June 5, 1934. H. C. ZENKE 1,961,724

KICK SHEET DEVICE

Filed Jan. 6, 1931 3 Sheets-Sheet 1

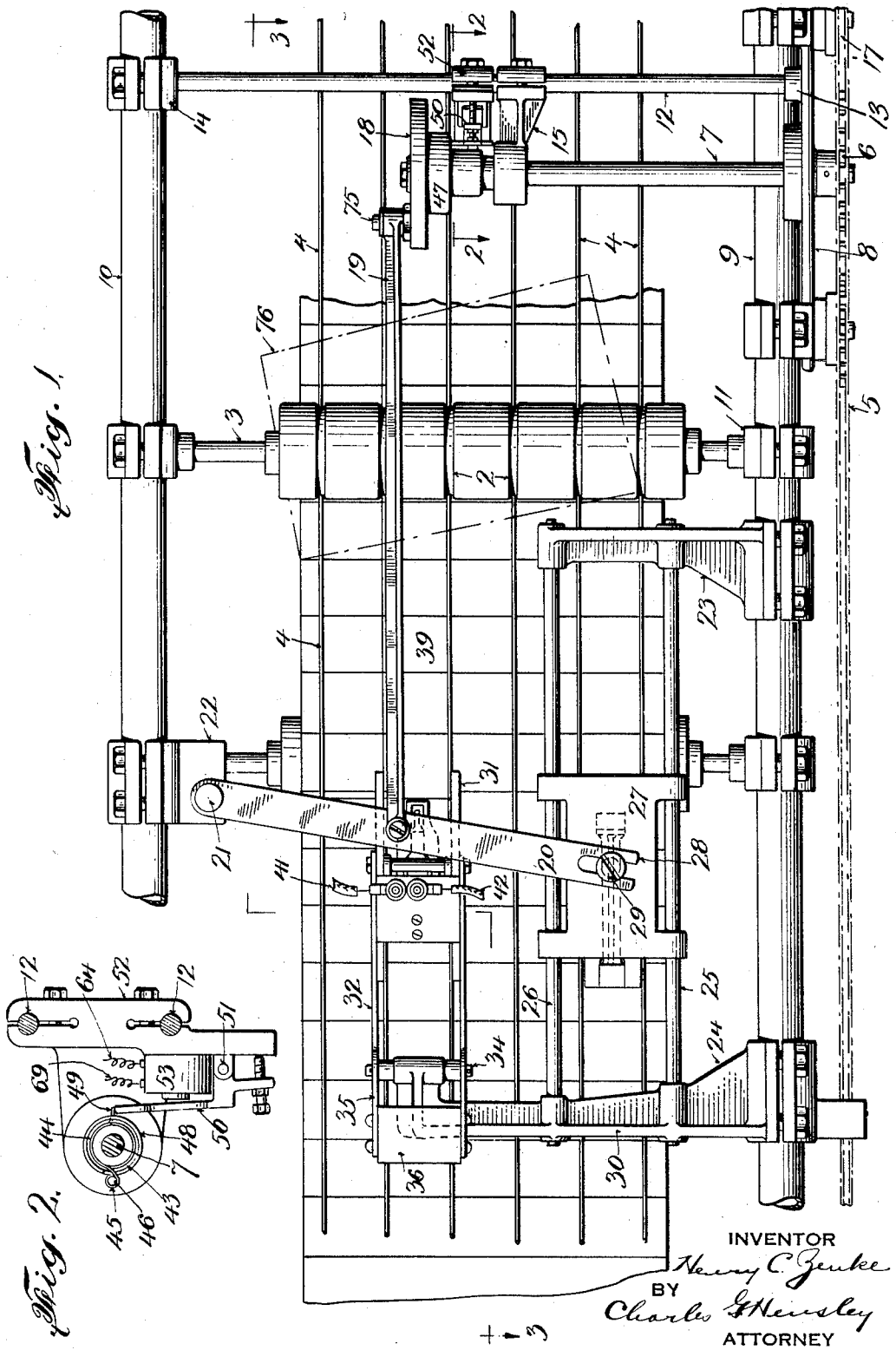


Fig. 1.

Fig. 2.

