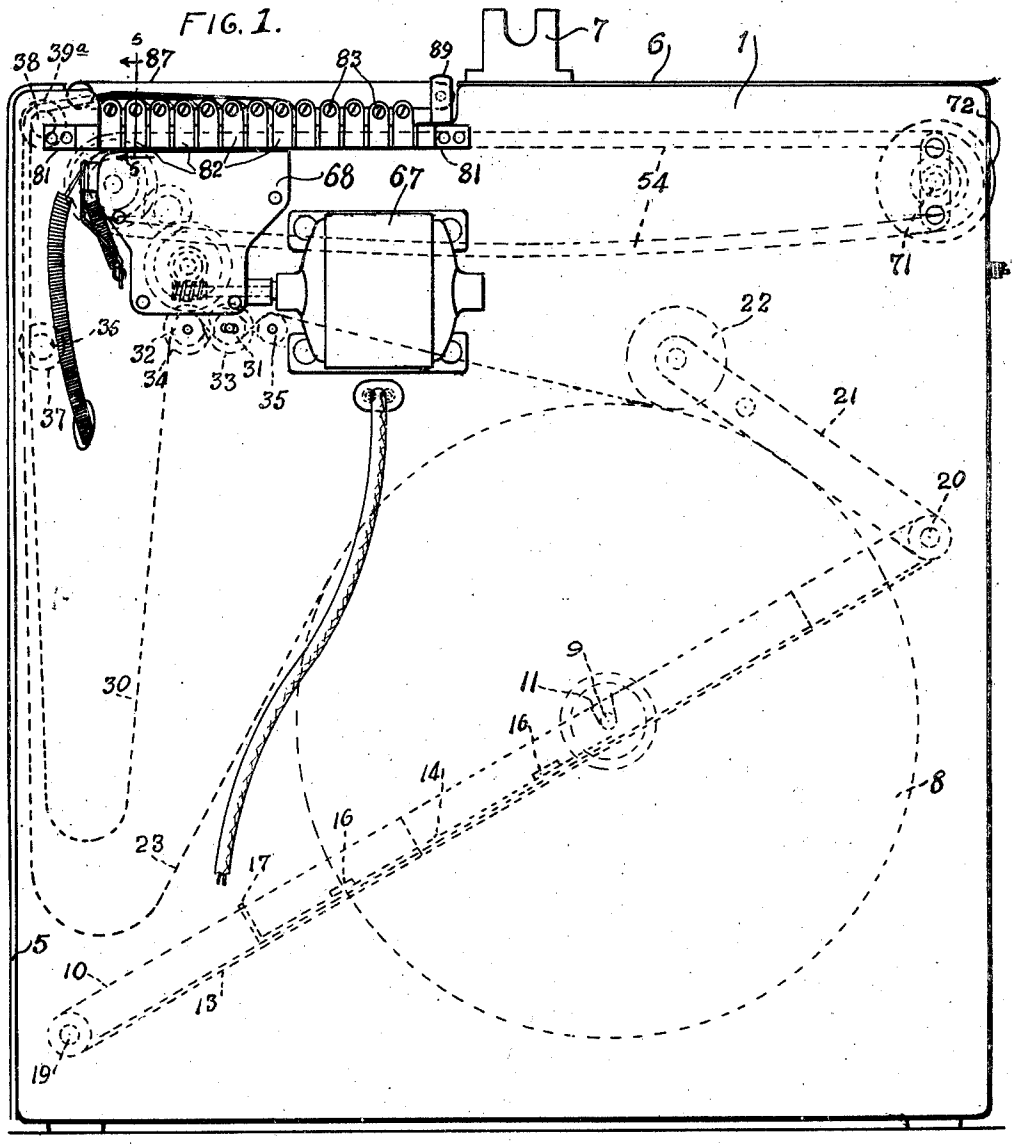
Dec. 4, 1934. F. E. PFEIFFER ET AL 1,983,097

MANIFOLDING DEVICE FOR TYPEWRITERS

Filed Feb. 19, 1930 5 Sheets-Sheet 1

FIG. 1.



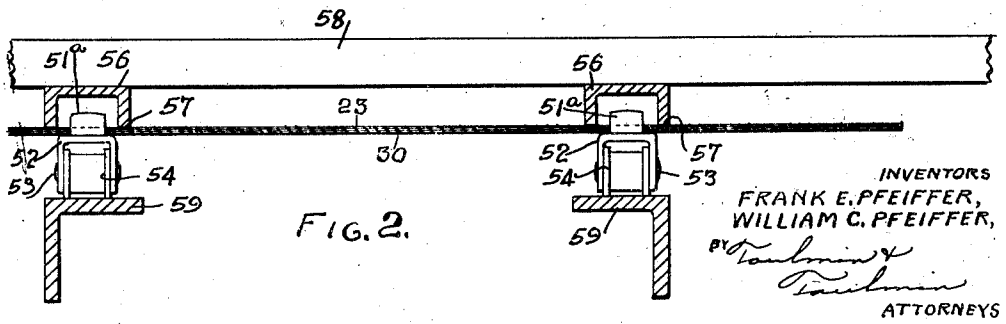


FIG. 2.

