

Feb. 27, 1934.

L. J. MILLER

1,949,173

SHIFTABLE CARBON ROLL

Filed Oct. 21, 1929

3 Sheets-Sheet 1

Fig. 1.

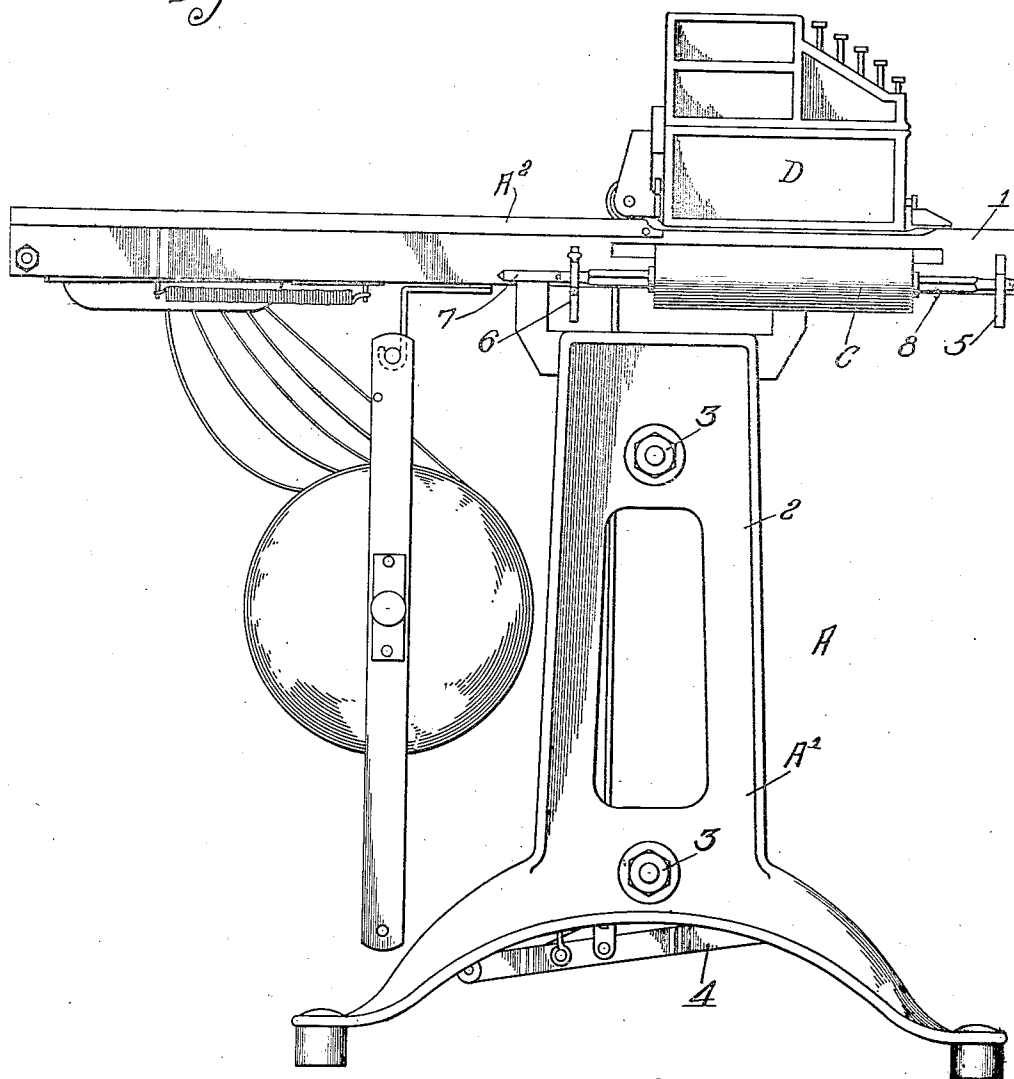
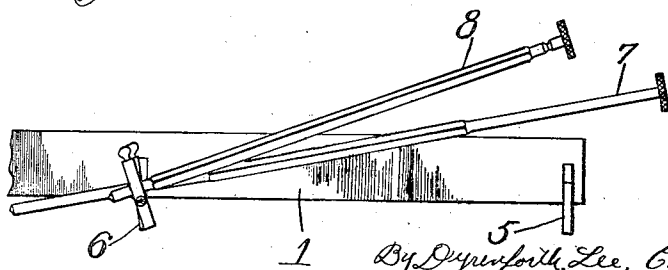


Fig. 2.



