

(Model.)

W. A. LORENZ & L. K. JOHNSON.
MACHINE FOR ARRANGING TYPE IN LINES.

No. 244,723.

Patented July 19, 1881.

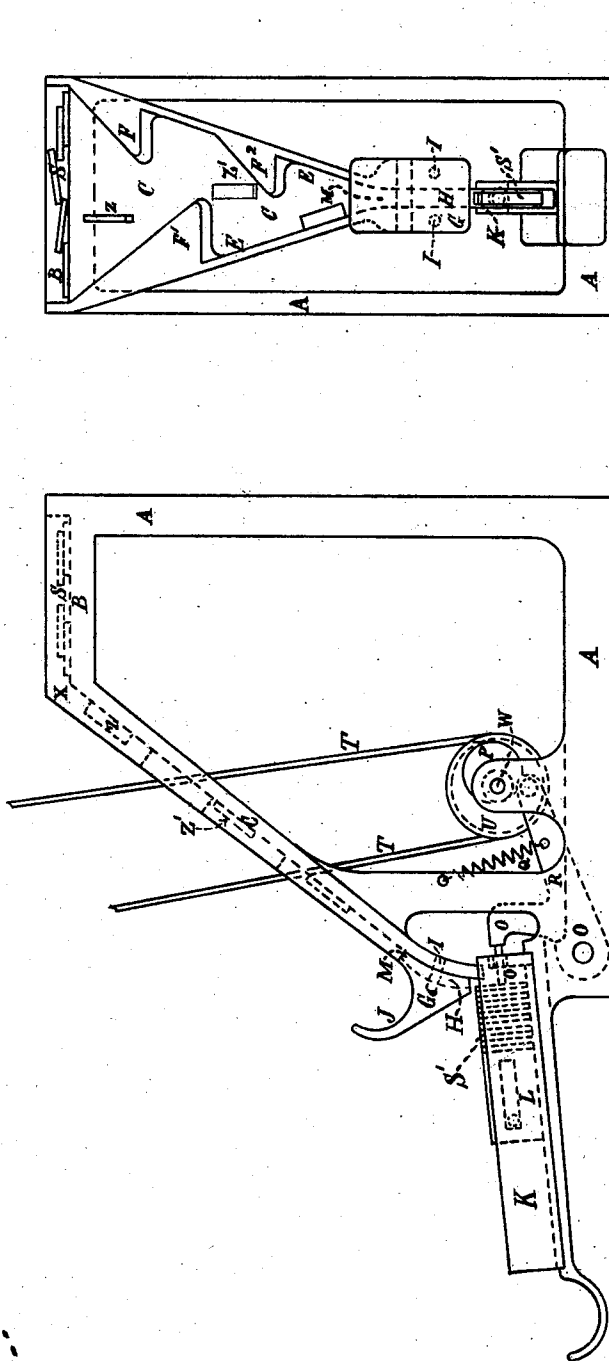


Fig. 2.

Fig. 1.

Witnesses:

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UNITED STATES PATENT OFFICE.

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TRUSTEE.

MACHINE FOR ARRANGING TYPE IN LINES.

SPECIFICATION forming part of Letters Patent No. 244,723, dated July 19, 1881.

Application filed May 28, 1881. (Model.)

To all whom it may concern:

Be it known that we, WILLIAM A. LORENZ, of the city of Brooklyn, county of Kings, and State of New York, and LOUIS K. JOHNSON, of the city, county, and State of New York, have invented a new and useful Improvement in Machinery for Arranging Types in Line, which improvement is fully set forth in the accompanying specification and drawings.

Our invention is intended to arrange in regular order in a receiving-channel, side against side, types or type-spaces, no matter in what position they may be fed into the machine.

It frequently occurs, in the operation of type setting or justifying that types or spaces have to be rejected and thrown aside. Ordinarily such types are promiscuously thrown into a box and have to be selected and set up again in line before they can be used in connection with any apparatus which is intended to automatically set or deliver such type or spaces. It is plain that as a type is dropped from the fingers it may strike upon its flat side or upon its edge, and if such types are to be arranged regularly in a channel it is obviously necessary that they be delivered to the said channel with their similar sides facing the same way; and our apparatus is intended to deliver each type to the receiving-channel with its flat side toward the advancing line in said channel. This we accomplish by causing a type to descend or slide down an inclined plane having its major axis at an angle to the direction in which it is descending on said plane.

It is obviously impossible for any narrow type or space to rest upon a sharply-inclined plane upon its edge with its major axis at an angle to its line of motion without falling over upon its flat side, for the reason that a line from the center of gravity of the type to the center of the earth falls outside of the base of the type, and therefore whenever a narrow type is placed upon an inclined plane it will necessarily fall upon its side, and it is this principle which we utilize in the operation of this invention. It is possible for a type to slide down a steeply-inclined plane upon its edge, provided its major axis or length is parallel with the direction in which it is moving, for

the reason that a perpendicular line from its center of gravity would then fall within the base of the type, and it becomes necessary to turn the type so that its axis forms an angle to its line of motion before gravity will act to overthrow the type.

It is with the object of preventing a type from sliding down an inclined plane with its major axis parallel to its line of motion that we have devised this apparatus, which consists, generally, in an inclined plane having converging sides which unite in a throat through which the type are delivered to the receiving-channel below, where a vibrating pusher feeds them through the channel, thus making room for each succeeding type or space.