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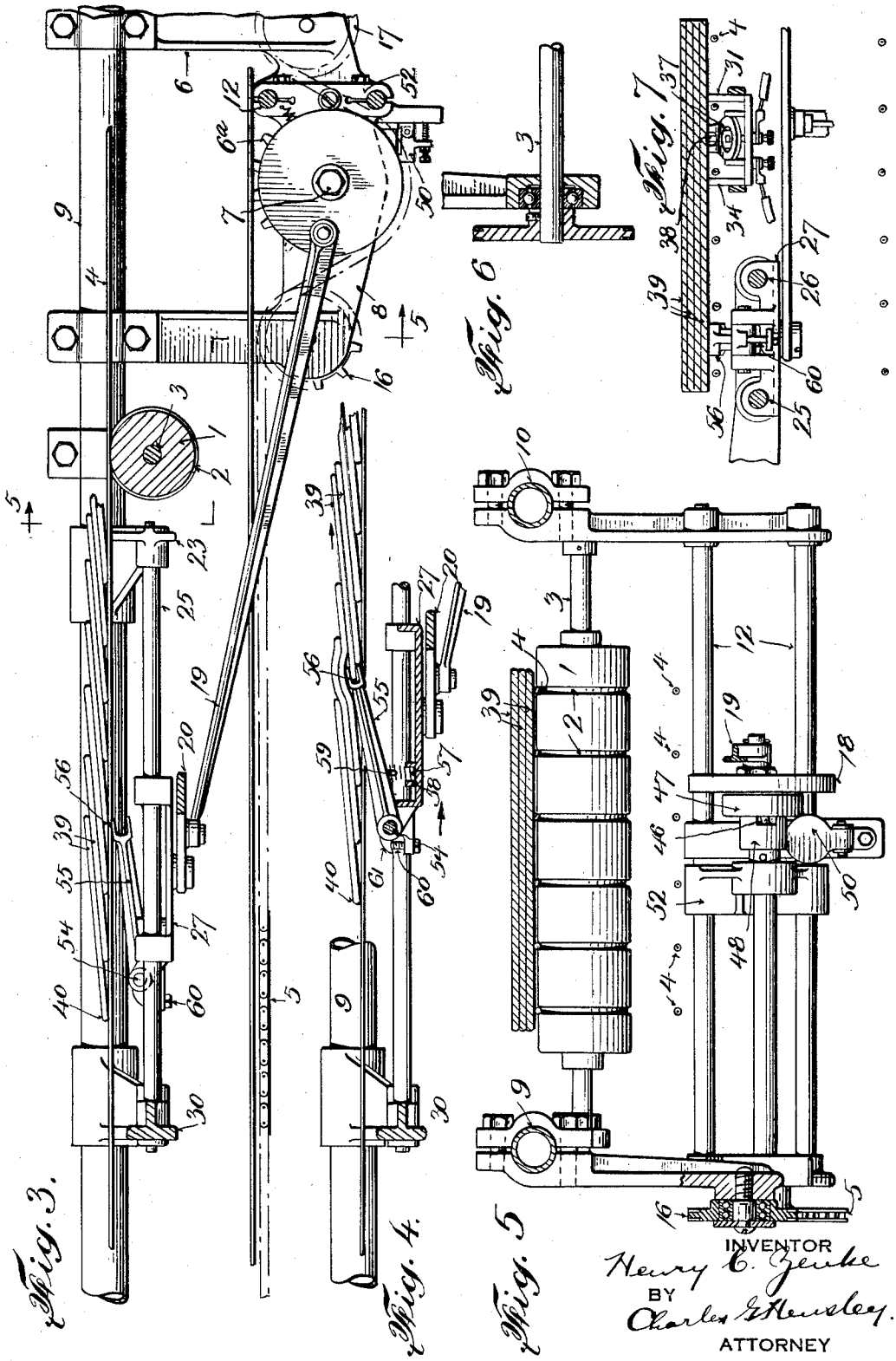


Fig. 3.

Fig. 4.

