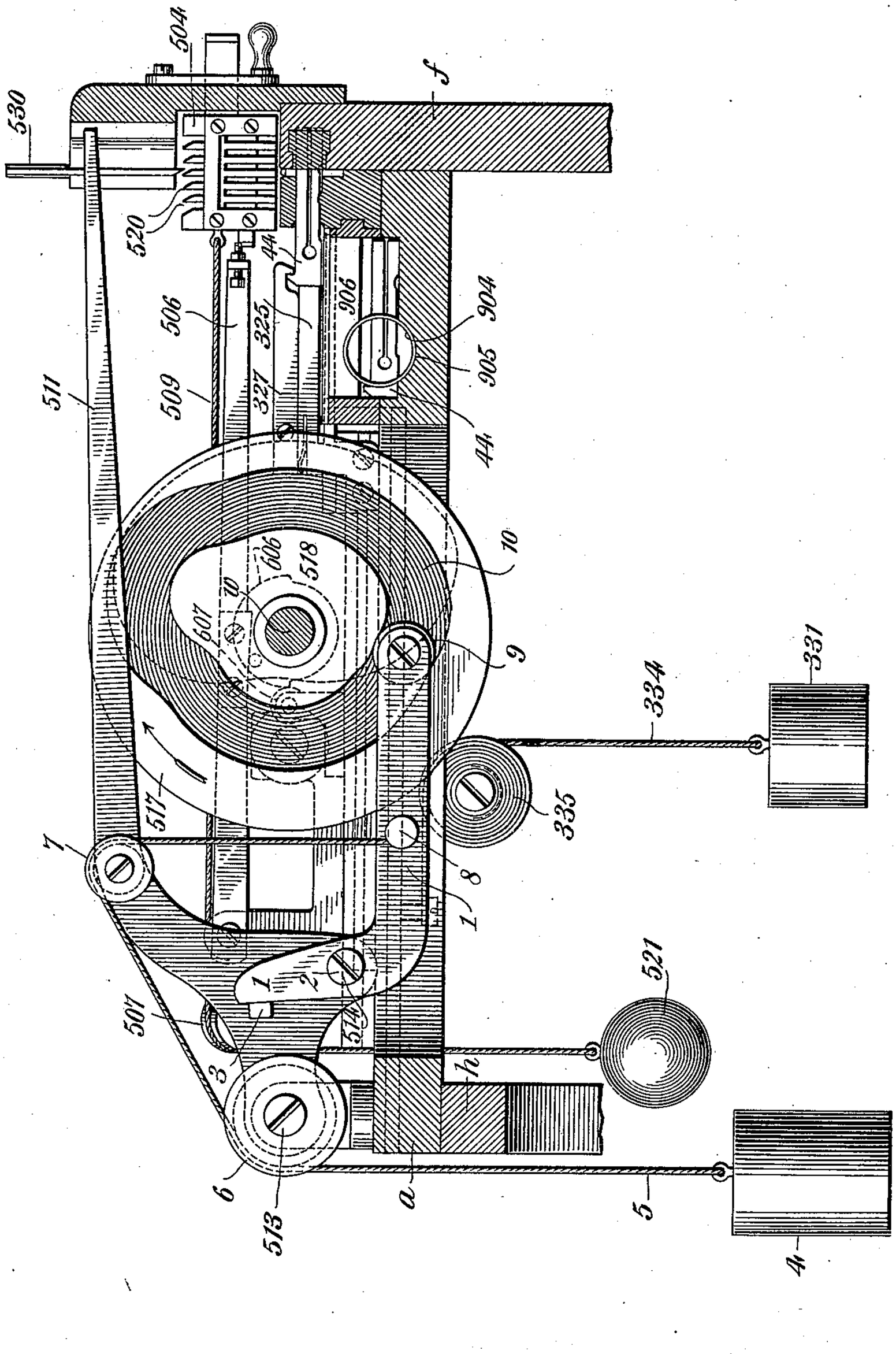
No. 700,701. Patented May 20, 1902.

F. McCLINTOCK.

TYPE JUSTIFYING MACHINE.

(Application filed June 11, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

FRANK McCLINTOCK, OF MOUNT VERNON, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO EDWIN C. HOYT AND FELIX ROSEN, OF NEW YORK, N. Y.

TYPE-JUSTIFYING MACHINE.

SPECIFICATION forming part of Letters Patent No. 700,701, dated May 20, 1902.

Application filed June 11, 1901. Serial No. 64,156. (No model.)

To all whom it may concern:

Be it known that I, FRANK McCLINTOCK, a citizen of the United States, and a resident of Mount Vernon, county of Westchester, and State of New York, have invented a new and useful Improvement in Type-Justifying Machines, of which the following is a specification.

My invention relates to improvements in machines for justifying type wherein temporary wedge-shaped space-bars are first inserted in the line of type during the composition and afterward withdrawn and ordinary space-blanks inserted in lieu thereof by suitable automatic mechanism.

