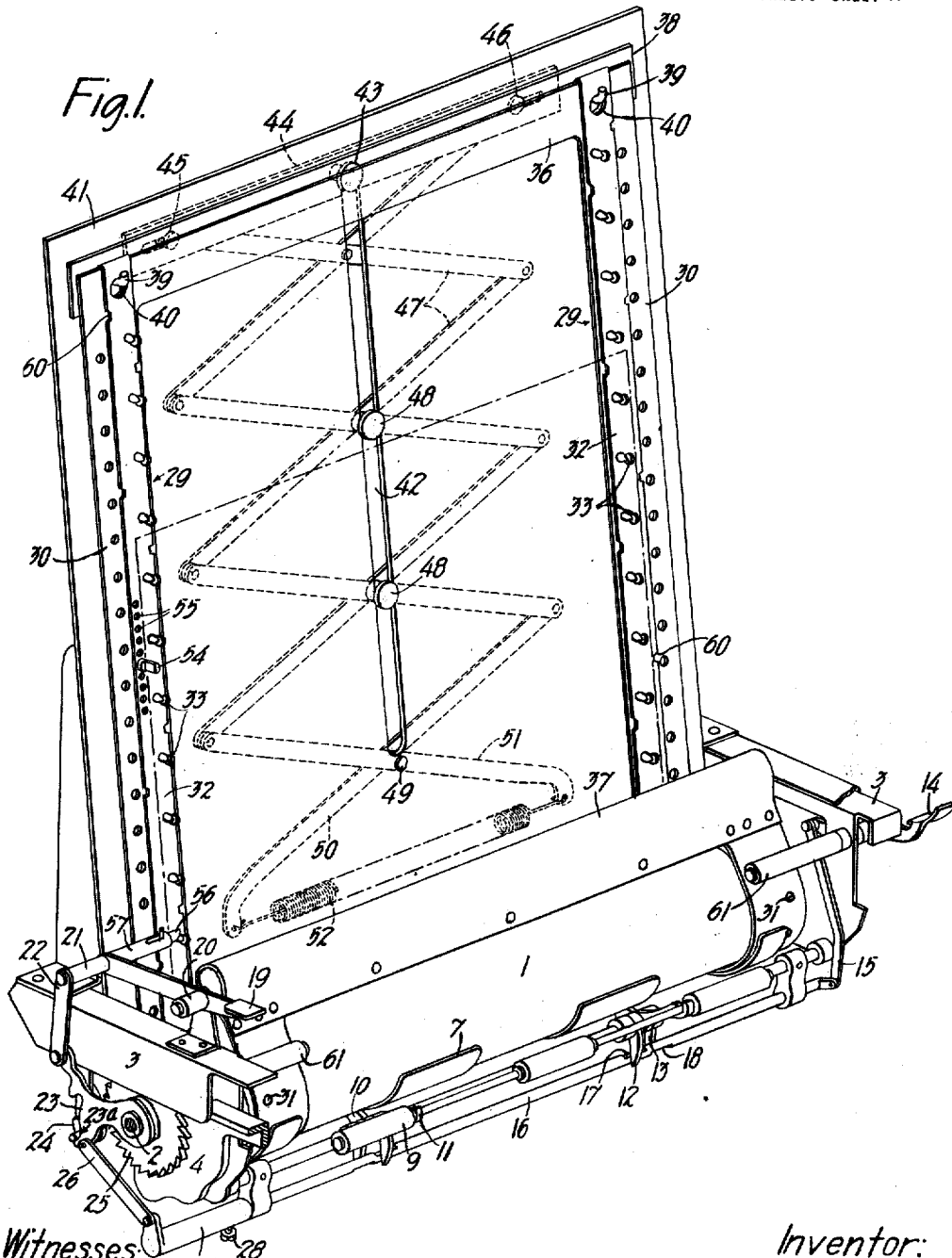


J. A. WHERRY.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 14, 1917.

1,300,904.

Patented Apr. 15, 1919.

