

No. 677,707.

Patented July 2, 1901.

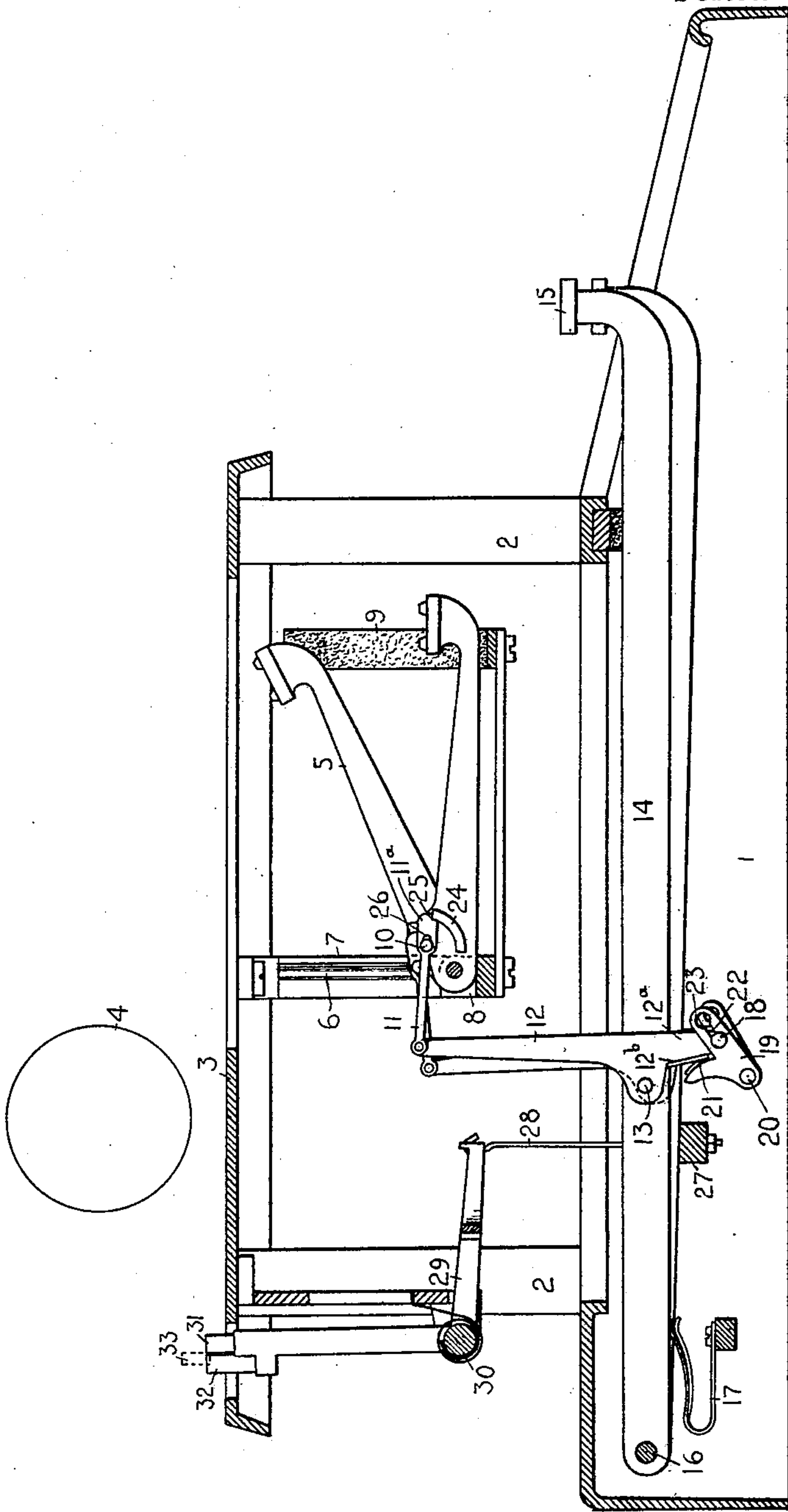
C. H. SHEPARD.
TYPE WRITING MACHINE.

(Application filed Mar. 18, 1901.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.



