

April 5, 1938.

J. Q. SHERMAN

2,113,455

PIN TYPE FEEDING MEANS FOR MANIPOLDING MATERIAL

Filed May 28, 1936

3 Sheets-Sheet 1

Fig. 1

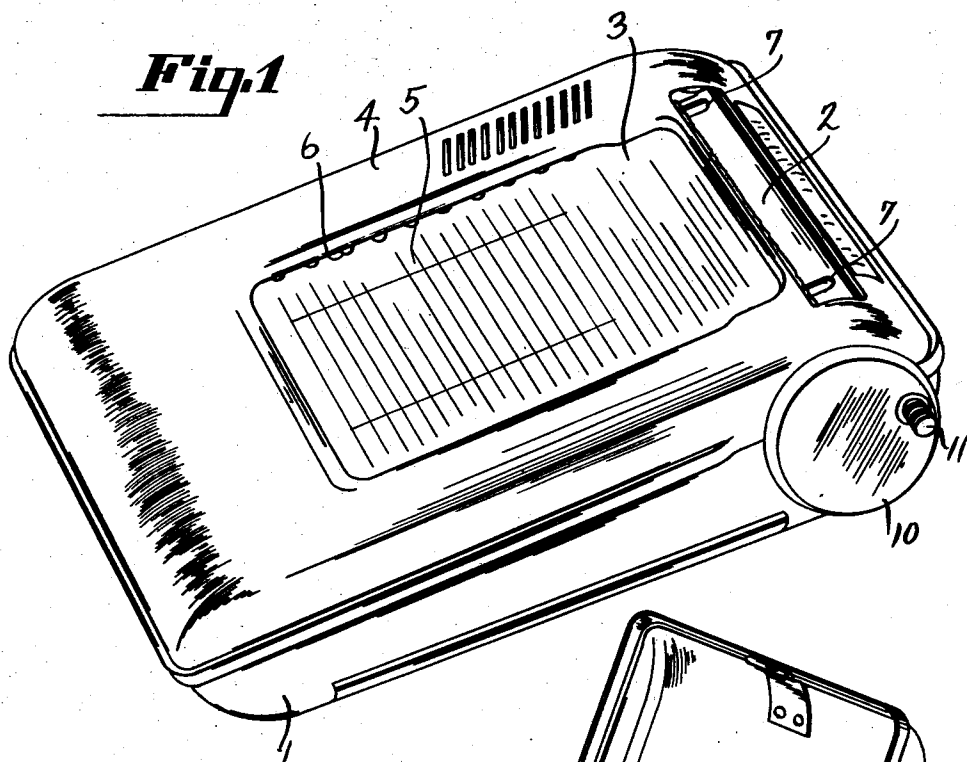
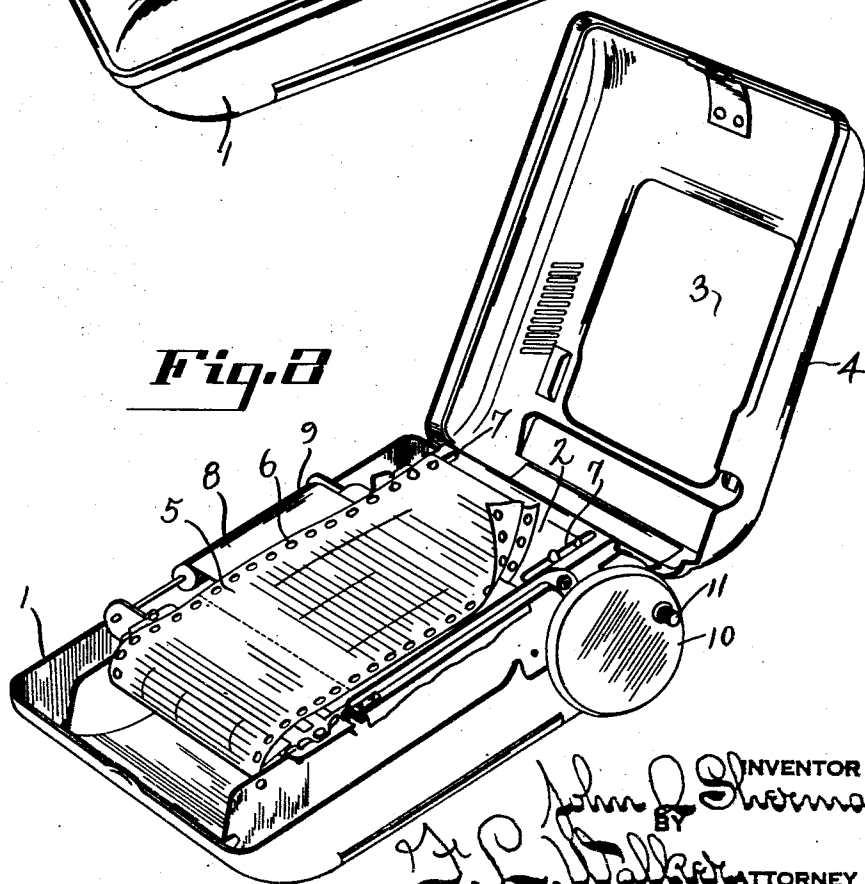