In the drawings, Figure 1 represents a side elevation of the apparatus, and Fig. 2 a front elevation.

Similar letters of reference refer to similar parts.

A is the frame or support of the apparatus, supporting a horizontal bed, B, upon which types or spaces S are shown. To this bed B is connected an inclined plane, C, which is curved at its lower end, as shown in the drawings, so as to deliver the type nearly vertically. This inclined plane is provided with converging sides E E, having the angular deflectors F F' F².

At the throat M of the inclined plane C a removable cover, G, is placed, which is supported on the pins I I. Through this cover is cut the conducting-channel H, which is a continuation of the throat of the inclined plane C. Descending type pass beneath this cover and over the curved surface beneath, and are delivered into the end of a type-channel, K, in which a friction-slug, L, supports the line of type S', while a vibrating pusher, O, impels the line forward, making room for each succeeding type. This vibrating or reciprocating pusher O consists, generally, of a bell-crank pivoted at its angle, the longer arm of which is elevated by the spring Q and is depressed by the eccentric P, attached to the shaft W, revolved by a belt, T, passing over a pulley, U.

The type-channel K is a little inclined, so that the types S' shall not fall back against

the pusher O, which pusher is kept continually reciprocating during the operation of the machine. This channel is removable.

The operation of the machine is as follows:

- 5 Types are delivered, one by one, at the upper part of the inclined plane C, and may be so delivered either upon their edge or upon their flat side. If they are delivered upon their flat side they of course slide down such slide
- 10 or inclined plane upon their flat side, through the throat H, into the channel K; but if they are delivered upon their edge, as shown at Z, coming in contact with some one or more of the deflectors forming part of the inclined
- 15 sides, they will thereby be thrown into such a position that their major axes will be parallel to the sides of the deflectors. As they descend still farther they will slide down past the ends of said deflector till they are no longer sup-
- 20 ported by the sides of said deflector, against which they previously rested. When they have passed free of such deflector gravity acts upon them and tends to throw them upon their side, as is shown at Z', and if the first deflector
- 25 or projecting arm does not accomplish it a second one will. The object of these several deflectors is to insure the striking of the type against one of them. Otherwise it might be possible for a type to pass down to the receiving-channel without coming in contact with
- 30 any one, and sufficient deflectors should be used to insure this contact, so that when a type reaches the entrance of the channel H it is upon its flat side and passes readily through it
- 35 beneath the gate of the movable piece G; but if two types arrive together at the throat, or if a type arrives there on its edge, the type cannot pass through the conducting-channel H, as that is only large enough for one type at a
- 40 time to pass through on its flat side. If a type should thus obstruct the passage at the entrance to the channel H, it can be readily thrown into the cup J, which is part of the cover G. Should any type be caught inside the con-
- 45 ductor-channel H, the cover G can be readily removed for the purpose of clearing the channel.

It is obvious that a delivery-tube inclined to the line of descent of the type on the plane might, to a certain extent, accomplish the same

50 result, and would contain substantially the principle of our invention, which is the causing a type to descend a plane with its major axis at an angle to its line of motion. It is obvious, likewise, that by placing the plunger

55 ninety degrees in either direction from its present position the type could be delivered edge to edge, instead of side to side, which would be useful in some machines.

What we claim as our invention, and desire

60 to secure by Letters Patent, is—

1. A type-guiding frame consisting of an inclined plane having one or more deflectors for the purpose of upsetting any type which may be descending the said plane on its edge, and causing the same to be delivered on its flat 65 side, substantially as described.

2. A type-upsetting apparatus which consists of an inclined plane and one or more deflectors projecting partially across said plane, whereby the descending type is caused to assume a po- 70 sition at an angle to its line of motion, and is thereby upset by the action of gravity, substantially as described.

3. An apparatus constructed substantially as described, whereby the type is caused to 75 slide down an inclined plane, having its greater axis at an angle to its line of motion.

4. A type-upsetting apparatus which consists of an inclined plane and two converging guiding sides, which sides are provided with 80 one or more deflectors for the purpose of upsetting any type which may be descending the inclined plane on its edge, and causing it to slide on its flat side, substantially as described.

5. An apparatus consisting of an inclined 85 type-slide having deflectors for the purpose of upsetting the type, and a throat which is covered by a gate or cover, of such a height as to prevent the passage of any type upon its edge, but to allow the passage of those types which 90 come to it upon their flat sides, substantially as described.

6. A type-slide consisting of an inclined flat surface, having upsetting-deflectors, combined 95 with a type-receiving channel, in which channel the type are fed along by means of a reciprocating plunger or equivalent apparatus, substantially as described.

7. An apparatus for upsetting type, which consists of an inclined plane provided with 100 deflectors, and having sides converging to a throat, which throat is closed by a gate which is provided with a receiving cup or trough, substantially as and for the purpose described.

8. A type-upsetting apparatus which con- 105 sists of an inclined plane having deflectors, and having its sides converging to a throat through which the type are delivered to a receiving-channel, and which throat is provided with the removable gate G, substantially as 110 described.

9. A type-slide, C, having upsetting deflectors F, gate-piece G, and removable channel K, substantially as described.

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Witnesses:

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