

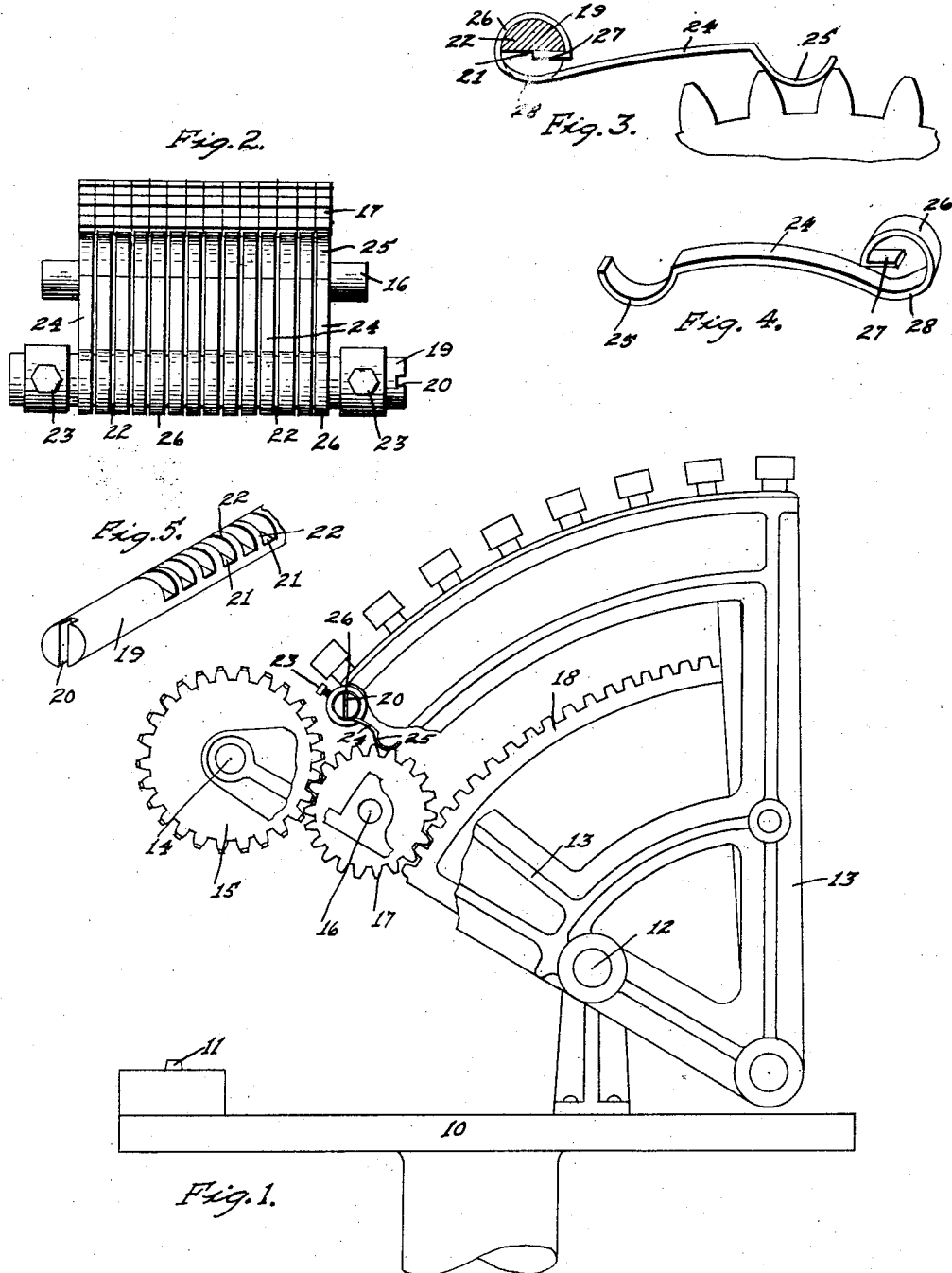
Oct. 4, 1927.

