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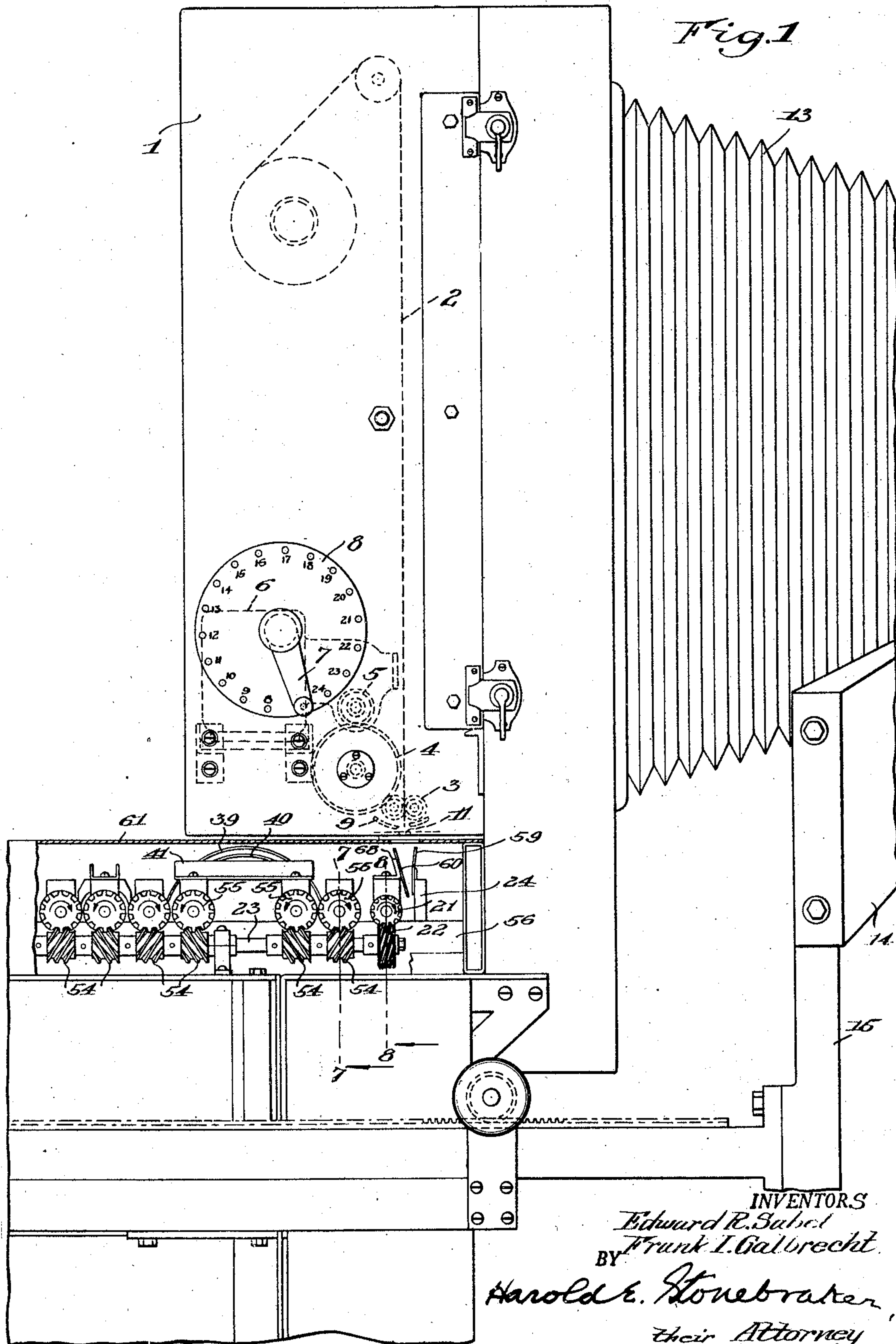
E. R. SABEL ET AL

