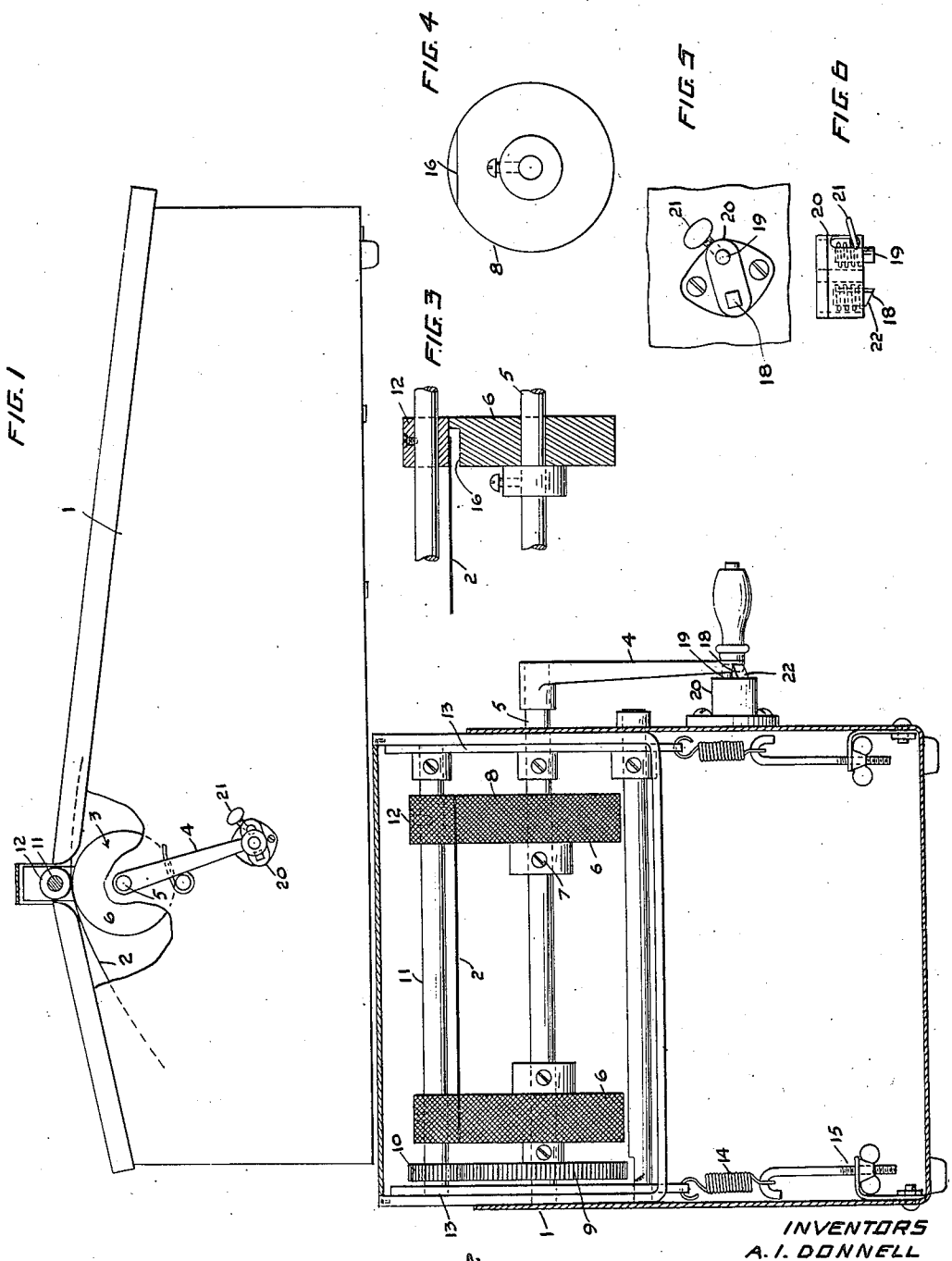
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ROLL FEED DEVICE

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ROLL FEED DEVICE.

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To all whom it may concern:

Be it known that we, ANDREW I. DONNELL and HENRY F. WRUCK, citizens of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Roll Feed Devices, of which the following is a specification.

The present invention relates to improvements in devices for feeding paper or other similar material adapted to be drawn thru machines or advanced from one point to another, such, for example, as the paper in manifolding and registering machines.

The invention is particularly designed for use in connection with manifolding registers employing fan fold paper but may be used with other machines of a similar nature, whether or not fan fold or ordinary roll paper is employed. In manifolding registers of the type above referred to, the paper is advanced so as to be written upon by the turning of a handle or crank, the paper being advanced a predetermined extent upon each operation of the advancing mechanism. When it is desired to provide for advancing paper, to a greater or less extent than that ordinarily intended in the particular machine, it is necessary to reconstruct the machine with relation to the advancing means or to have the machine especially made for advancing paper to a given distance or given length.

The present invention contemplates the provision of feed means which is of such construction that it may be readily and easily rearranged for advancing paper in different lengths without necessitating the employment of new parts or the general construction of the machine, it only being necessary to change one part of the machine in order to regulate the advancing of the paper.

An object of the invention is to provide a feed device of the character described which employs rollers as a means for gripping and feeding the paper, the said rollers being so constructed that it is only necessary to change certain of said rollers as to the shape therof, in order to vary the extent of the advancing of the paper whereby a saving in material, time and labor, and costs in general is provided for.

The invention possesses other advantages and features some of which, with the foregoing will be set forth at length in the following description where we shall outline in full that form of the invention which we have selected for illustration in the drawings accompanying and forming a part of the present specification. In said drawings we have shown one form of the construction of our invention, but it is to be understood that we do not limit ourselves to such form since the invention as expressed in the claims may be embodied in a plurality of forms.

