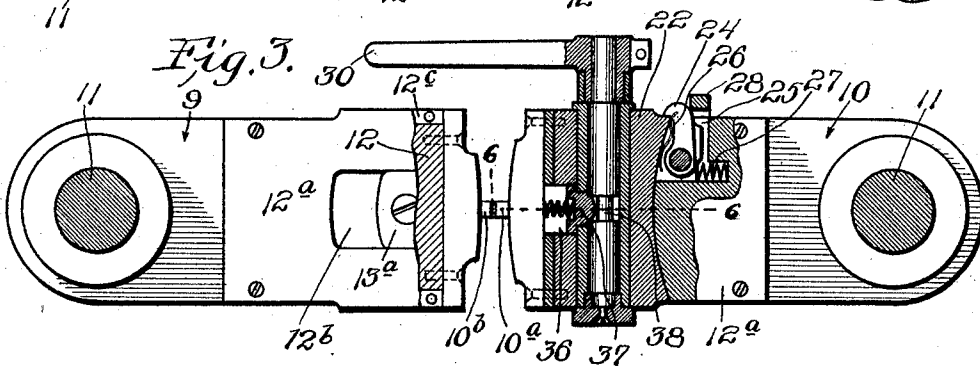
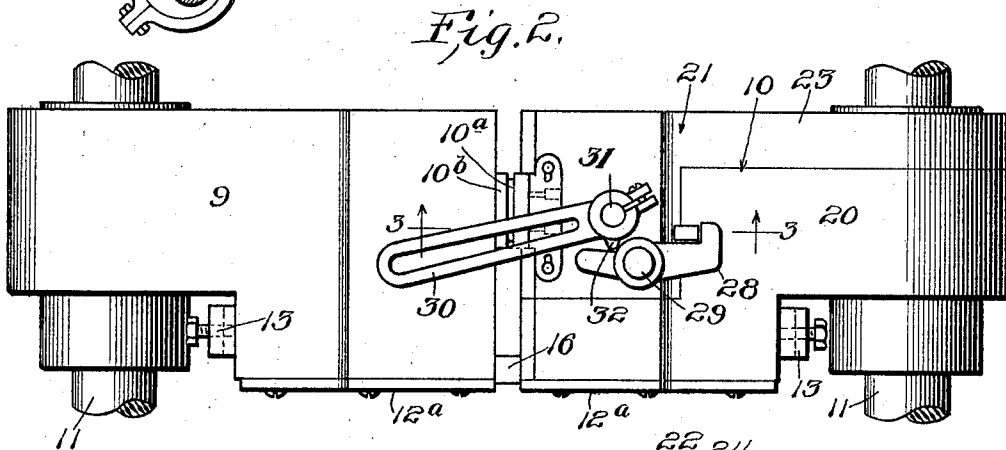
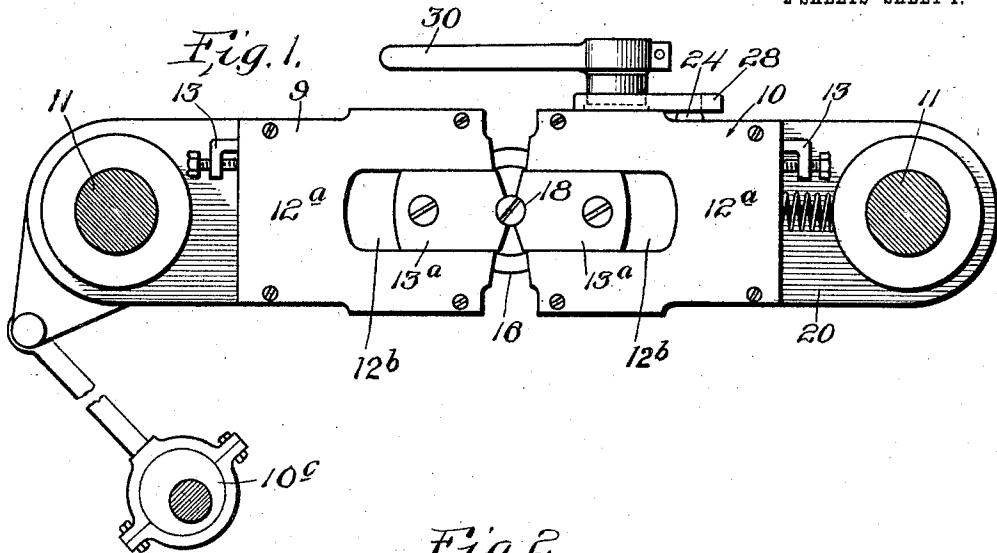


M. PFAU.
TYPE FORMING MACHINE.
APPLICATION FILED APR. 14, 1911.

1,037,169.

