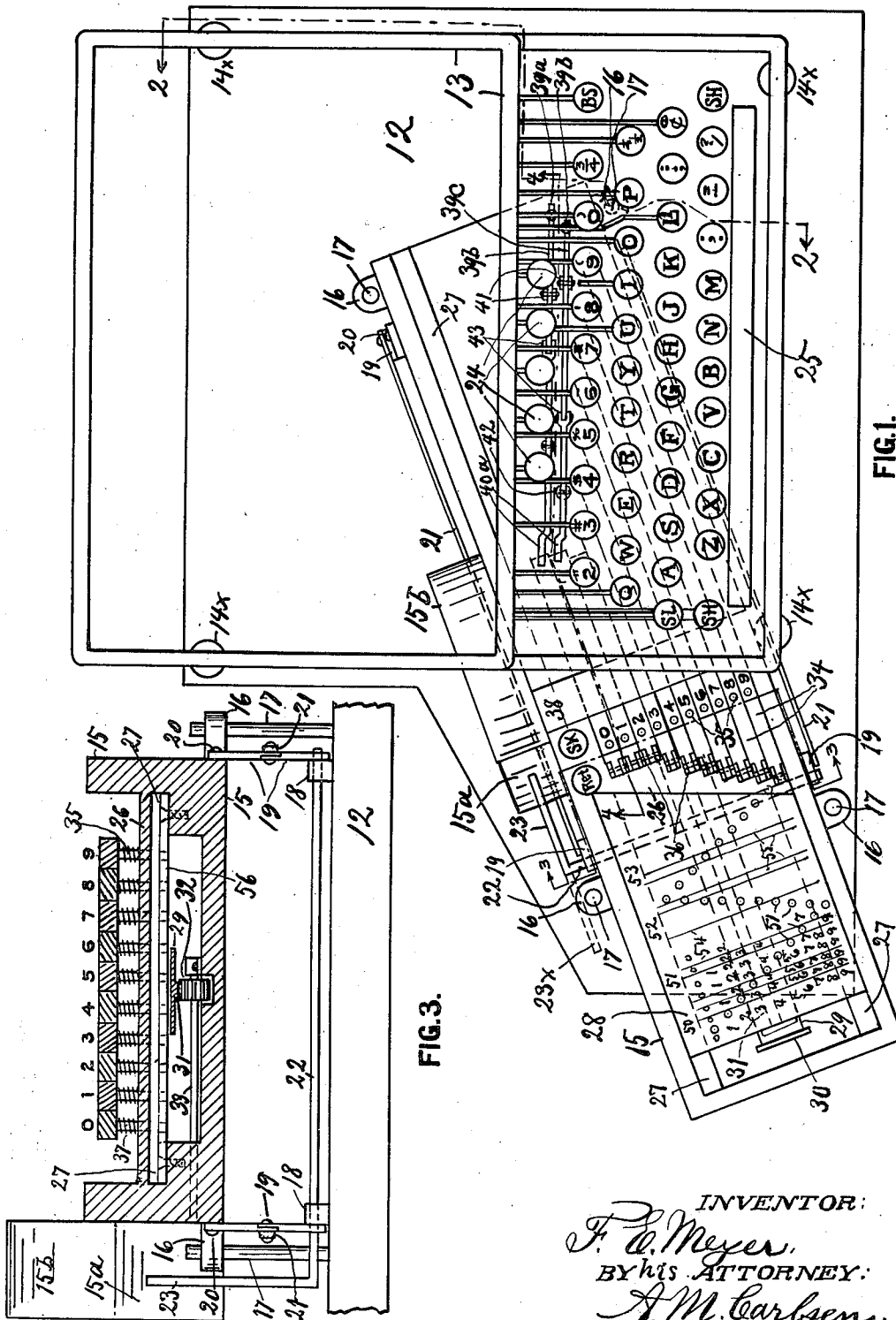


Dec. 19 1922.

1,439,184

F. E. MEYER.
TYPEWRITER AND CARD PUNCHER COMBINED.
ORIGINAL FILED FEB. 14, 1920.

3 SHEETS-SHEET 1



INVENTOR:
F. E. Meyer.
BY his ATTORNEY:
A. M. Carlson.