Fig. 5

Fig. 6

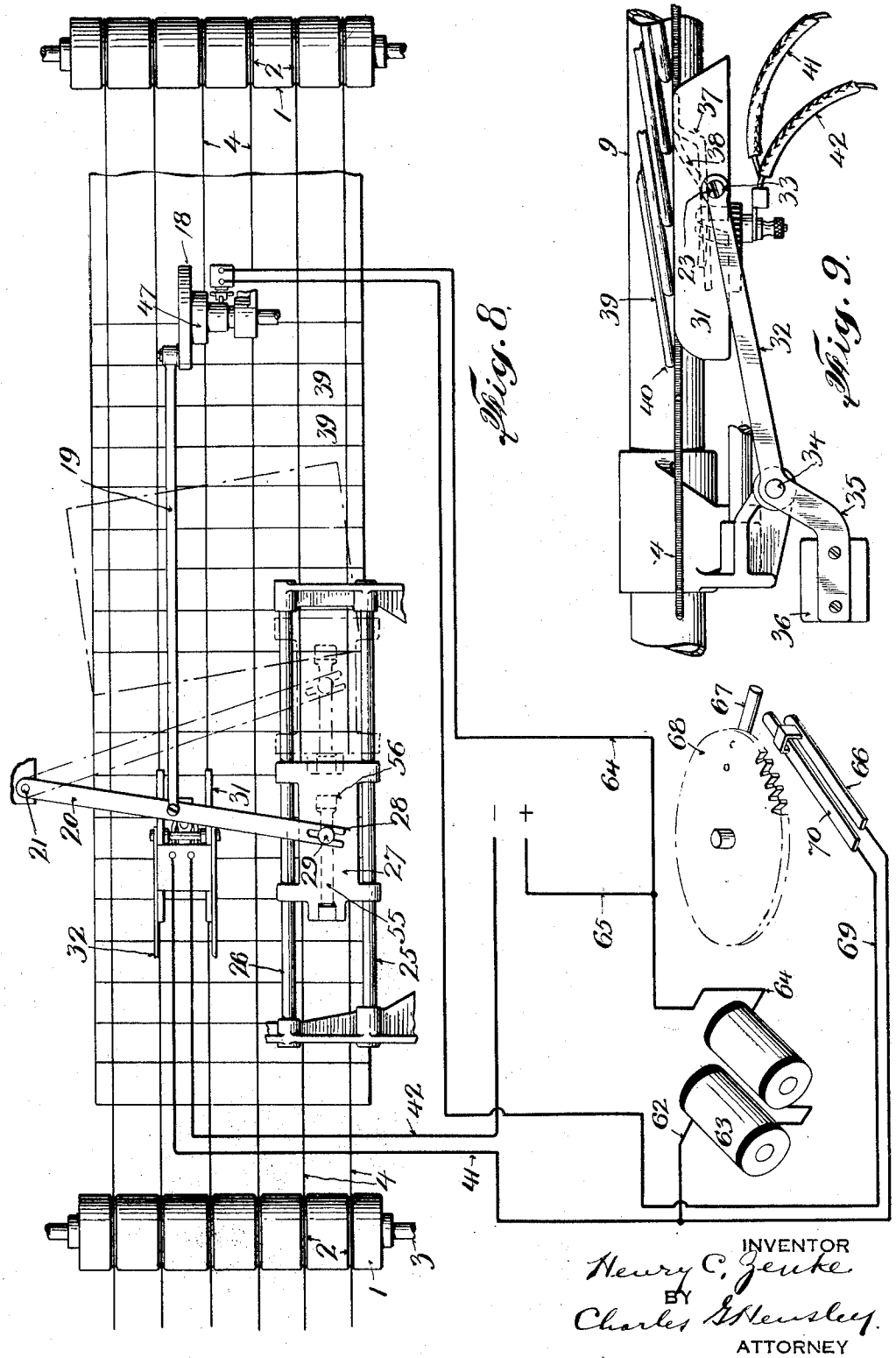
Fig. 7

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Patented June 5, 1934

1,961,724

UNITED STATES PATENT OFFICE

1,961,724

KICK SHEET DEVICE

Henry C. Zenke, Richmond Hill, N. Y.

Application January 6, 1931, Serial No. 506,911

17 Claims. (Cl. 93—93)

The present invention relates to what is generally called a kick sheet device. Such a device serves the purpose of kicking or altering the position of sheets or newspapers while the same are travelling in overlapping position along a conveyor, the device operating periodically after a given number of papers have passed a given point, so that the paper which is kicked or shifted will indicate the count of the papers. For instance, if every fiftieth paper is kicked the kick sheets will indicate that there are fifty papers between successive kick sheets, or if the kick sheet device operates on every hundredth paper it will indicate that there are one hundred papers between successive kick sheets. Such devices are commonly used in newspaper establishments for convenience in sorting newspapers and arranging them into separate lifts, each containing a stated number of papers, such as fifty or one hundred, in order that the operator, in the distributing room, will not have to count the individual papers in order to arrange them in separate lifts and stacks.

Heretofore, the kicking of the sheets has been accomplished on the printing press as the papers are delivered from the press and are about to be conveyed away by the conveyor toward the distributing room.

Where the papers are counted and kicked at the press the count is not always accurate when the papers reach the distributing room because the pressman will often remove a paper to examine the distribution of ink on the printed sheets and for other purposes, and he very often fails to return the removed papers to their proper group, so that when the papers reach the distributing room the number of papers between successive kick sheets is not always accurate.

Furthermore, disputes and differences arise regarding the number of papers recorded as printed in the press room and the number accounted for in the distributing room. The purpose of my present invention is to provide a device which will count the papers and periodically kick individual papers while they are travelling on the conveyor which conveys the papers from the press to the distributing room, and preferably at a point sufficiently beyond the printing press to prevent any inaccuracies due to the occasional removal of papers by the pressman. This permits the papers to be kicked to indicate the count at a location which will accurately determine the papers which are actually delivered to the distributing room.

In my co-pending application Serial No. 415,657 and filed December 21, 1929, I showed and described a mechanism for counting the papers and for kicking individual papers periodically, the purpose of that mechanism being similar in its broad aspect to the present application.

One object of the present invention is to provide a kick sheet device which is so connected up with the driving mechanism of the newspaper conveyor as to provide for accurate synchronization between the conveyor and the kick sheet device. This insures proper timing of the kick sheet device in relation to the movement of the papers on the conveyor and it also simplifies the problem of applying the operating force to the kick sheet device.

By synchronizing the operation of the kick sheet device with the conveyor, the former will operate faster or slower in exact accordance with the speed at which the papers travel on the conveyor, which is a desirable feature because the speed of the papers on the conveyor is not always uniform and it is desirable that the kick sheet device should move in definite timed relation with the speed of the papers on the conveyor. Another advantage of this combination is that each kick sheet may be moved the same extent in relation to the other papers on the conveyor so that the kicking of the sheets will be uniform notwithstanding any variation in the speed of the papers on the conveyor.

