

Nov. 16, 1943.

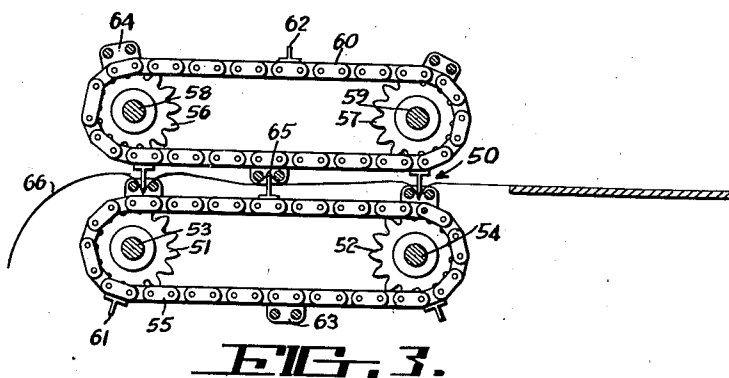
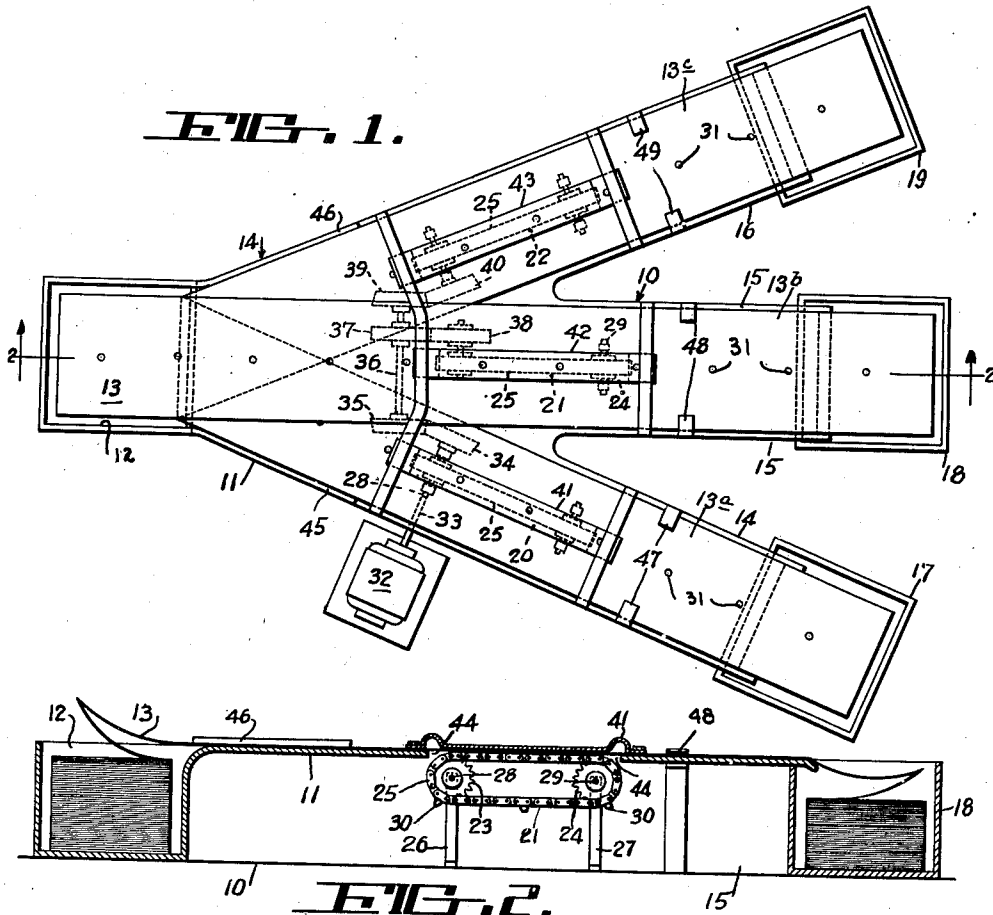
W. C. PFEIFFER

2,334,283

DECOLLATING MACHINE

Filed Sept. 4, 1942

5 Sheets-Sheet 1



INVENTOR
WILLIAM C. PFEIFFER
BY
Toulmin & Toulmin
ATTORNEYS

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W. C. PFEIFFER

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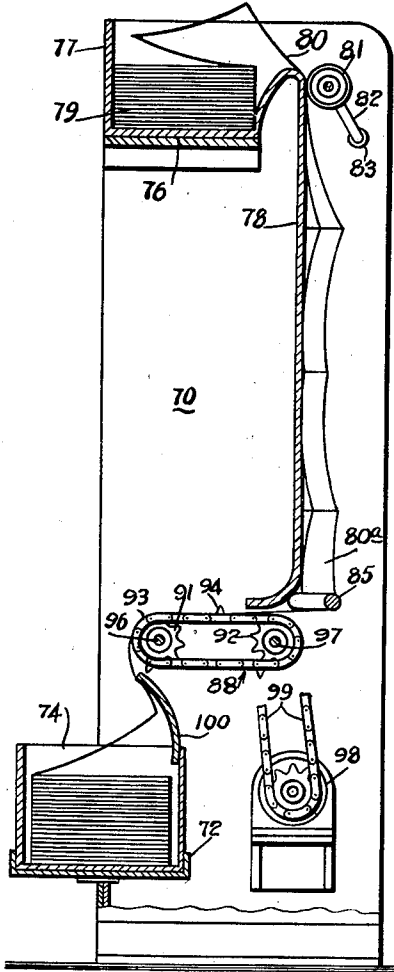