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3 SHEETS-SHEET 2

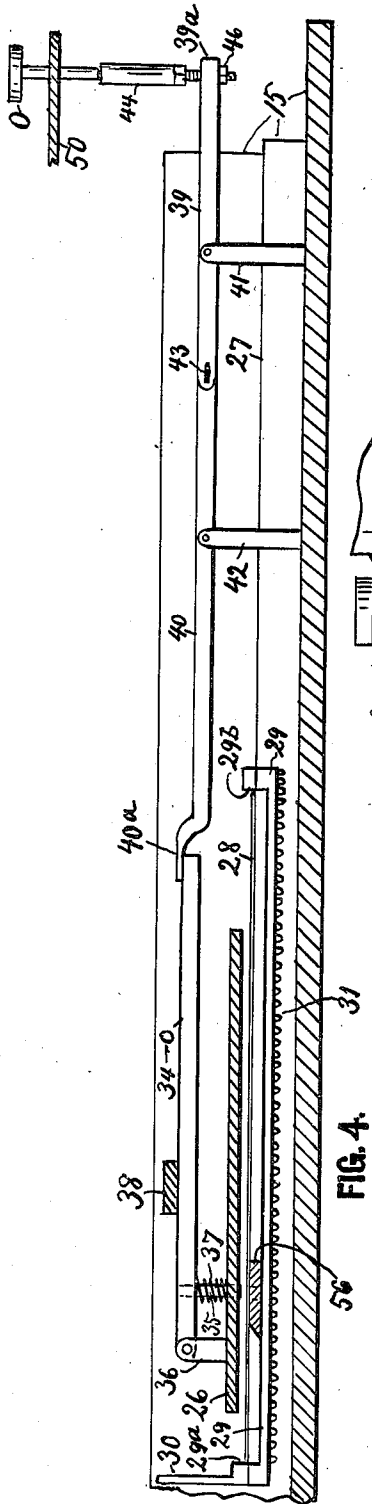


FIG. 4.

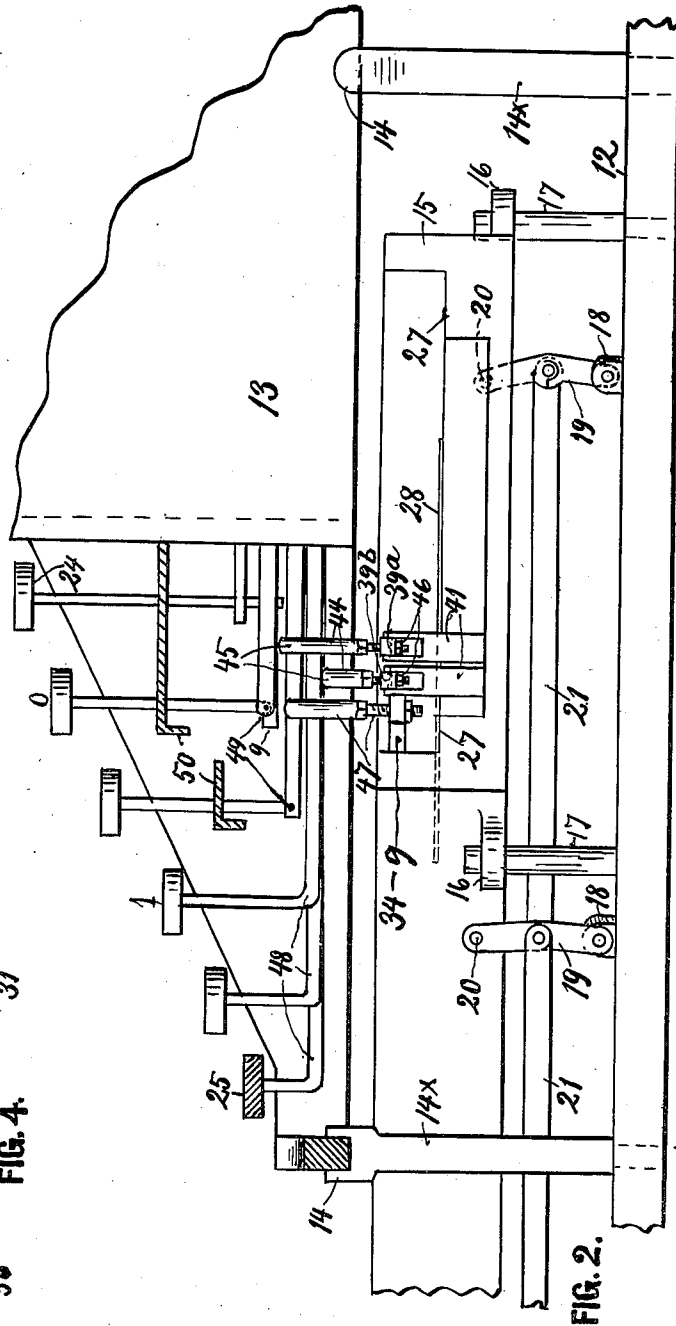


FIG. 2.