Referring to the drawings:

Fig. 1 represents a side elevation of a manifolding register broken away so as to show the feed device of our invention as it would appear when in use.

Fig. 2 represents a view in elevation of the feed device of our invention showing the paper gripped between the feed rollers as when being advanced.

Fig. 3 is a fragmentary front elevation of part of the feed mechanism showing the paper clear of the feed rollers, as when not subject to movement thereby.

Fig. 4 is a top plan view of the main feed roller constructed in accordance with the present invention.

Fig. 5 is an enlarged fragmentary front elevation of the automatic stop provided in connection with the operating handle.

Fig. 6 is a top plan view of the catch shown in Fig. 5

Referring to the accompanying drawings in which one embodiment of our invention is illustrated, 1 designates a casing of a manifolding register, 2 represents the paper as employed in connection with the register, and 3 generally designates the paper feeding or advancing device of our invention, which device is operated by a handle 4 disposed exteriorly of the casing 1.

In the type of register shown, upon each turn of the handle the paper is advanced a predetermined distance, depending upon the lengths of the slips or bills printed upon the paper. Accordingly the handle 4 is

mounted upon a shaft 5 which is suitably journaled in the casing 1 and has mounted thereon the main feed rollers 6 of our invention. Preferably there are two of the rollers 6, each fixed by fastening means 7 to the shaft 5 each being provided with a roughened periphery 8, say, for example, from a fraction of an inch to one inch or more in width. These rollers are spaced apart so that the edges of the paper 2 will be disposed about half-way between the side edges of the peripheries upon the upper sides of the rollers, for a purpose which will be later more fully described.

A gear 9 is fixed to the shaft and meshes with a smaller gear 10 fixed to a similar shaft 11 journaled in the casing above the shaft 5. The shaft 11 carries small feed rollers 12 having roughened peripheries of widths equal to those of the rollers 6 and adapted to contact therewith.

In order to insure the proper gripping of the paper between the rollers, the shaft 11 is journaled on a frame 13 which is vertically adjustably mounted in the casing. To opposite sides of this frame retractile springs 14 are connected, said springs being secured at their lower ends to tension adjusting means 15. The tension of the springs and arrangement of the frame is such as will cause the rollers 12 to be yieldingly held in contact with the paper 2. It will thus be seen that the paper 2 engaged between said rollers will be advanced a predetermined distance when the handle 4 turns thru one revolution, the extent of the advancement of the paper being dependent upon the working surface of the rollers 6. With an ordinary machine employing two feed rollers, when it is desired to provide for a greater or less extension or movement of the paper, it is necessary to fit in new rollers having a greater or less diameter or working surface and to also provide new gears 9 and 10 having the proper ratio. In order to obviate the necessity of using new parts as above described and disassembling the machine for the purpose specified, we may use rollers such as the ones 6 of a fixed diameter and by cutting away a part of the periphery of each of the rollers, provide an off set portion 16. The width of the cut or reduction made in the roller is such that the working periphery of the roller as an advancing means is reduced, for when the cut away portion is presented opposite the rollers 12, the paper, since it extends only partly across the peripheries of the rollers, will not be gripped between the rollers. Thus the paper once during every revolution of the rollers 6 is for a period of time, during part of such revolution of the rollers, not advanced, as it would be were the cut away portions not provided. Should the paper buckle, crimp or otherwise become deranged it will automatically straighten out or readjust itself to normal position when it is released as the cut away portions of the rollers 6 are brought opposite the rollers 12.

The rollers shown with the cuts in the peripheries, say for example, will provide for an eight inch advancement of paper and should it be necessary to increase the length of the advanced paper, new rollers of the same diameter with a cut of less depth or without a cut, depending on the increase desired, may be installed without changing the gears or other parts which would ordinarily be effected by putting in rollers of greater diameter, as was necessary heretofore in the art.

With the rollers cut as shown, to provide for moving the paper a lesser extent upon each operation of the mechanism, it is only necessary to increase the depth or width of the cut so as to remove more of the working periphery of the roller.

The handle 4 will, near the end of its movement thru one revolution, encounter and slip past a spring urged locking member 18 and finally stop against a similar spring urged detent 19, both of which detents are carried in a small casing 20 fixed to one of the walls of the casing of the register. The detent 19 has a thumb piece 21 thereon which is engaged and pushed inwardly to withdraw the detent releasing the handle for turning. As the handle moves against the bevelled face 22 of the member 18, it is pushed inwardly and snaps back so as to prevent the handle from being turned in the wrong direction.

We claim:

1. A feed device comprising co-acting rollers between which material to be fed is engaged and advanced, spring means yieldingly moving said rollers into contact with one another, one of said rollers having a portion of its periphery cut away so as to avoid contact with the material during a part of every revolution of said roller, said rollers remaining in substantial contact with one another at all times.

2. A feed device comprising co-acting rollers between which material to be fed is engaged and advanced, one of said rollers having a portion of its periphery cut away so as to avoid contact with the material during a part of every revolution of said roller, and means for yieldingly forcing said rollers into contact with one another, said cut roller having a portion thereof at all times lightly contacting with the other roller.

3. A feed device comprising co-acting rollers between which material is engaged and advanced upon rotation of the rollers, one of said rollers having a portion of its periphery cut away in such manner that it will avoid engagement with the material

during a part of each revolution without disengaging the rollers.

4. A feed device comprising co-acting rollers between which material is engaged and advanced with an edge of the material spaced inwardly from the outer sides of the rollers, one of said rollers having a portion of its periphery cut away and avoiding contact with the material during a part of each revolution of the roller, the portion of the periphery not cut away remaining in contact with the other roller whereby said rollers are at all times in contact with one another.

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