

March 22, 1932.

S. M. LANGSTON ET AL

1,850,802

PRINTER AND SLOTTED

Filed July 30, 1931 3 Sheets-Sheet 1

Fig. 1.

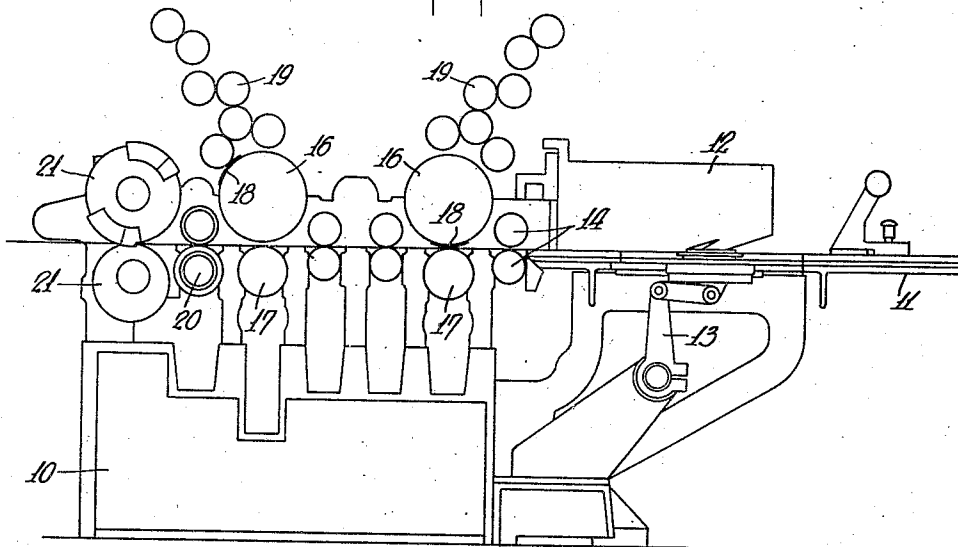
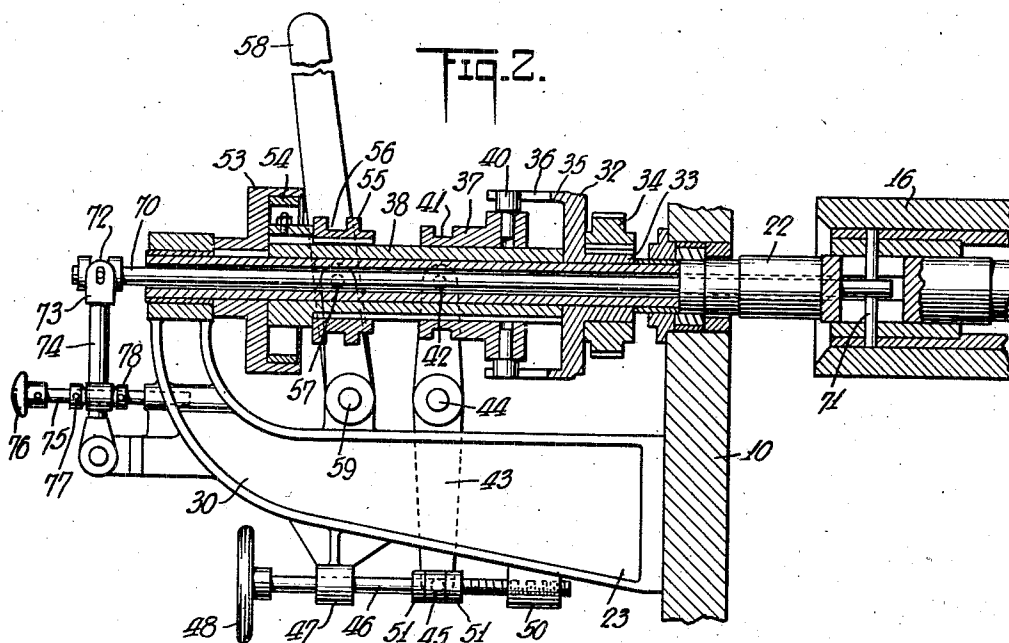


Fig. 2.



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C-182

March 22, 1932.

