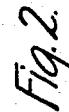


1,364,819.

3 SHEETS—SHEET 1.



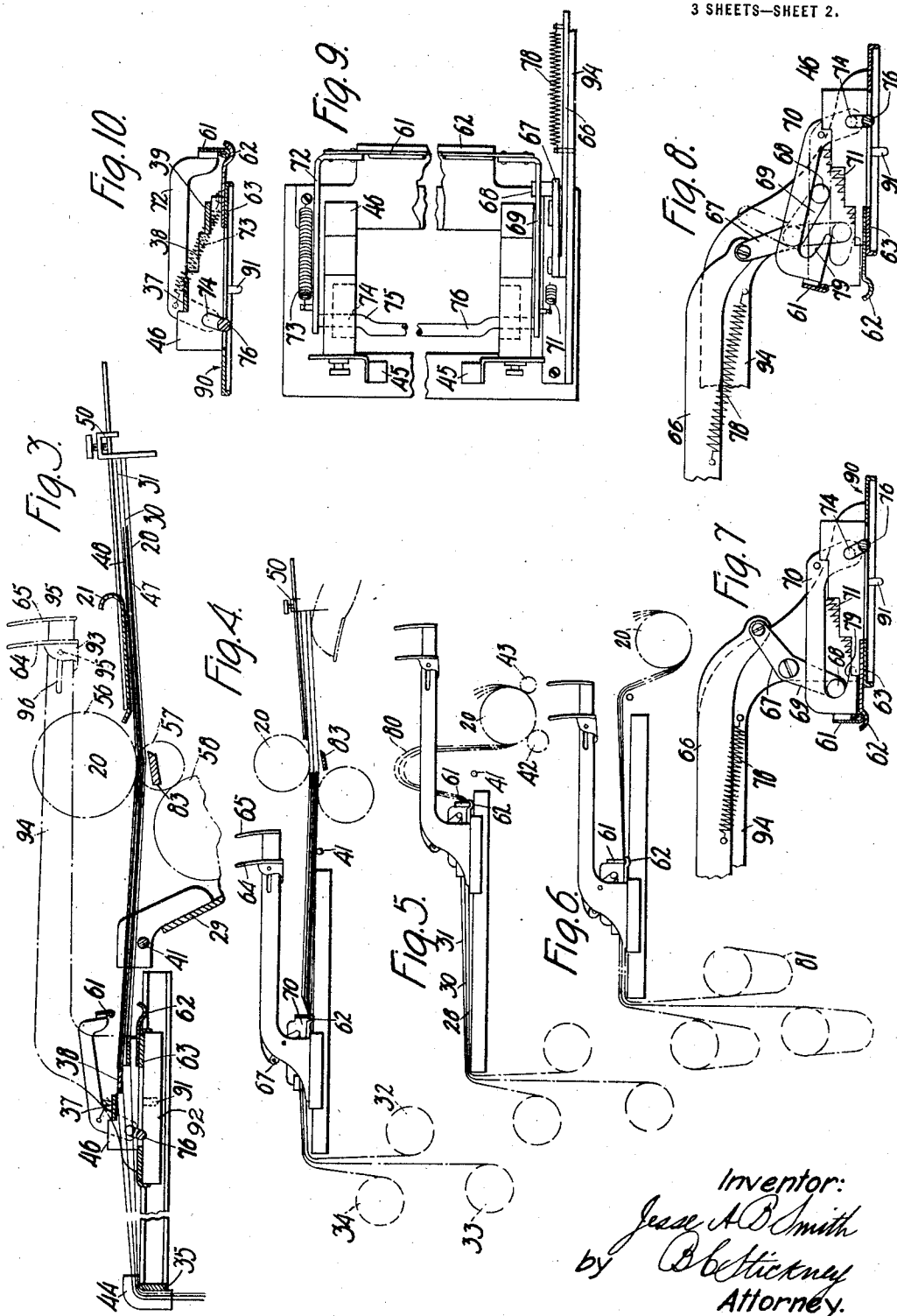
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J. A. B. SMITH.
 TYPEWRITING MACHINE.
 APPLICATION FILED MAR. 15, 1919.

