C. L. MOHR.

TYPE BAR CASTING MACHINE.

APPLICATION FILED FEB. 4, 1918.

1,355,241.

Patented Oct. 12, 1920.

4 SHEETS—SHEET 1.

Fig. 1.

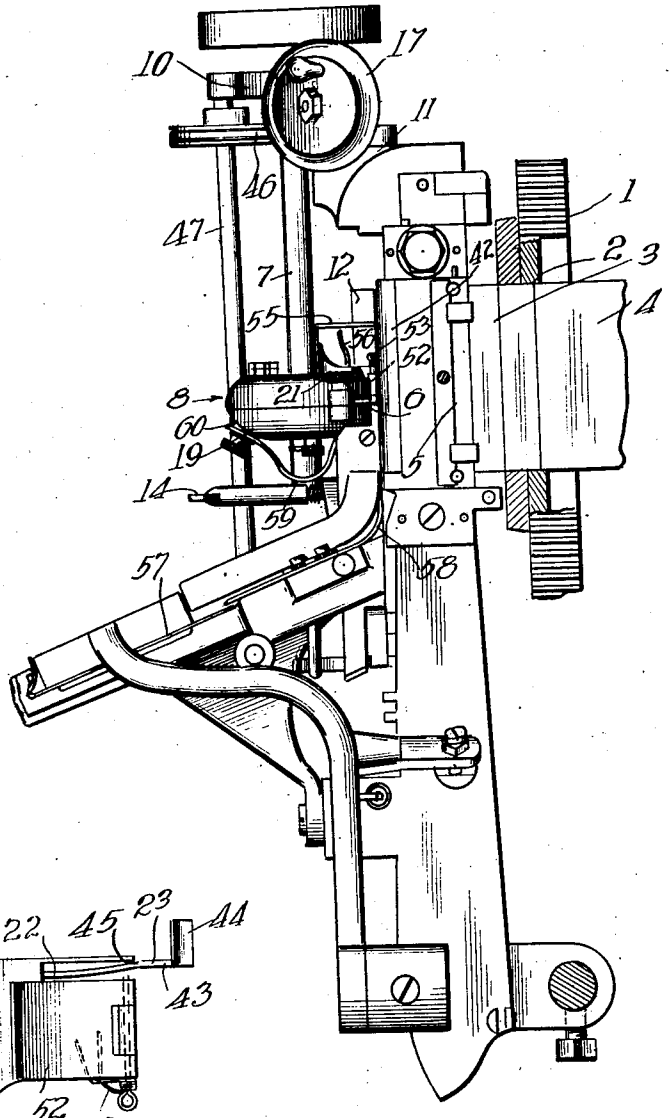
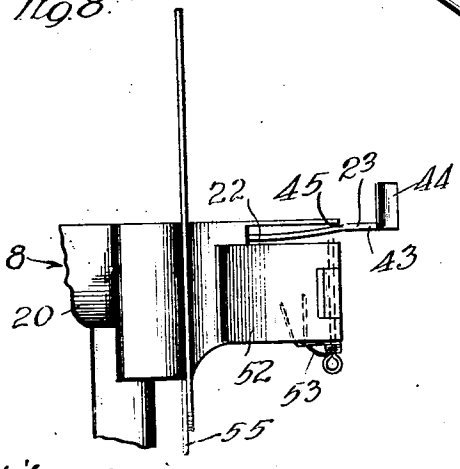


Fig. 8.



