

Nov. 15, 1927.

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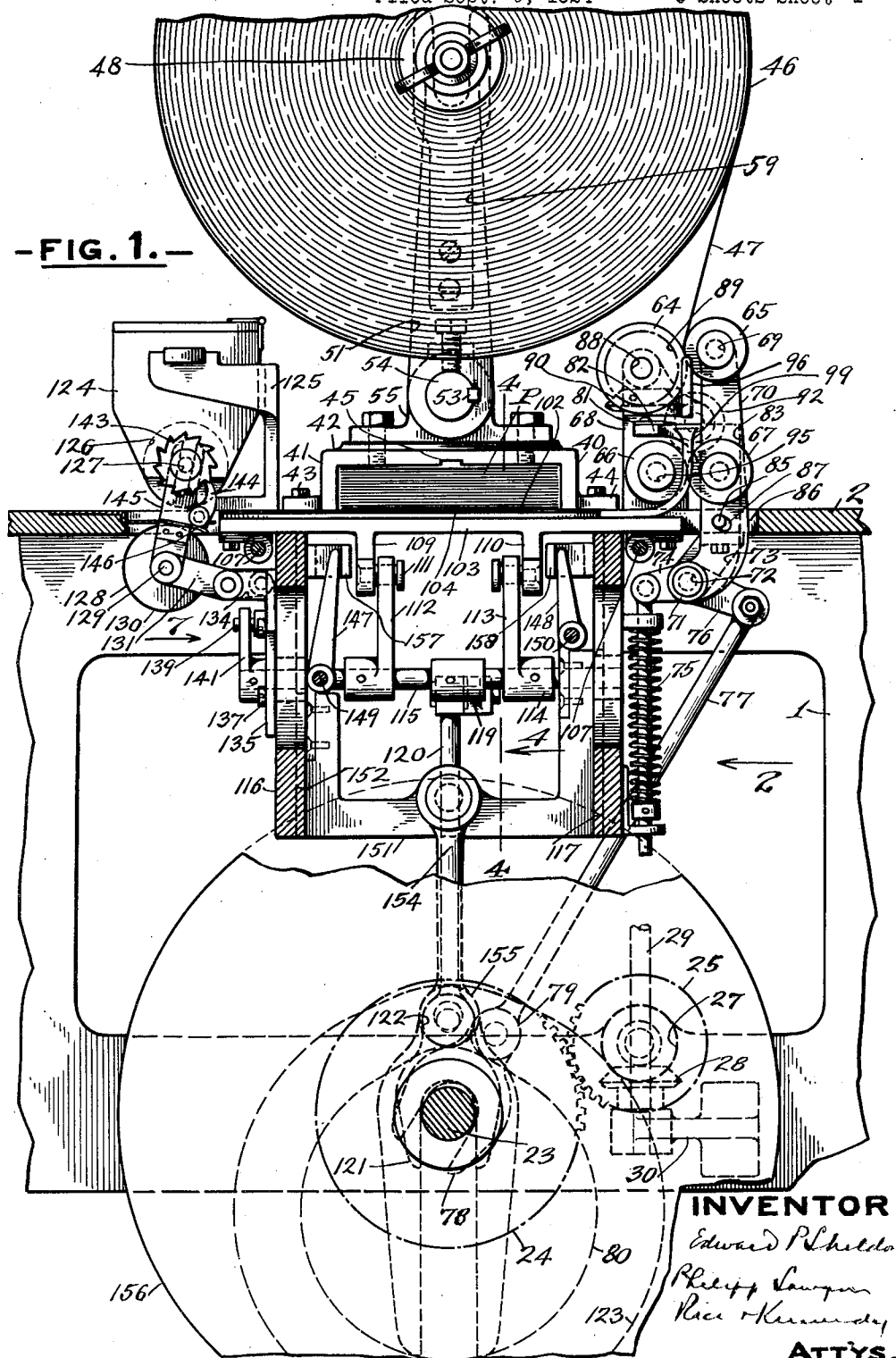
E. P. SHELDON

BANDING MECHANISM

Filed Sept. 9, 1924

5 Sheets-Sheet 1

-FIG. 1.-



Nov. 15, 1927.

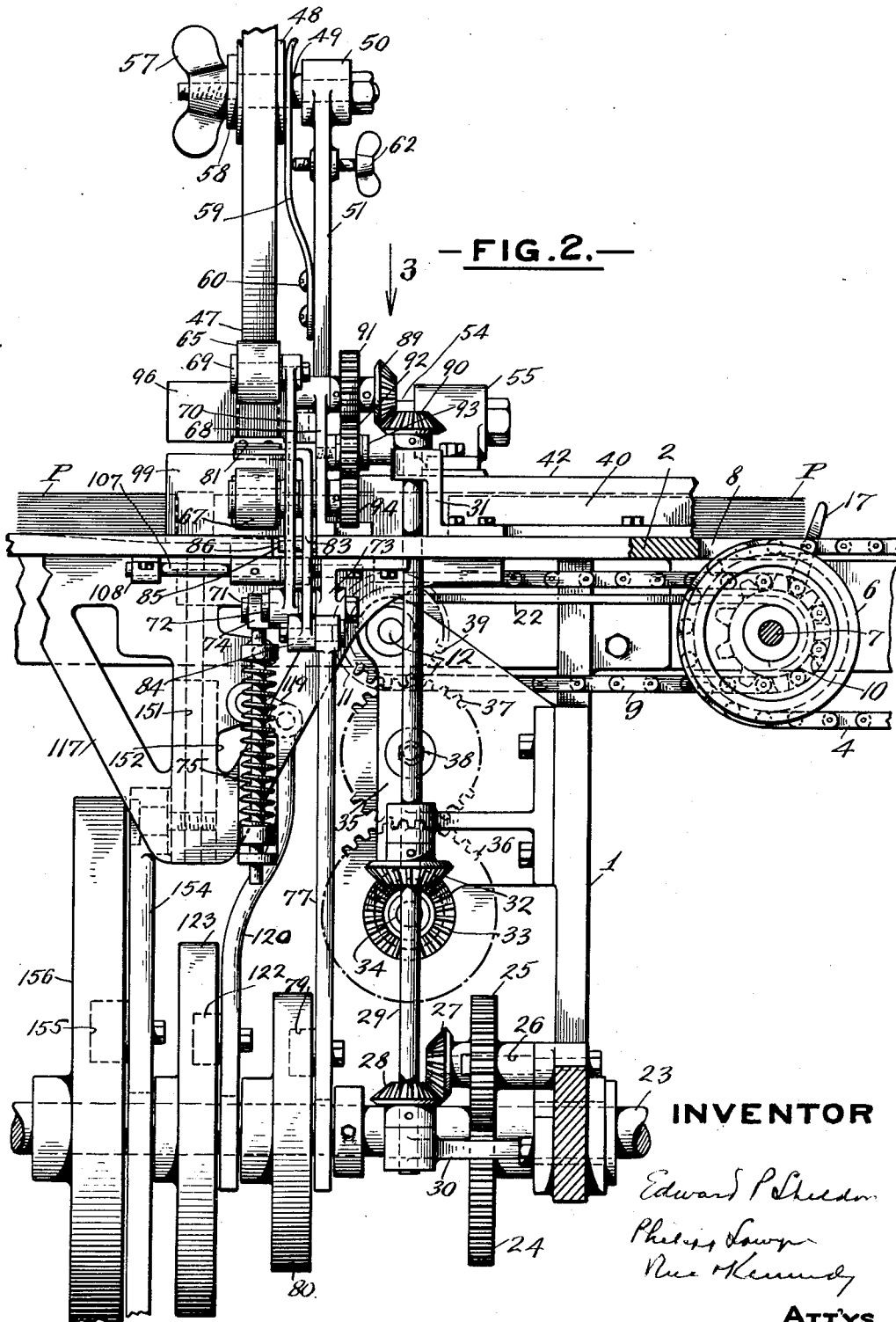
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E. P. SHELDON

