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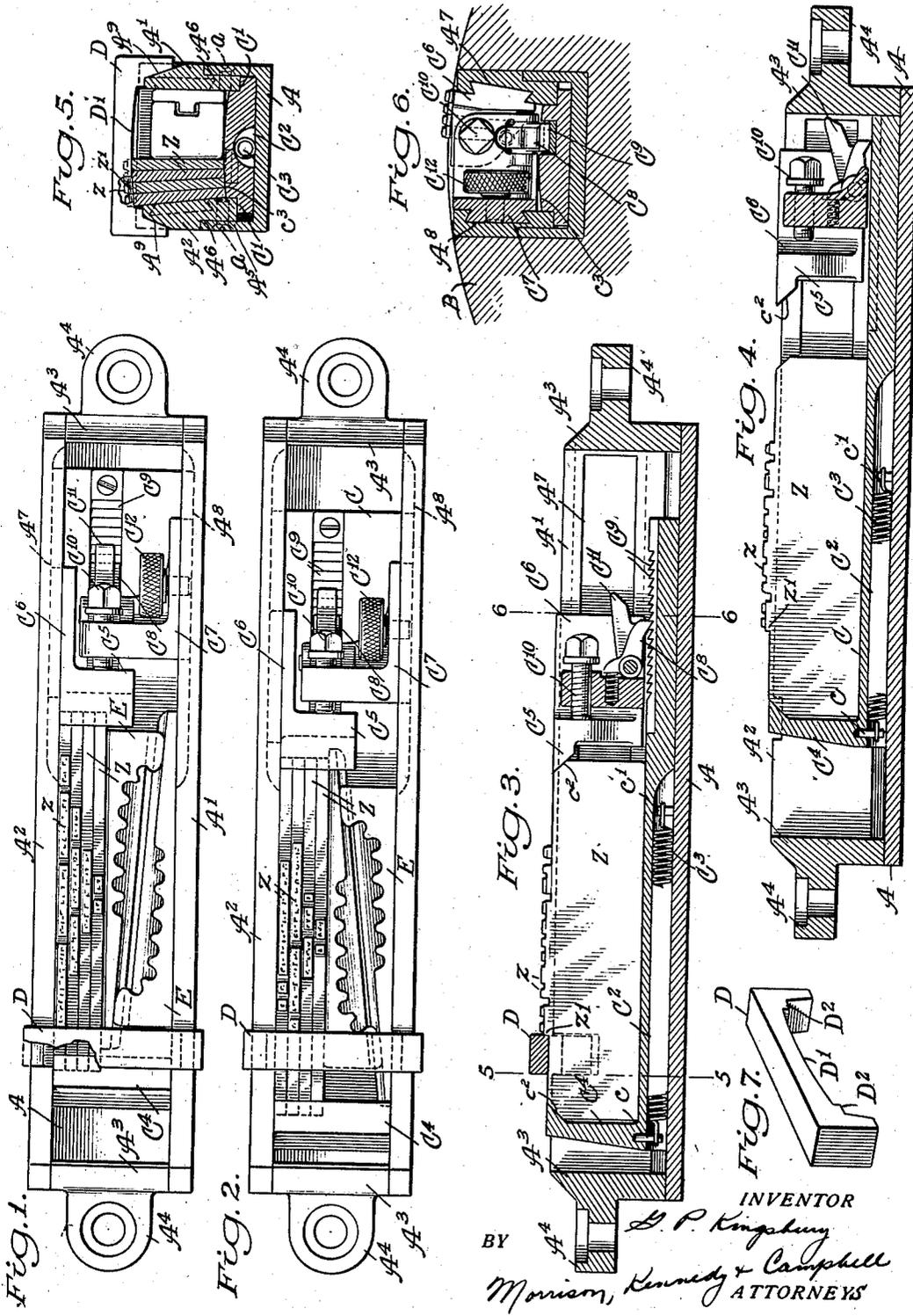
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2,125,676