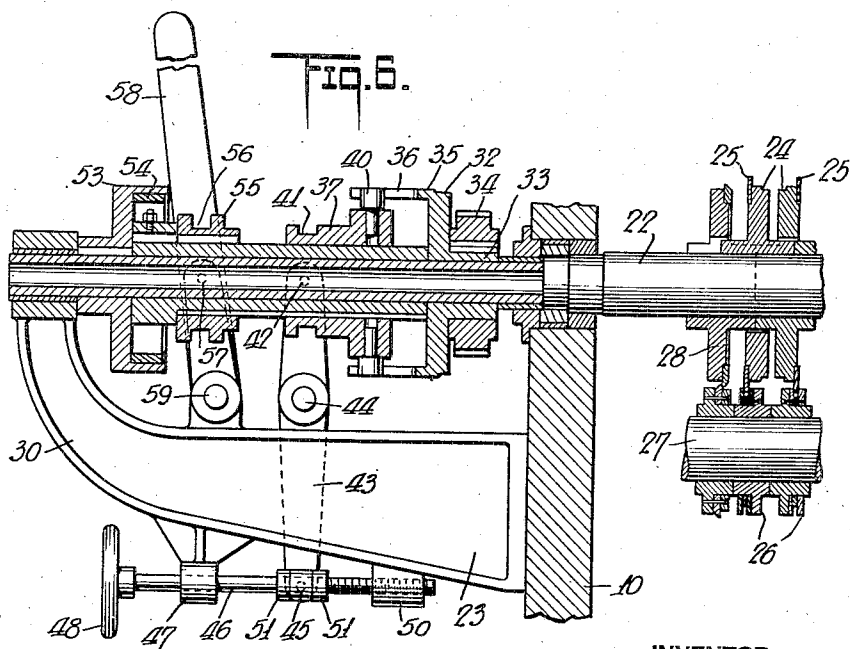
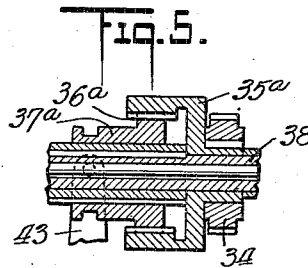
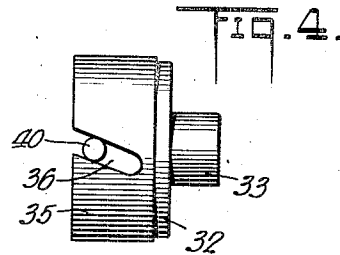
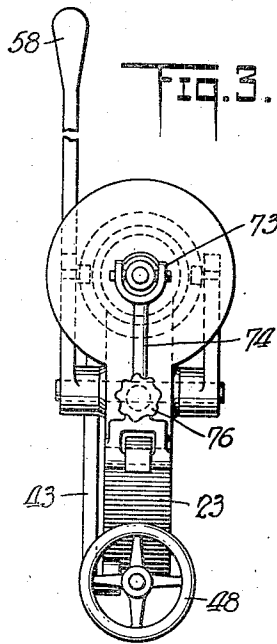
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PRINTER AND SLOTTER

Filed July 30, 1931

3 Sheets-Sheet 2



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March 22, 1932.

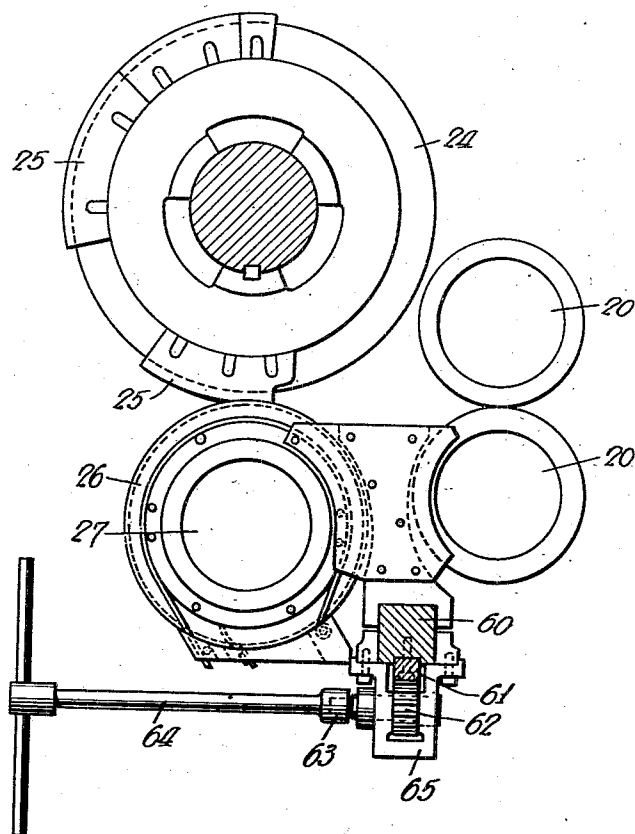
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PRINTER AND SLOTTER