Witnesses
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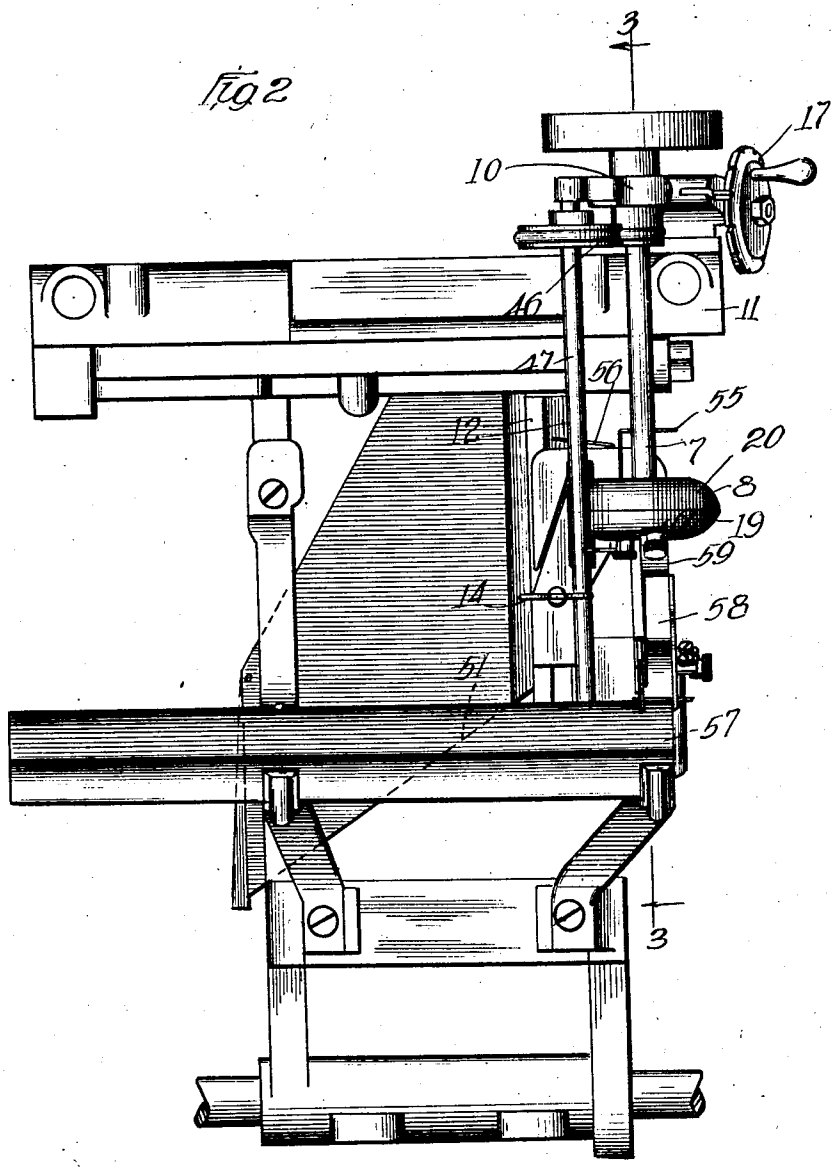
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4 SHEETS—SHEET 2.

Fig 2



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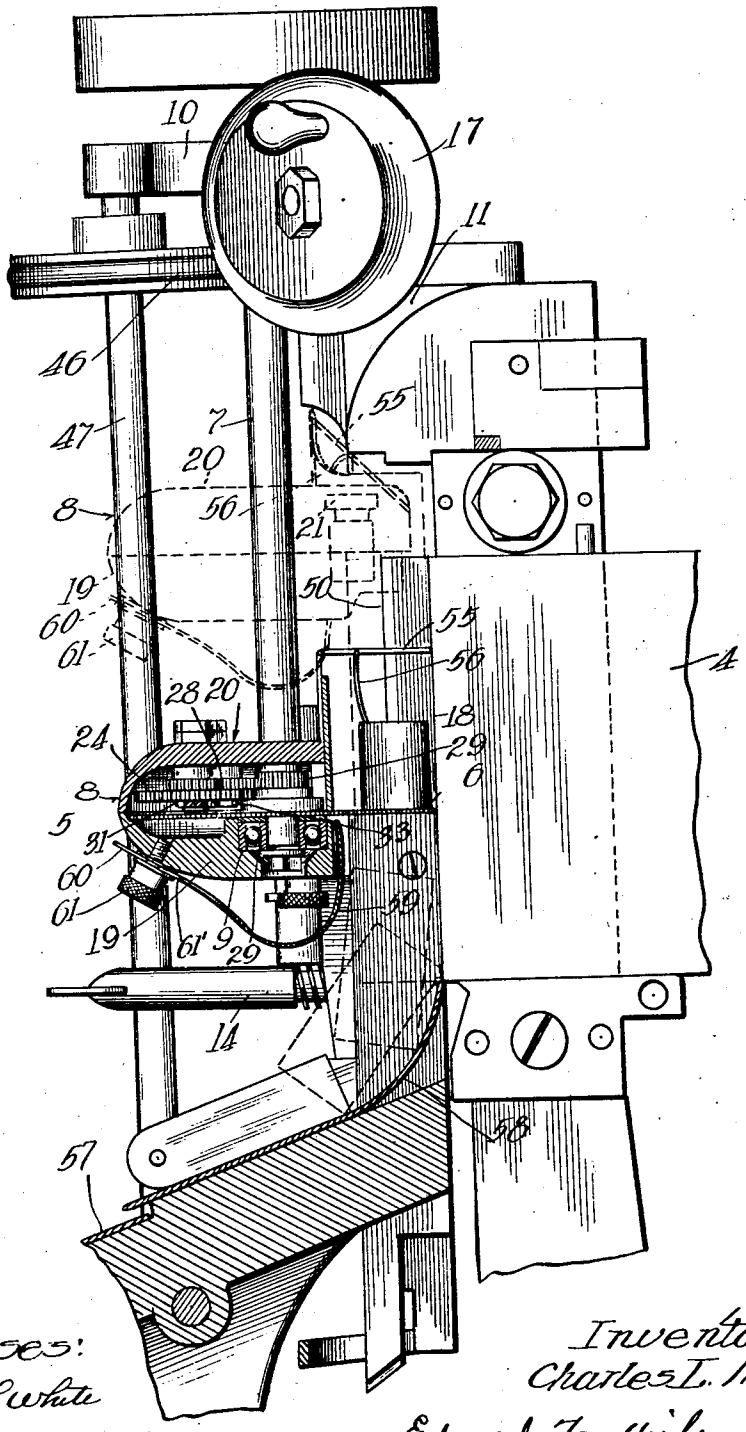
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4 SHEETS—SHEET 3.

