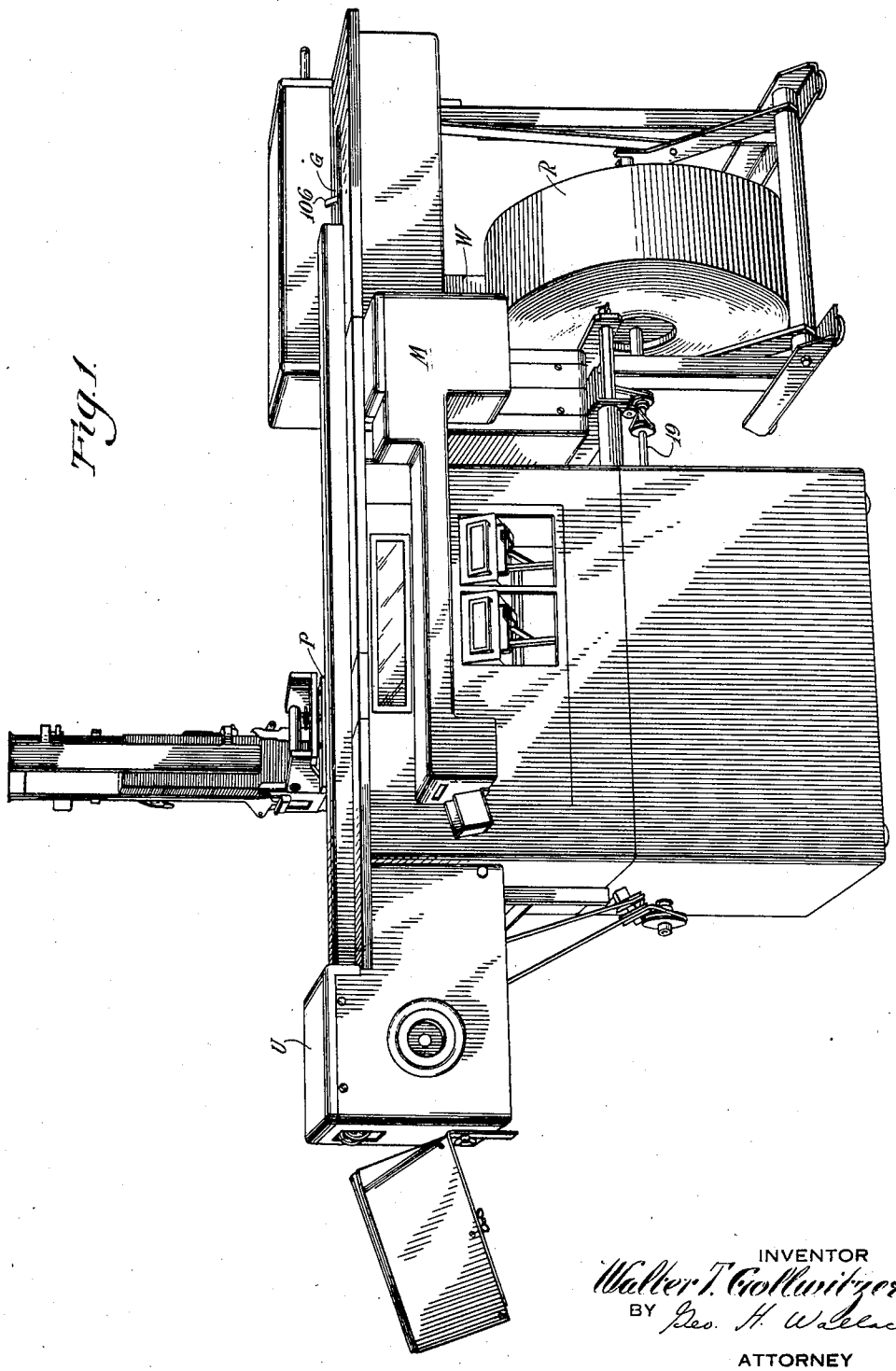
Aug. 20, 1940. W. T. GOLLWITZER 2,211,772

PRINTING MACHINE

Original Filed July 28, 1938 5 Sheets-Sheet 1

Fig. 1.



