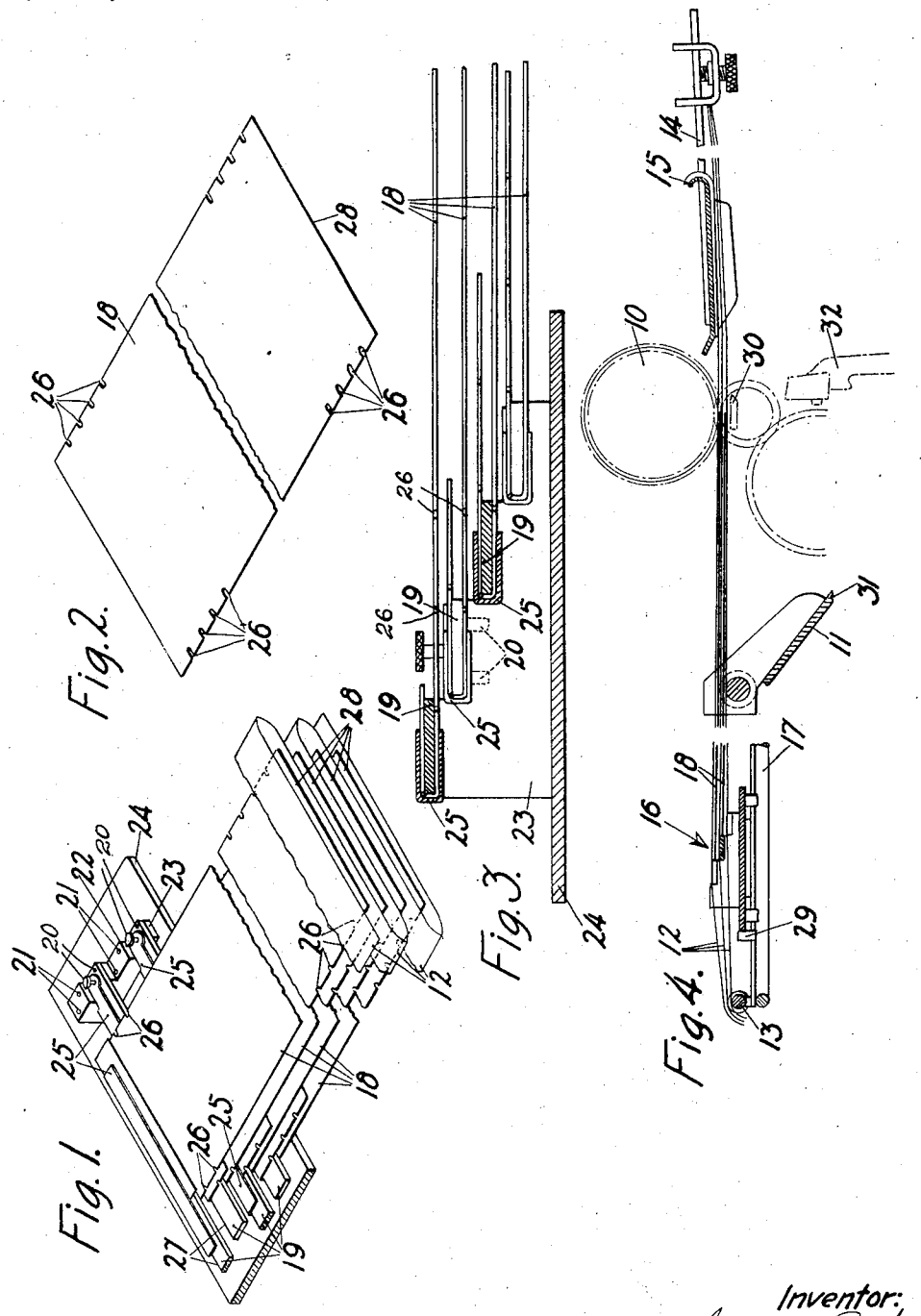
J. A. B. SMITH.

CARBON SHEET.

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1,361,553. **Patented Dec. 7, 1920.**



Inventor:
Jesse A. B. Smith
by B. B. Stickney
Attorney

UNITED STATES PATENT OFFICE.

JESSE A. B. SMITH, OF STAMFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

CARBON-SHEET.

1,361,553. Specification of Letters Patent. Patented Dec. 7, 1920.

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To all whom it may concern:

Be it known that I, JESSE A. B. SMITH, a citizen of the United States, residing in Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Carbon-Sheets, of which the following is a specification.

This invention relates to carbon sheets used for manifolding, especially in typewriting machines of the class shown in the Wernery & Smith Patent, No. 1,132,055, granted March 16, 1915, in which the carbons are caught upon blades, whereby they are drawn back from time to time to face new portions of the webs, the previously typed portions of the webs being torn off.

