper away from the members 9 and 10 so that the paper will not become entangled and prevent it from proper feeding and depositing in the lower part of this end of the housing. Located on one side of the housing is a casing 68 in which sheets of carbon are supported and maintained for being fed across the top of the writing table and between the leaves of the superimposed strips of paper.

The relative positions of the parts are shown in Figure 3. As shown in this figure the stack of paper from the lefthand or front end of the register housing is fed up between the roller 18 and the loop 39. From this point the superimposed sheets of paper pass through the opening in the writing table and to the front of the aligning plate, and beneath the shutter 44. From this point the superimposed sheets pass rearwardly between the upper roller and the lower discs. The rotation of the discs and the roller causes the sheets to be fed forward.

The relative positions of the two rollers and the superimposed strips of paper are illustrated in Figures 8, 9 and 10. In Figure 8 there is illustrated the position in which

the parts are at the end or beginning of each cycle of operation. In the cycle of operation the discs 23 rotate anti-clockwise, as shown in these three figures. In Figure 9 the parts are shown in a position intermediate the beginning and the end of the cycle of operation. In Figure 10 the positions of the parts are illustrated when the notches in the discs are opposite the roller 26. When the parts are in the position shown in Figure 10 the sheets are not being fed but are released, and it is during this period of operation that the aligning plate is pushed rearwardly by the cam on the shaft 19 so that the sheets are aligned. The aligning process continues until the cam on this shaft passes beyond the slide member 60 so that at this time the aligning means becomes inoperative and at the same time the discs 23 have rotated to the point where the sheets of paper are again engaged by the peripheries of the discs for continuation of the feeding operation, until the end of the cycle of operation. As shown in Figure 8 there is a slight forward movement of the paper after the aligning has been accomplished. In each cycle of operation, between the beginning of the act of ejecting and the end of the act of ejecting, there is a period of rest, in which period aligning takes place and after which period a further ejecting takes place.

I desire to comprehend within my invention such modifications as may be clearly embraced within my claims and the scope of my invention.

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

1. In an autographic register, in combination with a writing table, means to move a plurality of strips of paper over the table and eject them, said means comprising cooperating members, one of which is cut away so that during the ejecting operation the paper is released, and means slidably mounted on the table and operated by said first named means and a slidable member interposed between said means first named and said slidably mounted means to operate the latter to align the strips of paper when they are released.

2. In an autographic register, in combination with a writing table, means to grip and move a plurality of strips of paper over the table and eject them, said means comprising cooperating members, one of said members being cut away so that during part of the ejecting operation the paper is released and is not being ejected, a plate on the table to align the strips of paper, and adjustable means operated by one of said members to move said plate in a direction opposite to the direction of movement of the paper over said table to align the strips while the strips of paper are released.

3. In an autographic register, in combination with a writing table, means to grip and move a plurality of strips of paper over the table and eject them, said means comprising an upper roller and a shaft having a disc thereon, said disc having part of its periphery cut away to release the strips at an interval during the ejecting operation, a plate slidably mounted on said table for aligning the strips, and means on the shaft to slide the plate into contact with said strips while the strips are released to align the strips.

4. In an autographic register, means having a cam thereon continuously rotating through one cycle of operation to eject a plurality of superimposed strips of paper and adapted during the cycle of operation to release for a short period of time the strips of paper without movement other than the rotation, and a slidable plate operated by the continuously rotating cam to align the strips while released and adapted to contact the sheets of paper to align the same.

5. In an autographic register, means to eject a plurality of superimposed strips of paper, said means including a rotatable shaft and a pair of discs thereon, each disc having a peripheral notch therein and a resiliently supported roller engaging the peripheries of the discs and the strips of paper when fed between the discs and the roller, means to hold the roller out of contact with the discs when the notches are adjacent the roller whereby the strips of paper are released, a cam on the shaft, and means engaged by the cam to align the strips when the notches are adjacent the roller.

6. In an autographic register, means to eject a plurality of superimposed strips of paper comprising a roller and a shaft having thereon a cam and a pair of peripherally slotted discs adapted to contact with the roller, means to rotate said roller and discs, and a slidable plate operated by the cam in a direction opposite to the direction of movement of the strips to align the strips when the slots of the discs are opposite the roller.

In testimony whereof, I affix my signature.

FRANK E. PFEIFFER.