BANDING MECHANISM

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5 Sheets-Sheet 2



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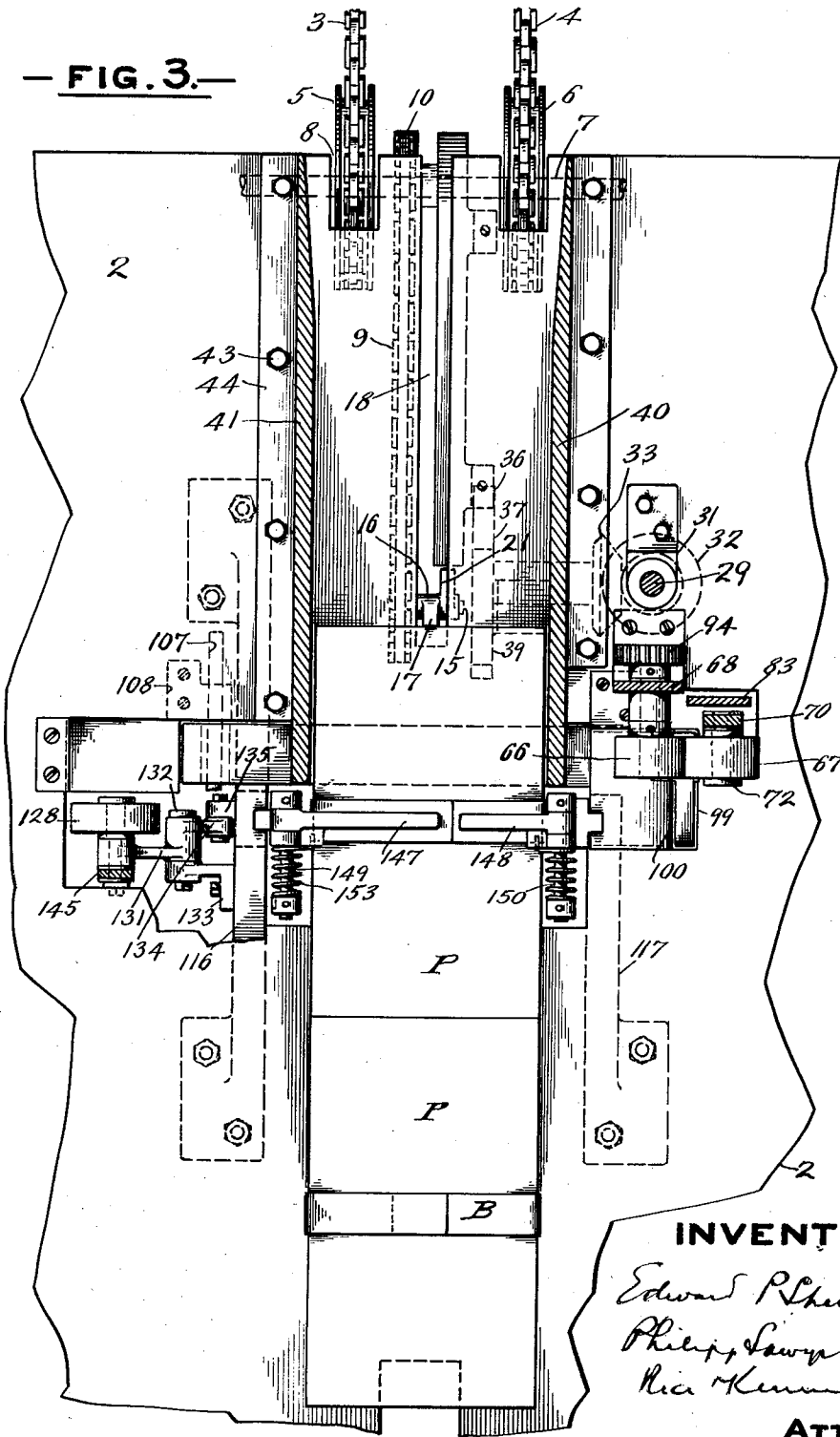
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BANDING MECHANISM