FIG. 4

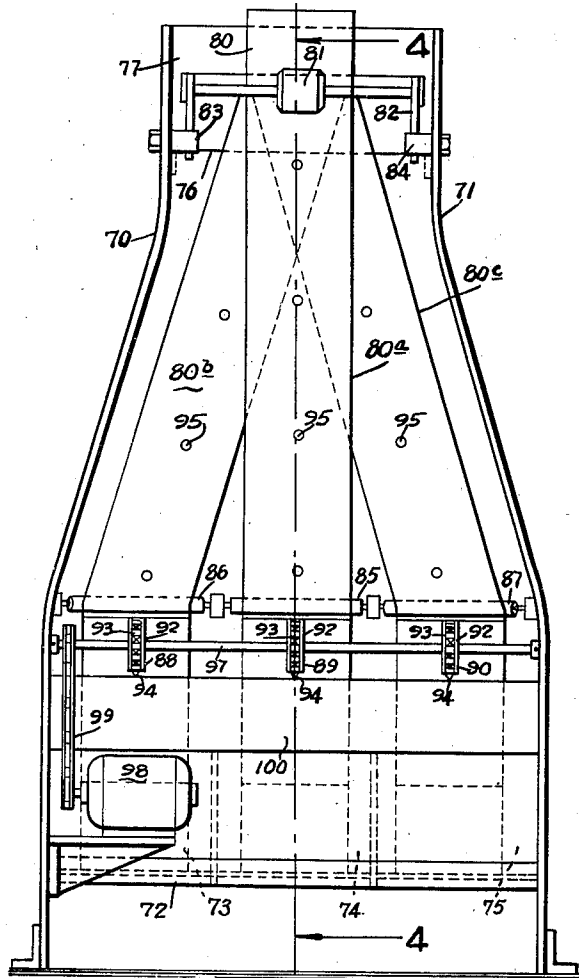


FIG. 5

INVENTOR
WILLIAM C. PFEIFFER
BY
Toulmin & Toulmin
ATTORNEY

Nov. 16, 1943.

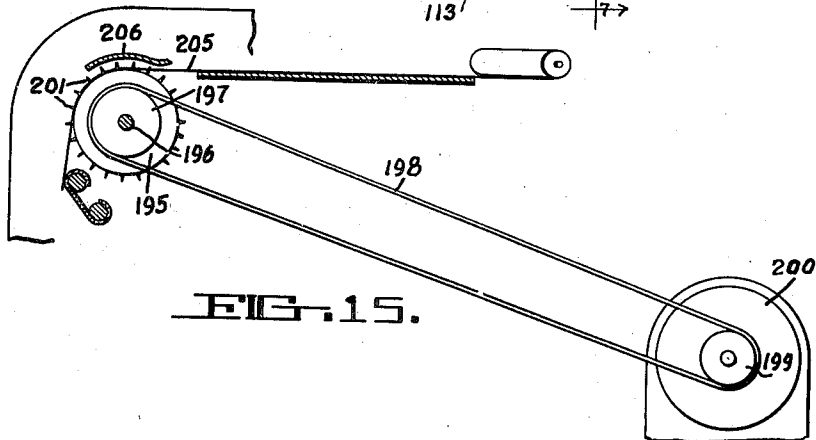
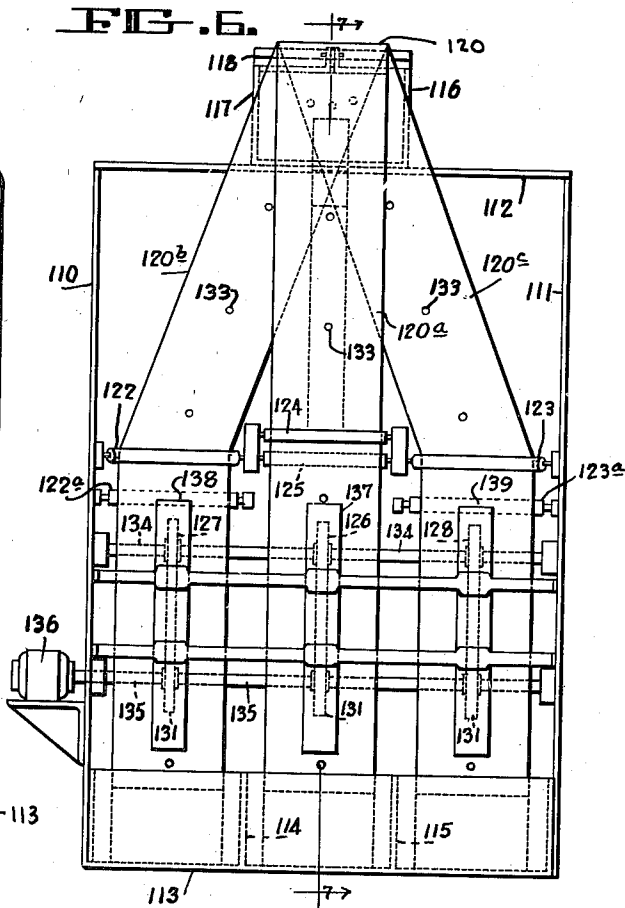
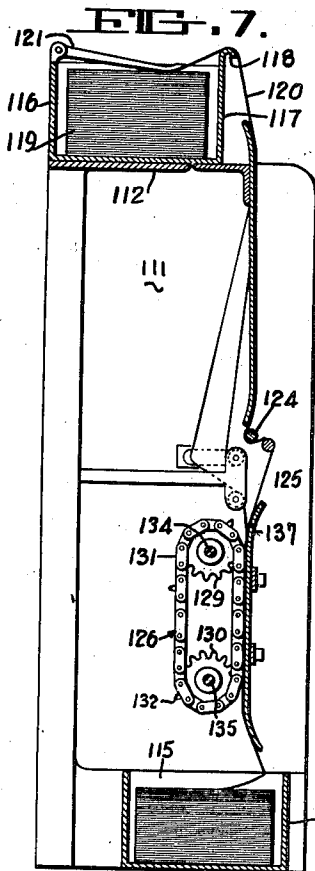
W. C. PFEIFFER

2,334,283

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5 Sheets-Sheet 3



INVENTOR
WILLIAM C. PFEIFFER
BY
Toulmin & Toulmin
ATTORNEYS

Nov. 16, 1943.

