

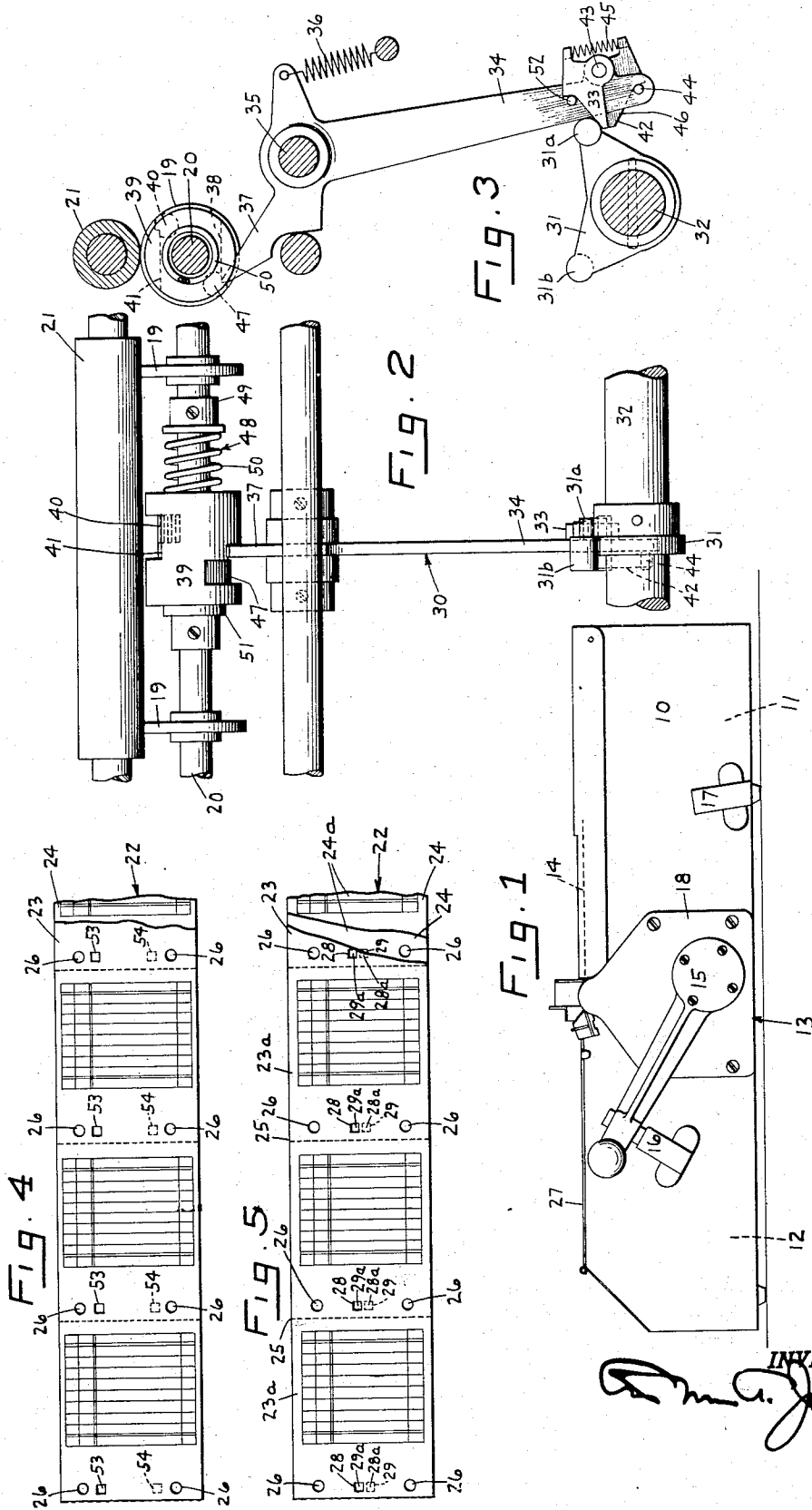
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A. A. JOHNSON