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5 Sheets-Sheet 3

— FIG. 3. —



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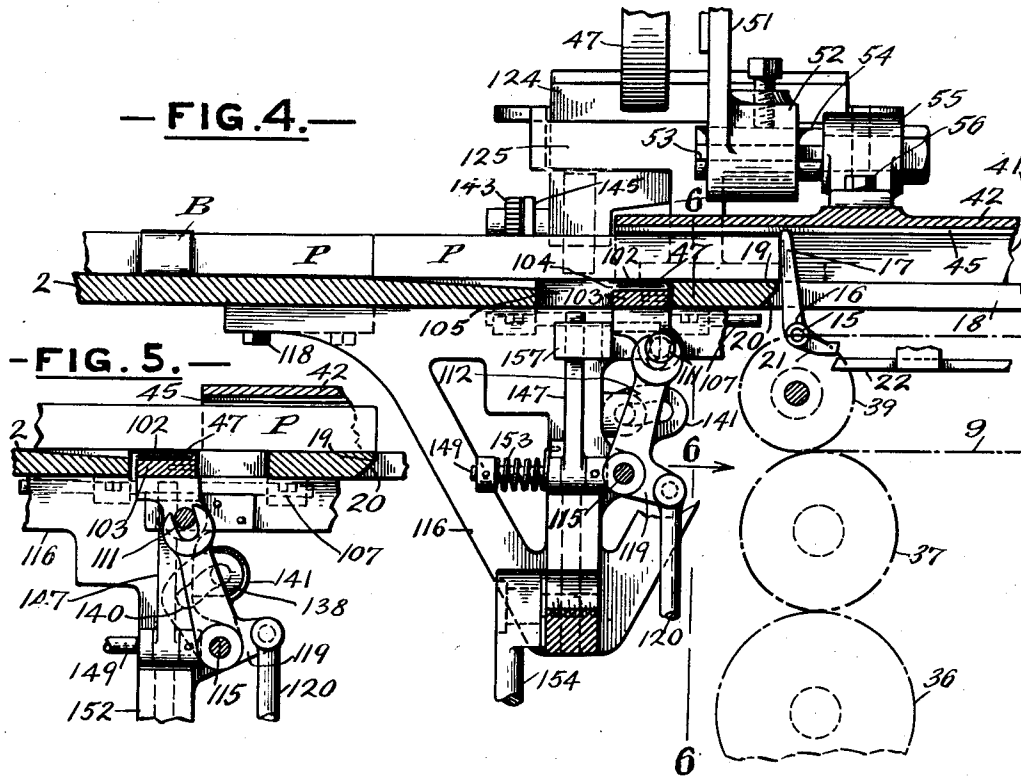
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BANDING MECHANISM

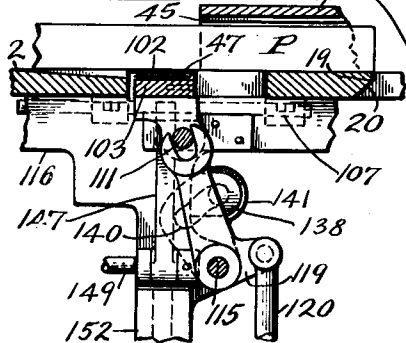
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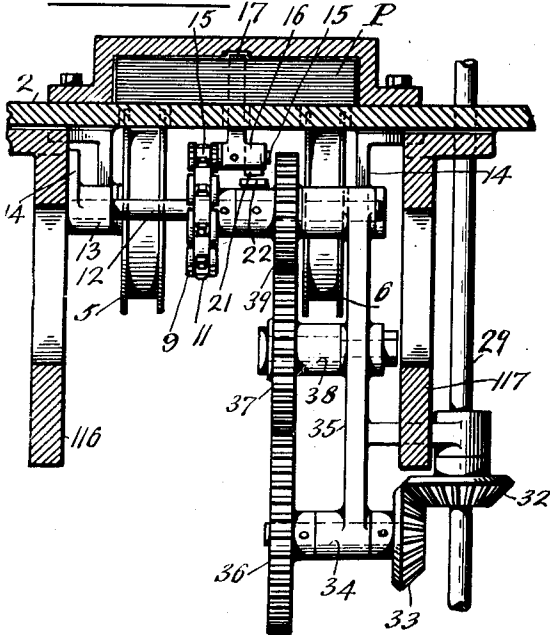
— FIG. 4. —



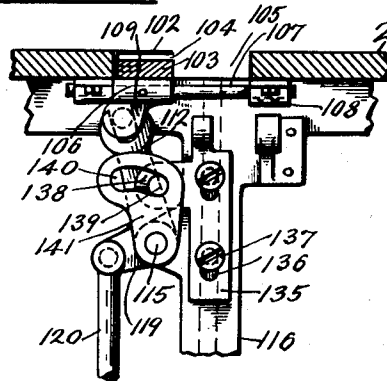
— FIG. 5. —



— FIG. 6. —



— FIG. 7. —



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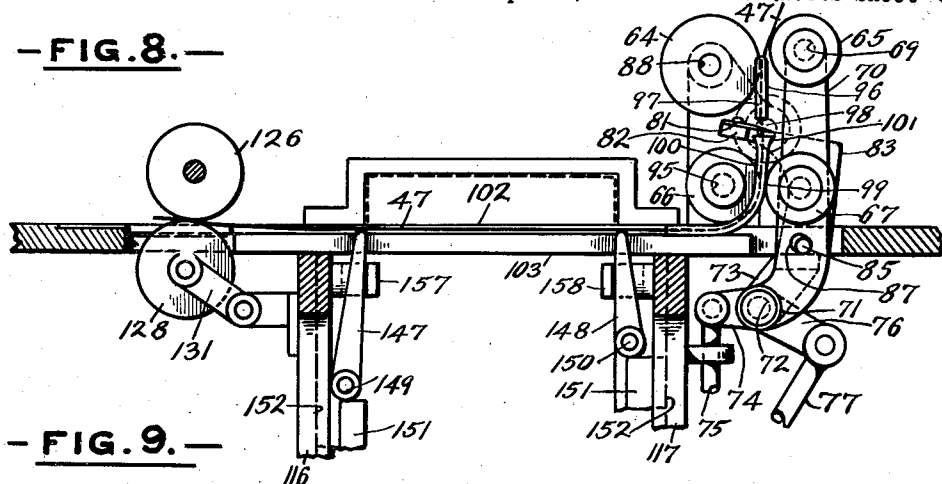
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BANDING MECHANISM