Fig. 2



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Fig. 3

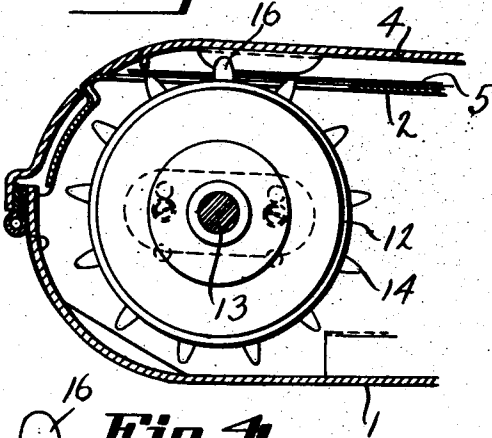


Fig. 6

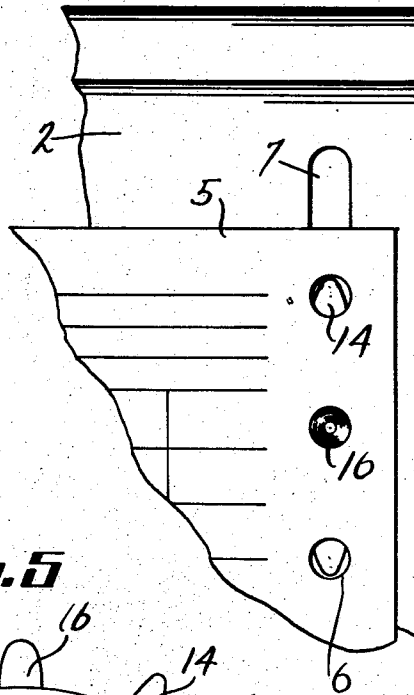


Fig. 4

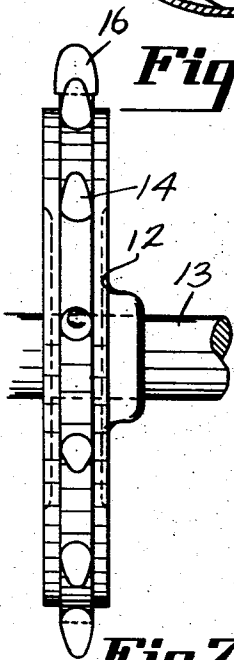


Fig. 5

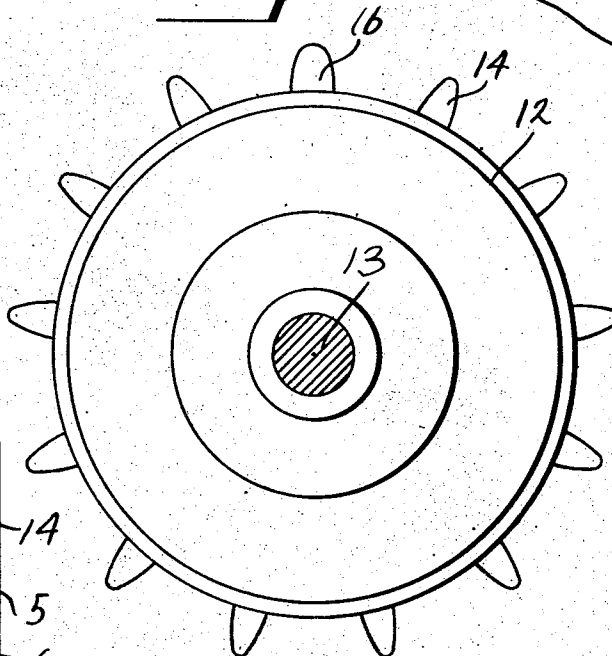
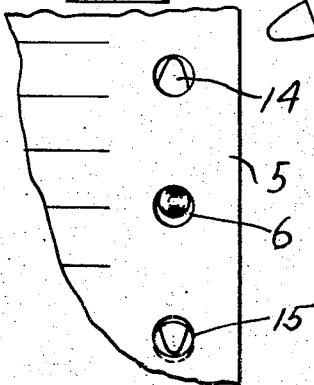