W. C. PFEIFFER

2,334,283

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5 Sheets-Sheet 4

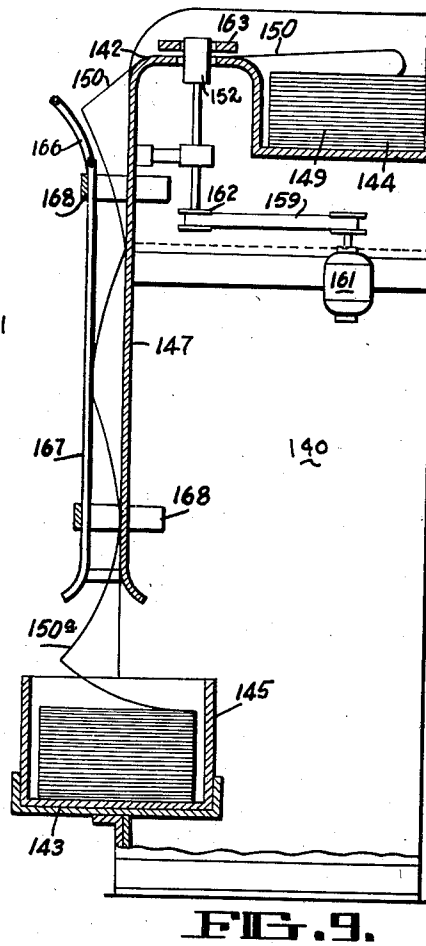
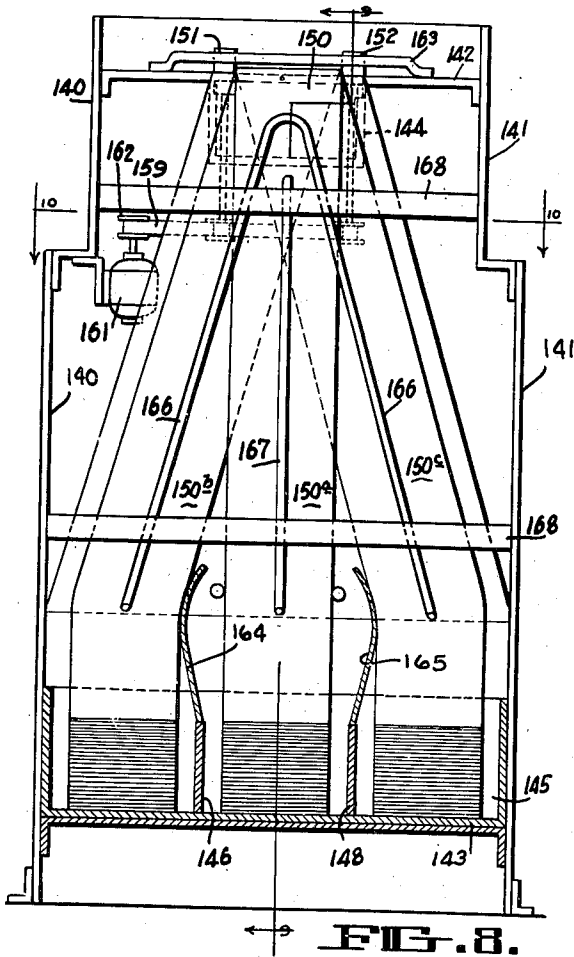
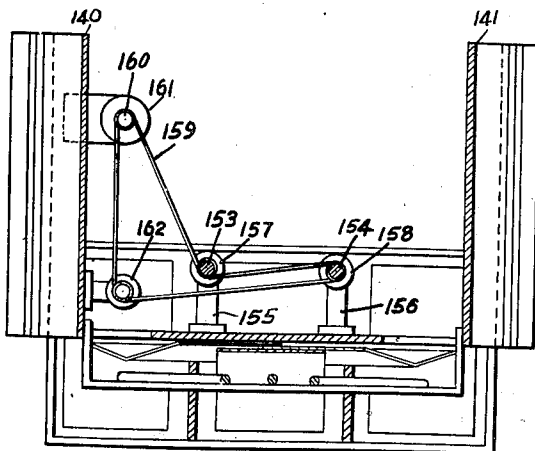


FIG. 10.



INVENTOR
WILLIAM C. PFEIFFER
BY
Toulmin & Toulmin
ATTORNEYS

Nov. 16, 1943.

W. C. PFEIFFER

2,334,283

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FIG. 11.

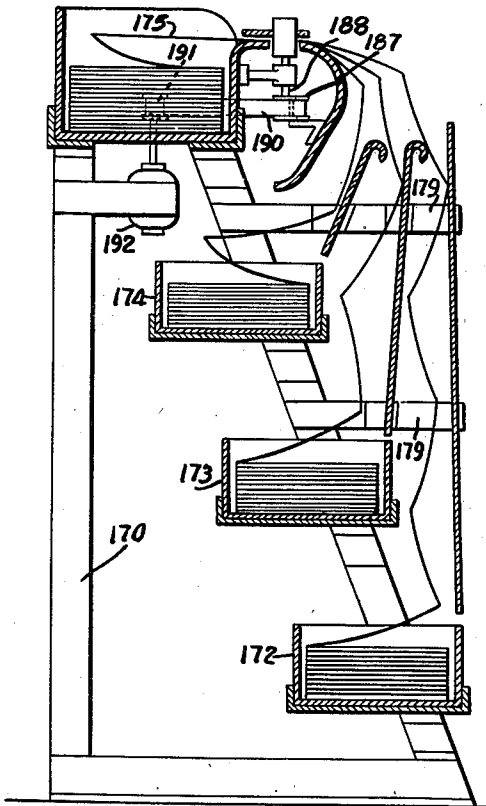


FIG. 13.

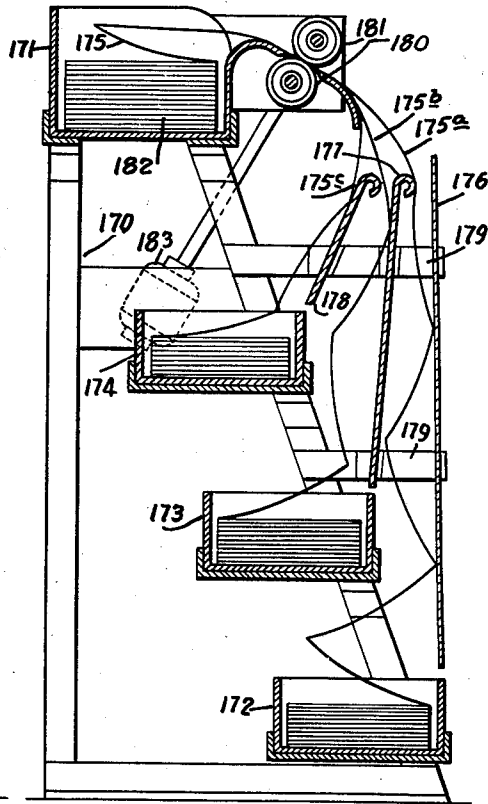


FIG. 12.

