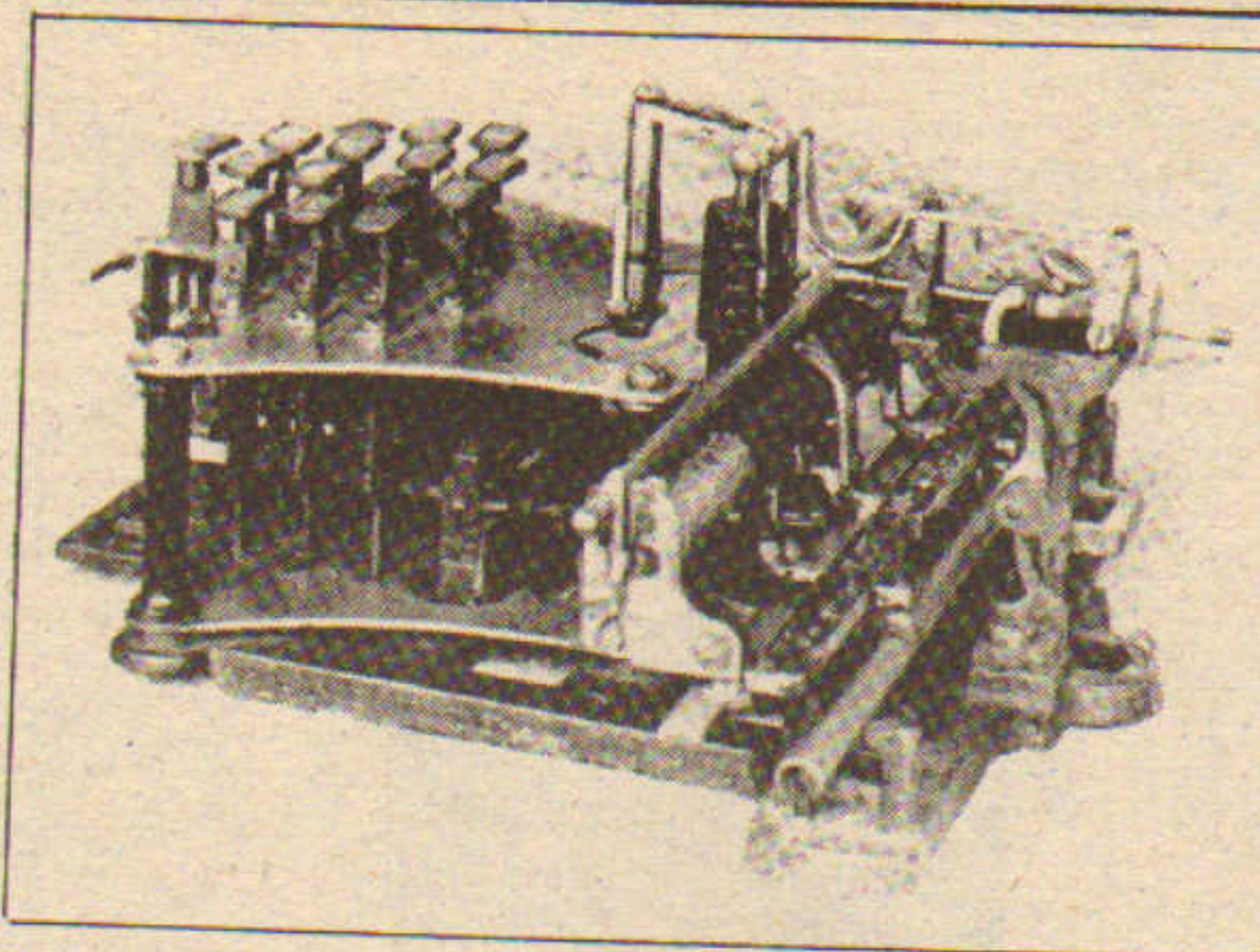
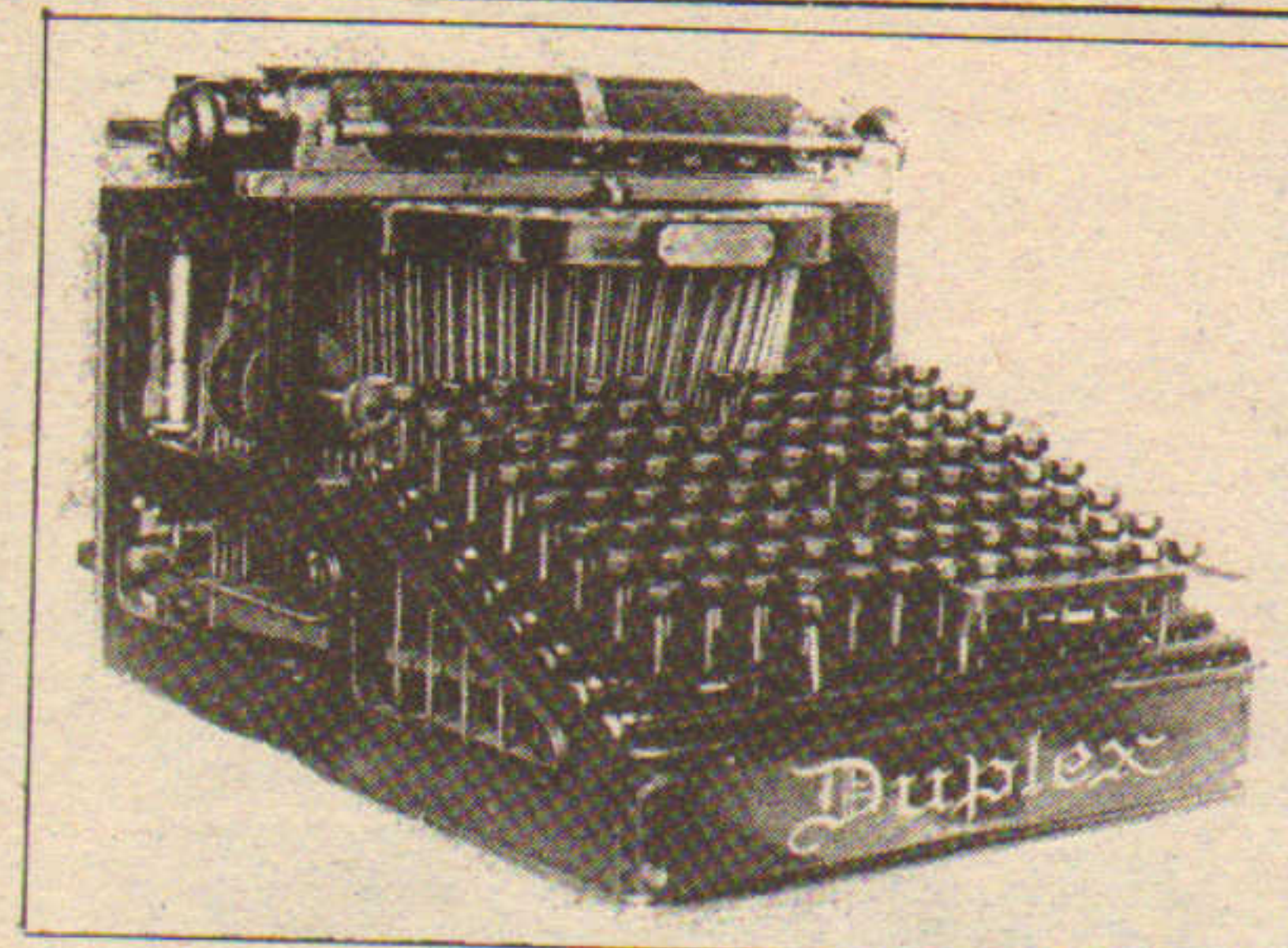