Fig. 7



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3 Sheets-Sheet 3

Fig. 9

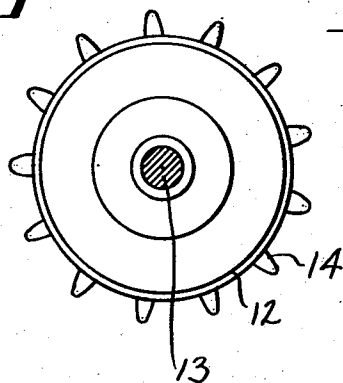


Fig. 8

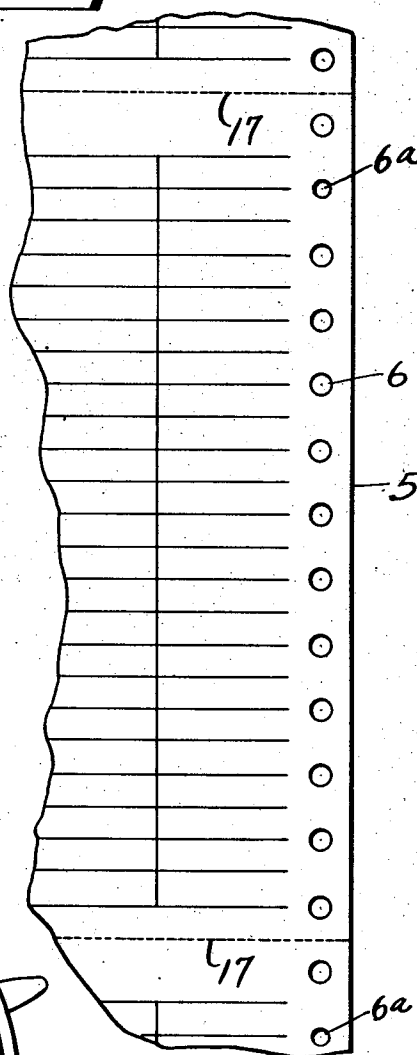
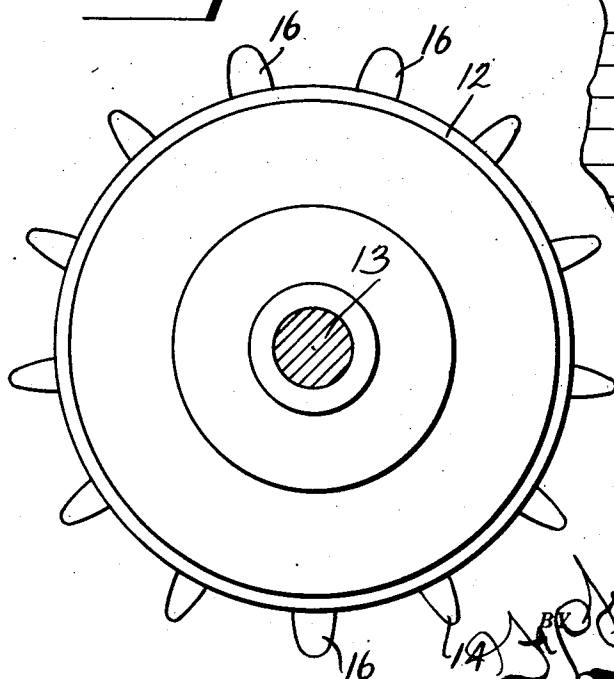


Fig. 10



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UNITED STATES PATENT OFFICE

2,113,455

PIN TYPE FEEDING MEANS FOR MANIFOLD-
ING MATERIAL

John Q. Sherman, Dayton, Ohio

Application May 28, 1936, Serial No. 82,288

38 Claims. (Cl. 271-2.4)

This invention relates to strip feeding means for advancing superposed webs of manifold-
ing material or the like into writing position and more particularly to a pin type feeding and align-
ing device adapted to maintain the registry of su-
perposed forms while in writing position. In the
use of printed forms for manifold-
ing purposes it is highly important and desirable that the
forms be presented in exact alignment and reg-
istry at the writing position and equally impor-
tant that they be so held while being inscribed.

To provide for unison advancement of the su-
perposed strips of series connected forms from
a source of supply to the writing position the
strips are marginally punched at spaced inter-
vals for engagement of the pins or studs of a
travelling pin type feeding member which may
be either a rotary wheel or a travelling endless
belt provided with studs or pins at spaced inter-
vals corresponding to the spacing of the marginal
feed holes in the strips.

Although great care is exercised in the manu-
facture of such marginally punched material
wherein the marginal holes are punched in pre-
determined fixed relation with succeeding print-
ed forms, errors and ununiformity of spacing
incident to inaccuracy of the feeding movement
of the strips through the press and to ununiform
stretch and shrinkage of the material, is quite
likely to occur.

Such ununiformity of spacing of the forms and
accompanying holes necessitates slight relative
shifting motion of the superposed strips as they
approach the writing position. The necessary
shifting motion is effected by the entrance of
succeeding studs or pins of the pin type element
into the overlapped holes of the superposed
strips, which if not in registry will be brought
into registry by the entrance of the studs or pins.
In order that the pins may enter the holes easily
and afford clearance for such relative movement
of the superposed strips as may be necessary, the
holes are of larger size than the cross sectional
area of the travelling pins. By their engage-
ment with the forward margins of the holes the
pins first advance one strip relative the other
until the margins of the corresponding holes of
different strips are in registry after which the
strips are further advanced in unison. This is
found a quite satisfactory and thoroughly prac-
tical method of aligning and registering the form
of succeeding strips as they approach the writing
position. However when arrested at the writing
position the feed holes being larger than the pins
there necessarily remains the possibility and op-

portunity for the forms to be accidentally shift-
ed out of registry with each other during the
writing operation. It has heretofore been cus-
tomary to provide clamp bars, weights, or other
holding devices for preventing such slippage. The
present invention provides for automatically re-
taining the aligned and registered forms in such
relation while in writing position by providing
in association with the succession of feeding pins
of smaller size than the feed holes, an additional
holding pin which by substantially fitting the reg-
istering holes of the superposed strips will pre-
vent their relative shifting movement.

The object of the present invention is to im-
prove the construction as well as the means and
mode of operation of pin type feeding devices for
superposed strips whereby they may not only be
economically manufactured but will be more ef-
ficient in use, automatic in action, uniform in
operation, insure increased accuracy and be un-
likely to get out of repair.