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PAPER FEEDING MECHANISM FOR PHOTOCOPY MACHINES

Filed Aug. 16, 1946

4 Sheets-Sheet 1



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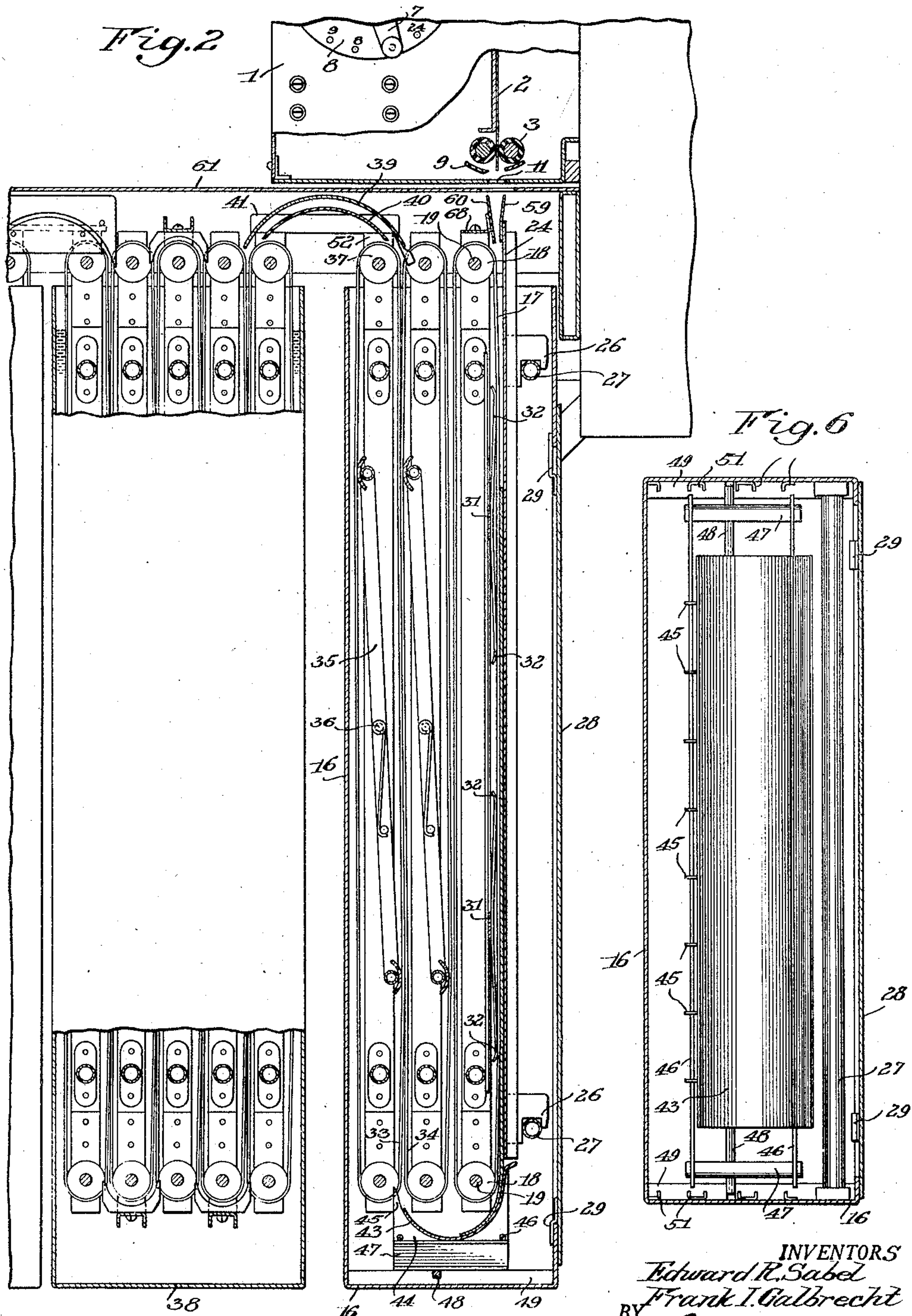
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PAPER FEEDING MECHANISM FOR PHOTOCOPY MACHINES