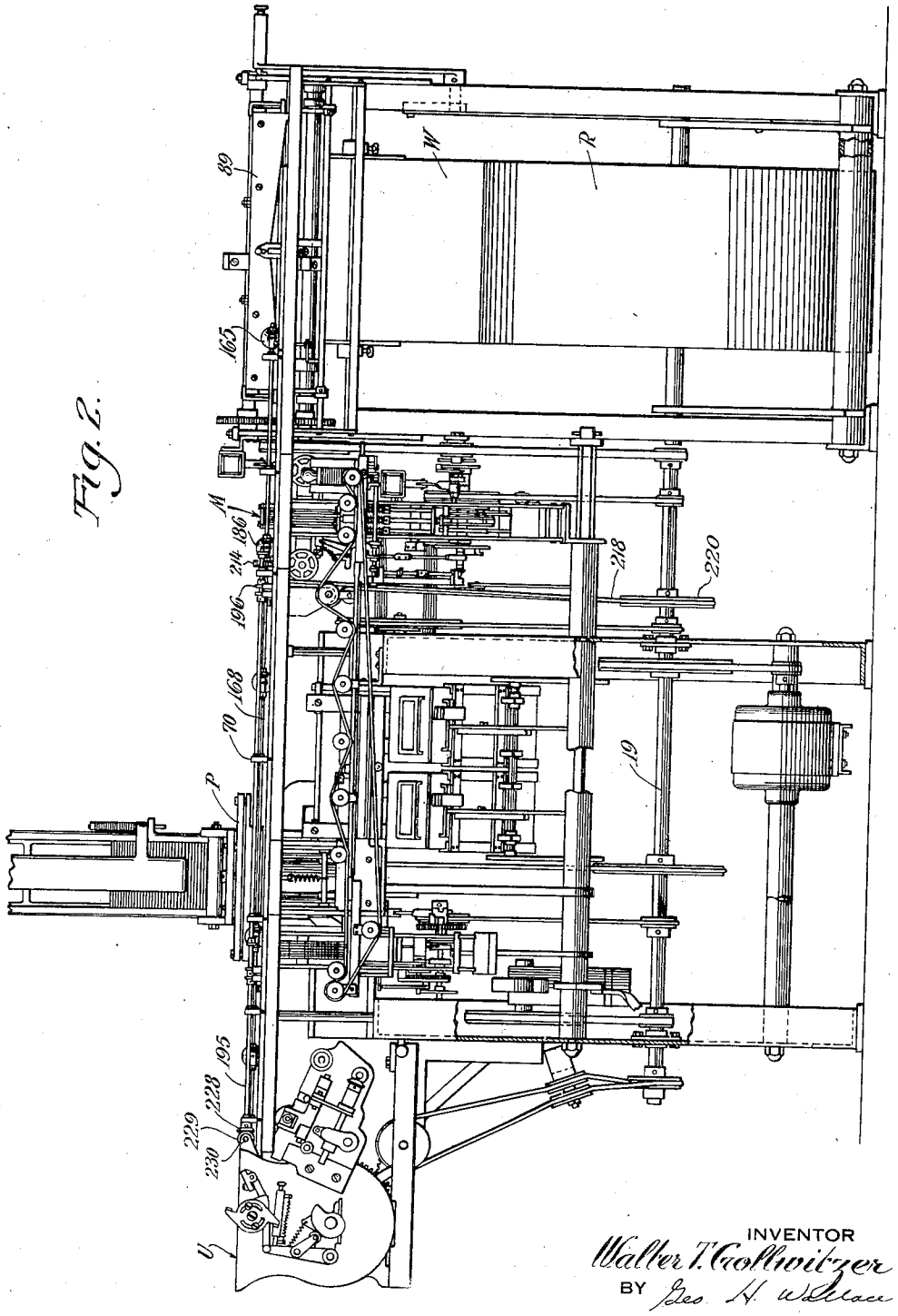
INVENTOR
Walter T. Gollwitzer
BY Geo. H. Wallace
ATTORNEY

Aug. 20, 1940. W. T. GOLLWITZER 2,211,772

PRINTING MACHINE

Original Filed July 28, 1938 5 Sheets-Sheet 2

Fig. 2.