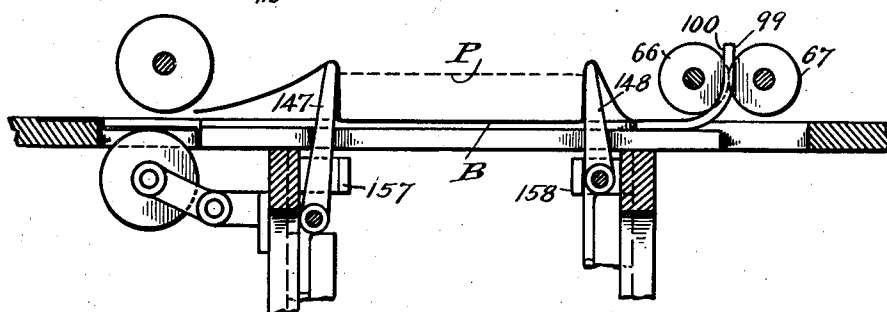
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5 Sheets-Sheet 5

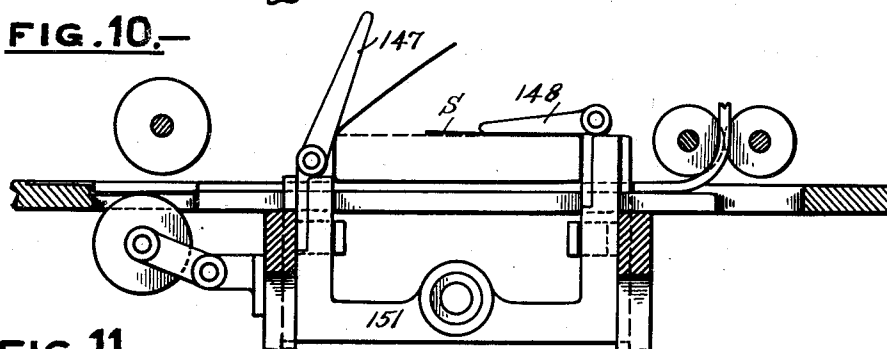
— FIG. 8. —



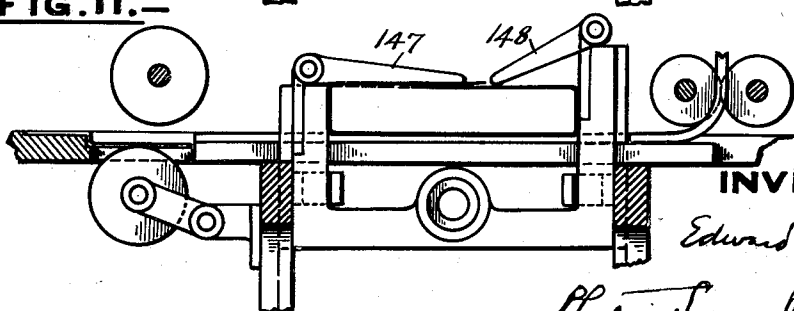
- FIG. 9. -



- FIG. 10. -



- FIG. 11. -

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UNITED STATES PATENT OFFICE.

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BANDING MECHANISM.

Application filed September 9, 1924. Serial No. 736,676.

This invention relates to certain improvements in mechanisms for securing bands of paper or the like around piles or bunches of sheets, as, for instance, postal cards.

It is an especial object of the invention to provide a mechanism for forwarding a pile or bunch of cards in which the cards are maintained in piled relation, feeding a band length of suitable material, as paper, and folding or securing such band length about the pile. A further object of the invention is to provide such mechanism in which the banding material may be fed in web or strip form and a suitable length cut off to form the required band for a pile or bunch of the desired thickness. A further object of the invention is to provide such mechanism which shall perform the banding operation quickly so that the machine will have a large production of banded piles or bunches.

With these and other objects not specifically referred to the invention consists in certain novel parts, arrangements and combinations which will be described in connection with the accompanying drawings and the novel features pointed out in the claims hereunto appended.

In these drawings—

Figure 1 is an end view, partly broken away and partly in section, of the improved banding machine;

Figure 2 is a side view, partly in section, of the mechanism illustrated in Fig. 1, looking in the direction of arrow 2 of that figure;

Figure 3 is a plan view, partly broken away and partly in section, the plan being taken looking in the direction of arrow 3 of Fig. 2;

Figure 4 is a detail longitudinal, sectional view taken on the line 4—4 of Fig. 1 looking in the direction of arrow 4 in that figure;

Figure 5 is a detail sectional view of part of the mechanism shown in Fig. 4, showing the parts in another position;

Figure 6 is a vertical sectional view taken on the line 6—6 of Fig. 4, looking in the direction of arrow 6 of that figure;

Figure 7 is a detail side view, partly in section, looking in the direction of arrow 7 of Fig. 1;

Figures 8 to 11, inclusive, are diagrammatic end elevations, partly in section and partly broken away, showing the different

positions of the banding mechanism during the operation of folding and securing the band about the bunch.

Referring now to these drawings, which illustrate a preferred embodiment of the invention, the machine shown is one for applying a paper band about a pile or bunch of post cards. It will be understood, however, that this use of the machine is merely illustrative and that the invention may be used for securing bands or the like about piles or bunches of sheets other than postal cards and that the invention is not to be confined to this use.

The operative parts of the mechanism are supported in a suitable framing 1 of any usual or desired configuration and this framing 1 supports a table 2, the banding mechanism being carried from the table and the framing as more specifically hereinafter referred to.

In the machine selected to illustrate the invention means are provided for forwarding a bunch or stack of postal cards indicated by the letter P, these stacks or bunches being made of a predetermined number of cards piled superposed and flatwise. While various means may be employed for this purpose, there is provided a travelling carrier in the form of a pair of chains 3, 4 spaced a sufficient distance apart on which the bunches of cards may be placed either by hand or by some suitable automatic delivery mechanism not illustrated. These chains pass over pairs of pulleys, the inner pair of which, marked 5, 6, are illustrated, these pulleys being mounted on a shaft 7. These pulleys are mounted to run in recesses 8 cut in the table 2, before referred to, and deliver the piles onto this table.