3 SHEETS—SHEET 1.



Witnesses:
C. A. Johnson
Julius Duckstone

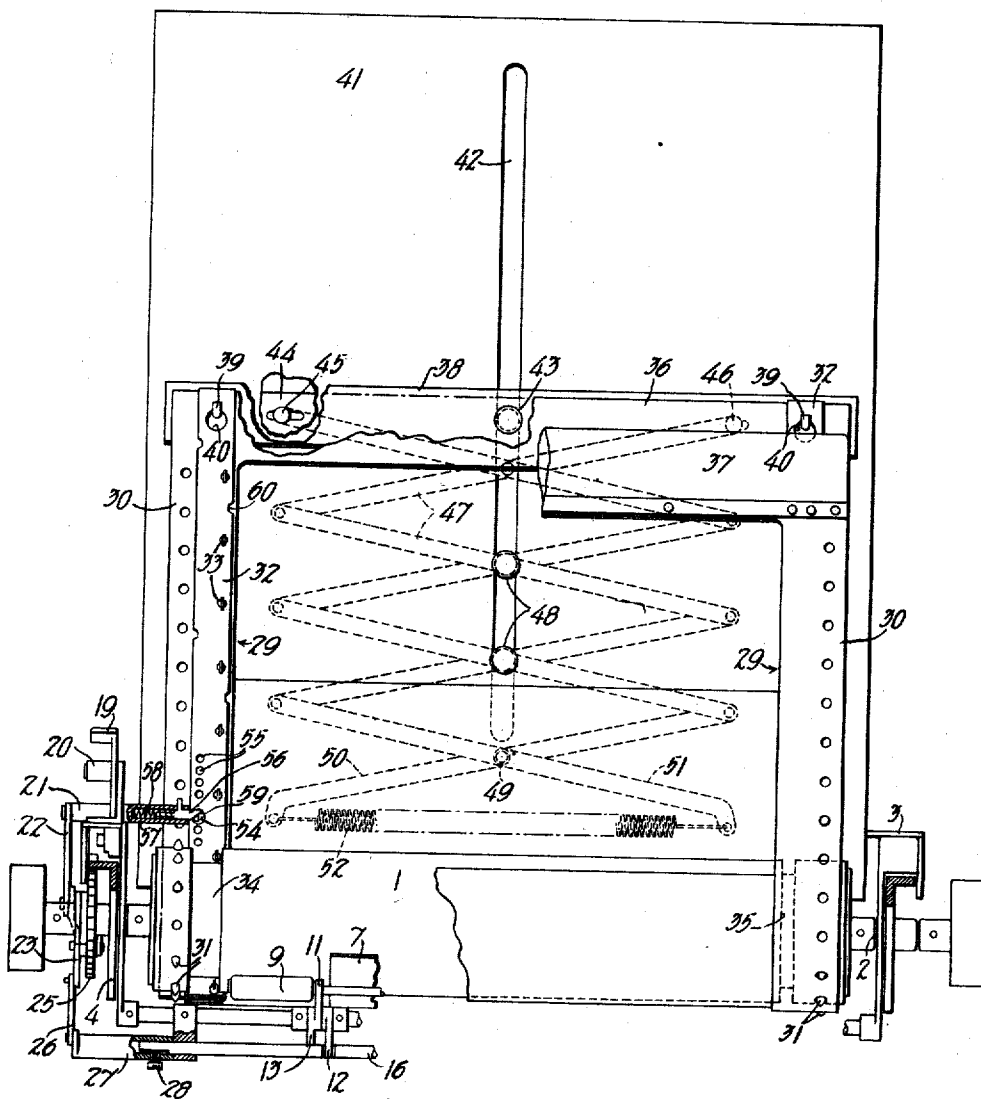
Inventor:
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 3 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Arthur A. Johnson
 Julius Ruckelshaus