Inventor:
Louis J. Miller.

By *Dyersforth, Lee, Chilton and Miller*
attys.

Feb. 27, 1934.

L. J. MILLER

1,949,173

SHIFTABLE CARBON ROLL

Filed Oct. 21, 1929

3 Sheets-Sheet 2

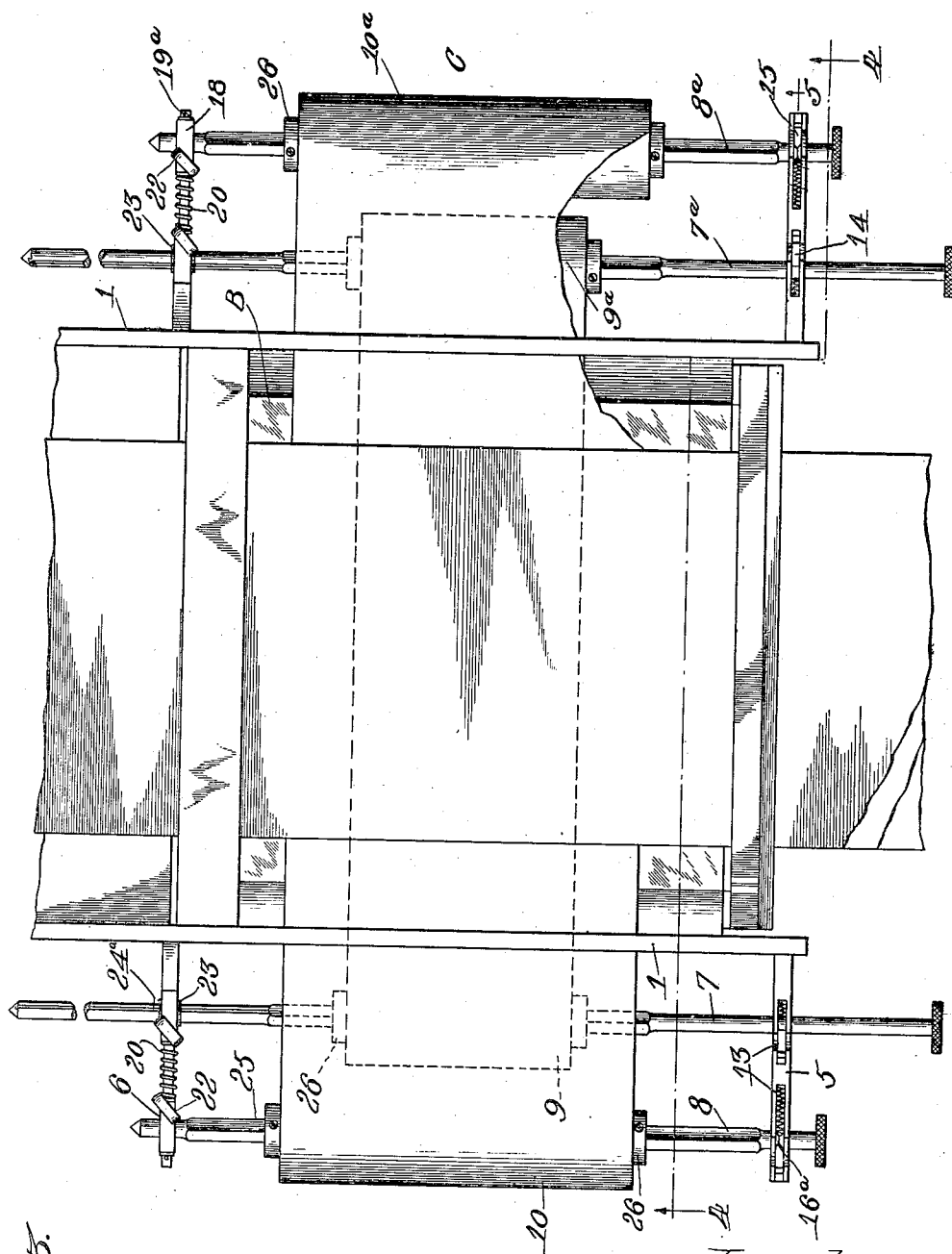


Fig. 3.

