

No. 705,386.

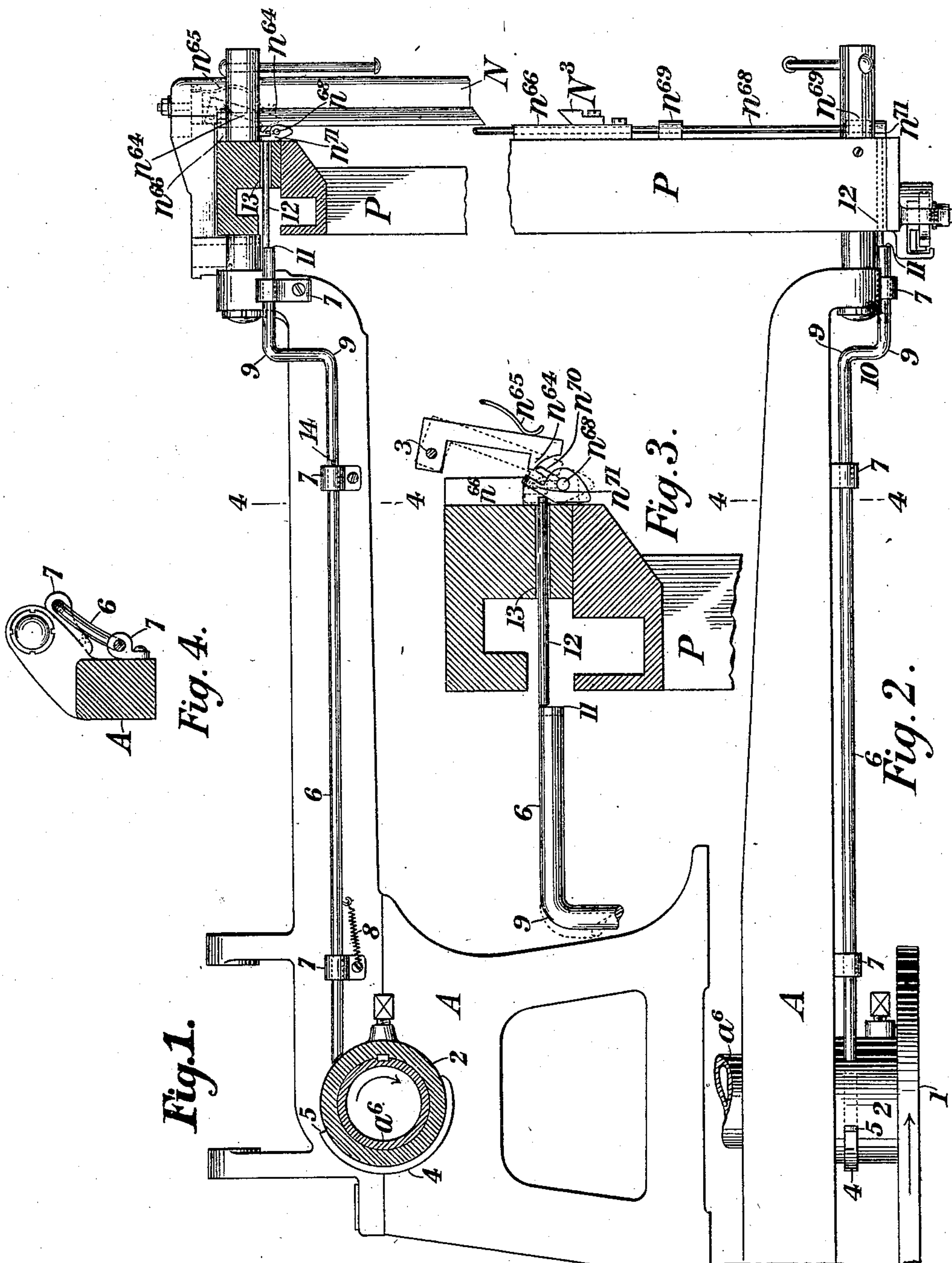
Patented July 22, 1902.

A. G. COTSWORTH.

ALINING MECHANISM FOR LINOTYPE MACHINES.

(Application filed Feb. 26, 1902.)

(No Model.)



Witnesses.
H. R. Kerner
D. Elmore

Inventor
A. G. Cotsworth
per Phil. J. Lodge
Attorney.

UNITED STATES PATENT OFFICE.

