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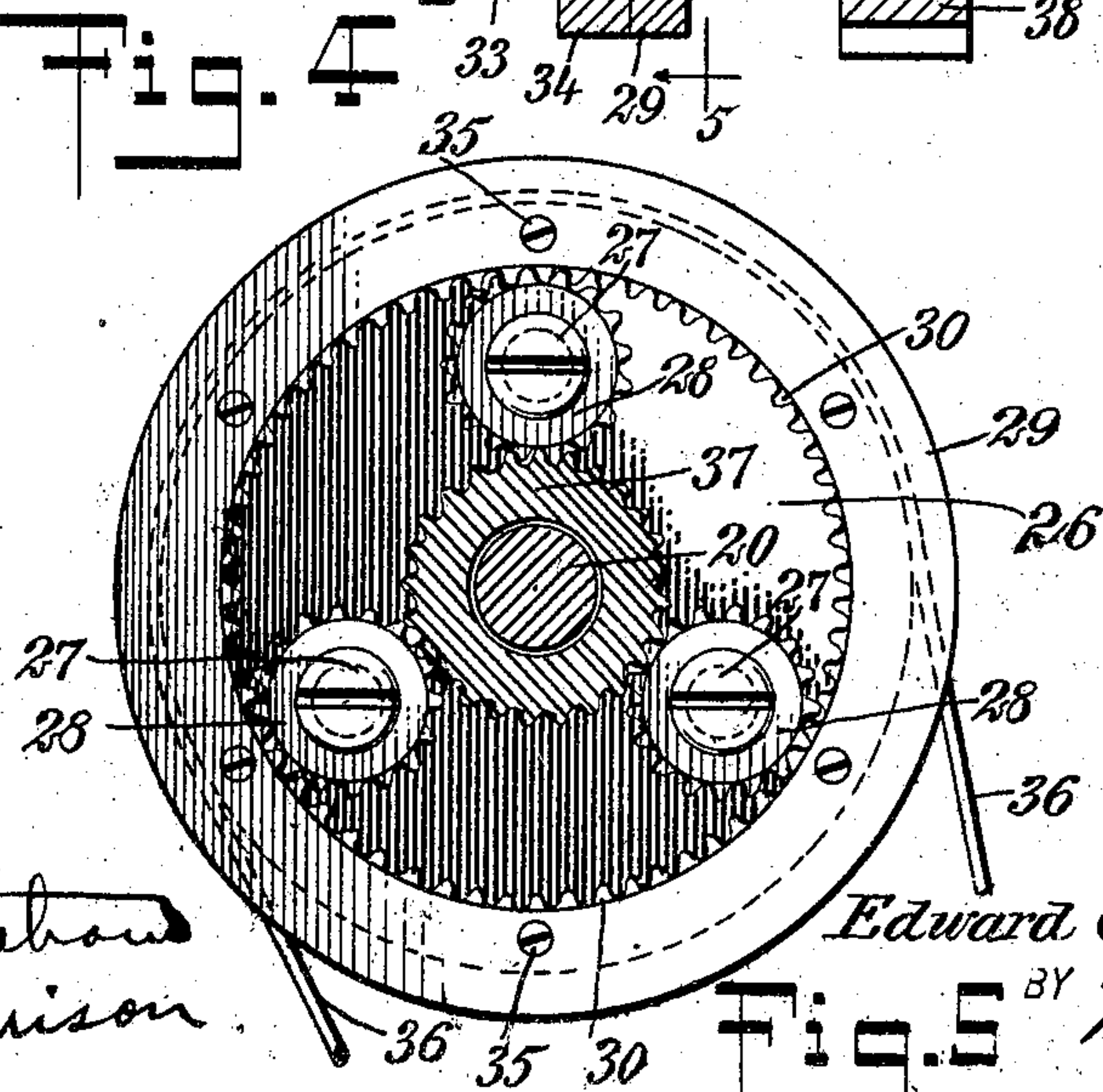
