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REGISTERING DEVICE FOR PRINTING COUPLES.

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1,188,448.

Patented June 27, 1916.

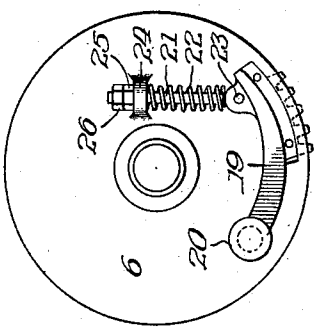


Fig. 3.

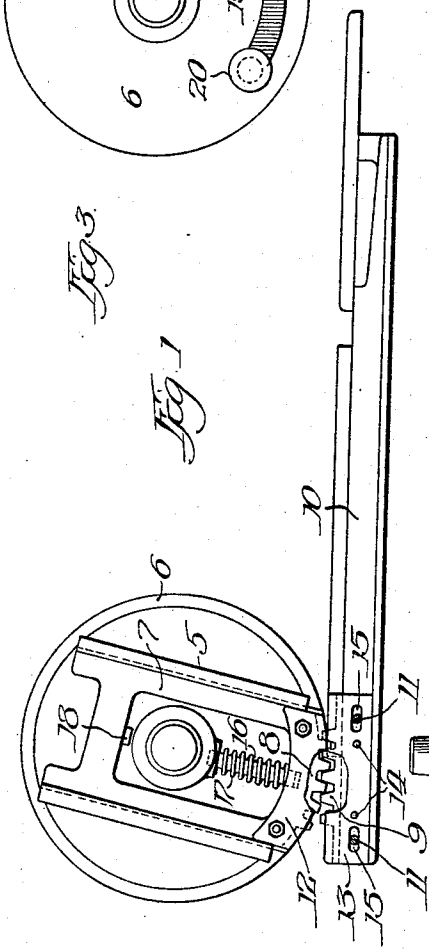


Fig. 1.

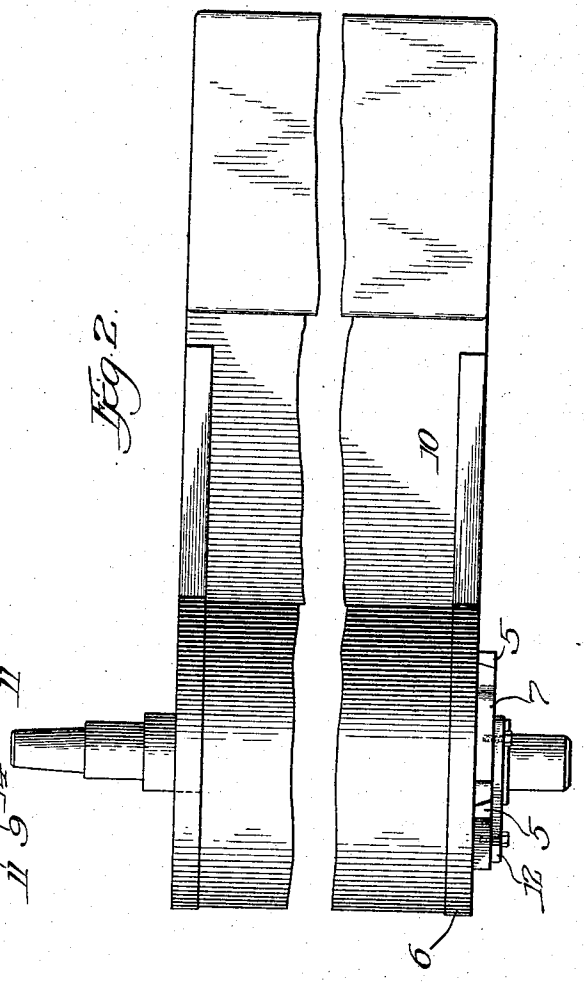


Fig. 2.

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UNITED STATES PATENT OFFICE.

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REGISTERING DEVICE FOR PRINTING-COUPLES.

1,188,448. Specification of Letters Patent. Patented June 27, 1916.

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To all whom it may concern:

Be it known that I, WILLIS K. HODGMAN, a citizen of the United States, residing at Taunton, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Registering Devices for Printing-Couples, of which the following is a specification.

My invention relates to an improvement in printing presses in which the printing members are registered with each other at the beginning of each printing period, by means of gearing in the form of toothed segments carried by each of the printing members and which mesh together just before the printing begins and stay in mesh until the printing is fairly started. These toothed segments are commonly used in cylinder printing presses and are known as register segments or racks. In bed and cylinder presses the register segment is bolted fast to the cylinder and the register rack is bolted fast to the bed but is provided with slotted holes or the like for the bolts in order that it can be adjusted relative to its segment so the teeth of both will mesh with each other without lost motion. In rotary printing presses the register segments are similarly arranged to be adjusted so as to mesh closely, but in all cases after the adjustment is made the segments or racks are bolted fast. This well known and commonly used method of adjusting and fastening register segments and racks is objectionable because it requires very skilful manipulation and the parts must be readjusted for wear and when for any reason the positions of the printing members are changed relative to each other.