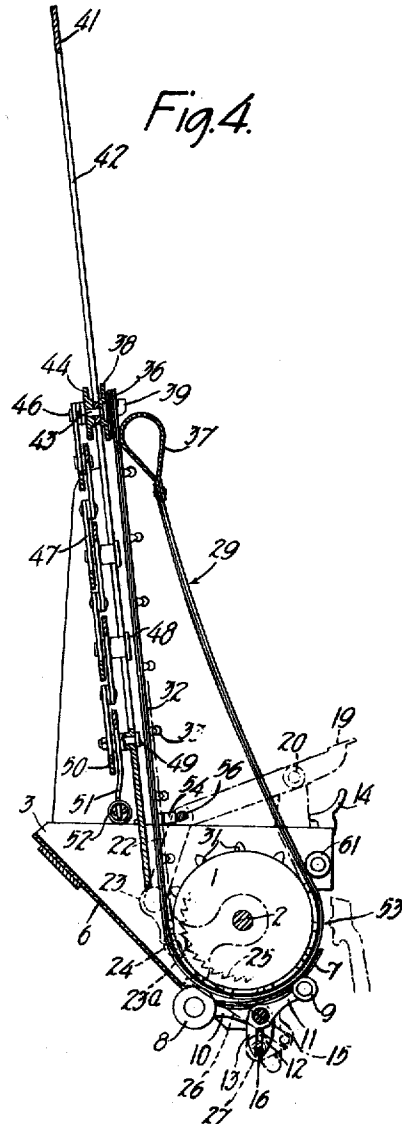
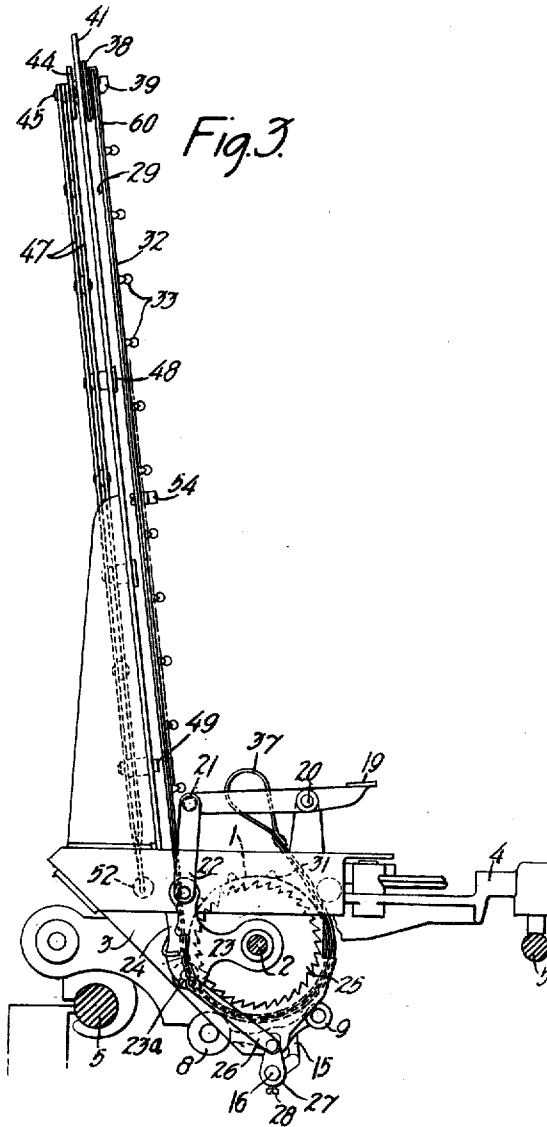
Inventor:

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Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN A. WHERRY, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

1,300,904.

Specification of Letters Patent.

Patented Apr. 15, 1919.

Application filed July 14, 1917. Serial No. 180,530.

To all whom it may concern:

Be it known that I, JOHN A. WHERRY, a citizen of the United States, residing in New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to an improvement in typewriting machines, and more especially to an attachment whereby several sheets may be collated or assembled in proper relative positions for placing on the platen of the typewriter.

In the present embodiment of the improvement, provision is made for assembling or collating the work-sheets at the rear of the platen, and in such a position that they can be delivered to the platen from the rear. In general, this mechanism consists of a pair of bands, driven in the manner of a chain-and-sprocket from the platen, so as to move around therewith. These bands are provided with collating studs at suitable intervals, so that they will hold the sheets in their relatively assembled positions and carry them to and around the platen. Spring-actuated lazy tongs normally tend to hold the bands, as a unit, withdrawn from the platen in an assembling position, but these lazy tongs yield to enable the bands and sheets thereon to be advanced to and fed around the platen. For delivering the sheets to the platen when once assembled on the bands, a cross-piece uniting the bands is bent over on itself to form a handle, by means of which the bands and work-sheets as a whole can be drawn around the platen. Before this is done, the pressure feed rolls for the platen are released by a finger-piece which also releases the detent for the line-space wheel to permit the free movement of the platen. When the initial line of writing, determined on the work-sheets, reaches the printing position, a settable stud, carried by one of the bands, restores the finger-piece and both the pressure feed rolls and the detent operated thereby. This creates considerable resistance which in turn warns the operator that the bands have been moved a sufficient amount.