PRINTING FORM AND METHOD OF PREPARING THE SAME

Filed Sept. 14, 1936

2 Sheets-Sheet 1



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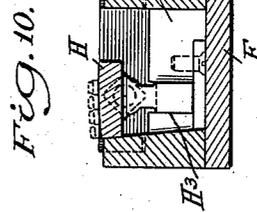
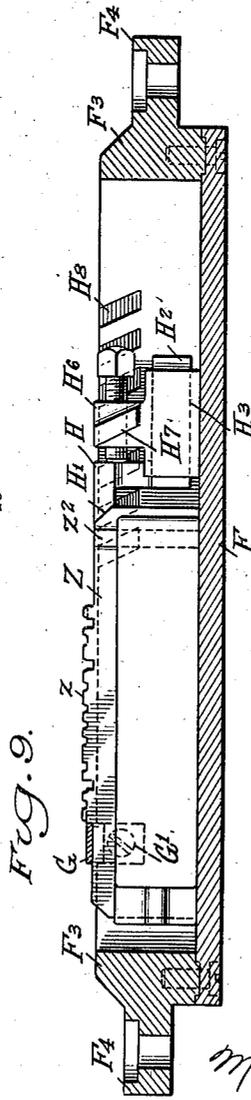
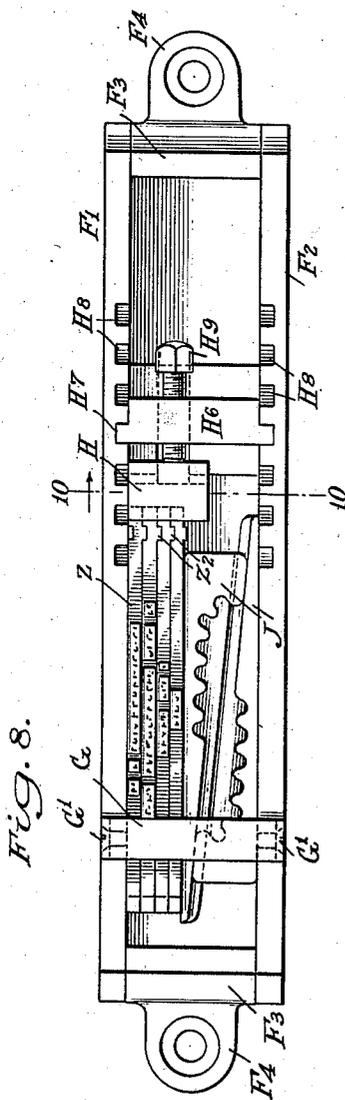
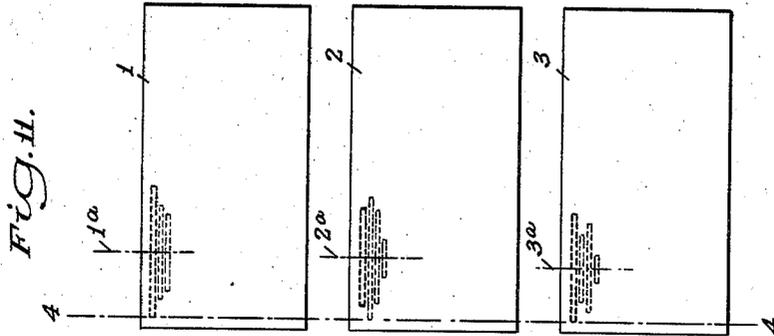
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# UNITED STATES PATENT OFFICE

2,125,676

## PRINTING FORM AND METHOD OF PREPARING THE SAME

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18 Claims. (Cl. 199—49)

This invention relates to printing forms and to the method of preparing the same and contemplates certain improvements which are intended more particularly for use in printing return addresses on envelopes.

As a rule, the return address on an envelope consists of three or four printed lines varying in length but centered with respect to each other, and with the longest line spaced at a given distance from the left-hand end of the envelope. The preparation of printing forms for such work, when made up of type bars or slugs such as are cast in the commercial Linotype machines, is attended with considerable difficulty, involving slow, tedious and painstaking work. This difficulty, as will be appreciated by those familiar with Linotype composition, comes from the fact that the slug bearing the longest type line requires to be quadded at the right, while the slugs bearing the shorter type lines require to be quadded both at the left and right in such manner that the shorter type lines will be centered with reference to the longest quadded type line. While the commercial Linotype machines are equipped with so-called quadding and centering devices, which permit the casting of slugs quadded at either or both ends of the type line, these devices nevertheless as now constituted are not susceptible of operation to produce the desired result.