Inventor:
Louis J. Miller.
By Dyrenforth, Lee, Chilton and Wiles.
attys.

Feb. 27, 1934.

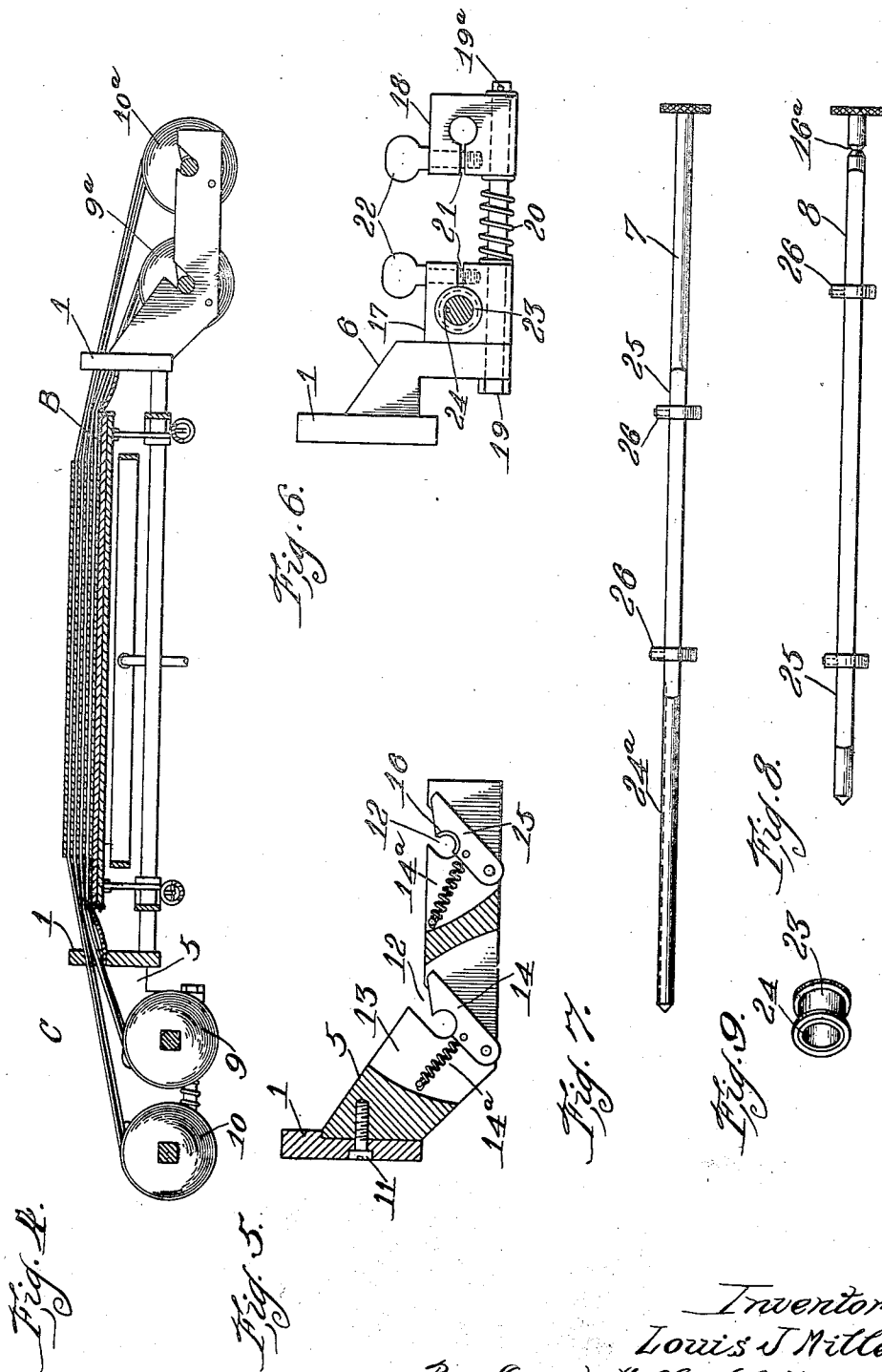
L. J. MILLER

1,949,173

SHIFTABLE CARBON ROLL

Filed Oct. 21, 1929

3 Sheets-Sheet 3



Inventor.
Louis J. Miller.
By *Lyonsport, Lee, Chilton & Miles*
Attys.

