No. 835,795. PATENTED NOV. 13, 1906.

W. LAYCOCK.

TYPE AND TYPE HOLDER.

APPLICATION FILED OCT. 5, 1903. RENEWED JAN. 5, 1906.

2 SHEETS—SHEET 1.

Fig. 1

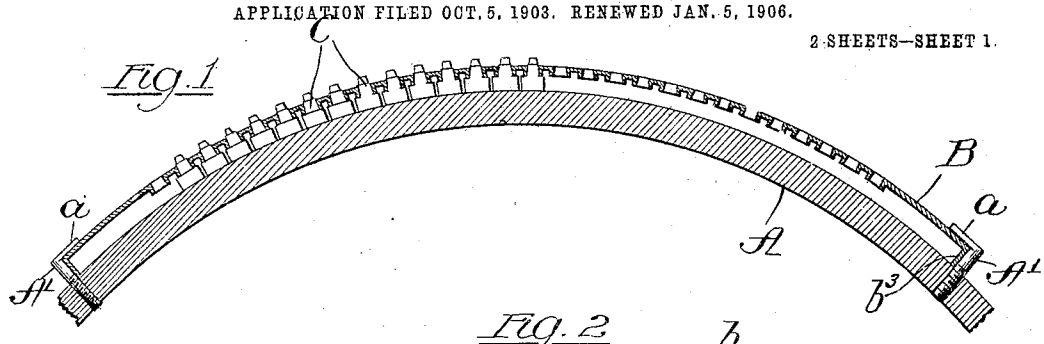


Fig. 2

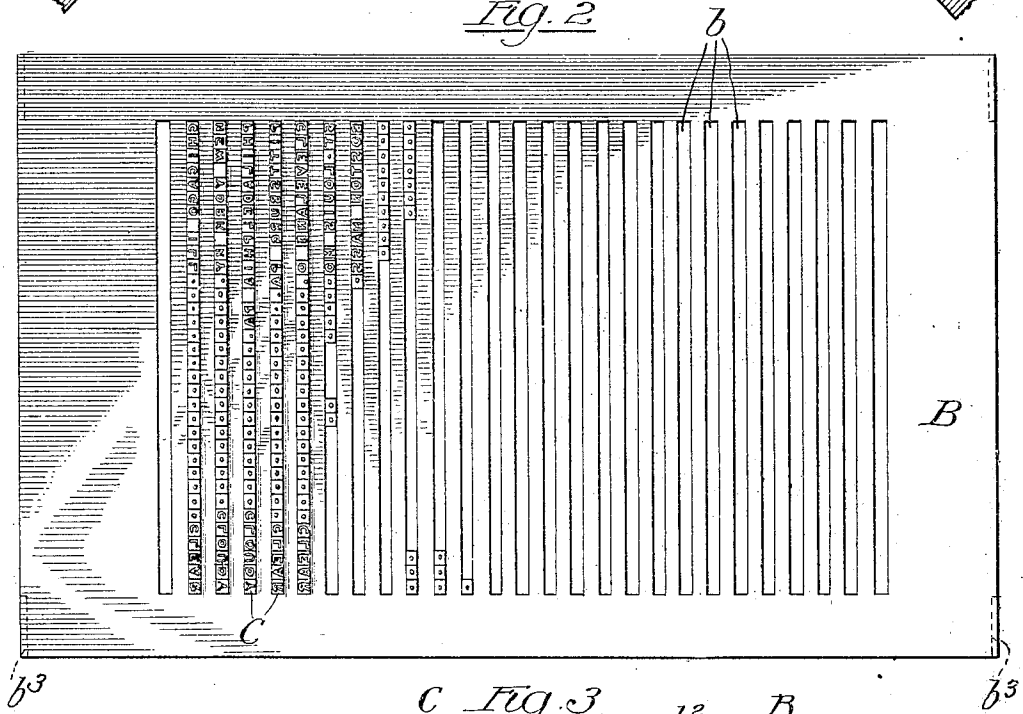


Fig. 3

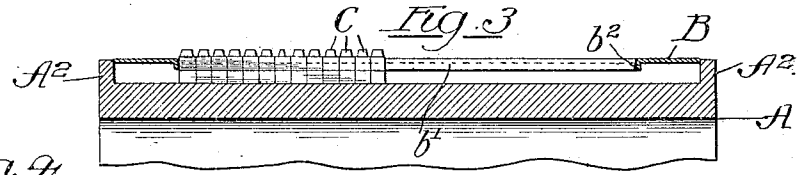


Fig. 4

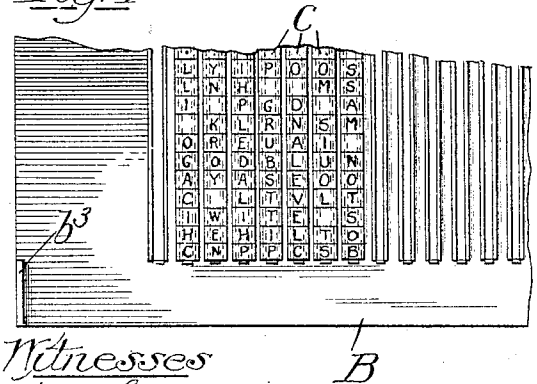


Fig. 5

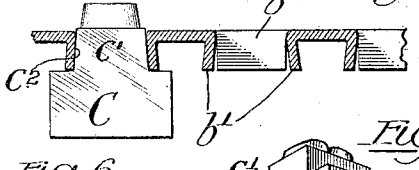