FIG 3



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4 SHEETS—SHEET 4.

Fig. 4

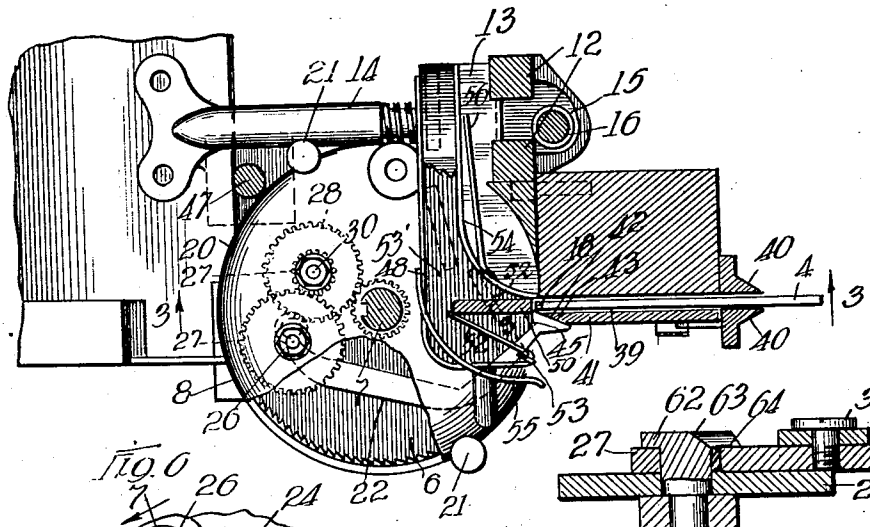


Fig. 7

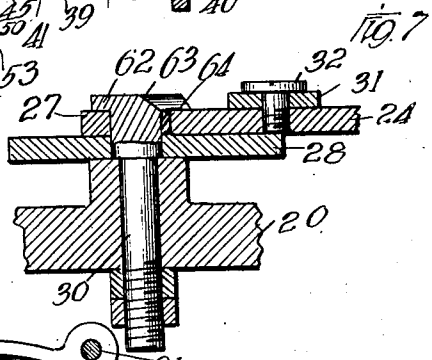


Fig. 6

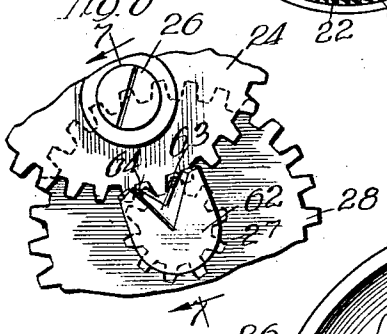
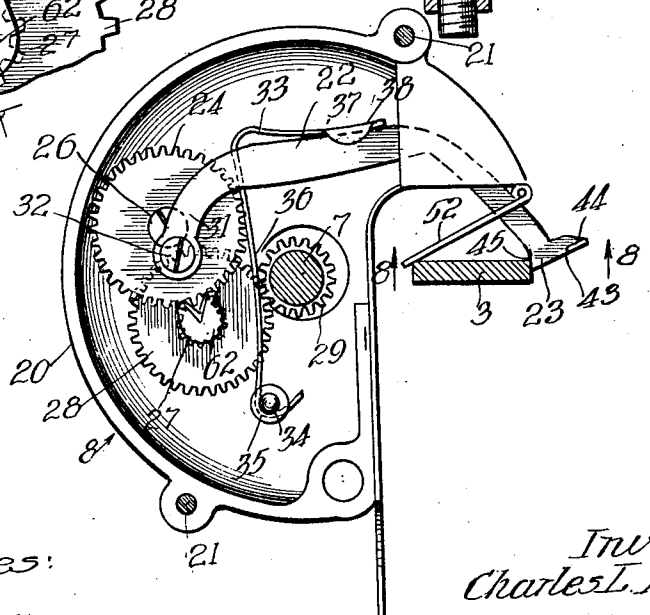


Fig. 5



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UNITED STATES PATENT OFFICE.

CHARLES L. MOHR, OF CHICAGO, ILLINOIS, ASSIGNOR TO MOHR LINO-SAW COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-BAR-CASTING MACHINE.

1,355,241. Specification of Letters Patent. Patented Oct. 12, 1920.

Original application filed March 16, 1914, Serial No. 825,049. Divided and this application filed February 4, 1918. Serial No. 215,288.

To all whom it may concern:

Be it known that I, CHARLES L. MOHR, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Type-Bar-Casting Machines, of which the following is a specification.

My invention relates to improvements in linotype or type-bar casting machines and has particular reference to improved means for cutting or sawing the type bars or printing slugs as they are ejected from the machine.