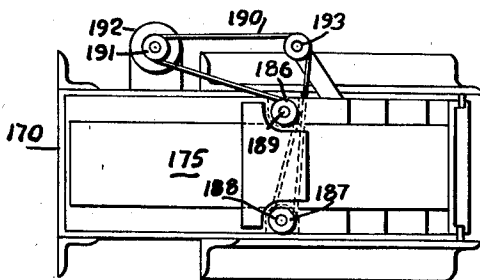
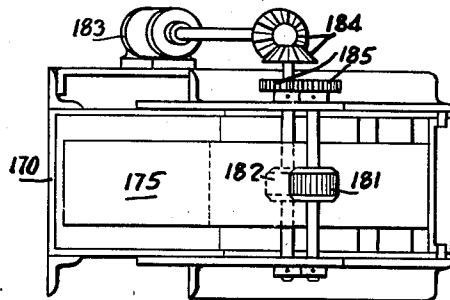


FIG. 14.



INVENTOR
WILLIAM C. PFEIFFER
BY
Foulmer & Foulmer
ATTORNEYS

UNITED STATES PATENT OFFICE

2,334,283

DECOLLATING MACHINE

William C. Pfeiffer, Dayton, Ohio, assignor to The
Egry Register Company, Dayton, Ohio, a corpo-
ration of Ohio

Application September 4, 1942, Serial No. 457,377

15 Claims. (Cl. 271—21)

This invention relates to paper handling machines that are constructed and arranged for handling continuous webs of paper, and more particularly to machines for handling a plurality of webs disposed in juxtaposed relationship and arranged in a fan-fold pack.

An object of the invention is to provide an apparatus wherein a fan-fold pack of a plurality of continuous webs arranged in juxtaposed relationship can be separated from one another and placed within separate containers.

Another object of the invention is to provide an apparatus for separating a plurality of juxtaposed webs of paper in a manner that each web is retained in its continuous form and is fed to an individual receiving station, whereby each web can be stored separately.

Another object of the invention is to provide an apparatus for separating a plurality of juxtaposed webs that have been disposed in adjacent relationship to produce a plurality of copies so that each of the webs disposed in particular copy order will be maintained as a continuous web, whereby all copies of the sequence of copies will be retained on a particular web when stored.

Another object of the invention is to provide an apparatus for decollating a fan-fold multiple copy continuous web pack into separate stacks and return them to the fan-folded condition.

Another object of the invention is to provide a power driven apparatus for decollating a continuous web multiple fan-fold pack into separate webs, and to return the separate webs to their fan-folded condition.

Another object of the invention is to provide an apparatus for decollating a continuous web multiple copy fan-fold pack in a manner that the copies thereof are separated one from the other and returned to their fan-folded condition in separate stacks, and the carbon webs are separated from the paper webs, and returned to the fan-folded condition if desired.

Another object of the invention is to provide a method for separating a plurality of continuous webs arranged into a fan-fold pack so that each of the webs can be collected as an individual stack arranged in a fan-fold pack.

Another object of the invention is to provide a method for separating a plurality of continuous webs arranged in juxtaposed relationship by directing the webs at different angles with respect to one another so that they will be moved toward separate collecting stations and thereby maintained in separated condition.

Further objects and advantages will become

apparent from the drawings and the following description.

In the drawings:

Fig. 1 is a top elevational view of an apparatus for separating continuous paper webs.

Fig. 2 is a longitudinal cross-sectional view of the apparatus shown in Fig. 1 taken along line 2—2 of Fig. 1.

Fig. 3 is an elevational view of a modified structure for feeding the webs through the decollating apparatus.

Fig. 4 is a vertical cross-sectional view of a modified arrangement of a decollating or separating apparatus wherein the paper webs move in a vertical direction and is taken along line 4—4 of Fig. 5.

Fig. 5 is a front elevational view of the apparatus shown in Fig. 4.

Fig. 6 is a front elevational view of another modified arrangement of a decollating or separating apparatus wherein the paper webs move in a vertical direction, and the feeding means for the webs operates in a vertical direction.

Fig. 7 is a vertical cross-sectional view of the apparatus shown in Fig. 6 and is taken along lines 7—7 of Fig. 6.

Fig. 8 is a front elevational view of another modified arrangement of a decollating or separating apparatus wherein the paper webs are fed by means of an apparatus engaging opposite edges of the webs.

Fig. 9 is a vertical cross-sectional view of the apparatus shown in Fig. 8 taken along line 9—9 of Fig. 8.

Fig. 10 is a horizontal cross-sectional view taken along line 10—10 of Fig. 8.

Fig. 11 is a vertical cross-sectional view of another modified form of the apparatus of this invention showing the webs being separated by means of vertically disposed baffles and fed from the pack by means of each engaging means.

Fig. 12 is a top elevational view of the apparatus shown in Fig. 11.

Fig. 13 is a vertical cross-sectional view of an apparatus similar to that of Fig. 11 but showing feed rollers for engaging the webs for feeding the same.

Fig. 14 is a top elevational view of the apparatus shown in Fig. 13.

Fig. 15 is a diagrammatic view of a needle feeding mechanism that can be used as the feeding means on any of the structures shown in the previously mentioned figures.

When making multiple copies of information it is a conventional procedure to use continuous

paper webs that are arranged in juxtaposed position having carbon webs interleaved therebetween. These continuous webs of carbon and paper are forwarded through a suitable machine, or written upon by hand to produce as many copies of data as is provided in the adjacent paper webs. The webs are usually fed from a supply station in the machine to a suitable receiving station. Many times it is desirable to retain all of the webs in their adjacent relationship, and in a continuous web form when forwarding the same to the receiving station in the machine. Thereafter, the webs are separated manually so that the record produced on each of the webs could be forwarded to separate destinations, each web containing the first, second, etc., copy of the data as determined by the position the web occupied in the pack of adjacent or juxtaposed webs. However, manual manipulation of continuous webs is a rather difficult procedure and therefore it is desirable to have an apparatus that is capable of separating the various webs of a multiple copy pack that is power driven to properly feed the webs and separate the same.

Referring to Figs. 1 and 2, an apparatus is disclosed wherein there is provided a base 10 having a platform 11 upon which the paper webs are adapted to be supported. The platform 11 has a container 12 adjacent one end thereof that forms a receiving station for a pack of fan-folded continuous webs 13. As shown in Fig. 2 the pack 13 consists of a plurality of paper webs that are in juxtaposed relationship and are in fan-folded condition. Such fan-fold multiple copy packs are well-known in the art and the apparatus of this invention is particularly adaptable for separating or decollating the webs of such fan-fold multiple copy packs.