Another object of the invention is to provide a simple kick sheet device operating in synchronism with the conveyor, which may be located at any point along the path of the conveyor and permit power to be applied to the kick sheet device from any portion of the conveyor operating mechanism, thereby making the kick sheet device applicable at any location in relation to the conveyor. Furthermore, it is not necessary to convey the operating force to the kick sheet device from a remote point.

Another object is to provide a kick sheet device which may be designed in a simple manner to kick the sheets to any desired extent.

Another object of the invention is to simplify the kick sheet device and to render it more positive and dependable in its operation. Another object is to simplify the portion of the kick sheet device which directly engages with the sheets to be kicked and to render its operation positive and dependable. These, as well as other objects will be set forth in the following detailed description of my invention.

In the drawings forming part of this application,

Figure 1 is a view looking upwardly at the under side of a newspaper conveyor and at the kick sheet device embodying my invention in the preferred form,

Figure 2 is a sectional view taken on the line 2—2 of Figure 1,

Figure 3 is a sectional view taken on the line 3—3 of Figure 1,

Figure 4 is a sectional view through a portion of the kick sheet device illustrating the manner in which an individual paper is engaged during the kicking operation,

Figure 5 is a sectional view taken on the line 5—5 of Figure 3,

Figure 6 is a sectional view showing a detail of part of the conveyor,

Figure 7 is a sectional view showing details of the kick sheet device,

Figure 8 is a view similar to Figure 1 but on a smaller scale and illustrating the movement of the kick sheet device and also showing the electric circuits through which the counting device controls the kick sheet device, and

Figure 9 is a detailed view illustrating a portion of the counting device which may be used to control the kick sheet device.

In my co-pending application above referred to I have shown a complete apparatus including the device for counting the individual sheets as they travel along the newspaper conveyor, together with the device for kicking the sheets. The present invention relates more particularly to the kick sheet device. While the present device may be actuated by any form of counting device, I prefer to use in conjunction with the present invention a counting device similar to that shown in my said co-pending application but without limiting the present invention to use with that particular type of counting device I have illustrated my invention as controlled by the counting device shown in said co-pending case by way of illustrating one method of operating the present apparatus. Cross reference may be made to my said co-pending case for a complete description of one form of counting device which may be used with the present invention.

It is common practice to convey newspapers on conveyors extending from a point adjacent the printing press to some remote point within the distributing room in which latter location the papers are taken from the conveyor in groups or lifts of predetermined numbers and distributed according to some prearranged plan. These conveyors usually consist of grooved rollers over which travel endless belts generally of spiral spring formation, which belts engage opposite surfaces of the overlapping papers for the purpose of carrying the papers from the press to the distributing room.

In the drawings I have shown a portion of a common type of conveyor with which my present invention may be conveniently combined. The conveyor consists of a number of rollers 1 arranged with their axes at right angles to the path of travel of the papers, these rollers being provided with peripheral grooves 2 and suitably mounted on shafts 3 which have bearings in the framework of the conveyor. Such rollers are distributed at intervals along the conveyor, both above and below the plane of the travelling papers, so that the papers pass between the upper and lower grooved rollers and between the several belts, i. e., the upper and lower belts of the conveyor. There is a series of belts 4 usually endless, which travel around the several grooved rollers and engage in the grooves 2 thereof. Where the papers travel in a horizontal position usually these belts are arranged only below the papers, whereas when the papers are travelling vertically or turning from the vertical into the horizontal, similar belts are generally applied to the opposite side of the plane of the papers, but as my invention is illustrated as applied to the horizontal portion of a conveyor it is not necessary to show the second set of conveyor belts although it will be understood that they may be used if desired.

The power for operating the rollers and belts of the conveyor is transmitted to different portions of the conveyor by means of the endless chain 5 operating on suitable sprockets (not shown) for driving some of the grooved rollers 1. This chain is, therefore, part of the driving mechanism of the conveyor, and preferably the power for operating the kick sheet device is taken indirectly from this chain.

I have shown the chain as passing over a sprocket wheel 6^a which is mounted on a shaft 7 extending transversely of the conveyor and suitably journaled at one end in a bracket 8 which is bolted or clamped upon one of the horizontal rods 9, which is part of the supporting frame of the conveyor. There is a similar rod 10 disposed at the opposite side of the conveyor and comprising part of the frame of the latter and the various clamps 11 for supporting the bearings of the shafts 3 of the conveyor rollers 1 are mounted on these rods as well as the operating mechanism of my kick sheet device. I have shown bars 12 connected between a bracket 13 which is integral with or connected to the intermediate bracket 8 which supports one end of the bars 12. The cross bars 12 are connected at their other ends with the bracket 14 which is attached to the longitudinal rod 10. On the bars 12 there is clamped a bracket 15 which has the second bearing for the cross shaft 7. The sprocket wheel 6^a is on the end of the shaft 7 which projects beyond the rod 9 and the endless chain 5 engages partly around this sprocket for the purpose of applying to the shaft 7 the operating force for the kick sheet device. I have shown the chain travelling around the idler sprocket 16 on one side of the larger sprocket 6^a and also engaging around the sprocket 17 which is journaled in the bracket 13, these idlers serving to guide the chain partly around the sprocket 6^a which is mounted on the shaft 7. On one end of the shaft 7 there is fixed a crank disc 18 which revolves with the shaft; and the pitman 19 extending lengthwise of the conveyor is pivotally connected at one end with this crank disc and at its opposite end it is pivotally connected with the lever arm 20. The latter is fulcrumed on the pin 21 mounted in a clamp 22 which is clamped upon the longitudinal rod 10.