Patented Aug. 27, 1912.

2 SHEETS—SHEET 1.



Witnesses:

Harry S. Gaither
Wm. Bond

Inventor:

Max Pfau

By

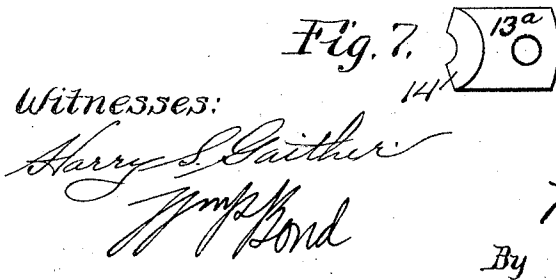
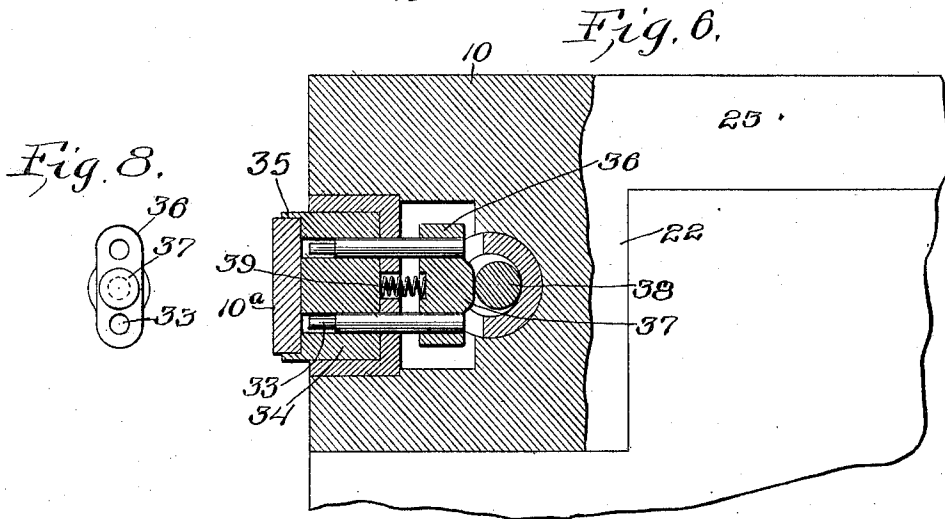
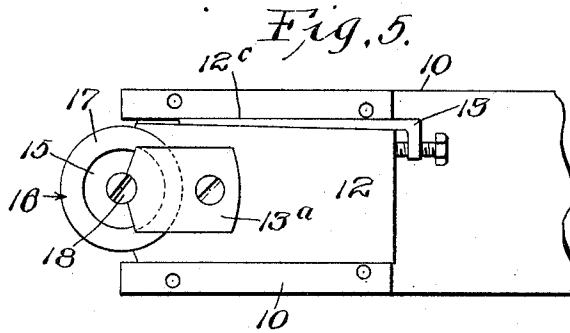
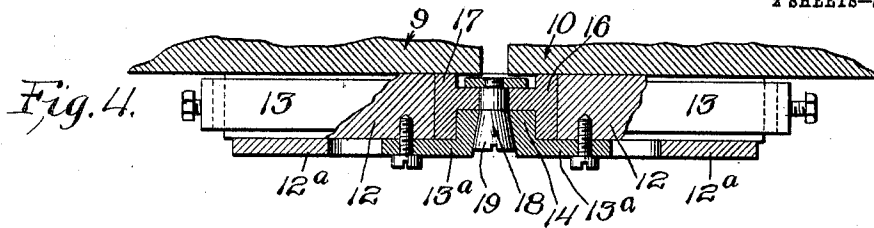
Ramsey & Ramsey
Att'ys.

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2 SHEETS—SHEET 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

MAX PFAU, OF WOODSTOCK, ILLINOIS, ASSIGNOR TO THE EMERSON TYPEWRITER CO.,
OF WOODSTOCK, ILLINOIS, A CORPORATION OF ILLINOIS.

TYPE-FORMING MACHINE.

1,037,169.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed April 14, 1911. Serial No. 621,108.

To all whom it may concern:

Be it known that I, MAX PFAU, a citizen of Saxony, Germany, residing at Woodstock, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in Type-Forming Machines, of which the following is a specification.