In order to overcome the foregoing and other difficulties, it is proposed according to the present invention to provide a printing form which will permit all of the slugs employed for the printing of the return address to be cast with type lines centered thereon regardless of the actual length of the respective lines. Accordingly, it is possible by conditioning the commercial machines for "centering" to cast such slugs with the same ease and facility as any other slug. After the slugs have been cast with their centered type lines, they are then placed in a suitable holder and thereafter shifted endwise as a unit to locate the leading or left end of the longest type line in the required printing position, i. e., in the position necessary to produce the marginal spacing on the envelope. Being moved as a unit, the slugs will be maintained in centered relation to each other. To facilitate the location of the slugs in the holder, the latter is provided with a relatively fixed gage or abutment against which the leading or left end of the longest type line banks when the slugs are shifted endwise. In one of the embodiments illustrated this gage or abutment is permanently attached to the holder,

while in another embodiment it is designed to be removed after it has subserved its locating function. Once the slugs are properly located in the printing form, they are then locked up in the customary fashion and the form is ready for use.

In the drawings the printing form is shown as containing a single group of slugs for the printing of one return address, and moreover it is illustrated as being of the "fudge box variety" suitable for mounting directly upon the printing cylinder of a rotary press, but it will be understood that the invention is not limited in such respects.

Referring to the drawings:

Fig. 1 is a plan view of a printing form shown as made up of a group of slugs for the printing of a single return address;

Fig. 2 is a similar view but showing a printing form as made up of another group of slugs for the printing of a different return address;

Fig. 3 is a longitudinal vertical section taken through the printing form as shown in Fig. 2;

Fig. 4 is a vertical longitudinal section similar to that of Fig. 3, but showing the parts before the slugs have been clamped in position;

Fig. 5 is a transverse vertical section on the line 5—5 of Fig. 3;

Fig. 6 is a transverse vertical section on the line 6—6 of Fig. 3, and showing the manner in which the printing form is associated with the printing cylinder;

Fig. 7 is a perspective view of a removable gage or abutment which serves for the location of the slugs in their proper positions in the printing form;

Fig. 8 is a plan view of an alternative printing form;

Fig. 9 is a longitudinal vertical section taken through the alternative printing form shown in Fig. 8;

Fig. 10 is a transverse vertical section taken on the line 10—10 of Fig. 8; and

Fig. 11 illustrates a series of envelopes on which return addresses, the lines of which vary in length one from the other, have been printed by means of the present improvements.

The improved printing form comprises a group of type bars or slugs Z and a suitable holder in which the slugs are movable in the manner before stated and locked up for printing.

All of the slugs Z are cast with type lines z centered on the slug body, it being noted that the type lines present end shoulders z<sup>1</sup> rising from the blank or quadded portion of the slugs. The slugs may be cast in any suitable machine equipped

with a line centering mechanism, but see in particular the Frolander U. S. Patent No. 1,971,400 which shows and describes a commercial Linotype machine expressly designed for such purpose.

5 In the preferred embodiment shown in Figs. 1 to 6, the printing form holder comprises in part, a box-like frame having a base portion A, parallel side members A<sup>1</sup> and A<sup>2</sup>, and end mem-  
10 bers A<sup>3</sup>, the latter being formed on their outer sides with lugs A<sup>4</sup> drilled to receive fastening elements for securing the frame in a printing cylinder B (Fig. 6). Actually, the base portion A has upwardly extending lateral portions A<sup>5</sup> fitting into corresponding recesses A<sup>6</sup> formed in the side members A<sup>1</sup>, A<sup>2</sup>, the parts being detach-  
15 ably secured together by screws  $\alpha$ .

20 Within the box-like frame is a slug supporting slide C bottomed upon the base portion A and constrained to move longitudinally of the frame by the side members A<sup>1</sup> and A<sup>2</sup>, which at their bottom edges engage in parallel longitudinal grooves C<sup>1</sup> formed in the lateral edges of the slide C (see Fig. 5). The slide is formed in its underside with a centrally located semi-circular  
25 recess C<sup>2</sup> which accommodates a spring C<sup>3</sup>, secured at one end to the slide by a pin  $c$  and anchored at its other end to a pin  $c^1$  fixed in the base portion A, the arrangement being such that the slide C is normally urged to the right.

