

Jan. 19, 1937.

G. L. CURLE ET AL

2,068,004

METHOD AND APPARATUS FOR HANDLING TYPE METAL

Filed May 9, 1930

3 Sheets-Sheet 1

Fig. 1

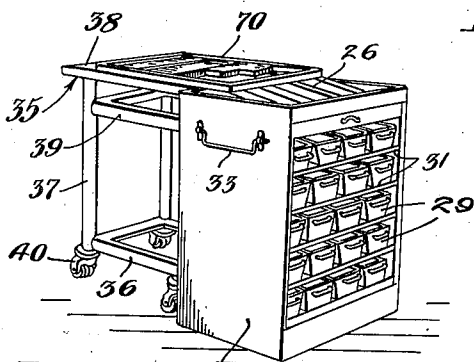


Fig. 2

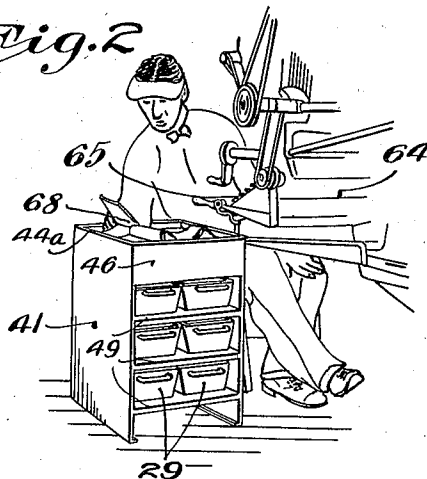


Fig. 3

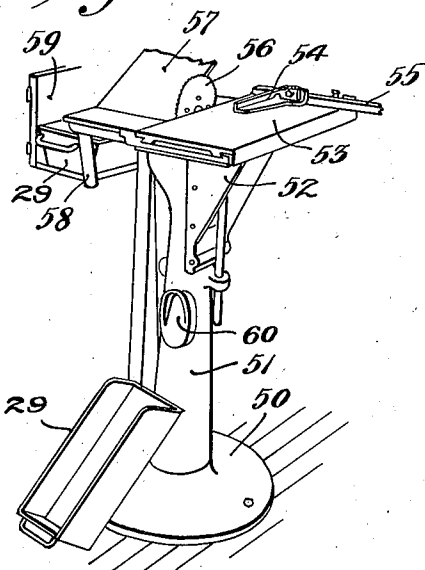


Fig. 4

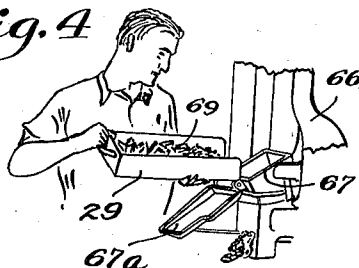
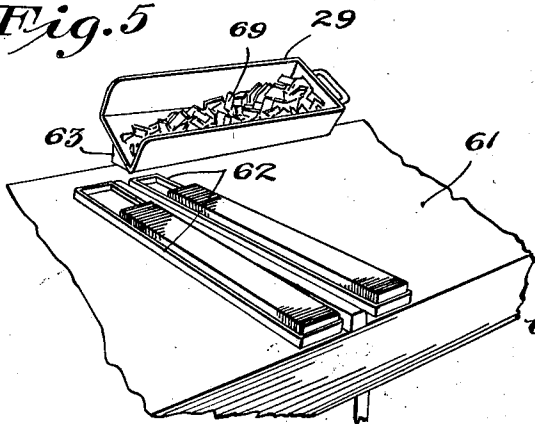


Fig. 5



Inventors
George L. Curle
William A. F. Thompson
By their Attorneys
McClain
Reif & Williamson

Jan. 19, 1937.