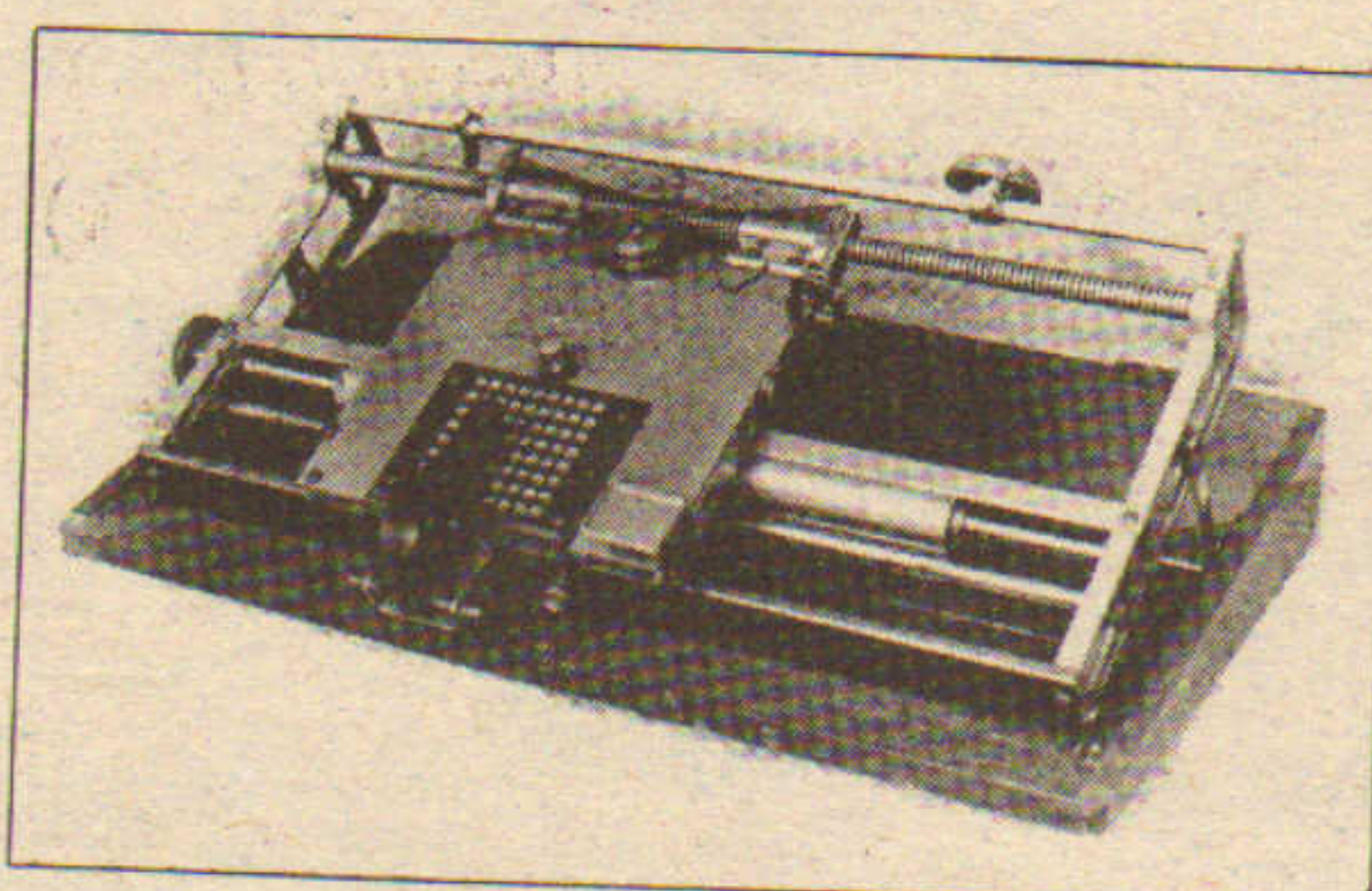
The Hammond Multiplex Ideal, c. 1914.