Such linotype machines are usually provided with a mold wheel containing one or more molds in which the type-bars or printing slugs are cast. Ordinarily the slugs are of uniform length, viz., substantially five inches. It is frequently necessary to produce printing slugs of shorter lengths and in my co-pending application for patent on linotype machines, Serial No. 825,049, filed March 16, 1914, I disclosed and claimed devices for use on and in connection with linotype machines by means of which such shorter printing slugs can be produced. In so far as the subject matter of the present application is disclosed in said co-pending application this present application is in the nature of a divisional application thereof. Such linotype machines as are illustrated in said co-pending application are also usually provided with an ejector which is arranged to enter the mold slot from the rear and push the cast slug out of the slot through a trimming mechanism and thus eject the slug in finished form and of full length.

My improvement, as shown in said co-pending application, includes a circular saw arranged in the path of the slug as it is ejected and adapted to cut the slug in two parts, the printing portion of the slug dropping down upon an assembly stick and the blank end falling down a waste chute.

In pushing out or ejecting the slug upon the saw, I found that the close adjustment of the adjacent end of the ejector to the edge of the saw led to several difficulties. In the first place, it was necessary to cause the adjacent end of the ejector to approach very closely to the edge of the saw so as to cleanly sever or cut the slug. I found that the yielding of the several parts and bearings by which the ejector was operated did not permit a dead accurate adjustment of the movement of the ejector such as was necessary to completely sever the slug and yet not permit the teeth of the saw to touch the end of the ejector. Where the ejector was tipped with brass the touching of the teeth to the ejector did not dull or destroy the saw, but it gradually deteriorated the ejector, making it necessary to repair and readjust same from time to time. But when the machine was equipped with a steel ejector, and in recent years more and more are so equipped, I found that if the saw was permitted to touch the ejector the saw was soon dulled, frequently beyond repair, but even if not to such an extent it necessitated the removal and repair of the saw. On the other hand, if the ejector was adjusted so that the saw could not at any time touch the ejector, then most of the slugs were not completely severed but were left with a small fin or projection when the two parts were broken apart by the jarring of the machine and the weight of the lower part of the slug after the ejector had withdrawn.

Among others, it is the object of the present invention to eliminate the difficulties above mentioned and to produce partial length printing slugs which shall be accurately and completely cut and shall not have any fins or projections upon their severed ends.

A further object of my invention is to provide improved means for guiding the severed ends of the slugs as they pass the saw into the chutes.

My invention consists in means operable by the machine for engaging the slug as it is being cut by the saw and moving it forward or upon the saw to complete the cut. My invention also consists in means in combination with the saw, deriving power from the saw shaft and adapted to engage the slug as the ejector leaves it and to pull the slug forward upon the saw to complete the severance thereof.

My invention also consists in means for

guiding the upper end of the slug as it passes over the saw and adapted to cause said severed end to turn at right angles in such movement.

My invention also consists in a yieldable guide for the upper end of the saw adapted to yield to permit the saw and its casing to be raised out of the path of the slug as it is ejected.

My invention also consists in a guide or stop beneath the saw and adapted to cause relatively long printing slugs to fall down the delivery chute and to land on the assembly stick with their printing faces uppermost.

My invention also consists in the several arrangements and combinations of parts and devices and in the features of construction by means of which I am enabled to attain the above mentioned and other objects and all as hereinafter described and particularly pointed out in the appended claims.

My invention will be more readily understood by reference to the accompanying drawings forming part of this specification, and in which:—

Figure 1 is a side elevation of the forward portion of the slug forming part of a linotype machine equipped with my improvements;

Fig. 2 is a front elevation of the portion of the linotype machine shown in Fig. 1;

Fig. 3 is an enlarged fragmentary vertical section on the line 3—3 of Figs. 2 and 4;

Fig. 4 is a fragmentary horizontal section on the line 4—4 of Fig. 3;

Fig. 5 is a detail horizontal section on the line 5—5 of Fig. 3, the lower part of the saw casing being removed;

Fig. 6 is an enlarged fragmentary plan view of the gears as shown in Fig. 5;

Fig. 7 is a fragmentary vertical section on the line 7—7 of Fig. 6; and

Fig. 8 is an enlarged fragmentary vertical section on the line 8—8 of Fig. 7.

In said drawings 1 illustrates the mold wheel of a linotype machine. This wheel is provided with a number of mold slots, one of which is shown at 2, in which printing slugs 3 are adapted to be cast. The linotype machine is equipped with a reciprocating ejector 4 adapted to enter the mold slots from the rear, when they are positioned as shown in the drawings, and to push the slugs forward out of the mold wheel and through the usual slug trimming mechanism 5. In front of the trimming mechanism I provide a saw 6 for cutting the slugs as they are ejected. The saw is rigidly mounted on the lower end of a saw shaft 7 and within a casing 8. Within the lower part of the casing 8 I arrange a combined bearing 9 for the lower end of the shaft. The upper end of the shaft is mounted for rotation in a bearing 10 carried in a bracket 11 forming a part of, or rigidly attached to the frame of the linotype machine.