A further object of the invention is to provide
means for automatically holding the superposed
forms in their aligned and registering relation
which will engage the superposed strips after the
corresponding forms thereof have been aligned
and registered and which will release the strips
preparatory to further relative adjustment of the
strips as may be required to register the next
succeeding set of forms.

A further object of the invention is to provide
an improved pin type feeding device embodying
in association with each other both adjusting and
holding pins or studs.

A further object of the invention is to provide
a pin type feeding device for use with marginally
punched material which during a portion of its
travel movement will effect such relative adjust-
ment of superposed strips as may be required to
bring them into registry and thereafter hold such
strips in their adjusted relation.

A further object of the invention is to provide
automatic form holding means possessing the
structural features of advantage and meritorious
characteristics hereinafter mentioned.

With the above primary and other incidental
objects in view as will more fully appear in the
specification, the invention consists of the fea-
tures of construction, the parts and combinations
thereof, and the mode of operation, or its equiva-
lents, as hereinafter described and set forth in
the claims.

Referring to the accompanying drawings
wherein is shown the preferred but obviously not
necessarily the only form of embodiment of the

invention, Fig. 1 is a perspective view of a portable autographic register in which the present strip feeding means may be employed.

Fig. 2 is a perspective view of the same portable autographic register with the lid lifted to show the relative location of the marginally punched superposed strips to be fed and the pin type feeding device for engagement therewith.

Fig. 3 is a detail section view of the pin type feeding device and associated parts.

Fig. 4 is an enlarged side elevation of a pin wheel unit embodying the present invention.

Fig. 5 is a face view of such pin wheel unit.

Fig. 6 is an enlarged plan fragmentary view of a portion of a marginally punched form showing the relation of the feeding and holding studs or pins.

Fig. 7 is a similar fragmentary view showing the relation of the feeding or adjusting pins or studs.

Fig. 8 is a fragmentary view of a record strip illustrating a variation of punched holes for use with a pin wheel having uniform pins.

Fig. 9 is a side view of a pin wheel for use with the strip punched as shown in Fig. 8.

Fig. 10 illustrates a modification of the pin wheel for feeding short forms or "split tickets".

Like parts are indicated by similar characters of reference throughout the several views.

Referring to the drawings, 1 is the cabinet or housing of a portable manifold register having therein a compartment for a supply of interfolded continuous series-connected printed forms which are advanced from said supply compartment about suitable guides and over a writing tablet 2 forming the top of such cabinet into writing position beneath an opening 3 in the hinged lid or cover 4 of the cabinet 1. The record strips 5 are marginally punched at 6 for engagement of the pins or studs of a suitable pin type feeding device which project through slots 7 adjacent one end of the writing tablet 2 into engagement with the marginal holes 6 of the record strips 5. Interleaved between the record strips 5 at the writing position is a length of carbon or transfer material 8 extending transversely of the record strips 5 and supplied from a roll 9 located at one side of the writing tablet 2. The pin type feeding device is actuated to advance the record strips 5 over the writing tablet by the rotation of an operating disc 10 which carries a crank handle 11 located at one side of the cabinet 1.

In the present instance the feeding device comprises a pair of pin wheel units 12 mounted upon a shaft 13 extending transversely of the cabinet 1 adjacent to one end thereof and to the extremity of which the actuating disc 10 is connected. The pin wheel units 12 are of such size and so located that as they are rotated by manual rotation of the disc 10 the radially projecting studs or pins 14 thereof are successively projected through the slots 7 in the writing tablet 2 and through the overlapping holes 6 of superposed record strips 5. Due to inaccuracies of manufacture, irregularity in the punching of the strips, or unequal expansion and contraction thereof, the overlapping holes 6 of the superposed strips may be slightly offset or in eccentric relation as shown at 15 in Fig. 7. The feeding pins 14 are of tapered or conical form and are of somewhat less diameter at their bases than the diameters of the feed holes 6. Therefore such conical feeding pins 14 will enter easily into the slightly offset or eccentric holes 6 and by the engagement of the stud or

pin with the margin of the hole of one strip in advance of that of the other strip, the strip first engaged will be advanced slightly until the holes are in conformity with each other beyond which point the strips will be advanced in unison by the continuous feeding movement of the pins. The differential size of the holes 6 and pins 14 and clearance afforded thereby is such that after having been brought into exact registry the superposed forms may be thereafter relatively shifted out of their registered and aligned relation within the limit of the clearance afforded by the increased size of the holes 6 relative to that of the pins or studs 14.

Ordinarily although not necessarily the pin type units 12 are so proportioned that a complete rotation of the pin wheel unit is necessary to advance the strips 5 one form length. Such being the case there is provided in association with the series of feeding pins 14 an additional holding pin or stud 16 the size of which is substantially equal to that of the feed holes 6. This additional locating or holding pin or stud 16 is brought into engagement with the superposed strips 5 at the completion of each feeding operation to hold the next succeeding set of forms stationary upon the writing tablet 2. The locating or holding stud or pin 16 will substantially completely fill the engaged registering hole 6 in the strip and by obviating any clearance between the pin or stud 16 and the margins of the holes will eliminate any shifting movement of the strips 5 relative to the pin or to each other, thereby maintaining the strips in their aligned and registered relation to which they have been previously adjusted by the action of the feeding pins 14.