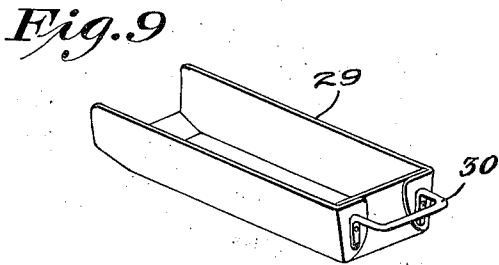
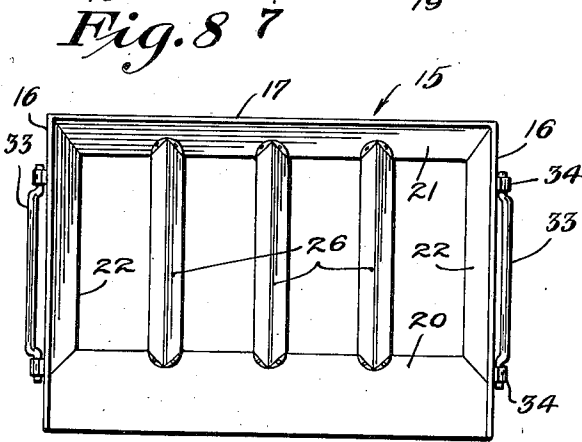
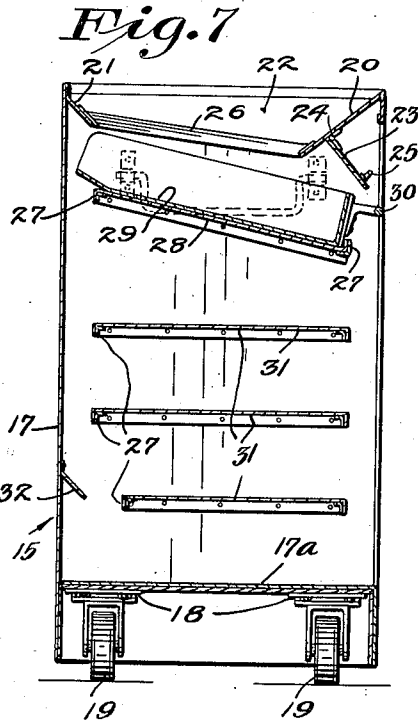
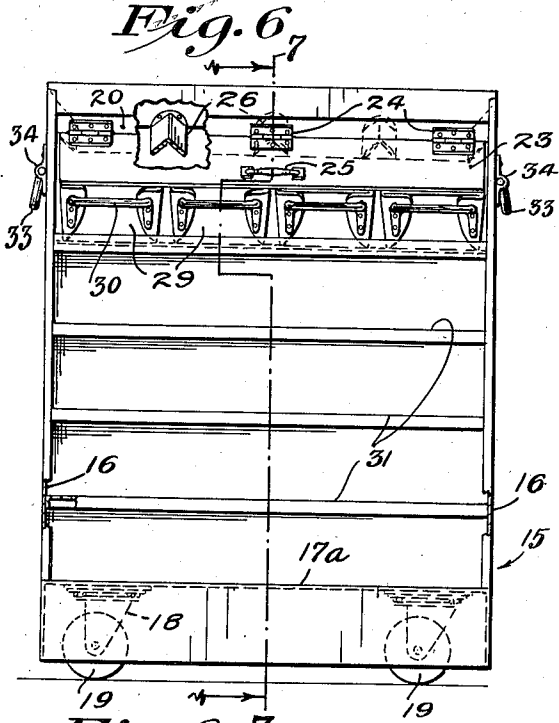
G. L. CURLE ET AL

2,068,004

METHOD AND APPARATUS FOR HANDLING TYPE METAL

Filed May 9, 1930

3 Sheets-Sheet 2



Inventors
George L. Curle
William H. Thompson
By their Attorneys
William H. Feif
& Williamson

Jan. 19, 1937.