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4 Sheets-Sheet 2



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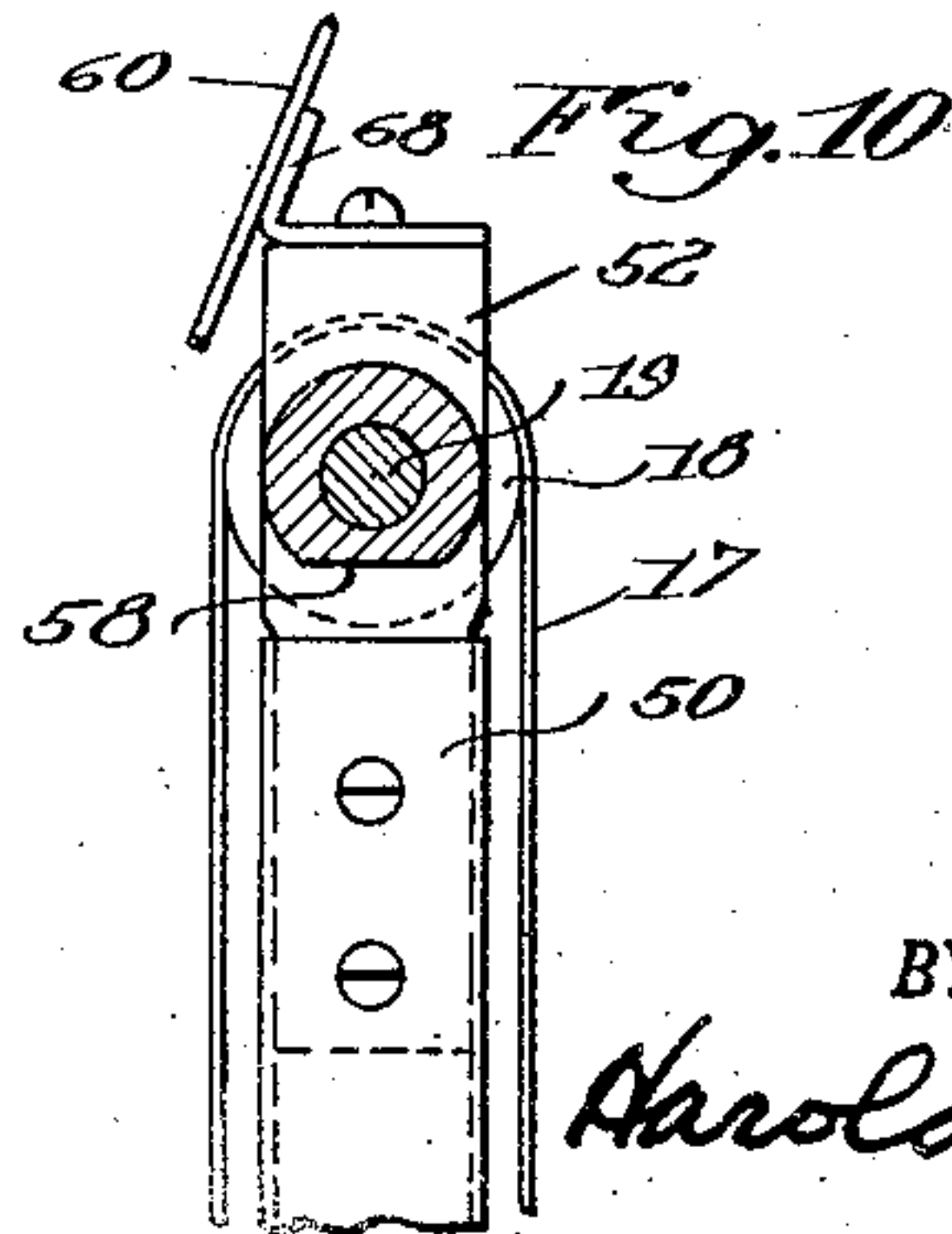
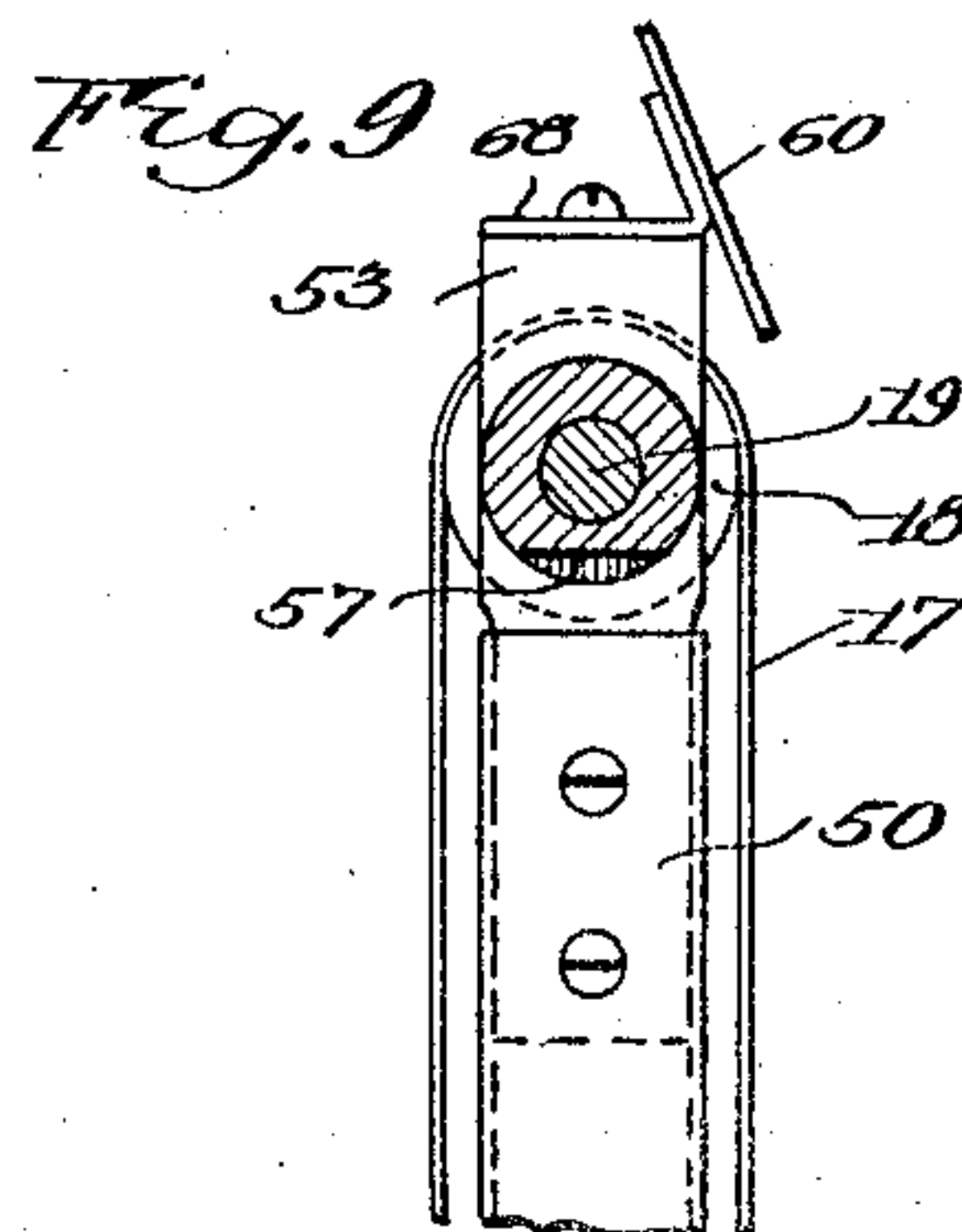
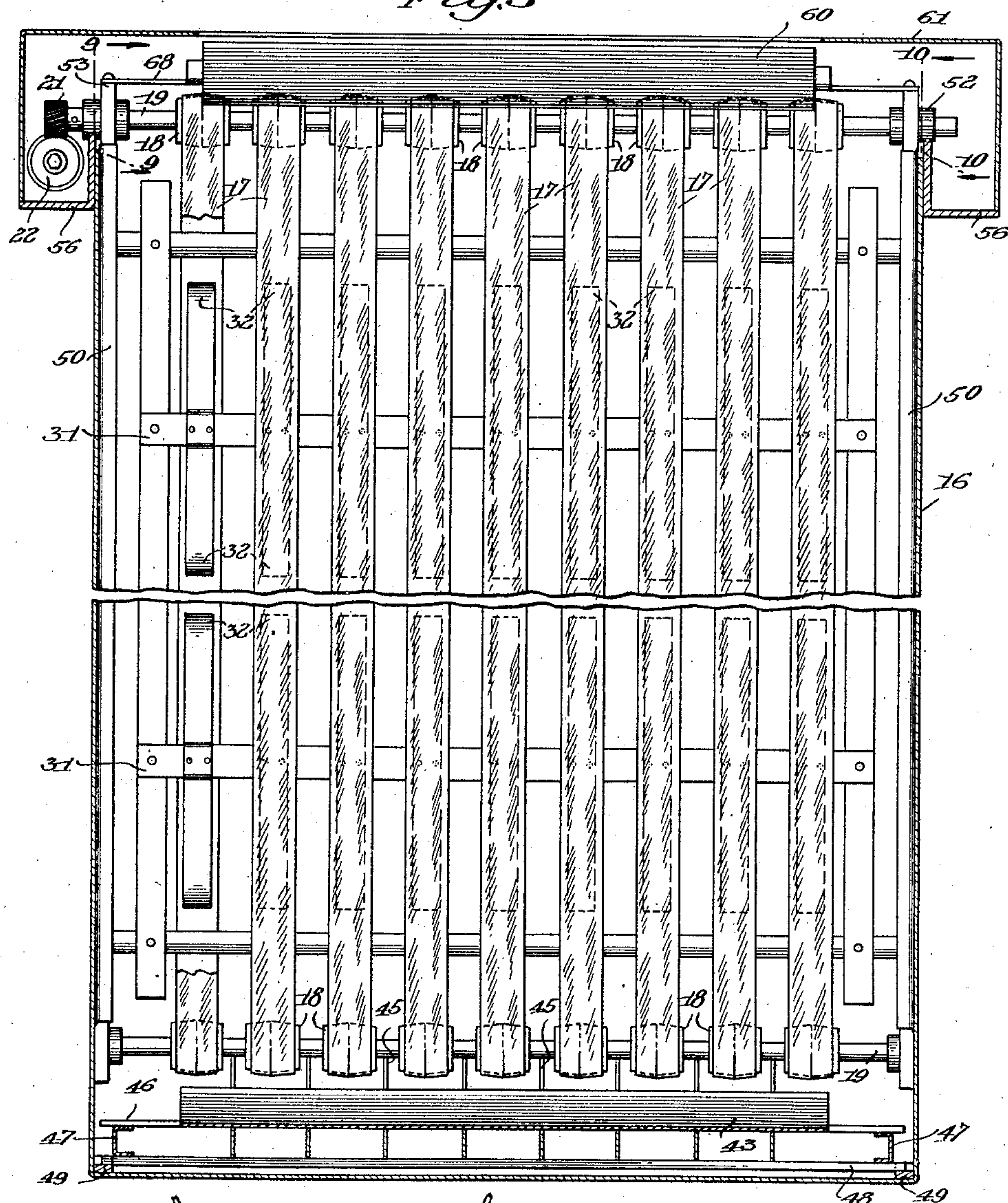
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PAPER FEEDING MECHANISM FOR PHOTOCOPY MACHINES