A spring is provided, whereby, after the typewriting operation has been completed, the release of the line-space detent permits

the collating board and sheets to be retracted to normal position, where a new collating operation may take place.

The drive bands for the collating device may be made of celluloid or other suitable flexible springy material, which may, if desired, be transparent. The collating studs may be made of metal and mounted upon a strip of flexible metal which is suitably attached to the celluloid drive bands.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view, viewed from the front, showing the pressure feed rolls and detent released, and also the bands in their withdrawn position, ready for the assembling or collating of sheets, and the delivering of them, after assembled, to the platen.

Fig. 2 is a front view in elevation, with parts broken away to show the underlying structure, and showing the mechanism after the bands have been drawn around the platen, with the collated or assembled work-sheets in position for the initial line of writing.

Fig. 3 is a vertical section, taken from the left-hand end of the platen, and shows the parts in the position corresponding to Fig. 1, with the collating bands withdrawn from the platen, ready for the assembling of the sheets.

Fig. 4 is a vertical section, taken from front to rear, midway of the platen, and showing the parts in the position corresponding to Fig. 2.

The platen 1 is mounted on an axle 2, which, in turn, is mounted on a platen frame 3, supported by a carriage 4. The carriage 4 travels in the usual way, common to Underwood typewriters, on rails or guides 5. For guiding work-sheets of various character to the platen, the platen frame 3 is provided with an apron 6. A shield 7 forms an extension of the apron 6 and deflects the work-sheets around the platen 1.

To assist the platen 1 in feeding work-sheets positioned thereon, there are provided the usual pressure feed rolls 8 and 9, which are mounted, for movement toward and from the platen, on frames 10 and 11. These frames are provided with oppositely-projecting arms 12 and 13, whereby the pressure

feed rolls 8 and 9 may be manipulated toward and from the platen. Normally, the rolls 8 and 9 are held in intimate contact with the platen by springs (not shown). To
 5 disengage the rolls from the platen, there is provided a release finger-piece 14 (Figs. 1 and 4), which, when depressed, draws up on a link 15 to rock a shaft 16. This shaft 16 is provided on the opposite sides thereof
 10 with cut-out portions 17 and 18, into which extend, respectively, the arms 12 and 13. When the shaft 16 is rocked at the depression of the finger-piece 14, these arms are forced out of the notches, so as to spread
 15 them apart, against the tension of the springs, thereby spreading the rolls 8 and 9 from each other and from the platen 1. This is the usual pressure feed roll mechanism.

The pressure feed roll mechanism may be
 20 operated from another point for the purpose of releasing the rolls, to permit the easy insertion of collated or assembled work-sheets. For this purpose, there is provided a key-lever 19, Fig. 1, pivoted at 20, and carrying
 25 at its rear end a rod 21. This rod, on one side of the lever 19, is provided with a link 22, which, when the key-lever 19 is depressed, draws up on a disconnecter 23, which disengages a detent 24 for the usual
 30 line-space wheel 25. This detent, normally, yieldingly holds the line-space wheel 25 and the platen against accidental rotation. The disconnecter 23 is connected to operate the rock-shaft 16 by means of a link 26 and
 35 a sleeve 27, the latter being secured by a set-screw 28 to the rock shaft 16. In this way, the key-lever 19 will simultaneously throw-off the detent 24 and release the pressure feed rolls 8 and 9, thereby enabling the
 40 platen to rotate freely. A notch 23^a in the disconnecter enables the same to be held in disconnecting position by the spring detent 24.

For assembling or collating a plurality
 45 of work-sheets to place them on the platen in proper order, there is wrapped around the platen 1 a pair of bands 29. These bands 29 may be bipartite and each include a perforated drive strip 30 to engage sprocket
 50 teeth 31, provided on the ends of the platen 1. This enables the bands and the platen to travel in unison, always maintaining the same relative position. The bands 29 are preferably made of celluloid or other suitable flexible, yet springy, material. A flexible metal strip 32, secured to each of the celluloid strips is provided with collating studs
 55 33, arranged at suitable intervals. The parts 30, 36 and 37 may be cut out of one sheet of celluloid and the metal strips 32 secured thereto by clips stamped out of the body portion of the strips 30, as at 60. The collating strips 32 are arranged to travel with the drive strips 30, around the platen
 65 1, the platen 1 being provided with cut-out

channels 34 and 35, Fig. 2, to permit this movement around the platen without interference.