It will be obvious that in the event short length forms are to be fed or that the pin wheel unit 12 is so proportioned that it will advance the strips 5 the desired form length during a partial rotation of the pin wheel unit additional locating or holding studs or pins 16 may be provided at spaced intervals corresponding to the length of the form to be issued. In any event the construction and arrangement will be such that at the limit of the advance movement of the strips a predetermined distance a locating or holding stud or pin 16 of larger size than the feeding pins or studs 14 will be left in engagement in the registering feed holes 6 of the strips when the succeeding forms to be inscribed are in writing position upon the tablet 2.

This construction although extremely simple and necessitating no additional parts is found to be quite effective and efficient in stationarily holding the strips 5 during the writing operation, and possesses the advantage of being entirely automatic. It engages the strips at the limit of each advance movement and disengages the strips at the initiation of the succeeding advance movement entirely without attention of the operator and without the manipulation of any control device.

While for illustrative purposes the invention has been shown as applied to a portable autographic register it is to be understood that the invention is equally applicable to pin type feeding devices of other mechanisms such as writing machines, computing and recording machines, imprinting apparatus, pin type platens for typewriters, or other installation wherein it may be desirable to positively advance strips of material and hold such strips accurately in their advanced position while being operated upon. Although primarily intended for insuring registry

and alignment of superposed strips of record material of the manifolding assembly it is to be understood that the invention is not limited thereto, but may be employed for feeding single strips of material wherein it is desired to definitely locate the strip in a particular position of adjustment; as for example, in feeding moving picture film.

While for illustrative purposes, but with no intent to unduly limit the scope or application of the invention the locating pin 16 has been described as larger than the pins 14 and engageable in a hole the same size as those engaged by the pins 14, it is to be understood that the same result may be achieved by making the pins 14 and 16 all the same size and varying the size of the holes 6 so that at the end of a form a hole of smaller size which will substantially fit one of the pins will be encountered thereby and such smaller hole lacking clearance will prevent the relative shifting motion of the strip.

Thus the same result may be had by varying the size of the holes for use with pins of equal size or by varying the size of the pins for use with holes of uniform size.

In Fig. 8 there is shown a fragment of record strip having therein a succession of spaced feed holes 6, one of which adjacent to each of the transverse weakened lines 17 on which the strip is divisible into forms, is of smaller size as shown at 6a. For use with such strip having a succession of holes of different sizes there is shown in Fig. 9 a pin wheel the pins 14 of which are of uniform size, smaller than the holes 6 but substantially equal to the size of the smaller holes 6a. The difference in the size of the holes 6 and the feeding pins permits relative shifting motion of the strip, while the engagement of one of the pins in a hole 6a of substantially the same size as the pin will restrain such relative shifting motion of the strip.

For feeding short length forms, which are known as "split tickets" the pin wheel unit may be provided with multiple larger teeth 16 as is shown in Fig. 10. If the wheel has an even number of teeth the larger locating teeth 16 will be located diametrically opposite each other. However the length of forms and spacing of the feed holes which has been adopted as standard necessitates an uneven number of teeth in the pin wheel. Therefore it has been found expedient to provide two adjacent large pins 16 at one side of the wheel and a single large pin 16 at the opposite side of the wheel as is shown in Fig. 10. When the single pin is uppermost it will extend perpendicular to the engaged strips upon the perpendicular diameter of the wheel. Upon a half rotation of the wheel the pair of pins 16 will be uppermost but the wheel will come to rest with the pins disposed at opposite sides of the perpendicular diameter of the wheel. The purpose and function of the pins, and the result accomplished is the same as before described.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features,

it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

Having thus described my invention, I claim:

1. A pin type feeding device for advancing a strip of material having therein a succession of spaced holes, including a travelling carrier, a series of spaced feeding pins thereon for successive engagement in the spaced holes, the cross sectional size of the pins being less than the size of the holes whereby a clearance will be provided for adjusting movement of the strip relative to the feeding pins engaged in said holes, and an additional pin on the carrier having a cross sectional size substantially equal to the size of the holes and substantially filling a hole when engaged therein, said pin being so positioned upon the carrier as to be disposed in engagement in a hole of the strip at the limit of advancement of the strip by the feeding pins.

2. In a manifolding apparatus, a series of travelling feeding pins engageable in holes of larger size than the pins in superposed portions of record material for loosely advancing the record material while permitting relative shifting adjustment of the superposed portions thereof, and a travelling locating member having a size substantially equal to that of the holes and engageable in corresponding holes of the superposed portions of record material successively with the series of pins of less size than the holes and at the limit of their advance movement for temporarily holding the superposed portions of material against relative shifting movement thereof, and means for actuating the pins and the locating member successively into and out of engaging relation within the holes of the strip.

3. In a manifolding apparatus, a series of travelling feeding pins successively engageable in spaced holes of larger size than the pins in superposed portions of record material for loosely advancing such material while permitting limited relative shifting motion of said superposed portions of material relative to the pins and to each other, and a travelling pin substantially fitting the holes and automatically engageable in corresponding holes of the superposed portions of record material at the limit of the advance movement thereof and successively with the engagement thereof by the series of pins of less size than the holes, and automatically disengageable therefrom upon the initiation of the succeeding advance movement thereof, and means for actuating the pins into and out of engaging relation within the holes of the strip.