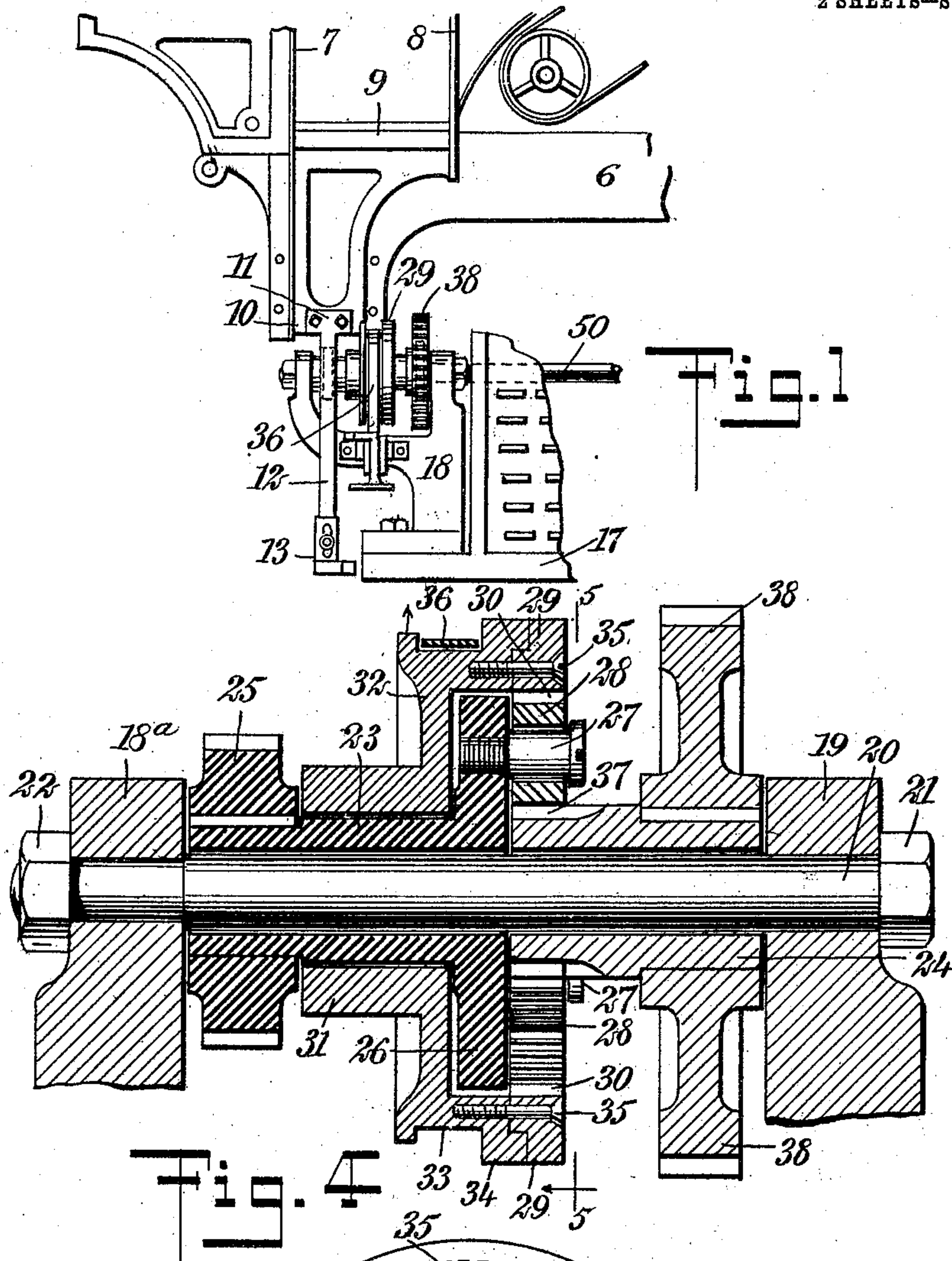
PATENTED JULY 30, 1907.