G. L. CURLE ET AL

2,068,004

METHOD AND APPARATUS FOR HANDLING TYPE METAL

Filed May 9, 1930

3 Sheets-Sheet 3

Fig. 10

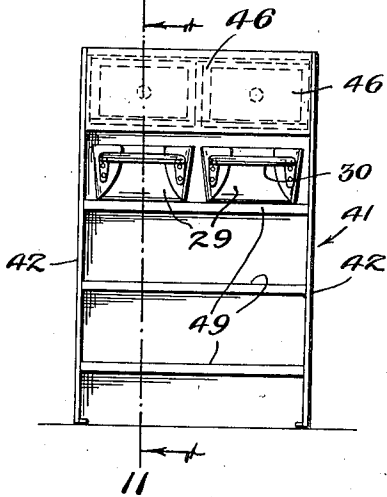


Fig. 11

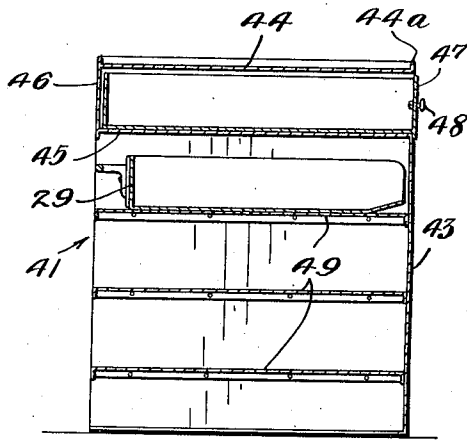


Fig. 12

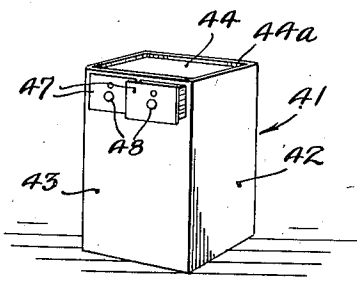
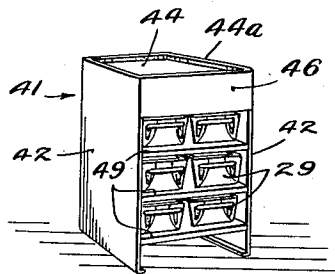


Fig. 13



Inventors
George L. Curle
William A. F. Thompson
By their Attorneys
William W. Feij
& Williamson

UNITED STATES PATENT OFFICE

2,068,004

METHOD AND APPARATUS FOR HANDLING TYPE METAL

George L. Curle and William H. F. Thompson,
Minneapolis, Minn., assignors to The Mono-
melt Company, Minneapolis, Minn., a corpora-
tion of Minnesota

Application May 9, 1930, Serial No. 450,993

9 Claims. (Cl. 276—44)

This invention relates to a method and apparatus for handling type metal in various forms to produce molten metal for a type casting machine. Type casting machines are now widely used in printing shops and these comprise a reservoir of molten metal from which the type or slugs are made. It has heretofore been the common practice to supply cold metal to the melting apparatus in the form of pigs. These pigs were made either from new metal, which was purchased by the print shops or from remelting of the used slugs and scrap. This method involved two melting operations of the used metal. When the slugs are taken out of the form, which operation is commonly known as the "killout", they would be taken to a melting apparatus usually in the basement of the building and melted, the molten metal being poured in moulds to form pigs. These pigs were then again taken to the print shop and used to supply the melting apparatus furnishing the molten metal to the type casting machines. A device forming an auxiliary melting pot attached directly to the type casting machine and feeding molten metal thereto has within the last few years been installed in quite a few print shops of this country. There are quite a few waste slugs and pieces of type metal about the print shop. Some slugs and spacing bars are sawed and short scrap pieces occur in this operation. Some slugs are discarded in the assembling operation and thus go with the metal to be again melted.

It is an object of this invention to provide a method and apparatus for handling the type metal by means of which one melting operation will be eliminated and the various scrap metal about the printing plant will be efficiently handled.

It is more specifically an object of the invention to provide a method and apparatus in which a receptacle is used with means for holding said receptacle in a device having means directing metal from the killout thereinto, which receptacle can also receive the scrap from various parts of the print shop, together with a device adapted to be placed at the operator's position adjacent the type casting machine for receiving said receptacle. The operator can then discharge the contents from the receptacle into the auxiliary melting pot of the type casting machine when necessary.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the

accompanying drawings, in which like reference characters refer to similar parts throughout the several views, and in which:—

Fig. 1 is a perspective view of part of the apparatus used;

Fig. 2 is a perspective view of an operator at a type casting machine, also showing another part of the apparatus used;

Fig. 3 is a perspective view of the type metal sawing machine, with part of the apparatus adjacent the same;

Fig. 4 is a perspective view of an operator discharging type metal from part of the apparatus into the auxiliary melting pot of the type casting machine;

Fig. 5 is a view of an assembling table showing a type metal receiving apparatus;

Fig. 6 is a view in front elevation of part of the apparatus;

Fig. 7 is a vertical view taken on line 7—7 of Fig. 6, as indicated by the arrow;

Fig. 8 is a top plan view of the device shown in Fig. 6;

Fig. 9 is a perspective view of a receptacle used;

Fig. 10 is a view in front elevation of a part of the apparatus which is disposed adjacent the operator;

Fig. 11 is a vertical view taken on line 11—11 of Fig. 10;

Fig. 12 is a perspective view of the device shown in Figs. 10 and 11, as seen from the front thereof, and

Fig. 13 is a perspective view of the device shown in Figs. 10 to 12 as seen from the rear thereof.