The Gardner, c. 1890.



The Duplex typewriter, c. 1892.



The Hall, c. 1880.

other, marked "fig," was for the numerals and figures usually found on the top row of four-row machines. Each typebar carried three characters.

Following the Brooks, the three-bank double-shift keyboard found its way into numerous typewriters. The majority of single-element machines, as well as the National, Williams, Ford, Wellington, and Oliver typebar machines of the late 80s and early 90s (as well as a dozen-odd portable and intermediate-size frontstrike machines of the early 20th century) were equipped with the three-bank setup. "The three-row keyboard is ... the most scientific, simplest, and easiest to learn," contended a Hammond instruction manual. "99% of all typewriting is done with lower case and capital letters, and principal punctuations, and ... in all typewriting speed contests the writing is in lower case and capital letters. Figures are not used. Consequently, all speed records have been made on three-row keyboards."

Just as double-keyboard manufacturers claimed superior durability, so did manufacturers of the double-shift antithesis. While the double-keyboard suppliers pointed to structural rigidity, the double-shift pointed to reduction of parts: with three characters on each typebar, only one-third the number of typebars were needed. Ditto the number of keys, keylevers, pull- or pushrods, bearings, and all the other associated parts. The simpler mechanism, insisted the double-shift advocates, was more enduring for the plain reason that there was that much less to get broken.