The platform 11 is provided with a plurality of arms, in this instance, three arms 14, 15 and 16 that extend radially from the pack receiving container 12. The multiple copy web 13 is separated into the individual webs 13a, 13b and 13c for movement over the table arms 14, 15 and 16, respectively. Containers 17, 18 and 19 are provided adjacent the end of the table arms 14, 15 and 16, respectively, to receive the individual webs 13a, 13b and 13c, respectively.

To feed the webs 13a, 13b and 13c over their respective supporting table arms, feeding devices 20, 21 and 22 are disposed beneath each of the table arms 14, 15 and 16, respectively. Each of these feeding devices consists of a pair of sprocket wheels 23 and 24 over which a chain 25 is positioned. The sprockets 23 and 24 may be suitably supported upon brackets 26 and 27, respectively, for the sprockets 23 and 24, respectively. The chains 25 are provided with pins 30 that are adapted to engage perforations 31 provided in the webs 13a, 13b and 13c. The perforations 31 are in the webs to provide means whereby the webs can be fed through a machine when placing the data upon the multiple web pack. Therefore, these same perforations can be used to feed the various webs through the separating or decollating apparatus.

The feed device 20 is driven by an electric motor 32 that has the shaft 33 thereof connected to the drive shaft 28 of the feed device 20. A beveled gear 34 is secured to the drive shaft 28 and engages a beveled gear 35 that drives the shaft 36. A spur gear 37 is carried upon the shaft 36 for driving a spur gear 38 that drives the feeding device 21. A beveled gear 39 is also carried upon the shaft 36 for driving the beveled gear 40 that

drives the feeding device 22. Thus, the electric motor 32 simultaneously drives all of the feeding devices 20, 21 and 22.

Guard members 41, 42 and 43 are provided above the feeding devices 20, 21 and 22, respectively, to insure that the pins 30 on the chains 25 will engage the perforations 31 in the various webs 13a, 13b and 13c. The feeding devices 20, 21 and 22 are disposed beneath openings 44 provided in each of the table arms 14, 15 and 16 so that the pins 30 can engage the paper webs 13a, 13b and 13c when passing over the respective feeding devices.

When the apparatus is used to separate the continuous webs of a multiple copy continuous web pack of the fan-fold type, the multiple copy web pack is placed within the receiving container 12. The individual webs 13a, 13b and 13c are then separated manually and placed upon the respective support table arms 14, 15 and 16, so that the perforations 31 engage one of the pins 30 that is disposed in the portion of the chain 25 that lies between the sprockets 23 and 24. It will be noted from Fig. 1 that the webs 13a and 13c will leave the container 12 at a substantial angle and therefore guide rails 45 and 46 are provided for the table arms 14 and 16, respectively, so that the angular movement of the webs 13a and 13c will not prevent proper alignment of the perforations 31 upon arriving at the feeding devices 20 and 22, respectively. The webs are threaded beneath the guard members 41, 42 and 43, and beneath the retaining clips 47, 48 and 49 provided on the table arms 14, 15 and 16, respectively. The retaining clips prevent the webs upon the respective table arms from buckling upwardly so that the webs will advance toward the receiving containers 17, 18 and 19, respectively. Since the multiple copy web 13 was in a fan-fold condition when placed in the container 12, it will be apparent that the individual webs 13a, 13b and 13c will fall into a fan-fold condition when fed into their respective containers. Therefore, the webs are taken from a fan-fold pack and returned to a fan-fold pack. In the arrangement shown in Fig. 1, all the individual webs could be copies of data, or the webs 13a and 13c could be an original and carbon copy respective with the web 13b being a carbon web. In the latter instance the carbon web 13b could be interleaved between other paper webs and used a second or a third time.

While the apparatus of Fig. 1 has been shown in use in connection with a fan-fold pack of multiple copy forms, yet, it will be understood that the same apparatus could be used if the multiple copy webs were fed from a continuous roll and were received on continuous rolls.

In Fig. 3, there is shown a slightly modified arrangement of the feeding apparatus for moving the webs 13a, 13b and 13c over their respective tables. In the arrangement of the structure shown herein the feeding device 50 consists of sprockets 51 and 52 mounted on shafts 53 and 54 bearing in suitable supports. A chain 55 extends over the sprockets 51 and 52.

A similar set of sprockets 56 and 57 carried upon shafts 58 and 59 support a chain 60 above the chain 55. The chains 55 and 60 carry T-bars 61 and 62, respectively, that are adapted to cooperate with pairs of rollers 63 and 64 carried upon the chains 55 and 60, respectively.

The T-bars on the chain 55 are adapted to have the ends thereof disposed between the roll-

ers 64 on the chain 60 when the T-bars and rollers are in adjacent relationship.

The arrangement of the feeding device 50 is particularly adaptable for feeding paper webs that have been prefolded such as those in a multiple copy fan-fold pack. The fold lines 65 provided on the webs 66 are engaged by the T-bars on the chains to retain the fold line between the rollers cooperating therewith to thereby advance the web 66 between the chains 55 and 60. This feeding device can be substituted for those disclosed in Fig. 1 without altering the manner in which the device is operated.

In Figs. 4 and 5 there is provided an arrangement of apparatus for separating or decollating the multiple copy fan-fold continuous web pack wherein the continuous webs are moved in a vertical direction. In this form of the invention the apparatus consists of a frame having side walls 70 and 71 that are secured together at their lower ends by means of a pan-shape support member 72 adapted to support the receiving containers 73, 74 and 75, and are secured at their upper ends by means of the bracket 76 adapted to support a supply container 77. The forward edge of the container 77 provides a baffle plate 78 that extends downwardly in a vertical direction from the container 77.

A multiple copy continuous web fan-fold pack 79 is placed within the container 77 and the multiple copy web 80 is fed over the upper edge of the baffle 78. A weighted roller 81 is carried upon a U-shaped arm 82 pivoted to the walls 70 and 71 by the pivot means 83 and 84 whereby the weighted roller 81 produces friction between the multiple copy web 80 and the baffle 78 to retard the vertical movement of the web 80 when being removed from the container 77.

