

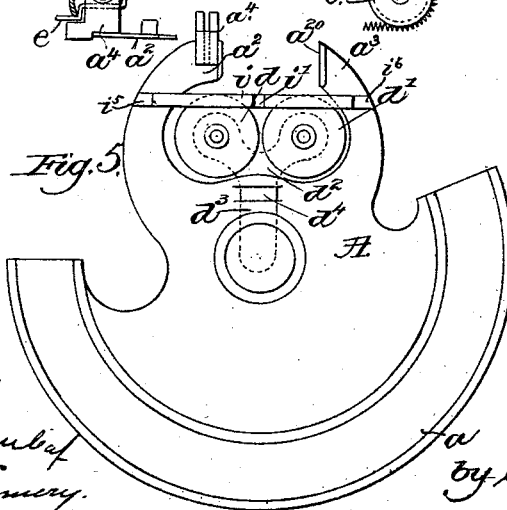
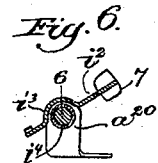
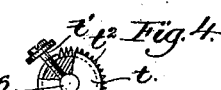
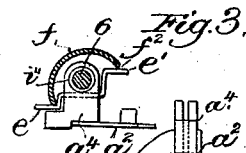
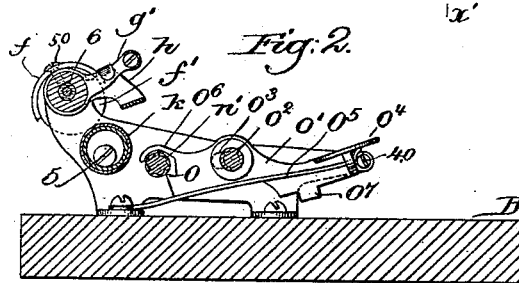
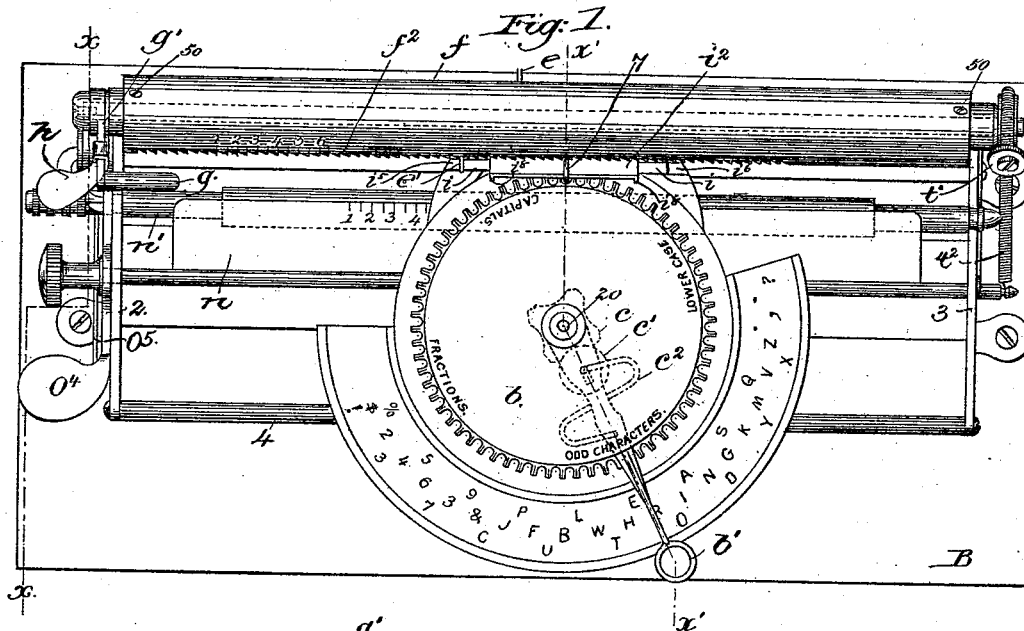
(No Model.)

2 Sheets—Sheet 1.

J. & G. BECKER.
TYPE WRITING MACHINE.

No. 457,336.

Patented Aug. 11, 1891.



Witnesses.

Fred. S. Grumbel
Frederick L. Emery.

Inventors.
John Becker
George Becker

by Lerby & Henry attys.