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Fig. 3



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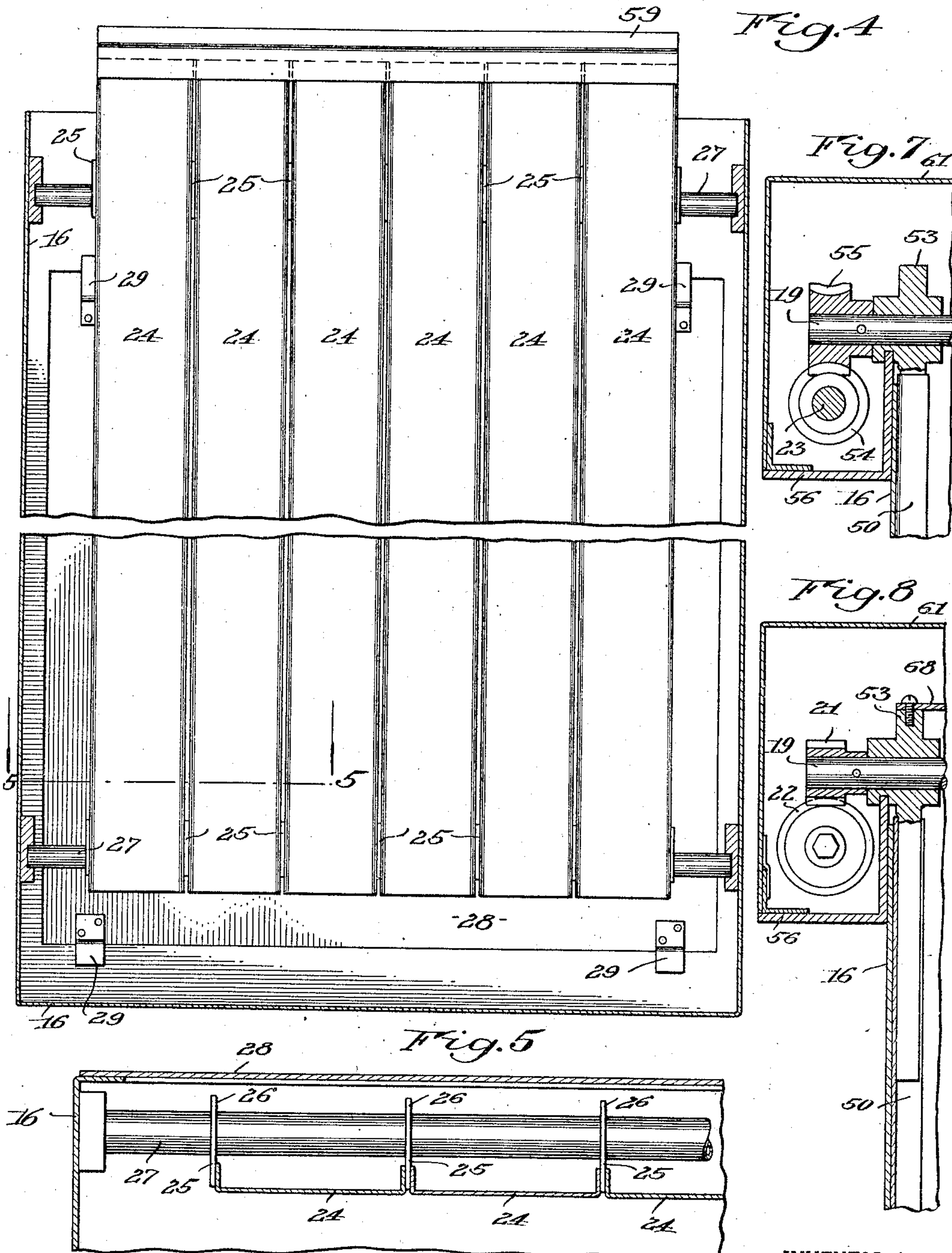
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PAPER FEEDING MECHANISM FOR PHOTOCOPY MACHINES

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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PAPER FEEDING MECHANISM FOR
PHOTOCOPY MACHINESEdward R. Sabel and Frank I. Galbrecht, Roches-
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Application August 16, 1946, Serial No. 690,982

13 Claims. (Cl. 95—13)

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This invention relates to a photocopy machine of the general type employed in making photographic copies of documents, writings, maps, and other records, and has for its object to afford a practical and efficient machine on which finished prints can be produced at a considerably faster rate and of better quality than with prior types of commercial machines.