After leaving the chains, the piles are forwarded, in the best constructions, by an additional forwarding mechanism which acts to register the pile in correct relation with the banding devices. While this mechanism may vary somewhat, in the construction illustrated it includes a chain 9, this chain passing, at its outer or rear end, (looking at Fig. 3) over a sprocket 10 on the shaft 7, before referred to, and at its inner end over a sprocket 11 (see Fig. 6) on a shaft 12 mounted in bearings 13 in brackets 14 suitably secured to the framing 1, before re-

ferred to. This chain 9 is provided with a stud 15 (Fig. 6) which has pivotally mounted thereon a hub 16. This hub is provided with a pusher finger 17 which is arranged to be projected behind a pile to forward the pile in correct relation with the banding mechanism. This finger pushes the pile along the table until the finger comes in contact with the stop, at which the pile is in correct registry position, and the finger is then withdrawn from behind the pile and moved rearwardly to engage the next succeeding pile. In the best constructions for accomplishing this the finger moves in a recess 18 in the table until it strikes the end 19 of this recess, which acts as a stop; the finger being pivoted, it is rocked backwardly on its pivot and slides beneath the table, the edge 20 of the end 19 of the recess being bevelled to facilitate this movement. To hold the finger in upright or pushing position, the hub 16 is provided with a tail 21 (Fig. 4) which rides on a guide plate 22 suitably secured beneath the table 2, before referred to. When the tail 21 rides off the end of the guide plate 22, the finger may be rocked rearwardly and passed beneath the table.

The parts before referred to may be driven in any suitable or desired manner. As shown, there is provided a main power shaft 23 suitably journaled in the framing 1, before referred to. This power shaft is provided with a driving gear 24 which is in mesh with a gear 25 on a stud 26 suitably supported in the framing 1. The hub of this gear is provided with a mitre 27 which is in mesh with a mitre 28 on a vertical shaft 29 suitably journaled in a lower bracket 30 secured to the framing 1 and an upper bracket 31 fastened to the upper surface of the table 2, before referred to. The vertical shaft 29 has secured thereon a mitre 32 which is in mesh with a mitre 33 on a shaft 34 supported by a bracket 35, best shown in Fig. 6. This shaft, at its other end has a gear 36 in mesh with an intermediate gear 37 on a stud 38 also supported on the bracket 35, this intermediate gear being in mesh with a gear 39 on the shaft 12, before referred to. With this construction the shaft 12 is driven and through it the sprocket 11 and through it the chain 9. This, in turn, drives the shaft 7 through the sprocket 10. There is provided, in this way, an intermittent forwarding mechanism for the piles or bunches which acts to register the bunch in correct relation with the banding devices.

In the best constructions, means are provided for maintaining the pile in piled relation; that is, so that the sides of the pile are even. Where, as in the particular machine illustrated, the bands are placed around the pile the narrow way thereof, these means act to keep the two long sides of the pile in even position so that the band

may be evenly and tightly secured. While these means may vary somewhat in construction, a simple and effective way of doing this is to provide a closed guideway for the pile which will be the width of the pile and substantially the depth thereof so that the pile is forwarded under sidewise and vertical pressure and the sheets of the pile are retained in a closely bunched and even position while the band is being secured around them. In the particular construction illustrated, such a guide is provided in the form of a channel member having sides 40 and 41 and a top or cover 42, preferably formed integral therewith, this channel guide being secured to the table top 2 in any suitable manner, as by means of bolts 43 passing through extensions or lugs 44 formed on the sides of the guide. The guide is as shown, (see Fig. 1) substantially the width of the pile and substantially the height so that the sides of the pile are maintained in correct edgewise position and the sheets are closely packed vertically. The top or cover of the guide is preferably notched on its under side, as indicated at 45, to permit the top of the finger to pass beneath the cover.

The machine illustrated applies a band substantially centrally of the narrow way of the pile and, in the particular mechanism illustrated, the band is folded about the pile and secured in place. In the preferred form of the machine, the band will be supplied from a continuous strip, a band length severed from the strip, and this severed band length folded about the pile. As shown, therefore, there is provided a reel of banding material, as paper, marked 46, the paper being fed from this reel during the operation of the machine. This reel is of a width sufficient for the desired width of banding and is supported on a core 48 mounted on a spindle 49 supported in a hub 50. This hub 50 has secured thereto an arm 51 which is secured at its other end to a hub 52 keyed, as by a key 53, on a stud 54 mounted in a bearing block 55 suitably secured, as by bolts 56, to the top of the guide casing 42, before referred to. The core is removably held in position by a thumb screw 57 and washer 58. In the best constructions, braking means are provided for preventing over-running of the roll and regulating the roll tension. While these may be somewhat varied, in the particular construction illustrated, there is provided a leaf spring 59 secured, as by screws 60, to the arm 51, before referred to. This spring at its free end is forked, as indicated at 61 (Fig. 1), to pass around the spindle 49 and each side of the fork bears on the core 48. The tension of this spring may be regulated by a regulating screw 62 supported in the arm 51. With this construction, the banding reels are easily put in

place and the tension on the reels is easily and readily controlled so as to effect a proper feeding of the web.

A paper strip 47 is drawn from this reel, fed into position to be applied to the pile and a band length severed from the web. In the particular machine chosen to illustrate the invention, the paper strip is fed beneath the pile and folded about the pile. Where, as in the present machine, a band is thus fed, the band-feeding mechanism will include means for guiding and supporting the band while it is being fed beneath the pile and while it is being severed to form a band length. Referring to the particular mechanism for accomplishing this, there is provided an upper pair of feeding rollers 64, 65 (see Figs. 1 and 8) and a lower pair of feeding rollers 66 and 67. The rolls 64 and 66 are stationarily mounted in a bracket 68 supported on the table top. Where, as in the machine illustrated, a continuous web is used from which a band length is severed, the feeding motion is intermittent; that is, a band length is severed and during the severing operation the feeding of the web is stopped. Where this construction is employed, therefore, the feeding roll 65 is mounted so that it can be moved out of feeding relation with its cooperating roll 64. In the best constructions, this movement takes place during the severing operation and, as illustrated, the roll 65 is mounted on a stud 69 carried in the upper end of a long arm 70 mounted at its other end on a hub 71 pivoted on a stud 72 mounted in a bracket 73 (see Fig. 2) suitably secured to the table top 2, before referred to. This hub has an arm (see Fig. 1) 74 to which is connected a spring rod construction 75 which normally holds the arm in the feeding position shown in Fig. 1. To intermittently rock the arm to move the roll 65 out of feeding relation with the roll 64, there is provided an arm 76 on the hub 71 which has secured thereto one end of a rod 77. This rod, at its lower end, is a forked rod having a fork 78 which takes over the power shaft 23, before referred to, and the rod is provided with a cam roll 79 which takes in the cam groove of a cam 80 fast on the power shaft 23.