1,364,819.

Patented Jan. 4, 1921.

3 SHEETS—SHEET 2.

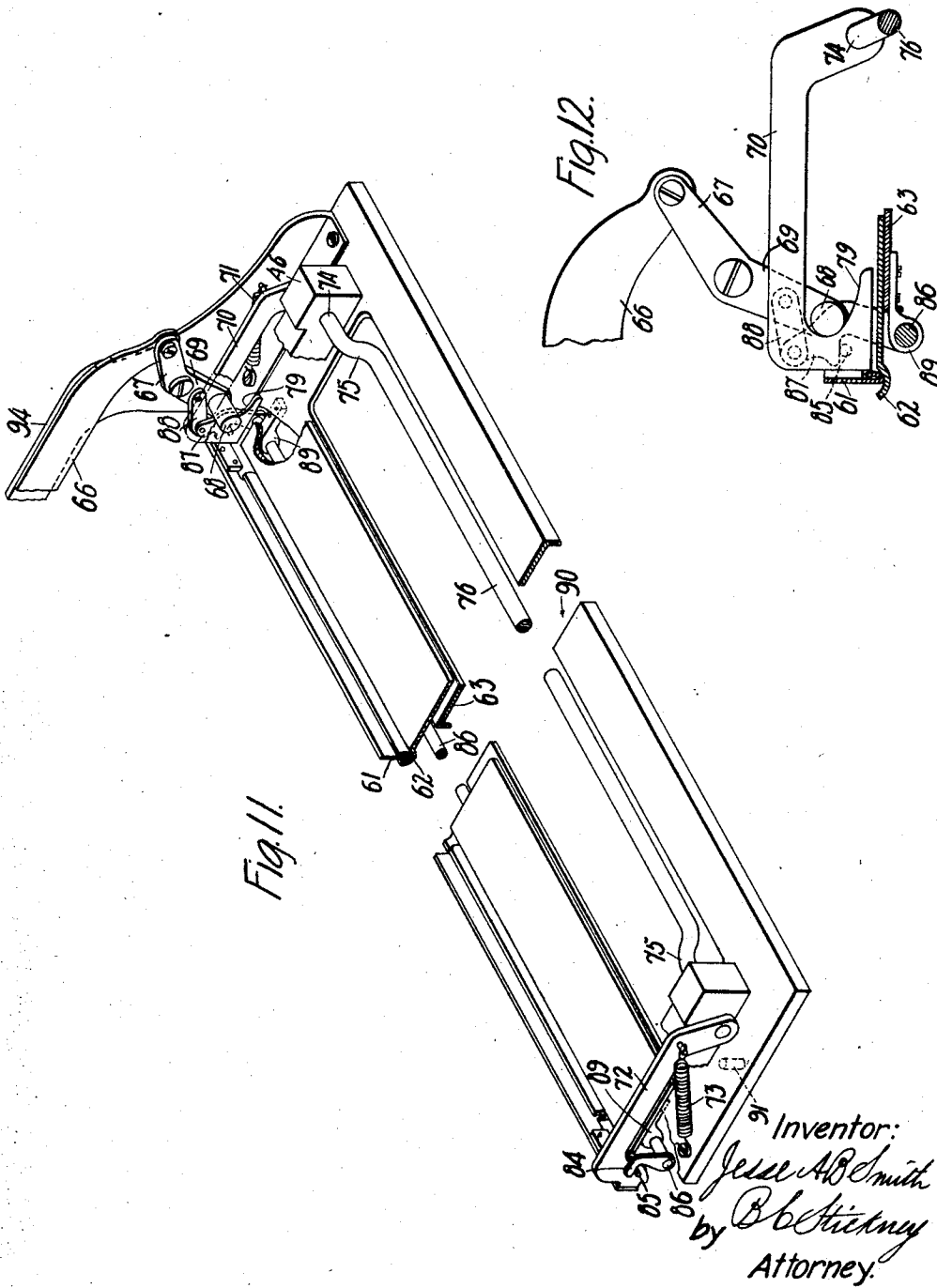


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 3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

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

TYPEWRITING-MACHINE.