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MANIFOLDING

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INVENTOR  
*A. A. Johnson*

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## MANIFOLDING

Arthur A. Johnson, Bridgeport, Conn., assignor  
to Autographic Register Company, Hoboken,  
N. J., a corporation of New Jersey

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539,245. Divided and this application Decem-  
ber 29, 1933, Serial No. 704,406

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This invention relates to manifolding, and more particularly, to the provision of a pile of strips with feed-regulating means so arranged that predetermined strips in the superposed pile may be fed prior to or after the other strips in the pile. It is a division of my copending application Serial No. 539,245, filed May 22, 1931.

In my aforesaid application there is disclosed an autographic register with special feed and control mechanisms adapted to select, advance, cut-off and store in a master record compartment or otherwise dispose of certain sheets from a set in a pile of superposed strips and to subsequently select, advance and cut-off the remainder of the sheets in the one set of forms for disposition usually in a different manner during one operation of the feed mechanism. The success of this entire arrangement is closely related to specially formed strips forming the subject matter of the present divisional application.

Other features and advantages will hereinafter appear.

In the drawing—

Figure 1 is an elevation of a complete register on a very reduced scale.

Fig. 2 is a detail view of the regular feed mechanism and of one form of starter device which may be used to alternately start one part of a set and then the remainder of a set of sheets in a superposed pile.

Fig. 3 is a side view of the feed and starter mechanism shown in Fig. 2.

Fig. 4 is a plan view of one form of superposed strips.

Fig. 5 is a plan view of another form of superposed strips.

The novel pack of the present invention is most useful in manifolding registers at the present time and for this reason it has been so disclosed. Because machines of this order are most generally of the so-called Shoup and Oliver type disclosed in Patent No. 1,396,070, granted November 8, 1921, the present invention is disclosed as embodied in a register of this general type, but this should in no wise restrict the present invention, for it is applicant's intent that the novel pack be used in other types of machines.

The register shown in my aforesaid application Serial No. 539,245, filed May 22, 1931, also embraces and describes in detail certain improvements over said Patent No. 1,396,070, which are neither shown nor described in detail here, in an effort to more clearly show and describe the special pile of strips provided by the pres-

ent invention and the specific mechanism used therewith.

Broadly, the manifolding register comprises a substantially rectangular casing 10 having a storage supply compartment 11 at one end and a record compartment 12 at the other end with a feed mechanism 13 between the two.

The supply compartment 11 may be used to store a zig-zag folded pile of superposed strips, to store a single roll having a pile of superposed strips wound thereon, or to store several spindles each having a single strip wound thereon, either of these forms being arranged to be drawn in superposed condition across a platen 14 in a manner now well understood in this art. The record storage compartment 12 is indicative of the cut form storage type also well-known in the art.

The feed mechanism 13 comprises a hand crank or actuator 15 having a limited range of arcuate movement between the normal stop 16 and intermediate stop 17 connected to suitable gearing within the housing 18, this gearing being arranged to impart uni-directional rotation to feed disks 19 and feed disk shaft 20 during two-direction rotation of the crank, said mechanism being shown and described in detail in my aforesaid application Serial No. 539,245, filed May 22, 1931. The feed disks and shaft upon which they are mounted in combination with a pressure roller 21 are substantially like that disclosed in the aforementioned Shoup and Oliver Patent No. 1,396,070, for the disks are adapted to grip a pile of strips 23 and 24, divided throughout their length into forms 23a and 24a preferably by transverse lines of severance 25, in tractive engagement between the feed disks 19 and pressure roller 21 to advance them until the feed disks enter feed-regulating apertures 26, whereupon movement of the strips is stopped because of the lack of tractive engagement.