Filed July 30, 1931 3 Sheets-Sheet 3

FIG. 7.



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UNITED STATES PATENT OFFICE

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PRINTER AND SLOTTER

Application filed July 30, 1931. Serial No. 553,981.

This application is a continuation in part of our copending application Serial No. 495,158, filed November 12, 1930, and the present invention relates to machines for use in the treatment of advancing sheet material, where two or more operating mechanisms must be relatively so adjusted that the desired registration of operations on the sheet, is obtained.

In many types of machines of this general character, it is necessary to make frequent changes or readjustments of the operating members in accordance with the specific character of the product being produced. For instance, in mechanisms for slotting and creasing or scoring sheet material to form box blanks, it is common to provide pairs of rotary members between which the sheet passes to score or crease the same along the fold lines, and other pairs of coating rotary members or slotting heads between which the sheet also passes to slot it at both ends of each crease to form separate flaps which are later folded to form the ends of the box. The position of each slot bears a definite relationship to the crease or score line in the sheet, and the length of the unslitted portion determines the height of the box to be made from the blank and is controlled by the spacing of the slotting members on the slotting heads. The adjustment of the relative lengths of the slots is effected through the circumferential adjustment of the slotting heads with respect to the feeding mechanism or drive.

Another type of machine in which it is necessary to make frequent changes or readjustments of the operating members in accordance with the specific character of the product being produced, is a printing mechanism including a printing cylinder which carries a type plate, for printing on one or more panels of the blank. Such printing cylinders must be circumferentially adjusted, so that the printing comes in predetermined position on the blank. In cases where the printing is to be in more than one color, it is customary in these machines to provide two or more of these printing cylinders operating in succession on the blank. These

printing cylinders must be relatively adjusted both circumferentially and axially to obtain the proper registration of imprints on the blank being operated on.

It is also common in certain types of machines for making box blanks, to combine in one structure a sheet feeding mechanism, slotting and scoring mechanisms, and printing cylinders for successive operations on the sheet. In such machines, the relative position of the slotting mechanism and the printing mechanism must be varied both axially and circumferentially for box blanks of different sizes and proportions, and adjustments must be made in accordance with different printing or different positions of the printing on the blank, so that this printing will be disposed in proper relationship with the scored lines on which the blanks are folded in making up the boxes.

The axial adjustment of the slotting and scoring mechanisms to vary the width of the flaps and the panels between score lines is comparatively easily effected through the manipulation of rapidly accessible adjusting members when the machine is at rest, as disclosed in the Langston United States Patent 1,567,656, and this adjustment is not disturbed by any back lash, lost motion in the driving gears or speed variations during the operation of the machine.

Circumferential adjustment of the slotting heads, and both the circumferential and axial adjustment of the printing cylinders, particularly if two color printing is to be done, present a much more serious problem.

One object of the present invention is to provide a machine of simple and compact construction, by means of which the rapid, easy and accurate adjustment of the operating parts of a machine of the general type hereinbefore referred to is effected, without the necessity of stopping the machine, or altering its speed. One of the features of the present invention includes the provision, on the same side of the machine, of means for axially adjusting the cylinder, means for disengaging the cylinder from the drive to permit its free rotation for rough adjustment, and an improved means for effecting finer

circumferential adjustment while the machine is running.