INVENTOR

Walter T. Gollwitzer

BY Geo. H. Wilcox

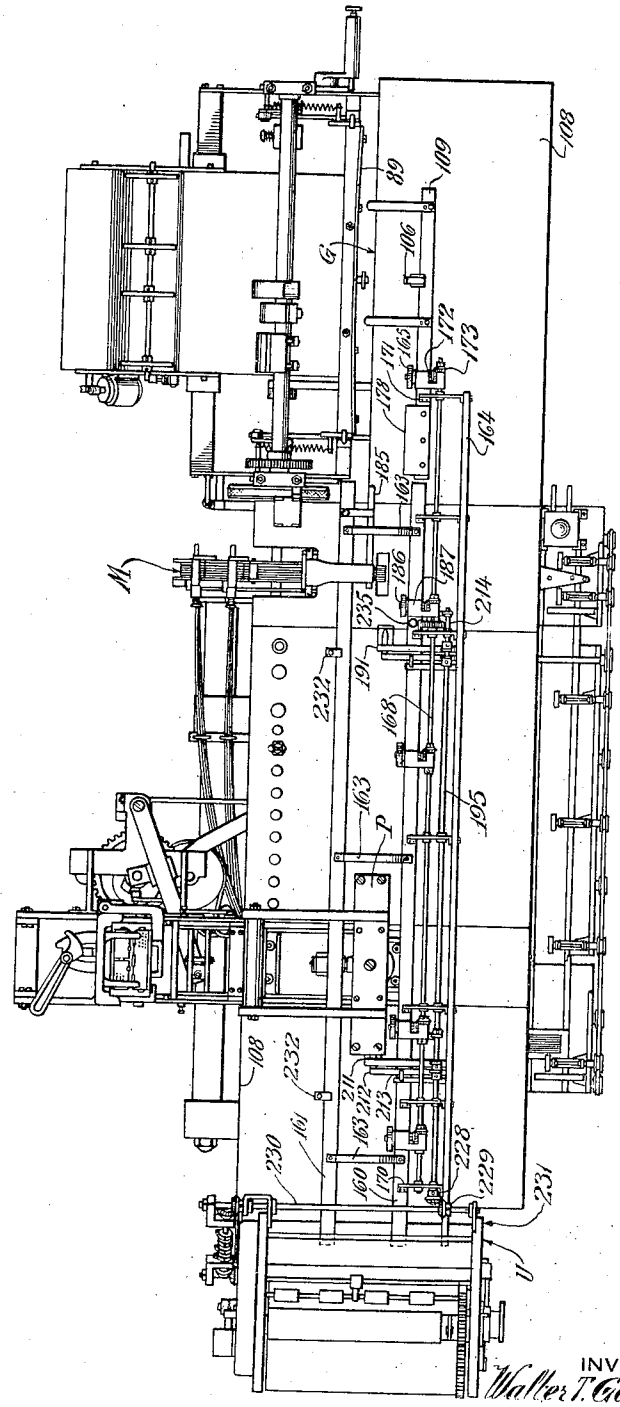
ATTORNEY

Aug. 20, 1940. W. T. GOLLWITZER 2,211,772

PRINTING MACHINE

Original Filed July 28, 1938 5 Sheets-Sheet 3

Fig. 3



INVENTOR
Walter T. Gollwitzer
BY Geo. H. Wallace
ATTORNEY

Aug. 20, 1940. W. T. GOLLWITZER 2,211,772

PRINTING MACHINE

Original Filed July 28, 1938 5 Sheets-Sheet 4

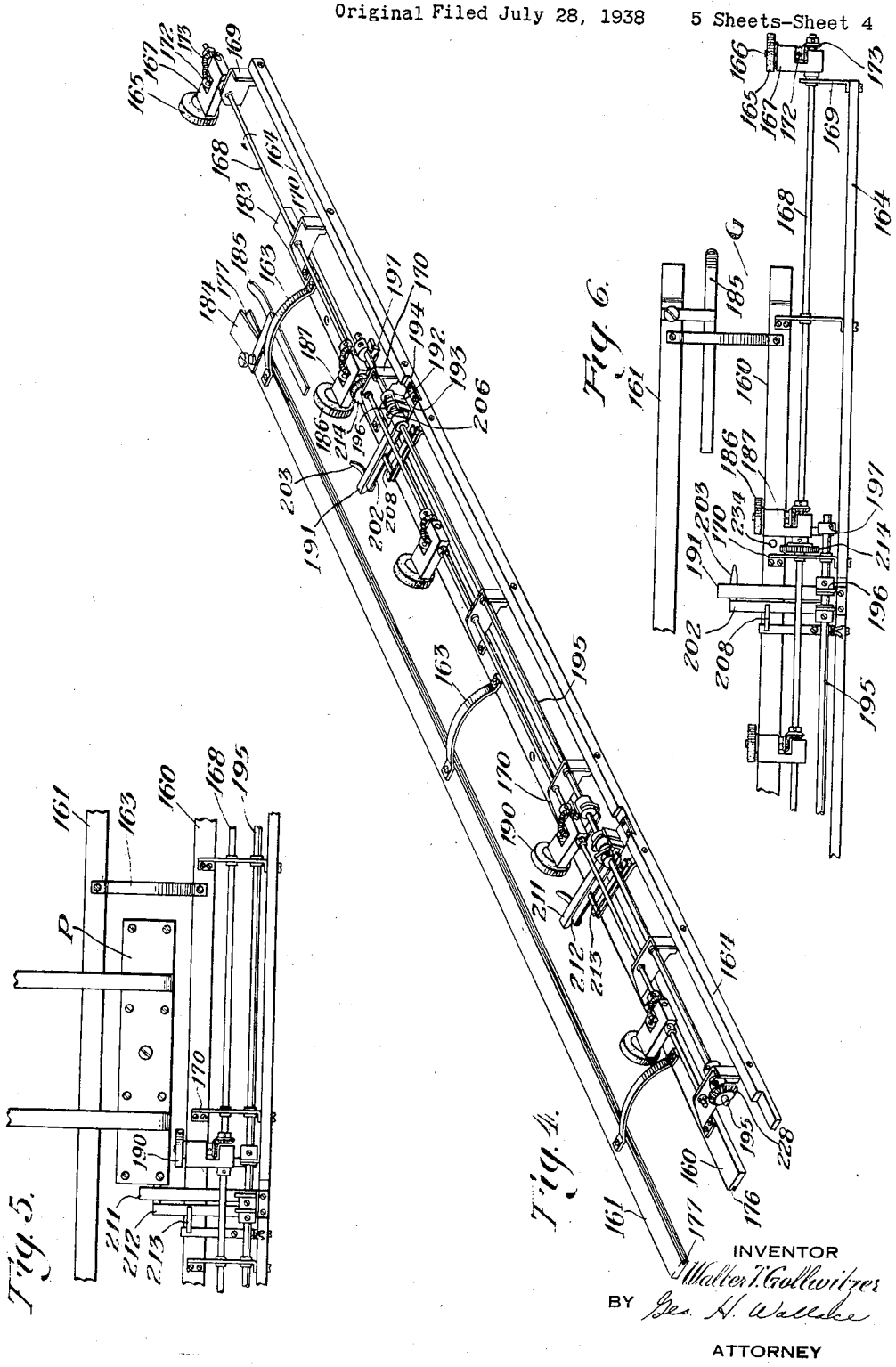


Fig. 4.

Fig. 5.

Fig. 6.

INVENTOR
Walter T. Gollwitzer
BY Geo. H. Wallace
ATTORNEY

Aug. 20, 1940. W. T. GOLLWITZER 2,211,772

PRINTING MACHINE

Original Filed July 28, 1938 5 Sheets-Sheet 5

Fig. 7.

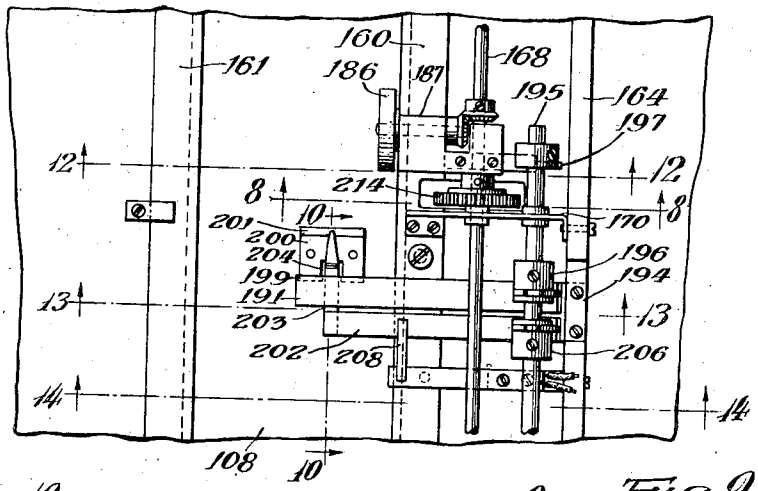


Fig. 10.

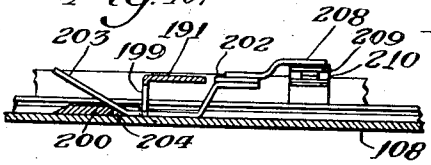


Fig. 8.

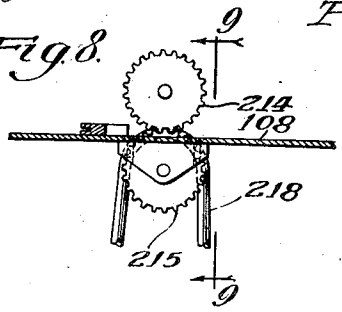


Fig. 9.

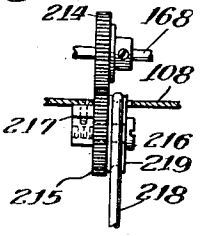


Fig. 11.