The drive strips 30 and the collating strips 32 are united by a cross-piece 36 at their upper ends, and by a looped cross-piece 37 at their lower ends, as seen in Fig. 1. The strips 30 and 32 and the cross-pieces 36 and 37 form a flexible collating frame. The cross-piece 37 is looped for the purpose of
 75 enabling the operative to grasp the same and draw the flexible collating frame as a whole around the platen, and also so as to be easily deflected by the studs 33 during a normal typewriting operation. 80

The collating frame is detachably connected to a cross-bar 38 by means of hooks 39, which extend through openings 40, provided in the collating frame. The cross-bar 38 is located in front of a plate 41, mounted on
 85 the platen frame 3 and extending up from a point somewhat in the rear of the platen. This plate is provided with a vertically-extending slot 42, through which passes a pin 43, connecting the front cross-bar 38 with a
 90 rear cross-bar 44, located in back of the plate 41.

The cross-bar 44 has connected thereto, by means of pin-and-slot connections 45 and 46, a pair of lazy tongs 47. The lazy tongs 95 47 are provided with headed pins 48 at two of their points of intersection, which engage in the slot 42, so as to guide the movements of the lazy tongs. The lazy tongs are fixedly pivoted at 49 on the plate 41, and the arms 100 50 and 51, which extend below this pivot, are joined by a spring 52. Thus, the spring 52, through the lazy tongs and the bars 44 and 38, normally holds or tends to draw the flexible collating frame, including the bands 105 29, in their uppermost position, which position corresponds to the position they occupy after having been withdrawn rearwardly from the platen 1.

After the sheets are assembled on the collating studs 33, one upon the other in proper
 110 relation to commence writing, the collating frame is drawn around to the position of Fig. 4, to bring the initial line of writing of the work-sheets to the printing point 115 of the platen, indicated at 53. To determine this position automatically, there is provided a trip or stop 54, which may be located in any one of a plurality of gaging holes 55, provided on one of the bands 29 of the collating frame. The position of the trip 54 determines how soon the limit of positioning movement of the collating frame, with the sheets thereon, shall be reached. This trip, as the collating frame travels around the
 125 platen, comes into engagement with a latch or stop 56, provided on an extension or sleeve 57 on the rod 21, mounted on the release-key-lever 19. When the trip 54 engages the latch 56, it rocks the key-lever 19 130

and restores the detent 24 and the pressure feed rolls 8 and 9 to their engaging position with the line-space wheel and the platen, respectively. The latch 56, as will be seen by reference to Fig. 2, is normally held in its outer position by a spring 58. When engaged by the trip 54, the latch 56 is moved so as to permit the trip 54, after the work-sheets have been properly placed on the platen, to travel farther during a normal typewriting operation. This latch 56 is beveled on its under surface at 59, so that it will automatically snap back, permitting the trip 54 to pass when the spring 52 returns the collating frame by withdrawing it reversely from the platen.

The utility of the device will be readily understood when taken in connection with the above description. Two or more work-sheets, having perforations in either one or both side edges, are placed on the collating studs 33 when the collating frame is withdrawn to its Figs. 1 and 3 positions. The sheets may be set relatively to each other, so as to bring lines at different points in their length, as to the individual sheets, into coincidence with each other. The sheets are separated by carbon sheets, so that the matter written on the front sheet, when at the platen, which will be the rear sheet, in assembling, will take on the under sheets.

After the sheets have been assembled or collated in this manner, they are ready to be positioned on the platen without removal from the collating frame. This is done simply by catching hold of the looped cross-piece 37 and drawing on the same, after, however, the pressure feed rolls 8 and 9 and the line-space wheel detent 24 have been released by a depression of the key-lever 19 to the Figs. 1 and 3 positions. On this release of the detent and feed rolls, the platen will rotate easily, enabling the collating frame to be moved from the positions of Figs. 1 and 3 to the positions of Figs. 2 and 4, carrying with it the assembled or collated sheets.

When the initial line of writing, predetermined upon, reaches the printing point 53 of the platen, then the trip 54 will engage the latch 56, to rock the key-lever 19, and throw on both the detent 24 and the pressure feed rolls 8 and 9. The assembled sheets are then in a position for typewriting. The latch 56 can be withdrawn against the tension of its spring, so as to permit the trip 54 to pass, enabling the platen, the work-sheets, and the collating frame to be advanced, line by line, in a normal typewriting operation.