Another feature of the present invention comprises the provision of a clutch between the drive and the rotatable member, and coaxial with the circumferential and axial adjusting means, so that coarse adjustments of this member may be effected while the machine is at rest, and fine adjustments effected while the machine is operating.

The clutch or equivalent means for preventing or permitting free rotation of the printing cylinder, slotting heads or other rotatable operating member is a very important element in the combination. When the machine is at rest, the cylinder may be released from its drive, and freely rotated to bring to an easily accessible position the portion of the surface to which the printing plate or type is to be attached, or from which it is to be removed, or the slotting heads may be released and rotated to facilitate the easy and convenient resetting of the blades. As ordinarily, only about one-third of the periphery of such members is readily accessible at any one time, the easily operable connecting and disconnecting means permits the proper part to be brought to such position without the usual necessity of turning the whole machine and stopping it with the particular portion of the cylinder, slotting heads or the like in the desired position. When the printing plates, type, blade, etc. have been set in position, the cylinders and heads are easily returned to the approximately correct position, the parts reconnected, the machine started, and the finer adjustment made while the machine is running.

The invention may be adapted for circumferentially adjusting certain members, such as the slotting heads, where axial adjustment during operations of the machine is unnecessary, or it may be used with an operating member such as a printing cylinder, where it is advantageous to also provide means for effecting the axial adjustment of said member while the machine is operating. Such axial adjustment of the cylinder may be effected through the agency of an axially movable rod mounted coaxially with respect to the interengaging parts for driving and adjusting the rotatable member.

In the accompanying drawings, there are shown for purposes of illustration, certain forms and adaptations which the present invention may assume, and in which

Fig. 1 is a somewhat diagrammatic side elevation of a machine, showing various members to be adjusted.

Fig. 2 is a transverse section showing a form of the present invention adapted to effect the circumferential and axial adjustment of a printing cylinder.

Fig. 3 is an end view of the construction shown in Fig. 2.

Fig. 4 is an edge view of one of the operating members of the construction shown in Fig. 2.

Fig. 5 is a longitudinal sectional view showing another form of operating member different from that of Fig. 4, but serving the same function.

Fig. 6 is a transverse section of a form of the present invention adapted for effecting the circumferential adjustment of the slotter heads, and

Fig. 7 is an end elevation of a form of slotter head which may be circumferentially adjusted by means of the present invention.

Like reference characters denote like parts in the several figures of the drawings.

In the specific form of machine which has been selected for the purpose of illustration, and to which the invention may be applied, there is provided the usual frame structure which carries a feed table upon which may be stacked a plurality of superposed sheets between guide members 12. These sheets are successively fed into the operating parts of the machine by a feed mechanism operated by an oscillating lever 13. This mechanism may be of the type shown in the Langston Patent 1,150,201, or may be of any other suitable construction, and the details thereof are therefore omitted for the sake of simplicity.

The sheets pass between a pair of feed rollers 14, and between two pairs of printing units, each of which includes an upper printing cylinder 16 and a lower pressure cylinder 17. Each upper printing cylinder 16 carries a type plate 18 which is inked by a series of ink fountain rolls 19. Different inks are supplied to the type plates of the different printing cylinders, and these plates and their cylinders are capable of being so adjusted that as the cylinders operate in succession, the two printings produced thereby will be in the desired registered relationship. The sheets that have been printed pass through a scoring unit 20, and are then passed through a slotting mechanism 21, for forming slots extending in to a predetermined distance from the edges of the blank to form end closure flaps.

In carrying out our invention, means are provided for effecting the circumferential adjustment of either the printing cylinders or the slotting heads, or both, with respect to the drive. In Fig. 2, there is shown a construction adapted for the circumferential adjustment of the printing cylinders 16. For that purpose, a hollow shaft or sleeve 22 is provided, one end of which is splined to the printing cylinder 16 by a key, so as to rotate therewith. This shaft 22 is journaled in the frame structure, and in one end of a bracket 23 connected to said frame structure. The peripheral portion of the cylinder 16 may be made of wood, so that the type plates

may be tacked thereon in any selective position.