The saw with its casing is adapted to be adjusted up and down in relation to the mold slot or rather in relation to the path of the slug as it is ejected, so that I am enabled to cut the slugs at different points in reference to their length. For this purpose I provide fixed vertical guides 12 on the machine adjacent to the saw, and I provide a lateral projection 13 rigid with the saw casing 8 arranged to fit on and between said guides and adapted to guide the saw casing in its up and down adjustment. To hold the casing rigidly in position, I provide a clamping screw 14 extending through a hole provided in said projection 13 and between the guides and adapted to clamp the casing upon the guides by drawing a clamping member or nut 15 against the rear surfaces of said guides.

To raise and lower the saw casing and the saw for adjusting it to cut slugs of different lengths I provide a vertical threaded shaft 16 arranged parallel with said guides 12 and engaging or passing through a similarly threaded opening in said clamping member 15. Said threaded shaft is held against endwise movement by means not shown and is adapted to be rotated by means of the hand wheel 17, by means not shown, to adjust the vertical position of the saw.

As explained, the saw is adjusted as to vertical position to enable the operator to cut slugs of different lengths, and at times it is desirable to raise the saw and its casing entirely out of the path of the slug as it is ejected to permit the production of full length or uncut slugs. For this purpose the saw and its casing are raised, by means described, to the position shown in dotted lines in Fig. 3.

As explained, the ejector 4 may be made of brass or steel. If made of brass and it touches the saw 6, the end of the ejector is mutilated; if made of steel and it touches the saw, it is likely that the saw will be dulled and the ejector cut or mutilated also.

It is one of the particular objects of this invention to provide automatic means for completing the withdrawal of the slug, the ejector being adjusted in its reciprocating motion so that it can never contact with the saw.

The forward end 18 of the ejector is not permitted to move forward far enough to contact with the saw, and consequently when the ejector reaches the forward limit of its movement, as shown by the dotted lines of Fig. 3, it does not push the slug 3 far enough to cause the saw 6 to completely sever the slug. To complete the ejection of

the slug, I provide a device or mechanism mounted within the casing 8 and operable by means of the saw shaft 7 adapted to engage the rear edge of the slug at the time or point when the ejector 4 ceases to push the slug forward and adapted to pull the slug forward sufficient to cause the saw 6 to completely sever same. The casing 8 consists of a lower part 19 to which the projection 13 is rigidly attached, and an upper part or cap 20. The upper part or cap 20 is held upon the lower part by the cap screws 21.

To draw the slug after the ejector 4 ceases to push it, I provide a reciprocating member 22 mounted within the cap 20 and operatively connected with the saw shaft 7. The outer end of said member is provided with a hook-like end 23 adapted to engage the rear edge of the slug 3, as best shown in Fig. 5, and to draw the slug forward. The member 22 is operatively connected with the shaft 7 through a train of gears and by which it is caused to rapidly move back and forth just above the saw 6. Said train of gears consists of a large gear 24 rotatably carried on a stud 26 rigidly mounted in the upper wall of the cap 20, a pair of reducing gears 27, 28, the smaller of which meshes with the gear 24 and the larger of which meshes with a pinion 29 formed on the saw shaft 7. The gears 27 and 28 are rotatably mounted on a fixed stud 30. The inner end 31 of the member 22 is pivotally mounted on a stud 32 carried as an eccentric pin on the large gear 24 so that as said large gear is revolved through the medium of the train of gears, the member 22 is given a reciprocating movement and the outer end 23 moves back and forth over the periphery of the saw 6 and in position to engage the rear edge of the slug and pull the slug forward.

The member 22 is yieldingly held toward the slug by a light spring 33 secured at one end by a screw 34 and washer 35 and bearing between its end against a fixed pin 36. The free end 37 of the spring is provided with a shoe 38 adapted to engage the adjacent edge of the member 22 and it is arranged to force the member 22 toward the path of the slug as the same is ejected. The linotype machine is provided with a slot 39 through which the slug passes after it passes the trimming knives 40, and one wall 41 of said slot 39 is formed by a vertically arranged plate which is adjustable from and toward the opposite wall of the slot to arrange the machine for making slugs of different thicknesses. The forward edge 42 of the plate 41 is beveled, as shown, to form a thin edge which ends in close proximity to the periphery of the saw 6. I provide the free or slug engaging end of the member 22 with an inclined surface 43 for contact with the inclined edge of the plate 41, and the spring 33 holds said outer end of the member 22 constantly in contact with said beveled surface on the plate 41. As the member 22 is made of relatively thin sheet metal, I provide its outer end with a tongue or projection 44 bent to project at right angles to the plane of the member 22 and having its outer surface substantially parallel with the inclined surface 43, thus providing the outer end of said member 22 with an ample wearing surface. I arrange the projection 44 at the extreme outer end of the member 22, and I so proportion the length of the member 22 and its movement that the said projection is never drawn inwardly far enough to leave the inclined edge of the plate 41, consequently the plate 41 acts as a guide for the hooked end of the slug pulling member 22.