1,364,819.

Specification of Letters Patent.

Patented Jan. 4, 1921.

Application filed March 15, 1919. Serial No. 282,859.

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 Typewriting-Machines, of which the following is a specification.

This invention relates to typewriting machines of the class shown in the Wernery and Smith Patent, No. 1,132,055, in which a longitudinally folded web is led around the revoluble platen of a typewriting machine, the latter having provision for carrying carbons between the plies of the web, and for shifting the carbons back, to face fresh portions of the web, as the typing proceeds; the web usually comprising a succession of printed forms, each of which is torn off as soon as typed.

An object of the invention is to provide improved means for adapting a machine of this type for use with separate plies, of which one may differ from another in its quality or color. In my application No. 236,193, is illustrated a device for pulling lengths of webs or plies off from supply spools, preparatory to feeding the webs line by line around the platen, so that the line-spacing mechanism of the typewriting machine will not be burdened with moving the heavy paper supply spools. One of the objects of the present invention is to improve the device for pulling the supply of webs off from the spools for this purpose, and also to use the improved device for preventing or minimizing the relative creep of the separate plies upon one another as they feed around the cylindrical platen.

The carbon sheets, in this type of machine, are caught at their rear ends upon devices carried upon a carrier, which may slide backwardly and forwardly. At the conclusion of the typing of a page, this carbon-carrier reaches its extreme forward position; and upon straightening out the webs to relieve the friction between the carbon sheets and the plies of web, as set forth in said application, the carrier may be shifted back by means of a handle thereon, to carry the carbons into engagement with fresh surfaces of the webs. In said application, a clamp is brought into use at the conclusion of such

backward stroke, for the purpose of clamping the loose webs, whereupon said carrier is pulled forward by the operator, so as to draw off a supply of paper from the heavy paper-spools. The operator immediately pushes the carrier back a second time, so that it will resume position for beginning the typing of a new printed form upon the webs, and the excess paper between the supply spools and the typewriter hangs in the form of a loop from the spools.

A feature of the present invention resides in improved means for clamping the sheets to the carbon-carrier for the purpose aforesaid. According to this invention, the sheet-clamp or clip is in the form of a bar, which extends entirely across the webs, and possesses other features which will be hereinafter set forth.

In addition to the use of this clamp or clip for pulling the webs off from the spools, it is made to play a part in preventing or minimizing the accumulation of relative creeping between the plies as they feed around the platen. This creeping, which is due to the difference in linear travel of the outer sheet as compared to the inner sheet as they go around the platen together, may be so great as to be perceptible at the conclusion of the typing of a single form, especially if the form is a long one; that is, the typing upon the carbon copies at the end of the form may not be in the same exact register with the original printed lines on the form, as is the case with the typing upon the outer sheet. To prevent this creep from accumulating from form to form as the web is used up, is one of the objects of the present invention. For this purpose, the bar which clamps the sheets together, as already set forth, is caused to hold the sheets in register throughout the typing of each form, so that there is no relative creeping of the webs back of said clamp. After the form is typed, and the platen is elevated, and the typed webs or plies are straightened out, the webs are found to have their original or normal relationship; that is, their original printed forms register with one another upon all the plies, since the latter are no longer in contact with or affected by the platen, but lie flat one upon another in the machine. In this condition the operator grasps the typed

webs at their leading edges, and holds them together while he proceeds to release the sheet-clamp, preparatory to pushing back the carbon-carrier. The operator maintains his hold upon the sheets during the backward shifting of the carbon-carrier relatively to the webs. As soon as the carrier has reached its rearmost position, the operator permits the clamp automatically to re-clamp the webs. Thus the webs are always held together, either by the operator's fingers or by said clamp, and hence there is little or no relative creeping at any time, and little or no opportunity for accumulation of creeping from form to form along the webs.

The carbon-paper carrier is mounted upon the typewriter carriage, and must be made as light as possible. The webs must be gripped securely, no matter how slippery they are, and yet the gripping device should preferably leave no mark whatever upon the paper.