Fig. 6

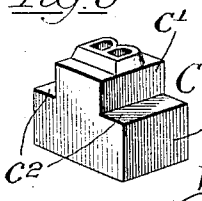
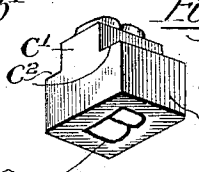


Fig. 7



Witnesses

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THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 8

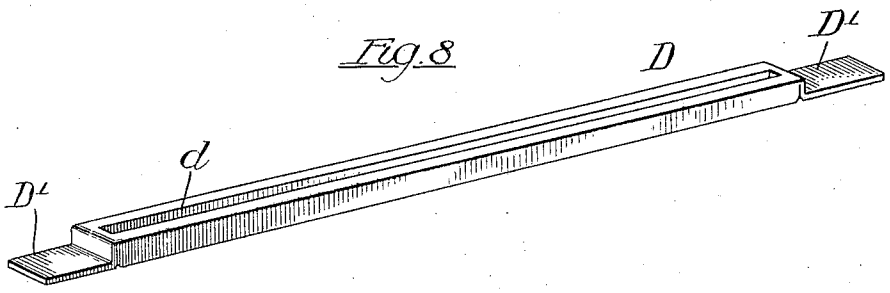


Fig. 9.

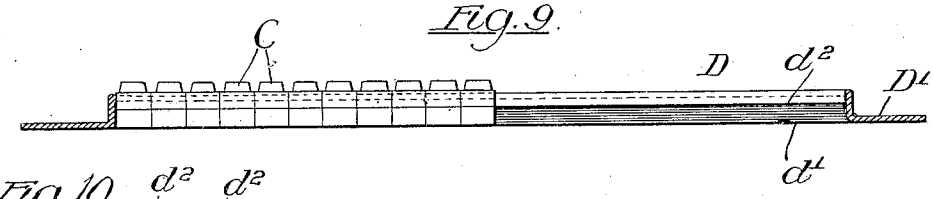


Fig. 10

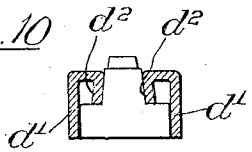


Fig. 11.