More particularly, the invention has for its purpose to afford a structure in which prints can be continuously processed immediately after exposure, regardless of the speed at which they are discharged from the camera magazine after being exposed and cut off.

Another object of the invention is to provide mechanism including a paper magazine with feeding rollers for discharging the prints after they are exposed and cut off and processing mechanism for continuously developing and washing the prints after they leave the paper magazine, combined with fast feeding means for conveying the prints initially at a high speed after they leave the feeding rolls and until they reach a slow feeding means which conveys them from the fast feeding means into the processing mechanism, through which the prints travel at a slower speed than when issuing from the paper magazine, thus permitting the paper to be posed and cut off at maximum speed and continuously processed at a slower speed.

A more specific purpose of the invention is to provide a transfer chamber through which the prints are conveyed in a dry state from the feeding rolls in the paper magazine to the processing mechanism, the paper being carried through the transfer chamber initially at a fast speed through a path of substantial length to move them out of the way of succeeding prints and finally at a slow speed corresponding to the rate of travel through the processing mechanism, the paper being moved from the transfer chamber into the processing mechanism at such slow speed, while the initial travel at a high speed permits receiving the prints as fast as they are exposed and delivered from the paper magazine, so that successive exposures can be made as fast as desirable without being limited by the slow travel of the prints through the processing mechanism.

An additional object of the invention is to afford a construction that makes it possible to carry the paper through a transfer chamber at a high speed by a means that permits slipping between the paper and feeding means without injuring or affecting the light-sensitive or emulsion surface of the paper, through the instru-

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mentality of feeding belts that travel at a faster speed than the belts in the processing mechanism and which engage and hold the paper against a stationary surface along which the paper slides by the action of the traveling belts.

Still an additional purpose of the invention is to afford a practical and efficient structure providing a stationary surface against which an emulsion surface of the paper can be held without injury as the paper slides along over such surface prior to entering the processing tanks.

To these and other ends, the invention consists in the construction and arrangement of parts that will appear clearly from the following description when read in conjunction with the accompanying drawings, the novel features being pointed out in the claims following the specification.

In the drawings:

Fig. 1 is a view in side elevation, partially in section with parts broken away, showing a preferred embodiment of the invention as applied to a photocopy machine such as shown in copending application Ser. No. 688,200, filed August 3, 1946;

Fig. 2 is a side elevation, partially in section with parts broken away showing the paper magazine, the transfer chamber and feeding means therein, the developer tank of the processing mechanism, and the guiding means for conveying prints from the transfer chamber to the developer tank;

Fig. 3 is a transverse vertical sectional view taken through the first belt unit in the transfer chamber;

Fig. 4 is a detail view in elevation of the stationary paper guiding wall in the transfer chamber;

Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 4, looking in the direction indicated;

Fig. 6 is a horizontal sectional view taken just above the paper guiding means at the bottom of the transfer chamber, with the belt units omitted;

Fig. 7 is a vertical sectional view on line 7—7 of Fig. 1 showing the supporting and driving means for one of the slow traveling belt units;

Fig. 8 is a similar view on line 8—8 of Fig. 1, showing the supporting and driving means for the fast traveling belt unit in the transfer chamber;

Fig. 9 is a vertical sectional view on line 9—9 of Fig. 3, and

Fig. 10 is a vertical sectional view on line 10—10 of Fig. 3.

Referring more particularly to the drawings in which like reference numerals refer to the

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same parts throughout the several views, the invention is illustrated as applied to a photocopy machine including a stationary supporting frame upon which is mounted a paper magazine 1 pivotally supported for horizontal swinging movement in relation to the camera body to replenish the supply of paper, as usual in this type of apparatus, and a supporting roll from which the sensitized paper strip 2 is unwound for exposure in the usual manner. After exposure, the paper is discharged from the paper magazine by means of feeding rolls 3 that are operated at high speed of about 60 feet per minute linear speed by means of a gear wheel 4 and pinion 5 driven from a motor 6 that is controlled in any suitable fashion, and operates when its circuit is closed to feed a predetermined length of paper, determined by adjustment of the handle 7 on dial 8, to feed a selected length of paper, which is then automatically severed by a movable knife 9 after the paper has been fed downwardly through the opening 11 in the magazine and the chute at the top of the transfer chamber to be described presently. The structure includes the bellows 13 fixed at its rear end to the camera body and provided at its forward end with the usual lens system and prism, not shown, the forward end of the bellows and lens system being adjustable for focusing by means of arms 14 connected thereto and to a horizontal adjustable frame 15 on which the copyboard is mounted, for adjusting the copyboard, lens system and prism, in accordance with the disclosure of copending application Ser. No. 688,200, filed August 3, 1946.

The parts thus far described form no part of the present invention except as hereafter indicated, and are disclosed to show their relationship to the mechanism for transferring the paper prints from the fast traveling feeding rolls 3 to the slow moving feeding belts of a continuous processing mechanism, without necessitating any slowing of the exposing, feeding, and cut-off operations, and the mechanism for effecting these purposes will now be described in detail.