4. In a manifolding apparatus, a feeding and aligning mechanism for superposed strips of material including a plurality of feeding pins successively engageable in corresponding spaced holes in the superposed strips, the holes being of substantially larger diameter than that of the pins whereby a limited relative shifting movement of the strips relative to the pins and to each other is permitted, and an additional feeding pin of a diameter substantially equal to that of the holes engageable in corresponding holes of the superposed strips in alternation with engagement of the feeding pins for temporarily holding the strips in their adjusted relation against such relative movement.

5. In a strip feeding device, a pin wheel unit including a plurality of radial pins of equal diameter and at least one pin of greater diameter, said pins of equal diameter being successively engageable in spaced feed holes of larger size than the pins in a strip of material to be advanced, whereby the strip will be loosely fed by the smaller pins into position wherein the larger pin engages a hole of the strip and by substantially filling such hole preventing shifting motion of the strip relative thereto.

6. In a strip feeding device, a pin type feeding device including a group of feeding pins of substantially equal diameter loosely engageable in relatively spaced holes of larger size than the pins in a strip of material to be advanced and a pin of larger size associated therewith for engagement in one of said holes which it substantially fits at the completion of the advance movement by the smaller pins to hold the strip against shifting movement relative thereto.

7. In a strip feeding device, a series of pins including pins of different diameters successively engageable in spaced holes in a strip to be advanced, certain of the holes and pins engageable therein being of different sizes whereby the strip is capable of shifting movement relative thereto, and at least one other pin being of a size substantially equal to the size of the hole engaged thereby which it substantially fits to prevent shifting movement relative thereto during the period of its engagement.

8. A strip feeding device for progressively advancing a strip of material having therein a succession of spaced holes, including a series of travelling pins of less size than the holes in the strip to be engaged thereby for loosely advancing the strip while permitting limited relative shifting motion thereof, and an additional travelling pin of a size substantially equal to that of the hole to be engaged thereby and engageable in such hole at the limit of advance movement of the strip by the first mentioned pins to temporarily hold the strip against shifting movement relative thereto.

9. In a strip feeding device, a pin wheel unit including radial pins of different sizes progressively engageable in spaced holes in a strip of material to be advanced, certain of the pins being of a size substantially fitting the holes engaged thereby to restrain the strip against shifting motion thereto and other of the pins and holes engageable thereby being of different relative size whereby the strip is permitted limited shifting motion relative to the pins engageable in such holes.

10. A pin type strip feeding device, including a plurality of travelling pins progressively engageable in a succession of spaced holes in a strip of material with which certain of the pins substantially agree in size and substantially fit to restrain the strip against shifting motion relative thereto while in engagement therewith, certain other holes of the strip being larger than the pins engageable therein to permit limited shifting motion of the strip relative to the pins while in engagement therewith.

11. A pin type strip feeding device including a series of travelling feeding pins progressively engageable in a succession of spaced holes of larger size than the pins in a strip of material to be fed, and an additional pin substantially equal in size to that of a hole in the strip in which it is engageable, said additional pin being automatically engageable in the hole which it substantially fits

at the end of an advance movement by the first mentioned pins and automatically disengageable therefrom upon the initiation of the next succeeding feeding movement and means for actuating the several pins into and out of engaging relation with in the holes of the strip.

12. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the holes and pins being of substantially equal size whereby each such hole will be substantially filled by the pin engageable therein to prevent shifting movement of the strip relative to the pin and certain of the holes being larger than the pins engageable therein to permit limited shifting motion of the strip relative to the pins and means for actuating the pins into and out of engaging relation within the holes in the strip.

13. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the pins being of larger size than other pins of the series and substantially equal to the size of the holes within which they are engageable, and other of the pins being of lesser size than the first mentioned pins and of less size than the holes within which they are engageable, and means for actuating the pins into and out of engaging relation within the holes of the strip.

14. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the holes in the strip being substantially equal in size to that of the pins engageable therein whereby the strip may be held against shifting motion relative to the pins, and other of the holes being of larger size than the pins engageable therein whereby clearance is afforded for limited shifting motion of the strip relative to the pins and means for actuating the pins into and out of engaging relation within the holes.

15. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the pins being smaller than the holes in which they are engageable thereby affording clearance for shifting motion of the strip relative to the engaged pins, and certain of the pins being substantially equal in size to the holes in which they are engageable to prevent shifting motion of the strip relative thereto and means for actuating the pins into and out of engaging relation within the holes of the strip.

16. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the holes in the strip being substantially the same size as the pins engageable therein whereby shifting motion of the strip relative to the engaged pin is prevented and certain other holes of the strip being larger than the pins engageable therein to afford clearance for shifting adjustment of the strip relative to the engaged pins, and means for actuating the pins into and out of engagement within the holes of the strip.

17. In a pin type feeding device for advancing a strip of material having therein a succession of spaced holes, the combination of a carrier, a series of pins thereon having cross sectional size less than the size of the holes and successively engageable in the holes for feeding and adjusting movement of the strip, and a pin on the carrier having a cross sectional size substantially equal to the size of the holes and intermittently engageable

with a hole in the strip to maintain the strip in adjusted position.