There is a pair of brackets 23 and 24 clamped to the longitudinal bar 9 and extending between and mounted in suitable bearings in these brackets are parallel guide rods or tracks 25 which form guiding members for the reciprocating carriage 27 which moves back and forth in the direction of the length of the conveyor. The lever arm 20 has a fork 28 at one end which engages the screw 29 which is attached to the reciprocating carriage, so that when the lever arm 20 is oscillated through the crank disc 18 and the pitman 19, reciprocating motion is transmitted to the carriage 27 to cause it to reciprocate along the tracks 25, 26. The bracket 24

is provided with an extension 30 which forms a support for the device which co-operates with the travelling papers to count the latter and to control the electric circuit which causes the kick sheet device to be operated in accordance with the number of papers passing the kick sheet device. In my co-pending application I have shown a complete device for counting the sheets and for effecting the operation of the kick sheet device, and I prefer to use the same counting device for controlling the present kick sheet device, although it will be understood that as far as the present invention is concerned it is not limited to use in combination with this type of counting device.

For convenience I have illustrated only such parts of the counting device as are necessary to show its relation and application in combination with the present kick sheet device. For instance, I have illustrated what I termed in said co-pending application a sled, consisting in part of parallel runners 31 which are carried on swinging lever arms 32 to which the sled is pivotally connected at 33.

These arms are pivoted on the shaft 34 so that the sled and the arms may rock from the shaft 34 in order that the sled may rest against the under surfaces of the papers as they travel along the conveyor and follow any irregularities of the papers. The levers of which the arms 32 form part are shown as provided with arms 35 extending on the opposite side of the shaft 34 and they are connected with each other by a counterbalancing weight 36 which is sufficiently heavy to cause the sled to be pressed lightly against the under side of the travelling papers. The sled is provided with two feeler fingers 37, 38 which co-operate and press against the travelling papers. I have shown a series of folded newspapers 39 arranged in overlapping position and travelling with the conveyor belts 4 in the manner in which papers are usually conveyed on this type of conveyor. The feeler fingers 37, 38 are so arranged that the folded edges 40 of the successive papers disengage from the feeler fingers slightly in advance of one another so that temporarily the ends of the fingers are held in different planes and this causes the contact members on the sled to close an electric circuit which includes the two wires 41, 42 all as shown and described more in detail in my said co-pending application. Each time a paper passes the feeler fingers 37, 38 the counting device illustrated in my said application effects a step-by-step movement of a count-indicating device and when a given number of papers have passed the feelers, say fifty or one hundred, according to the designing of the parts, the kick sheet device will be operated.

The crank disk 18 is loosely mounted on the shaft 7 and a clutch is interposed between the shaft and the crank disk so that the latter is caused to revolve with the shaft when the kick sheet device is initiated under the control of the counting device, the crank disk at other times remaining stationary although the shaft 7 revolves continuously. In my copending application Serial No. 506,910 and filed January 6, 1931.

I have shown and described a complete clutch device which may be, and preferably is utilized to establish operative connection between the shaft 7 and the crank disk 18 periodically and to disconnect the clutch disk after each complete operation of the kick sheet device. In the present case I have shown a portion of the clutch device illustrated in my co-pending application sufficient to show the relationship of the clutch device with the kick sheet device. For instance, I have illustrated a coiled spring 43 which is mounted to surround the bushing 44 which is mounted on and revolvable with the shaft 7 one end of the coiled spring having a loop 45 which is engaged with the pin 46 carried by the member 47 which is fixed to the crank disk 18. The coiled spring is mounted within a sleeve 48 which surrounds the spring and limits the expansion of the individual coils thereof to distribute the expansive action of the spring throughout the several convolutions, all as described in my said last mentioned application. The free or unattached end of the coiled spring has a finger 49 projecting through the sleeve 48 so that it revolves in a path which is adapted to be intercepted by an armature 50 pivoted on the pin 51 and mounted on a bracket 52 which is clamped on the cross bar 12.

When the end of this armature is interposed in the path of the finger 49, as shown in Figure 2, the coiled spring is subjected to tortional action which tends to open the spring or expand it so that it releases its grip upon the bushing 44 and at such times the crank disk remains stationary because it is out of driving relation with the shaft 7. When the armature 50 is drawn over by the electromagnet 53 it moves out of the path of the finger 49 whereupon the coiled spring 43 contracts and engages frictionally with the bushing 44, thereby establishing a clutching engagement between the shaft 7 and the crank disk 18, whereupon the latter will revolve with the shaft and continue until such time as the armature is again interposed into the path of the finger 49 which will occur when the magnet 53 is deenergized. In the construction as illustrated, the armature is withdrawn from the finger 49 long enough to permit the crank disk to be revolved one revolution and then the armature reengages the finger 49 and causes the spring clutch to release and disengage the crank disk from operative relation with the shaft 7. In other words, the crank disk is caused to make one revolution each time the magnet 53 is energized. It will be understood that all of the parts of the clutch device described in my application Serial No. 506,910 may be used in the present combination and reference to that application will disclose such details of the clutch as are not specifically mentioned herein.