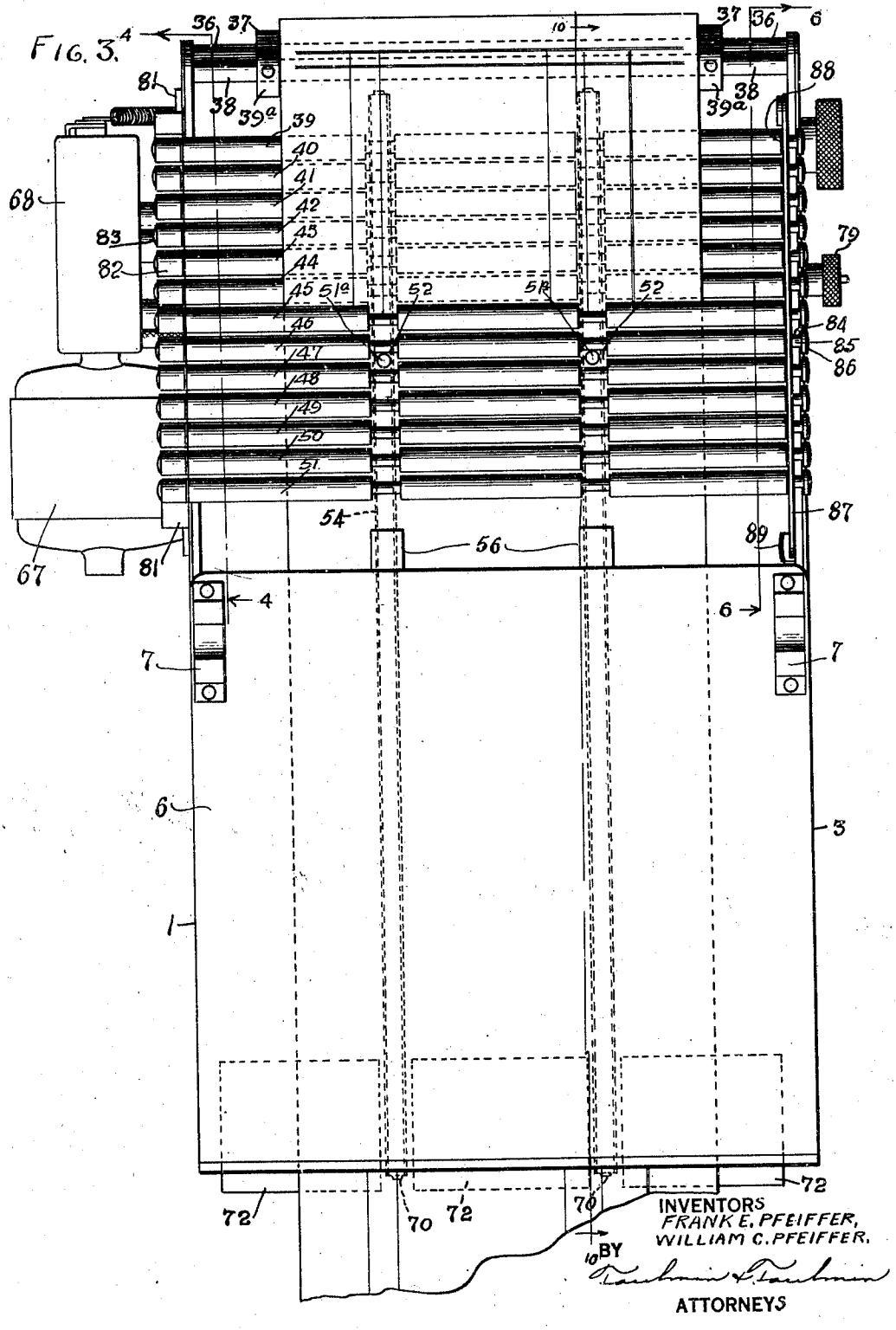
INVENTORS
FRANK E. PFEIFFER,
WILLIAM C. PFEIFFER,
BY Taulmin & Taulmin
ATTORNEYS

Dec. 4, 1934. F. E. PFEIFFER ET AL 1,983,097

MANIFOLDING DEVICE FOR TYPEWRITERS

Filed Feb. 19, 1930 5 Sheets-Sheet 2

FIG. 3.



INVENTORS
FRANK E. PFEIFFER,
WILLIAM C. PFEIFFER.