18. In a pin type feeding device for advancing a strip of material having a succession of spaced holes therein, the combination of a travelling carrier and a series of pins thereon, a part of the pins having a cross sectional size less than the size of the holes and successively engageable in the holes for feeding and adjusting movement of the strip, and at least one of the pins having a cross sectional size substantially equal to the size of the holes and engageable with a hole in the strip at predetermined intervals to maintain the strip in adjusted position.

19. In a pin type feeding device for advancing a strip of material having a succession of spaced holes therein, the combination of a travelling carrier and a series of pins thereon, a part of the pins having a cross sectional size less than the size of the holes and successively engageable in the holes for feeding and adjusting movement of the strip, and at least one of the pins having a cross sectional size substantially equal to the size of the holes and engageable with a hole in the strip at predetermined intervals to feed the strip and simultaneously maintain the strip in adjusted position.

20. In a pin type feeding device for advancing a strip of material having a succession of spaced holes therein, the combination of a travelling carrier and a series of pins thereon, a part of the pins having a cross sectional size less than the size of the holes and successively engageable in the holes for feeding and adjusting movement of the strip, and at least one of the pins having a cross sectional size substantially equal to the size of the holes and engageable with a hole in the strip at predetermined intervals to maintain the strip in adjusted position, and means for intermittently actuating the travelling carrier, the last named pin being arranged thereon to be engaged in a hole in the strip at the termination of carrier movement through a predetermined cycle.

21. In a device for feeding marginally apertured manifold forms, a series of travelling feeding pins progressively engageable in the marginal apertures to advance the manifold forms past a writing position including pins of smaller diameter than the holes in which they engage whereby the forms are permitted relative shifting movement, and other pins substantially agreeing in diameter with the holes in which they engage whereby the manifold forms are held by such pins against relative shifting movement, and means for advancing the pins.

22. The herein described method of feeding superposed manifold forms wherein a succeeding form length is presented in writing position at each operation which includes the steps of continuously feeding the forms loosely through approximately a full form length during which the forms are free for limited relative shifting motion, and thereafter holding the forms in relatively fixed relation while completing the feeding movement thereof throughout the remainder of the form length.

23. The herein described method of feeding superposed manifold forms the distance of at least one form length at each operation including the steps of alternately feeding the forms loosely during a portion of the feeding movement, whereby they are capable of relative adjustment simultaneously with their advancement, thereafter intercoupling the superposed forms in relatively adjusted relation, and feeding such

forms while in relatively fixed relation through the completion of a form length advancement in which they are held against relative adjustment and arresting the forms in writing position while in the latter condition.

24. In an apparatus for feeding superposed strips of manifolding material, a pin type feeding device engageable in marginally punched holes in the strips of manifolding material including pins which substantially fit the holes in the manifolding material within which they engage, and other pins substantially smaller than the holes in the manifolding material in which they engage and means for transmitting motion to the pins to effect progressive engagement of the fitting and non-fitting pins in the marginal holes.

25. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the pins being of larger size than other pins of the series and substantially equal to the size of the holes within which they are engageable and other of the pins being of lesser size than the first mentioned pins and of less size than the holes within which they are engageable, the pins of two sizes being arranged relatively to each other whereby at some strip feeding periods there will be only pins of lesser size in engagement with holes in the strip, and means for actuating the pins into and out of engaging relation with holes in the strip.

26. In a strip feeding device, a series of travelling pins progressively engageable in a succession of spaced holes in a strip to be fed, certain of the pins being of larger size than other pins of the series and substantially equal to the size of the holes within which they are engageable, and other of the pins being of lesser size than the first mentioned pins and of less size than the holes within which they are engageable, the pins of two sizes being arranged relatively to each other whereby at some strip feeding periods there will be only pins of lesser size in engagement with holes in the strip, and at the completion of a feeding cycle there will be a pin of larger size in engagement with a hole in the strip.

27. A pin type feeding device having progressive registering and aligning engagement in longitudinally spaced holes in superposed strips of record material during advancement thereof, characterized by a series of relatively spaced traveling feeding pins including a succession thereof loosely engageable in the holes in the strips whereby the strips are free for relative shifting adjustment and at least one succeeding pin of the series substantially fitting a hole in the strips in which it is engageable at approximately the limit of a predetermined range of advance movement of the strips to temporarily hold the strips against relative shifting adjustment.

28. The herein described method of registering and aligning superposed strips of record material having therein longitudinally spaced holes and temporarily retaining the strips in registering and aligned relation, including the steps of progressively engaging in the holes thereof a succession of relatively spaced traveling pins certain of which substantially fits the hole in which it is engageable and others of which loosely engage in corresponding holes in the strip, withdrawing entirely the pin which substantially fits such hole from engagement with the strip and

loosely engaging other traveling pins in corresponding holes in the strips for advancement thereof while permitting relative shifting adjustment thereof during the period of withdrawal of the hole fitting pin and thereafter at substantially the limit of feeding movement reengaging in a hole of the strip a pin which substantially fits such hole.

29. The herein described method of feeding superposed strips of record material each having therein a series of longitudinally spaced holes and intermittently presenting the strips in registering and aligned relation at a record receiving position by progressive engagement in said holes in the strips of a succession of relatively spaced feeding pins characterized in that the holes in the strips are only loosely engaged by the pins during a substantial portion of each advancement of the strips during which the strips are free for relative shifting movement into registry one with another, and that thereafter the holes in the strips are closely engaged by the pins during the remainder of the feeding movement and while presented at record receiving position between succeeding feeding movements and temporarily held against relative shifting adjustment.