I provide means on the reciprocating carriage 27 for engaging an individual paper in order to shift the same and cause the displacement of the paper so engaged with relation to the other papers on the conveyor to produce what is called a kick sheet.

On the carriage there is pivotally mounted on the stud 54 an arm 55 which on its forward, free end is provided with a fork 56 which is adapted to engage one edge 40 of a paper on the conveyor as illustrated in Figure 4, the two arms of the fork 56 straddling the paper and the top or yoke of the fork pressing against the folded edge thereof. The lever arm 55 is urged upwardly by a coiled spring 57 which is mounted in a spring cup 58 on the carriage, the upper end of the spring being guided by a pin 59 on the lever arm 55. This spring, therefore, provides a resistable upward pressure against the lever arm 55 to retain the fork 56 pressed against the layer of papers travelling on the conveyor. The extreme upward thrust of the lever arm 55 is lim-

ited by means of the stop screw 60 on the carriage which limits the downward movement of a short arm 61 which is attached to or integral with the lever arm 55 so that if there is an interruption in the line of papers on the conveyor the arm 55 will not swing upwardly beyond the point permitted by the stop screw 60.

In Figure 8 I have illustrated, diagrammatically, the electric circuit through which the counting device controls the operation of the kick sheet device and this circuit corresponds with the one illustrated in my first mentioned co-pending application. For instance, the two wires 41, 42 connected with binding posts on the sled correspond with similar wires in said co-pending case. One of these, 42, indicated as negative, merely by way of distinguishing it from other wires, is adapted to be connected with one side of the source of current. The other wire 41 which is connected with the sled has a branch 62 which leads to the coils of the electromagnet 63.

The other wire, 64 connected with the opposite side of the coils of this magnet runs to one of the binding posts adjacent the electromagnet 53 which controls or actuates the armature 50 that initiates the operation of the clutch device by means of which the crank disk 18 is thrown into operative relation with the shaft 7. There is a wire 65 connected with the wire 64 and this is indicated by a positive sign merely by way of distinguishing from the wire 42 and it is also connected with one side of the source of current. The wire 41 which runs from the sled is connected with one member 66 of a contact device which is controlled by a pin 67 on the revolving gear 68 the same as in my co-pending application. The wire 69 which is connected with one of the binding posts near the magnet 53 is connected with the contact member 70 which co-operates with the member 66 to close a circuit including the wires 41, 69, this member being actuated by the pin 67 on the gear 68 to establish connection between the two members 66, 70 all as illustrated and described in my co-pending application.

It will be apparent that the electrical circuits are the same as in my said co-pending application except that the two wires 69, 64 are connected with the electromagnet 53 which controls the clutch, instead of being connected with the members illustrated in the co-pending case.

Operation

It may be assumed merely by way of example that the counting device closes an electric circuit which includes the magnet 53 as each fiftieth paper passes the feelers 37, 38 in which case every fiftieth paper will be kicked.

It will be understood that the device may be set to operate at every one hundredth paper or any other predetermined number, but I will continue the description as if adjusted for each fiftieth paper. If the counting device illustrated in my first mentioned co-pending application is used in conjunction with the present device, then as the rear end of each paper on the conveyor passes the feelers a step-by-step movement of the counting device is caused to indicate the count of the papers, but the counting of the papers is not necessary to the operation of my present invention. In the example described, as the fiftieth paper moving with the conveyor passes the feelers, a circuit is closed through the action of the pin 67 on the gear wheel 68 pressing the contact member 70 upwardly which causes current to pass through the wire 64 and also through the wire 69 to energize the electromagnet 53. If the conveyor is in operation as is assumed in the present description, the shaft 7 is continually revolving and its speed of operation will be in synchronism with the speed of operation of the conveyor because it is operated through the chain 5 which operates the conveyor. When the magnet 53 is energized in the manner thus described it will attract the armature 50, removing it from the path of the tongue 49 and the coiled spring 43 will contract to engage the sleeve 44 on the shaft 7. As soon as this occurs the clutch is effective and the crank disk 18 will revolve with the shaft 7. Usually it will make one revolution during the time the armature 50 is held over by the magnet 53 and when this magnet is deenergized, before the crank disk has made one complete revolution the armature will fall into the path of the tongue 49 so that when the crank disk has made one revolution the tongue 49 will be resisted by the armature.

This causes the coils of the clutch spring to expand or open, thereby releasing the clutching engagement between the shaft 7 and the crank disk 18 so that the latter will stop after one revolution, in the same position from which it started.