When the piece of work is completed, the detent 24 and the pressure feed rolls 8 and 9 can again be released by a depression of the key-lever 19, so that the spring 52 may act to withdraw the collating frame and the sheets, carried thereby rearwardly from the

platen. Then the completed piece of work can be removed from the collating frame, and fresh sheets assembled thereon for a new piece of work, and the operation repeated as before.

It will be noted, because of the fact that the studs 33 are able to pass around the platen while facing in toward the axle of the same, that it is possible to collate or assemble the sheets and insert them at the rear of the platen while still on the collating frame. This makes the action correspond to the normal insertion of sheets on the typewriter platen, and at the same time prevents their getting out of register.

It will be seen that when passing around the platen, the side margins of the sheets are confined between the platen and collating bands. This holds the sheets firmly on the platen in printing position.

The spring 52, connected to the lazy tongs, is arranged so as to withdraw the collating bands to normal collating position after the typewriting has been completed. To permit this action, the line-space detent is moved away from the line-space wheel. In a normal typewriting operation, the spring does not return the collating band (although there is a tendency to do so), because of the engagement of the line-space detent with the line-space wheel, which affords considerable resistance to the turning of the platen.

The collating bands are held close to the platen above the writing line, by means of a pair of guide rollers 61. There is one of these guide rollers provided at each side of the machine and overlying the collating bands.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination with a platen, of a collating belt curved around the platen, studs on the belt facing the platen, and means extending behind the platen for supporting the belt with the studs to enable work-sheets to be adjusted thereon, so that when the belt is drawn forward with work-sheets on the studs, the work-sheets will be engaged by the studs and be bound against the platen by the belt.

2. The combination with a platen, of a collating frame coöperating with said platen, a spring normally tending to hold said collating frame withdrawn with respect to said platen, and a pair of lazy tongs interposed between said spring and said frame, to transmit the action of one to the other.

3. The combination with a platen, of a collating belt curved around the platen, studs on the belt facing the platen, means extending behind the platen for supporting the belt with the studs, so that when the belt is

drawn forward with work-sheets on the studs, the work-sheets will be engaged by the studs and be bound against the platen by the belt, said platen being channeled to accommodate said studs, and separate pins adapted to cause the belt to advance with the rotating platen.

4. The combination with a platen, of a flexible collating frame, studs on said frame adapted to face the platen, so that work-sheets mounted thereon will be bound between the frame and the platen, said frame including both sides and ends, and pins on the platen adapted to engage the frame to positively advance it with the turning platen.

5. The combination with a platen, of a collating frame passing around said platen, sheet-attaching means on said frame passing in toward said platen, so as to carry sheets onto said platen at the rear in a collated or assembled position, and spring means tending to withdraw said collating frame reversely with respect to said platen.

6. The combination with a platen, of a collating frame wrapped around said platen, spring means normally tending to withdraw said collating frame reversely with respect to said platen, and pressure feed rolls opposing the action of said spring means by gripping the sheets, on said collating frame, to the platen.

7. The combination with a platen, of a pair of bands each comprising studs facing the platen as the bands travel around the platen, means independent of the studs for each band to cause it to positively advance with the turning of the platen, and cross-bars connecting the ends of said bands to form a collating frame.

8. The combination with a platen, of a collating frame passing around said platen and extending upwardly from the rear of the bite of said platen when in an initial position, and advancing downwardly and around toward the front with said platen in a normal work-sheet feeding direction and manner, whereby the work-sheets assembled on said collating frame may be maintained in collated position on said frame, and at the same time be fed around said platen.

9. The combination with a platen, of a collating frame wrapped around said platen, a plate extending upwardly from said platen at the rear thereof, said plate having a slot therein, lazy tongs guided by said slot, means for connecting said lazy tongs to said frame through said plate, and a spring for actuating said lazy tongs.

10. The combination with a platen, of a collating frame wrapped around said platen, means for determining a position of said frame, including a cross-bar, and hooks mounted on said cross-bar entering openings provided in said frame, so as to detachably connect said frame to said cross-bar.