The present invention relates to a machine utilized for forming characters upon type, and the class of type upon which it is more especially designed to form characters is that class used in connection with typewriting machines.

One object of the present invention is to provide a form of connection between the swinging heads.

A further object of the invention is to provide means for locking the type carrier forming a portion of one of the heads to the body portion of said head, and to provide means for throwing the locking means out of operative position, which will also operate mechanism for ejecting the type from the head.

The invention further relates to the features of construction and to the combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a view showing two heads of the style employed with machines of this character, and showing the mechanism forming the subject matter of the present invention operatively connected thereto; Fig. 2, a plan view of the parts shown in Fig. 1 on a somewhat enlarged scale; Fig. 3, a side elevation showing a portion of the parts in section, said section being taken on line 3—3 of Fig. 2; Fig. 4, a detail plan view, partly in section, showing the method employed in the present invention for connecting the heads together; Fig. 5, a detail of one of the heads with the cover plate therefor removed; Fig. 6, a detail plan view, partly in section, said section being taken on line 6—6 of Fig. 3; Fig. 7, a detail showing one of the flanged plates employed in the connection between the heads; and Fig. 8, a plan view of the member which carries the ejecting pins.

In mechanism of the class to which the present invention relates, it is customary to utilize opposed oscillating heads, one of which carries a matrix, and the other of

which carries a blank upon which the type is formed; and the characters are formed upon the type blank by a rolling action of the matrix against a surface of the blank. Only one of these heads is power driven, and, of course, there must be some connection provided between the heads so that they will oscillate in unison. Otherwise, there would be a misalignment between the matrix and the type blank and an imperfect type would result. It has been customary, so far as I am aware, to employ a gear connection between these two oscillating heads. This has been found to be objectionable because of the fact that the gear teeth will become worn after a relatively short period of usage, and hence a slippage allowed between the heads during the formation of the type. It is one of the primary objects of the present invention to provide a connection between these heads which will eliminate all slippage and insure the harmonious movement of the two heads during the type forming operation.

In illustrating the present invention, it has only been deemed necessary to show those parts which relate to the subject matter thereof. The main portion of the machine may be of any ordinary and well known type and the parts which compose the features of the present invention can be applied to any form of type making machine desired. As stated in the objects, the invention consists in two features, the first being the connection between the oscillating heads.

In Fig. 1 are shown two oscillating heads 9 and 10, each of which is mounted upon a suitable shaft 11. One of the heads, namely, the head 10, carries the type blank 10^a, and the other, the head 9, carries the matrix 10^b, and the head 9 is power driven by any suitable mechanism which will impart a rocking movement thereto, as, for instance, an eccentric 10^c. Each head carries a block 12, which is mounted within a recess 12^c in the body portion of the head and is held in place by securing plates 12^a, and is maintained in set position by a wedge member 13, or in any other suitable manner. It is understood that the head 9 and the head 10 are each provided with one of these blocks 12. Secured to each of the blocks 12 is a flanged plate 13^a, resting within a slot 12^b in the

securing plate 12^a and having a projecting flange 14, best shown in Fig. 4. This flange, as shown, is arcuate in formation and is adapted to rest within a circular groove 15 in a disk 16. This groove 15 is produced, as more clearly shown in Fig. 4, by forming a flange 17 on the disk, and by inserting into the center of the disk a threaded member 18, which terminates in a tapered head 19, which may be termed a hub. One of the faces of each of the flanges 14 is tapered so as to correspond to the tapering formation of the head 19.

As heretofore stated, each block 12 is provided with a plate 13^a, so that, as will be seen from a study of Figs. 1, 2 and 4, there are two of these plates opposed to one another, and each having an arcuate-shaped flange 14 resting within the groove 15. As the blocks 12 oscillate back and forth by the movements of the head 9, taking this head to be the power driven one, through the medium of the engagement of the flange 14 with the groove 15, the disk 16 will be raised and lowered in conformity with said movements. This will cause a corresponding oscillation of the head 10 through the medium of the engagement of the plate 13^a of the head 9 with the disk 16, and hence a corresponding oscillation of the heads 9 and 10 around the centers of the shafts 11. By this arrangement, a harmonious oscillation of the two heads is effected, and this is produced without the use of teeth or similar contrivances, which are liable to become worn by wear and permit of a lost motion or play in the movement of the heads. If the parts of this connection should become worn during usage, the play can be taken up by manipulating the screw-threaded member 18 so as to force the tapered head 19 farther inward and into proper engagement with the flanges 14 of the plates 13^a.