Taulmin & Taulmin

ATTORNEYS

Dec. 4, 1934. F. E. PFEIFFER ET AL 1,983,097

MANIFOLDING DEVICE FOR TYPEWRITERS

Filed Feb. 19, 1930 5 Sheets-Sheet 3

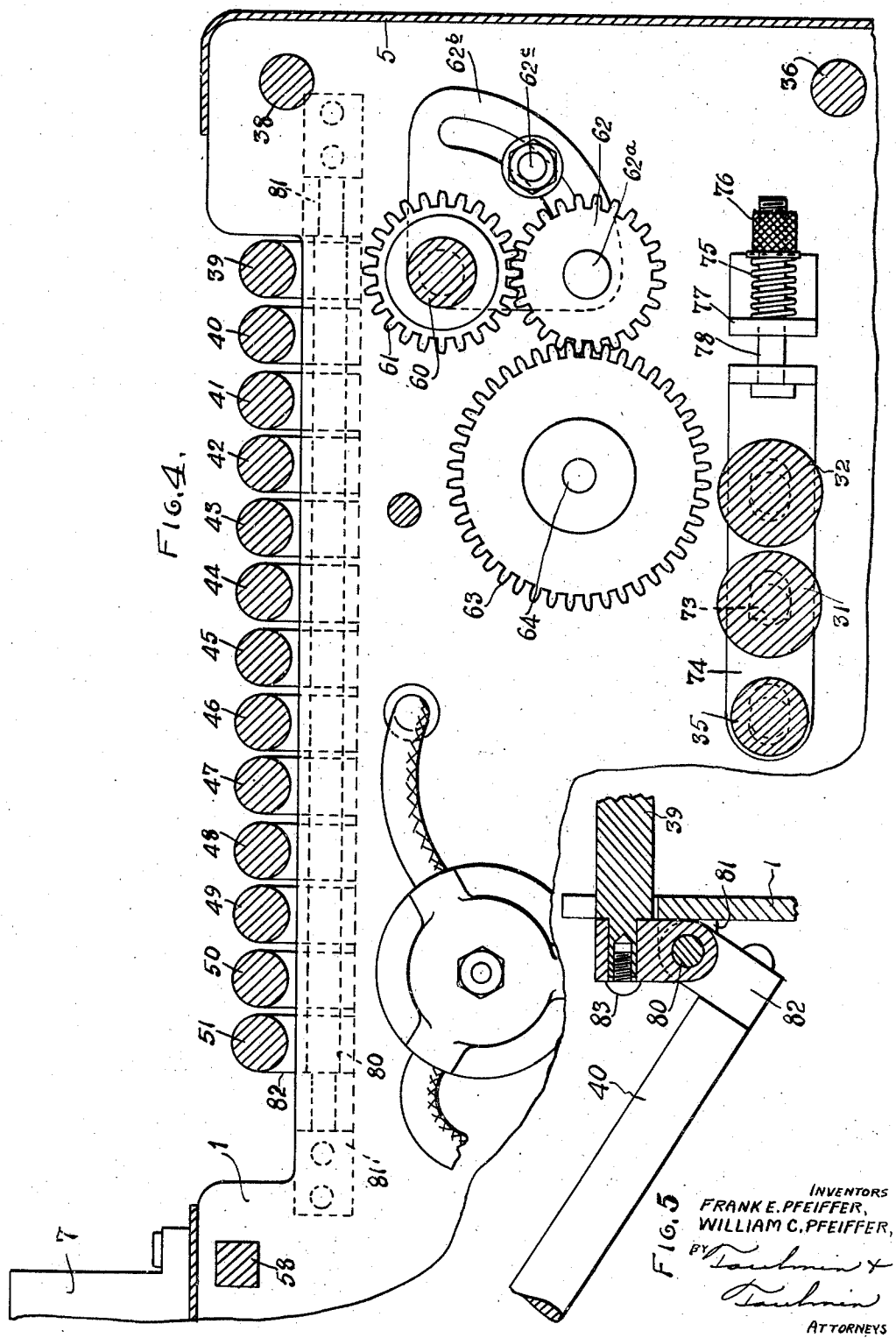


FIG. 4.