11. The combination with a platen, of a collating frame connected to cooperate with said platen in properly adjusting work-sheets on said platen, pressure feed rolls normally holding the work-sheets gripped to said platen, means for releasing said feed rolls to permit a relative movement between said work-sheets, said collating frame and said platen, and a trip carried by said collating frame for operating said releasing means after said frame has traveled a predetermined distance.

12. The combination with a platen, of pressure feed rolls cooperating with said platen, a key lever connected to release said pressure feed rolls, a collating frame cooperating with said platen, to properly adjust work-sheets on said platen, and an adjustable trip arranged to come into engagement with said key lever after a predetermined movement of said collating frame, so as to bring said feed rolls into operative relation with said platen, and to determine a limit of movement of said collating frame.

13. The combination with a platen, of a collating frame wrapped around said platen and traveling therewith, a stop on said collating frame traveling with said collating frame and determining the limit of movement thereof, and a latch lying in the path of said stop to obstruct movement of said stop and said collating frame, adjustable to permit a continued movement of said collating frame after a certain movement of said platen and said collating frame has been determined by said stop and said latch.

14. The combination with a platen, of a line-space wheel for said platen, a detent for said line-space wheel, pressure feed rolls for said platen, a common release for said detent and said pressure feed rolls, a collating frame cooperating with said platen, to properly position work-sheets on said platen, and a trip carried by said frame for operating said common release to control the action of said detent and said pressure feed rolls.

15. The combination with a platen, of a collating belt curved around the platen, studs on said belt to enable work-sheets to be collated thereon, a feed-roll adapted to hold the work-sheets against the platen, means for making said feed roll ineffective, and means, including a device settable relatively to the belt, for making said feed roll effective when the belt brings a work-sheet to the printing line.

16. The combination with a platen, of a flexible frame in which a work-sheet may be mounted and adapted to be passed around the platen, teeth for causing the frame to advance with the rotation of the platen, and a support to which a free end of the frame is adapted to be held and which is adapted to tension the frame.

17. The combination with a platen, of a

flexible paper-holding device including studs for holding work-sheets, said device adapted to be curved around the platen, feed rolls adapted to bear against the platen, a line-space detent adapted to detain the platen against rotation, means for making said feed rolls and detent ineffective, and means adapted to make said feed rolls and detent automatically effective when the paper-holding device brings the work-sheet to the printing point.

18. The combination with a platen, of a belt adapted to be connected with the platen to be positively drawn forward by the rotation thereof, a support for the belt extending away from the platen, studs on the belt adapted to hold work-sheets thereon alined when engaged between the belt and platen, and a tensioning device to which the belt is adapted to be attached to hold it stretched over its support.

19. The combination with a platen, of a collating band on each end of the platen, a tensioning device adapted to engage the bands to hold them extended, and teeth on the platen adapted to engage openings in the bands to cause the bands to advance with the rotating platen.

20. The combination with a platen, of a collating belt including studs facing the platen, means for supporting said belt extending behind the platen, and a handle on the belt in front of the platen adapted to draw the belt and work-sheets thereon around the platen.

21. The combination with a platen, of a collating belt including studs facing the platen, means for supporting said belt extending behind the platen, a handle on the belt in front of the platen adapted to draw the belt and work-sheets thereon around the platen, a detent normally tending to hold the platen against rotation, means for making said detent ineffective to permit the belt and work-sheets to be drawn around the platen, and a trip adapted to make the detent effective when a work-sheet arrives at the printing line.

22. The combination with a platen, of a collating belt curved around the platen, studs on said belt facing the platen, a handle for drawing the belt and work-sheets thereon around the platen, a feed roll for holding a work-sheet against said platen, means for rendering said feed roll ineffective, means, including a stop, to render said feed roll effective when a work-sheet arrives at the printing line, and means normally tending to draw the belt backwardly around the platen.

23. The combination with a platen, of a collating belt curved around the platen, studs on said belt for facing the platen, a handle for drawing the belt and work-sheets thereon around the platen, a stop, means normally

tending to draw the belt backwardly around the platen, a detent for said platen, means for making said detent ineffective to permit the belt to rotate the platen, and means operated by the stop when a work-sheet arrives at the printing line for making the detent effective with respect to said platen.

24. The combination with a platen, of a collating belt curved around the platen, studs on said belt facing the platen, a handle for drawing the belt and work-sheets thereon around the platen, a stop, means normally tending to draw the belt backwardly around the platen, a detent for holding the platen against accidental rotation, feed rolls adapted to hold work-sheets against the platen, means for making the detent and the feed rolls ineffective, and means operated by the stop when a work-sheet arrives at the printing line for making said detent and feed rolls effective.