In such machines it is customary to employ separate webs of paper, usually mounted upon separate spools, and considerable difficulty has been experienced, especially by learners, in securing the right relationship between the carbon sheets and the forms which are usually printed upon the separate webs. The practice is to fold the end of the carbon over a blade, and then to clamp the folded portion to the blade so that the blade can shift the carbon along the web as required. These blades stand one behind another, so that after all the carbons are folded over the blades, it is found that the folded ends of the carbons stand in overlapping relation. It is the practice, after typing the first form on the superposed webs, to shift back the carbons to some extent, and then to tear off the typed forms from the webs, at the same time tearing off the carbons, so that their forward ends will be all even. Then it is necessary to hold the several webs while the carbon-carrier is shifted back a little more, so that the carbons will clear the leading ends of the webs.

One of the objects of the present invention is to avoid the necessity of these various tearing-off and shifting operations. I render it feasible to attach the carbons readily to the blades in such manner that the forward edges of the carbons will coincide, so that a special shifting of the carbon-carrier, above referred to, is no longer necessary.

To this end, I provide means upon the carbon sheets to indicate to the operator exactly how to fold them over the several blades. The improvement consists in making indications upon the opposite side edges of the carbon sheet at the end thereof that is to be attached to the blade. These indications are in the form of notches, which are arranged in a row, and these notches should equal in number the number of blades upon the carbon-carrier; usually four. The notching on one side edge of the sheet registers with the notching upon the opposite edge, so that it is only necessary to fold the carbon over at the first notch, or the second, or third, or fourth, according to the position of the blade upon which the carbon is to be placed. By folding the carbon exactly at the opposite edges, the result is gained that the fold is straight, and the carbon-sheet therefore squarely positioned on its holder or blade, so that the sheet does not skew in the machine when placed upon the blade. Moreover, although the sheets are folded differently for differently positioned blades, the leading edges of the carbon sheets will all coincide without further attention. The separation of the notches corresponds with the separation of the blades. The notches are so placed that when the sheets are folded and placed upon the blades in the manner described, their forward edges will have the right relationship to the leading end of the form which is printed upon the blank webs; so that when the carbons are once attached, they are in the proper position, and no further attention need be paid thereto, except to shift back to a new typing position at the conclusion of the typing of each form.

One of the features of the present improvements is to provide side indications or notches at both ends of the carbon sheet. This permits either end to be folded over the carrying blade, while the other end is subjected to the action of the types of the typewriter. One of the advantages gained is that after the unfolded end of the carbon-sheet has been written upon several times, and consequently worn, the sheet may be removed and the worn end may then be folded over the carrying blade of the machine, thereby bringing into use the fresh portion of carbon which had been previously folded over the blade. Thus the life of the carbon-sheet may be prolonged. This is an improvement over the device shown in my patent granted March 30, 1915, No. 1,133,331, in which one end of the sheet was left uncoated with carbon, and marking or fold lines were printed thereon. According to

the present invention, both ends may be coated with carbon, and the life of the sheet prolonged in the manner just explained. In fact, the present invention provides for utilizing ordinary completely coated carbon-sheets, which are coated with carbon from end to end and from edge to edge. The indicating notches are clearly visible regardless of the carbon coating.

It will be understood that covering the entire sheet with carbon renders the manufacture thereof simpler than where a part of the sheet is left uncoated; and it will also be understood that the laborious printing of the marking lines, sheet by sheet, is avoided. In cutting the notches, a lot of sheets may be stacked up in a pile, and notches cut in all of them at low expense by a special tool.

Other features and advantages will hereinafter appear.

In the accompanying drawings,—

Figure 1 is a diagrammatic, fragmentary, perspective view of carbon sheets, constructed according to the present invention and attached to the carbon paper-carriage.

Fig. 2 is a perspective view of a broken single sheet.

Fig. 3 is a sectional side view of the sheets and devices seen in Fig. 1.

Fig. 4 is a sectional side view of parts of a fan-fold typewriting machine, showing the carbon carriage in position upon the retraction of the carbon sheets.

In the usual Underwood fan-fold continuous billing typewriting machine of the general type shown in said Wernery & Smith patent, the platen 10 is adapted to be swung up in the typewriter carriage 11, to the position seen in Fig. 4, in which the fan-fold or other webs 12, which rise over the rear guide-rod 13 may be brought straight forward beneath the platen, so that they may be gaged against the usual end gage 14, extending above the usual front paper-table 15. When the webs have been gaged, as shown in Fig. 4, the carbon paper carriage 16 is pushed rearwardly along rails 17, which extend rearwardly from the carriage 11, there being provided for this purpose a handle, not shown. The carbon sheets 18 are mounted upon holding blades or cross-bars 19, which are each detachably held by a pair of dependent pins 20 adapted to fit into pin holes or openings 21, in the steps 22, of a step foundation 23, there being a foundation 23 upon each side of the usual fan-fold bottom plate 24, which forms part of the carriage 16. The carbon sheets 18 are usually held upon their respective bars 19 by swinging clips 25, each clip pivoted upon its bar 19.