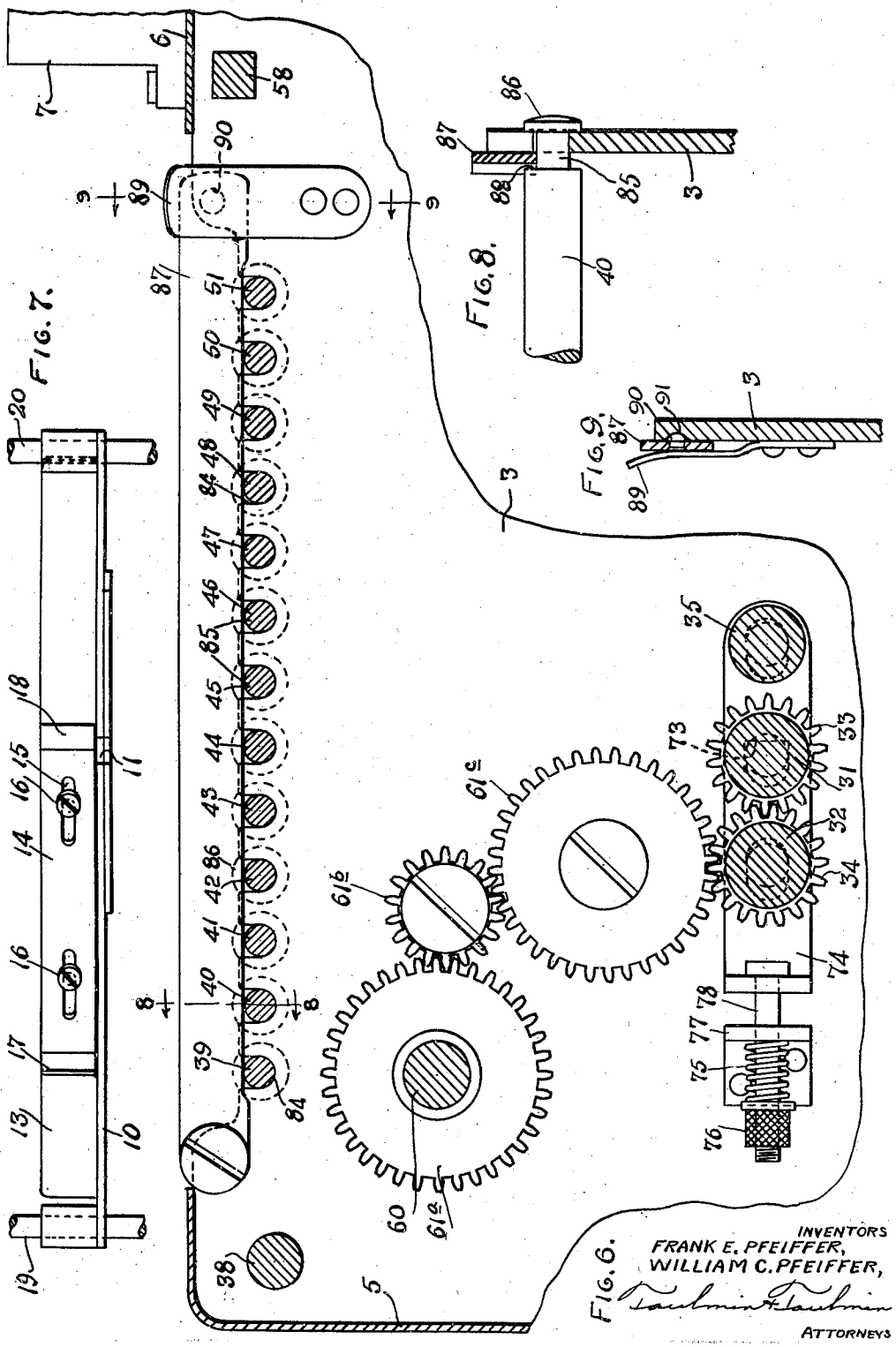
FIG. 5.

INVENTORS
FRANK E. PFEIFFER,
WILLIAM C. PFEIFFER,
BY Taubman & Taubman
ATTORNEYS

Dec. 4, 1934. F. E. PFEIFFER ET AL 1,983,097

MANIFOLDING DEVICE FOR TYPEWRITERS

Filed Feb. 19, 1930 5 Sheets-Sheet 4



Dec. 4, 1934. F. E. PFEIFFER ET AL 1,983,097

MANIFOLDING DEVICE FOR TYPEWRITERS

Filed Feb. 19, 1930 5 Sheets-Sheet 5

Fig. 10.