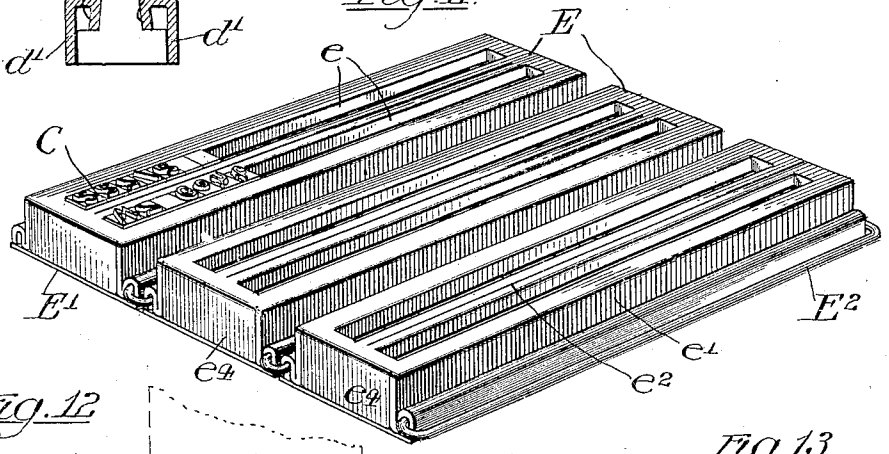


Fig. 12

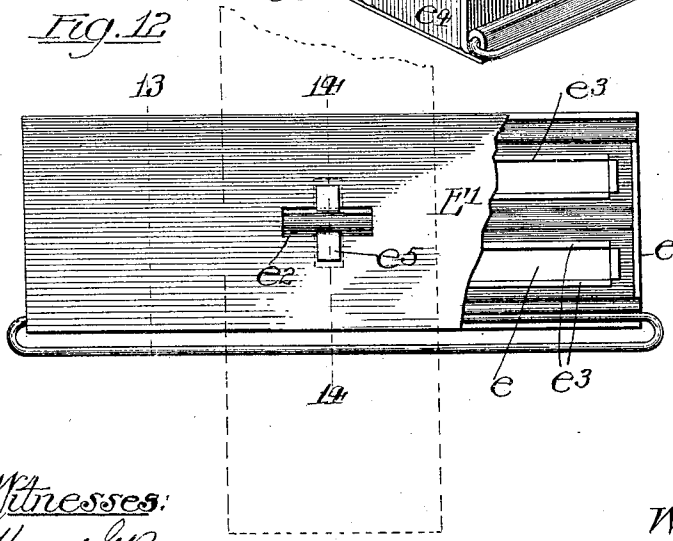


Fig. 13

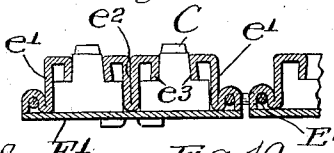
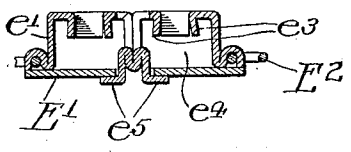


Fig. 14.



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THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WASHINGTON LAYCOCK, OF CHICAGO, ILLINOIS.

TYPE AND TYPE-HOLDER.

No. 835,795. Specification of Letters Patent. Patented Nov. 13, 1906.

Application filed October 5, 1903. Renewed January 5, 1906. Serial No. 294,789.

To all whom it may concern:

Be it known that I, WASHINGTON LAYCOCK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Types and Type-Holders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in printing devices, and refers more specifically to an improved type and to a holder therefor, in which latter the type is set up in rows to constitute the printing-line and by which they are held during the printing operation.

The holder herein shown is more especially applicable for use with rubber or other yielding type, though it may be employed with type of an unyielding character.

My improved holder is capable of assuming various forms to adapt it for use in connection with different kinds of printing machines or devices. I have herein illustrated two forms of holder in which my improved type may be employed, one adapted for use in a rotary or cylinder machine—such, for instance, as is shown in the pending application of United States Letters Patent, filed by Charles W. Houghton on the 27th day of July, 1903, Serial No. 167,078—and another designed to be applied to addressing-machines for addressing envelops and postal cards and wherein the type is set up in holders arranged to receive two or more lines for the name and address and are connected together in link or chain form, whereby the several holders are successively presented at the printing-point. My improved type and holder may be also applied to hand-stamps.

In the application of my invention to a cylinder type of printing-machine the type-holding means may consist of a plurality of individual holders, one for each line and adapted to be separately inserted into the machine, or it may consist of a single device combining in a single or unitary structure a plurality of holders in which all the matter to be printed is to be set up before the holder is applied to the cylinder or other part of the printing-machine.