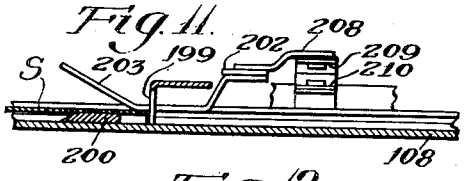


Fig. 12.

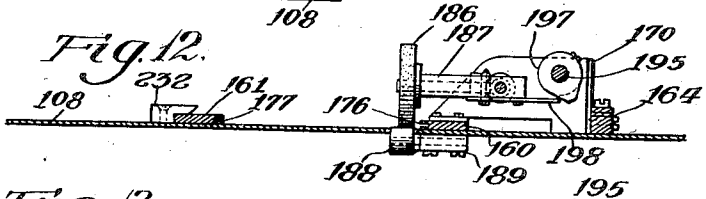


Fig. 13.

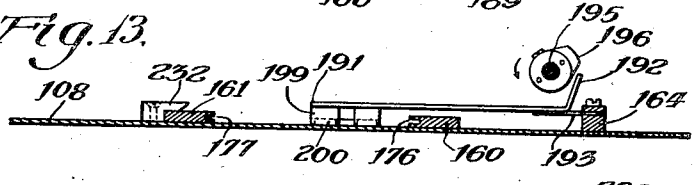
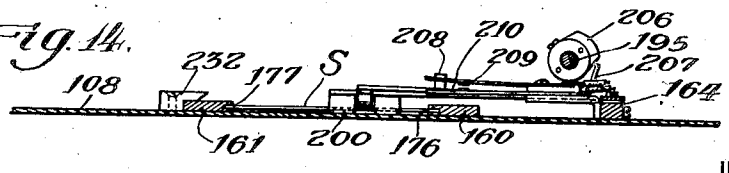


Fig. 14.



INVENTOR

Walter T. Gollwitzer

BY Geo. H. Wallace

ATTORNEY

Patented Aug. 20, 1940 2,211,772

UNITED STATES PATENT OFFICE

2,211,772

PRINTING MACHINE

Walter T. Gollwitzer, Euclid, Ohio, assignor to Addressograph-Multigraph Corporation, Wilmington, Del., a corporation of Delaware

Original application July 28, 1938, Serial No. 221,841. Divided and this application April 17, 1939, Serial No. 268,182

14 Claims. (Cl. 271—53)

This invention relates to printing machines and to mechanisms for use therein and therewith such as sheet feeding means, and the primary object is to expedite preparation of business instruments and the like and in this connection it is to be understood that the term "business instruments" is used hereinafter in the generic sense with reference to a wide variety of sheets of which specific examples are checks drawn on banks, public utility bills, insurance notices, invoices and the like.

This application is a division of application Serial No. 221,841, filed July 28, 1938.

I have referred herein to the preparation of dividend checks of a corporation, but I wish it to be clearly understood that this is merely an exemplary utilization of my invention but one which is common and convenient in describing the various aspects thereof.

Many problems are encountered in feeding of paper through printing and like machines, especially where individual sheets are rapidly fed through the machines to be disposed in one or more impression receiving positions or in positions whereat other operations may be performed on the sheets. Various ways have been proposed for feeding sheets through such printing and like machines, included in which is the utilization of endless belts upon which the sheets may be deposited either when they are severed from the web or picked up from a stack thereof arranged at one end of the machine and, while so to do is usually satisfactory, there may be instances where, due to static electricity and the like, which markedly affects the handling of individual sheets, such sheet feeding means may not function in an entirely satisfactory manner. Furthermore, where sheets are fed through printing machines, it is desirable to move the sheets as rapidly as possible intermediate positions whereat operations are performed thereon and when an operation is to be performed thereon it is usually desirable to interrupt movement of the sheets.

Thus among other objects of this invention are to provide a novel arrangement for rapidly feeding sheets through a printing or like machine and to interrupt such rapid movement of the sheets, at positions whereat operations are to be performed thereon, in a novel manner and at the same time insure accurate positioning of the sheets when movement thereof is so interrupted; to ascertain, that is, detect, the presence or absence of sheets at the positions where operations are to be performed thereon and thereby, as a safety measure, insure against improper operation; to support the sheet detecting, sheet moving and sheet movement interrupting means on a common structure and thereby enable removal from the machine of these mechanisms as a unit to facilitate servicing of these mechanisms and the machine and the like; and to enable controls and operative parts in the aforesaid unitary structure to be detachably associated with the mechanisms that are to be controlled thereby or which are to effect operation thereof.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment and the principle thereof and what I now consider to be the best mode in which I have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principle may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a perspective view of the machine embodying my invention;

Fig. 2 is a front elevation of the machine shown in Fig. 1 with the cover plates removed;

Fig. 3 is a top plan view of the machine as shown in Fig. 2;

Fig. 4 is a perspective view of the unit for feeding the sheets through the machine after severance thereof from the web by the severing mechanism and for interrupting movement of the sheets at impression making positions in the machine;

Fig. 5 is a fragmentary plan view of the printing position in the machine whereat impressions are made from the printing and control devices;

Fig. 6 is a fragmentary plan view of the mechanism at the right-hand end of the unit illustrated in Fig. 4;

Fig. 7 is a fragmentary plan view of a portion of the mechanisms immediately to the left of the mechanism shown in Fig. 6;

Figs. 8, 10, 12, 13 and 14 are sectional views taken respectively and substantially on the lines 8—8, 10—10, 12—12, 13—13 and 14—14 on Fig. 7;

Fig. 9 is a sectional detail view taken substantially on the line 9—9 on Fig. 8; and

Fig. 11 is a view similar to Fig. 10 and showing the parts in another operative position.

In my aforementioned co-pending application, of which this application is a division, it is ex-

plained that the severed sheet bearing date and signature impressions is deposited in the sheet guideway G and that the clamping finger 106 is raised so that by the time a sheet S has been severed from the web and is deposited in the sheet guideway the finger 106 is freed therefrom whereupon the sheet is entirely free to be picked up by the roller 165 to thereafter be fed through the machine.