The processing mechanism includes a series of liquid tanks, and removable belt units for carrying the prints to and through the tanks successively, and since the prints travel through the processing tanks at a speed of about 11.2 feet per minute or a much slower rate than that at which they are ejected from the paper magazine by the feeding rolls 3, the speed of exposing and feeding the prints from the paper magazine has been limited by the speed of movement of the prints through the processing tanks, and the chief object of the invention is to process the prints continuously and immediately upon their discharge from the paper magazine after exposure, while providing for fast removal of the prints from the path of successive oncoming prints, and then feeding the prints at the required lower speed to and through the processing mechanism so that the slower movement of the prints through the liquid tanks does not retard or affect in any way the speed at which the paper can be exposed, fed from the magazine, and cut off, thus enabling immediate and continuous processing with a much faster speed of production than heretofore.

To accomplish this, there is provided a dry transfer chamber or tank 16, within which is removably mounted a belt unit consisting of a multiplicity of belts 17 of cotton or other suitable fabric, traveling around upper and lower pulleys 18 which are mounted on shafts 19 suitably sup-

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ported in a removable frame, the upper shaft 19 being provided with a worm gear 21 driven by a worm 22 mounted on the worm shaft 23 to which power is supplied from any suitable source, not shown. The worm gear 21 is so designed in relation to worm 22 as to rotate the shaft 19 and to move the belts 17 at a fast speed of about 67.2 feet per minute or somewhat faster than the linear speed of travel of the feed rolls 3, so as to grip the paper as it is discharged from the paper magazine by the feed rolls 3, and carry it downwardly toward the bottom of the transfer chamber 16 at a fast speed.

The paper is fed downwardly in the transfer chamber by the action of the belts 17, which press the sensitized or emulsion surface of the paper against a smooth stationary surface along which the paper slides without injuring or affecting its emulsion surface. The stationary surface against which the paper slides is preferably constructed as shown in Figs. 4 and 5, and is made up of a multiplicity of U-shaped metal panels 24 having their side walls welded or otherwise fastened together to form a stiff, integral, complete unit, and secured between the side walls near the top and bottom thereof by any suitable permanent attachment are plates 25 provided with hook portions 26, see Figure 2, that detachably engage rods 27 permanently secured between the side walls of the transfer chamber 16, thus permitting removal of the stationary surface or wall when necessary, while 28 designates a removable panel suitably attached by means of the lugs 29, over an opening formed in the front of the transfer chamber 16, to permit access to the paper guiding wall.

The belts 17 on the removable belt unit are actuated toward the stationary wall to engage the paper prints thereagainst by means of springs fastened to cross-bars 31 of the removable belt unit, and including terminal portions 32 that engage the belts and force them yieldably against the paper, so that as the belts travel downwardly, they engage the paper with sufficient friction to slide it along the smooth surface of the stationary wall, while at the same time permitting relative sliding between the paper and the belts when the paper is of such length as to be engaged by the feeding rolls and the belts at the same time and the linear speed of travel of the belts is somewhat greater than the speed of the feeding rolls, or when the paper is of such length as to be engaged simultaneously by the fast traveling belts just described and the slow traveling belts which carry the paper upwardly through the transfer chamber and to the processing mechanism, as will now be described.

The paper, after traveling downwardly in the transfer chamber, is moved upwardly therein at a slower speed than its downward travel, or at a speed of about 11.2 feet per minute, by means of two sets of feeding belts indicated at 33 and 34 respectively, each set of belts being mounted on a removable unit positioned within the transfer chamber, and actuated into engagement with the paper by means of the spring-operated followers 35 that are pivotally mounted at 36 on the frame, which supports the several belts and the pulleys 37 around which the belts travel at the top and bottom of the frame. The belt units on which belts 33 and 34 are mounted are constructed the same as the previously described belt unit, except for the detail structure of the spring followers 35.

The processing mechanism includes tanks for

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developing and washing the prints, and since the details of the processing mechanism form no part of the present invention except as herein indicated, there is illustrated only the tank 38 which contains the developer liquid, and which is suitably provided with feeding belt units for conveying the prints downwardly and upwardly successively through the developer solution. The feeding belts, pulleys, and supporting frame are the same as already described and in order to convey the paper prints from the transfer chamber to the liquid tank 38 of the processing mechanism, there is provided a curved passageway connecting the points between the upper ends of the two upwardly feeding belt units in the transfer chamber and the first pair of belt units in the liquid tank 38.

This is accomplished by means of spaced upwardly curved plates 39 and 40, arranged as shown in Fig. 2 and extending across the entire length of the belt-feeding units, said plates being attached at their ends to cross-pieces 41 which are suitably fastened to the frames in which the belts and pulleys are mounted. As the paper prints are carried upwardly through the transfer chamber and emerge at the top thereof from between the belts 33 and 34, they are guided into the passageway formed between the plates 39 and 40, and are thus guided from the transfer chamber to the liquid tank 38 where they enter between the initial sets of feeding belts for movement through the processing tank in a manner that will be apparent.

It is also necessary to guide the paper prints at the bottom of the transfer chamber from the fast feeding means to the slow traveling belts, and this is accomplished by means of a curved guide plate 43, see Figs. 2 and 6, which extends the entire length of the transfer chamber and is supported on a multiplicity of spaced vertically arranged plates 44 that terminate in fins 45 extending between adjacent pulleys of the belt units, the plates 45 being mounted on a frame including rods 46 attached to end cross-pieces 47, to which is secured a longitudinal bar 48 that engages a corresponding recess in the bottom supports 49 fixed in the chamber, so as to position the guide plate accurately in the bottom of the transfer chamber. The forward end of the curved guide plate 43 terminates under the bottom of the stationary paper guiding wall, so that as the prints leave the lower end of the paper guiding wall and the feeding belts 17, they are deflected by the curved plate 43 around the bottom of the transfer chamber, thence upwardly between the belts 33 and 34 until gripped by the latter to be conveyed upwardly thereby and to the upper end of the transfer chamber, into the curved passage already described.