Fig. 6 shows a construction embodying the present invention, and adapted for the circumferential adjustment of the slotting mechanism 21. For that purpose, the shaft 22 supports a series of upper slotting heads 24 carrying slotting blades 25, and cooperating with a corresponding series of lower slotting heads 26 mounted on a shaft 27. The details of the slotting mechanism itself forms no part of the present invention, and may be of the general type disclosed in the Langston United States Patent 1,567,656. The shaft 22 may also carry trimming wheels 28 mounted on the outside of the slotting heads 24, and serving to trim the edges of the advancing blank, so that the slots made by the slotting mechanism will be disposed in predetermined position with respect to the sides of the blank being operated upon.

In order to effect the circumferential adjustment of either the slotting mechanism 21 or the cylinder 16, there is provided a pair of coaxial interengaging members, one of which is connected to the drive, and the other having a driving connection with the shaft 22. One of these interengaging members has a helical surface, so that upon axial movement of one of said members, relative circumferential adjustment of the rotatable member which operates on the sheet, is effected. In the construction shown in Figs. 2 and 4, one of these interengaging members takes the form of a collar 32 having a sleeve portion 33 loosely engaging the outside of the shaft 22, and having keyed or otherwise connected thereto a driving gear 34. This collar 32 has a cylindrical flange 35 which is provided with one or more helically extending slots 36.

The other interengaging member takes the form of a collar 37 which is keyed or otherwise connected to a sleeve 38 encircling the drive shaft 22, and relatively rotatable with respect thereto. This collar 37 carries radially extending pins 40 which are slidable in the slots 36 to engage the collar 32 for rotational movement therewith.

The drive engages the drive gear 34, the rotation of which causes the corresponding rotation of the interengaging members 35 and 37, and causes the rotation of the sleeve 38. The sleeve 38 has a driving connection with the shaft as hereinafter more fully discussed, so that the cylinder 16 or the slotting mechanism 21 is driven thereby.

In order to effect the circumferential adjustment of the printing cylinder or the slotting heads, the collar 37 must be shifted axially along the sleeve 38, and to provide for such axial shifting, said collar has a peripheral groove 41 which is engaged by pins 42 in a yoke at the end of a lever 43 pivoted on a

fulcrum 44 on the bracket 23, and carrying at one end thereof a collar 45. A spindle 46 passes through this collar 45, and is journaled in lugs 47 and 50 carried by the bracket 23, and carries at one end thereof a hand wheel 48. The other end of this spindle 46 has a threaded engagement with the lug 50. The spindle 46 has a pair of collars 51 disposed on opposite sides of the collar 45, so that as the spindle is rotated and thereby screwed endwise in the lug 50, the lever 43 is caused to swing about its fulcrum.

The interengaging members 35 and 37 may be constructed as shown in Fig. 5. In this form, a collar 35a is provided having a series of internal helical gear teeth 36a, and engaging a collar 37a having a series of external helical gear teeth which mesh with the teeth 36a. The operation of these two members 35a and 37a is similar to the operation of the members 35 and 37 of Fig. 2, the axial movement of the collar 37a causing relative rotation of the two interengaging members, and a corresponding circumferential adjustment of the printing cylinder or slotting unit with respect to the drive.

The constructions shown in Figs. 4 and 5 have the further advantage in that the provision of a separate clutch may be unnecessary. The lever 43 may have such a range of movement that the member 37 or 37a may be entirely disengaged from the other member 35 or 35a. With the helical members disengaged, the cylinder, slotting heads, or the like are released and are freely rotatable for the attachment, removal, or adjustment of its operating parts. Thereafter, the operating member may be rerotated to the approximately correct position, the members 35 and 37, or 35a and 37a reengaged, the machine started, and the finer adjustment made by the relative axial movement of the gears. As the outer gear 35a has no slots, the gear 34 may be formed integral with and on the periphery thereof. As the members 35 and 37 may be engaged in only certain predetermined relative rotational positions, for instance two, if there be only two slots 36 and pins 40, the cylinder, slotting head, or the like after being released and rotated, may be easily rotated to its exact original position before the reengagement of the drive is effected.

