Dec. 22, 1925. 1,566,604

J. W. JAKEMAN.

SHEET DELIVERY MECHANISM OF PRINTING MACHINES

Filed May 22, 1924

Fig. 1.

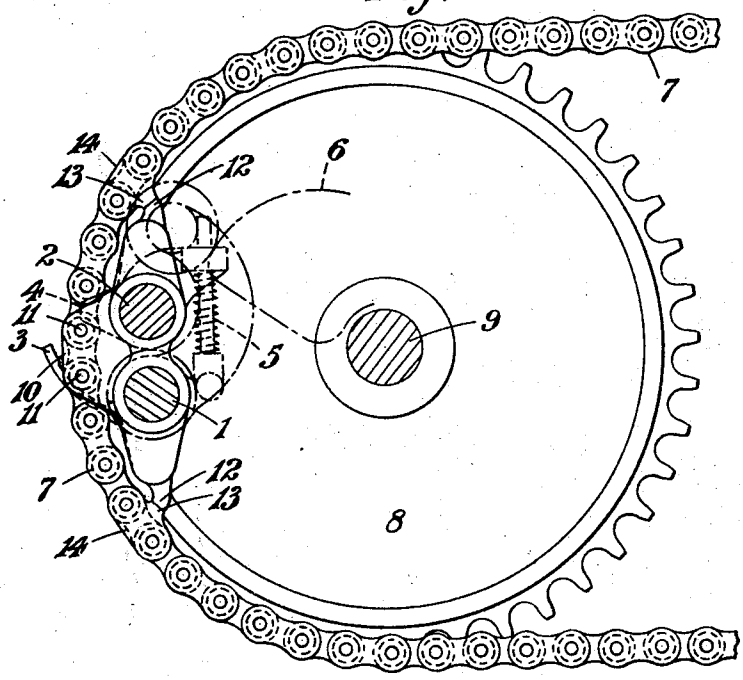


Fig. 2.

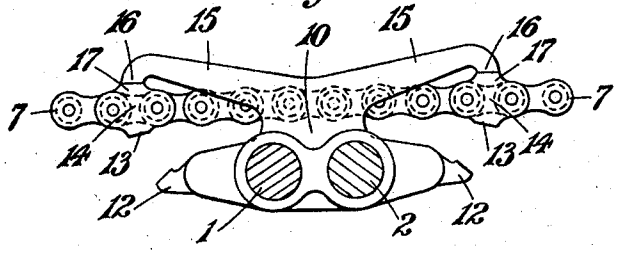
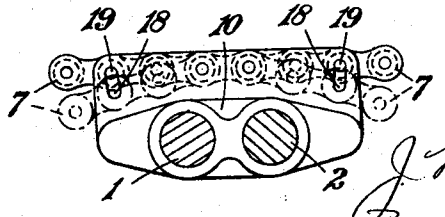


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN WALLACE JAKEMAN, OF ALTRINCHAM, ENGLAND, ASSIGNOR TO LINOTYPE AND MACHINERY LIMITED, OF LONDON, ENGLAND, A BRITISH COMPANY.

SHEET-DELIVERY MECHANISM OF PRINTING MACHINES.

Application filed May 22, 1924. Serial No. 715,038.

To all whom it may concern:

Be it known that I, JOHN WALLACE JAKEMAN, a British subject, and resident of Linotype and Machinery Works, Altrincham, in the county of Chester, England, have invented new and useful Improvements in Sheet-Delivery Mechanism of Printing Machines, of which the following is a specification.

This invention relates to sheet delivery mechanism of printing machines in which the grippers for taking the sheets from the impression cylinder or other organ from which these grippers are to receive them, are carried by a plurality of endless chains traversed continuously or intermittently by sprocket or equivalent gearing.

In this construction of apparatus, the grippers and gripper pads are secured to shafts extending transversely across the machine from chain to chain, which shafts are carried in brackets secured to these chains.

It has been found difficult to secure adequate rigidity of the brackets, and consequently, excessive wear of the rivets or other devices by which the brackets are attached to the chain, has arisen.

The effect of the lack of rigidity in question is particularly marked when the shaft-carrying brackets are in their vertical positions, as for example, when the respective part of the chain is passing over the above-mentioned sprocket gearing, owing to the fact that the weight of the shafts and the devices carried thereby, then exerts a shearing action upon the aforesaid rivets. It is further to be noted that these rivets are also subjected to a shearing action during the operation of the gripper-opening cams.

According to the present invention the above-mentioned defects are overcome by providing the brackets with abutments which, at the required stages of the operation of the chains, come into operative contact with co-operating abutments on the chains.