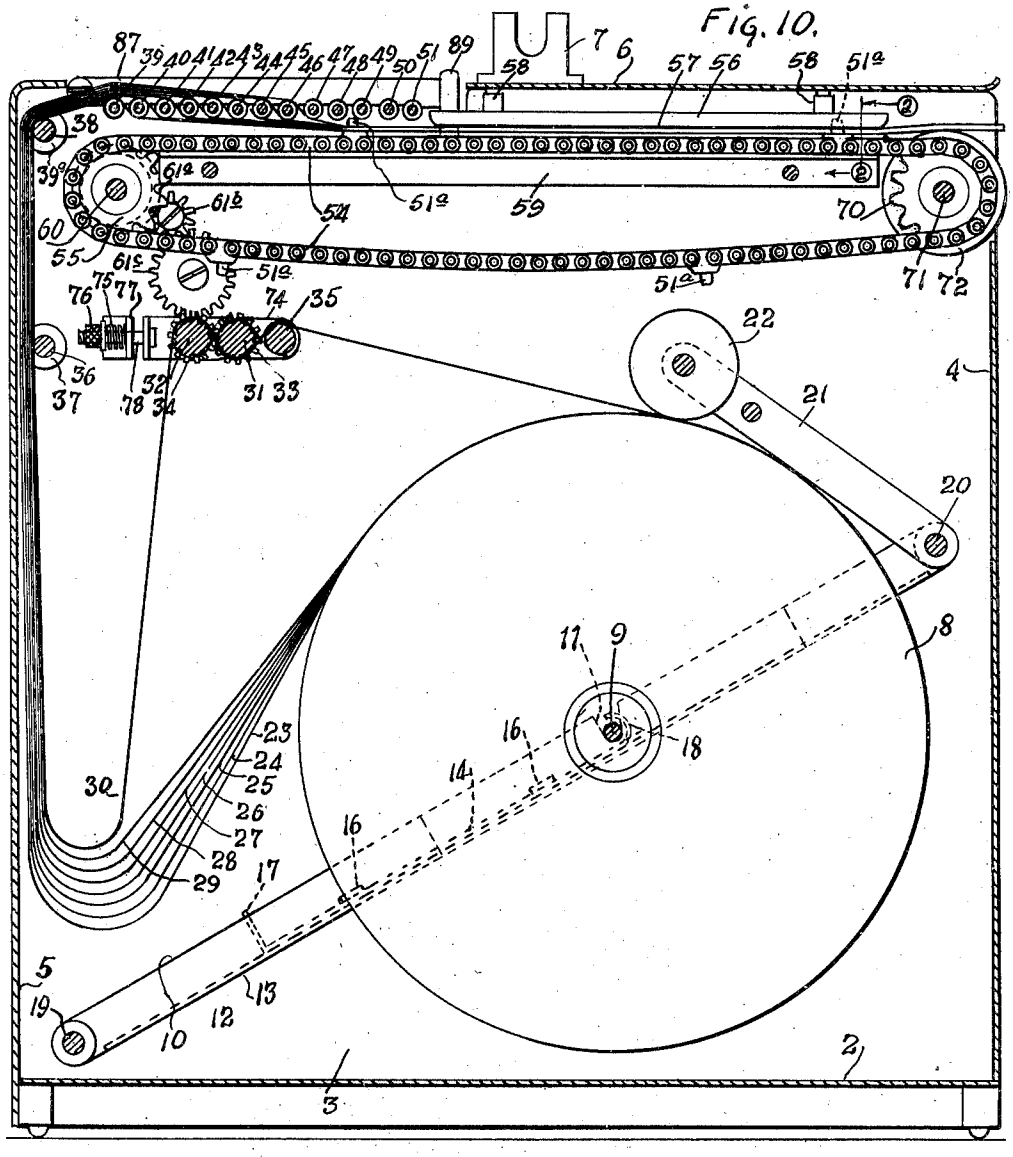
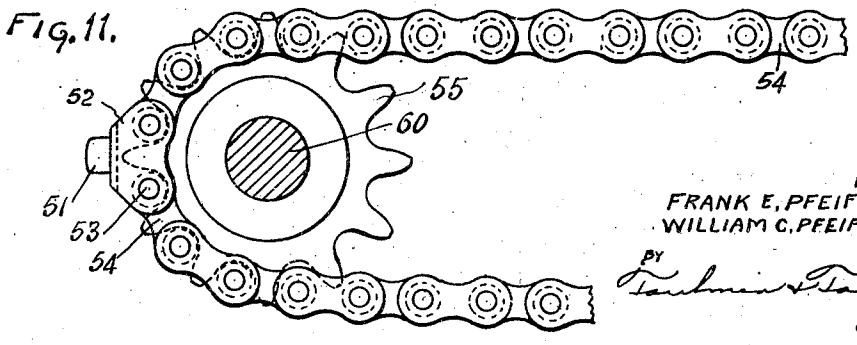


Fig. 11.



INVENTORS
FRANK E. PFEIFFER,
WILLIAM C. PFEIFFER,
BY
Faulmin & Faulmin
ATTORNEYS

Patented Dec. 4, 1934 1,983,097

UNITED STATES PATENT OFFICE

1,983,097

MANIFOLDING DEVICE FOR TYPEWRITERS

Frank E. Pfeiffer and William C. Pfeiffer, Dayton, Ohio, assignors to The Egry Register Company, Dayton, Ohio, a corporation of Ohio

Application February 19, 1930, Serial No. 429,584

21 Claims. (Cl. 271—2.1)

This invention relates to manifolding devices for typewriters or any similar mechanism employing a plurality of sheets which are to be written upon in superimposed aligned condition.