Whether a typewriter has three rows of keys, or four, or six, or eight, we are accustomed at least to seeing them all aligned in straight rows. But, said abundant theorists of the 19th century, typing should be conducted using only a couple fingers of each hand, with the elbows resting upon the table as pivots. When this is the case, they continued, moving across straight rows of keys necessitates muscular restraint. This would never do, for it would weary the typist and cause cramps. Curved keyboards, they insisted, would do better.

Thus, of the typewriters mentioned so far in this article, eight — Crandall New Model, Hammond, Williams, Kanzler, Franklin, Ford, National, and the British Imperial — had keyboards that were curved. Some — including Crandall and Hammond machines — had two-row keyboards. Many of these reverted to straight rows in later models, though the Hammond was still available in roundfront models a good quarter-century after its introduction.

Most early typewriter keyboards conformed to the alphabetic sequence of the Sholes & Glidden, which is essentially the same sequence as on modern typewriters. But many others thought they had better keyboard sequence ideas — and it would have been difficult for them to have had a worse one — that they produced with such names as "Ideal" and "Scientific" keyboard. The problem with the Sholes arrangement is that the most commonly used characters are set-up for left-handed operation in a right-handed world; frequently used letters like a and s are at the end of the keyboard, under the weakest fingers; and e, the most common letter in English, is not on the home row. Since the time of the Crandall and the Caligraph and the Hammond,

typebar in his sluggish mechanisms did not get out of the way fast enough, after printing, to leave a clear path for the next. The second might hit the first, pounding it back into printing position so that, if "ab" were the desired outcome, "aa" may have been the result. Sholes is reported to have found out which combinations of letters occur together most frequently, and then spaced them as far apart as he could in his typebasket. This reduced, mathematically at least, the likelihood of the typebars bumping into one another. (The catalog of the London Science Museum informs us that Sholes had little interest in an alphabetic sequence of his keyboard, but evidence suggests that an alphabetic arrangement was at least his starting point. As manufactured by Remington, the Sholes & Glidden — six years after Sholes started work — had the highly alphabetic vestige of FGHJKLM all on the center row; and, with nearby keys thrown in, DEFGHIJKLM give us nearly half the alphabet in close proximity, a surprising set of coincidences from someone who supposedly had little interest in alphabetism.)

It is said today that if all typists had to be taught a new keyboard arrangement, even a better one than now in use, the world would grind to a halt as the people who operate writing machines learned the new order. And so not only typists, but operators of data-processing and computer equipment use the standard arrangement. Programmers issue instructions to futuristic electronic devices through a keyboard that is a travesty of inefficiency because, sometime more than a century ago, Christopher Latham Sholes had a sticky typewriter.

But if it can be said that the Sholes' keyboard arrangement is odd, then two typewriters of the 19th century had keyboards we would have to call bizarre. One was the British-made Gardner of c. 1890, a wheel writer that had 14 keys (and not 16 as reported by Adler, nor 13 as reported by the Condensed History) by which it could print its complement of 84 characters. 84 characters from 14 keys? Sure. Press a key alone and you get one character. Press the same key and the space bar and you get another. If you want the capital of the second letter, first operate a shift lever and then press the two keys. It is reported that the shift lever was replaced in later models by shift keys. In such a machine it would have been entirely possible to press three keys at once to print a single character. Pianists are familiar with the practice. They call it playing chords.

In the American-made Duplex of c. 1892, the typist again was to press two keys at once. Instead of printing one character, though, this caused two to be printed side by side. If typewriters like the Caligraph had double-keyboards, the Duplex had what would be called a double-double-keyboard: a full keyboard for the left hand, its twin alongside for the right. Each keyboard controlled its own set of typebars; so, if "i" on the left keyboard and "s" on the right were pressed at once, the printed result would be "is." The inspiration behind this was that if two characters were printed at once, the typing would be finished in half the time. "The Fastest Typewriter in the World" was the straightfaced proclamation of the Duplex catalog. And, assuming your typist was sufficiently ambidextrous, or schizoid, to type in alphabetic pairs, you would derive from the Duplex heightened

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An early ad for The Odell.

reformers have tried to get the world to accept a keyboard whose most common letters are easier to reach — and the attempt continues to this day — but the Sholes keyboard, for all its inefficiencies, was present in the Remington, the big seller when typewriters were getting themselves established, and so it prevailed.

It is no denunciation of Sholes that his keyboard made no sense, for his objective was not to invent the typewriter that worked best. He was delighted when one worked at all. How comfortable or efficient typists would be was their problem; his was, among others, apparently the fact that one