30. The herein described method of feeding superposed strips of record material each having therein a series of longitudinally spaced holes and intermittently presenting the strips in registering and aligned relation at a record receiving position by progressive engagement in said holes in the strips of a succession of relatively spaced feeding pins, characterized in that the pins engage only loosely in the record material and permit relative shifting adjustment of the strips during advancement thereof and that the pins engage only closely in the holes at the end of the advance movement of the strips and prevent relative shifting movement of the strips during the interval between succeeding advance movements thereof.

31. A pin type feeding device for advancing superposed strips of record material each having therein a succession of longitudinally spaced holes and intermittently presenting the strips in registering and aligned relation at a record receiving position characterized by a series of relatively spaced traveling feeding pins loosely engageable in the holes in the strips and permitting free relative shifting motion of the strips during advancement thereof and including at least one pin additional to said series substantially fitting the holes in the strips in which it is engageable at the end of the advancement of the strips to hold the strips against relative shifting movement.

32. In a manifolding apparatus cooperative with a series of superposed record strips having longitudinally spaced feed holes therein for engagement of a pin type feeding device, the combination with a series of such strips, of a series of relatively spaced traveling feeding pins including a plurality thereof loosely engageable in the holes in the strips, whereby the strips are free for shifting adjustment one relative to another and at least one succeeding pin of the series substantially fitting registering holes in the superposed strips in which it is engageable at substantially the completion of a predetermined advance movement of the strips to temporarily hold the strips against relative adjustment.

33. In a manifolding apparatus wherein multiple records are produced upon superposed record strips having therein longitudinally spaced feed

holes, successive portions of which are intermittently advanced into a record receiving position by pin type feeding means engageable in said longitudinally spaced holes, the combination with a series of such strips, of a plurality of traveling relatively spaced feeding pins loosely engageable in successive spaced holes in the strips for advancing successive portions of the strips into record receiving position and at least one additional pin traveling in unison with said plurality, engageable in registering holes in the superposed strips at the completion of each advance movement, for temporarily holding the strips against adjustment one relative to another while receiving record data thereon.

34. In a manifolding apparatus wherein multiple records are produced upon superposed record strips having therein longitudinally spaced feed holes, successive portions of which are intermittently advanced into a record receiving position by pin type feeding means engageable in said longitudinally spaced holes, the combination with a series of such strips, of a plurality of relatively spaced traveling feeding pins engageable in succeeding holes of the strips for advancing successive portions of the strips into record receiving position, the size of the holes in the strips and that of the pins being so relatively proportioned that the pins engage only loosely in the holes in the strips during advancement thereof and closely fit the engaged holes at the completion of the advance movement, enabling adjustment of the strips one relative to another into registry and alignment while being advanced to record receiving position, and preventing relative movement thereof while in record receiving position.

35. In a device for feeding manifold forms having marginal apertures for feeding purposes comprising a feeding element having pins for successively engaging in the said marginal apertures, some of the pins being no smaller in effective diameter than the apertures in the paper in which they engage, and others of the pins being of sufficiently smaller diameter than the holes in which they engage to permit shifting of relative positions of the manifold forms with relation to each other, there being sufficient smaller sized pins arranged so that at some period during the operation of feeding a manifold form, there shall be only smaller pins having feeding engagement with the manifold forms and whereby at other times the webs are held against shifting movement with relation to each other by engagement of a pin of such larger size therewith.

36. A writing or imprinting machine, wherein a strip of record material having therein longitudinally spaced holes for engagement of traveling feeding pins by which the strip is advanced past a record receiving position through successive movements of substantial length, a traveling series of spaced pins engageable in the holes in the strip or strips, and an intermittently operable traveling carrier for the pins characterized in that succeeding holes and pins are so relatively proportioned that during a substantial portion of each advancement the feeding pins engage the holes only loosely and during the remainder of each advancement they engage the holes closely in both transverse and longitudinal directions of the strip to register the strip relative to the record receiving position of the machine.

37. A writing or imprinting machine, wherein traveling feeding pins have progressive engagement in a succession of longitudinally spaced holes in a strip of record material for advancing

ing the strip past a record receiving position, a series of traveling spaced feeding pins and an intermittently operable carrier therefor, characterized in that the holes in the strip and pins engageable therein are so arranged and relatively proportioned as to be in loose engagement during advancement of the strip and in close engagement at the end of each advancement of the strip whereby the strip is held stationary against both transverse and longitudinal movement relative to the machine during rest periods between succeeding advance movements of the strip.

38. A writing or imprinting machine, wherein traveling feeding pins have progressive engage-

ment in a succession of longitudinally spaced holes in a strip of record material for advancing the strip past a record receiving position, a series of traveling spaced feeding pins and an intermittently operable carrier therefor, characterized in that the pins are of two cross sectional sizes and so arranged that the pins of smaller size engage only loosely during a portion of each feeding movement and the pins of larger size engage the holes closely during the remainder of the feeding movement in both transverse and longitudinal directions of the strip.

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