The web-severing means for severing the band length include a reciprocating knife 81 carried on a knife bar 82 which is formed on an arm 83 on a hub 84 connected with the operating rod 77, before referred to, so that as the rod 77 is operated to separate the roll 65 from the roll 64, the knife is swung from the position shown in Fig. 1 to the position shown in Fig. 8 and acts to sever the web.

Guiding and supporting means may be provided for the arms 70 and 83 to guide the arms in their rocking movement, such as a pin 85, secured to the side of a recess 86 in the table top 2, before referred to, in which

the arms move, the arms being provided with a slot 87 in which the pin has a limited play.

One of each of the upper and lower sets of forwarding rolls is a driven roll, in the particular construction shown the rolls 64 and 66 being driven. To effect this the roll 64 is supported on a stud 88 supported, in turn, in the bracket 68, before referred to. This stud, outside the bracket, is provided with a mitre gear 89 in mesh with a mitre 90 on the upper end of the vertical shaft 29, before referred to (see Fig. 2). Also rotating with the shaft 88 is a gear 91 which is in mesh with an intermediate gear 92 on a stud 93 secured in the bracket 68. This intermediate gear 92 is in mesh with a gear 94 on the end of a short shaft 95 (Figs. 1 and 8) on which the roll 66 is supported, this short shaft being also mounted in the bracket 68, the roll being driven through these connections.

In constructions embodying the invention in its preferred form, there is provided guideways for guiding and supporting the band while the band is being fed to and under the pile and, where, in the present instance, the band is folded about the pile, this guideway will have a movable section so that it may be moved out of the path of the folding mechanism as the folder operates to fold the band length around the pile. In the particular construction shown, there is provided a stationary guideway and a movable guideway. The stationary guideway includes a channel formed of spaced plates 96, 97, which is open at the sides to permit the rolls 64 and 65 to have contact with the paper. This channel is a short channel and from it the paper is forwarded across a narrow opening, indicated in Fig. 8 by the numeral 98, across which the knife 81 reciprocates. Below this opening there is a second channel formed of side plates 99, 100 preferably flared at the top, as indicated at 101, these plates being also open at the sides to permit the paper to be gripped between the rolls 66 and 67. This second channel is, as shown, curved to guide the paper to the movable member of the guideway. This movable member includes a guide substantially U-shaped having a top 102, a bottom 103 and an open side 104, best shown in Figs. 4 and 7, the paper being delivered to this guide from the lower stationary channel members 99, 100. This movable guide has a reciprocating movement in a recess 105 formed widthwise of the table top, before referred to. This guide normally occupies a position beneath the pile and the band is supported in this guide while it is being fed into position and until the folding mechanism acts to fold it about the pile, the guide being moved so as to leave the band free when the folding operation takes place. This movement of the

guide may be effected in various ways. In the particular construction illustrated, the guide has formed on the bottom part 103 thereof a pair of short sleeves 106 which slide on a pair of guide rods 107 mounted in hangers 108 secured to the bottom of the table top 2, before referred to. In between the guide rods the guide block 103 is also provided with a pair of depending ears 109, 110 (see Fig. 1) which support headed pins 111 over the shanks of which take the ends of forked arms 112, 113, these arms being secured on hubs 114 on a rock shaft 115 which take bearing in a pair of guiding frames 116, 117, secured, as by bolts 118 (Fig. 4), to the underside of the table 2, before referred to. This rock shaft has secured thereto, between the arms, a rocker arm 119 in turn secured to operating rod 120. This operating rod is forked at its lower end, as shown at 121 (Fig. 1), this forked end taking over the power shaft 23, before referred to. This rod 120 carries a cam roll 122 which runs in the groove of a cam 123 fast on the power shaft 23. With this construction the guide is given a to-and-fro movement in the recess in the table and is lifted out of the way of the folding devices as they come into operation, as hereinafter referred to.

Machines constructed in accordance with the invention will include means for securing the band tightly around the pile after it has been put into place. While this may be effected in various ways, preferably the securing means will be an adhesive applied to the band before the folding operation, as such means may be of simple form and minimum mechanism. This adhesive may be applied to the band in various ways. In the particular construction illustrated, there is provided on the side of the table 2, before referred to, opposite the band-feeding mechanism, a hopper or fountain 124 supported in bracket arms 125 rising from the table 2. As the adhesive is, in the best constructions, applied to only a small portion of the band surface so as to prevent the band from sticking to the sheets of the pile, mechanism is employed for intermittently applying adhesive to the band. To effect this, there is provided the usual adhesive-applying roll 126 on a shaft 127 journaled in the side walls of the fountain, the periphery of this roll extending below the bottom of the fountain and having closed engagement with the walls thereof so that as the roll is rotated it carries with it from the fountain a small amount of the adhesive. This roll, as shown in Fig. 1, is mounted so that the bottom of the roll is slightly above the path of the band as the band is forwarded through the guide, before described. Means are provided for lifting the end or end portion of the band into contact with the roll to have the

adhesive applied thereto. While this lifting mechanism may be of various characters, in the particular construction illustrated, there is provided a roll 128 (see Figs. 1 and 3), this roll being freely rotated on a stud 129 carried in a hub 130. This hub has secured thereto one arm 131 of a lever pivoted on a stud 132 supported in a bracket 133 secured to the frame 116, before referred to. The other arm 134 of this lever is pinned to a slide 135 provided with slots 136 having stop pins 137 by which it is secured to the outside of the frame 116, before referred to. This slide is provided with an ear 138 (see Fig. 7) which carries a pin 139 which projects into the grooved slot 140 of a lever arm 141 on the shaft 115, before referred to. With this construction the roll 128 is intermittently elevated to bring the end of the band length into contact with the roll 126 and the adhesive is thus applied to the band. The roll 126 is operated by a step-by-step movement so as to expose a fresh amount of adhesive, preferably, at each operation of the roll 128. While this may be accomplished in various ways, in the particular construction shown, the end of the shaft 127 is provided with a ratchet 143 which engages a pawl 144 carried on a forked arm 145 carried from the hub 130, before referred to, a spring 146 being provided for holding the pawl in operative relation with the ratchet. With this construction, as the hub 130 is lifted the pawl is lifted sufficiently to move the ratchet the distance of one tooth thus exposing a fresh amount of adhesive for each operation of the roll 128.