25. The combination with a rotatable platen, of a line-space detent for said platen, feed rolls for holding work-sheets against said platen, means for rendering said detent and said feed rolls ineffective, and means for simultaneously making both the detent and the feed rolls effective.

26. The combination with a platen, of a transparent band adapted to revolve with the platen and overlie part of a work-sheet to bind it against the platen, and alining studs on the band adapted to hold the work-sheet.

27. The combination with a platen, of a transparent band adapted to revolve with the platen and overlie part of a work-sheet to bind it against the platen, alining studs on the band adapted to hold the work-sheet, a reinforcement on said band in which the studs are mounted, and pins on the platen adapted to enter openings in the band to cause the band to travel with the platen.

28. The combination with a platen, of a belt adapted to advance with the revolving platen, a support for the free end of the belt extending away from the platen, and collating studs on the belt adapted to hold work-sheets alined when engaged between the belt and the platen.

29. The combination with a platen, of a belt at each end of the platen, pins on the platen adapted to enter openings in the belts, a bar joining the belts at one end, and means, comprising a spring, acting on the bar to tension the belts.

30. The combination with a platen, of a belt at each end of the platen, pins on the platen adapted to enter openings in the belts, a bar adapted to join the belts at one end, a spring drawing on the bar to tension the belts, and a second bar on the front end of the belts adapted to serve as a handle for drawing on them.

31. The combination with a rotatable platen, of a belt at each end of said platen,

coöperating means on said belts and platen, respectively, to provide a positive driving connection between said belts and said platen, and a device connected to the ends of
5 said belts for tensioning the same.

32. The combination with a platen, of a transparent belt adapted to be led around the platen, collating studs on the belt for
10 adjusting work-sheets, a metallic reinforcing band fast to the transparent belt and furnishing a mounting for the studs, and a support extending away from the platen for the free end of the belt to enable work-sheets to be adjusted on the studs.

33. The combination with a platen, of a transparent belt adapted to be led around the platen, collating studs on the belt for
15 adjusting work-sheets, a metallic reinforcing band fast to the transparent belt and furnishing a mounting for the studs, a support extending away from the platen for the free end of the belt to enable work-sheets to be adjusted on the studs, and means on the support to which the belt is adapted to
20 be attached to tension it.

34. The combination with a rotatable platen, of a flexible frame in which a work-sheet may be mounted, means including
25 teeth for causing said frame to advance with the platen when rotated, a device attached to the free end of said frame to tension the same, means to hold said platen against accidental movement, means to press a work-sheet on said frame into coöperative relation
30 with said platen, means to render said holding means and said pressing means ineffective, and means effective upon a forward movement of the work-sheet to the position for the first printed line to render said holding means and said pressing means effective,
35 said last-mentioned means being ineffective upon the return movement of said flexible frame.

35. The combination with a platen, of a
40 collating device including studs adapted to be curved around the platen, a feed roll for the platen, a detent for said platen, means

for making said feed roll and said detent ineffective, a one-way stop, means operated
50 by said one-way stop upon the arrival of a work-sheet at the printing line for simultaneously making the feed roll and detent effective, yielding means for urging the stop to effective position, and a finger-piece adapted to shift the stop to make it ineffective.
55

36. The combination with a platen, of a collating belt curved around the platen, detent means for said platen, disabling means to render said detent means ineffective,
60 means controlled by an actuating member for operating said disabling means, so as to restore said detent means to effective condition, and a device settable on the belt for determining when said actuating member
65 shall be engaged and actuated by said device.

37. The combination with a platen, of a collating belt curved around said platen, means including studs on said belt to enable
70 work-sheets to be collated thereon, means to hold said platen against accidental movement, means to render said holding means ineffective, and means including an adjustable member settable in different positions in accordance with the selected position for the
75 first writing line on a work-sheet, to render said holding means effective upon an advance movement of the work-sheet to the position for the first writing line on said sheet.
80

38. The combination with a platen, of a collating belt curved around the platen, studs on said belt to enable work-sheets to be collated thereon, a detent for said platen, means for making the detent ineffective to
85 permit the belt to rotate the platen, and means, including a device settable relatively to the belt, adapted to make the detent effective with respect to said platen.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."