30 The slugs are confined within the holder between a jaw C<sup>4</sup> fixed to the left end of the slide C and a jaw C<sup>5</sup> adjustable with the respect to the slide, the latter jaw being carried by a movable member C<sup>6</sup> connected by a dove-tailed tongue and groove A<sup>7</sup> to the inner face of the side mem-  
35 ber A<sup>2</sup>. The jaw C<sup>5</sup> is held in its different positions of adjustment with respect to the slide C by another movable member C<sup>7</sup> connected by a dove-tailed tongue and groove A<sup>8</sup> to the other side member A<sup>1</sup>. The member C<sup>7</sup> is held in its  
40 different positions of adjustment with respect to the slide C by a spring-pressed pawl C<sup>8</sup> carried by said member and cooperating with a set of ratchet teeth C<sup>9</sup> formed on the top face of the  
45 slide C adjacent the right end thereof. A set-screw C<sup>10</sup>, threaded through the member C<sup>7</sup>, banks against the outer face of the jaw C<sup>5</sup>. According to this arrangement, the jaw carrying  
50 member C<sup>6</sup> and the pawl carrying member C<sup>7</sup> may be adjusted as a unit until the jaw C<sup>5</sup> banks against the slugs Z, whereupon the jaw may be tightened through the medium of the set-screw C<sup>10</sup>, the member C<sup>7</sup> of course being held against movement by the pawl C<sup>8</sup>. To re-  
55 move the slugs Z from between the clamps, it is necessary only to back away the set-screw C<sup>10</sup> and lift the pawl C<sup>8</sup> out of engagement with the ratchet teeth C<sup>9</sup>, a finger C<sup>11</sup> formed integrally with the pawl C<sup>8</sup> being provided for the purpose.

60 It will be noted that the jaws C<sup>4</sup> and C<sup>5</sup> are formed at the top with inclined inner faces  $c^2$  and that the slugs Z are correspondingly beveled at their ends to fit (Fig. 3), the reason being to prevent the slugs from falling out of the holder  
65 when the latter is mounted in the printing cylinder B. It will be further noted that the top surface of the slide C upon which the slugs stand (Fig. 5) is curved transversely of the holder, as at  $c^3$ , and also that the inner face of the side  
70 member A<sup>2</sup> is disposed perpendicularly to the curved surface  $c^3$ , this arrangement insuring that the printing surface of the slugs will be parallel to the surface of the printing cylinder B when the holder is secured therein (Fig. 6).

75 In preparing the printing form, a group of

slugs, from which a return address is to be printed and which have been cast with the type lines centered thereon, are inserted in the holder on the supporting slide C as shown in Fig. 4. There-  
5 upon, the jaw carrying member C<sup>6</sup> and the pawl carrying member C<sup>7</sup> are moved to the left until the clamping jaw C<sup>5</sup> comes into engage-  
10 ment with the beveled ends of the slug bodies, the pawl C<sup>8</sup> acting automatically to hold the parts in their adjusted position. A slight turn of the set-screw C<sup>10</sup> will then take up any play in the ratchet teeth C<sup>9</sup> and firmly press the jaw C<sup>5</sup> against the slugs. Now the supporting slide C, which carries with it the entire group of slugs as clamped between the jaws C<sup>4</sup> and C<sup>5</sup>, is moved to the left against the tension of the spring C<sup>3</sup> until the shoulder  $z^1$  at the left or leading end of the longest type line in the group of slugs banks against a transverse bridge member or abutment D previously placed in a fixed prede-  
15 termined position in the holder (see Figs. 1 to 3). The bridge member D, as best shown in Fig. 5, has a curved under-surface D<sup>1</sup> following the curvature of the upper printing edges of the slugs, and is formed at its opposite ends  
25 with a pair of tapered legs D<sup>2</sup> arranged to seat in a pair of correspondingly tapered notches A<sup>9</sup> formed in the outer faces of the side members A<sup>1</sup> and A<sup>2</sup> at the top. The slide C is next locked in the position determined by the bridge member by means of a knurled thumb screw C<sup>12</sup> threaded through the member C<sup>7</sup> and engaging against the base of the dove-tailed groove in the side member A<sup>1</sup>, the bridge member there-  
30 after being removed. The slugs are finally locked up in printing form in the usual way by a pair of quoins E which serve to clamp the slugs firmly against the side member A<sup>2</sup>. The assembled printing form is now ready for use and can be mounted in the printing cylinder B (Fig. 6) whenever the printing is to be proceeded with.