After the adhesive is applied to the band the band is folded about the pile, the folding mechanism being so arranged as to overlap the ends of the bands and the joining points of the bands being approximately the middle of the pile. While this folding mechanism may be of various characters, in the particular construction shown, there are provided a pair of folding and pasting fingers which are normally arranged below the path of the band and are brought up to take the band, lift it around the sides of the pile and fold it down on the top surface of the pile, the parts being timed so that the band guide is removed from the path of the band at the time the folding and pasting fingers reach the band. In the particular construction illustrated, there is provided a long folding finger 147 and a shorter folding finger 148. These fingers are pivotally carried on rods 149, 150 supported on a lifter frame 151 which runs in guides 152 in the frames 116, 117, before referred to. These folder fingers are normally pressed inwardly, that is, towards the sides of the pile, by means of springs 153. The lifter frame is given its lifting movement by means of a forked rod 154, the forked end of which takes over the

power shaft 23, before referred to, and this forked rod carries a cam roll 155 which runs in the groove of an operating cam 156.

Where, as in the present construction, the lifter fingers are normally spring-pressed toward the pile, means are provided for preventing the fingers from effecting their full folding action until they have passed the top of the pile. In the particular construction illustrated, these means include a pair of channel guides 157, 158 secured to the inside of the frames 116, 117.

The sequence of the folding operation is clear from an inspection of Figures 8 to 11. In Figure 8, the lifter frame has started its upward movement and the ends of the lifter fingers have just come into engagement with the band B, the movable part of the band guide having been reciprocated out of the path of the band. These fingers, it may be stated, operate through the slot 105 in the table before referred to and as they pass upwardly the pressure of the springs forces them against the sides of the pile carrying the band with them thus tightly positioning the band about the pile, this position being shown in Fig. 9. A further movement of the lifter frame causes the parts to assume the position shown in Fig. 10. In this figure, it will be observed that the short lifter finger 148 has cleared the guide 158 whereupon the spring forces the finger into folding position on the band. This finger being short, however, a section, marked S, of the band at the right hand side projects from beyond the finger. As the lifting movement continues to the position shown in Fig. 11, the left hand finger 147 has cleared the guide 157 and the spring has thrown the finger into folding position, bringing the other end of the band, with the adhesive applied on its under surface, down onto the section S of the band. At this time it will be observed that as the side of the lifter frame which carries the short finger 148 is longer than the other side of the frame, the short finger has been withdrawn out of the way of the side of the band which is pressed down by the longer finger 147, so that this long finger is free to press the part of the band to which the adhesive has been applied down onto the other end of the band and effect a tight joint. After the long finger has applied the band, the frame is dropped and the fingers return to the position shown in Fig. 1.

It will be understood that the next succeeding bunch of sheets is forwarded by the forwarding mechanism which will act to push along the preceding bunch which has been banded and this bunch may be removed by hand or delivered in any suitable or desired way.

While the invention has been shown and described in its preferred form, it is ap-

parent that the specific construction shown and described, by which the invention is carried into effect, may be varied. The invention is not, therefore, to be limited to the form and arrangements of parts shown. These parts may be varied as desired without departing from the invention as defined in the appended claims.

What is claimed is:

1. The combination of means for forwarding a stack or pile of sheets, means for maintaining the sheets in piled relation, a band-feeding mechanism, guiding mechanism, said mechanisms operating to feed and support a band beneath the pile, and means for applying and securing the band around the stack or pile.
2. The combination of means for forwarding a pile or stack of sheets, means for maintaining the sheets in an even pile, an intermittently feeding band mechanism, guiding mechanism, said mechanisms operating to feed and support a band beneath the pile, and means for applying and securing the band around the stack or pile.
3. The combination of means for forwarding a stack or pile of sheets, means for maintaining the sheets in an even pile, a continuous band supply, band-feeding mechanism, guiding mechanism, said mechanisms operating to feed and support a band beneath the pile, means for severing a band length from the band, and means for applying and securing the band length about the pile.
4. The combination of means for forwarding a stack or pile of sheets, a continuous band-feeding mechanism for feeding a band horizontally beneath the pile, means for severing a band length from the band, and means for folding the band about the pile.
5. The combination of means for forwarding a stack or pile of sheets, a band-feeding mechanism for feeding a band horizontally beneath the pile, means for applying adhesive to the band, and means for folding the band about the pile.
6. The combination of means for forwarding a stack or pile of sheets, a continuous band-feeding mechanism for feeding the band horizontally beneath the pile, means for severing a band length from the band, means for applying an adhesive to the band, and means for folding the band about the pile.
7. The combination of means for forwarding a stack or pile of sheets, means for feeding a band length beneath the pile, means for folding the band about the pile, means for supporting the band while being fed, and means for withdrawing the support while the band is being folded.
8. The combination of means for forwarding a pile or stack of sheets, a continuous band supply, means for severing a band length from the band, means for feeding the

band length beneath the pile, means for folding the band length around the pile, means for supporting the band length, means for applying an adhesive to the band, and means for moving the support away from the band while the band is being folded.

9. The combination of means for forwarding a pile or stack of sheets, means for feeding a band length horizontally beneath the pile, means for folding the band length around the pile, and means for registering the pile with respect to the folding mechanism.

10. The combination of means for forwarding a pile or stack of sheets, means for maintaining the sheets in an even pile, means for guiding and supporting a band length beneath the pile, means for folding the band around the pile, and means for registering the pile with respect to the folding mechanism.

11. The combination of means for forwarding a pile or stack of sheets, means for maintaining the sheets in an even pile, means for guiding and supporting a band length beneath the pile, means for applying an adhesive to the band, means for folding the band around the pile, and means for registering the pile with respect to the folding mechanism.