The individual webs 80a, 80b and 80c from the multiple copy web 80 are adapted to be separated in an angular relationship with respect to one another for passing over rollers 85, 86 and 87, respectively. The rollers 86 and 87 are disposed in an angular relationship with respect to the face of the baffle 78 so that the paper webs 80b and 80c passing thereover will have their direction of travel changed from vertical to horizontal, and from a plane angularly to the longitudinal axis of the rollers to a plane at a right angle to the rollers. The roller 85 is parallel with the face of the baffle 78 so that the web 80a passing thereover will be changed from a vertical to a horizontal plane. Feeding devices 88, 89 and 90 are provided for withdrawing the webs 80b, 80a and 80c, respectively, from the container 77, and for advancing the webs to the receiving containers 73, 74 and 75, respectively. These feeding devices each consists of a pair of sprockets 91 and 92 having a chain 93 extending thereover that is provided with pins 94 adapted to engage perforations 95 provided in the webs 80a, 80b and 80c. Each of the chains 93 of the feeding devices 88, 89, and 90 moves in a horizontal plane beneath the rollers 86, 85 and 87, respectively, whereby the individual webs 80b, 80a and 80c, respectively, are fed to the containers 73, 74 and 75.

The feeding devices 88, 89 and 90 are mounted upon the common shafts 96 and 97, the shaft 97 being the drive shaft and adapted to be connected to an electric motor 98 by means of a drive chain 99 passing over suitable sprockets on the shaft 97 and the shaft of the motor 98.

The operation of the device is such that a pack of multiple copy continuous web fan-fold forms 79 is placed in the container 77. The web is

threaded between the roller 81 and the baffle 78. The individual webs 80a, 80b and 80c are then threaded over the respective rolls 85, 86 and 87 into engagement with the feeding devices 88, 89 and 90, respectively, so that at least one of the perforations 95 in each of the individual webs engage one of the pins 94 on the feeding devices adjacent the respective webs. The angular disposition of the rollers 86 and 87 will provide proper alignment of the webs 80b and 80c passing thereover to maintain the perforations 95 in alignment with the pins 94 on the feeding device 88 and 90, respectively. The web 80a will also be maintained in proper alignment with the feeding device 89 because it is moved in a straight line. The roller 85 is disposed somewhat ahead of the rollers 86 and 87 to absorb the extra length of the individual webs 80b and 80c required between the supply container and their respective rollers, these webs being disposed diagonally with respect to the web 80a.

The feeding devices 88, 89 and 90 will advance the respective webs in engagement therewith to the receiving containers 73, 74 and 75, and the individual webs will return to their fan-fold form because they have been previously creased in this manner and have been drawn in a fan-fold pack. A baffle 100 is provided adjacent the front wall of the receiving containers 72, 73 and 74 to direct the webs into the respective containers.

In Figs. 6 and 7 there is shown another arrangement of apparatus for separating the multiple copy webs while moving them continuously in a vertical position. In this arrangement the apparatus consists of a frame having side walls 110 and 111 and a top wall 112. The side walls 110 and 111 are secured together at the bottom ends thereof by means of a container 113 having baffle plates 114 and 115 therein to separate the same into three compartments. A container 116 is supported on the top wall 112 to receive a pack of multiple copy continuous web fan-fold forms that is to be separated or decollated. The multiple copy web 120 of the pack 119 slides over the upper edge 118 of the front wall 117 of the container 116. An arm 121 engages the top surface of the pack 119 to produce friction on the web 120 to prevent the web from complete freedom of movement in its vertical travel. The arm 121 may be provided with a suitable spring tensioning means for controlling the frictional engagement of the arm 121 with the surface of the web pack 119.

The individual webs 120a, 120b and 120c are separated so that the webs 120b and 120c move angularly from the web 120a and engage angularly disposed rolls 122 and 123, respectively, that change the angular travel of the webs 120b and 120c with respect to the web 120a to parallel travel therewith so that the three webs move adjacent feeding devices in a common plane and in parallel relationship. The rolls 122a and 123a bring the webs 120b and 120c into the same plane with the web 120a.

The web 120a passes between rolls 124 and 125 that are arranged to increase the length of travel of the web 120a because the diagonal movement of the webs 120b and 120c with respect to the web 120a causes the webs 120b and 120c to travel further than the web 120a.

The webs 120a, 120b and 120c are withdrawn from the container 116 by means of the feeding devices 126, 127 and 128, respectively, each device consisting of a pair of sprockets 129 and 130 having a chain 131 extending therebetween

provided with pins 132 that are adapted to engage perforations 133 on the respective individual webs. The sprockets 129 and 130 are supported upon suitable shafts 134 and 135, the shaft 135 being driven by an electric motor 136. Guide plates 137, 138 and 139 are disposed adjacent the feeding devices 126, 127 and 128 respectively to insure that the pins 132 provided on the chains 131 will enter the perforations 133 provided on the webs 120, 120b and 120c, whereby the webs will be advanced to the container 113 into the respective compartments provided for the same. The rolls 122, 122a and 123 and 123a direct the motion of the webs 120b and 120c and maintain alignment of the perforations 133 with the respective feeding devices 127 and 128.

From the operation of the devices heretofore described, it will be apparent that the device operates in the same manner withdrawing the plural copy web 120 from the fan-fold pack 119 and delivering the individual webs 120a, 120b and 120c to their respective receiving containers wherein the webs are arranged in fan-fold form in the same manner in which they were drawn from the web pack 19.

In Figs. 8, 9 and 10, there is shown another arrangement of an apparatus for separating or decollating a multiple copy web from a multiple copy fan-fold pack wherein the webs are fed by means of friction wheels that engage opposite edges of the plural copy web.

The apparatus of this arrangement consists of a frame consisting of side wall members 140 and 141 interconnected at their top portions by means of a platform 142, and at their bottom portions by means of a pan-shaped bracket 143. The platform 142 has a recess 144 to form a container to receive a pack of continuous webs arranged in a multiple copy fan-fold form. The bracket 143 supports a container 145 having baffles 146 and 148 for separating the container into a plurality of compartments. The platform 142 has a forward edge 147 that extends downwardly therefrom to provide a rear baffle plate for guiding the movement of the continuous webs when in adjacent relationship thereto.

The feeding device for the plural copy web 150 that removes the web from the pack 149 consists of the friction rolls 151 and 152 disposed adjacent opposite edges of the multiple copy web 150 and in engagement therewith. The rolls 151 and 152 are supported upon drive shafts 153 and 154, respectively, that are suitably bearinged in the support brackets 155 and 156. The shafts 153 and 154 carry pulleys 157 and 158 that are engaged by a belt 159 that extends over a pulley 160 provided on the shaft of an electric motor 161. The belt 159 extends over an idler pulley 162 so that it can engage the pulleys 157 and 158 in a manner that they are rotated in opposite directions to feed the multiple copy web 150 therebetween. A plate 163 is disposed adjacent the platform 142, the drive rolls 151 and 152 extend therethrough so that the multiple copy web 150 passing between the plate 163 and the platform 142 will be in positive frictional engagement with the feed rolls.