ALFRED GWILT COTSWORTH, OF LONDON, ENGLAND, ASSIGNOR TO THE
MERGENTHALER LINOTYPE COMPANY, OF NEW YORK, N. Y.

ALINING MECHANISM FOR LINOTYPE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 705,386, dated July 22, 1902.

Application filed February 26, 1902. Serial No. 95,726. (No model.)

To all whom it may concern:

Be it known that I, ALFRED GWILT COTSWORTH, of London, England, have invented certain new and useful Improvements in and
5 Connected with the Alining Mechanism of Linotype-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains
10 to make and use the same.

The present invention relates to improvements in and connected with the particular alining mechanism of a Mergenthaler linotype-machine described in the specification of
15 Letters Patent of the United States No. 614,561, November 22, 1898. That mechanism effected the alinement of the composed line of matrices in the same way as did the alining mechanism described in the specification of
20 United States of America Patent No. 436,532, September 16, 1890—viz., by the rise of the first elevator pulling a lug on each matrix up to a fixed horizontal projecting surface known as the "alining-ridge," thereby getting all the
25 matrices into line with each other; but it provided a detent or locking device adapted to hold the elevator down momentarily, thereby leaving the matrices free to move laterally as the justifying wedges or spacers are thrust
30 upward through the line, the detent being disengaged after the justification has been effected and the elevator thereby allowed to effect the alinement by its rise. This disengagement was effected by the second justifying-lever pulling a certain rod connected to
35 the detent downward; but depending upon that downward pull to disengage the detent led to an alteration in the design of the cam of the said justifying-lever, such alteration
40 being intended to accelerate the drop of the lever. Now, seeing that such drop opened the vise-jaws beyond standard length of the line at a time that the first justifying-lever was free to justify, the line was wedged by
45 the latter between the vise-jaws too tightly for the rising first elevator to effect alinement. Further, the second justifying-lever and the respective cam communicate through an anti-friction lever carried by the former, and as

the said lever is being urged constantly up 50
to the cam by two springs the wear on the antifriction-roller is considerable, and consequently the above-mentioned downward pull would occasionally fail to disengage the de-
55 tent.

According to the present invention the detent or locking device to hold the first elevator down is disengaged by a cam-surface incorporated with the cam that raises the first elevator and acting through a suitable push-rod 60
or its equivalent upon the rod that carries the detent of the Patent No. 614,561 above mentioned.

Referring to the accompanying drawings, which are to be taken as a part of this specification and read therewith, Figure 1 is a sectional side elevation from the left-hand side of the machine; Fig. 2, a part plan corresponding therewith, but omitting the first elevator and including its cam; Fig. 3, a detail 65
sectional elevation of the disengaging device on an enlarged scale, and Fig. 4 a sectional elevation from the rear on the line 4 4 of Figs. 1 and 2.

A is part of the frame of the machine; a^6 , 75
the main shaft carrying, as usual, all the main cams of the machine including the cam 1, that raises the first elevator N; 2, the boss of the said cam; N^3 , one of the guides in which the elevator N moves; n^{64} , the detent pivoted 80
upon and depending from a horizontal rod 3, fast in the head of the elevator N; n^{65} , its actuating-spring; n^{66} , the stop fast to the front of the pivoted vise-frame P, and under which the detent n^{64} engages to hold the elevator N 85
in its lowest position, thereby leaving the matrices free to be acted upon by the justifying-plate; n^{68} , the horizontal disengager-rod free to turn in bearings n^{69} , fast to the front of the vise-frame P; n^{70} , the detent-disengager carried 90
by the rod n^{68} in the proper position to engage the detent n^{64} , and n^{71} the finger carried by the rod n^{68} in the proper position to be engaged by the push-rod of the present invention.

All the above-mentioned parts (excepting of course the push-rod just mentioned) are as heretofore and will be found in either of 95

the United States of America patents already referred to. It is to be noted that the position of the push-rod has necessitated the removal of the finger n^{71} from the side to the front of the vise-frame P.