It is the object to provide, in a single unitary casing, means for radially mounting, and maintaining in mounted position, a supply of paper sheets, a brake automatically positioned with respect to the sheets to control their discharge, means for unrolling the supply of sheets, means of delivering the sheets in superimposed, loose condition one by one to an aligning mechanism, and means for maintaining the aligned sheets on the aligning mechanism to discharge them as a unit and in aligned condition.

It is a further object to provide a common, intermittently driven power means for intermittently actuating the unwinding, supplying and aligning means, all within a common casing where the apparatus is protected from dust, dirt and interference with the operation thereof.

It is a further object to provide a cover for the casing, a part of which forms the base support, and aligning mechanism for holding the machine, such as the typewriter, or other mechanism, in a predetermined position with respect to this paper delivery and aligning mechanism.

Referring to the drawings:

Figure 1 is a side elevation of the mechanism;

Figure 2 is a section on the line 2—2 of Figure 10;

Figure 3 is a top plan view of the apparatus;

Figure 4 is a section on the line 4—4 of Figure 3;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a section on the line 6—6 of Figure 3;

Figure 7 is a detail view of the supporting rack and holder for the roller axle;

Figure 8 is a section on the line 8—8 of Figure 6;

Figure 9 is a section on the line 9—9 of Figure 6;

Figure 10 is a section on the line 10—10 of Figure 3;

Figure 11 is a detail view of an aligning stud, its chain and sprocket.

Referring to the drawings in detail, 1 is a side plate which is mounted upon a bottom 2. 3 is the other side wall. 4 is the front wall. 5 is the rear wall constituting a door. On top of the enclosure is mounted a detachable plate 6 having upstanding, U-shaped, spaced lugs 7 for positioning the typewriter or other similar apparatus which is utilized to work upon the aligned, cut sheets as delivered from the machine of this invention.

Paper supply

A paper supply roll on which are rolled a plurality of sheets, is designated at 8 and is mounted by an axle 9 at either end upon a pair of spaced, diagonally-disposed, supporting rails. The roll is rolled on the bottom 2 between these rails until the axle 9 rides on the edge 10 of the rails, whereupon it rolls up the edge until it rolls up a slot 11. The rails are provided with a horizontal portion 13 on which is slidably mounted a retaining hook comprising a sliding plate 14 having slots 15 in which are mounted guiding studs 16. At one end is a hand piece 17 and at the other end a retaining hook 18 which can be pulled down to partially encircle the end of the axle 9 which projects through the slot 11. These rails are supported on cross rods 19 and 20 carried by the side walls of the casing. On the upper cross rod are pivoted the arms 21 carrying the brake roller 22 between them. This roller rests upon the sheets at the point they make their departure from the roller 8. There is shown in the drawings a plurality of such sheets, designated 23, 24, 25, 26, 27, 28, 29 and 30. Any number of sheets may be employed.

Pull off mechanism

One of the sheets 30 passes between the pull off rolls 31 and 32 which are geared together by the gears 33 and 34. This sheet 30 also passes over the roll 35 beneath the roll 31 and thence upwardly over the roll 32. The remainder of the sheets are formed into a loop while the sheet 30 after it has served its function of unwinding the roll 8 likewise passes into a loop as indicated and the sheets pass in a superimposed group over the guiding rod 36 between the guide shoulders 37, over the rod 38 between the guiding shoulders 39*a* and thence are separated one by one in succession by the rolls 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49 and 50 depending upon the number of sheets employed.

Each sheet is independently mounted upon the aligning studs 51*a*. For instance sheet 30 is first mounted upon the studs, moved forwardly a given distance, and then the next succeeding sheet 29 is mounted on the studs on top of the sheet 30. The sheets are independently, successively aligned while in loose, separated condition.

These studs are mounted upon U-shaped plates 52 which are pivotally mounted upon the pivots 53 that join the links 54 comprising the chain that is mounted upon the sprockets 55. In order to maintain the sheets in superimposed, aligned condition on the studs 51, there is provided an inverted, U-shaped track 56 whose lower edges 57 lightly engage the uppermost sur-

faces of the uppermost sheet. These tracks are suspended from the cross rails 58.

The chains themselves are slidably guided upon the angular supporting rails 59 so that the sheets are positively maintained in aligned condition on the studs and are caused to travel with the chain without tearing. The cover plate 6 encloses these rails, chains and studs.

The chains are operated through the sprockets 55 on the shaft 60 at one end. This shaft is driven through the gears 61, 62 and 63, stud shaft 64, worm 65 on the motor shaft 66 by the motor 67. The gear 61*a* on the shaft 60 drives the gear 61*b* and 61*c* which in turn drives the gears 33 and 34.

The driving of the shaft through the gear box 68 may be of any desired form but we prefer to use the intermittent complete cycle driving mechanism which is controlled by the handle 69 and is more fully set forth in our copending application Serial No. 420,267, filed January 11, 1930.