Among the objects of my invention is to simplify the construction of type-holders and the application thereof to printing-machines, and further to facilitate the work of handling the type, whereby the type may be set up by hand with greater ease, rapidity, and accuracy than is possible by the methods heretofore employed and whereby the distribution of the type may be equally facilitated.

A further object of the invention is to provide a construction wherein the type is reliably held in proper alinement so as to provide a neat and clear outline or impress of the type.

A still further object of the invention is to provide a construction wherein changes may be readily and accurately made in the set-up matter or composition without the necessity of removing any more type than that for which substitution is to be made.

A type-holder made in accordance with my invention is provided with a type-receiving slot or slots which open at both the front and rear of the holder, so that the type may be inserted into said holder from the rear thereof instead of from the front or the ends thereof, as has been heretofore the common practice, and said holder is provided or associated with suitable locking means by which the type is held in place therein during the printing operation. In the use of the holders on cylinder-machines the cylinder constitutes the backing referred to, while in other instances the holder may be provided with a special detachable backing-plate.

I propose to provide the individual types with characters on their rear faces corresponding with the characters on their front or printing faces, whereby the type may be quickly and readily selected from the case in setting up the type whether or not the person setting the type is a skilled compositor and which also enables the person setting the type to proof-read the "set-up" type for the rear faces thereof. It will be understood that the types made as described are placed in the case with their printing-faces downward, and therefore with the characters on their rear surfaces facing upwardly, and said rear characters are so disposed on the types as to be read when the types are in the case in their usual or positive position, or, in other words, from left to right, and may also be so read from their rear faces when set up, as before stated.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a fragmentary

section of the cylinder of a cylinder printing-machine, showing one form of my type-holder applied thereto. Fig. 2 is a face view of the form of the holder shown in Fig. 1 partly filled with type. Fig. 3 is a cross-section taken through the cylinder and attached type-holder. Fig. 4 is a fragmentary rear view of the holder, showing the rear faces of a group of type set therein. Fig. 5 is a fragmentary section taken transversely through the holder. Figs. 6 and 7 are perspective views of my improved form of type. Fig. 8 is a perspective view of a single or individual type-holder. Fig. 9 is a longitudinal section thereof partially filled with type. Fig. 10 is a transverse section thereof. Fig. 11 is a perspective view of plurality of connected holders of link form designed for use in addressing-machines. Fig. 12 is a bottom plan view of one of the said holders with parts broken away. Fig. 13 is a transverse section taken on line 13 13 of Fig. 12. Fig. 14 is a transverse section taken on line 14 14 of Fig. 12.

First referring to the construction shown in Figs. 1 to 7 of the drawings, A designates a fragment of the cylinder of a cylinder printing-machine. B designates as a whole one form of my improved type-holder, which is fastened after the type has been set up thereon on the outer curved face of the cylinder, and C C designate the types which are inserted into or set up in said holder. The holder consists in the present instance of a continuous plate which possesses sufficient flexibility to enable it to be readily adapted to the cylindric contour of the cylinder. Said plate is made of grid-like structure or provided with a plurality of parallel transverse slots b, which are open at both sides of the holder and which constitute the several type-holders, each slot being designed to receive a single line of type. The types are designed to be inserted into the slots from the rear of the holder-plate in a manner to expose the printing-faces of the type at the front of the holder.

The form of the type C is shown more clearly in Figs. 6 and 7. Each of said type consists of a rear or base portion c and a reduced or face portion c', which bears on the front face thereof the type character. Between the base and reduced portion of the type are formed on opposite sides of the type forwardly-facing shoulders c^2, which are adapted to engage complemental rearwardly-facing shoulders in the holder to limit the movement of the type when inserted into the holder.