Before the crank disk starts to revolve, which will be the condition at all times except the period following the passage of the fiftieth paper past the feelers, the carriage 27 will be in the position shown in Figure 1, which is its extreme rearward position. As the crank disk starts its revolution it will act through the pitman 19 to reciprocate the lever 20 from its fulcrum 21. Rotation of the crank disk will cause the lever arm 20 to move to the right in Figure 1, so that the carriage 27 reciprocates from left to right along the bars 25, 26. As the fork 56 of the arm 55 now engages or overlaps the folded edge of one of the papers on the conveyor, then as the carriage goes forwardly or toward the right in Figure 1, the fork pushes on the paper which it engages and causes it to be shifted or turned diagonally, as illustrated in dotted lines at 76 in Figure 1, to throw this paper out of alignment or displace it in relation to the other papers on the conveyor, thus producing what is known as a kick sheet.

This sheet will travel in this displaced condition until the papers are delivered on the table in the distributing room so that the operator there may know that fifty papers are delivered between successive kick sheets.

It will be noted that the arm 55 which carries the fork 56 is disposed nearer one side of the row of papers so that when it pushes on one of the papers it causes the diagonal shifting as indicated in Figure 1. It will be noted that the pitman 19 is connected to the lever arm 20 nearer the fulcrum 21 than the fork 28 which operates the carriage, therefore this fork moves a greater distance than the pitman 19. If the pitman makes its stroke at about the same speed that the papers travel on the conveyor, then the fork 28, and likewise the carriage, will, with the proportions shown in Figure 1, travel twice as far as the papers in a given time and twice as fast. As the fork on the arm 55 is engaged with one of the papers, it will go forward in the same direction the papers are travelling with the conveyor, but at a faster speed, and therefore cause the paper which is engaged to be turned to the dotted line position of Figure 1. By varying the leverage on the lever arm, 20, i. e. by varying

the point at which the pitman 19 is pivotally connected with this lever arm, the thrust of the carriage may be increased or decreased as desired, without changing the synchronizing of the operation of the pitman in relation to the speed of the conveyor.

It will be noted that if the conveyor moves fast the pitman 19 will move at a corresponding speed, and likewise the carriage 27 will move faster or slower, corresponding with the speed at which the papers travel on the conveyor.

However, the distance travelled by the carriage at each stroke will bear the same relation to the distance travelled by the papers at the same time regardless of the speed the papers are travelling on the conveyor. This is due to the fact that the kick sheet device is operated by the same source of power as the conveyor so that when one is speeded up or retarded the speed of the other is changed accordingly. This is desirable in order that the fork of the arm 55 will be in correct position to engage a particular paper immediately following the action of this paper upon the feelers.

When the carriage has completed its movement to the right in Figure 1 it then proceeds to move back to the position shown in this figure, at which time the armature 50 is interposed in the path of the finger 49 so that the clutch is released to disengage the crank disk from the shaft, thereby leaving the carriage in the position shown in Figure 1, ready for a succeeding operation. When the fiftieth paper again passes the feelers, the above described operations will be repeated. During the return stroke of the carriage, or from right to left in Figure 1, the arm 55 simply slides against the papers, being held in contact with them by the spring 57. It will be apparent that the present apparatus is very simple both in construction and in operation and it is a very simple matter to take the operating force for the kick sheet device from the conveyor operating mechanism; and it will also be apparent that the kick sheet device may be applied in any position on the conveyor. The only connection between the kick sheet device and the count indicating device, which latter may be disposed at a remote position in relation to the kick sheet device, is the electric wiring.

Having described my invention, what I claim is:

1. The combination of means for conveying articles in overlapping relation, means for acting on certain of the articles while travelling with said conveyor to displace them in relation to others of said articles to indicate a count of said articles, means controlled by the articles on said conveyor for effecting the operation of said second means, and means for driving said conveying means and said second means in synchronism with each other.

2. The combination of means for conveying articles in overlapping relation, means for acting on certain of the articles travelling with said conveyor to displace them in relation to others of said articles to indicate a count of said articles, means controlled by the articles on said conveyor for effecting the operation of said second means, driving means for said conveying means, and means operated by said conveyor driving means, and adapted to propel said second mentioned means in synchronism with the operation of said conveying means.

3. The combination of means for conveying articles in overlapping relation, means for acting on certain of said articles travelling with said conveyor to displace them in relation to others of said articles for the purpose of indicating a count of the articles, means controlled by the articles on the conveyor for effecting the operation of said second means, means for driving said conveying means including a chain, and means operated by said chain for supplying power to operate said second mentioned means in synchronism with the operation of the conveying means.

4. The combination of means for conveying articles in overlapping relation, means for engaging certain of the articles travelling on said conveyor and adapted to reciprocate for the purpose of displacing the articles engaged in relation to the other articles on said conveyor for the purpose of indicating a count of said articles, means controlled by the articles on said conveyor for effecting the operation of said article engaging means, and means for driving said conveying means and said article engaging means in synchronism with each other.

5. The combination of means for conveying articles in overlapping relation, means reciprocating in the direction of travel of said conveying means for acting on some of the articles travelling with said conveyor and adapted to shift the articles engaged thereby to indicate a count of the articles, means controlled by the articles on the conveyor for controlling the operation of said second means, and means for reciprocating said article engaging means in synchronism with said conveying means.