It is to obtain these results that the carbon-paper carriage is provided with a web-gripping device extending entirely across it. This gripping device is illustrated in the form of a thin plate, mounted upon a cross-bar of the carbon-paper carriage, against which the webs are clamped by a swinging bail, the latter in the form of a cross-bar, so shaped as to be practically rigid, and pivoted toward the rear of the carbon-paper carriage. This clamping bar may be normally held effective (to prevent creeping) by a spring-actuated cam, a comparatively light spring securely gripping the papers or webs by means of such cam. The handle by which the carbon-paper carriage is manipulated may carry a light finger-piece by which the typist can overcome the tension of the spring, and thus release the webs from the grip when shifting the carbon-carrier back relatively to the webs.

The webs being properly alined at the beginning of writing, the herein-disclosed clamp may be utilized to always hold them in alinement, so that forms originally printed thereupon will remain properly superposed. The typist usually gives the webs their final advance after typing a form thereon, by seizing them with the fingers when the platen is lifted from the feed-rolls, and then drawing on the webs while they are substantially straight. After thus being drawn forward, they may be held by the finger of the typist against the usual leading-edge gage while the clamp is released and the carbon-carrier pushed rearwardly. The webs are still held by the clamp, and their first gaged position relative to each other is restored when they are seized by the typist's fingers, and they may all be set to the leading-edge gage as soon as the clamp is released. The clamp may again be

permitted to seize the webs, after the carbons have been shifted back along the webs, with the result that the original alinement of the webs is preserved. The platen is now thrown into writing position, and the typed sections of the web are detached, and the forms or sections next written upon will be found to have proper alinement.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is a fragmentary perspective view of an Underwood fan-fold typewriter carriage, showing the present invention as applied thereto.

Fig. 2 is a perspective view, showing the relationship between the carbon-paper carriage handle and the fingerpiece.

Fig. 3 is a diagrammatic, sectional, side view, showing the platen thrown up and the work-sheets gaged, and the carbon-paper carriage having released the webs to permit it to be pushed rearwardly.

Fig. 4 is a similar view, showing the carbon-paper carriage pushed rearwardly, and having again seized the webs.

Fig. 5 is a similar view, showing the carbon-paper carriage advanced to unwind additional web lengths from the rolls upon which the webs are wound.

Fig. 6 is a view similar to Fig. 5, but showing the carbon-paper carriage pulled rearwardly by the weight of the sagging webs.

Fig. 7 is a sectional side view, taken from the side opposite to Fig. 1, but showing the spring, the cam and connections between them and the clamp when the clamp is effective.

Fig. 8 is a view similar to Fig. 7, but with the clamp shifted to ineffective position.

Fig. 9 is a diagrammatic, plan view of the parts seen in Figs. 7 and 8.

Fig. 10 is a fragmentary, sectional, side view, showing the parts as seen from the side opposite to Fig. 7.

Fig. 11 is a perspective view of the detached upper portion of a carbon-paper carriage, showing a modification in which the clamp is adapted to be held effective at both ends.

Fig. 12 is a view similar to Fig. 7, but showing the additional connections of Fig. 11.

In the Underwood fan-fold billing machine of the type referred to, the platen is revolvably mounted by stub shafts, not shown, in a swing frame which includes a front paper-table 21, journaled on a shaft 22, said shaft extending between the ends 23 and 24 of the carriage, which latter travels upon a rail 25. For writing, the types 26 on type-bars 27 strike against a work-sheet 28 upon the platen and passed

from behind over a paper-table 29, at the rear of the platen, said table forming part of the carriage.

As herein illustrated there are three work-sheets 28, 30 and 31, which are drawn respectively from rolls 32, 33 and 34, shown diagrammatically behind the carriage, so that the webs 28, 30 and 31, when drawn upwardly from the rolls, pass over the rear bar 35 of the usual carriage extension 36 running on a rail 36^a found in machines of this type. After passing over the rear bar 35, the webs are drawn forward between the carbon-paper clip-bars 37, 38 and 39 of a carbon-paper carriage, and thence over the usual rod 41 down onto the paper-table 29, from which latter they are guided beneath the platen by the usual feed-rolls 42 and 43 around to the printing point.