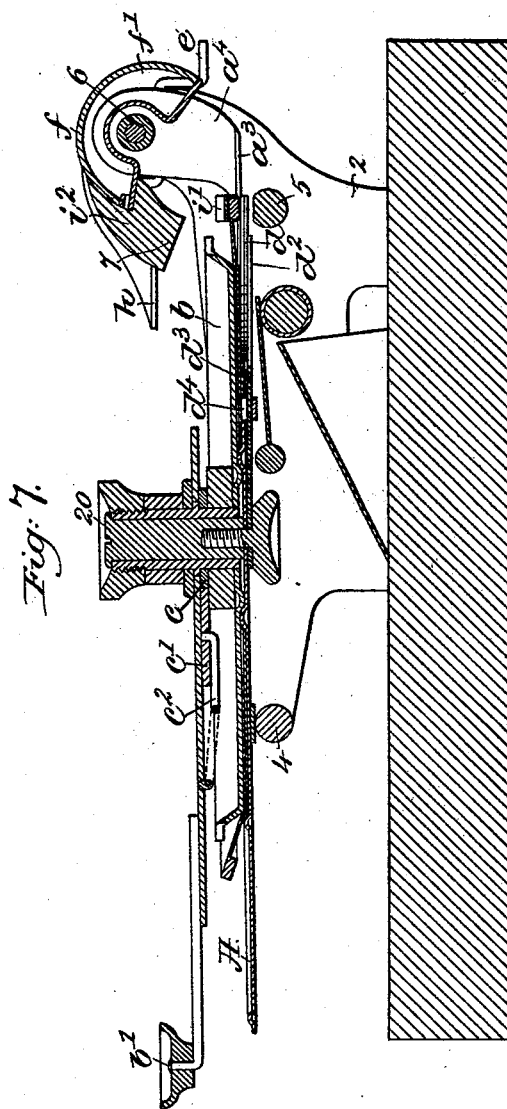
(No Model.)

2 Sheets—Sheet 2.

J. & G. BECKER.
TYPE WRITING MACHINE.

No. 457,336.

Patented Aug. 11, 1891.



Witnesses.
John L. Edwards
E. L. Smith

Inventors.
John Becker
George Becker
by Brady & Ferguson, attys.

UNITED STATES PATENT OFFICE.

JOHN BECKER, OF NEWTON, MASSACHUSETTS, AND GEORGE BECKER, OF NEW YORK, N. Y., ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE POPE MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 457,336, dated August 11, 1891.

Application filed July 16, 1888. Serial No. 280,060. (No model.)

To all whom it may concern:

Be it known that we, JOHN BECKER, of Newton, county of Middlesex, State of Massachusetts, and GEORGE BECKER, of New York, county and state of New York, have invented an Improvement in Type-Writing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to construct a type-writing machine which occupies small space, is easily operated, and cheap.

In accordance with this invention, the type-plate is pivoted upon the index-plate, which latter is made movable horizontally, and also adapted to be raised when desired.

The index-plate carrying the type-plate is advanced step by step by novel feeding devices, to be described.

The printing lever or device is depressed by the same means employed to feed the index-plate forward. Suitable spacing devices and inking devices are employed, and also means for feeding the paper forward.

The invention consists in various details of construction to be hereinafter described, and pointed out in the claims.

Figure 1 shows in plan view a type-writing machine embodying this invention. Fig. 2 is a section of machine shown in Fig. 1, taken on dotted lines $x x'$; Fig. 3, a detail of the feeding device for the index-plate; Fig. 4, a detail of a spring for controlling the return movement of the feeding device; Fig. 5, a plan view of the index-plate; Fig. 6, a detail to be referred to. Fig. 7 is a vertical section, on an enlarged scale, taken on the line $x' x'$, Fig. 1.

The main frame-work of the machine comprises the side plates 2 3, secured to the bed B and joined together by the rods 4 5 6.

The index-plate A (see Figs. 1 and 5) is preferably struck from sheet metal into proper shape to present a curved segment or surface a to receive the characters and the arms $a^2 a^3$. One of the arms, as a^3 , is provided with an upwardly-extended lip or portion a^{20} , the arm a^2 serving to support a block a^4 , (see Fig. 3,) the said block being attached

to it. The said upwardly-extended lip and block a^4 have each a hole to receive the guide-rod 6. (See Fig. 2.) The curved outer edge or portion a of the index-plate rests upon the rod 4. The index-plate is made movable longitudinally, and is also adapted to rock or be turned upwardly upon the guide-rod 6.