UNITED STATES PATENT OFFICE

1,949,173

SHIFTABLE CARBON ROLL

Louis J. Miller, Cincinnati, Ohio, assignor to
United Autographic Register Co., Chicago, Ill.,
a corporation of Illinois

Application October 21, 1929. Serial No. 401,186

6 Claims. (Cl. 197—126)

This invention relates particularly to manifold machines adapted to the purposes of filling in forms on continuous-form stationery.

The invention is more particularly adapted to a machine comprising a bed equipped with a plate-form platen, and a typewriter movably mounted on the bed and adapted to the purpose of filling in the forms.

The primary object is to provide an improved means for supporting carbon rolls whereby some of the supply-rolls and receiving-rolls, coacting in pairs to tension carbon strips across the platen, may be shifted out of the writing zone of the other strips. The structure is such as will permit the rolls to be shifted whenever the operator desires to omit certain matter from the underlying forms, and such shifting may be effected without disturbing any of the other carbon strips or paper webs.

In accordance with the present invention, the paper webs are fed from a source in rear of the machine and pass over the platen to the front of the bed; carbon supply-rolls are mounted on one side of the bed and carbon strips are threaded from the supply-rolls through slots in the arms of the bed, interleaving between the paper webs, to a set of receiving-rolls mounted on the opposite side of the bed. As often as necessary fresh carbon strips may be drawn across the platen and wound upon the used carbon rolls. Each roll ordinarily carries several strips of carbon.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which

Figure 1 is a side elevational view of a machine embodying the invention; Fig. 2 is a broken side elevational view of the arms and shafts upon which carbon rolls are to be mounted; Fig. 3, a broken plan view of the front portion of the machine with the typewriter removed, Fig. 4, a broken front elevational view, taken as indicated at staggered line 4—4, Fig. 3; Fig. 5, a sectional view of a front supporting arm, taken as indicated at line 5 of Fig. 3; Fig. 6 is an elevational view of a rear supporting arm; Figs. 7 and 8 are longitudinal views of the shafts upon which the shiftable and non-shiftable carbon rolls are to be mounted, and Fig. 9, a perspective view of a bushing to be mounted in the rear supporting arm through which the shiftable shaft may be inserted.

Referring to the drawings, A designates a frame comprising a standard A' and a bed A²; B, a platen mounted in the front portion of said

bed; C, a carbon supply mechanism mounted on the arms 1 with which the bed A² is provided; and D, a typewriter machine mounted on the rails which constitute the horizontal bed A² of the machine.

The frame A may be of any suitable construction. In the form shown the standard A' consists of uprights 2 which are rigidly connected by means of the bolts 3. The platen B is mounted in the bed A² between the arms 1 and is vertically movable through means connected to the treadle 4.

The carbon-supply mechanism C is of identical construction on both sides of the platen and the parts are interchangeable. The device comprises a front supporting arm or bracket 5, a rear supporting arm 6, a shiftable shaft 7 upon which the carbon roll 9 is mounted, and a non-shiftable shaft 8 upon which the roll 10 is mounted.

Referring to Fig. 5, the front arm 5 is shown fixedly attached to the arm 1 by means of a cap screw 11. The arm is provided with bearing openings 12 for the shafts 7 and 8. The arm is further provided with vertical slots 13 in which are contained keepers 14 and 15 which are pivoted at the lower portion of the slots and held in yielding contact with the shafts by means of small springs 14^a. The keeper 15 is further provided with wedge-shaped edges 16, designed to fit into a corresponding groove 16^a in the shaft 8, and prevent longitudinal shifting of that shaft after being snapped in place.

The rear supporting arm 6, shown in Fig. 6, has journal members 17 and 18 pivotally mounted on a stud 19 which projects out horizontally from the lower part of the arm 6. The journal members are separated by means of a compression spring 20 and are held on the stud 19 by means of a cotter-pin 19^a. The journal members are provided with slots 21 to permit tightening of the journal by means of the thumb-screws 22, and prevent rotation of the shafts after the carbon strips have been tensioned.

A bushing 23, shown in Fig. 9, is assembled in the journal 17 with a small flange on each side of the journal, so as not to be movable longitudinally. It is provided with a small projection 24 which fits into a key-way 24^a provided in the shiftable shaft 7. This bushing permits the shaft to be shifted freely at any time, while any rotation is controlled by the thumb screws 22.