R. OSBORNE ET AL

1,644,144

TYPE WHEEL ALIGNING DEVICE FOR MARKING MACHINES

Filed Oct. 19, 1926



Inventor.
 Raymond Osborne.
 Charles G. Miller.
 by Orwig & Hague Attorneys.

Patented Oct. 4, 1927.

1,644,144

UNITED STATES PATENT OFFICE.

RAYMOND OSBORNE AND CHARLES F. MILLER, OF CINCINNATI, OHIO, ASSIGNORS TO
THE NATIONAL MARKING MACHINE COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

TYPE-WHEEL-ALIGNING DEVICE FOR MARKING MACHINES.

Application filed October 19, 1926. Serial No. 142,631.

Our invention relates to that class of marking machines illustrated and described in the patent to Chester W. Canine, issued June 3, 1913, Number 1,063,180, to which reference is here made, and in view of which it is deemed unnecessary to more fully illustrate and describe the various structures and functions of the marking machine as a whole.

Our object is to provide simple, durable and inexpensive means for automatically aligning the type in printing position upon the various type bearing wheels, so that when a printing operation is effected the type will all be in line.

More specifically it is our object to provide a series of springs which may be readily, quickly and easily applied, and in which the tension may be readily, quickly and easily adjusted to suit the requirements, which springs are designed to engage the toothed pinions which in turn engage the type bearing wheels, and whereby when the pinions are actuated to move the type bearing wheels to printing position, the springs will automatically move the said pinions to proper positions for aligning the type and automatically holding them in such position during the printing operation.

Our invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims, and illustrated in the accompanying drawings, in which:

Figure 1 shows a side view illustrating a part of a laundry marking machine of the ordinary construction with our improvement applied thereto, parts of the frame being broken away to show our improved type aligning device.

Figure 2 shows a top or plan view illustrating a group of the toothed pinions having our improved aligning device applied thereto.

Figure 3 shows an enlarged, detail, sectional view through our improved aligning device, and illustrating a portion of the toothed pinion engaged by one of the springs of the aligning device.

Figure 4 shows an enlarged, detail, perspective view of one of the springs of our improved aligning device; and

Figure 5 shows an enlarged, detail, perspective view illustrating the shaft upon

which the aligning springs are mounted.

Referring to the accompanying drawings, we have used the reference numeral 10 to indicate generally the frame of a printing machine having thereon a stationary platen 11. Pivotaly mounted on the frame 10 upon the shaft 12 is a tilting printing frame 13 having mounted therein a shaft 14. Loosely mounted upon this shaft is a series of type disks 15, each in the form of a toothed pinion with the type at the periphery of the teeth (in the drawing only one of these disks 15 is shown). Adjacent to the shaft 14 is a second shaft 16, and loosely mounted on this shaft 16 is a series of toothed pinions 17 in mesh with the toothed pinions of the corresponding type disks 15. For each of the toothed pinions 17 there is a segmental rack 18 fulcrumed in the frame 13 and in mesh with the corresponding pinions 17. These parts are all so arranged that when any segmental rack 18 is moved the pinion 17 in mesh with it will be correspondingly moved, and the type disk 15 in mesh with the said pinion will be correspondingly moved to bring the selected type to printing position.

Our improved type aligning device comprises a shaft 19 mounted in the frame 13, preferably above the row of toothed pinions 17. This shaft has at one end a slot 20 to receive a screw driven and it also has through its body portion a series of slots 21 preferably formed in the top surface of the shaft and extended transversely of the shaft. The slots are spaced apart leaving the partitions 22 between them.

Mounted in the frame 13 adjacent to the ends of the shaft 19 are set screws 23 by which the shaft may be locked in any position of its adjustment.