The other end of the chains is supported upon sprockets 70 mounted on the shaft 71 that is carried in the side walls of the casing. These chains and sprockets are mounted between stripping rollers 72 carried upon the shaft 71 that serve to lift the collated aligned group of sheets and deliver them in such condition out of the machine free of the collating pins 51*a*.

Separating roll mechanism

The rolls 31 and 32 are adapted to be spread apart for threading purposes through the operation of the roll shaft 73 which is provided with a cam surface which actuates the supporting plate 74 against the springs 75, the tension on which is adjusted by the setting nuts 76 against the brackets 77. The plates 74 are connected to the pins 78 that pass through the brackets 77 and springs 75 and carry the nuts 76.

A knurled head 79 is mounted on the outside end of the shaft 73 to permit of its rotation.

Threading mechanism for separating rolls

When it is desired to thread the sheets between the rolls 39 to 50 inclusive, the rolls may be lifted pivotally about their pivot shaft or axis 80 which is mounted upon a bracket 81 on the outside of the casing. This pivot 80 carries an arm 82 that has an eye at one end for receiving the pivot 80 and an eye at the other end for receiving pivotally the roll, such as 40. The roll 40 is pivotally mounted within the eye of the member 82 and retained therein by the screw 83.

The free ends of these rolls fit in slots 84 and have for that purpose a reduced throat 85 with a head 86 so that the slot in the side wall receives the reduced throat portion 85 while the head 86 extends on the outside of the casing. A common locking bar 87 is pivoted mounted on the casing at 88 and is adapted to lock all the rolls simultaneously by being inserted between the casing and the shoulder 88 of the rolls, adjacent the reduced portions 85.

This locking bar 87 is held in locked position by a spring finger 89 which forces the locking bar with its locking stud 90 into locking engagement with the recess 91 in the side wall of the register.

If it is desired to adjust the chain shaft gear 61 and its gear 62 with respect to the driving gear 63, we have provided the mounting of the gear 62 upon the stud 62*a* carried in the swinging plate 62*b* and positioned by the locking screw 62*c*.

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

1. In combination in a means for unrolling a roll having a plurality of strips, a pair of pulling rolls for one of said strips, means to cause said rolls to turn together with said strip therebetween, and means for guiding said strip to one side and over one roll on its way between said pulling rolls.

2. In combination in a means for unrolling a roll having a plurality of strips, a pair of pulling rolls for one of said strips, means to cause said rolls to turn together with said strip therebetween, means for guiding said strip to one side and over one roll on its way between said pulling rolls, and means for spreading said pulling rolls.

3. In combination, a roll having a plurality of strips, means for pulling one of said strips, driving means therefor, means for guiding said pulled strip and the remainder of the strips in loose, superimposed condition to an aligning means, a traveling aligning means, and means for synchronously driving said pulling means and aligning means.

4. In combination, a roll having a plurality of strips, means for pulling one of said strips, driving means therefor, means for guiding said pulled strip and the remainder of the strips in loose, superimposed condition to an aligning means, a traveling aligning means, means for synchronously driving said pulling means and aligning means, and means for separating said superimposed strips and delivering them to the aligning means one by one for the successive positioning of each strip upon the common travelling aligning means.

5. In combination, a roll having a plurality of strips, means for pulling one of said strips, driving means therefor, means for guiding said pulled strip and the remainder of the strips in loose, superimposed condition to an aligning means, a traveling aligning means, means for synchronously driving said pulling means and aligning means, means for separating said superimposed strips and delivering them to the aligning means one by one for the successive positioning of each strip upon the common travelling aligning means, and means for engaging said strips around said aligning means to maintain them thereon.

6. In combination, a roll having a plurality of strips, means for pulling one of said strips, driving means therefor, means for guiding said pulled strip and the remainder of the strips in loose, superimposed condition to an aligning means, a traveling aligning means, means for synchronously driving said pulling means and aligning means, means for separating said superimposed strips and delivering them to the aligning means one by one for the successive positioning of each strip upon the common travelling aligning means, means for engaging said strips around said aligning means to maintain them thereon, and means for stripping said aligning sheets as a unit in aligned condition from the aligning means.

7. In combination, a casing, roll supporting rails therein, a roll mounted thereon, a brake pivoted on said rails and in said casing, a sheet pulling means in said casing, an aligning means synchronously driven therewith supported in

said casing, and sheet separating and delivering means for delivering the sheets separately to the aligning means.

8. In combination, a casing, roll supporting rails therein, a roll mounted thereon, a brake pivoted on said rails and in said casing, a sheet pulling means in said casing, an aligning means synchronously driven therewith supported in said casing, sheet separating and delivering means for delivering the sheets separately to the align-in means, stripping means associated with said aligning means for stripping the sheets from the aligning means and ejecting them from the casing as a unit.