My improvement is adapted to the automatic type-justifying machine shown in a certain application filed by me on the 20th day of July, 1901, under Serial No. 24,291; and the object of this improvement is to provide suitable mechanism whereby a positively-actuated lever may be provided for pushing the space-blanks down from the space-rack into the line of type under normal conditions, but which will yield in the event of any obstruction which prevents the space-blank being pushed entirely down into the line, and thereby prevent any excessive strain or breakage of any of the parts of the machine.

The construction and mode of operation of the improved device may be clearly understood from the drawing herewith, showing a front elevation of the mechanism.

In the machine as heretofore constructed and shown in the application above referred to the lever which actuated the space-blank-inserting rod was caused to make its downward movement by means of a weight or spring connected thereto, while a suitable cam caused its return movement. It was found in practice that while very little force was generally required to push the space-blanks down into the line exceptions would occasionally occur when considerable force would be necessary. In order to provide for such exceptional cases, it was found necessary to use a heavy actuating-weight, and this was found to cause undue wear on the actuating-cam and strain and jar on the mechanism when the machine was operated at a high rate of speed.

The invention will be best understood by reference to the accompanying drawing, forming part of this specification, in which an elevation, partly in cross-section, through the justifying mechanism of a machine of the type of that above referred to is shown.

Similar characters refer to similar parts throughout.

In the drawing, *a* represents the bed-plate; *f*, the end plate; *h*, the rear supporting-bracket on the side of the machine; *w*, the justifying-shaft; 530, the space-inserting rod, having its lower edge beveled, as shown; 511, the lever which operates the space-inserting rod 530. 504 is the space-rack, the front plate of which is slotted, and has beveled partition-walls. 506 is the lever which moves the space-rack. 509 is the cord to which the weight 521, which moves the space-rack and which retracts the space-rack, is attached, and 507 is the roller over which it turns. All of these parts are common to the machine described in the application above set forth.

The lever 511 instead of being a simple lever pivoted to a post at the end of the machine consists of a compound lever composed of two parts 511 and 1 of substantially the shape shown. The arm 1 is pivoted at the point 2 to the arm 511, which carries a stud 3, against which the upper end of the arm 1 impinges, as shown in the drawing. The arm 511 is pivoted at the point 513 to the post 514, and the two arms are normally held in the position shown in the drawing by means of a weight 4, attached to a cord 5, which passes over a roller 6 on the post 514, and another roller 7 on the lever 511 is attached to the lever 1 at the point 8. The effect of this weight is to keep the parts normally in contact, as shown, so that the two parts form practically one lever. The arm 1 carries at its extremity a roller 9, which rotates in a cam-groove 10 within the face of the cam 517. The cam 517 is connected to and actuated by the shaft *w* in the manner described in the aforesaid application.

The method of operation is as follows: The

interior portion 10 of the cam 517 is of such form that it will cause a proper downward movement of the lever 511 to first center the space-rack, as described in the specification above referred to, and then push the space down until it rests on top of a wedge. Thereupon it will rest until such time as the wedge is withdrawn, when it immediately descends, pushing the space-blank its full distance down into the line, and is then retracted to its former position. In the event of a block in the movement of the space-rack, caused by a broken type or other obstruction, the rotation of the cam 518 will continue and the short lever 1 will be moved downward, raising the weight 4 by means of the cord 5, but allowing the lever 511 to remain stationary, and thus preventing any breakage or injury to the lever 511 and the space-pusher 530, as well as any undue strain on the other mechanism.

I claim as my invention—

1. The combination of a movable space-rack divided longitudinally into compartments containing spaces of the different sizes used; the slotted front plate on said space-racks, having beveled partition-walls; a space-ejecting bar having its lower edge beveled and adapted to eject a single space from any one of the space-compartments; a space-ejecting lever composed of two arms, one of which is pivoted to the bed of the machine at one end and carries the space-ejecting bar at the other end, and the other of which is pivoted to the first arm, and is limited in motion by a stop and is provided on its extremity with a roller engaging the actuating-cam; devices for holding the two arms of the lever normally in a rigid position; and an actuating-cam upon the rotating justifier-shaft, substantially as described.

2. The combination of a space-ejecting lever composed of two arms, one of which is pivoted to the bed-plate of the machine and carries the space-ejecting bar, and the other of which is pivoted to the first arm and is limited in its movement by a stop at one end and provided at its other end with a roller engaging with the actuating-cam, and devices for holding the two arms of the lever normally in a rigid position and releasing the upper arm in case of any obstruction to the normal movement of the lever.

3. The combination of a space-rack; devices for ejecting the spaces therefrom, substantially as described; a rotating justifying-shaft; a suitable cam attached to and rotating with the said shaft; a lever for actuating the space-ejecting devices, composed of two arms, one of which is pivoted to the bed-plate of the machine and actuates the space-ejecting devices, and the other of which is pivoted to the first arm, is limited in its movement by a stop at one end, and is provided at its other end with a roller engaging with the cam on the justifying-shaft; and devices for holding the two arms of the lever normally in a rigid position and releasing the upper arm in case of any obstruction to the normal movement of the lever.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 27th day of May, 1901.

FRANK McCLINTOCK.

Witnesses:
EDWIN T. RICE, Jr.,
WILLARD PARKER BUTLER.