WITNESSES:

H. V. Donovan.
E. M. Wells.

INVENTOR:

Charles H. Shepard

by Jacob Feld

HIS ATTORNEY

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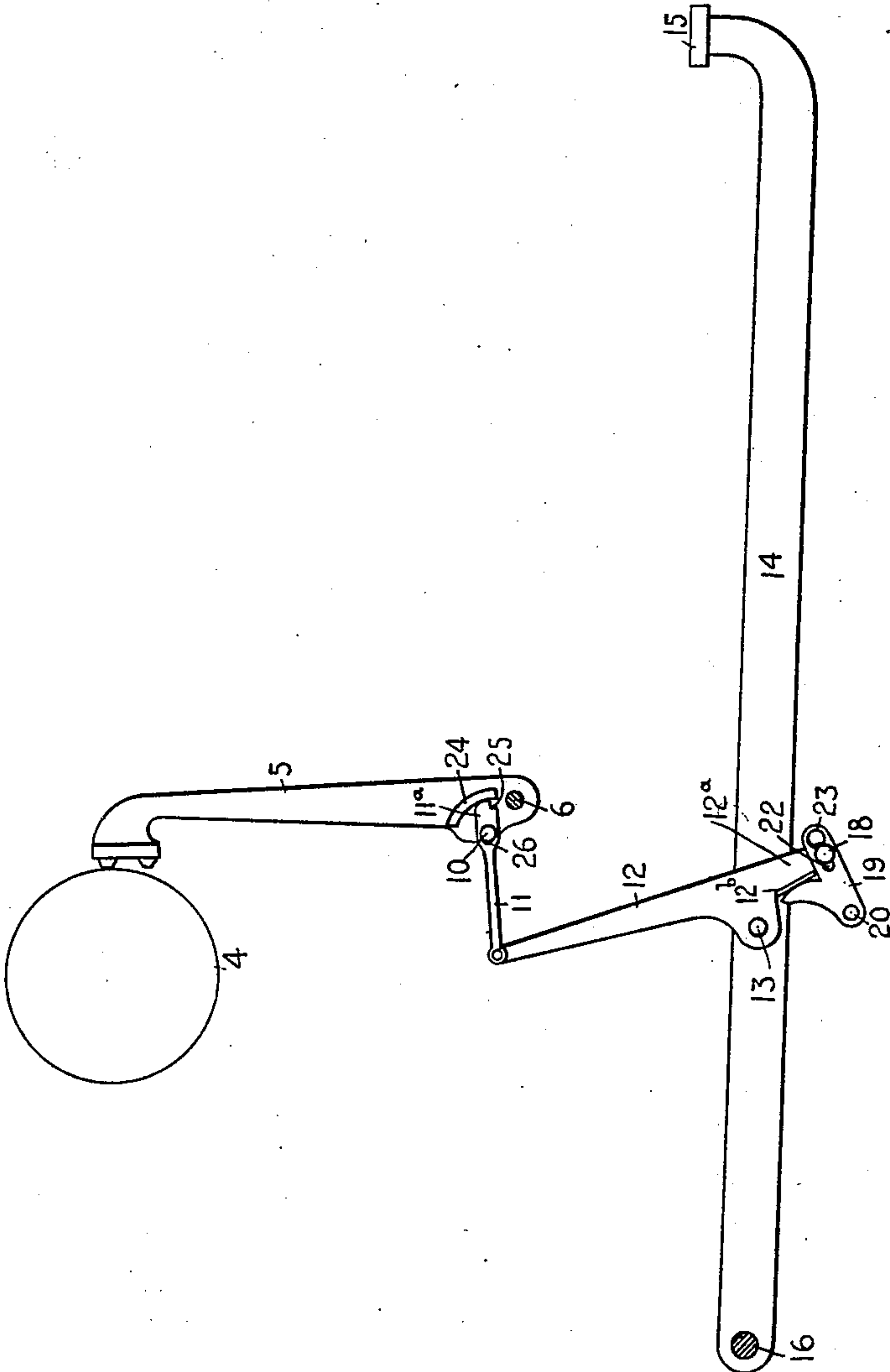
C. H. SHEPARD.
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(Application filed Mar. 18, 1901.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 2.



WITNESSES:

R. V. Donovan.
E. M. Wells.

INVENTOR:

Charles H. Shepard

by *Jacob Feltel*

HIS ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES H. SHEPARD, OF BROOKLYN, NEW YORK, ASSIGNOR TO WYCKOFF,
SEAMANS & BENEDICT, OF ILION, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 677,707, dated July 2, 1901.

Application filed March 18, 1901. Serial No. 51,637. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SHEPARD, a citizen of the United States, and a resident of the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This application relates to the type actions of writing-machines.

One of the objects of the invention is to lock the type-bars when they return to normal position after actuation, so as to prevent the rebound thereof from the basket, and thus avoid collision of the types; and another object is to improve the connections between the type-bars and the keys.

To these ends my invention consists in certain combinations of devices, features of construction, and arrangements of parts, all as will be hereinafter fully set forth, and particularly pointed out in the concluding claims.