9. In combination, a casing, a door on one end thereof for inserting a roll, diagonal rails supported by the casing for guiding an axle of said roll to elevate it into operative position, means for retaining said roll and axle above the floor of the casing in operative position, means engaging one sheet to feed a plurality of sheets from the roll, means for guiding sheets from said roll in locked superimposed condition and an aligning means in said casing for aligning said superimposed sheets and delivering them in aligned condition from the casing.

10. In combination, a casing, a door on one end thereof for inserting a roll, diagonal rails supported by the casing for guiding an axle of said roll to elevate it into operative position, means for retaining said roll and axle above the floor of the casing in operative position, means for guiding sheets from said roll in locked superimposed condition and an aligning means in said casing for aligning said superimposed sheets and delivering them in aligned condition from the casing, means interposed between said rail and said aligning means for unrolling said roll by pulling one of said sheets therefrom, and means for synchronously driving said pulling means with the aligning means.

11. In combination, spaced chains, sprockets therefor, stripping rolls of greater diameter than said sprockets therebetween at one end of said chain, aligning studs on said chains, supporting rails for said chains and inverted U-shaped retaining members through which said studs pass.

12. In combination, spaced casing walls having slots on one edge on one side and roll pivots at the other side, arms on said pivots, and rolls pivotally mounted on said arms having restricted ends for entering the slots in the other side.

13. In combination, spaced casing walls having slots on one edge on one side and roll pivots at the other side, arms on said pivots, and rolls pivotally mounted on said arms having restricted ends for entering the slots in the other side, and a common locking bar insertable in said restricted ends of the rolls between the rolls and the inside wall of the casing.

14. In combination, a pair of spaced walls of a casing, rolls supported by said walls, one wall having slots on the upper edge thereof, each of said rolls having a restricted throat portion with a head and a shoulder, said throat portion entering said slots with the heads on the outside of the wall carrying the slots, and a locking bar pivoted on said casing and adapted to enter between the casing adjacent the slots and the shoulders on the roll adjacent the restricted portions thereof.

15. In combination, a pair of spaced walls of a casing, rolls supported by said walls, one wall having slots on the upper edge thereof, each of said rolls having a restricted throat portion with a head and a shoulder, said throat portion entering said slots with the heads on the outside of the wall carrying the slots, a locking bar pivoted on said casing and adapted to enter between the casing adjacent the slots and the shoulders on the roll adjacent the restricted portions thereof, and a spring-catch for retaining said locking bar in position.

16. In combination, a pair of spaced walls of a casing, one of which has a plurality of slots in its upper edge and the other of which has a pivot parallel to the wall, a swinging arm mounted on said pivot, and a roll pivoted in said swinging arm at right angles to the first mentioned pivot, the other end of said roll being adapted to enter one of the slots in the opposite wall of the casing.

17. In combination, a pair of spaced walls of a casing, one of which has a plurality of slots in its upper edge and the other of which has a pivot parallel to the wall, a swinging arm mounted on said pivot, a roll pivoted in said swinging arm at right angles to the first mentioned pivot, the other end of said roll being adapted to enter one of the slots in the opposite wall of the casing, a restricted portion of said roll adapted to enter said slot, said restricted portion having a shoulder on one side formed by the roll located on the inside of the casing wall having the slot and a head on the other end on the outside of the casing.

18. In combination, a pair of spaced walls of a casing, one of which has a plurality of slots in its upper edge and the other of which has a pivot parallel to the wall, a swinging arm mounted on said pivot, a roll pivoted in said swinging arm at right angles to the first mentioned pivot, the other end of said roll being adapted to enter one of the slots in the opposite wall of the casing, a restricted portion of said roll adapted to enter said slot, said restricted portion having a shoulder on one side formed by the roll located on the inside of the casing wall having the slot and a head on the other end on the outside of the casing, and a pivoted locking bar on said casing wall adapted to enter between the casing wall and the shoulder on the roll.

19. In combination, spaced chains, sprockets for each chain, a stripping roll of greater diameter than the sprockets adjacent one of the sprockets of each chain, and paper aligning pins on the chains, the radial distance between the axis of the sprockets and the surface of the roller being greater than the radial distance between the axis of the sprockets and the bases of the aligning pins.

20. In combination, a pair of sprockets, a chain on the sprockets, a stripping roll adjacent one of the sprockets of greater diameter than the sprockets, and paper aligning pins on the chain, the radial distance between the axis of the sprockets and the surface of the roller being greater than the radial distance between the axis of the sprockets and the bases of the aligning pins.

21. In combination with a casing having sides, a shaft supported on one side, a plurality of arms, each arm pivoted at one end to the shaft, a roll for each arm pivoted at one end to the other end of the arm, and means on the other side to support the other ends of the rolls.

FRANK E. PFEIFFER.
WILLIAM C. PFEIFFER.