Another feature of the present invention lies in the provision of means for locking a type carrying member to one of the heads, and also to the means for mechanically ejecting the type from the type carrying member. By referring to the plan view of the head 9, which is shown in Fig. 2, it will be seen that said head comprises a body portion 20, which is cut away to allow of the interposition therein of a type carrying member 21, which consists of a block-like portion 22 and an arm 23. The arm is mounted upon the shaft carrying the head 9. The type carrying member is locked to the body portion of the head 9 by means of a latch 24, which, as shown more clearly in Fig. 2, is mounted within a recess 25 in the head 9. This latch is held normally projected by a leaf spring 26, and, in addition, is engaged by a coiled spring 27, the leaf spring, when the type carrying member is thrown into locked position, tends to pull

the forward end of the latch over into engaging position with said type carrying member.

The latch is maintained in clamped position by means of a hooked clamp 28, best shown in Fig. 2. This clamp is mounted upon a pivot 29; and a handle 30 is provided, which is mounted upon a stem or shaft 31, said handle being provided with a lug or cam 32, which, as shown in Fig. 2, rests against a portion of the clamp 28 and serves to throw and maintain the clamp in locked position. This arrangement affords a very firm and efficient means of clamping the type carrying member to the body of the head, and insures against movement of the type carrying member with respect to the head, which, obviously, would be very undesirable, since it would allow of a slippage between the matrix and the type blank, thus producing a type having imperfect characters thereon. When the type carrying member is swung clear of the swinging head, the spring 27 will then act to throw the latch back and hold it in place to be thrown to locking position. When the type carrying member is thrown back to normal position, after the type carrying member engages the spring 26, the latch is thrown forward into the position shown by such engagement.

Means for ejecting the type are shown, which consist of a series of pins 33 projecting through rests in a block 34 held within the type carrying member 22; and said block is provided with a groove 35, in which rests the blank 10^a of the type to be formed. The pins 33 are carried by a head 36, to which is connected a stem 37, resting against a portion 38 of the stem or shaft 31. This portion 38, as best shown in Figs. 3 and 6, is partially cut away so as to make its outer periphery of an eccentric or cam formation. A spring 39 is provided, which tends to maintain the stem 37 in engagement with the eccentric portion 38 of the shaft 31. The operation of this portion of the device is obvious from a study of the drawings. When the shaft 31 is turned through half a revolution, it moves the cam portion 38 into a position opposite to that shown, and the spring 39 will act to throw the head 36 rearwardly and retract the pins 33 from the slot 35. This will be the position the parts assume when the characters are being formed on the type. The position shown in Fig. 6 is the position assumed by the parts when the type is being formed. In the position the pins assume when performing the ejecting operation the pins 33 project into the groove 35 in a manner to force the type outwardly therefrom. It will be noted that the handle 30 is keyed or otherwise secured to the shaft 31, and that it is the rotative movements of this shaft

which actuate the ejecting mechanism; and it will be further noted that the movements of the handle swing the cam 32 to release or engage the clamp 28 from the latch member 24, so that each movement of the handle 5 30 actuates the ejecting mechanism and loosens the clamp.

When the parts are in the position shown in Fig. 2, the ejecting mechanism is withdrawn from acting position and the clamp 10 is in position to engage the locking member. When the handle is swung, however, so as to permit the clamp to be released from the locking member, the ejecting mechanism moves into position to perform the 15 ejecting operation, so that when the type holding member is released from the head and swung upwardly around its pivotal center, which is the center of the shaft 11, upon which the head 9 is mounted, the ejecting 20 mechanism will have acted to force the type out of the groove 35 and place it in position where it can be readily extracted from the type holding member by the operator.

I claim:

1. In a type forming machine, the combination of two opposed swinging heads, a type blank holder in one of said heads, a 30 matrix holder in the other of said heads, said holders being operatively positioned with respect to one another, a connection between said heads, comprising a flanged disk, plates secured to each head, an arcuate-shaped flange on each plate adapted to en- 35 gage the flange on the disk, and power driven means for swinging one of said heads, said connection causing both of said heads to swing in unison, substantially as 40 described.

2. In a type forming machine, the combination of two opposed swinging heads, a type blank holder in one of said heads, a 45 matrix holder in the other of said heads, said holders being operatively positioned with respect to one another, a connection between said heads, comprising a disk provided with a circular groove, plates secured to each head, and arcuate-shaped flanges on 50 said plates adapted to rest within said groove, substantially as described.