In the accompanying drawings, Figure 1 is a vertical section taken longitudinally of a front-strike writing-machine embodying my improvements, one type-bar being shown in normal position and another type-bar being shown as in motion toward the printing-point. Fig. 2 is a skeleton view similar to Fig. 1, but showing the type-bar in printing position.

In the views similar parts are designated by similar numerals of reference and portions of the machine not essential to the invention are omitted.

The frame of the machine comprises a base 1, corner-posts 2, and top plate 3. A platen 4 may be mounted to move longitudinally over the top plate, as usual. Rearwardly-striking type-bars 5 are arranged in front of and below the platen and are pivoted at their rear ends upon a curved fulcrum-rod 6, which is fixed in a segment 7, the latter being supported upon the top plate and having radial slots 8 for receiving the hubs of the type-bars. The forward portions of the latter rest upon a basket 9. Projecting laterally from each type-bar is a headed pivot-stud 10, which is engaged by the forward end of a rearwardly-extending link 11, the rear end of the latter being attached to the upper end of a lever 12, which is pivoted at 13 upon a horizontal lever

14 of the second order, said lever 14 carrying at its forward end a key 15 and at its rear end being fulcrumed upon a transverse rod 16, and also being provided with a returning-spring 17. The key-levers 14 extend rearwardly from the keyboard beneath the type-bars. The sublevers 12, mounted thereon, extend upwardly in rear of the type-bars, and the links 11 extend forwardly from the sublevers over the type-bar hubs. Each sub-lever 12 has a downwardly-extending arm 12^a, which engages, by means of a laterally-projecting stud 18, an obliquely-arranged vibrating abutment 19, which is pivoted at its lower rear end upon a rod 20, which is common to all of the vibrating abutments and extends across the machine beneath the key-levers and may be fixed at its ends in the side walls of the base 1. When a key 15 is depressed and its lever swung downwardly, the cross-lever 12 thereon is moved endwise in a downward direction, and the abutment 19 is thereby caused to vibrate in an oblique direction upon the pivot 20. Owing to the forward movement of the pivoted abutment, the cross-lever 12 is vibrated upon its pivot 13 independently of the lever 14, and hence the link 11 is pulled rearwardly and the type-bar set in motion.

I provide upon the vibrating abutment 19 an upwardly-extending arm 21, the forward edge whereof is curved and is preferably adapted to contact with a ledge or flange 12^b, formed or provided upon the rear vertical edge of the lever-arm 12^a, so as to accelerate the independent vibration of the lever 12 upon the pivot 13, and hence enable the type-bar to complete its printing stroke more promptly. The ledge 12^b projects at right angles to the body of the lever-arm 12^a, the latter being arranged in a plane parallel with the plane of the vibrating abutment 19, the lever and the abutment being arranged side by side. By the action of said arm the stud 18 is of course forced farther away from the pivot 20, to accommodate which movement the vibrating abutment is provided with a longitudinal slot 22, said slot having at its forward end an enlargement 23 to permit a disconnection of the headed stud from the vibrating abutment when desired. As the

lever 12 descends the abutment 19 is vibrated, and the arm 21 upon the abutment forces said lever to vibrate rapidly upon its pivot 13, the stud 18 working outwardly in the slot 22, as illustrated at Fig. 2. It will be seen that the lower portion of the arm 21 first contacts with the lever 12 and that during the further movement of the parts the contact-point between the arm 21 and lever 12 gradually rises or approaches nearer to the pivot of the lever 12, thereby accelerating the independent vibration of the latter. If desired, the ledge 12^b may be omitted from the arm 12^a and placed upon the curved arm or horn 21, or the latter may be thickened, so as to work upon the plain edge of the arm 12^a.

The link 11 is extended forwardly of the type-bar stud 10, and the end of the link 11^a occupies a position above a lateral projection 24, which is provided upon the hub portion of the type-bar, said projection being in the form of an arc, which is substantially concentric with the stud 10. Said extension 11^a is preferably provided at its lower forward corner with a notch 25, which catches over the upper rear corner of the type-bar projection 24. It will be seen that while the parts are in normal position the catch 11^a cooperates with the lateral projection 24 to prevent the type-bar from rising. When the key is depressed and the sublever 12 vibrated rearwardly in the described manner, the initial portion of the endwise movement of the link 11 releases the type-bar, the latter remaining motionless, a slot 26 being provided in the link to permit the necessary lost motion thereof. By a further rearward movement of the link the type-bar is swung up to print, as illustrated at Fig. 2. When the key is released from pressure, the parts are returned to normal position by the spring 17. During the return movement the link 11, which is influenced by said spring 17, presses against the inner curved surface of the arc-like projection 24, and finally when the type-bar reaches normal position and the upper edge of the projection 24 hence comes into register with the notch 25 in the link the latter snaps forwardly and locks the type-bar, so that the latter cannot rebound from the basket and interfere with a subsequently-operated type-bar.