The inner slug engaging surface 45 of the hooked end of the member 22 is thus arranged to constantly move out and in passing the periphery of the saw 6, and as it moves in off the thin edge 42 of the plate 41 it is in position to enter behind the rear edge of the slug and pull the slug forward.

The saw shaft 7 is rotated at relatively high speed by the belt 46 and driving shaft 47, and by means of the train of gears interposed between the shaft 7 and the member 22, I cause the member 22 to be reciprocated a considerable number of times per minute, which even with the reducing train of gears, is quite rapid. In fact the inward movement of the member 22 is designed to be substantially equal to the speed at which the slug is ejected by the ejector 4 so that there will be practically no change in the speed with which the slug is being cut by the saw.

As the back and forth movement of the member 22 is relatively short and it moves many times a minute it is in position to engage a slug whenever the same is ejected and complete its outward movement substantially without a break.

Above the saw 6 I cut away the cap 20 to provide a free passage way 48 for the upper ends 50 of the slugs, and in order to conveniently remove these upper ends, which are blank and waste, I turn the passage at right angles to the direction in which the slugs are moving as they are ejected. These upper ends rest upon the saw, as soon as the slugs are severed, and as the saw is rotating in the direction of the arrow on Fig. 4 the saw itself acts as a conveyer for these upper or waste ends, which are carried thereby through the passage 48 and drop off the saw into the inclined chute 51.

In order to cause the upper ends 50 to turn at right angles as they pass along the passage 48, I provide a yielding wall or gate 52 pivotally mounted to swing horizontally across the passage 48 at the point

where the slugs enter same. The gate 52 is yieldingly held in closed position, as shown in dotted lines on Fig. 4, by a spring 53 (see Fig. 8), and as the slug is ejected upon the saw the forward edge of the upper end 50 pushes the gate 52 out of the way and the gate exerts a pressure on the forward edge of the member 50 to turn the slug so as to be carried through the passage 48, as shown by the dotted position of the slug.

The passage 48 is made of a front wall 53′ and a rear wall 54 which rise a short distance above the cap 20.

Sometimes the waste ends of the slugs constitute the most of the length of the slugs as cast and at such times the walls 53′ and 54 are not high enough to properly guide the long waste parts 50. These rigid walls 53′ and 54 are as high as the other rigid parts of the machine will permit as sometimes it is necessary to raise the saw casing high enough to carry the saw out of the path of the full length slug, and at such times the walls 53′ and 54 contact with other rigid parts of the machine above the mold slot. To provide guides for these waste ends projecting above the rigid guide walls 53′ and 54 and yet permit the saw casing to be raised so as to clear the mold slots, I provide yielding guides 55 and 56 of spring wire and arranged respectively above the walls 53′ and 54. These wire guides, as best shown in Fig. 3, are adapted to be sprung down as the casing is raised to its extreme upper position by contact with rigid parts of the machine and as the casing is lowered again they resume their normal positions above the walls 53′ and 54.

The ordinary or usual linotype machine is provided with a downwardly inclined assembly plate or stick 57 upon which the slugs are assembled after they are ejected. This plate is below the ejecting position of the mold slot, as shown in Fig. 3. The printing edge of the slug is on the outer surface of the slug, as it is ejected, and after the slug is ejected it drops down onto the plate 57. To cause the lower end of the slug to slide forward and set the slug on the plate 57 with the printing surface uppermost, I provide a curving plate 58 which the lower end of the slug is adapted to strike as it falls and down which the slug slides, as shown in dotted lines in Fig. 3. At times when the printing ends of the slugs are relatively long, or when full length printing slugs are being made the curving plate 58 tends to cause the slug to fall forwardly before it can fall down into the position shown in dotted lines on Fig. 3, in which position the slug is inclined with its upper end tipped rearwardly. To prevent the above mentioned action of the slug tipping forward I provide a curving guide plate 59 carried by the lower part of the saw casing and in the path of the upper end of the printing part of the slug if same should tend to tip forward.

This guard 59 is made of thin sheet metal in the form of a strip and its rear end is secured permanently to the saw casing in vertical position in front of the mold slot as shown in Fig. 3. The strip is curved downwardly, outwardly and upwardly and its free or outer end 60 is secured to the saw casing by the thumb screw 61. I provide the guard 59 with a longitudinally arranged slot 61′ to receive the screw 61 so that the curvature and the projection of the curved part of the guard 59 can be adjusted to suit the requirements of the occasion, to cause the slugs to be properly deposited upon the stick 57.