A circular type-plate b , substantially such as shown in application for Letters Patent, Serial No. 265,375, filed February 27, 1888, and having four type-sections, is pivoted upon the upper side of the index-plate A at 20, and such type-plate is not herein specially claimed. The type-plate has peripheral teeth, (see Fig. 1,) with which co-operates a tooth 7, which is adapted to correctly position or center the type-plate. The hand-lever b' is mounted loosely upon the pivot or stud 20, upon which the type-plate is mounted. The cam-plate c , (see dotted lines, Fig. 1,) fixed to the type-plate, has four recesses corresponding with the number of type-sections of the type-plate, into which enter a disk or button c' , loosely connected to the outer or free end of a spring c^2 , attached to the hand-lever b' , said disk c' bearing against the cam or recessed plate c , serving to hold the hand-lever in engagement with one or another part of the type-plate to present the desired part of the type-plate to the printing-lever, such construction enabling the operator to at will move the said type-plate to present a different type-section to the printing-lever. When it is desired to present a different section of the type-plate to the printing-lever, the hand-lever is held stationary and the type-plate moved by the hand one or more quarter-revolutions, the disk c at such time yielding.

Two inking pads or disks $d d'$ (see Fig. 5) are pivoted upon a plate, frame, or bracket d^2 , having a shank d^3 , which is passed through a loop d^4 in the index-plate. The inking-pads are placed directly beneath the type-plate, so that as the type-plate is revolved the type may come in contact with the surface of the pads.

The specific construction of said inking-pads is not herein claimed, as they form a part of the subject-matter of an application, Serial No. 263,952.

The index-plate is fed forward step by step by a feeding device which consists of a double crank (see Fig. 3) passing through the block a^4 , the arms e e' of said crank being bent in opposite directions, so that when one crank-arm is up the other is down. A curved feed-plate f , herein shown as a longitudinal section of a tube, is fixed by set-screws 50 to two blocks or disks, as f' , placed eccentrically upon the rod 6, one at each end, the screws extending through the disks to the rod 6. One edge of the plate f is toothed, as at f^2 , to engage the crank-arm e' , while the opposite edge is smooth and engages the opposite crank-arm e . As the rod 6 is oscillated, the toothed edge of the plate f depresses the crank-arm e' in a vertical line, and hence, as the said arm is pivoted at right angles to the axis of the rod 6 and below it, the index-plate to which the said crank-arm is attached is moved forward a short distance at each oscillation. The crank-arm e' is returned to its normal position positively by the smooth edge of the plate f striking and depressing the crank-arm e . The blocks or disks f' , being arranged eccentrically upon the rod 6 and attached by set-screws, provide for adjustment of the curved plate f . The rod 6 is oscillated so that the curved plate f may depress the crank-arm e' by the finger-piece g , secured to one end of the said rod.

The printing-rod or impressing device consists of a strip of spring metal i , (see Fig. 5,) fastened at each end i^5 i^6 , respectively, to the arms a^2 a^3 of the index-plate, (see Figs. 1 and 5,) said strip i having a tooth or projection i' at or near the center, which bears upon the flexible edge of the type-plate. The parts i^5 i^6 form feet for said strips, it being bent downward and then outward at the ends to form the same.

A yoke i^2 (see Figs. 1 and 6) forms a part of or is attached to the plate i^3 , bent or curved to receive a tube i^4 , mounted upon the rod 6 between the arms a^2 a^3 , the said plate i^3 being extended upwardly to project beneath the smooth edge of the curved plate f , while the yoke i^2 projects beneath the toothed edge of the said plate f . The plate i^3 , carrying the yoke, is thereby moved up and down like unto and in substantially the same manner as the double crank-arm. The yoke i^2 has two downwardly-extended ends or projections i^3 , (see Fig. 1,) which, when the said yoke is depressed, bear upon and press the spring-strip i down upon either side of the projection i' , so that the tooth or projection i' bears upon the type beneath it and presses it in contact with the paper. The yoke and spring-strip constitute the printing device. The tooth 7, before referred to, which engages the circumferential teeth of the type-plate, is secured to the yoke i^2 .

When it is desired to move the index-plate toward the left, to commence a new line, for instance, the rear crank-arm e is grasped by the fingers, and while held tightly against

the smooth edge of the curved plate f is employed as the handle for this purpose.

To space and not print, as between words, for instance, it is required that the index and type plate shall advance one step; but the movement of the printing-lever shall be insufficient to press the type in contact with the paper, and to effect this result a second finger-piece h is loosely mounted upon the rod 6, it having an overhanging hook which engages the shank g' of the finger-piece g , so that when the said finger-piece h is depressed the rod 6 will be oscillated. A disk k is placed eccentrically upon the rod 5, and as the spacing-finger h is depressed it strikes the periphery of the said disk k , and hence its movement is limited, so that the rod 6 will be but partially oscillated. The disk k may be adjusted by rotating it. The rod 5 has a flat upper surface over which the paper is fed and upon which the type is depressed to print. The paper is fed forward beneath the guard-plate n , bearing upon a feed-roll n' , said feed-roll having a rubber or other feeding surface. The feed-roll n' has its bearings in the side plates 2 3, and has at one end a series of ratchet-teeth, (see Fig. 2,) which are engaged by a dog o , made as a part of a plate o' , pivoted at o^2 , said plate o' having a slot or enlarged opening o^3 , (see dotted lines,) permitting it to slide upon the pivot as the pawl or tooth o engages the feed-roll and the roller rotates.