According to the present invention, each carbon sheet is provided with carbon-positioning indications shown in the form of notches 26, said indications adapted to be set against the rear edges 27, of the bars 19, so that when any carbon sheet is folded over said edge to enable the clip 25 to grasp it, it may be squarely set thereon by having the notches at its two edges coincide with the rear edge of the bar 19. Each side edge of the carbon sheet 18 is shown as provided with a plurality of notches, said notches being spaced successively just as far apart as the distances between the successive rear edges of the bars 19, with the result that if the top bar has a carbon sheet folded over it at its rear notches 26, and next to the top bar has another carbon sheet folded over it with its next to the last notches at the rear edge of said latter bar, the front end edges 28 of the two carbon sheets will lie exactly beneath each other when stretched out to the Fig. 4 position. The front edges of the other carbon sheets if correspondingly positioned upon their respective bars 19, by the proper notches 26, will also fall on the same line as the front edge of the top carbon sheet, as shown in Fig. 1. The carbon sheets are advantageously made of a length, such that, when the carbon carriage 16 is pushed rearwardly, until arrested by the usual adjustable stop 29, the front edges of the sheets 18 will fall just behind the usual severing knife 30, with the result that when the platen 10 is swung back to its right position, the carbon sheets will be ready for the next typing, and standing below the knife edge 30 will not be torn when the typed sections of the webs are severed by being drawn against the knife. According to the present invention, the notches 26 are provided preferably upon both ends of the sheet 18, with the result that when one end has been used for writing until exhausted, the carbon sheets may be reversed and positioned by the notches upon the exhausted end, thus enabling the fresh end to be used for typing.

The invention, therefore, provides convenient means not only for positioning the sheets, but also for enabling the end of a sheet which has not been written on to be completely utilized. Thus, the stretch of carbon sheet from the carbon carriage 16, over the rear paper table 31, and around to the printing point or line of writing, shown diagrammatically by the type head 32 may be utilized with the same ease as a new sheet, and with all the advantages of the present invention.

Owing to the exigencies of drawing, the notches 26 are shown as of considerable width. It has been found that a mere cut in the edge of the carbon sheet is usually sufficiently conspicuous for the purpose, even if no more than an eighth of an inch deep. Owing to the peculiar nature of carbon paper, such a cut usually opens out slightly and becomes a very conspicuous notch.

Variations may be resorted to within the

scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. A carbon-sheet for use in a typewriting machine, said sheet coated up to both ends and comprising a notched side adjacent each end, the notches adapted to serve as guides for adjusting the carbon-sheet selectively to any one of a succession of holders placed at different distances from the writing line of the typewriter.

2. A carbon-sheet for use in a typewriting machine, coated up to both ends and comprising opposite notches upon the two sides adjacent each end, the notches on one side registering with those on the other side, said notches adapted to serve as guides for selectively adjusting the carbon-sheet and squaring the same upon any one of a succession of holders placed at different distances from the writing line of the typewriter.

3. A carbon-sheet completely coated with carbon for use with any one of a set of holding blades in a typewriting machine, in which the blades are arranged at different distances from the line of writing, one end portion of said carbon-sheet having a set of fold marks whereby the end of the carbon-sheet may be selectively folded in a manner to position it accurately upon any selected blade, said fold marks consisting of notches or perforations cut in opposite side edges of the carbon-sheet, those on one edge registering with those on the opposite edge and enabling the sheet to be squared relatively to the blade, and being placed at intervals to correspond with the differences in the positions of the holding blades.

4. A carbon-sheet completely coated with carbon for use with any one of a set of holding blades in a typewriting machine, in which the blades are arranged at different distances from the line of writing, each end portion of said carbon-sheet having a set of fold marks whereby at either end the carbon-sheet may be selectively folded in a manner to position it accurately upon any selected blade, said fold marks consisting of notches or perforatons cut in opposite side edges of the carbon-sheet, those on one edge registering with those on the opposite edge and enabling the sheet to be squared relatively to the blade, and being placed at intervals to correspond with the differences in the positions of the holding blades.

JESSE A. B. SMITH.

Witnesses:
EDITH B. LIBBEY,
JENNIE P. THORNE.