In the accompanying drawings which are to be taken as part of this specification and read therewith:—

Figure 1 is a sectional view showing in elevation one of a pair of sprocket wheels and a portion of its respective chain, the latter provided with means according to one constructional form of the invention, and

Figures 2 and 3 are views each similar to Figure 1, showing other constructional forms of the invention.

In each of the figures, the gripper shaft and gripper pad shaft are respectively identified by the reference numerals 1, 2, while in Figure 1, one of the grippers and the corresponding gripper pad, are shown in dotted lines and these are respectively identified by the reference numerals 3, 4. In Figure 1 there are further shown in dotted lines, one of the gripper-closing springs 5 and gripper-opening cams 6, it being observed that the particular gripper 3 shown, is represented in the position in which it is just about to engage a sheet between itself and the pad 4.

The chain 7 shown fragmentarily in each of the figures, is the distant one of a pair carrying the shafts 1, 2, it being understood that the lines on which the sections whereon these views are taken, are located between the said pair of chains and between the pair of sprocket wheels 8 engaging those chains, and for that reason, only the distant one of said wheels is represented in Figure 1, this wheel, as ordinarily, being fast to a shaft 9.

As before mentioned, and as ordinarily, the gripper shaft 1 and gripper pad shaft 2 are, at each end, attached to the respective chain 7, by a bracket 10 which is rigidly secured to said chain by the two rivets 11 of the particular chain link to which the attachment is made.

According to the present invention the difficulties arising out of the before mentioned want of rigidity of the brackets 10, is overcome by providing the latter with abutments which, at the required stages of operation of the chains 7, come into operative contact with co-operating abutments on said chains themselves.

These abutments may be of various forms, and for that reason, those represented in the drawings, are to be taken merely as examples.

In the constructional form shown in Figure 1, the bracket abutments 12 are formed on extensions at the leading and following ends of the brackets 10 and are adapted to engage with inwardly presented abutments 13 on plates 14 attached to certain chain links in advance, and to the rear, of the links to which the said brackets are themselves attached. By this arrangement, as is clearly

apparent from Figure 1, practically complete rigidity of the brackets 10, is obtained during the passage of the bracket-carrying links around the sprocket wheels 8, because at that juncture the abutments 12 are in close co-operation with the abutments 13.

In the constructional form illustrated in Figure 2, which is adapted to provide the necessary rigidity of the brackets 10 when on the horizontal or straight flights of the chains 7, the brackets 10 are provided with arms 15 extending to the outside of the chains 7 and terminating in abutments 16 adapted to co-operate with outwardly-presented abutments 17 on the plates 14.

As a matter of fact, Figure 2 actually represents a further constructional form as it embodies both of the before described arrangements, viz:—that last previously described in connection with the said figure, and that described in connection with Figure 1, and these arrangements may be thus incorporated in one and the same apparatus.

The same result as that attained by the combined arrangement illustrated in Figure 2, can be obtained by providing the bracket plates 10 with arcuate slots 18 as shown in Figure 3, to accommodate the extended ends of the particular chain rivets 19 which register with said slots, the length of the slots 18 being such that these rivets, during the straight flight of the chains 7, are in contact with the upper or outer ends of the slots, as indicated in full lines, and during the passage of the respective parts of the chains around the sprockets, are in contact with the lower or inner ends of such slots, as shown in dotted lines.

Having described my invention, I declare that what I claim and desire to secure by Letters Patent is:—

1. In a sheet delivery mechanism of printing machines, the combination with a travelling chain and a gripper shaft carried in a bracket attached to the chain, of an abutment on the bracket so located as to engage a link of the chain other than that to which the bracket is attached, only when the chain is deflected from a straight path.

2. In sheet delivery mechanism of printing machines, the combination with a travelling chain and a gripper shaft carried in a bracket attached to the chain, of an abutment on the bracket so located as to engage a link of the chain other than that to which the bracket is attached, only during the straight flights of the chain.

3. In sheet delivery mechanism of printing machines, the combination with a travelling chain and a gripper shaft carried in a bracket attached to the chain, of an abutment on the leading end of the bracket and an abutment on the following end of the bracket, that on the leading end being adapted to engage a link of the chain in advance, and that on the following end being adapted to engage a link of the chain to the rear of, that to which the bracket is attached.

4. In sheet delivery mechanism of printing machines, the combination with a travelling chain and a gripper shaft carried in a bracket attached to the chain of abutments on the bracket respectively located so as to engage a link of the chain other than that to which the bracket is attached when the chain is deflected from a straight path and during the straight flights of the chain.

5. In sheet delivery mechanism of printing machines, the combination with a travelling chain and a gripper shaft carried in a bracket attached to the chain of abutments constituted by the ends of arcual slots located at the leading and following ends of the bracket, and extended chain-link pivots movable within those slots to the limits defined by such abutments.

In testimony whereof I have affixed my signature hereto.

JOHN WALLACE JAKEMAN.