While the method of this invention could be carried out with various forms of apparatus, in the embodiment of the invention illustrated, one form of apparatus is shown. Referring to Figs. 1 and 6 to 9, a device in the form of a cabinet or rack is shown which is used in the method, and which is disclosed and claimed in a prior application of one of the applicants, S. N. 312,487, filed October 15th, 1928. This cabinet or rack is designated 15 and is provided having side walls 16 and a rear wall 17. Said cabinet also has a bottom 17a extending between said side walls and from front to rear of said cabinet. Said bottom 17a is in the form of a plate which extends downwardly at its front and rear to the bottom of said side walls 16. Caster brackets 18 are preferably secured to the bottom of plate 17a in which are mounted the casters 19 which thus support said cabinet, there being a caster adja-

cent each of the four corners of plate 17. At the top of cabinet 15 downwardly and inwardly extending flanges 20, 21 and 22 are disposed at the front, sides and ends respectively of the cabinet. Flange 20 has a greater width than the others and said flanges terminate so that the bottom plate thereof slopes as shown in Fig. 7. A plate 23 extends along the outer side of flange 20 and is hinged thereto by spaced hinges 24, said plate having a handle 25 thereon at its central portion. Spaced bars 26 in the form of angle bars with their angles disposed upwardly extend between flanges 20 and 21 adjacent the bottoms thereof. Vertically spaced angle bars 27 extend between the side plates 15 adjacent the front and also adjacent the rear thereof, said bars thus being formed in cooperating pairs and the upper pair of said bars have extending therebetween supporting plates 28 forming supports for a plurality of receptacles 29. While various forms of receptacle might be used, in the embodiment of the invention illustrated, the receptacle 29 is shown in the form of an elongated scoop substantially rectangular in cross section, with open top and end, the same having a loop handle 30 at its closed end. The rear end portion of the bottom of said scoop is shown as inclining slightly upwardly. It will be noted that a pair of bars 27 at the top of said cabinet are in different planes, the bar at the front being in lower plane and having its vertical angle directed upwardly while the bar at the rear of the cabinet is in higher plane and has its vertical side directed downwardly. The vertical flange of the front bar 27 thus forms a stop for the receptacle 29. The other pairs of the bars 27 are in one horizontal plane and have their vertical sides directed downwardly, each pair having the bars thereof connected by plates 31, also disposed in substantially horizontal planes and forming supports for the receptacles 29. The bottom 17a also forms a convenient support for a row of the receptacles 29. The lower pair of bars 27 are spaced at a lesser distance than the pairs above the same and a deflector plate 32 is secured to the inner side of the rear wall 17 extending inwardly and downwardly and having its lower edge substantially at the same level as the lower rear bar 27. Handles 33 of bail form are secured to each end of cabinet 15, having their ends pivotally mounted in brackets 34 secured to each side wall 16.

A portable stand or rack 35 is provided to be used in conjunction with the cabinet 15. This rack comprises a lower rectangular frame 36 in the corners of which are secured the vertical posts 37, which carry at their upper ends a rectangular top 38 in the form of a board or plate. An intermediate open-work rectangular frame 39 is also secured between the posts 37 a short distance below the top. The upper surface of the top 38 is substantially of the same height or slightly higher than the top of the cabinet 15. The posts 37 have casters 40 at their lower ends.

Another device is provided in the form of a cabinet 41 comprising spaced side walls 42 and a front end wall 43. Side walls 42 have inclined flanges at the bottom and form the supporting means for the cabinet. Said cabinet has a flat top 44 illustrated as having a slight flange 44a extending about the top thereof. A plate 45 extends between walls 42 some distance therebelow and a partition 46 extends from this plate to the top 44 forming chambers in which are respectively disposed open-top drawers 47 having

front handles 48 thereon. Vertically spaced plates 49 extend between side walls 42 and from end to end of cabinet 41, each of which is adapted to form a support for a pair of the receptacles 29 already described.

In Fig. 3 a machine is shown, used for sawing the slugs to the proper length. It will only be necessary to consider the base 50 having a standard 51 rising therefrom which carries the guide frame 52 in which is slidable the table 53 which carries the work. Said table has thereon a gauge 54 in which is held a slug 55 which is to be cut. The saw is shown as 56, which will be driven in any suitable manner and a guard 57 comprising a downwardly inclining plate is shown at one side of said saw to prevent severed pieces from being thrown towards the operator. A bracket 58 is provided on which is supported one of the receptacles 29, a board or plate 59 being shown at one side of said receptacle. The sawdust and some of the cut ends drop through the standard 51 and are deflected out through a chute 60. A receptacle 29 may be placed against the standard as shown in Fig. 3 to receive the material passing out of the chute 60.