As a feature of the present invention, there is provided a clutch connection between the sleeve 38 and the drive shaft 22, so that the sleeve may be easily released and rough and rapid adjustments of the rotatable member which operates on the advancing sheet may be made while the machine is at rest. By the term "clutch" we mean to include the various well known mechanisms which may be easily operated to connect driving and driven parts to prevent or permit relative rotation. The clutch shown is of a form which includes a clutch drum 53 keyed to the drive shaft 22.

and cooperating with an internally expanding clutch band 54. The clutch band 54 is expanded into engaging or disengaging relationship with the brake drum 53 through the agency of an axially movable collar 55. This collar 55 has a groove 56 for receiving a pin 57 connected to the lever 58 pivoted at 59 to the bracket 23.

The axial adjustment of the several pairs of slotting heads in respect to each other may be effected by means of a bar 60 extending in an axial direction, and carrying a rack 61. A frame structure 65 engages the lower slotting head 26, and the lower scoring wheel 20, and carries a pinion 62 which meshes with the rack bar and has a squared end for receiving a turning tool 64, so that upon rotating the latter, the frame structure and the lower slotting head and scoring wheel are moved axially. The upper slotting head has a pair of circumferentially spaced relatively adjustable blades, one of which may project into the groove of the lower head when the machine is at rest, so that the two heads may be axially adjusted together. This construction is shown in the Langston Patent 1,567,656 hereinbefore referred to, and details thereof form no part of the present invention.

Once the axial position of the slotting heads has been adjusted, it is not necessary to change such adjustment during operation of the machine. However, if the invention is to be adapted for use in the adjustment of a printing cylinder, we provide means for effecting the axial adjustment of said cylinder while the machine is operating. For that purpose, the shaft 22 is made hollow, and a rod 70 (Fig. 2) is provided which passes through said shaft, and which has one end thereof connected to a pin 71 mounted radially with respect to the cylinder 16. The other end of the rod 70 carries a grooved collar 72 engaging the pins of a yoke 73 on the end of a pivoted lever 74. A screw rod 75 having a hand wheel 76 at one end thereof, has a threaded engagement with the bracket 23, and has a pair of collars 77 and 78 engaging opposite sides of the lever 74 to prevent axial movement of the rod 75 with respect to said lever. By rotating the hand wheel, the lever 74 may be swung in either direction, and the rod 70 and the cylinder 60 moved endwise in either direction.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. A machine for operating on an advancing sheet, including a rotatable operating mechanism, a pair of rotatable interengaging members mounted coaxially with respect to said mechanism, drive means for one of said members, power transmitting connection means between the other member and said mechanism, and including means for easily connecting said last mentioned member to or

easily disconnecting it from driving connection with said mechanism, and means for circumferentially advancing or retarding one of said members with respect to the other to effect a corresponding circumferential adjustment of the rotatable mechanism with respect to the drive means, without interrupting the transmission of power to said rotatable mechanism.

2. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a pair of coaxial interengaging members, a drive for one of said member, a driving connection including readily disengageable means between the other member and said rotatable member, and means for effecting the relative rotation of said interengaging members, whereby said rotatable member is circumferentially adjusted with respect to the drive without interrupting the transmission of power thereto.

3. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a shaft connected to said rotatable member, a sleeve loosely engaging said shaft, a driving gear mounted on said shaft for rotation with respect thereto, a collar connected to said driving gear for rotation therewith, a second collar mounted on said sleeve for rotation therewith and slidable therealong, one of said collars having a helical surface which is engaged by the other collar, and an easily disengageable driving connection between said sleeve and said shaft.

4. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a shaft connected to said rotatable member, a sleeve loosely engaging said shaft, a driving gear mounted on said shaft for rotation with respect thereto, a collar connected to said gear for rotation therewith, a second collar mounted on said sleeve for rotation therewith, and slidable therealong, one of said collars having a helical surface which is engaged by the other collar, a clutch drum connected to said shaft, and a clutch band adapted to move into or out of cooperative relationship with said clutch drum to effect engagement or disengagement between said sleeve and said shaft.

5. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a drive therefor, a pair of coaxial interengaging members, one connected to said drive, and the other to said rotatable member, one of said interengaging members being axially shiftable, means responsive to the axial movement of said last mentioned member for effecting relative rotation of said interengaging members, whereby said rotatable member is circumferentially adjusted without interrupting the transmission of power thereto, and readily disengageable means for preventing or permitting rela-

tive rotation of said rotatable member, and said drive, independently of any relative axial movement of said interengaging members.

6. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a shaft connected to said rotatable member for driving said member, a sleeve loosely mounted on said shaft, a pair of interengaging members mounted coaxially with respect to said shaft, a drive for one of said interengaging members, the other interengaging member being mounted on said sleeve for rotational movement therewith, means operable while the machine is running for adjusting one of said interengaging members axially to effect relative rotation of said rotatable member with respect to said drive, and a clutch between said sleeve and said shaft for preventing or permitting relative rotation of said rotatable member and the drive, independently of any relative axial movement of said interengaging members.

7. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a shaft for said rotatable member, a sleeve embracing said shaft, a drive for said sleeve, means for effecting the relative rotation of said sleeve and said shaft while the machine is running to thereby circumferentially adjust said rotatable member with respect to the drive, and a clutch mounted at one end of said sleeve for connecting or disconnecting said sleeve from said shaft.

8. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a shaft for said rotatable member, a sleeve embracing said shaft, a drive for said sleeve, means connected adjacent to one end of said sleeve for effecting circumferential adjustment of said rotatable member with respect to the drive without interrupting the transmission of power thereto, and a clutch connected adjacent to the other end of said sleeve for connecting or disconnecting said sleeve from said shaft.

9. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a shaft therefor, a sleeve embracing said shaft, a drive for said sleeve, a pair of coaxial interengaging members mounted adjacent to one end of said sleeve for effecting the circumferential adjustment of said rotatable member with respect to the drive while the machine is running, and a clutch for connecting or disconnecting said shaft from said sleeve.

10. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a rod connected to said rotatable member, means connected to said rod for moving said rod axially, a hollow shaft loosely encircling said rod

and connected to said rotatable member for rotational movement therewith, a pair of interengaging members coaxially mounted with respect to said hollow shaft relatively movable axially and circumferentially, one of said members being connected to said shaft, a drive for the other member, and means whereby the relative axial movement of said interengaging members effects the circumferential adjustment of said rotatable member while the machine is running.

11. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a pair of interengaging members coaxially mounted with respect to said rotatable member and located at one end of said member, one of said pair of members being connected to said rotatable member a drive for the other of said pair of members, means mounted on the same end of the rotatable member for effecting relative rotation of said interengaging members to circumferentially adjust said rotatable member with respect to the drive while the machine is running, and means located on the same end of the rotatable member and operable while the machine is running for axially adjusting said rotatable member.

12. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a rod connected to said rotatable member and coaxial therewith, a pair of coaxial interengaging members mounted for rotation about said rod, one of said interengaging members being connected to said rotatable member, a drive for the other of said pair of members, one of said interengaging members having a helical surface engaging the other member, so that upon the axial movement of one of said members, the circumferential adjustment of the rotatable member with respect to the drive is effected without interrupting the transmission of power thereto, and means connected to said rod for moving said rod axially, whereby said rotatable member is adjusted axially without disturbing the drive connection between said rotatable member and said drive.

13. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a hollow shaft connected at one end of said rotatable member for rotation therewith, a rod passing through said shaft, and connected to said rotatable member, means connected to said rod for shifting said rod axially to effect axial adjustment of said rotatable member, a pair of interengaging members coaxially mounted with respect to said member, and supported on said shaft, drive means for one of said members, a power transmitting connection between the other interengaging member and said rotatable member, and means for effecting the relative rotation of said interengaging members while the ma-

chine is running to circumferentially adjust said rotatable member with respect to the drive means.

14. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a pair of interengaging members coaxial with said rotatable member, one connected to said rotatable member, a drive for the other of said pair, a clutch for connecting or disconnecting said rotatable member from driving connection with said drive, means for moving one of said pair axially to effect the relative rotation of said interengaging members and to circumferentially adjust said rotatable member with respect to the drive without interrupting the transmission of power thereto, and means operable while the machine is running for effecting the axial adjustment of said rotatable member.

15. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a rod connected to said rotatable member and coaxial therewith, means for moving said rod axially, a pair of concentrically, telescopically mounted sleeves, the inner sleeve being mounted loosely about said rod, a pair of coaxial interengaging members mounted for rotation about said rod, one of said interengaging members being mounted loosely about one of the sleeves, the other interengaging member being connected for rotational movement with the other sleeve, a drive for said first mentioned interengaging member, one of said interengaging members being shiftable in an axial direction, a disengageable clutch connecting said sleeves for rotation in unison, and means responsive to the axial movement of said last mentioned member for effecting relative rotation of said interengaging member, whereby said rotatable member is circumferentially adjusted with respect to the drive without interrupting the transmission of power thereto.

16. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a drive therefor, a pair of pivoted levers located on the same side of said rotatable member, means responsive to the angular movement of one of said levers about its fulcrum for effecting the axial adjustment of said rotatable member, and means responsive to the angular movement of the other lever about its fulcrum for effecting circumferential adjustment of said rotatable member with respect to the drive while the machine is running.

17. A machine for operating on advancing sheet material, including a rotatable member for operating on said material, a drive therefor, a pair of pivoted levers, means responsive to the angular movement of one of said levers about its fulcrum for circum-

ferentially advancing or retarding said rotatable member with respect to the drive without interrupting the transmission of power to said member, and means responsive to the angular movement of the other lever about its fulcrum for preventing or permitting transmitting power to said rotatable member from the drive, independently of the position of said first mentioned lever.

18. A machine for operating on advancing sheet material, including a frame structure, a bracket rigidly secured thereto, a rotatable member for operating on said material and having a shaft journaled intermediate of its ends in said frame structure, and having its end portion journaled in said bracket, a drive gear rotatable on said shaft between said frame structure and said bracket, and means also intermediate of said frame structure and said bracket, and co-axial with said shaft for effecting circumferential adjustment of said rotatable member in respect to said drive gear while the machine is running.

19. A machine for slotting sheets to make carton blanks, including a shaft having a slotting head, a pair of telescopically mounted members encircling said shaft, the outer member having a driving gear and a helically disposed surface, and the inner member having projections on the periphery engaging said helical surface, a readily disengageable connection between said inner member and said shaft permitting or preventing free rotation of said head in respect to said members, a hand wheel, and means operatively connecting said hand wheel and said inner member for moving said inner member axially with respect to the outer member upon the rotation of said hand wheel to circumferentially adjust the slotting head with respect to the drive gear.

20. A machine for making carton blanks from sheet material, including a shaft having a part for operating on said material, a member rotatably mounted on said shaft and having a drive gear portion and a cylindrical flange, a second member concentric with the first member, one of said members presenting a helical surface and the other member having parts engaging said helical surface, a member keyed to said shaft, and means for readily connecting said last mentioned member to or disconnecting it from said second member when said machine is at rest, and means for effecting relative axial movement of said concentric members to circumferentially adjust said shaft in respect to said gear portion when the machine is running.

21. A mechanism for rotatably adjusting the shaft of a rotatable operating member of a printer and slotter, including a pair of telescopically mounted members concentric with said shaft, and having interengaging parts, one of said parts having a helically disposed surface engaging a part of the other member,

a drive for one of said members, a readily disconnectible driving connection between the other member and said shaft to permit or prevent free rotation of said shaft in respect to said drive, and means for shifting one of said members axially with respect to the other member to effect circumferential adjustment of one of said members in respect to the other.

- 10 22. A machine for operating on blanks of sheet material, including a shaft having an operating member for acting on the blank, an annular driving member concentric with said shaft, and having a cylindrical flange
15 presenting a helical surface, a second annular member concentric with said shaft and having a portion thereof extending within said flange and engaging said helical surface, a driving connection between said second annular member and said shaft, a hand wheel
20 having the axis thereof substantially parallel to the axis of said shaft and means connecting said hand wheel and the last mentioned annular member, for shifting the latter axially with respect to said first mentioned annular member when said hand wheel is rotated, whereby rotation of said shaft in respect to said driving member is effected.

25 Signed at Camden in the county of Camden and State of New Jersey, this 27th day of July, 1931.

SAMUEL M. LANGSTON.
KARL SIEG.

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