It will have been understood that, since the bridge member D has a fixed predetermined location in the holder, the leading end of the longest type line, regardless of its actual length, will likewise have a correspondingly fixed predeter-  
45 mined location in the holder or printing form, and this whether it is the first, second or other slug in the group. And since the type lines are centered on all of the slugs and the slugs, being of equal length, are maintained in end alinement in the holder, all of the lines will appear in print in centered relation. Thus, there are shown in Fig. 11, three envelopes 1, 2 and 3 with  
50 three different return addresses printed thereon, and it will be observed that, while the center lines 1<sup>a</sup>, 2<sup>a</sup> and 3<sup>a</sup> of the different addresses vary in location, the longest line of each has the same marginal location, as indicated by the datum line 4—4 (determined by the setting of the bridge member D).

In the alternative embodiment of the invention shown in Figs. 8, 9 and 10, the holder comprises a frame having a base portion F, side portions F<sup>1</sup> and F<sup>2</sup>, and end portions F<sup>3</sup>, the latter  
65 being provided with drilled retaining lugs F<sup>4</sup> by which the holder is secured to the printing cylinder, as in the first embodiment. In this second embodiment, however, the slide C before described is dispensed with and the slugs main-  
70 tained in alinement with their type portions on a common center line by means of vertical inter-engaging tongue and groove portions  $z^2$  formed on the slugs during casting. A bridge member G like the bridge member D of the first embodi-  
75

ment serves to locate the slugs in the frame by the banking thereagainst of the left end of the longest type line, but in this instance the bridge member G is permanently secured to the side members of the frame by screws G<sup>1</sup>. In addition to locating the slugs, the bridge member also serves (in place of the jaw C<sup>4</sup> of the first embodiment) to hold the slugs in the frame at their left ends during the printing operation, it being noted, in this connection, that the top surface of the bridge member comes below the printing surface of the slugs so as not to interfere with the printing operation.

The slugs are held in the frame at their right ends by a clamping jaw H, the active face of which is beveled to cooperate with corresponding beveled portions formed on the top edges of slugs. The clamping jaw H has a lower horizontal portion H<sup>2</sup> slidably fitted into a square hole H<sup>3</sup> formed in a buttress member H<sup>5</sup> which is adjustable to various positions depending upon the length of the lines on the slugs. The buttress member H<sup>5</sup> has a base portion extending the full width of the frame base F between the side members F<sup>1</sup> and F<sup>2</sup> and an upper portion H<sup>6</sup> formed at the sides with tongues H<sup>7</sup> inclining downwardly toward the right and adapted to cooperate with one pair or another of a series of correspondingly inclined grooves or notches H<sup>8</sup> formed in the inner opposed faces of the side members. The selection of the grooves H<sup>8</sup> depends upon the length of the longest line in the series and, when the buttress member has been located, the clamp H is pressed tightly against the slugs by a set-screw H<sup>9</sup> threaded through the buttress member and banking against the clamping member H at the right. The reaction against the set-screw presented by the slugs tends to press the buttress member H<sup>5</sup> firmly against the base F of the frame by virtue of the direction of inclination of the cooperating tongue and groove portions. After the slugs have thus been properly located longitudinally, they are firmly clamped against the side member F<sup>1</sup> by a pair of quoins J similar to the quoins E in the first embodiment. The modified holder, as far as printing is concerned, operates in the same manner as the one previously described.

In the accompanying drawings, the invention has been shown merely by way of example and in preferred form, and obviously, many variations and modifications may be made therein which will still be comprised within its spirit. It is to be understood, therefore, that the invention is not limited to any specific form or embodiment, except insofar as such limitations are specified in the appended claims.

Having thus described my invention, what I claim is:

1. A printing form holder for supporting a group of printing slugs having their type lines centered with respect to each other, said slugs being adjustable endwise as a unit to position them with one end of the longest type line in a given location in the holder.

2. A printing form holder for supporting a group of printing slugs having their type lines centered with respect to each other, said slugs being adjustable endwise as a unit to position them with one end of the longest type line in a given location in the holder, said holder being provided with means for locking up the slugs in their adjusted position.