The feed-roll n' and line-space lever are not herein specifically claimed, as they form the subject-matter of another application, Serial No. 269,705. The pivoted plate o' is depressed by a finger-piece o^4 and is normally held in elevated position by a spring o^5 . The plate o' has at its end adjoining the feed-roll a second projecting tooth or arm o^6 , which normally rests upon the feed-roll n' , limiting the upward movement of the finger-piece o^4 , and a projection o^7 extends from the under side of the plate o' , which, striking upon the table or base, limits the descent of the finger-piece o^4 .

Upon the right-hand end of the rock-shaft 6 is secured, by a set-screw t' , a disk t , (see Figs. 1 and 4,) said disk having a peripheral groove which receives a spiral spring t^2 , one end of which spring is fastened to the said screw t' and the other end fastened to the rod to which the guard-plate n is attached. This spring serves to return the rock-shaft 6 into normal position, lifting the printing lever or device, and the said screw t' permits adjustment of the spring.

To expose the paper being printed upon, the index-plate A is lifted upon the shaft 6 as a pivot, as before stated.

We claim—

1. In a type-writing machine, the index-plate and concentrically-pivoted type-plate thereon, combined with the oscillating feed-plate, and the printing device carried by said index-plate and actuated by said feed-plate, substantially as described.

2. In a type-writing machine, the index-plate movable horizontally and so constructed as to be lifted upon the rod 6, combined with the feed-plate having the toothed and smooth edges, and the double crank $e e'$, substantially as described. 5
3. In a type-writing machine, the index-plate movable horizontally and so constructed as to be lifted upon the rod 6, combined with the toothed edge feed-plate attached to and oscillating with said rod, and the crank-arm e' , co-operating therewith and carried by the index-plate, substantially as described. 10
4. In a type-writing machine, the index-plate and spring-controlled toothed edge feed-plate and supporting-rod 6, combined with the printing-yoke, the yoke projecting beneath the toothed edge, and the extended plate i^3 beneath the smooth edge of and to be moved upon the rod 6, operated by the said feed-plate, substantially as described. 15
5. In a type-writing machine, the index-plate and the oscillating feed-plate having the toothed and smooth edges, combined with the crank-arms ee' in engagement with the smooth and toothed edges, respectively, the finger-piece g , and the spring f^2 , substantially as described. 25
6. In a type-writing machine, the index-plate having the index-portion a and arms $a^2 a^3$, substantially as described, one of the said arms having an upwardly-extending lip and the other arm supporting a block a^4 . 30
7. In a type-writing machine, the index-plate having the arms $a^2 a^3$, the spring-strip i , connecting the arms and having the central tooth or projection, combined with the printing-yoke, having the end projections adapted to bear upon the spring-strip, substantially as described. 35
8. In a type-writing machine, the index-plate, the rod 6, and the disks f' , placed eccentrically upon the rod 6, combined with the curved plate f , having the toothed edge, and the crank-arm e' , substantially as described. 45
9. In a type-writing machine, the index-plate and the oscillating feed-plate, rod 6, and finger-piece g , rigidly attached thereto for moving it, combined with the spacing-finger h , loosely mounted upon said rod and provided with a hook to engage the shank of the finger-piece g , substantially as described. 50
10. In a type-writing machine, the index-plate and the oscillating feed-plate, and finger-piece for moving it, the loosely-connected spacing-finger h , and the rotatable eccentric-disk k , substantially as described. 55
11. In a type-writing machine, the index-plate and the oscillating feed-plate, combined with the disk t , adjustably connected with the feed-plate, and the spring f^2 , substantially as described. 60
12. In a type-writing machine, the index-plate and the pivoted type-plate thereon having several type-sections, and the loosely-connected hand-lever, combined with the recessed plate c , attached to the type-plate, and the spring-controlled disk c' , connected with the hand-lever and acting against the said recessed plate, substantially as described. 70
13. In a type-writing machine, the index-plate, the oscillating feed-plate having the toothed and smooth edges, combined with the oscillating printing-yoke moved or controlled by the oscillating feed-plate, substantially as described. 75

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN BECKER.
GEO. BECKER.

Witnesses:

G. W. GREGORY,
B. DEWAR.