As a sheet S passes through the machine movement thereof is interrupted at those positions where impressions or other operations are to be made thereon. Means are therefore provided for picking up a severed sheet S and feeding it through the machine and in association with such means there are other means which interrupt movement of the sheet at those positions where, in the present instance, impressions are to be made thereon.

Because there are instances where sheets of different sizes will be printed in the same machine and additionally because there are instances where the machine may be operated at one time to make but a single impression on one sheet and other times so as to make two or more impressions on each sheet and also because it facilitates servicing the machine and for many other kindred and allied reasons, it is advantageous to arrange the sheet feeding and stopping means in a unit which may be readily removed from the machine when so desired.

Such a unit is shown in Fig. 4 and the unit there illustrated is one which enables the various impressions to be made on sheets S fed through the machine, which is to say, by means of the unit shown in Fig. 4 a sheet may be positioned to have variable data printed thereon and an identification or other changeable data such as the address printed thereon and also to have the number printed thereon. It is to be understood, however, that simply by providing additional stopping devices, the unit shown in Fig. 4 could be arranged to enable more than one impression of each of the various types of information to be made thereon. The unit shown in Fig. 4 is typical of such units and comprises two relatively elongated flat bars 160 and 161 which at intervals throughout their length are interconnected by substantially arcuate cross ties as 163 and in the present instance one such tie is provided adjacent each of the corresponding ends of the bars 160 and 161 and another is provided medially in the extent of such bars. In addition to the bars 160 and 161 the unit shown in Fig. 4 comprises a supporting bar 164, and when this unit is mounted in the machine the bars 160, 161 and 164 rest on the bed plate 108 in the manner shown in Figs. 2, 3 and 7.

The feeding of the sheets through the sheet guideway G is effected by rapidly rotating rollers which in the present instance are mounted in the unit of which the bars 160 and 161 are a part. The first of these rollers, which is the one that picks up the sheet after it is released from the clamping finger 106, is indicated by 165, and this roller is mounted on a shaft 166 journaled in a suitable bearing member 167. This bearing member 167 and all corresponding bearing members are mounted on a shaft 168 journaled in bearing brackets as 169 and 170. The bearing brackets 170 are carried by the supporting bar 164 beyond the end of the bar 160 and it has a foot portion 171 thereon that rests on the bar 169 as shown best in Fig. 3, not however being connected thereto.

The shaft 166 has a bevel gear 172 thereon which meshes with a bevel gear 173 fast on the shaft 168. The shaft 168 is rotated counterclockwise, as viewed in Fig. 4 and therefore the action of the bevel gear 173 is such that it tends to pivot the bearing member 167 about the shaft 168 and in such a direction that the roller 165 is firmly urged toward the sheet guideway G. An idler roller (not shown), rotatable on a stub shaft carried on the bed plate 108, is vertically aligned with the roller 165, and the above described action of the shaft 168 causes the roller 165 to be urged toward the idler roller in such a way that a sheet passing through the sheet guideway and moving into the bite between these rollers is firmly clamped therebetween to thereby insure positive feed of the sheet through the sheet guideway.

Referring to Fig. 3 it will be seen that the bar 169 extends to a point close to that at which the bar 160 terminates, when the unit shown in Fig. 4 is properly mounted on the bed plate 108, and the front face of the bar 169 against which the sheet abuts and prior to and when it is severed from the web is flat. Thus to prevent the sheet from moving up the face of the bar 169 and to insure passage of the marginal edges of the sheet into the sheet guiding slots 176 and 177 in the opposed faces of the bars 160 and 161, respectively, a thin metal guiding plate 178, Fig. 3, is fast on the upper surface of the bar 169.

As the web is fed forwardly past the severing device the roller 165 is in a raised position to accommodate the severed sheet therebeneath in the guideway G, as more fully described in the aforementioned co-pending application Serial No. 221,841. As soon as the roller 165 cooperates with the idler roller the sheet is fed forwardly across the bed plate 108 and into the slots 176 and 177. As best shown in Fig. 4, the bars 160 and 161 are flared upwardly, as indicated at 183 and 184 to insure passage of a sheet acted on by the roller 165 into the slots 176 and 177. A finger 185 having an upturned end is carried by the bar 161 and further insures the above described passage of the sheet into the slots 176 and 177 which, it will be understood, afford the part of the sheet guideway G through which the sheets pass into and from the various printing positions whereat impressions are made by the various printing mechanisms provided in the machine.

By the time the sheet has passed well into the slots 176 and 177 it will be free of the roller 165 and its cooperating idler roller but by this time it will be in position to be acted on by the roller 186 carried in a bearing member 187 which corresponds to the bearing member 167 and which is mounted in a similar manner so that the roller 186 is urged into clamping cooperation with the idler roller 188, Fig. 12, that is rotatably carried by a stub shaft mounted in a block 189 secured to the underside of the bed plate 108. Other rollers as 190, which correspond to and which are mounted and operated in a manner similar to the roller 186, are provided at spaced intervals along the extent of the unit shown in Fig. 4 and in such positions that at least one of such rollers and its aligned cooperating idler roller are in position to act on the sheet in any position in which it might occupy in the sheet guideway G.

The movement of the sheet along the sheet guideway is interrupted at those positions whereat impressions are made thereon and for the

purpose of so interrupting the movement of the sheet stop fingers are provided. The first of these stop fingers, which is the stop finger 191, is mounted on the unit shown in Fig. 4 in such position that when the leading edge of a sheet S is engaged therewith the sheet is disposed in a position to receive, at the proper position thereon, the impression of the variable data from the printing mechanism included in the multiplying mechanism M. The stop finger 191 (see Fig. 13) is in the form of a flat metal strip which has its end portion upturned as indicated at 192. A spring plate 193 is rigidly fast to the finger 191 adjacent the upturned portion 192 thereof, and this spring plate, as clearly shown in Fig. 4, is rigidly secured in a recess in the supporting bar 164 as indicated at 194. It will therefore be seen that the stop finger 191 is rigidly supported but nevertheless is capable of movement by reason of the spring mounting thereof.