3. A printing form holder for supporting a group of printing slugs having their type lines

centered with respect to each other and provided with an abutment set in a given location in the holder, said slugs being adjustable endwise as a unit to a position determined by the engagement of one end of the longest type line with said abutment.

4. A printing form holder for supporting a group of printing slugs having their type lines centered with respect to each other and provided with an abutment set in a given location in the holder, said slugs being adjustable endwise as a unit to a position determined by the engagement of one end of the longest type line with said abutment, and means for locking up the slugs in their adjusted position.

5. A printing form holder for supporting a group of printing slugs having their type lines centered with respect to each other and provided with devices for confining the centered slugs therein, said slugs being adjustable endwise as a unit to position them with the end of the longest type line in a given location in the holder.

6. A printing form holder according to claim 5, wherein the slug confining devices include an element for determining the given location of the end of the longest type line.

7. A printing form holder according to claim 5, wherein the given location of the end of the longest type line is determined by an abutment removable from the holder after the adjustment of the slugs.

8. A printing form holder including, in combination, an open top frame, and a supporting slide in said frame upon which the slugs are clamped in end body alinement with their type lines centered with respect to each other, said slide being adjustable endwise to position the slugs with one end of the longest type line in a given location in the holder.

9. A printing form holder including, in combination, an open top frame, a supporting slide in said frame upon which the slugs are clamped in end body alinement with their type lines centered with respect to each other, an abutment set in a given location in said frame, spring means for urging the slide away from said abutment, and means for setting the slide against the tension of the spring in a position determined by the banking of one end of the longest type line against said abutment.

10. A printing form holder including, in combination, an open top frame, a supporting slide in said frame upon which the slugs are clamped in end body alinement with their type lines centered with respect to each other, an abutment set in a given location in said frame, spring means for urging the slide away from said abutment, means for setting the slide against the tension of the spring in a position determined by the banking of one end of the longest type line against said abutment, and means for locking up the slugs in the adjusted position of the slide.

11. A printing form holder including, in combination, an open top frame, a supporting slide in said frame, clamping means including devices carried by the frame, but cooperating with the slide and arranged to hold the slugs upon said slide with their type lines centered with respect to each other, said slide being adjustable to a position determined by the banking of one end of the longest line against an abutment having a fixed location in the frame, and means acting through said devices and cooperating with the frame to hold the slide in its adjusted position.

12. A printing form comprising a series of slugs

formed each with type lines of varying lengths centered upon the respective slugs and with interlocking devices for maintaining the slugs centered with respect to each other, and a holder equipped with a fixed abutment against which the slugs are adapted to be positioned endwise with one end of the longest type line in engagement with said abutment.

13. A printing form comprising a series of slugs formed each with type lines of varying lengths centered upon the respective slugs and with interlocking devices for maintaining the slugs centered with respect to each other, and a holder equipped with means for setting the slugs endwise with one end of the longest type line in a given location in the printing form.

14. The method of preparing a printing form from a group of slugs with centered type lines, which consists in positioning the slugs as a unit while maintaining their type lines in centered relation with the end of the longest type line in a given location in the printing form, and then locking up the slugs in said position.

15. The method of preparing a printing form from a group of slugs with centered type lines, which consists in shifting the slugs endwise as a unit while maintaining their type lines in centered relation to position them with the end of the longest type line in a given location in the

printing form, and then locking up the slugs in their adjusted position.

16. The method of preparing a printing form from a group of equal length slugs with centered type lines, which consists in arranging the slugs in end body alinement, shifting the slugs endwise as a unit to position them with the end of the longest type line in a given location in the printing form, and then locking up the slugs in their adjusted position.

17. The method of preparing a printing form from a group of equal length slugs with centered type lines, which consists in arranging the slugs in end body alinement within a suitable holder, shifting the slugs endwise as a unit in the holder to position them with the end of the longest type line in a given location, and then locking up the slugs in their adjusted position.

18. A printing form according to claim 12, wherein the slugs to constitute the interlocking devices therein referred to, are each formed in one side with a tongue and in the other side with a groove, both of which are perpendicular to the printing edge of the slug, said tongue and said groove being adapted to fit a complementary groove and a complementary tongue formed respectively in each two adjacent slugs of the printing form.

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