The object of this invention is to provide an automatic means to keep the register segments and racks in perfect mesh at all times and irrespective of any proper changes in the position of the printing members relative to each other. I attain the object preferably by mechanism such as is illustrated in the accompanying drawing in which—

Figure 1 is a side elevation of the cylinder and bed of a two revolution bed and cylinder printing press; Fig. 2 is a top plan view of the same; and Fig. 3 is a fragmentary view of a modification.

Referring to the drawings, I have illustrated this invention as applied to a standard type of single color two revolution bed and cylinder printing press in which it will be understood all the parts excepting the register segment and register rack are constructed and operated in the usual manner.

Mounted to slide radially between the guides 5 of cylinder head 6, is the rectangular frame 7 carrying the register segment 8 whose teeth mesh intermittingly with the teeth of the register rack 9 which is fastened to the bed 10 in the usual position adjacent the head of the form, by means of two bolts 11 which pass through its slotted holes. Bolted to the register segment 8 is the bearer 12 which coöperates with a similar bearer 13 fastened to register rack 9 by the two pins 14 and to the bed 10 by the two register rack bolts 11 which pass through slotted holes 15 in the bearer 13. The bearers 12 and 13 coact to limit the depth of mesh of the teeth of the segment rack 8 with those of the rack 9 so that the two racks will mesh together without any lost motion notwithstanding any reasonable change in the distance between the bed 10 and impression cylinder 6, as will be explained. With its ends slidably recessed in register segment 8 and the shaft of impression cylinder 6 is the guide rod 16 for the compression spring 17 which acts to press the register segment 8 radially outward relative to the cylinder head 6 and to hold it in the position determined by its bearer 12 engaging the bearer 13 or its stop pin 18 engaging the shaft of the impression cylinder. The stop pin 18 controls the position of the register segment 8 at all times excepting when the bearers 12 and 13 are in contact, at which time there is a little space between it and the end of impression cylinder shaft, as shown in Fig. 1. It will now be readily understood that by means of this invention the register segment 8 is guided and held in close mesh with the register rack 9, without wear or shock and thus enabled to nicely perform its function of starting the impression cylinder and the bed in perfect register one with the other at the beginning of each printing period.

While I have illustrated and described this invention as applied to a bed and cylinder printing press, having one cylinder it is obvious that it is applicable to bed and cylinder presses having more than one cylinder, and to rotary presses; also that the invention may be embodied in other constructional forms without departing from

the essence thereof or sacrificing its material advantages.

As one illustration of a modified embodiment reference is had to Fig. 3 which discloses the segment rack 19 pivoted at 20 to the cylinder end 6. The guiding rod 21 for the actuating spring 22 is pivoted to the segment at 23 and guided at its upper end in the lug 24 projecting from the end of the cylinder. Here the segment rack 19 is pressed toward the coöperating rack of the other member of the printing couple by means of the spring 22 while its outward movement is limited by means of the adjusting nut 25 and the lock nut 26. The principle of operation is precisely the same as in the embodiment previously described and illustrated in Figs. 1 and 2.

I claim:

1. The combination with a printing couple, of a registry device therefor comprising a pair of racks, the first rack fixed on one of the members and the second mounted on the other member for movement toward and from the first rack, and bearers carried by the racks and coöperating with each other to determine the depth of mesh of the rack teeth.

2. The combination with a printing couple, of a registry device therefor comprising a pair of racks, the first rack fixed on one of the members and the second mounted on the other member for movement toward and from the first rack, yielding means to press the movable rack toward the fixed rack, and bearers carried by the racks and coöperating with each other to determine the depth of mesh of the rack teeth.

3. The combination with a bed and cylinder forming a printing couple, a registry device therefor comprising a pair of racks, the first rack fixed on the bed and the second rack mounted as a segment on the cylinder for movement radially thereof toward and from the first rack, a spring acting to press the movable rack radially toward the fixed rack, and means to limit the outward radial movement of the rack.

4. The combination with a bed and cylinder forming a printing couple, a registry device therefor comprising a pair of racks, the first rack fixed on the bed and the second rack mounted as a segment on the cylinder for movement radially thereof toward and from the first rack, a spring acting to press the movable rack radially toward the fixed rack, and bearers carried by the racks and coöperating with each other to determine the depth of mesh of the rack teeth.

5. The combination with a bed and cylinder forming a printing couple, comprising a straight rack fixed on the bed, guides on the cylinder end, a frame slidable in the guides radially of the cylinder, a spring arranged to yieldingly press the frame outwardly, a stop to limit the outward movement of the frame, a segment rack carried by the frame and arranged to mesh with the fixed rack, a straight bearer carried by the bed and an arcuate bearer carried by the frame, the bearers coöperating to limit the extent to which the teeth of the racks shall mesh.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIS K. HODGMAN.

Witnesses:
FRED H. NOYES,
NOBLE W. ASHLEY.

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