A cam shaft 195 is mounted in the bearing brackets as 170 in parallel relation with the roller drive shaft 168 and carries cams as 196, Figs. 4 and 13. The cam 196, as shown, includes a rise which in the course of rotation of this cam with the cam shaft 195 engages the upturned portion 192 of the stop finger 191 and retracts this stop finger from stopping position, it being understood that the stop finger 191 is normally disposed in stopping position to intercept movement of the sheet along the slots 176 and 177. As explained in greater detail in my co-pending application Serial No. 221,841, the operation of the cam shaft 195 is so timed that the cam 196 retracts the stop finger 191 from stopping position immediately after an impression has been made thereon by the printing mechanism included in the multiplying mechanism M.

It will be understood that operation of the machine of this invention may be interrupted at any time, and inasmuch as this is true it will be apparent that there may be instances where operation of the machine will be interrupted at a time when a sheet is engaged with an unretracted stop finger as 191. To insure feeding of the sheet in such circumstances each sheet feeding roller as 186, which is associated with a stop finger as 191, is arranged so that it is elevated and lowered in each operation of the machine in which its associated stop finger as 191 is elevated and lowered and to this end a cam as 197, Figs. 4 and 12, is provided on the cam shaft 195 in position to act on a tongue 198 projecting from the bearing block as 187 in which the shaft on which the roller 186 is mounted is journaled. The cams as 197 include a rise which engages the tongues as 198 and when the rise is engaged with the tongue the roller as 186 is retracted away from its cooperating roller as 188. Now if operation of the machine is interrupted at a time when a sheet is engaged with an unretracted stop finger it might be that when the stop finger was retracted a roller as 186 might not advance the sheet. However, the elevating and lowering of the roller effected in the above described manner insures that when a roller as 186 engages the sheet in its lowering movement it will, by reason of its momentum force the sheet forwardly for at a time when the roller 186 is lowered into engagement with a sheet the associated stop finger will be retracted and it will therefore be seen that the above described arrangement insures feeding of the sheets through the machine.

As best shown in Figs. 10 and 13 the stop finger 191 includes depending tongues 199 and it is against these tongues that the forward edge of a sheet abuts when the stop finger is in stopping position. These stop tongues are spaced from each other, as is clearly shown in Figs. 13 and 14, for a purpose now to be explained. It is, of course, objectionable to make offsets on the impression members or platens cooperating with printing mechanisms that operate on the sheets S. It will be recognized that the absence of a sheet in association with a printing mechanism at a time when an impression operation is performed may well result in mis-operation of the machine. Hence, it is quite advantageous to provide detecting means for determining whether or not a sheet is engaged with a stop finger at a time when an impression operation is to be performed for so to do will prevent the production of offsets and avoid mis-operation such as might arise in the absence of a sheet.

Thus, for example, where sheets are to receive impressions from the printing mechanism in the multiplying mechanism M, at which time the sheets are to be engaged with the stop finger 191, a sheet detecting means is provided which includes a thin block 200 mounted in the printing device guideway immediately forward of the depending tongues 199 on the stop finger 191, the leading edge of this block being tapered as indicated at 201 to insure the passage of the leading edge of a sheet up onto the upper surface thereof. When a sheet is properly engaged with the depending tongues 199 on the stop finger 191 the sheet lies over the block 200. The sheet detecting means also includes a sheet sensing arm 202 that is connected to the spring plate 193 that also carries the stop finger 191 and hence the arm 202 is supported in the same manner as the stop finger 191. The arm 202 carries a sensing finger 203 which passes through the space between the depending tongue 199 on the stop finger 191 and which, when it is lowered, may pass into a notch 204 in the block 200 to seat on the bed plate 108. When, however, a sheet is disposed over the plate 200 such sheet prevents the finger 203 from passing into the notch 204.

The operating means of the sheet detecting means includes a cam 206, Figs. 4, 7 and 14, mounted on the cam shaft 195 adjacent the cam 196 and this cam 206, as clearly shown in Fig. 14, acts on an upstanding portion 207 on the arm 202 to cause this arm to be lowered at a time when a sheet should be engaged with the depending fingers 199 on the stop finger 191. A plate 208 projects from the arm 202 and is disposed over the top blade 209 of a switch comprising the blades 209 and 210. When, upon lowering of the arm 202, the finger 203 passes into the notch 204, the plate 208 engages the blade 209 and thereupon engages the contact carried thereon with the contact carried on the blade 210 to thereby close an electrical circuit which, in a manner explained in co-pending application Serial No. 221,841, interrupts operation of the machine.

An arrangement including a stop finger arrangement corresponding to the stop finger 191 and its associated parts and sensing arm corresponding to the arm 202 and its associated parts is provided for cooperation with the platen P that operates to make impressions directly from printing and control devices and other printing means in the machine in the manner described in said co-pending application. Such stop finger is in-

dicated by 211, Figs. 4 and 5, and the arm which corresponds to the arm 202 is indicated at 212. The arm 212 carries a plate 213 which operates blades of a switch corresponding to the blades 203 and 216 operated by the plate 203, and inasmuch as the construction and operation of these parts are identical with that described in connection with the stop finger 191 and associated mechanisms, a detailed description of these parts is not set forth herein.

It is desirable to operate the sheet feeding rollers as 185, 186 and 190 in a rapid manner and to this end the shaft 168 from which these rollers are driven is rotated relatively rapidly and this movement is imparted to this shaft from the main drive shaft 19 in a manner now to be explained.

A gear 214, Figs. 2, 3, 4, 6, 7, 8 and 9, is fast on the shaft 186, in this instance adjacent the bearing member 187. This gear meshes with a gear 215 rotatably mounted on the stub shaft 216, Fig. 9, carried by a block 217 mounted on the underside of the bed plate 188. The gears 214 and 215 in this instance have a one-to-one ratio as do the gears as 173 and 173, Fig. 4, and hence the shaft 182 is rotated at the same rate of speed as the rollers as 185, 186 and 190. Such rotative movement is imparted to the shaft 182 through the gears 215 and 214 from a belt 218, Figs. 8 and 9, this belt being directed about a pulley 219, Fig. 9, that is unitary with the gear 215. As best shown in Fig. 2, the belt 218 also passes about a pulley 220 fast on the main drive shaft 19.