INVENTOR:
F. E. Meyer,
BY HIS ATTORNEY:
A. M. Carlsson.

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3 SHEETS-SHEET 3

Day	Ref.	Customer	Per cent paid	Haul	Yard or dock	Size of frail	Pounds	Price	Extra labor	Amount	Freight	
00	10	00	00	00	00	00	00	00	00	00	00	00
01	10	11	11	11	11	11	11	11	11	11	11	11
22	22	22	22	22	22	22	22	22	22	22	22	22
33	33	33	33	33	33	33	33	33	33	33	33	33
44	44	44	44	44	44	44	44	44	44	44	44	44
55	55	55	55	55	55	55	55	55	55	55	55	55
66	66	66	66	66	66	66	66	66	66	66	66	66
77	77	77	77	77	77	77	77	77	77	77	77	77
88	88	88	88	88	88	88	88	88	88	88	88	88
99	99	99	99	99	99	99	99	99	99	99	99	99

28 51 51

Cash
Chg.
The H.H. Gould Co.

FIG. 5.

INVENTOR:
F. E. Meyer.
BY his ATTORNEY:
A. M. Carlson.

UNITED STATES PATENT OFFICE.

FRANK E. MEYER, OF ST. PAUL, MINNESOTA.

TYPEWRITER AND CARD PUNCHER COMBINED.

Application filed February 14, 1920, Serial No. 358,689. Renewed March 19, 1921. Serial No. 453,714.

To all whom it may concern:

Be it known that I, FRANK E. MEYER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Typewriter and Card Puncher Combined, of which the following is a specification.

My invention relates to attachments for typewriting machines and involves the combination with a typewriter of a card punching machine or device of the class heretofore operated by a keyboard of its own and used separately and independently of the typewriter.

The punched cards, similar to that marked 28 in Figs. 1 and 5 of my drawing, having perforations 51, and a machine similar to that marked 15 for punching the cards, and the use of the punched cards in reproducing the most important numbers of documents involved in book keeping and accounting systems, is already so well known to big business offices that I need not here describe the same. What I will show and describe is how I modify and arrange the card punching machine in such a manner that it is easily and readily operated by the regular keys of a typewriter, with the result that each number written on a sheet in the typewriter will at the same time be marked by a perforation in the card near the printed number thereon or punching out the number so that there can be no chance of disagreement between the two documents thus produced, while in the old way of writing in one operation and punching the card afterward or beforehand by an independent operation, errors are very apt to occur. Besides that valuable time is lost by two instead of one operation.

In the accompanying drawings Fig. 1 is half size and all the other figures are full size.

Fig. 1 is a top or plan view of the frame and keyboard of a typewriter and a card punching machine combined for the purpose already stated. Fig. 2 is a section on the line 2—2 in Fig. 1 with the base 12 intact showing also a slight modification of the key-guiding parts of the typewriter. Fig. 3 is a section on the line 3—3 in Fig. 1. Fig. 4 is a section on the line 4—4 in Fig. 1. Fig. 5 is a plan view of one of the punched cards with an arrow indicating the movement of the card during its perforating.

Referring to the drawing by reference numerals, 12 designates a wooden base upon which the frame 13 of the typewriter is mounted in the crutch-shaped tops 14 of posts 14* or any other suitable supporting means, which are high enough to admit the necessary portion of the punching machine in under the typewriter.

The frame 15 of the punching machine is provided with perforated lugs 16 slidably fitted on posts 17 fixed in the base. When the frame 15 is lowered into idle position it may rest upon four lugs 18 on the base, or directly upon the latter. The raising and lowering of the frame 15 is caused by four toggle joints 19, which have their upper ends pivoted at 20 to the frame 15, and the lower ends to the lugs 18. The toggles are attached together by rods 21, one at each side of the card punching machine. At one end of the frame the lower toggle members are fixed on a rocker shaft 22, which is journaled in two of the lugs 18 and is provided with a lever 23 by which the punching machine may thus be raised and lowered. When raised it may be held thus by having the toggle joints brought to the position shown in Fig. 2, and the lever 23 resting against the housing 15^a of the puncher frame or any other suitable resting point, and when the punching machine is to be idle the lever 23 is swung to the position 23* and the punching machine thereby lowered out of contact with the key bars of the typewriter.