The belt-feeding units include upper and lower pulleys with individual belts traveling around each pair of pulleys, the entire unit being removable from the machine for servicing, and in the construction shown, each detachable unit, as shown in Fig. 3, includes belts, pulleys, pulley-supporting shafts, and spring-actuated belt followers, all mounted on a frame including upright members 50 that are removably and slidably engaged between guideways formed between the vertical tracks 51, see Fig. 6, fixed to the side walls of the tanks, and the vertical members 50 carry the bearings 52 and 53 within which the top pulley shaft 19 is mounted. The pulley shaft 19 is driven from the power shaft 23 through the worm 22 and worm gear 21 already described, and

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the pulley shafts on which belts 33 and 34 are arranged are driven from the same power shaft through reversely operating worms 54 and worm gears 55, which are designed to give a lower speed of rotation to the pulley shafts that control the slow-feeding belts 33 and 34, which travel at about 11.2 feet per minute, while the worm 22 and worm gear 21 are designed to give a much faster rotation to the pulley shaft 19 that effects movement of the fast traveling belt 17 at a speed of about 67.2 feet per minute and which actuate the paper prints against the stationary surface during their downward travel in the transfer chamber, as already described.

In order to accurately position each removable belt unit in its tank in proper relation to its driving worm, each feeding belt unit is supported at its upper end on angle irons 56, see Fig. 3, suitably fastened to the frame of the machine and extending lengthwise thereof. The bearing 53 is recessed on its lower side, as indicated at 57, to interlock with the upper edge of angle iron 56 in order to effect proper relationship between the driving worm 22 which is mounted on a fixed part of the machine and the worm gear 21 that is a part of the removable unit and to prevent relative endwise movement between these parts, and at the opposite end of the pulley shaft, the bearing 52 has a flat lower surface 58 that rests upon the supporting edge of the angle iron and thus each feeding belt unit can be easily removed from its chamber or tank or positioned therein by a straight vertical movement while its proper positioning is assured, which greatly facilitates servicing the belt units and speeds up the production of the machine.

The chute at the top of the transfer chamber is formed by a lip 59, see Fig. 2, secured to the top of the stationary guide wall, and a lip 60 attached to the top of the adjacent belt feeding unit, Figs. 2 and 3, said lips being arranged beneath the opening 11 at suitable angles to receive the prints from the paper magazine and direct them downwardly into the transfer chamber. 61 is a removable cover or housing enclosing the tanks of the transfer chamber and processing mechanism.

In the structure thus described, the paper can be fed from the magazine in any desired lengths at maximum speed, and by the time a second exposure has taken place and the paper is fed from the magazine, the previous print has been removed from its path by the fast feeding means that carries the prints downwardly in the transfer chamber at a speed somewhat faster than they are discharged from the paper magazine. The space in the transfer chamber is always sufficient to accommodate a succession of prints as fast as they are delivered from the paper magazine, regardless of the speed of the feeding rolls. At the bottom of the transfer chamber, the prints are picked up by the slow-feeding belts which carry them upwardly and out of the transfer chamber, where they are guided into the first liquid tank of the processing mechanism, and consequently the slow speed of travel of the prints through the processing mechanism does not in any way interfere with successive fast exposures and delivery of the prints from the magazine at any desired speed. The prints can be exposed and immediately processed in a continuous operation at a much greater speed than has been possible heretofore in machines where the time interval between successive exposures or the speed at which the prints are delivered from the paper magazine

has been dependent upon the speed at which they travel in the processing mechanism.

While the invention has been described in relation to the structure shown herein, it is not confined to the details disclosed, and this application is intended to cover such modifications or departures as may come within the purposes of the improvements and the scope of the following claims.

We claim:

1. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, of fast feeding belt-conveying feeding means arranged immediately adjacent to said feeding rolls and traveling at a faster linear speed than said feeding rolls, and slow feeding belt-conveying means traveling at the same linear speed as said liquid tank feeding belts and located between said fast feeding means and the liquid tank acting to feed paper from the fast feeding means to the feeding belts in the liquid tank at the slow speed of the latter.

2. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, of fast downwardly feeding belt-conveying means immediately beneath said feeding rolls traveling at a faster linear speed than said feeding rolls and acting to move the paper downwardly at a fast speed, and slow upwardly feeding belt-conveying means located between said fast feeding means and the liquid tank feeding belts acting to convey the paper upwardly from said fast feeding means to the belt-conveying means in the liquid tank at the slow speed of the latter.

3. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, of fast feeding belt-conveying means immediately beneath said feeding rolls including a fixed vertical surface against which the emulsion side of the paper slides and a series of vertical belts traveling at a faster linear speed than said paper feeding rolls, means for pressing said belts against said fixed surface, and two sets of slow moving belts traveling at the same speed as the liquid tank feeding belts and arranged between the fast feeding means and the liquid tank feeding belts acting to feed paper from said fast feeding means to the belt conveyors in the tank at the slow speed of the latter.

4. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, of fast feeding belt-conveying means immediately adjacent to said feeding rolls including a fixed surface against which the emulsion side of the paper slides and a series of belts traveling at a faster linear speed than said paper feeding rolls, means for pressing said belts against said fixed surface, and slow feeding means traveling at the same linear speed as the liquid tank feeding belts and located between said fixed surface and the liquid tank acting to convey the paper from the fast feeding means to the belt conveyors of said tank at the same speed as the latter.

5. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a transfer chamber, fast feeding belt-conveying means in the transfer chamber adjacent to said feeding rolls and traveling at a faster linear speed than said feeding rolls, and slow feeding belt-conveying means in the transfer chamber traveling at the same linear speed as the liquid tank feeding belts and located between said fast feeding means and the liquid tank acting to convey paper from the fast feeding means to the liquid tank feeding belts at the same speed as the latter.

6. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a vertically arranged transfer chamber, fast feeding vertically traveling belt-conveying means in the transfer chamber traveling at a faster linear speed than said feeding rolls and located beneath said feeding rolls operating to move paper from the feeding rolls to the bottom of the transfer chamber at a faster speed than said feeding rolls, and two sets of vertically arranged feeding belts in the transfer chamber traveling at the same speed as the liquid tank belts operating to carry the paper from the bottom of the transfer chamber to the liquid tank at the same speed as the belts in the tank.

7. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a transfer chamber, two sets of feeding belts in the transfer chamber traveling at the same speed as the belts in the liquid tank and operating to carry paper from the bottom of the transfer chamber to the liquid tank, a stationary paper guiding wall in the transfer chamber beneath said feeding rolls, and feeding belts located adjacent to said stationary wall and traveling at a faster speed than the aforesaid belts, said fast traveling belts acting to press the paper against said stationary guiding wall and to move it along in contact with said wall from the feeding rolls to the bottom of the transfer chamber.

8. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a transfer chamber, two sets of feeding belts in the transfer chamber traveling at the same speed as the belts in the liquid tank and operating to carry paper from the bottom of the transfer chamber to the liquid tank, a stationary paper guiding wall in the transfer chamber beneath said feeding rolls and including a multiplicity of vertically arranged U-shaped panels rigidly attached at their side walls, and feeding belts located adjacent to said stationary guide wall and traveling at a faster speed than the aforesaid belts, said fast traveling belts acting to press the paper against said stationary guiding wall and to move it along in contact with said wall from the feeding rolls to the bottom of the transfer chamber.

9. In a photocopy machine, the combination with a paper magazine and paper feeding rolls,

processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a transfer chamber, two sets of feeding belts in the transfer chamber traveling at the same speed as the belts in the liquid tank and operating to carry paper from the bottom of the transfer chamber to the liquid tank, a stationary paper guiding wall in the transfer tank beneath said feeding rolls and including a multiplicity of vertically arranged U-shaped panels rigidly attached at their side walls, supporting hook elements arranged near the top and bottom of said wall between adjacent panels and fixedly secured thereto, horizontally arranged rods on which said supporting hook elements are detachably engaged, and feeding belts located adjacent to said stationary guiding wall and traveling at a faster speed than the aforesaid belts, said fast traveling belts acting to press the paper against said stationary guiding wall and to move it along in contact with said wall from the feeding rolls to the bottom of the transfer chamber.

10. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, of a vertically arranged stationary surface beneath the feeding rolls adjacent to the path of the paper, fast traveling vertically arranged belts traveling at a faster linear speed than said feeding rolls and movable adjacent to said stationary surface acting to move the paper along said surface at a faster speed than that of the feeding rolls, and two sets of vertically arranged paper feeding belts located between said stationary surface and the liquid tank traveling at the same speed as the belts in the liquid tank and acting to carry the paper therebetween from said stationary surface to the liquid tank at the same speed as the belts in the tank.

11. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a vertically arranged transfer chamber located beneath said feeding rolls, vertically arranged belt-conveying means in the transfer chamber traveling at a faster linear speed than said feeding rolls and acting to feed paper from said feeding rolls to the bottom of the transfer chamber, two sets of vertically arranged feeding belts in the transfer chamber between the liquid tank and the bottom of the transfer chamber traveling at the same speed as the belts in the liquid tank and operating to carry the paper from the bottom of the transfer chamber to the liquid tank, and a pair of spaced arcuate plates affording an upwardly curved passage extending between points immediately above the last mentioned feeding belts in the transfer chamber and the feeding belts in the liquid tank whereby the paper is fed from the transfer chamber to the liquid tank at the same speed as the feeding belts in the latter.

12. In a photocopy machine, the combination

with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a transfer chamber, two sets of feeding belts in the transfer chamber traveling at the same speed as the belts in the liquid tank and operating to carry paper from the bottom of the transfer chamber to the liquid tank, a pair of spaced arcuate plates affording an upwardly curved passage extending between points immediately above the feeding belts in the transfer chamber and the feeding belts in the liquid tank, a stationary paper guiding wall in the transfer chamber beneath said feeding rolls, feeding belts located adjacent to said stationary wall and traveling at a faster speed than the aforesaid belts, said fast traveling belts acting to press the paper against said stationary wall and to move it along in contact with said wall to the bottom of the transfer chamber, and a curved guide plate at the bottom of said transfer chamber extending from the bottom of said stationary wall to a point between the lower ends of said two sets of feeding belts.

13. In a photocopy machine, the combination with a paper magazine and paper feeding rolls, processing mechanism including a liquid tank and paper feeding belts therein traveling at a slower linear speed than said feeding rolls, a transfer chamber located beneath said feeding rolls from which paper is movable to the bottom of the transfer chamber, two sets of feeding belts in the transfer chamber traveling at the same speed as the belts in the liquid tank and operating to carry the paper from the bottom of the transfer chamber to the liquid tank, a stationary paper guiding wall in the transfer chamber beneath said feeding rolls, feeding belts located adjacent to said stationary wall and traveling at a faster speed than the aforesaid belts, said fast traveling belts acting to press the paper against said stationary wall and to move it along in contact with said wall to the bottom of the transfer chamber, pulleys for the aforementioned belts, and means for conveying the paper from the bottom of said stationary wall to said two sets of feeding belts comprising an arcuate guide plate extending from a point beneath said wall to a point between the lower ends of said feeding belts, and a multiplicity of spaced vertically positioned supporting plates beneath said guide plate terminating in fingers extending between the pulleys of the belts on the outermost of said two sets of feeding belts.

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