In Fig. 5 the typesetter's or compositor's table is shown as 61 on which are shown holders 62 adapted to receive the slugs and necessary spacing bars or strips. One of the receptacles 29 is shown as supported on the rear end of the table 61 against the strip 63.

In Fig. 2 a portion of the type casting machine is shown as 64. This machine has a keyboard 65 which is manipulated by the operator in forming the slugs which comprise the type.

In Fig. 4 another portion of the type casting machine is shown including the frame 66 and the auxiliary metal or melting pot 67 having a lid 67a, and which has means for melting the type metal and contains molten metal which is periodically and automatically fed to the hot metal reservoir of the machine as the metal is needed. The various pieces of apparatus shown in the drawings constitute the equipment of a print shop or plant using the method and apparatus claimed herein.

In the use of the apparatus described and in carrying out the method of this invention, the slugs will be made in the type casting machine in the usual way, the operator, as shown in Fig. 2, sitting in front of the keyboard 65 and typing out the slugs in the usual way. The cabinet 41 is placed at the side of the operator and on the top of this cabinet he can have his memoranda or copy 68. The cabinet 41 will contain several of the receptacles 29, which will be filled with used slugs, scrap material from the saw 56 or discarded slugs 69, which the compositor has thrown into the receptacle at the table 61. The receptacle may contain killout material as will be later described. The receptacles 29 are thus kept in a convenient position for the operator. It is the duty of the operator at certain times, when an alarm on the type casting machine sounds, to replenish the metal in the pot 67. He then merely takes one of the receptacles 29, opens the lid 67a and replenishes the metal in the pot 67. The metal in the receptacle 29 has not been melted since it was last used as type metal. The metal is melted in the pot 67 and there is thus only one melting of the material from the time it was once used as type or type material until it is again so used.

The metal is cast into slugs or type bars in the type casting machine 64 and these slugs are

trimmed on the machine shown in Fig. 3. The sawed off or trimmed ends from the saw 56 pass either into the receptacle 29 on bracket 58 or drop through the stand and pass through chute 60. In either case they are collected in one of the receptacles 29 and the chute 60 also delivers the sawdust to one of the receptacles 29. After the slugs are made and the fonts are to be made up, they are handled at the table 61. Some slugs will have to be discarded and these are thrown by the compositor into the receptacle 29 on table 61. After the fonts are made up and the type has been used and is no longer needed, it is disassembled in an operation known as the "kill-out". According to the present invention the font or frame containing the type material which is shown as 70 in Fig. 1 is placed on top of table 38 and this table moved adjacent the cabinet 15. The font 70 is gradually moved over the top of the cabinet and the type material is knocked therefrom after being loosened. The slugs and parts of type metal are dropped into the top of the cabinet 15 and are guided by the flanges 20, 21 and 22 and the downwardly flaring bars 25 into the receptacles 29 supported upon the bars 27, 28 and 31. The receptacles 29 preferably will be placed first on the bottom 17a and when these are filled, other receptacles can be placed on the bars 27 successively until the same are filled, when the upper receptacles will be placed on the bars 28 as shown in Fig. 7. The cabinet 15 will then contain quite a number of the receptacles 29, which will be filled with the used slugs and pieces of type metal. When the cabinet 15 is so filled it can be moved to various parts of the print shop and the receptacles placed in the cabinets 41 at the operators' positions and the empty receptacles taken therefrom. As the cabinet 15 is moved about, the receptacles 29 from the sawing machine and the compositor's table can also be collected therein. With the present method, therefore, the printing room is kept clear of scrap pieces of metal and these are taken to the cabinet 41 which is constructed and arranged to receive the same. This cabinet also constitutes a desk for the operator and the operator can keep his copy material and other necessary material in the drawers 47 thereof.