E. C. LAMPSON.

LIFTER ATTACHMENT FOR TYPE SETTING AND TYPE CASTING MACHINES.

APPLICATION FILED FEB. 1, 1907.

2 SHEETS—SHEET 1.



WITNESSES

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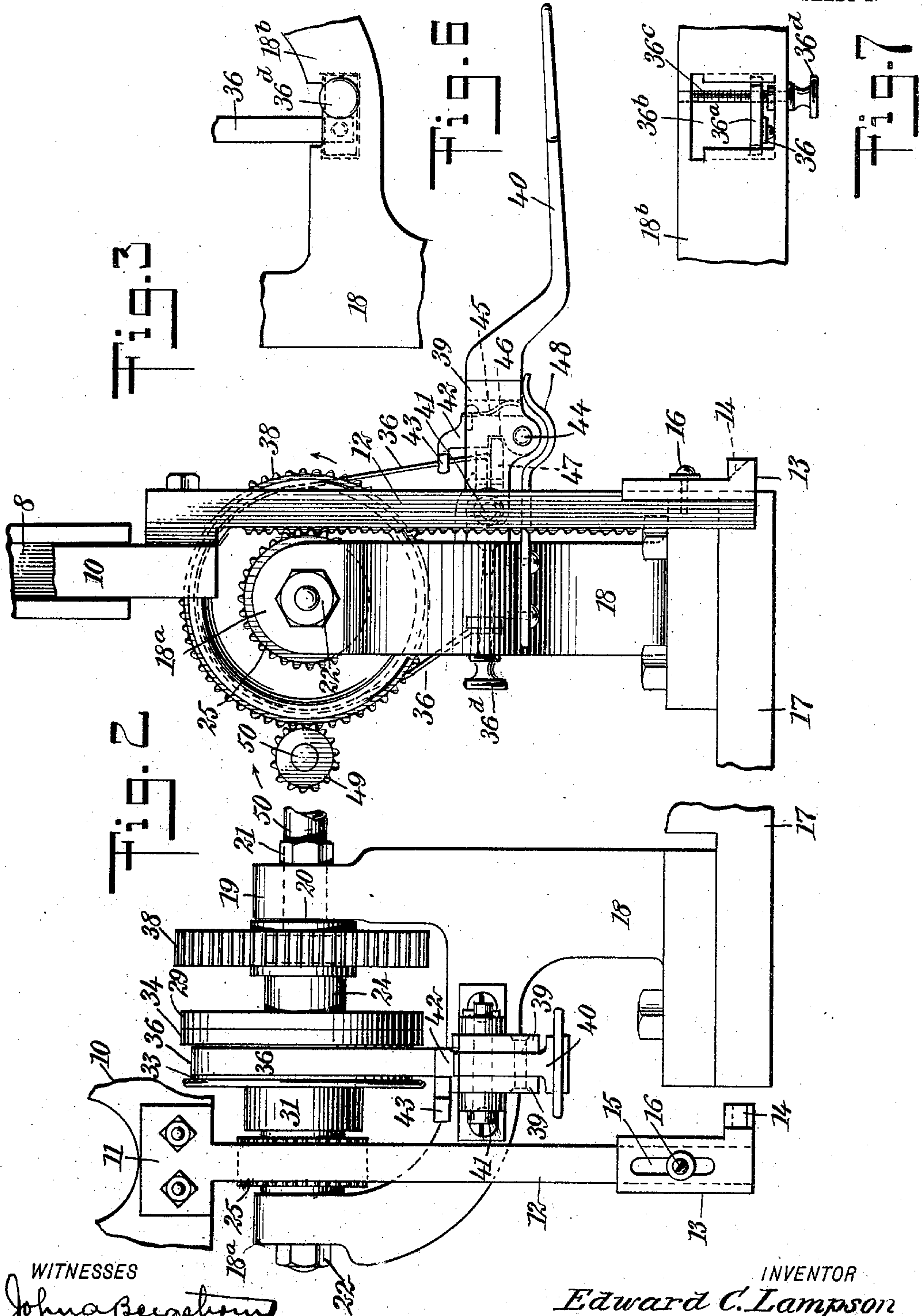
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EDWARD CHESTER LAMPSON, OF JEFFERSON, OHIO.

LIFTER ATTACHMENT FOR TYPE-SETTING AND TYPE-CASTING MACHINES.