3. In a type forming machine, the combination of two opposed swinging heads, a type blank holder in one of said heads, a 55 matrix holder in the other of said heads, said holders being operatively positioned to one another, means operatively connected for actuating one of said heads, a connection between said heads to cause them to 60 move in unison, comprising a flanged disk having a centrally located tapered hub, plates secured to each head, formed with arcuate-shaped flanges adapted to rest between the flange and hub of the disk, and 65 the inner faces of the flanges and the plates

being tapered to conform to the taper of the hub, substantially as described.

4. In a type forming machine, the combination of two opposed swinging heads, a type blank holder in one of said heads, a 70 matrix holder in the other of said heads, said holders being operatively positioned to one another, means operatively connected for actuating one of said heads, a connection between said heads to cause them to 75 move in unison, comprising a flanged disk, plates secured to each head, arcuate-shaped flanges on said plates engaging the flange on the disk, and means for maintaining the flange on the disk and flanges on the plate 80 in firm engagement, substantially as described.

5. In a type forming machine, the combination of two opposed swinging heads, a type blank holder in one of said heads, a 85 matrix holder in the other of said heads, said holders being operatively positioned to one another, means operatively connected to actuate one of said heads, a connection between said heads to cause them to move in 90 unison, comprising a flanged disk having a centrally located tapered hub, plates secured to each head, arcuate-shaped flanges on said plates adapted to rest between the flange and hub of the disk, the inner faces of the 95 flanges on the plates being tapered to conform to the taper of the hub, said hub being in the form of a screw-threaded stem, substantially as described.

6. In a type forming machine, the combination of two opposed swinging heads, a type blank holder in one of said heads, a 100 matrix holder in the other of said heads, said holders being operatively positioned to one another, mechanism operatively connected for actuating one of said heads, a connection between said heads to cause them 105 to move in unison, comprising a disk provided with a centrally located hub, and a circular groove around the hub, plates secured to each head, and arcuate-shaped 110 flanges on said plates adapted to rest within said groove, substantially as described.

7. In a type forming machine, the combination of two heads, means operatively con- 115 nected for actuating said heads, a type holder carried by one of said heads, a matrix holder carried by the other of said heads, said holders being operatively positioned to one another, said type holder being mov- 120 able independently of the head in which it is mounted, means for locking said holder to said head, means for ejecting the type blank from the holder, and a single movable member for directly operating said ejecting 125 means and moving said locking means to locking position, substantially as described.

8. In a type forming machine, the combination of two heads, means operatively con- 130 nected for actuating said heads, a type

blank holder carried by one of said heads and movable independently of said head, a matrix holder carried by the other of said heads, said holders being operatively positioned to one another, means for locking said type blank holder to said head, means for ejecting the type blank from the holder, and a rock shaft controlling the locking means and operating the ejecting means by the same movement, substantially as described.

9. In a type forming machine, the combination of two opposed movable heads, means operatively connected for actuating said heads, a type blank holder carried by one of said heads, and movable independently of said head, a matrix holder in the other of said heads, said holders being operatively positioned to one another, means for locking said blank holder in position upon said head, consisting of a hooked latch, means tending to throw said latch out of locking position after said type holder has been released, means tending to hold said latch in engaging position when said type blank holder is in locked position, and means for controlling the movements of said latch, substantially as described.

10. In a type forming machine, the combination of two movable heads, means operatively connected for actuating said heads, a type blank holder carried by one of said heads, a matrix holder carried by the other of said heads, said holders being operatively positioned to one another, means for ejecting type from the type blank holder, com-

prising a shaft having a cammed surface thereon, a movable block in engagement with said cammed surface, pins on said block forming the ejecting members, and tension mechanism for moving the block in one direction, substantially as described.

11. In a type forming machine, the combination of two heads swinging from opposed pivotal centers, a type blank holder in one of said heads, a matrix holder in the other of said heads, power driven means for swinging one of said heads, a member interposed between said heads and a tongue and groove connection between the heads and member to cause the heads to move in unison and in opposite directions, substantially as described.

12. In a type forming machine, the combination of two opposed heads, a type blank holder carried by one of said heads, a matrix holder carried by the other of said heads, said holders being operatively positioned to one another, means for locking said holder to said head, means for moving said locking mechanism to inoperative position, means for preventing the type blank from being inserted in said holder while said holder is in unlocked position, and means operatively connected for actuating the mechanism to effect the type forming operation, substantially as described.

MAX PFAU.

Witnesses:

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D. C. AKERS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."