The holder B is preferably made from a single piece of sheet metal by a swaging or stamping operation. The type-holding grooves b of said holders are formed by cutting the metal of the sheet at the central line of each slot and bending or folding the metal on each side of the incision thus made away from each other to form flanges b' on each side of each slot, which flanges constitute the side walls of the slot. The rear margins of said flanges constitute stops against which the shoulders c^2 of the type bear. Preferably, also, the metal at each end of each slot is turned downwardly to form a lip or stop b^2, against which the end type of a line of type bear. Said flanges and lips afford ample bearings for the types and serve to hold the types properly in place. The side walls or flanges b' of the slot are preferably diverging or flaring, being made wider at their rear than at their front sides, so as to readily guide the types into the slots and to somewhat compress or clamp the advance ends of the type, and thereby hold the same reliably in alinement. The reduced or printing ends of the type may also be slightly tapered to fit the tapered walls of the type-holding slots, so that the said type may be forced into the slots with a close fit without danger of distorting the printing-faces of the type. The shoulders c^2 of the type engaging the complemental shoulders on the holder determine the final positions of the type in the holder, thereby securing a smooth and uniform printing-surface, while the wedging action of the tapered type in the holder enables the type to be gripped with sufficient firmness to insure accurate alinement.

After the types have been set up in the grid-like holder-plate in the manner described the plate is applied to the cylinder A or other analogous part of the printing-machine, with the printing-faces of the types directed outwardly and with the bases c of the type bearing against said cylinder or other like part, the latter constituting a backing or support for the types. The holder-plate may be attached to the cylinder in any preferred or convenient manner. The means herein shown for fixing the holder-plate to the cylinder consist of screw-threaded hook-bolts A' A', one at each corner of the plate. Said bolts have screw-threaded engagement with the cylinder, and the hooks a thereof are adapted to be turned over the end margins of the plate in overlapping relation to hold the plate in place and to be turned outwardly away from the plate to release the latter. The hooks a of the bolts are made of a thickness not greater than the parts of the types which project beyond the holder-plate, so as to be within the circumferential line of the printing-surface. Preferably the holder-plate is provided on its under surface at the corners thereof and beneath the hook-bolts with downwardly-turned lugs b^3, which bear against the face of the cylinder and afford solid abutments, against which the hook-bolts A' act to clamp the plate firmly on the cylinder.

In order to prevent the holder-plate from moving laterally or sidewise on the cylinder,

the cylinder is shown as provided at its sides with radial annular flanges A^2 A^2, against the inner faces of which the side margins of the plate bear. Said flanges are located at such distance apart that the holder-plate fits closely therebetween, thereby avoiding sidewise shifting of the holder-plate.

The types are provided at their rear faces with characters c^3, Fig. 7, corresponding with those on their front or printing faces, and the rear-face characters are so arranged that when a line of type is set up the matter or composition represented by said type may be read from the rear faces of the type from left to right, as ordinary printing is read. The placing of the characters on the rear faces of the types in this manner greatly facilitates the composition of the types, for the reason that the set-up matter reads from left to right on the rear face of the set-up type, thereby enabling the matter to be readily proof-read after the type have been set up and before an impression has been taken therefrom. Another advantage of placing the type characters on the rear faces thereof is that the types may thereby be more readily selected from the case during the operation of setting up or composing the type. The types herein shown are intended to be contained in grooved holders in the case, generally similar to the holders herein shown, with their printing-faces downward, so that their rear faces and the characters thereon are exposed, and the characters on the rear faces of the types are so arranged as to be in proper position for reading while in the case.

Heretofore the types have been placed in the case with their printing-faces upward and in a reverse or negative position, so that only a skilled compositor is capable of quickly and accurately selecting the type from the case for the purpose of setting or inserting them in the holders. Moreover, after some use the printing-faces of the types become covered or blurred with ink, so that for this reason it becomes more difficult to read the types than when new.

Referring to the construction of the single-bar holder D, (shown in Figs. 8 and 10, inclusive,) said holder is made as follows: Each holder consists of an elongated bar provided with a longitudinal slot d, open at both sides of the holder and extending from end to end thereof. The slot at the rear side of the holder is made of sufficient width to entirely receive the body or base portion of the type, while the slot at the front side of the bar is made only sufficiently wide to receive the reduced or face part of the type. Said holder-bar is preferably made from a single strip of sheet metal by a suitable swaging operation. The side margins of said metal strip are folded downwardly to constitute the side walls d' of the type-holder, between which is received the base portions of the types. Parts of the strip are also folded away from each other on each side of the slot d to constitute short flanges d^2, between which is received the reduced or face portions of the types, as more clearly shown in Fig. 10. The strip is bent downwardly at its outer ends to form the end walls of the type-slot and to form also holding arms or projections D′, which are adapted to enter holding-grooves at the sides of the cylinder of the printing-machine—as, for instance, in the manner shown in the prior Houghton application hereinbefore referred to.