As explained hereinbefore, the slug puller or extractor 22 is operated by means of a train of gearing which is arranged within the saw casing. I find that the fine metallic dust produced when the saw cuts the slugs accumulates upon the gears and is inclined to become packed and wedged between the gears and their teeth in such a manner as to hinder the proper and free operation of the gearing. I have found that this objectionable action is most severe between the gears 24, 27 and 28, and particularly between the gears 24 and 27. As shown in enlarged form in Figs. 6 and 7, the pinion 27 is held in place by the head 62 on the bolt or screw 30 which head is large enough in diameter to project over the teeth of the pinion 27, as best shown in Fig. 6. The metallic dust is gradually packed into the teeth spaces particularly of the pinion 27 and in combination with the lubricating oil it forms a pasty substance which is forced sidewise out of the teeth spaces by the pressure of the gears. The action would finally bind the pinion 27 so tightly as to prevent its rotating. To avoid this I provide means for removing this pasty substance. This consists in an open space or notch 63 in the head 62 bordered with a knife edge 64 which lies above the overlapping teeth of the gear 24 and pinion 27 and serves to scrape off and remove such of the pasty substance as is forced out between the contacting teeth. As the opposite side face of the gear 24 contacts with the adjacent side face of the gear 28, there is not room enough for the pasty substance to be projected or forced out in that direction, especially as it is free to be forced out through the notch or opening 63. The action is such that the pressure forces the oily dust or pasty substance out from between the teeth into the notch 63 and then the knife edge 64 scrapes it off, the result being that the gears are prevented from clogging and are kept in working condition for an indefinitely long time.

As many modifications of my invention

will readily suggest themselves to one skilled in the art, I do not limit or confine my invention to the specific structures and devices herein shown and described, except as said invention is defined in the appended claims.

I claim:

1. In a linotype machine provided with a slug mold slot and an ejector for pushing the slug out of the slot, a saw in the path of the slug as it is ejected, and a slug puller adapted to engage the slug as it is being sawed and complete the movement of the slug necessary for its complete severance.

2. In a linotype machine provided with a slug mold slot and a reciprocating ejector for pushing the slug out of the slot, a saw in the path of the slug as it is ejected, the ejector limited in its forward movement so that it does not contact with the saw, and a member operable by the machine for engagement with the slug to move it forward after the movement of the slug by the ejector has ceased.

3. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected, the ejector arranged to fall short of the saw as it pushes a slug out of the machine, and means operable by the machine to complete the movement of the slug to cause its complete severance.

4. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected, the saw being arranged beyond the limit of movement of the ejector, and means operable by the machine for completing the movement of the slug after the ejector has ceased to move same.

5. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw arranged in the path of the slug as it is ejected to cut the slug in two parts, a shaft upon which the saw is mounted, and a slug moving member operably connected with the saw shaft for engaging the slug after the ejector has ceased to move same.

6. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected, a casing in which the saw is mounted, and a slug moving member mounted in said casing adapted to engage the slug and to move same after the ejector has ceased to operate and to complete the movement of the slug upon the saw.

7. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected for cutting the slug in two parts, said saw being movable relatively to the length of the slug to cut the slugs at different points, and a slug moving member movable with the saw adapted to move the slug forward when the ejector ceases to move same and complete the sawing of the slug.

8. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected adapted to cut the slug in two parts, a casing in which the saw is mounted for operation, the casing and saw being movable relatively to the length of the slug mold for cutting slugs at different points, and a slug moving member operable by the machine movable with the casing for moving the slug forward after the ejector has ceased to move same.

9. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected, a guide slot between the saw and the mold through which the slug is ejected, a movable plate forming one wall of said slot having a beveled forward edge, and a reciprocating slug puller having a projecting end adapted to contact with the beveled edge of the plate for guiding the puller in its back and forth movement.

10. In a linotype machine provided with a slug mold and an ejector for pushing the slug out of the mold, a saw in the path of the slug as it is ejected, a guide slot between the saw and the mold through which the slug is ejected, a movable guide plate forming one wall of said slot having a beveled forward edge, a reciprocating slug puller having a projecting end adapted to contact with the beveled edge of the plate for guiding the puller in its back and forth movement, and means for holding the projecting end of the puller yieldingly against the beveled edge of the guide plate.

11. In a linotype machine provided with a slug mold, and an ejector for pushing the slug out of the mold, a saw arranged in the path of the slug as it is ejected and adapted to cut the slug in two parts, a casing within which the saw is mounted, a shaft upon which the saw is mounted, a rotatable member in said casing operatively connected with the said shaft, a slug puller mounted in said casing, one end of said puller being pivotally mounted eccentrically on said rotatable member, the opposite end being adapted to engage the slugs as they are ejected and draw them forward, means for guiding the slug engaging end in its back and forth movement relatively to the slug.

12. In a linotype machine having a slug mold, means for pushing the slug out of the mold when the mold is in vertical position, a saw arranged in the path of the slugs as they are pushed out adapted to cut the slugs in two, a casing in which said saw is mounted, the upper part of the cut slug being adapted to move over the upper surface of

the saw, said casing being movable up and down relatively to the mold for cutting slugs of different lengths, guides carried by said casing for the upper part of the cut slug, said guides being yieldable to permit the casing to be moved upwardly out of the path of full length slugs.