In order to hold the webs alined transversely, there are provided the usual side gages 44, adjustably mounted upon the rear bar 35, and the carbon-paper carriage is likewise provided with the usual adjustable side gages 45, which can be made fast to the side bars 46 of the top frame of the carbon-paper carriage. Since there are only illustrated three webs 28, 30 and 31, there are shown only two carbon sheets 47 and 48, which are attached to the carbon-paper carriage cross-bars 38 and 39, and lie between the outer webs and the central webs and extend forward around under the platen 20.

In order to further preserve the alinement of the webs, the paper-table 21 is provided with the usual adjustable side gages 49, with the result that when a form printed upon the web 28 has been fully typed, the typist may swing the swing frame around the shaft 22 and draw the webs to the Fig. 3 position against the usual adjustable end gage 50, paying no attention to the edge alinement of the webs, since that is automatically cared for by the side gages 44, 45 and 49. To swing the swing frame forward in this manner, it is provided with a handle 51, by which it is normally held down to hold the platen 20 against the feed-rolls 42 and 43. In swinging the platen forward, the typist pushes rearwardly the usual hook 52, which engages a pin 53 upon the handle 51, and then draws upon the handle, with the result that the platen swings to the Fig. 3 position. The platen is not, however, by this operation disconnected from the usual finger-knob 54 or the line-space-lever 55, since there is provided fast to the platen the usual pinion 56, which meshes with the usual idle pinion 57, the latter constantly in mesh with the pinion 58 fast to the axle 59 of the line-space-wheel 60.

When the webs are drawn forward to the Fig. 3 position, the carbon-paper carriage comes forward with them because a swing-

ing clamp jaw 61, in the form of a thin plate on edge, normally engages a fixed U-shaped jaw 62 to clamp the webs between them, the fixed jaw 62 being made of comparatively flexible sheet-metal to enable it to accommodate itself to varying thicknesses of webs, it being fast upon a cross-bar 63 of the carbon-paper carriage upper frame. When the webs have been gaged against the end gage 50, the typist holds them by the thumb or finger of the right hand against the paper-table 21, and then draws forward upon a finger-piece 64, convenient to the usual handle 65 of the carbon-paper carriage. This drawing forward of the finger-piece 64 swings the jaw 61 to the ineffective (Fig. 3) position, because the finger-piece is pivotally attached by an extension 66 to a bell-crank 67, having a follower 68 on an arm 69, said follower underlying one of the bail arms 70, by which the swinging jaw 61 is pivotally mounted upon the side bars 46 of the carbon-paper carriage. The connections are such that when the finger-piece is drawn forward, the follower 68 lifts the jaw 61 against the tension of the spring 71, which normally draws the bail arms 70 downward to hold the swinging jaw 61 against the fixed jaw 62.

In order to make the swinging jaw 61 bite the paper as uniformly as possible across the entire width thereof, there is provided a second bail arm 72 at the other side of the machine, which is drawn upon by a similar spring 73, and the bail arms 70 and 72 are connected by a rock-shaft 74, pivoted or journaled in the side bars 46, and bent downwardly at 75 near each end, so that its middle portion 76 will be completely clear of the path of the webs 28, 30 and 31. When the typist has pushed the carbon-paper carriage rearwardly until it strikes the usual adjustable stop 77, the finger-piece may be released, thus permitting the swinging jaw 61 to clamp the webs against the fixed jaw 62. The jaw 61 is drawn down to clamping position by the springs 71 and 73, and is also clamped down because the follower 68 is thrown forward by the tension of the spring 78, which draws the extension 66 rearwardly, with the result that the follower rides up upon a cam 79 formed on the bail arm 70, with the result that the jaw 61 is cammed firmly down against the webs, the cam 79, for this purpose, being rather flat.

Then the typist swings the platen to the Fig. 5 position, bringing the webs 28, 30 and 31 against the feed-rolls, and then draws forward the carbon-paper carriage while drawing upon the handle 65, thus making a loop at 80 and unwinding the webs. When the typist releases the handle 65, the weight of the webs behind the rear bar 35 will usually draw the carbon-paper carriage rear-

wardly, eliminating the loop 80 and making loops 81 upon which the typist may draw during the ensuing operation of typing. Before typing or line-spacing however, the typist usually severs the typed forms by actuating the usual knife handle 82 to cause the usual knife 83 to sever the typed forms.