No. 861,864.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed February 1, 1907. Serial No. 355,194.

To all whom it may concern:

Be it known that I, EDWARD CHESTER LAMPSON, a citizen of the United States, and a resident of Jefferson, in the county of Ashtabula and State of Ohio, have invented a new and Improved Lifter Attachment for Type-Setting and Type-Casting Machines, of which the following is a full, clear, and exact description.

My invention relates to typesetting and typecasting machines and more particularly to such machines comprising the class of so-called "linotype machines".

My more particular object is to provide such machines with an attachment for enabling the operator to save time and labor in lifting the part known technically in this art as the assembler.

It will be understood that in operating a typesetting and typecasting machine of the kind above mentioned, it is necessary for the operator to lift the assembler repeatedly and also to restore it to its normal position. In doing this much time is lost, and as the assembler is quite heavy the work has a great tendency to tire the operator and impair the general efficiency of his work. I seek, therefore, to enable the operator to raise the assembler at will as many times and as often as he cares to do so, the ascent of the assembler being always made with uniform speed and both the ascent and return of the assembler being positive, yet the movement requiring practically no expenditure of energy on the part of the operator, the entire handling of the assembler being effected by the application of power.

In effect, therefore, my invention consists in providing means whereby the operator exercises control over the lifting and lowering mechanism for the assembler.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a fragmentary front elevation of a part of the framework of a linotype machine, showing in elevation my attachment as mounted thereupon; Fig. 2 is an enlarged fragmentary elevation of the main feature of my attachment including the lever, brake mechanism, and other parts, whereby the operator is enabled to control the application of power relatively to the assembler; Fig. 3 is a fragmentary side elevation of the mechanism shown in Fig. 2, the view in Fig. 3 representing the device as from a point to the left of Fig. 2; Fig. 4 is a vertical section through the upper part of the mechanism shown in Fig. 2 and particularly the two revoluble sleeves forming a part of the gearing of my attachment, and mechanism for causing power to be transmitted at will through the medium of these sleeves; Fig. 5 is a vertical section upon the line 5—5 of Fig. 4, looking in the direction of the arrow and showing the planetary gears used in connection with the two revoluble sleeves for transmitting power through these

sleeves to the assembler for the purpose of raising the latter; Fig. 6 is a fragmentary rear elevation showing the means for adjusting the sensitiveness of the brake band and lever retracted by it; Fig. 7 is a fragmentary plan of the mechanism shown in Fig. 6.

The general framework of the typesetting machine is shown at 6. At 7, 8 are slideways and movably mounted within them is the assembler 9. The latter is old and well-known in this art. Connected with the assembler 9 and extending below the same is a bracket 10, and bolted upon this bracket is a head 11 from which depends a rack bar 12. This rack bar is made of sufficient strength to remain rigid when subjected to some little lateral strain at its lower end. Mounted upon the lower end of this rack bar 12 is a head 13 provided with a beveled surface 14 and further provided with a vertically disposed slot 15 through which extends a screw 16. By means of the screw 16 and slot 15 the head 13 may, within certain limits, be adjusted at any predetermined height, for purposes hereinafter described. Mounted firmly upon a rigid rest 17 is a pedestal 18 having a limb 18^b projecting laterally and upwardly therefrom. Two bearings 18^a, 19, support a horizontal stationary shaft 20. Mounted upon opposite ends of the shaft 20 are nuts 21, 22 for the purpose of securing the shaft rigidly within the bearings of the pedestal.