13. In a linotype machine having a mold in which slugs are cast and means for ejecting the slugs from the mold when the mold is in vertical position, a circular saw arranged in the path of the slugs as they are ejected adapted to cut the slugs in two, the saw adapted to act as a conveyer for the upper parts of the cut slugs to cause same to be carried beyond the periphery of the saw to a delivery chute.

14. In a linotype machine having a mold in which slugs are cast and means for pushing the slugs out of the mold when the mold is in vertical position, a saw in the path of the slugs as they are ejected for cutting the slugs in two, a passage way arranged over the saw for the upper ends of the cut slugs, said passage way being turned at right angles to the direction in which the slugs move as they are ejected from the mold and means for turning the slugs to follow through said passage way.

15. In a linotype machine having a mold in which slugs are cast, means for pushing the slugs out of the mold when the mold is in vertical position, a saw arranged in the path of the slugs as they are ejected and adapted to cut the slugs in two, a casing in which the saw is mounted, the casing and saw being movable vertically to cut slugs of different lengths, slug guides above the saw, said guides being yieldable and adapted to give way when contacting with rigid parts of the machine as the casing approaches the upper limit of its movement.

16. In a linotype machine having a mold slot in which slugs are cast, means for pushing the slugs out of the mold when the mold is in vertical position, an inclined stick below the mold slot upon which the slugs are adapted to be assembled, a curved plate in the path of the lower end of the slugs as they descend to guide them out upon the assembly plate, a guide or guard for the upper end of the slug adapted to prevent the slug from falling forward when the lower end strikes the curved plate.

17. In a linotype machine having a mold in which slugs are cast, an ejector for pushing the slugs out of the mold when the mold is in vertical position, a saw in the path of the slugs as they are ejected for cutting the slugs in two, a casing in which the saw is mounted, the casing and saw being movable vertically to cut the slugs at different points, an inclined stick or assembly plate below the mold slot for receiving slugs, a curved plate in the path of the lower end of the slugs as they fall upon the said plate to guide the lower ends out upon the plate, a guide or guard for the upper end of the slug carried by said saw casing and movable with it.

18. In a linotype machine having a mold in which slugs are cast, an ejector for pushing the slugs out of the mold when the mold is in vertical position, a saw in the path of the slugs as they are ejected for cutting the slugs in two, a casing in which the saw is mounted, the casing and saw being movable vertically to cut the slugs at different points, an inclined stick or assembly plate below the mold slot for receiving slugs, a curved plate in the path of the lower end of the slugs as they fall upon the said plate to guide the lower ends out upon the plate, a guide or guard for the upper end of the slug carried by said saw casing and movable with it, said guide being adjustable relatively to the casing.

19. In a linotype machine having a mold in which slugs are cast, an ejector for pushing the slugs out of the mold when the mold is in vertical position, a saw in the path of the slugs as they are ejected for cutting the slugs in two, a casing in which the saw is mounted, the casing and saw being movable vertically to cut the slugs at different points, an inclined stick or assembly plate below the mold slot for receiving slugs, a curved plate in the path of the lower end of the slugs as they fall upon the said plate to guide the lower ends out upon the plate, a guide or guard for the upper end of the slug carried by said saw casing and movable with it, said guide being curved and adjustable as to curvature and its relation to the casing.

20. In a linotype machine having a mold in which slugs are cast, means for ejecting the slugs from the mold when the mold is in vertical position, a saw arranged in the path of the slugs as they are ejected and adapted to cut the slugs in two, a guide passage above said saw through which the upper part of the slug can be delivered, said passage being deflected at an angle to the travel of the slug as it is being cut, a yielding gate or obstruction in the path of the slug adapted to deflect the slug as it is cut to cause it to travel through the deflected passage.

21. In a linotype machine having a mold in which slugs are cast, means for ejecting the slugs from the mold when the mold is in vertical position, a saw arranged in the path of the slugs as they are ejected and adapted to cut the slugs in two, a guide passage above said saw through which the upper part of the slug can be delivered, said passage being deflected at an angle to the travel of the slug as it is being cut, a spring

actuated member in the path of the slug adapted to deflect the slug when cut to cause it to travel through the deflected passage.

22. In a linotype machine having a mold in which slugs are cast, means for ejecting the slugs from the mold when the mold is in vertical position, a saw arranged in the path of the slugs as they are ejected and adapted to cut the slugs in two, a guide passage above said saw through which the upper part of the slug can be delivered, said passage being deflected at an angle to the travel of the slug as it is being cut, a pivotally hung deflector arranged in the path of the slug and yieldingly held in said path by a spring and adapted to cause the upper part of the cut slug to be deflected into and through said deflected passage.

In testimony whereof, I have hereunto set my hand this 2 day of February, A. D. 1918.

CHARLES L. MOHR.