The shafts 7 and 8 are provided with square portions 25 to engage the square holes in the carbon roll spools. The spools are adjustable on the shafts by means of collars 26, which have

small set-screws. The front end of each shaft is provided with a knurled knob for turning or shifting the shaft. The rear end of shaft is pointed to facilitate its insertion into the rear bearings.

- 5 In Fig. 3, it will be noted that roll 9 is of less width than roll 10 and consequently may be shifted backwards or forwards over any part of the platen. In practice, the operator may fill out that portion of the form which is required on all
10 of the copies and then by means of the knobs nearest the platen, the movable carbon strips may be pushed back from under the typewriter. The operator may then continue to fill out the remainder of the forms, as none of the paper webs
15 or the typewriter have been disturbed.

- In the drawings only two rolls are shown mounted on each side of the platen with the inner rolls shiftable. Obviously more rolls may be similarly mounted and any or all of them may
20 be made shiftable without departing from the spirit of the invention.

- When the operator desires fresh carbons, the thumb-screws 22 are loosened and the shafts 7^a and 8^a are rotated causing their respective rolls
25 9^a and 10^a to draw a fresh portion of carbon over the platen; the thumb-screws on one side of the platen may then be tightened, the carbon strips tensioned by means of the coacting shafts and after the remaining thumb-screws have been
30 tightened the fresh carbons are ready for use.

- Carbon rolls may be replaced by lifting the shafts upwardly out of the front supporting arm, as shown in Fig. 2, and then drawing the shafts forwardly out of the rear journals. The rear col-
35 lars 26 may be loosened and slipped off the shaft to permit the old spool to be removed and a new one installed. After replacing the collar, the shafts may be replaced in the supporting arms, the carbon strips passed through the slots in the
40 side arms interleaved between the paper webs, and attached to the carbon-receiving spools on the opposite side of the platen.

- The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom,
45 but the appended claims should be construed as broadly as permissible, in view of the prior art.

- What I regard as new, and desire to secure by Letters Patent, is:

- 50 1. In combination: a frame comprising spaced arms and an intervening flat platen; a pair of brackets mounted on each arm and projecting outwardly therefrom, each bracket provided with bearings; a pair of carbon roll shafts mounted in

said bearings adapted to carry a supply roll and a take-up roll, said pair of shafts being longitudinally shiftable in the bearings; and tensioning means adapted to tension carbon strips extending between said rolls and to permit shifting
80 thereof while under tension.

2. In combination: a machine comprising a frame having a flat platen mounted therein, brackets mounted on said frame, a plurality of sets of carbon-strip supporting devices mounted
85 in said brackets and adapted to carry a plurality of sets of carbon strips extending transversely across the platen, one set of said devices being shiftable within said brackets to permit a set of carbon strips to be removed from a zone of action
90 in which the other set or sets may be used, and means for locking said devices so as to hold the carbon strips under tension.

3. Apparatus as specified in claim 2, in which the sets of carbon-strip supporting devices comprise pairs, each consisting of a carbon supply roll and a take-up roll mounted on opposite sides of said frame, and means provided for shifting one pair of rolls longitudinally within said brackets while the carbon strips are under tension.
95 100

4. In combination: a frame having arms and an intervening flat platen; two pairs of carbon-supporting shafts mounted on said arms and adapted to carry carbon strips extending transversely across said platen, one pair of said shafts being relatively long and longitudinally shiftable, and the other pair being shorter and substantially non-shiftable in a longitudinal direction.
105 110

5. Apparatus as specified in claim 4, in which the short shafts have relatively short cylindrical journal-portions, and the shafts of the shiftable pair have relatively long journal-portions, and the portions of the shafts between the journal-portions being of angular cross section.
115 120

6. In combination: a frame having a flat platen; carbon-holder brackets mounted on and extending outwardly from said frame; pairs of shafts mounted in said brackets, one pair of said shafts being provided with elongated slotted bearing portions; bushings journaled in said brackets and loosely fitted over the slotted portions of said shafts, said bushings having inwardly extending projections adapted to engage the slots in said shafts; and means for locking said bushings within the brackets so that the shafts may be made shiftable without being rotatable in said brackets.
125 130

LOUIS J. MILLER.

135

140

145