From the above description it is seen that applicant has provided a very efficient method and apparatus for handling type metal in a print shop to produce the molten metal for the type casting machine. The metal is not allowed to accumulate in piles all over the floor in various parts of the shop where it will have to be assembled and picked up, nor is the metal conveyed to any melting machine where it will be cast in the form of pigs. On the other hand, it is assembled in one type of receptacle and conveyed to the operator, who places it directly into the auxiliary melting pot of the type casting machine. The method therefore not only results in a great saving of time and labor in handling the metal, but eliminates an extra melting thereof. It is unnecessary to melt up all of the used type metal and cast it in the form of pigs to be fed into the pot 67 or to another melting pot. The killout operation is performed without dumping the metal onto the floor or into a pile from which it would have to be collected. The used metal drops directly into the receptacle 29 which is constructed and arranged to be received in the killout rack in the cabinet at the operator's position and for discharging the slugs and metal into the auxiliary melting pot of the type-casting machine.

This receptacle cooperates with the cabinets 15 and 41, as well as with the cutting machine and the type setter's table. The method has been used in actual practice and found by a careful computation to make a great saving in the operation of the print shop. At the same time better work is done as the metal is kept freer from dirt. The saving results not only from the saving in time and labor in handling the metal, but in a reduction of the drossage loss due to the fact that the metal is received in the containers 29, does not have to be swept or gathered from the floor and is thus kept clean.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the apparatus and in the steps and sequence of steps of the method, without departing from the scope of applicant's invention, which generally stated, consists in a method and apparatus capable of carrying out the objects above set forth, such as disclosed and defined in the appended claims.

What is claimed is:—

1. The method of handling type metal in a print shop including a type casting machine having a melting pot and an auxiliary melting pot, which consists in providing a plurality of receptacles each adapted to receive scraps and waste pieces of type metal, in providing a plurality of separate stations each conveniently situated in remote relation to said type casting machine and adapted to receive at least one of said receptacles, in accumulatively loading the receptacles at each of said stations with scraps and waste pieces of type metal respectively formed at said stations, in providing a station adjacent said type casting machine adapted to receive said receptacles, in transporting receptacles loaded with scraps and waste pieces of type metal from said plurality of separate stations in remote relation to the type casting machine to said station adjacent said type casting machine selectively discharging the material contained in the receptacles at said last mentioned station into said auxiliary melting pot and melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one comparatively free from dross is produced, and remelting of the type metal into bars or ingots is eliminated.

2. The method of handling type metal in a print shop including a type casting machine having a melting pot and an auxiliary melting pot, which consists in providing a plurality of receptacles each adapted to receive scraps and waste pieces of type metal, in providing a plurality of separate stations each conveniently situated in remote relation to said type casting machine and adapted to receive at least one of said receptacles, in accumulatively loading the receptacles at each of said stations with scraps and waste pieces of type metal respectively produced at said stations, in providing a station adjacent said type casting machine adapted to receive said receptacles, in transporting receptacles loaded with scraps and waste pieces of type metal from said plurality of separate stations in remote relation to the type casting machine to said station adjacent said type casting machine, and in removing receptacles loaded with scraps and waste pieces of type metal from said station adjacent the type casting machine and discharging the metal from said last mentioned receptacles into the auxiliary melting pot of said type casting machine and melting the same whereby said type metal is kept

substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one comparatively free from dross is produced, and remelting of the type metal into bars or ingots is eliminated.

3. The method of handling type metal in a print shop including a type casting machine having a melting pot and an auxiliary melting pot, which consists in providing a plurality of receptacles each adapted to receive scraps and waste pieces of type metal, in providing a plurality of separate stations, including a station to receive type metal from a killout rack and stations to receive scraps and waste type metal from various other parts of said print shop, each in remote relation to said type casting machine and each adapted to receive at least one of said receptacles, in accumulatively loading the receptacles at each of said stations with scraps and waste pieces of type metal respectively formed at said stations, in providing a station adjacent said type casting machine adapted to receive said receptacles, in transporting receptacles loaded with scraps and waste pieces of type metal from said plurality of separate stations in remote relation to the type casting machine to said station adjacent said type casting machine selectively discharging the contents of said receptacles into said type casting machine as needed for melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one comparatively free from dross is produced, remelting of the type metal into bars or ingots is eliminated and the type metal is conserved.