It will be observed that the swinging jaw 61 forms a practically rigid structure with its bail arms 70 and 72, and its rock-shaft 74. If it be desired to get a firmer grip on the paper of the webs by still more firmly bringing the jaws together, there may be provided a hook 84 adapted to engage a pin 85 upon each jaw, said hooks forming rock arms fast upon a rock-shaft 86 lying below the jaw 62. The hooks 84 may be actuated from the extension 66, and, for this purpose, the left-hand hook or farther one, as seen in Fig. 11, is provided with an extension 87, pivotally connected by a link 88 to the bell-crank arm 67, with the result that the rock-shaft 86 rocks with the swinging of the follower 68, and so becomes effective when the follower becomes effective.

The shaft 86 is journaled in ears 89 fast on the bottom of the usual plate 90, which is detachably held on the body of the carbon-paper carriage by the usual lugs 91. It will be observed that the shafts 74 and 86 not only stand completely clear of the webs, but also stand clear of the plate 92 forming the body of the carbon-paper carriage.

The flexible plate, which forms the jaw 62, is advantageously held in position by lying upon the plate 90 and passing under the side pieces 46, so that the usual screws, not shown, which hold said side pieces in place, also hold the flexible plate jaw 62 in position. In order to steady the finger-piece 64 laterally upon the handle 65, the extension 66 may have a U-shaped portion 93 embracing the front end of the handle arm 94, so as to bring the finger-piece 64 and the handle 65 in line with each other, which makes them most convenient to manipulate. In order to guide the extension 66 upon the handle 94, the handle may be provided with a pin 95 lying within a slot 96 in the extension 66.

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. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper-carriage upon said traveling carriage, a flexible jaw extending across the carbon-paper-carriage and supported thereby, a rigid jaw extending across the carbon-paper-carriage and mounted thereon to be swung against the flexible jaw to grip webs therebetween, spring means to urge

said rigid jaw to a position to coöperate with said flexible jaw, and cam means effective, when said rigid jaw has been moved to effective position by said spring means, to force said rigid jaw against said flexible jaw.

2. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper-carriage upon said traveling carriage, a flexible jaw extending entirely across the carbon-paper-carriage, adapted to underlie webs extending across the carbon-paper-carriage, a second jaw extending entirely across the carbon-paper-carriage, adapted to be swung against the flexible jaw to grip the webs therebetween, means yieldingly urging said second jaw to gripping position, and means effective, when said second jaw has been brought to gripping position by said urging means, to increase the pressure exerted by said jaws.

3. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper carriage upon said traveling carriage, a flexible jaw adapted to underlie webs extending across the carbon-paper carriage, a rigid jaw adapted to be swung against the flexible jaw to grip the webs therebetween, a spring normally tending to swing the rigid jaw against the flexible jaw, and cam means effective after said spring has acted, for gripping the jaws together.

4. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper-carriage upon said traveling carriage, a flexible jaw adapted to underlie webs extending across the carbon-paper-carriage, a rigid jaw adapted to be swung against the flexible jaw to grip the webs therebetween, a spring normally drawing said jaws together, a rock frame including said rigid jaw, a cam on said rock frame, a handle for the carbon-paper-carriage, a finger-piece adjacent said handle, and a follower operated by said finger-piece adapted, when moved in one direction, to engage said rock frame to swing said rigid jaw away from the flexible jaw, and, when moved in the other direction, to engage said cam to force said rigid jaw against said flexible jaw.

5. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper carriage upon said traveling carriage, a flexible jaw adapted to underlie webs extending across the carbon-paper carriage, a rigid jaw adapted to be swung against the flexible jaw to grip the webs therebetween, a rock frame including said rigid jaw, a handle for the carbon-paper carriage, a finger-piece adjacent said handle, a follower operated by said finger-piece adapted to engage said rock frame to swing the rigid jaw away from the flexible jaw, a spring normally drawing said jaws together,

and a cam forming part of said rock frame adapted to be engaged by said follower, after said rigid jaw has been moved to effective position by said spring, to press the jaws together.

6. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a fixed jaw adapted to grip webs extending across said carbon-paper carriage, a swinging jaw adapted to be swung against the fixed jaw to engage webs therebetween, a cam upon said swinging jaw, a follower for said cam, a spring normally drawing on said follower to cause the jaws to seize a finger-piece, and means, controlled by said finger-piece, for swinging said follower away from said cam and effecting separation of the jaws.

7. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a U-shaped flexible jaw extending across said carbon-paper carriage, a cooperating swinging jaw having an edge adapted to be swung into the U of said flexible jaw, a rock shaft to which said swinging jaw is fast, and a spring at each end of said rock shaft for making the jaw effective.

8. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a U-shaped flexible jaw extending across said carbon-paper carriage, a cooperating swinging jaw having an edge adapted to be swung into the U of said flexible jaw, a rock shaft to which said swinging jaw is fast, and means at each end of said rock shaft for making the swinging jaw effective.

9. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a U-shaped flexible jaw extending across said carbon paper carriage, a cooperating swinging jaw having an edge adapted to be swung into the U of said flexible jaw, a rock shaft to which said swinging jaw is fast, a spring at each end of said rock shaft for making the swinging jaw effective, a handle for shifting said carbon-paper carriage, and a finger piece adjacent said handle for making the swinging jaw ineffective.

10. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a U-shaped flexible jaw extending across said carbon-paper carriage, a cooperating swinging jaw having an edge adapted to be swung into the U of said flexible jaw, a rock shaft to which said swinging jaw is fast, means at each end of said rock shaft for making the swinging jaw effective, a handle for shifting said carbon-paper carriage, and a finger-piece adjacent said handle for making the swinging jaw ineffective.

11. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a detachable plate forming part of the carbon-paper carriage, a flexible jaw lying upon said plate, side pieces fast to said plate and overlying said flexible jaw to hold it between the side pieces and the plate, a swinging jaw extending across the carbon-paper carriage, and a rock shaft journaled in said side pieces and forming the support for said swinging jaw.

12. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a detachable plate forming part of the carbon-paper carriage, a flexible jaw lying upon said plate, side pieces fast to said plate and overlying said flexible jaw to hold it between the side pieces and the plate, a swinging jaw extending across the carbon-paper carriage, a rock shaft journaled in said side pieces and forming the support for said swinging jaw, springs normally drawing on the swinging jaw to hold it effective at each end, and a finger-piece adapted to be swung to make the jaw ineffective.

13. In a machine of the class described, the combination with a swinging jaw, of a rock shaft on which it is fast, an arm forming the connection between the shaft and the jaw, a cam on said arm, and a follower adapted to be swung in one direction to engage said cam to make the jaw effective and to be swung in the other direction to lift the jaw to ineffective position.

14. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a U-shaped jaw extending across said carbon-paper carriage, a cooperating swinging jaw having an edge adapted to be swung into the U, a rock shaft to which said swinging jaw is fast, a spring at each end of said rock shaft for making the swinging jaw effective, a handle for shifting said carbon-paper carriage, and a finger-piece adjacent said handle for making the swinging jaw ineffective.

15. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a U-shaped flexible jaw extending across said carbon-paper carriage, a cooperating swinging jaw having an edge adapted to be swung into said U, a rock shaft to which said swinging jaw is fast, means at each end of said rock shaft for making the jaw effective, a handle for shifting said carbon-paper carriage, a cam for making the swinging jaw effective, a spring, and a finger-piece adjacent said handle for making the swinging jaw ineffective and adapted to be moved by said spring to make it effective.

16. In a machine of the class described, the combination with a swinging jaw extending across the machine, of a rock shaft on which it is fast at each end, arms forming the connection between the shaft and the jaw, a cam on one arm, a follower adapted to be swung in one direction to engage said cam to make the jaw effective and to be swung in the other direction to lift the jaw to ineffective position, a hook for holding each end of the jaw, a rock shaft carrying said hooks, and means for rocking the last-named shaft at the operation of the follower.

17. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a detachable plate forming part of the carbon-paper carriage, a flexible jaw lying upon said plate, side pieces fast to said plate and overlying said flexible jaw to hold it between the side pieces and the plate, a swinging jaw extending across the carbon-paper carriage, a rock shaft journaled in said side pieces and forming the support for said swinging jaw, springs normally drawing on the swinging jaw to hold it effective at each end, a finger-piece adapted to be swung to make the jaw ineffective, a hook for each end of the swinging jaw, a rock shaft carrying said hooks, and a link connected to the finger-piece for operating said last-named rock shaft.

18. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper carriage upon said traveling carriage, a flexible jaw extending entirely across the carbon-paper carriage adapted to underlie webs extending across the carbon-paper carriage, a rigid jaw extending entirely across the carbon-paper carriage, adapted to be swung against the flexible jaw to grip the webs therebetween, a hook for each end of the rigid jaw, and a rock shaft to which said hooks are fast.

19. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper carriage upon said traveling carriage, a flexible jaw adapted to underlie webs extending across the carbon-paper carriage, a rigid jaw adapted to be swung against the flexible jaw to grip the webs therebetween, a rock frame including said rigid jaw, a handle for the carbon-paper carriage, a finger-piece adjacent said handle, a follower operated by said finger-piece adapted to engage said rock frame to swing said rigid jaw away from the flexible jaw, a spring normally drawing said jaws together, and a hook for each end of the rigid jaw automatically made effective when the spring is effective.

20. In a machine of the class described, the combination with a traveling carriage,

of a carbon-paper carriage upon said traveling carriage, a flexible jaw adapted to underlie webs extending across the carbon-paper carriage, a rigid jaw adapted to be swung against the flexible jaw to grip the webs therebetween, a spring normally tending to swing the rigid jaw against the flexible jaw, a cam operated independently of said spring for gripping the jaws together, and a hook for each end of the rigid jaw connected to be operated by the cam.

21. In a machine of the class described, the combination with a traveling carriage and a carbon-paper carriage thereon, of a fixed jaw adapted to grip webs extending across said carbon-paper carriage, a swinging jaw adapted to be swung against the fixed jaw to engage webs therebetween, a cam upon said swinging jaw, a follower for said cam, a spring normally drawing on said follower to cause the jaws to seize, a finger-piece for swinging said follower to cause it to separate the jaws, and a hook for each end of the swinging jaw connected to operate with the follower.

22. In a machine of the class described, the combination with a carbon-paper carriage, of two jaws for seizing webs extending across said carriage, a rigid body for the carriage, one of said jaws being flexibly supported, a rigid frame for the other jaw, and means supported on said body for clamping said jaws together at both their ends.

23. In a machine of the class described, the combination with a traveling carbon-paper carriage, of jaws adapted to seize webs extending across said carriage, a rock shaft forming part of the frame supporting one jaw, a bearing for said rock shaft beneath the path of said webs, devices for locking both ends of the jaws together, a rock shaft for operating said devices together, and a bearing for said rock shaft below the path of said webs.

24. In a machine of the class described, the combination with a traveling carbon-paper carriage, of a detachable top for said carriage, jaws upon said top adapted to seize webs extending across the carriage, a rock shaft beneath the path of said webs forming part of the frame for one jaw, devices for holding the ends of the jaws together, and a rock shaft for moving said devices together, also beneath the path of said webs.

25. In a machine of the class described, the combination with a traveling carriage, of a carbon-paper carriage upon said traveling carriage, a fixed jaw extending across the carbon-paper carriage, a movable jaw to cooperate with the fixed jaw to grip webs passed therebetween, a rock frame on which said movable jaw is supported, spring means

urging said movable jaw toward said fixed jaw, means to press the movable jaw against the fixed jaw, including a cam on said frame, a follower and a lever on which said
5 follower is supported, and means controlled by said lever to lock said movable jaw in position after said movable jaw has been

pressed against said fixed jaw as a result of engagement of said cam by said follower.

JESSE A. B. SMITH.

Witnesses:

CATHERINE A. NEWELL,
JENNIE P. THORNE.