Revolubly mounted upon the shaft 20 are two separate sleeves 23, 24 and keyed upon the sleeve 23 is a gear 25, engaging teeth of the rack bar 12 (see Fig. 3) for lifting the assembler, as hereinafter described. The sleeve 23 is provided with a disk portion 26 integral therewith and three stud shafts 27 are mounted upon this disk-like portion and spaced equi-distant. Revolubly mounted upon the respective stud shafts 27 are planetary pinions 28. Encircling these pinions is an annular rack 29, the teeth 30 of which are disposed internally so as to engage the planetary pinions 28, as indicated in Fig. 5. Encircling the sleeve 23 and revoluble in relation thereto is a hub 31 provided with a disk-like portion 32 having a band channel 33 upon its outer periphery, this band channel being provided with an annular portion 34. This annular portion carries an annular rack 29, mounted thereupon by aid of screws 35 spaced equi-distant, as indicated in Figs. 1 and 5. A brake band 36 lies within the band channel 33, and consequently encircles the disk-like portion 32. The revoluble sleeve 24 is fashioned at its end 37 in such manner that its end practically constitutes a pinion integral with the sleeve 24. Keyed firmly upon the sleeve 24 is a gear 38. Mounted upon the Y-shaped pedestal 18 and projecting therefrom are lugs 39 between which is placed a lever 40, the latter being pivotally mounted upon a pin 41. A trigger 42 is provided with an anvil portion 43 for engaging the bevel surface 14, as hereinafter described and is mounted upon a

pivot 44. A leaf spring 45 presses the trigger 42 constantly toward the left, according to the view shown in Fig. 3. The trigger 42 is provided with a notch 46 which fits upon a plate 47, the latter being journaled upon the pivot pin 41 and being also connected with the brake band 36. A leaf spring 48 is mounted upon the Y-shaped pedestal 18 and presses against the under side of the lever 40 for the purpose of normally holding the same in a predetermined position.

10 The rear end of the brake band 36 is secured to a sliding block 36^a mounted within a slideway 36^b. A screw 36^c engages this block, and moves it toward the front or back of the machine, according to the direction in which the screw is turned. The latter is provided with a head 36^d whereby it may be rotated at will. By turning the screw and thus sliding the block, the virtual length of the brake band may be changed at will, the tension of the band regulated accordingly, and the sensitiveness of the lift of the assembler thus regulated at will.

When the trigger 42 is turned to the right upon the pivot 44 according to the view shown in Fig. 3, the plate 47 is disengaged and the brake band 36 is loosened. The gear 38 meshes with and is rotated by a pinion 49, the latter being secured upon a key shaft 50 and turned constantly thereby.

The operation of my device is as follows: The operator proceeds with his work in the usual manner until he has occasion to lift the assembler 9. While the machine is running and the various parts occupy their respective positions, the key-board shaft 50 and the pinion 49 upon it turn the gear 38 at a constant rate of speed. This, of course, causes the sleeve 24 and gear 38 to rotate continuously. Normally the brake band 36 is loose, and consequently the planetary pinions 28 cause the annular rack 29 to rotate idly in a direction opposite to the direction of rotation of the gear 38. Hence normally no power is communicated to the disk 26, revoluble sleeve 23 or gear 25, the three parts last mentioned always acting as a unit. The pinion 25, being for the time unable to turn, can, of course, communicate no motion to the parts adapted to be actuated by it. Suppose now that the operator wishes to raise the assembler 9. He presses the lever 40 a very slight distance, using comparatively little energy for the purpose. This causes the brake band 36 to stop rotation of the disk-like member 32 and annular rack 29. The sleeve 24, being power driven, now causes the pinions 28 to turn and as the annular rack 29 is now stationary, the pinions are forced to roll around the shaft 20 as a center. In doing this they confer a rotary motion upon the disk 26 and this causes rotation of the pinion 25. The latter thereupon raises the rack bar 12 as will be understood from Fig. 3, and in so doing, of course, the assembler 9 is raised. As the rack bar 12 reaches its upper limit, the head 13 arrives in such position that the beveled portion 14 engages the anvil portion 43 of the trigger 42. This throws the upper end of the trigger toward the right according to the view shown in Fig. 3 and, as above described, this releases the plate 47 from the control of the lever 40 and thus slackens the brake band 36. This allows the annular rack 29 to rotate and of course power is no longer transmitted to the rack bar 12. The latter thereupon descends by its own gravity.

65 The operator need not watch the lever 40 after the

assembler is raised for the reason that when the assembler reaches the proper elevation, its release and descent are entirely automatic.