Extending transversely beneath the key-levers is the usual universal bar 27, supported by hooks 28 upon a rocking frame 29, which is provided with a returning-spring 30 and carries both a feeding-dog 31 and a detent-dog 32, which cooperate with a rack 33 to cause the letter-feeding movements of the platen 4 in the usual manner.

Variations may be made within the scope of the invention and portions of my improvements may be used without others.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a front-strike writing-machine, the combination with a platen, of a rearwardly-

striking type-bar, a lever 12 connected thereto, a key-lever upon which said lever 12 is pivoted, and a vibrating abutment connected to said lever 12 for causing the latter to vibrate independently upon the key-lever during the operation of the latter, said lever 12 having a pin-and-slot engagement with said vibrating abutment, and the latter having an arm for contacting with said lever 12 so as to accelerate the independent vibration thereof upon said key-lever.

2. In a front-strike writing-machine, the combination with a platen, of a rearwardly-striking type-bar, a lever 12 connected thereto, a key-lever upon which said lever 12 is pivoted, a pivoted abutment engaging said lever 12 and vibrated thereby, and an arm upon said abutment for engaging said lever 12 and accelerating the independent vibration thereof upon said key-lever.

3. In a front-strike writing-machine, the combination with a platen, of a rearwardly-striking type-bar, a lever 12 connected thereto, a key-lever upon which said lever 12 is pivoted, a pivoted abutment engaging said lever 12 and vibrated thereby, and an arm upon said abutment for engaging said lever 12, said arm having a curved working surface such that the point of contact between said arm and said lever 12 moves gradually during the printing stroke toward the pivot of said lever 12, so as to accelerate the independent vibratory movement of the latter.

4. In a front-strike writing-machine, the combination with a platen, of a type-bar, link 11 connecting the type-bar to upright lever 12 pivoted upon horizontal key-lever 14 and having downwardly-extending arm 12^a, stud 18 upon said arm, and vibratory abutment 19 having slot 22 engaged by said stud, and also having curved arm 21 for engaging said arm 12^a to gradually accelerate the independent vibration of the lever 12 upon its pivot.

5. In a front-strike writing-machine, the combination with a platen, of a series of rearwardly-striking type-bars, a series of upwardly-extending levers 12 connected thereto, a series of key-levers 14 upon which said levers 12 are fulcrumed, said key-levers extending rearwardly beneath the type-bars, a series of vibratory abutments 19 pivoted upon a transverse rod 20 and having slots 22 engaged by studs 18 upon said levers 12, and a series of curved arms 21 formed upon the vibratory abutments 19 and adapted to engage the levers 12 so as to gradually accelerate the independent vibration of the latter upon their pivots.

6. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of keys, connections between the keys and the type-bars, including a series of links, and devices fixed upon the type-bars for cooperating with said links to lock the type-bars in normal position, each of said links having a lost-motion engagement with its type-bar so that it may have a limited end-

wise releasing movement independently of the type-bar.

7. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of keys, connections from the type-bars to the keys, including a series of levers, and a series of links extending from said levers to said type-bars, each of said links having a catch portion, each of said type-bars having a coöperative projection, and each of said links also having a pin-and-slot connection with its type-bar, so that at the initial movement of said link, said catch may be withdrawn from said projection, and so that by a further movement of said link the type-bar may be swung to the platen.

8. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of key-operated levers, a series of links connecting said levers to the said type-bars, a projection 11^a upon each link, a coacting lateral projection fixed upon each type-bar, a stud 10 upon each type-bar, and a slot 26 in each link.

9. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of key-operated levers connected there-

to by links, slots 26 in the links, catches 11^a upon said links, and coacting arc-shaped projections 24 upon said type-bars.

10. In a type-writing machine, the combination with a platen, of a series of type-bars, a series of key-operated levers connected thereto by links, slots 26 in the links, catches 11^a upon said links, coacting arc-shaped projections 24 upon said type-bars, and notches 25 formed in said catches.

11. In a type-writing machine, the combination with a platen, of a type-bar, a key-lever, a second lever pivoted upon the key-lever and connected to the type-bar, a stud 18 and a ledge 12^b upon the second lever, and a vibratory abutment having both a slot for engaging said stud, and an edge for engaging said ledge 12^b so as to accelerate the vibration of said second lever.

Signed at the borough of Manhattan, city of New York, in the county of New York and State of New York, this 15th day of March, A. D. 1901.

CHARLES H. SHEPARD.

Witnesses:

K. V. DONOVAN,
E. M. WELLS.