Each holder is designed to hold a single line of type to constitute one line across the printed page, and after the type have been inserted into or set up into the holders the holders are applied one by one to the printing-cylinder or other analogous part of the machine. The type is held in said holders D by reason of the contact of the rear faces thereof with the face of the cylinder or other part to which the type bars or holders are attached.

In Figs. 11 to 14, inclusive, I have shown my invention as applied to type-holders adapted to be used in addressing-machines and wherein said holders are connected together in link or chain form and successfully brought by movement of the chain to the printing-line. As shown in said drawings, E E designate the holders, made, preferably, of sheet metal by a suitable stamping or swaging operation. In this instance each holder is provided with two parallel slots e e to receive two lines of type, one for the name and the other for the address. The side margins of the strip of metal from which the holder is made are turned downwardly to constitute the outer side walls e' of the holder, and the metal between the slots e is folded downwardly in overlapping or doubled relation to contitute the partition-wall e^2 between two adjacent slots, the bases of the types being received between said walls e' e^2. The metal at the sides of the slots at the front face of the holder is folded away from each other to constitute the front side of the slots, between which is received the reduced or face parts of the types. The ends of the strips outside of the slots are turned downwardly to constitute the end walls e^4 of the holders, as shown more clearly in Figs. 11 and 14. The type are held in said holders by means of backing-plate E′, one of which is shown in Fig. 12. Said plate is made of the same dimensions and shape as the back of the holder and fits closely thereover. The plate is held in place by means of lugs or arms e^5, turned backwardly from the partition e^2 between the slots of the holder, as shown more clearly in Figs. 12 and 14, said arms extending through a centrally-located opening in the plate E′. The arms of each

holder are arranged transversely to the longitudinal axis of the holder, and the opening in the backing-plate is disposed longitudinally thereof. When attaching the plate to the holder, it is turned in the position indicated in dotted lines in Fig. 12, with the central opening thereof turned transversely to the holder. In this position the attaching-arms e^5 may be passed through the opening in the plate. Thereafter the backing-plate is turned into its closing position, so as to bring said arms crosswise with respect to said opening, as shown in full in Fig. 12, thereby locking the plate in place. The several holders constituting a connected series or chain are loosely connected by means of wire loops E^2, which are seated in rearwardly-opening notches or recesses formed on the margins of the side walls e' of the holders, as shown more clearly in Fig. 13. Said notches or recesses are closed by the backing-plate E′ when the latter is in place.

It will be observed that substantially the structure shown in Figs. 11 to 14, inclusive, may be employed as a hand-stamp, it only being necessary to add a suitable handle so connected with the body of the holder as to permit the ready removal of the backing-plate.

It is manifest that the flanges constituting the side and end walls of the several type-holding grooves may be turned outwardly from the front or top faces of the holders instead of from the rear faces thereof, as herein shown, and that in both cases the flanges afford the desired wide bearing for the type and between which the reduced front ends of the type fit.

The construction of the type and holder makes it possible by the use thereof for a person whether skilled as a compositor or not to set up type and distribute the same with great ease, rapidity, and accuracy and also facilitates the work for even a skilled compositor, for the reason that the identifying characters on the rear faces of the type do not become covered with ink as do the printing-faces of the types, which latter are usually made of rubber. Printing-machines of this character and manifolding-machines are employed largely by mercantile houses for sending out daily letters, such as market quotations, and when the printing devices are embodied in addressing-machines they are employed by persons or firms having a large mailing list for rapidly addressing envelops, postal cards, and the like. Owing to the unfamiliarity of the layman with the setting or composition of type, it is usual for the persons or firms having such machines to employ the services of an expert compositor at such times as is required to set up and distribute the type or revise the mailing-list. With the use of my invention the employment of such outside expert compositor becomes unnecessary, as the type may be readily set and distributed by an inexperienced person.