12. The combination of means for forwarding a pile or stack of sheets, a guide in which the pile is forwarded and the sheets maintained in an even position, a continuous band supply, band feeding mechanism operating to feed a band length beneath the pile, means for severing a band length from the band, means for interrupting the feeding mechanism, and means for folding and securing the band length around the pile.

13. The combination of means for forwarding a pile or stack of sheets, a channel guide through which the pile is forwarded and maintained in even pile position, a continuous band supply, a web-feeding mechanism operating to forward a band length beneath the pile, means for severing a band length from the band, means for guiding the band length beneath the pile, means for folding and securing the band length around the pile, and means for moving the band guide away from the band while the band is being folded about the pile.

14. The combination of means for forwarding a pile or stack of sheets, a guide through which the pile is forwarded acting to maintain the sheets in an even pile, a continuous band supply, means for feeding a band length beneath the pile, means for severing a band length from the band, means for interrupting the feeding mechanism as the band length is severed from the band, and means for folding and securing the band length about the pile.

15. The combination of means for forwarding

a pile or stack of sheets, a guide through which the pile is forwarded acting to maintain the sheets in an even pile, a continuous band supply, means for feeding a band beneath the pile, means for severing a band length from the band, means for interrupting the operation of the feeding means as the length is severed, means for applying an adhesive to the band, and means for folding the band around the pile.

16. In a banding mechanism, the combination of means for forwarding a stack or pile of sheets, a support along which the pile is forwarded, means for feeding a band length beneath the pile, a guide for the band, a pair of folding fingers acting to receive the band length from the guide for folding the band around the pile, and means for operating the fingers to secure the ends of the band together.

17. In a banding mechanism, the combination of means for feeding a band length beneath a pile of sheets, a guide for the band, a folding mechanism including a pair of folding fingers acting to receive the band length from the guide for folding the band around the pile, and means for operating the fingers to press the ends of the band together.

18. In a banding mechanism, the combination of means for feeding a band length beneath a pile of sheets, means for applying an adhesive to one end of the band, a guide for the band, a folding mechanism including a pair of fingers acting to receive the band length from the guide for folding the bands around the pile, and means for operating the fingers to press the ends of the band together.

19. In a banding mechanism, the combination of means for feeding a band beneath a pile of sheets, a guide for supporting and guiding the band into position, a pair of folding fingers normally out of the path of the band, means for moving the fingers to fold the band about the pile, and means for withdrawing the guide from the band as the folding fingers effect the folding operation.

20. In a banding mechanism, the combination of means for forwarding a band beneath a pile of sheets, a guide for supporting the band, means for applying an adhesive to one end of the band, a pair of folding fingers, means for operating the folding fingers to fold the band around the pile and to press the ends of the band together, and means for withdrawing the guide from the band during the folding operation.

21. In a banding mechanism, the combination of means for forwarding a band to a pile of sheets, a pair of folding fingers one of which is longer than the other over which the band is fed, and means for operating the fingers to fold the band around the pile.

22. In a banding mechanism, the combination

tion of means for forwarding a band to a pile, a pair of folding fingers over which the band is fed, springs tending to force the folding fingers toward the pile, and means for operating the fingers to fold the band about the pile. 5.5

23. In a banding mechanism, the combination of means for feeding a band length beneath a pile of sheets, a pair of folding fingers, springs for forcing the folding fingers over which the band is fed toward the pile, a frame for supporting the folding fingers normally beneath the band, and means for reciprocating the frame to lift the fingers past the edges of the pile whereby they are caused to fold the band about the pile. 60

24. In a banding mechanism, the combination of means for feeding a band length beneath a pile of sheets, a pair of folding fingers over which the band is fed one of which is longer than the other, means for applying an adhesive to one end of the band, and means for operating the fingers to fold a band around the piles and to press the ends of the band together. 65

25. In a banding mechanism, the combination of means for forwarding a pile of sheets, an arch into which the pile is forwarded and stopped, means for forwarding a band to the pile, and means for folding the band around the pile while the pile is held in the arch. 70

26. In a banding mechanism, the combination of a support for a pile of sheets, a recess in the support beneath the pile, a guide in the recess, means for feeding a band to the guide, means for folding the band about the pile operating through the recess, and means for moving the guide out of the way of the folding devices. 75

27. In a banding mechanism, the combination of a support for a pile of sheets, a guide, means for feeding a band to the guide, means for folding the band around the pile, and means for moving the guide relatively to the support to free it from the band. 80

28. In a banding mechanism, the combination of a support for a pile of sheets, a guide, means for feeding a band to the guide, means for folding the band around the pile, an adhesive applying mechanism, and means for moving the guide away from the band, and means for effecting a relative movement of the band and the adhesive applying mechanism to apply adhesive to one end of the band. 85

29. In a banding mechanism, the combination of a support for a pile of sheets, a guide, means for feeding a band to the guide, means for folding the band around the pile, an adhesive applying mechanism, a shaft, connections from the shaft for moving the guide relatively to the support, and connections from the shaft for actuating the adhesive applying mechanism. 90

30. In a banding mechanism, the combination of a support for a pile of sheets, a pair of band feeding rolls, a cooperating pair of rolls, means for driving the rolls for feeding a band length, a guide to which the band is fed, a movable section for the guide, means for moving the section relatively to the support, and means for effecting an intermittent operation of the rolls. 95

31. In a banding mechanism, the combination of a support for a pile of sheets, a continuous band supply, feeding rolls for feeding the band, an arm on which certain of the rolls are mounted, a knife mounted on the arm for severing a band length from the band, means for rocking the arm to force the knife against the band to sever it, and to stop the feed of the band, and a guide for the severed band. 100

32. In a banding mechanism, the combination of a support for a pile of sheets, means for forwarding the sheets along the support, a second forwarding device having a finger bearing against the rear of the pile, a stop for the finger for removing the finger from the pile to stop the forwarding action, and means for driving the forwarding mechanism. 105

33. In a banding mechanism, the combination of a support for a pile of sheets, an arch guide into which the pile is forwarded, an opening in the support, means for feeding a band through the opening beneath the pile, and means to which the band is delivered for folding the band around the pile. 110

In testimony whereof, I have hereunto set my hand.

EDWARD P. SHELDON.