The multiple copy web 150 is adapted to be withdrawn from the web pack 149 placed within the recess 144 and fed forwardly so that the individual webs 150a, 150b and 150c can be arranged angularly with respect to one another in the manner shown in Fig. 8, whereby they will enter separate compartments of the con-

tainer 145. The webs 150b and 150c are guided into their respective receiving compartments by means of guide plates 164 and 165 carried by the baffle plates 146 and 148, respectively. A V-shaped guide wire 166 is provided adjacent the webs 150b and 150c to prevent the webs from outward movement from the baffle plate 147 and thus direct them toward their respective receiving compartments provided in the container 145. A guide wire 167 performs the same function for the web 150a. The guide wires 166 and 167 are supported by brackets 168 extending between the side walls 140 and 141 of the apparatus.

As previously mentioned the friction rolls 151 and 152 withdraw the multiple copy web 150 from the pack 149 and feed the same between the baffle plate 147 and the guide wires 166 and 167 in a vertical direction toward the receiving chambers for the respective webs 150a, 150b and 150c. Since the webs were in a fan-fold condition in the pack 149 they will return to their fan-fold condition when dropped into the container 145.

In Fig. 13 there is shown an arrangement of apparatus wherein the individual webs of a multiple copy web are separated in an arrangement wherein the various webs are maintained in the same parallel condition in which they were disposed while in the multiple copy web during the feeding and separating operation. In this arrangement the apparatus consists of a frame 170 that supports a container 171 that is adapted to receive a continuous multiple copy web arranged in fan-fold form. Individual containers 172, 173 and 174 are provided to receive the individual webs 175a, 175b and 175c of the multiple copy web 175.

The web 175a is adapted to drop in a vertical movement between the baffle plates 176 and 177 to direct the movement of the fan into the container 172. The web 175b moves between the baffle plates 177 and 178, while the web 175c is directed into its container 174 by the baffle plate 178. Guide members 179 prevent transverse movement of the webs 175a, 175b and 175c, so that they will not miss their respective containers.

Feed rolls 180 and 181 are provided on opposite sides of the multiple copy web 175 in frictional engagement therewith for withdrawing the web from the pack 182. The rolls 180 and 181 are driven by means of the electric motor 183 through means of the beveled gears 184 and the spur gears 185.

The operation of the device is such that the feed rolls 180 and 181 withdraw the continuous multiple copy web 175 from the fan-fold pack 182 so that the individual webs 175a, 175b and 175c will be forwarded between the baffle plates 176, 177 and 178 in a manner heretofore described. Since the individual webs were arranged in a fan-fold pack, initially, they will fall into a fan-fold pack in their respective receiving containers upon being separated.

In Figs. 11 and 12 there is shown another arrangement of the apparatus of this invention that is substantially like the apparatus shown in Figs. 13 and 14, except that the means for feeding the webs frictionally engages the opposite edges of the multiple copy web in the same manner as the feeding means described with regard to Figs. 8 and 10. Since the apparatus of this arrangement is similar to that of Figs. 13 and 14, the parts of like character

bear the same numerals as previously referred to in Figs. 13 and 14.

The feeding device of Figs. 11 and 12 consists of rolls 186 and 187 disposed adjacent the opposite edges of the multiple copy web 175, and in engagement therewith for frictionally feeding the web therebetween. The rolls 186 and 187 are carried upon shafts 188 and 189 respectively, that carry pulleys engaged by a belt 190 that is in driving engagement with a pulley 191 on an electric motor 192, and with an idler pulley 193 so that the rolls 186 and 187 will be rotated in opposite directions and thus feed the multiple copy web 175. The operation of the device is the same as heretofore described with regard to Figs. 13 and 14.

In Fig. 15 there is shown a feeding device that has been applied to any of the arrangements of the apparatus heretofore described for withdrawing the multiple copy web from the fan-fold pack. This device consists of a wheel 195 carried upon a shaft 196 having a pulley 197 driven by a belt 198 that engages a pulley 199 on an electric motor 200. The wheel 195 carries a plurality of needles 201 that are adapted to pierce a multiple copy web 205, which web can be any of those previously referred to. A guide plate 206 is provided adjacent the wheel 195 to insure that the needles 201 will pierce the web 205 for advancing the same. It is apparent that when the wheel 195 is rotated by the motor 200 that the web 205 will be advanced thereover.

The feeding device of Fig. 15 eliminates the necessity of requiring perforations in the various webs to be fed thereby, and thus increases the variety of the types of webs that can be separated or decollated by the various mechanisms of this invention.

While various mechanical arrangements of the apparatus have been disclosed and described herein, it is to be understood that there are other mechanical arrangements of the apparatus that may be conceived that do not depart from the spirit of this invention, and that such mechanisms as fall within the scope of the appended claims are intended to be included herein.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an apparatus for separating or decollating a plurality of continuous webs arranged in juxtaposed relationship to simultaneously produce multiple copies, the combination of, means for receiving a continuous multiple copy web that is to be decollated, means for directing the movement of the individual webs of the multiple copy web through separate paths of travel in a common plane, feeding means for individually advancing the webs through their separate paths of travel, and means for collecting the individual webs and retaining them in separated condition.

2. The method of separating or decollating a plurality of webs arranged in juxtaposed relationship for simultaneously producing a plurality of copies which consists of, simultaneously advancing the individual webs of the multiple copy web in their juxtaposed relationship, altering the course of travel of each of the separate webs to cause them to take separate paths of travel in a common plane and thereby separate, and collecting the individual webs while maintaining them in a continuous web form.

3. A method for separating or decollating a plurality of webs disposed in juxtaposed relationship for producing multiple copies of a form

which consists of, simultaneously withdrawing a plurality of webs from a supply source in juxtaposed relationship, directing the webs in paths of movement angularly with respect to one another but in a common plane to thereby separate the webs with respect to one another, and forwarding the webs to individual collecting means and maintaining them in continuous web form while collecting the same.