An advantage of employing a type-holder having a type-holding slot or slots open at both the front and rear faces of the holder and shouldered type when made of rubber or the like, which are inserted into said slots from the rear of the holder with a wedging fit, is that thereby the type may be fixed in position in the holder with sufficient grip to maintain the alinement and at the same time not distort the type and cause the same to bulge on the printing-surface, and thus produce an inaccurate alinement and an ununiform printing-surface.

The inclination of the walls of the type-holding slots, whereby are formed tapered slots to receive the types, not only produce a wedging fit between the types and holders, which insure accurate alinement, but this arrangement also facilitates the insertion of the type into the type-holding slots, for obviously the types may be inserted into the wider rear sides of the slots more readily than if the slots be made with parallel side walls. In this connection it will be observed that the making of the holders of sheet metal in the manner shown, the side walls of the type-holding slots of which are formed by flanges which are folded outwardly from the body of the holder, enables the holder to be adapted to types which vary in thickness, as by this means the said flanges may be spread farther apart or brought closer together to receive wider or narrower type, as desired, and thus insure an accurate fit of the types in the holder. Such adjustability of the holder to the types is obviously not possible in a construction wherein the side walls of the type-holding slots are made rigid and unyielding. It will also be observed that the flanges constituting the side walls of the type-holding slots give great rigidity to the holder, thereby enabling the holder to be made of light-gage metal, while possessing ample strength and durability.

Another advantage of my improved holder and type when used for printing letters which are sent out periodically and in which the letters sent out on different periods require but little change or revision—such, for instance, as market quotations, in which perhaps only the prices are required to be revised from day to day or other periods—is that only the type of the matter requiring revision need be removed and inserted, while the type of the body of the letter remains intact. In machines heretofore employed in which the type enter the holders from the ends thereof it has been necessary when making a revision to remove all the type from the line between the type to be removed and substituted and the end of the line, thus complicating the work and requiring a great

deal of time as compared to the time to make the actual revision. The placing of identifying characters on the backs of the types greatly facilitates such work of revision, as it enables the person making the revision to instantly select and remove the type constituting the matter to be revised.

I claim as my invention—

1. The combination with a type-holder provided with a type-receiving slot which is open at both the rear and the front of the holder and provided with tapered side walls, the slot being wider at its rear than at its front end, and the holder having a rearwardly-facing shoulder in rear of the slot, of a type provided with a wide base portion and a reduced printing-face and also with a forwardly-facing shoulder between said wide and reduced portions adapted to engage said rearwardly-facing shoulder of the holder, said reduced portion of the type being tapered to engage the tapered side walls of the type-holding slot.

2. The combination with a sheet-metal type-holder provided with a type-receiving slot which is open both at the rear and front of the holder, said slot having side walls which are integral with the body of the holder and are folded outward therefrom and are inclined to constitute a tapered slot which is wider at its rear than at its front, of a type having a reduced shouldered end which fits between the inclined walls of the slot.

3. The combination with a sheet-metal type-holder provided with a type-receiving slot which is open at the front and rear of the holder and having side walls which are formed by flanges which are folded outwardly from the body of the holder, of a type having a reduced shouldered printing end which engages with a wedging fit the flanged walls of the slot and is inserted into said slot from the rear of the holder.

4. The combination with a sheet-metal type-holder provided with a type-receiving slot which is open at the front and rear of the holder and having side walls which are formed by flanges which are folded outwardly from the body of the holder and are inclined to constitute a tapered slot which is widest at the rear of the holder, of a shouldered type having a reduced tapered printing end which fits between the inclined walls of the slot.

5. The combination with a type-holder comprising a sheet-metal plate provided with a plurality of type-holding slots the side walls of which are formed by inclined flanges folded outwardly from the body of the holder, of a type having a reduced, shouldered, printing end which fits between the inclined walls of the slot.

6. A type-holder comprising a sheet-metal plate provided with a plurality of type-holding slots each having side walls which are formed by flanges folded outwardly from the body of the holder, of a type having a reduced, printing end which fits between and engages with a wedging fit said flanged walls of the slot and is provided with a forwardly-facing shoulder which engages a complemental shoulder in the holder to limit the inserting movement of the type in the holder.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 30th day of September, A. D. 1903.

WASHINGTON LAYCOCK.

Witnesses:

WILLIAM L. HALL,

GERTRUDE BRYCE.