The said patent also discloses a manually operable structure for imparting starting movement to the pile of strips, in order to move the apertures out of registry with the feed disks and to bring the pile into tractive engagement again. The structure so far described is standard in nearly every respect and has been used very successfully in manifolding register installations where it is desired to advance the entire pile of strips one form-length at a time into a position for manual severance of a set of forms along a tear-off straight edge or for automatic severance by a knife controlled by the hand crank.

This type of mechanism finds extensive use and performs very satisfactorily in many lines of busi-

ness. However, there is nothing about it which enables selected strips in the pile to be advanced prior to the others; as for example, advancement of a top record strip 23 a single form-length for delivery into the record storage compartment 12 downwardly through the regular path of travel of the pile and then advance the remainder of the strips in the pile one form-length over the cover 27 of the storage compartment for severance there and disposition to the customer, shipping room, or the like.

Coming now to the important provisions of the present invention, it should be particularly noted that the pile of strips 22, which, for the purpose of illustration, comprises only a top record sheet 23 and two copy strips 24 with a succession of sheets or forms 23a and 24a and which may be of roll type or zig-zag folded type, is especially formed so that the top record strip 23 or other predetermined strips in the pile may be selected by the starter mechanism fully disclosed in my copending application Serial No. 539,245, filed May 22, 1931, and shown by one illustrative embodiment in Figs. 2 and 3 of the present drawing, and advanced for disposition in one manner and thereafter the balance of the strips in the pile are selected and advanced a predetermined length for disposition or disposal in another manner.

To this end the present invention provides specially formed starter escape apertures 28 in one or more of the strips, one in each form 23a of the top or record strip 23 alone in the present showing while the copy strips 24 are left with solid grip sections 29a thereunder. Similarly, the copy strips 24 are provided with starter escape apertures 29 while immediately overlying these apertures 29 the top record strip 23 is left solid grip sections 28a.

It is the provision of these starter escape apertures 28 and 29 overlying solid sections 28a and 29a which makes it possible to automatically select and advance one or more strips and then other strips in the pile to advance them alternately one form length.

Only one form of novel starter mechanism 30, for use with the novel pack 22 of the present invention, is disclosed herein and it comprises a cam 31 with a primary lobe 31a on the crank shaft 32 adapted to engage a dog 33 on the lower end of the bell crank 34 and move the latter in a counterclockwise direction about a shaft 35 against the tension of the spring 36 until a finger 37 clears a notch 38 on a starter roll carrier 39 as the crank 15 is initially pulled away from the normal stop 16 toward the intermediate stop 17, whereupon the carrier rotates with the feed disk shaft 20 in a counterclockwise direction, as viewed in Fig. 3, until a starter roll 40 thereon moves into the copy strip apertures 29 and engages with a starter portion 28a of the record strip 23 to seize this record strip and impart a small initial forward movement to it, sufficient to move the feed-regulating apertures 26 out of registry with the disks 44, whereupon the feed disks and pressure roller are in tractive engagement with the record strip and work upon the latter through the feed-regulating apertures 26 of the stationary copy strips to advance this record strip one form-length until the next succeeding feed-regulating apertures 26 of the record strip move into registry with the feed disks.

As the crank 15 is moved through the half cycle of its movement into engagement with the intermediate stop 17, the high point of the pri-

mary lobe 31a quickly rides below the dog 33 and the finger 37 rides on the periphery of the carrier 39 into the secondary notch 41 to prevent further rotation of the carrier with the feed shaft 20. During this movement a secondary lobe 31b on the cam ineffectively kicks a secondary dog 42 on the end of the bell crank 34 about the pivot 43 away from the stop 44 and against the compression spring 45 until the dog snaps back into its normal position and the lobe 31b underlies the bevel 46 portion thereof.