4. A method of separating or decollating a plurality of continuous webs disposed in juxtaposed relationship and arranged in a fan-fold pack form for producing multiple copies which consists of, continuously withdrawing a multiple copy web from a fan-fold pack, advancing the individual webs of the plural copy web in different directions angularly with respect to one another but in a common plane whereby the webs are separated, causing the webs to fall by their own weight with complete freedom of movement into individual collecting means to cause the webs to fold upon the fold lines thereof and produce fan fold packs to maintain the webs in continuous web form.

5. A method of separating or decollating a plurality of continuous webs disposed in juxtaposed relationship and arranged in a fan-fold pack form for producing multiple copies which consists of, continuously withdrawing a multiple copy web from a fan-fold pack, advancing the individual webs of the plural copy web in different directions angularly with respect to one another to thereby separate the webs, changing the direction of travel of the webs to bring them into a common plane for advancement to individual web receiving means, advancing the webs to the receiving means, and cause the webs to fall by their own weight into the receiving means for the individual webs with complete freedom of movement to cause the webs to fold upon the fold lines thereof and thereby producing a fan-fold pack of each individual web.

6. An apparatus for decollating a plurality of webs arranged in adjacent relationship comprising, means for receiving a multiple copy web that is to be decollated, means for directing the movement of each of the individual webs of the multiple copy web in directions that are angular with respect to one another but in a common plane, means for engaging the webs to advance the same through said directing means, and individual collecting means for receiving the individual webs.

7. An apparatus for separating or decollating a plurality of webs arranged in adjacent relationship which consists of, means for receiving a continuous web that is to be decollated, means extending angularly from said receiving means for directing the movement of the individual webs of said multiple copy web angularly with respect to one another and in a common plane and thereby separate the same, feeding means for said webs adjacent each of said directing means to individually forward the webs across their directing means, and individual collecting means for receiving the individual webs.

8. An apparatus for decollating a plurality of continuous webs disposed in adjacent relationship for producing a plurality of copies which consists of, means for receiving a continuous web that is to be decollated, means for directing the movement of the individual webs of the plural copy web angularly from said receiving means and angularly with respect to one another but in a common plane for thereby separating the individual webs, means for changing the direction

of movement of the individual webs to bring them into a common plane for advancement to individual collecting means, individual collecting means for said webs, and feeding means for advancing said webs to said collecting means.

9. An apparatus for decollating a plurality of continuous webs disposed in adjacent relationship for producing a plurality of copies which consists of, means for receiving a continuous web that is to be decollated, means for directing the movement of the individual webs of the plural copy web angularly from said receiving means and angularly with respect to one another but in a common plane for thereby separating the individual webs, means for changing the direction of movement of the individual webs to bring them into a common plane for advancement to individual collecting means, individual collecting means for said webs, and feeding means engaging each of the individual webs for advancing the webs to said collecting means.

10. An apparatus for decollating a multiple copy web consisting of a plurality of individual webs disposed in adjacent relationship that consists of, means for receiving a continuous multiple copy web that is to be decollated, means extending from said receiving means having arms radiating therefrom adapted to receive a web of the multiple copy web to direct the same along said arm in a common plane with the other webs and thereby separate the individual webs of the plural copy web, feeding means adjacent each of said arms engaging said webs to advance the same thereover, and collecting means adjacent the end of each of said arms for collecting the web fed thereover.

11. An apparatus for decollating a multiple copy web consisting of a plurality of individual webs disposed in adjacent relationship that consists of, means for receiving a continuous multiple copy web that is to be decollated, means extending from said receiving means having arms radiating therefrom adapted to receive a web of the multiple copy web to direct the same along said arm in a common plane with the other webs and thereby separate the individual webs of the plural copy web, feeding means adjacent each of said arms engaging said webs to advance the same thereover, collecting means adjacent the end of each of said arms for collecting the web fed thereover, and drive means interconnecting said feeding means to simultaneously advance all of the individual webs of the multiple copy web.

12. An apparatus for decollating a multiple copy web consisting of a plurality of individual webs disposed in adjacent relationship that consists of, means for receiving a continuous multiple copy web that is to be decollated, means extending from said receiving means having arms radiating therefrom adapted to receive a web of the multiple copy web to direct the same along said arm in a common plane with the other webs and thereby separate the individual webs of the plural copy web, feeding means adjacent each of said arms engaging said webs to advance the same thereover, collecting means adjacent the end of each of said arms for collecting the web fed

thereover, said feeding means consisting of a chain extending over sprocket wheels adapted to be rotated, and pins in said chains for engaging the webs.

13. An apparatus for decollating a multiple copy web consisting of a plurality of individual webs disposed in adjacent relationship and arranged in a fan-fold pack that consists of, means for receiving a continuous multiple copy web that is to be decollated, means extending from said receiving means having arms radiating therefrom adapted to receive a web of the multiple copy web to direct the same along said arm in a common plane with the other webs and thereby separate the individual webs of the plural copy web, feeding means adjacent each of said arms engaging said webs to advance the same thereover, and collecting means adjacent the end of each of said arms for collecting the web fed thereover, said feeding means consisting of a pair of sprocket chains arranged in adjacent relationship for simultaneous movement, bar means and roller means on said chains adapted to cooperate to engage the fold lines in the fan-fold pack and thereby advance the webs through the feeding means.

14. An apparatus for decollating a plurality of continuous webs arranged in adjacent relationship for producing multiple copy forms which consists of, a container for receiving a continuous multiple copy web that is to be decollated, a table extending from said container having arms radiating from said container, feeding means disposed beneath each of said arms consisting of a movable chain having means thereon extending through said table for engaging a web extending across said table, means drivingly connecting each of said feeding means to a power source, and a collecting container adjacent the end of each of said arms for receiving the decollated individual webs of said multiple copy web.

15. An apparatus for decollating a plurality of continuous webs arranged in adjacent relationship for producing multiple copy forms which consists of, means for receiving a continuous plural copy web that is to be decollated, web supporting means adjacent said receiving means over which a continuous web is adapted to pass, means cooperating with said web supporting means for applying friction upon the web passing over said supporting means, individual roller means disposed vertically beneath said web supporting means adapted to be engaged by an individual web of the plural copy web, said roller means being spaced axially from one another to separate the individual webs of said plural copy web, said roller means being disposed with respect to one another in a manner that the webs passing thereover are discharged therefrom in a common plane, individual feeding means for engaging each of said individual webs passing over the roller means for withdrawing the webs from the receiving means and advancing the same to individual web collecting means, and individual web collecting means for collecting said webs.

WILLIAM C. PFEIFFER.