4. The method of handling type metal in a print shop including a type casting machine, which consists in providing a plurality of receptacles each adapted to receive scraps and waste pieces of type metal, in providing a plurality of separate stations, including a station to receive type metal from a killout rack and stations to receive scraps and waste type metal from various other parts of said print shop, each in remote relation to said type casting machine and each adapted to receive at least one of said receptacles, in accumulatively loading the receptacles at each of said stations with scraps and waste pieces of type metal respectively formed at said stations, in providing a station adjacent said type casting machine adapted to receive said receptacles, in transporting receptacles loaded with scraps and waste pieces of type metal from said plurality of separate stations in remote relation to the type casting machine to said station adjacent said type casting machine, and in removing receptacles loaded with scraps and waste pieces of type metal from said station adjacent the type casting machine and discharging the metal from said last mentioned receptacles into said type casting machine and melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one comparatively free from dross is produced, and remelting of the type metal into bars or ingots is eliminated.

5. The method of handling type metal in a print shop, which shop has therein a type casting machine having a melting pot and an auxiliary melting pot thereon, which consists in providing a plurality of receptacles in the form of scoops, each adapted to receive used type slugs or waste pieces of type metal, placing a plurality of said receptacles in a killout apparatus to receive slugs containing dead matter, providing a plurality of sta-

tions in said print shop in remote relation to said type casting machine to receive used slugs and scraps of type metal, one of said stations being disposed at a slug trimming machine and another at a sorting table for slugs, transporting said receptacles to said type casting machine, providing a storage space for said receptacles adjacent said type casing machine and in convenient position for manipulation by the operator thereof, and selectively removing said receptacles from said storage space and emptying the contents thereof into said auxiliary melting pot and melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one substantially free from dross is produced and remelting of said type metal into bars or ingots is unnecessary.

6. The method of handling type metal in a print shop which, when carried out in a shop having a slug trimming machine, a compositor's table, a killout cabinet adapted to contain receptacles for receiving slugs, a type casting machine having a main melting pot and an auxiliary melting pot, and a receptacle holding device adjacent said type casting machine, consists in killing out a chase in said killout cabinet, receiving the type and slugs in said receptacles, placing a receptacle at said trimming machine and a receptacle at said compositor's table, directing waste pieces of slugs and discarded slugs respectively into said latter receptacles, transporting all of said receptacles to said receptacle holding device and placing the same thereon and subsequently selectively removing said receptacles from said device and dumping the same into said auxiliary melting pot and melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one substantially free from dross is produced and remelting of said type metal into bars or ingots is unnecessary.

7. The method of handling type metal in a print shop which, when carried out in a shop having a compositor's table, a killout cabinet adapted to contain receptacles for receiving slugs, a type casting machine having a main melting pot and an auxiliary melting pot and a receptacle holding device adjacent said type casting machine, consists in killing out a chase in said killout cabinet, receiving the type and slugs in said receptacles, placing a receptacle at said compositor's table, directing discarded slugs into said receptacle, transporting all of said receptacles to said receptacle holding device and placing the same thereon and subsequently selectively removing said receptacles from said device and dumping the same into said auxiliary melting pot and melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one substantially free from dross is produced and remelting of said type metal into bars or ingots is unnecessary.

8. The method of handling type metal in a print shop which, when carried out in a shop having, a slug trimming machine, a compositor's table, a type casting machine equipped with a main melting pot and an auxiliary melting pot, and a receptacle-holding device adjacent said type casting machine, consists in placing a receptacle at said trimming machine, receiving waste pieces of slugs therein, placing a receptacle adjacent said compositor's table, placing discard-

ed slugs in said latter receptacle, transporting all of said receptacles to said receptacle-holding device, and selectively taking said receptacles from said device and dumping the contents into said
5 auxiliary melting pot, and melting the same whereby said type metal is kept substantially free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one substantially free from dross is produced and
10 remelting of said type metal into bars or ingots is unnecessary.

9. A method of handling type metal in a print shop which, when carried out in a shop having a killout cabinet, adapted to contain receptacles
15 to receive type and slugs, a compositor's table, a type casting machine having a main melting pot and an auxiliary melting pot, consists in killing

out a chase at said killout cabinet, receiving the type and slugs in said receptacles, placing a receptacle at said compositor's table, placing discarded slugs in said latter receptacle, transporting all of
said receptacles to a point adjacent said type
5 casting machine, and selectively taking said receptacles and dumping the contents into said auxiliary melting pot and melting the same whereby said type metal is kept substantially
10 free from dirt and foreign matter, said print shop is kept clean, a molten metal of high quality and one substantially free from dross is produced and remelting of said type metal into bars or ingots
is unnecessary.

GEORGE L. CURLE.
WILLIAM H. F. THOMPSON.

15