Subsequently, the crank 15 is moved in a counterclockwise direction, as viewed in Figure 1, from the intermediate stop 17 back toward the normal stop 16 whereupon the secondary lobe 31b on the cam 31 moving in a counterclockwise direction engages the dog 42 which is now held against clockwise movement on the pivot 43 by the stop 44 to kick the bell crank 34 in a counterclockwise direction again and releases the finger 37 from the secondary stop 41 so that another starter roll 47 on the carrier 39 rotating with the feed shaft 20 moves into engagement with the starter portions 29a of the copy strips 24 underlying the starter escape aperture 28 in the record strip 23 to seize these copy strips and impart initial advancing movement thereto, while the record strip 23 remains stationary, a sufficient extent for the feed-regulating apertures 26 of the copy strips to move out of registry with the feed disks 19 and to move these copy strips into tractive engagement between the feed disks 19 and pressure roller 21 to be advanced thereby as the feed shaft is rotated by the crank 15 and feed mechanism 13 until they have been advanced one form-length and the next succeeding feed-regulating apertures of the next succeeding forms in the copy strips move into registry with the feed disks.

The secondary lobe 31b engages the dog 42 and moves the finger 37 clear of the secondary notch 41 but very briefly and then allows the finger to ride on the carrier 39 again into the primary notch 38. The carrier 39 and starter rolls 40 and 47 thereon are held against rotation with the feed shaft 20 by a frictional clutch 48 comprising a collar 49 on the shaft 20 and a spring 50 yieldingly urging the carrier 39 against a face plate 51. During final counterclockwise movement of the cam 31 with the crank 15 and crank shaft 32 the primary lobe 31a engages the underside of the dog 33 to ineffectively kick the dog about the pivot 43 away from a stop pin 52 against the compression spring 45 until this lobe clears the dog and allows it to snap back into normal position again as shown in Fig. 3 just prior to the crank 15 reaching the normal stop 16.

Thus, only one set of forms in the superposed pile is advanced one form-length, but, according to the present invention, this is done in a divided manner; viz, predetermined strips (the record strip in the present showing) is advanced one form-length for disposal in one manner, as for example, forwardly over the cover 27 for disposal exteriorly of the machine or downwardly into the storage compartment 12 with the aid of a switching device disclosed in my aforesaid application for substantially permanent storage, and thereafter the balance of one set of forms in the pile of strips is picked up and advanced one form-length for desired distribution exteriorly of the machine. The next succeeding set of forms is then over the platen 14 in position for writing a record entry and subsequent disposal is effected in like divided

manner by again operating the crank through one full cycle.

Various forms of feeding mechanisms and starter mechanisms may be used with the novel pack of the present invention. Also, the starter apertures 28 and 29 and grip sections 28a and 29a may be variously positioned and proportioned within the purview of the present invention, a modified form being shown in Fig. 4, wherein the starter apertures 53 and 54 are spaced wire apart.

Other variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new and for which it is desired to obtain Letters-Patent, is:—

1. A new article of manufacture comprising a manifolding pack with a strip of original sheets and strips of duplicate sheets, each strip having feed-regulating apertures in each of said sheets which align when said sheets are in superposed registered relation, starter escape apertures in each duplicate sheet underlying starter engaging portions in the original sheets, and a starter escape aperture in the original sheet overlying

starter engaging portions in the duplicate sheets.

2. A new article of manufacture comprising a manifolding pack with a strip of original sheets and one or more strips of duplicate sheets, each strip having feed-regulating apertures in each of said sheets which align when said sheets are in superposed registered relation; starter engaging portions on one sheet overlying a starter escape aperture in another sheet of the pile; and a starter engaging portion in said other sheet underlying starter escape apertures in the first-named sheet.

3. A new article of manufacture comprising a manifolding pack with a strip of original sheets and one or more strips of duplicate sheets, said sheets being arranged in superposed sets and having aligned feed-regulating apertures for causing a feed mechanism to be inoperative for advancing until a starter device imparts initial movement thereto; and starter engaging portions on one or more sheets and in superposed relation to starter escape apertures in the other sheet or sheets in a set for effecting feeding of one or more sheets in advance of the other sheets in the set.

ARTHUR A. JOHNSON.