By adjusting the head 13 upon the rack bar 12 by aid of the screw 16, the release of the trigger 42 may be advanced or retarded at will so that the up stroke of the assembler may be terminated within different limits as to altitude. In practice, therefore, all that the operator finds it necessary to do in order to raise the assembler to a predetermined height is to depress the lever 40 and for the moment pay no further attention to this part of the apparatus.

As the retarding power of a brake band is very great as compared with the degree of energy required to operate the brake band, the expenditure of energy in lifting the assembler may be considerable, and yet the operator may do an amount of work which, in its physical aspect, is so light as to be negligible.

When the operator wishes to regulate the sensitiveness of the lever 40, he turns the screw 36^d, thus adjusting the tension of the brake band 36, as above described. Regulating the tension of the brake band also controls both the speed and the momentum of the fall of the assembler after the latter reaches its highest point, and enables the operator to return the assembler as quickly as he considers advisable.

When the assembler is once started upward, the operator may stop it and lower it to any desired position as many times as he wishes; and also, no matter in what position the assembler may be at any particular moment, the operator can readily send it to its upper limit. This feature, to wit, that of lifting the assembler to or from any point selected, is considered important for the reason that it increases the mobility of the machine and gives it a wider range of usefulness.

While I prefer gearing of the type above described for accomplishing the purpose indicated, I do not limit myself to this arrangement, neither do I limit myself to any particular shape for any of the parts herein shown and described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination of an assembler, a rack bar depending therefrom, power-driven mechanism provided with a pinion meshing with said rack bar for the purpose of raising the latter, means controllable at will for throwing said power-driven mechanism into and out of action so as to raise said rack bar at will, and mechanism controllable by movements of said rack bar for throwing said power-driven mechanism out of action relatively to said rack bar.

2. The combination of an assembler, a rack bar connected therewith for raising the same, mechanism provided with a revoluble member engaging said rack bar for the purpose of raising the latter, means including a lever connecting said revoluble member with a source of power for the purpose of actuating said revoluble member, and means controllable automatically by movements of said rack bar for the purpose of disengaging said revoluble member from the control of said lever.

3. The combination of a stationary shaft, a sleeve revolubly mounted thereupon, a key-board shaft, gearing connecting said key-board shaft with said revoluble sleeve for the purpose of causing the latter to rotate, a second revoluble sleeve mounted upon said shaft, planetary pinions carried by said second-mentioned revoluble sleeve and free to rotate upon their respective axes, said planetary pinions being adapted to turn bodily around said stationary shaft as the center, an annular rack encircling all of said planetary pinions and meshing therewith, said annular rack being normally free to turn idly, means con-

trollable at will for stopping the rotation of said annular rack, thereby causing said planetary pinions to rotate upon their respective axes, and also to revolve bodily around said stationary shaft as a center so as to confer rotary motion upon said second-mentioned sleeve, an assembler, and connections from said second-mentioned sleeve to said assembler for the purpose of actuating the latter.

4. In a linotype machine, in combination, an assembler, a key-board shaft, power-driven, a revoluble shaft, a sleeve journaled upon said revoluble shaft and carrying a pinion, a pinion mounted rigidly upon said key-board shaft and meshing with said pinion upon said sleeve, a pinion on said revoluble shaft, a rack meshing with said pinion and pendent from the assembler of a linotype machine, for actuating the said assembler, means for connecting and disconnecting at will the revoluble sleeve with the revoluble shaft for the purpose of transmitting power intermittently from the revoluble sleeve to the revoluble shaft and thence to actuate the upward movements of the assembler to a point from which the assembler is released and returns to the starting position by gravity, and a brake and tension screws for the purpose of controlling at will movements of the assembler and for retarding the momentum of the fall of the assembler.

5. In a linotype machine, in combination, an assembler, a key-board shaft power driven, and provided with a pinion, a revoluble shaft carrying a pinion meshed in said pinion on said key-board shaft, a revoluble sleeve on said revoluble shaft and carrying a pinion, a rack pendent from the assembler and meshed with said last-mentioned pinion, means controllable at will for connecting or disconnecting said revoluble sleeve and revoluble shaft and to actuate the assembler upward, to a point from which in due time it is released and falls by gravity towards the starting position, and a brake and tension screws for the purpose of controlling the movements of the assembler at will and for retarding the momentum of the fall of the assembler.