The spring type aligning devices are each composed of a single piece of spring metal comprising a body portion 24, having at the outer end a curved tooth engaging member 25, and at the other end the spring is formed into a nearly complete circle 26. The end of the spring is projected inwardly toward the center of the circle at 27. The under side of this circle 26, as clearly illustrated in Figures 3 and 4, projects inwardly to a slight extent toward the center of the circle at the point marked 28.

In assembling our improved device, each

spring is separately applied to the shaft 19. The top portion of the part 24, as shown in Figure 4, is placed against the round portion of the shaft 19 directly beneath the slot 21, with the flattened end 27 of the spring substantially parallel with the bottom of the slot. Then the spring is moved relative to the shaft until its circular portion 26 is substantially concentric with the surface of the shaft, after which the spring is turned approximately one-half revolution on the shaft until the inwardly curved portion 28 of the spring lies within the outer surface of the corresponding slot 21, and when in this position, as clearly shown in Figure 3, the part 28 rests within the walls of the slot and engages the sides or partitions 22. When all of the springs have been thus applied, then the shaft 19 is turned by a screw driver in the screw slot 20 until the proper tension of the springs is applied to the toothed pinions 17, whereupon the set screw 23 is tightened to lock the shaft 19 in position, for applying the proper spring tension. Obviously in the event that by reason of wear or for other causes, the spring tension should be either too great or too slight, the operator may quickly and easily readjust the tension of the springs by first releasing the set screw 23 and then turn the shaft 19 to apply the proper degree of tension, and then again lock the shaft in its readjusted position by means of the set screw 23.

Attention is called to the fact that all of the parts of this aligning device are of extremely simple and inexpensive construction and may be readily, quickly and easily applied and adjusted.

Furthermore, the curved portions 25 of the springs are always held directly in alignment with the central portions of the teeth of the pinions 17, by reason of the fact that the portion 28 of each spring is held against lateral movement by its engagement with the side walls of the slots. This prevents the free ends of the springs from moving laterally and possibly engaging other than the toothed pinions 17 for which each spring is designed, and for the reason that these toothed pinions 17 work independently, this feature is of great advantage.

Another advantage of our improvement is that the springs are wholly independent of each other, and in the event that any spring should become broken or should not apply the proper degree of tension to its corresponding toothed pinion, it may be removed readily and easily and bent to proper

position, or a new one may be substituted therefor, which, obviously, is not possible if the springs were all made of one piece of metal. We have found that it is impractical to form all of these springs of a single piece of metal and obtain the proper tension of each spring with relation to its corresponding toothed pinion.

We claim as our invention:

1. A type aligning device for marking machines, comprising in combination a series of pinions having type upon the periphery of the teeth, a corresponding series of toothed pinions in mesh with the type bearing pinions, a series of independent spring arms, each spring arm having one end shaped to yieldingly engage the toothed pinions and to enter between the teeth thereof to cause said toothed pinions to stop in their movement at predetermined positions and to be held in said position, and means for adjusting the tension of said spring arms.

2. A type aligning device for marking machines, comprising in combination a series of pinions having type upon the periphery of the teeth, a corresponding series of toothed pinions in mesh with the type bearing pinions, a shaft rotatively mounted adjacent to the toothed pinions and formed with a series of slots extended transversely and spaced apart from each other and extending from the periphery of the shaft at one edge to a point approaching the center of the edge, means for locking the shaft against rotation, and a series of spring arms, each comprising a body portion, an outer end portion shaped to enter between two teeth of the corresponding toothed pinion, the other end of each spring arm being curved into a nearly complete circle with its end projected inwardly toward the center of the circle and being also formed with a portion of this circle projected inwardly toward the center of the circle, said parts being so arranged that when assembled the rounded portion of the circle will engage the rounded portion of the shaft opposite from the slot, the inwardly extended end portion will engage the shaft at the bottom of the slot and the inwardly extended portion of the circle will enter between the sides of the slot and engage the walls between the slots, substantially as and for the purposes stated.

Des Moines, Iowa, October 6, 1926.

RAYMOND OSBORNE.
CHARLES F. MILLER.