6. The combination of means for conveying articles, reciprocating means for engaging certain of the articles travelling with said conveyor and adapted to displace the articles engaged, in relation to the others to indicate a count of the articles, means controlled by the articles on the conveyor for controlling the operation of said article engaging means, and means for driving said conveying means and said article engaging means in synchronism with each other and adapted to operate said article engaging means at a faster speed than the conveying means while travelling in the same direction therewith.

7. The combination of means for conveying articles in overlapping relation, means reciprocating in the direction of travel of said conveying means and adapted to engage certain of the articles travelling with the conveyor and to displace the articles engaged in relation to the other articles on the conveyor to indicate a count of the articles, said engaging means operating at one side of the median line of said articles, means controlled by the articles on the conveyor for controlling the operation of said article engaging means, and means for driving said conveying means and said article engaging means in synchronism with each other.

8. The combination of means for conveying articles, a reciprocating carriage, means for guiding the same to reciprocate in the direction of movement of said conveyor, means for reciprocating said carriage and for operating said conveyor in synchronism with each other and means controlled by the articles on the conveyor for causing the operation of said carriage.

9. The combination of means for conveying articles, a reciprocating member moving in the direction of travel of said conveyor and having means for engaging an article on the conveyor to shift the same in relation to the other articles for indicating a count of the articles, means for

reciprocating said reciprocating means, including a crank, and means controlled by the articles on the conveyor for controlling the operation of said reciprocating means.

10. The combination of means for conveying articles, reciprocating means having means for engaging an article on the conveyor for the purpose of shifting the article engaged in relation to the other articles on the conveyor, means for operating said reciprocating means including a crank, a lever operated thereby and adapted to cause the operation of said reciprocating means at a greater speed than the articles travelling on said conveyor, and means controlled by the articles on the conveyor for initiating the operation of said reciprocating means.

11. The combination of means for conveying articles, means reciprocating in the direction of travel of said conveyor and having means for engaging an article on the conveyor while travelling in the same direction with said article and adapted to shift the article engaged in relation to the other articles on the conveyor to indicate a count, means for operating said reciprocating means including a crank operated in synchronism with the operation of the conveying means, a lever operated by said crank and adapted to cause the operation of said reciprocating means at a greater speed than the articles on the conveyor, and means controlled by the articles on the conveyor for causing the actuation of said reciprocating means.

12. The combination of means for conveying papers in overlapping relation, reciprocating means moving in the direction of travel of said conveyor and having a pivoted member provided with a fork for engaging an edge of a paper on said conveyor, means for operating said reciprocating means, and means controlled by the papers on said conveyor for initiating the operation of said reciprocating means to cause the latter to shift the paper engaged, in relation to the others on the conveyor, for the purpose of indicating a count of said papers.

13. The combination of a conveyor adapted to convey papers in overlapping relation, a reciprocating carriage, moving in the direction of travel of said conveyor a member pivotally mounted on said carriage and having a fork adapted to engage the edge of a paper when reciprocating in one direction and to disengage therefrom when travelling in the opposite direction, means for reciprocating said carriage to cause the shifting of a paper engaged by said fork, in relation to the other papers on the conveyor, for indicating a count of the papers, and means controlled by the papers on the conveyor for initiating the operation of said carriage.

14. The combination of a conveyor for conveying papers in overlapping relation, a reciprocating carriage, an arm pivotally mounted thereon and having a fork adapted to engage the edge of a paper on said conveyor while reciprocating in one direction and to disengage therefrom while travelling in the opposite direction, means for causing said arm to press toward the travelling papers, means for reciprocating said carriage at a faster speed than the travel of said papers to cause the paper engaged, to be shifted in relation to the other papers on said conveyor, and means for initiating the operation of said carriage.

15. The combination of a conveyor for conveying articles, reciprocating means for engaging an article on the conveyor to shift the same in relation to the other articles for the purpose of indicating a count and means for operating said reciprocating means, including a shaft, a crank device operated thereby, a clutch interposed between said shaft and said crank device to effect an operative connection between them, and means controlled by the articles on said conveyor for initiating the operation of said clutch.

16. The combination of a conveyor for conveying articles, reciprocating means for engaging an article on the conveyor to shift the same in relation to the other articles for the purpose of indicating a count and means for operating said reciprocating means, including a shaft and means operated thereby, and a clutch interposed between said latter means and said shaft and composed of a coiled spring surrounding said shaft and having one end connected with said operating means, means for controlling said spring whereby the latter will grip or be released from said shaft to control the coupling of said shaft with said operating means, and means controlled by the articles on the conveyor for actuating said spring controlling means.

17. The combination of a conveyor for conveying articles, a reciprocating carriage having a track for guiding the carriage in the direction of the conveyor, a lever having a stationary fulcrum and operatively connected to reciprocate said carriage, a crank having a pitman connected with said lever at a point nearer its fulcrum than the point of connection of said lever with the carriage, whereby the movement of the carriage will be greater than the movement of said pitman, a continuously operating shaft for operating said crank, a clutch for establishing operative connection between said shaft and said crank, and means controlled by the articles on said conveyor for actuating said clutch.

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