It has been explained that the stop fingers 191 and 211 are normally in their lower position, which is to say, sheet stopping position. Furthermore, immediately after an impression has been made by the printing mechanisms onto a sheet that has been stopped by one or the other of these stop fingers, such stop finger is elevated so that the sheet will be immediately fed from association with the printing mechanism. Therefore, since advancing movement of the sheet is tied into operations of the machine, it will be apparent that the operations of the stop fingers 191 and 211 must be timed with respect to operations of the printing mechanisms with which they are associated and to this end the cam shaft 195 is driven in timed relation with other mechanisms in the machine.

Drive is imparted to the cam shaft 195 through a bevel gear 228, Figs. 2, 3 and 4, provided at one end of the cam shaft 195. This bevel gear 228 meshes with a bevel gear 229, Fig. 3, fast on the shaft 230 journaled in the frame 231 of the printing unit U. The shaft 230 in a manner explained in co-pending application Serial No. 221,841 is driven in timed relation with the printing unit U as are other operating mechanisms in the machine.

It will be apparent that the unit shown in Fig. 4 may be readily lifted from the bed plate 188 for the driving connection between the shaft 168, and the means in the machine for imparting movement thereto is afforded by the intermeshing of the gears 214 and 215 and drive from the cam shaft 195 is afforded by intermeshing the gears 228 and 229 and hence is only necessary to insure intermeshing of these gears to establish a driving connection for the shaft 168 and the cam shaft 195.

However, it will be remembered that the stop fingers and the like driven from the cam shaft 195 must operate in timed relation with other operating mechanisms in the machine. It will also be recognized that when the unit shown in Fig. 4 is removed from the machine in the course of which bevel gears 228 and 229 are demeshed the aforesaid timed relation might be interrupted. To prevent this the bevel gear 228 is mounted on the shaft 195 in a predetermined position and the bevel gear 229 is likewise mounted on the shaft 230 in a predetermined position. Such predetermined positions may be conveniently determined by utilizing the set screws by means of which these gears are fast to the respective shafts on which they are mounted. A convenient way of doing this is to so mount the bevel gear 229 on the shaft 230 that when the parts are at rest the set screw connecting this gear to this shaft will be in an upper position. This same arrangement may also be followed out for the mounting of the gear 228 on the shaft 195. In other words, the arrangement is such that the set screw connecting the gear 228 to the shaft 195 is arranged to be in its upper position when the parts under control of the cam shaft 195 are in their at rest positions and by this is meant the positions occupied by the various parts when the machine comes to rest at the end of a normal cycle of operation thereof by disengagement of the main clutch as described in co-pending application Serial No. 221,841.

Thus in order to insure that proper timed relation of the operative mechanisms of the unit shown in Fig. 4 is maintained with respect to operative mechanisms in the machine, it is only necessary to insure that the set screws on the gears 228 and 229 are in their upper positions at the time these gears are meshed as the unit shown in Fig. 4 is mounted on the bed plate 188. It will, of course, be recognized that the use of the set screws on the gears 228 and 229 as markers to insure proper angular relation between the shafts 195 and 230 is but one of numerous expedients that could be resorted to to accomplish the desired end and, furthermore, it is not essential that the set screws both be stopped in their upper positions so long as some fixed relationship between whatever markers are utilized is established and maintained.

It will be manifest that it is essential that the unit shown in Fig. 4 be accurately disposed when it is mounted on the bed plate 188 and to this end stop lugs as 232, Figs. 3, 12, 13 and 14 are mounted at determined positions on the top of the bed plate 188. These stop lugs, as best shown in Figs. 12 to 14, include overhanging portions which overlie the bar 161 and firmly hold it down against the bed plate 188. Additionally, a thumb screw 233, Fig. 3, is passed through an opening 234, Fig. 6, in the bar 160 and is threaded into an opening located in a predetermined position in the bed plate 188. It will be manifest that the stop lugs 232 determine the position of the unit shown in Fig. 4 transversely of the bed plate 188 and that the insertion of the thumb screw 233 through the opening 234 into the located opening in the bed plate 188 locates the unit shown in Fig. 4 longitudinally of the bed plate 188.

The invention described in the foregoing specification and illustrated in the accompanying drawings provides a novel arrangement for rapidly feeding sheets through a printing or like machine and wherein the sheets are stopped at predetermined intervals and locations to have operations performed thereon. The sheet feeding device is removable from the printing or like machine and is capable and is synchronized to the

various operating parts of such machine to cooperate therewith for accurate and proper feeding of sheets therethrough.

Thus while I have illustrated and described a selected embodiment of my invention, it is to be understood that it is capable of variation and modification and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the scope of the following claims:

I claim:

1. In a printing machine, a sheet feeding device comprising a shaft rotatable in a predetermined direction, means for rotating said shaft, a bearing member pivotally mounted on said shaft, another shaft mounted in said bearing member and operatively connected to said first-named shaft, a roller on said other shaft normally arranged in the sheet guideway of said machine and adapted to engage a sheet therein to feed it therethrough, and means for pivoting said bearing member about said first-named shaft to remove the roller from said guideway to permit the insertion of a sheet therein to be engaged by said roller.

2. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a drive shaft, means in said machine for operating said drive shaft, a roller normally arranged in said guideway for engaging and feeding sheets therethrough, means operating said roller from said drive shaft, and means for removing said roller from said guideway to enable the positioning of a sheet in said guideway whereby said roller will feed said sheet therethrough when in normal position.

3. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a drive shaft, means in said machine for operating said drive shaft, a bearing pivotally mounted on said drive shaft, another shaft mounted in said bearing and driven from said drive shaft, a roller rigidly mounted on said driven shaft and normally arranged in said guideway, and means for pivoting said bearing about said drive shaft to remove said roller from said guideway to enable the positioning of a sheet in said guideway whereby said roller will feed said sheet therethrough when in normal position.

4. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a horizontal drive shaft, means in said machine for rotating said shaft in a given direction, a bearing member pivotally mounted on said drive shaft and extending substantially perpendicularly therefrom laterally in the direction of rotation of said drive shaft, a driven shaft mounted in said member and operatively connected to said drive shaft, a roller on said driven shaft normally adapted to engage a sheet in said guideway to feed it therethrough and held in sheet engaging position by the rotation of said drive shaft.

5. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a drive shaft, a bearing member pivotally mounted on said drive shaft and having a tongue thereon, said bearing extending laterally from said drive shaft in one direction and said tongue extending laterally in an opposite direction, a driven shaft mounted in said bearing and operatively connected to said drive shaft, a roller on said driven shaft arranged outwardly of said bearing and normally arranged to engage a sheet in said guideway to feed it therethrough, a cam shaft arranged adjacent to said drive shaft, and a cam on said cam shaft adapted to engage said tongue to pivot said bearing about the drive shaft to remove said roller from engagement with said sheet.

6. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a horizontal drive shaft, a bearing member pivotally mounted on said drive shaft and extending substantially perpendicularly therefrom laterally in the direction of rotation of said drive shaft, a driven shaft mounted in said bearing and operatively connected to said drive shaft, a roller on said driven shaft normally arranged to engage a sheet in said guideway to feed it therethrough, a tongue on said bearing extending from said drive shaft and oppositely to said bearing, a cam shaft arranged substantially parallel to said drive shaft, and a cam on said cam shaft adapted to engage said tongue to pivot said bearing about the drive shaft to remove said roller from engagement with said sheet.

7. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a bed plate on which said guideway is mounted, a supporting bar mounted on said bed plate, a spring plate rigidly secured to said supporting bar, a stop finger secured to said spring plate, a tongue on said stop finger normally arranged in said guideway to stop the passage of sheets therethrough, a cam shaft, a cam on said cam shaft, said stop finger having an upturned end arranged to be engaged by said cam shaft whereby said stop finger is raised to remove said tongue from said guideway to permit passage of sheets therethrough.

8. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, means for impelling sheets through said guideway, means for stopping the passage of sheets through said guideway, means for operating said impelling means and said stop means alternately, means for detecting the presence of a sheet at said stop means and comprising a notched block in said guideway arranged beneath sheets passing therethrough, a sensing finger arranged to enter the notch in said block when no sheet is present at said stop means and adapted to be held from entry into said notch by a sheet stopped by said stop means, and a pair of electrical contacts operable by said sensing finger to prevent operation of a selected part of said machine when there is no sheet stopped by said stop means.

9. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, means for impelling sheets through said guideway, means for stopping passage of sheets through said guideway, means for operating said impelling means and said stop means alternately, means for detecting the presence of a sheet at said stop means and comprising a notched block in said guideway arranged beneath sheets passing therethrough, a sensing finger normally arranged in the notch in said block, a cam shaft, a cam on said cam shaft adapted to remove said sensing finger from said notch, said sensing finger adapted to be held from said notch after release by said cam by the presence of a sheet at said stop means, and an electrical switch operable by said sensing finger

to prevent operation of a selected part of said machine when there is no sheet stopped by said stop means.

10. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, said guideway comprising a pair of parallel elongated bars interconnected by removable cross ties and having their opposing faces slotted to receive opposite edges of sheets passing therethrough, a supporting bar arranged parallel to said elongated bars, brackets interconnecting one of said elongated bars and said supporting bar, a drive shaft journaled in said brackets, and means operated by said drive shaft for selectively impelling sheets through said guideway.

11. In a sheet feeding means for a printing machine or the like and including a sheet guideway through which sheets are fed, a supporting bar arranged parallel to said guideway, brackets interconnecting said supporting bar and said guideway, a drive shaft journaled in said brackets, means operated by said drive shaft for selectively impelling sheets through said guideway, a cam shaft journaled in said brackets having cams thereon for removing said impelling means from engagement with said sheets, stop means arranged in said guideway for stopping the sheets passing therethrough, another cam on said cam shaft for selectively removing said stop means from said guideway, sensing means for sensing the presence of a sheet in said guideway, a cam on said cam shaft for removing said sensing means from said guideway, and an electrical switch operated by said sensing means for rendering a selected part of said machine inoperative when there is an absence of a sheet stopped by said stop means.

12. In an attachment for a printing machine or the like having drive means and comprising a sheet feeding means including a sheet guideway through which sheets are fed, a drive shaft, means operatively interconnecting said drive shaft and the drive means of said machine, means normally arranged in said guideway for engaging and feeding sheets therethrough, means operating said engaging and feeding means from said drive shaft, and means for removing said engaging and feeding means from said guideway to enable positioning of a sheet therein whereby said engaging and feeding means will feed said sheet therethrough when in normal position.

13. In an attachment for a printing machine or the like having drive means and comprising a sheet guideway through which sheets are fed, a supporting bar, a spring plate rigidly secured to said supporting bar, a stop finger secured to said spring plate, a tongue on said stop finger normally arranged in said guideway to stop the passage of sheets therethrough, a cam shaft, a cam on said cam shaft, said stop finger having an upturned end arranged to be engaged by said cam shaft whereby said stop finger is raised to remove said tongue from said guideway to permit passage of sheets therethrough, and means operatively interconnecting said cam shaft and the drive means on said machine.

14. In an attachment for a printing machine or the like having drive means and comprising a sheet guideway through which sheets are fed, a supporting bar arranged parallel to said guideway, brackets interconnecting said supporting bar and said guideway, a drive shaft journaled in said brackets, means operated by said drive shaft for selectively impelling sheets through said guideway, a cam shaft journaled in said brackets having cams thereon for removing said impelling means from engagement with said sheets, stop means arranged in said guideway for stopping the sheets passing therethrough, another cam on said cam shaft for selectively removing said stop means from said guideway, sensing means for sensing the presence of a sheet in said guideway, a cam on said cam shaft for removing said sensing means from said guideway, an electrical switch operated by said sensing means for rendering a selected part of said machine inoperative when there is an absence of a sheet stopped by said stop means, and means operatively interconnecting said drive shaft and cam shaft with the drive means of said machine.

WALTER T. GOLLWITZER.