It has already been explained that the present invention operates the disengaging device from the same shaft that raises the first elevator. Thus, 2 being the boss of the cam 1, 4 is a cam-surface fast to and concentric therewith, its leading end 5 being preferably radial to the axis of the cam's rotation. 6 is the push-rod adapted to slide freely in either direction in guides 7 7, fast to the machine-frame A, and which hold it in the plane of the cam-surface 4. The rear end of the push-rod 6 must be kept almost in contact with the cam-boss 2 or with the cam-surface 4, whichever may be for the time being opposite to it. Any convenient device may be used to effect this. A suitable as well as a convenient one consists of a spring 8 pulling on the rod 6 from a rearwardly-situated point on the machine-frame A, as shown in Fig. 1. 14 is a stop pin to prevent unnecessary wear by holding the said end just clear of the boss 2. It is convenient that the major length of the push-rod 6 should be lower than the disengager-rod n^{68} and that it should pass through the vise-frame P on its way to the finger n^{71} . Moreover, the pivoted vise-frame P swings from the position shown in Figs. 1, 2, and 3 to the front. To meet these two conditions, the push-rod 6 is cranked twice, as shown at 9 9 in Figs. 1 and 2, bent once to the left, as shown at 10 in Fig. 2, thereby making its front end 11 stand behind a convenient part of the vise-frame P and severed at a point just behind the latter, the severed and front portion 12 being supported by a part 13, in which part of it lies, so that when the vise-frame P is swung to the front away from the machine-frame A it will carry the said portion 12 with it. When the vise-frame P is swung back again, the rear end of the portion 12 is held in contact with the front end 11 of the main push-rod 6 and the finger n^{71} in contact with the front end of the portion 12 by the spring n^{65} .

The function and the consequent timing of the first elevator-cam 1 are too well known to require description here; but the dimensions of the cam-surface 4 are important and are as follows: As to position on the boss 2 lengthwise of the latter, the whole of the said cam-surface must project therefrom in the plane of the rear end of the push-rod 6, so as to be always opposite it, as shown in Fig. 2. As to its radial projection from the surface of the said boss, this is regular throughout, and must be enough to make the push-rod rock the finger n^{71} , detent-disengager n^{70} , and detent n^{64} from the dotted-line position into the full-line position shown in Fig. 3. As to its angular position, its leading end 5 must come up to and actuate the push-rod 6 just before the

cam 1 begins to raise the elevator N, or, in other words, before it starts it to aline the matrices. It may be remarked at this point that the justifying-levers effect the first and principal justification and begin to drop just before the first elevator-cam begins to raise the elevator N. As to the angular length of the said cam-surface 4, it must be such that the latter will hold the detent n^{64} disengaged during the process of alinement and will also clear the push-rod 6, leaving the said detent free to be acted on by its engaging-spring n^{65} in time for the next engagement under the stop n^{66} .

Briefly stated, the locking device n^{61} acts momentarily to lock down the first elevator in which the matrices are suspended, while the justifying-wedges are being forced upward through the matrix-line in the usual manner, so as to relieve the ears of the matrices from the friction to which they were subjected by the lifting influences of the first elevator in the earlier machines, thus permitting them to move laterally, so that justification may be more easily effected by the wedges. Immediately after the justifying action is completed the detent disengages, leaving the first elevator free to rise slightly in the usual manner to effect the alinement of the matrices vertically. The action of the locking device shown herein is, broadly considered, similar to that in Patent No. 614,561; but in the arrangement herein shown the detent is positively disengaged by a device wholly independent of the justifying device and the jaw-adjusting device, and in this regard it differs from the former construction.

I claim—

1. The combination with the detent, detent-disengager and disengager-rod of the first elevator of a Mergenthaler linotype-machine, of a cam-surface incorporated with the cam that raises the first elevator; push-rod actuated thereby; and finger held by the disengager-rod in position to be rocked by the push-rod when the latter is actuated by the said cam-surface.

2. The combination with the detent, detent-disengager and disengager-rod of the first elevator of a Mergenthaler linotype-machine, of a cam-surface incorporated with the cam that raises the first elevator; main push-rod actuated thereby; front portion of push-rod supported by the vise-frame; and finger held by the disengager-rod in position to be rocked by the front portion of the push-rod when the main portion of it is actuated by the cam-surface.

3. In a linotype-machine, the first elevator, a device for locking the same down momentarily to relieve the matrix-ears from friction during the justifying action, and a positively-acting device independent of the justifying mechanism to effect the disengagement of said detent after the justifying action.

4. In a linotype-machine, the combination
of the first elevator for supporting the line
of matrices, a locking device n^{64} to hold the
elevator down during the action of the justi-
5 fying devices, a cam 4 and connections from
said cam to positively disengage the locking
device.

In witness whereof I have hereunto set my
hand in the presence of two witnesses.

ALFRED GWILT COTSWORTH.

Witnesses:

CHAS. S. WOODROFFE,
WARWICK H. WILLIAMS.