The key board of the typewriter may be of the standard arrangement shown in Fig. 1, having the keys 2 to 9 and 0 in one straight row from left to right, while the key L and 1 is used also for writing the digit 1. The keys marked 24 are those skipping keys used on some machines for tabulating to make longer skips than can be produced by a single touch of the spacing key 25. Said key 24 is operatively connected with a skipping key on the punching machine by a rod or other means (not shown). BS indicates the back-skipping key. SH are shifting keys and SL is the shifting key locker that holds the adjacent SH key down as long as only cap letters are to be written. Many of the key bars are omitted in Fig. 1 as they would only obstruct the drawing.

The card punching machine is composed of a suitable channel shaped frame 15, hav-

ing a fixed bridge 26 across it and guiding ledges 27 for the card 28 to slide on, as it is moved back and forth in the frame. The card is also supported by a slide or carriage 29 having at its outer end a finger hold 30. The under side of said slide is provided with a rack 31, meshing with a pinion 32, fixed on a shaft 33. Said shaft is operatively connected with a spring (not shown) located in the housing 15^b and controlled by an escapement (not shown) in the part 15^a of the housing. Said escapement is operated in the usual manner from each one of the levers 34, which operate the punches 35. The escapement is also operable by a suitable connection (not shown) with the space key of the typewriter and by a skipping key "SK", and the key "Ret" serves to release the slide 29 so the main spring may fully return it outward so the card can be removed from it.

The punch levers 34 are fulcrumed in posts 36 or otherwise and are normally each held by a spring 37 up under a fixed bar 38 (see for example the lever 34—0 in Fig. 4). In the ordinary card punching machines the levers 34 are operated by a special keyboard (not shown in my drawing) and fulcrums 36 are all about equidistant from the punches, while in the present machine the fulcrums are variously distanced from the punches according as each punching lever is extended in the opposite direction from the punches so as to reach in under and be operated by the keys 2—3—4—5—6—7—8—9—or other keys of the typewriter, this is to make said punches to move all about the same distance up and down.

The punching levers operated from the keys 1 and 0 on the typewriter being inconveniently located for direct operation a suitable intermediate mechanism may be employed. In the present embodiment of the invention the intermediate mechanism for each punch lever "1" and "0" (as marked near the punches) consists of two levers 39 and 40 (see Fig. 4) fulcrumed in posts 41, 42 and attached together by a slidable joint 43. The end 40^a is arranged to press the punch lever down every time the end 39^a of lever 39 is pressed down by the lever holding key 0; or the next lever 39^b (in Fig. 1) may be likewise depressed by the key L or 1 of the typewriter and cause the next lever mechanism 39^c to 40^a to operate punch lever 1. In this manner all the punch levers in the respective order they are marked in Fig. 1, from 0, 1, 2 down to 9 are operated by the correspondingly marked keys of the typewriter. All the punch levers may also each be an integral lever if so desired.

In Fig. 2 is best shown how the levers 39^a and 39^b may each be provided with a vertically adjustable screw 44 having its head end 45 arranged to be pressed down one by

the key 0, the other by the key 1, each screw has a jam nut 46 to hold it firmly. Similar screws are arranged directly in the operated end of each of the other punch levers; but as all those screws are in Fig. 2 obstructed by the screw in punch lever 9 (or 34—9) only the latter is visible. It is marked 47 and its top is in position to be hit by the key lever "9" of the typewriter.

In Fig. 2 is indicated that so far as my invention is concerned it makes no difference if the key levers of the typewriter are rigid with the keys as at 48, or are pivoted as at 49, and the key stems guided in frame bars 50. It is also understood that the stems (like 44) operating the punch levers may be pivoted thereto and guided to slide vertically, like the key stem in frame bar 50.

In Fig. 1 the numerals 50—51—52—53 designate the spaces on the card 28 upon which are usually permanently printed words indicating pounds, barrels, prices, weight, freight, or the like according to the nature of the business in which the cards are used (see Fig. 5). Upon the cards are also printed vertical ruled lines 54—55, and longitudinal rows of numbers as partly shown to the left in Fig. 1, and more fully in Fig. 5 the upper row contains only 0—0—0, etc., the next lower line is all 1, 1, 1; the next lower line 2, 2, 2, etc., until the lowest line is 9—9—9.