6. In a linotype machine, in combination, an assembler, a key-board shaft, mechanism power-driven for connecting and disconnecting the key-board shaft and the assembler at will, means controllable at will for varying the amount of power transferred from the key-board shaft to the assembler so as to affect and vary the speed and momentum of the rise and fall of the assembler and to check or stop the same at any point between the prescribed limits of the movements of the assembler.

7. In a linotype machine, in combination, an assembler, a shaft with a pinion meshing in a key-board shaft as a constant source of power, a second shaft with means connecting the assembler to said shaft, means controlled at will for connecting the power-driven shaft with the second shaft and for disconnecting the same so as to effect the rise and fall of the assembler, and to check or stop the movements of the assembler at will.

8. In a linotype machine, in combination, an assembler, a key-board shaft, a revoluble shaft with a pinion meshing in a pinion on the key-board shaft, power-driven, a second shaft with means connecting with the assembler for the purpose of actuating the same when power driven, a disk on said second shaft bearing planetary pinions meshing with a pinion on said first shaft, a sleeve on the second shaft holding an annular rack encircling said planetary gears and the pinion on the first shaft and calculated, when the assembler is idle, to turn idly about said planetary gears and the pinion on said first shaft as

its center, a brake against said annular rack, tension devices for adjusting and holding the tension of the brake upon the annular rack, sufficient to slightly retard the idle running of the annular rack about the planetary pinions so as to at all times exert a lifting power upon the assembler but not sufficiently to overcome gravity, a key or lever by which the operator may vary the tension of the brake against the annular rack at will and retard or stop its revolution, diverting power to the disk portion through causing the planetary pinions to revolve about the second-mentioned pinion upon the first-named shaft as a center and to confer rotary motion to the second shaft and thence to the assembler, elevating, stopping, depressing, checking, controlling the movements of said assembler as the degree of power that may be transferred from the constantly running first-named shaft to the assembler exceeds the predetermined power automatically applied by the brake tension device, or equals the said predetermined degree of power.

9. In a linotype machine, in combination, an assembler, a key-board shaft, power driven, a stationary shaft in a frame bolted to the frame of the linotype machine and parallel to the key-board shaft, a revoluble sleeve with a pinion meshing in a pinion on said power-driven key-board shaft, a second revoluble sleeve on said stationary shaft with a pinion meshing in a rack pendent from the assembler and calculated to actuate the same when power-driven, a third sleeve revolving upon the second sleeve as a bearing and having an annular rack, a disk on the second sleeve bearing planetary pinions meshing in a pinion on the first revoluble sleeve and calculated to turn idly upon their own centers until sufficient power is diverted through them to actuate the assembler, the annular rack encircling the planetary pinions and running idly while the assembler is idle, a brake and devices for adjusting the tension of the brake upon the annular rack, a lever attached to the brake by which the operator at will checks or stops the revolution of the annular rack and diverts power therefrom to the disk portion and second revoluble sleeve and then to actuate the assembler, means for varying the speed of the rise and fall of the assembler and to check or stop the assembler at any point between its prescribed limits, and means that in due time permit the fall of the assembler by gravity against mechanical power, diverted from the annular rack to the assembler automatically, but of less force than gravity, thus allowing the fall of the assembler to its original position without severe jar or jolt, or damage to any part.

10. The combination of an assembler, a revoluble key-board shaft, gearing connecting said key-board shaft with said assembler for the purpose of raising the latter, and means controllable at will for disconnecting said gearing from said assembler at any desired point in the stroke thereof so as to render said assembler idle in relation to said key-board shaft.

11. The combination of an assembler, a revoluble shaft for lifting the same, gearing for connecting said shaft to said assembler and for disconnecting the same therefrom, a lever for controlling said gearing, and means controllable at will for governing the sensitiveness of said lever.

In testimony whereof I have signed my name to this specification in the presence of subscribing witnesses.

EDWARD CHESTER LAMPSON.

Witnesses:

C. A. HITCHCOCK,
B. F. PERRY, Jr.,
R. D. LAMPSON.