In the operation of the machine the card 28 is placed as in Fig. 4 between the parts 29^a and 29^b of the slide 29, and the latter is pushed to the right in the frame, so that the rack 31 winds the spring in the casing 15^b.

Now if a crude freight receipt, for instance, is to be written in duplicate or triplicate as usually on paper placed in the typewriter, the operator strikes in succession first all the necessary keys to write the numerals that are to be pointed out on the card by perforations which are at the same time punched in the card; through with this he has exactly the same record written on his paper and pointed out on the card. He now removes the card and completes the paper by typewriting any words necessary to go on same. During this latter part of the operation he may or may not lower the punching machine by the lever 23 as already described. In this as in all card punching machines there is a perforated steel bar or die 56 for the ends of the punches to enter as they punch through the card, co-acting with the said die.

During the perforating process of the card the card is fed from right to left by the slide 29, rack 31 and pinion 32. Each card thus prepared may afterward be passed through a reproducing printing machine in which the perforated card allows the machine to operate types corresponding in

character to those punched away in the card; much on the same principle as the perforated sheet passed through a piano player decides which keys are to play music.

5 What I claim is:—

1. A base, a typewriter mounted on supports upon the base so as to be spaced suitably upward from the base, a card punching machine partly interposed between the
10 typewriter and the base diagonally upon the latter; said punching machine having a series of punching levers with a punch operated by each lever, and a perforated die to cooperate with the punches; each lever having
15 one end fulcrumed to the frame of the punching machine and the punch a short distance in from the fulcrum, the other and longer portion of each lever being arranged to be pressed down directly by a portion of
20 a key lever of the typewriter.

2. The structure specified in claim 1, and extensible means carried by the punching levers for adjusting their contact with the key levers.

25 3. The structure specified in claim 1, and means for readily displacing the punching machine out of operative relation to the typewriter.

4. The combination of a base having long
30 and short posts upon it, a typewriter supported on the long posts, a card-punching machine partly interposed between the typewriter and the base and having perforated lugs slidable on the short posts, a lever and
35 means operated by the lever for raising and lowering and holding the card punching machine partly up from the base when so desired, whereby its punch operating levers are brought into position to be operated by
40 the keys of the typewriter used in writing the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

5. The combination with a card punching machine having punch-operating levers fulcrumed each with one end to the frame of
45 the machine and operating near the fulcrumed end a punch, of a typewriter mounted above the levers and having most of the keys desired to be used for operating the punch levers arranged directly above the
50 free or long ends of said punching levers, and a few of said keys having each an intermediate lever mechanism for reaching the punching levers.

6. The structure specified in claim 5, the distance between the fulcrum and the punch
55 of each lever varying in proportion as the long arms of the levers vary in length to reach the different keys of the typewriter, or the intermediate means operating a few
60 of the levers.

7. In a structure of the kind described and mounted in suitable frame work, a slidable paper carrier and a slidable card carrier, springs causing said carriers to slide, finger
operated keys having levers, types operated
65 by the keys for printing on the paper, and punching means operated by some of the keys for punching holes in the card, and means operated by some of the keys for allowing the two carriers to move in unison.
70

8. The structure specified in claim 7, said movement of the carriers being divided into uniform steps, or else a multiple of such steps.

9. The structure specified in claim 7, said
75 punching means comprising a series of punches arranged to punch several parallel rows of holes in the moving card.

10. The structure specified in claim 7, said punching means comprising punches, levers
80 actuating the punches, and a vertical element between the long end of each punch lever and one of the key levers, to cause the latter to operate the former.

11. The method of securing a typewritten
85 and a symbolic record one true with the other, upon two separate sheets, which consists in providing one sheet with several parallel lines of printed numbers and one blank sheet, then moving the two sheets step by
90 step at predetermined speed and during said movement punching holes in the numbered parts of the numbered sheet and simultaneously typewriting on the blank sheet numbers corresponding to those in the places
95 being punched in the punched sheet.

12. The method specified in claim 11 and the further use of the punched sheets or cards which consists in using each card as a perforated insulator moving between elec-
100 trodes in a machine adding together all numbers found in a similar place of the several punched cards.

In testimony whereof I affix my signature.

FRANK E. MEYER.