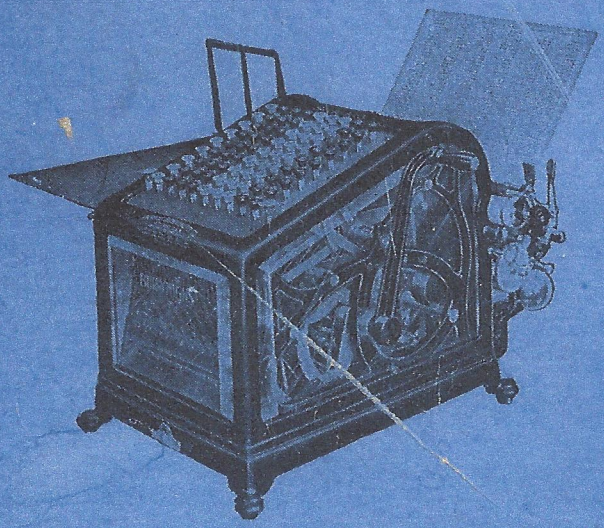
SYMBOL BOOK AND INSTRUCTIONS

For Operating, Oiling and Adjusting...



BURROUGHS

ADDING MACHINE

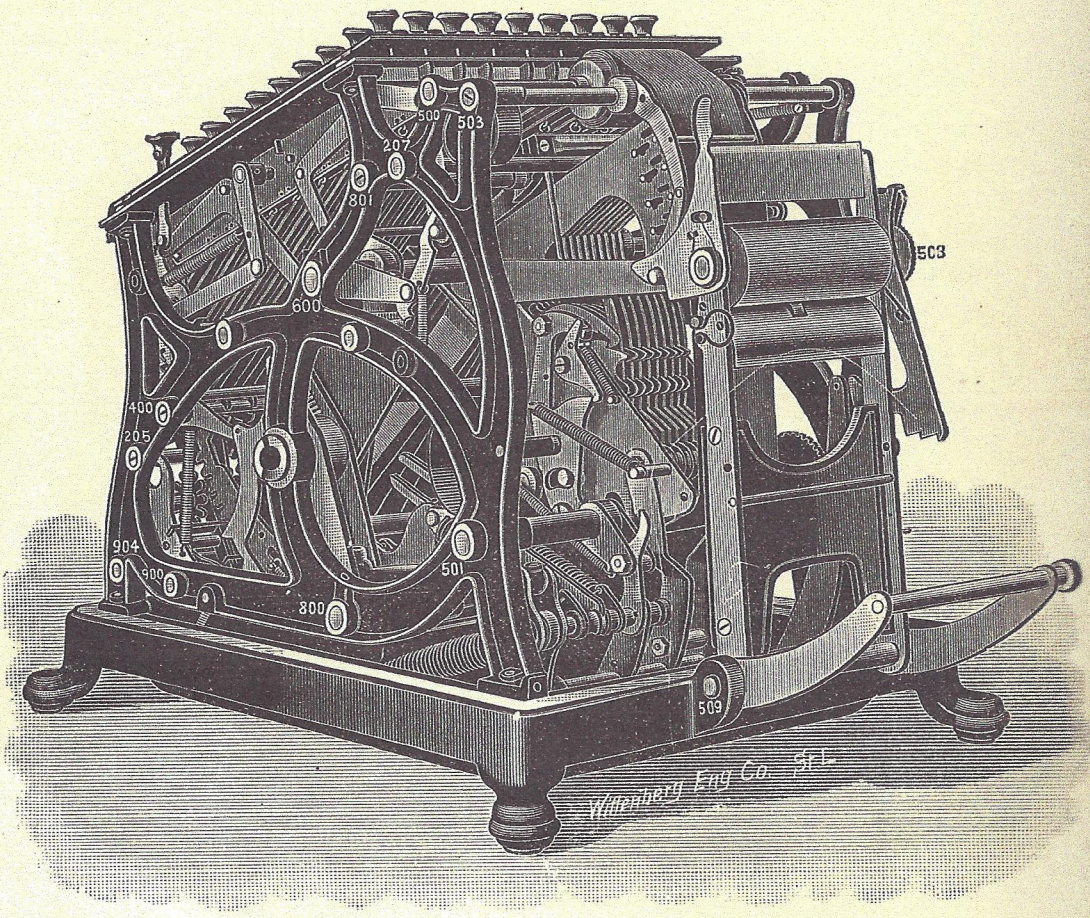
MADE BY

AMERICAN ARITHMOMETER COMPANY

21st & Wash Streets. ST. LOUIS, MO., U. S. A.

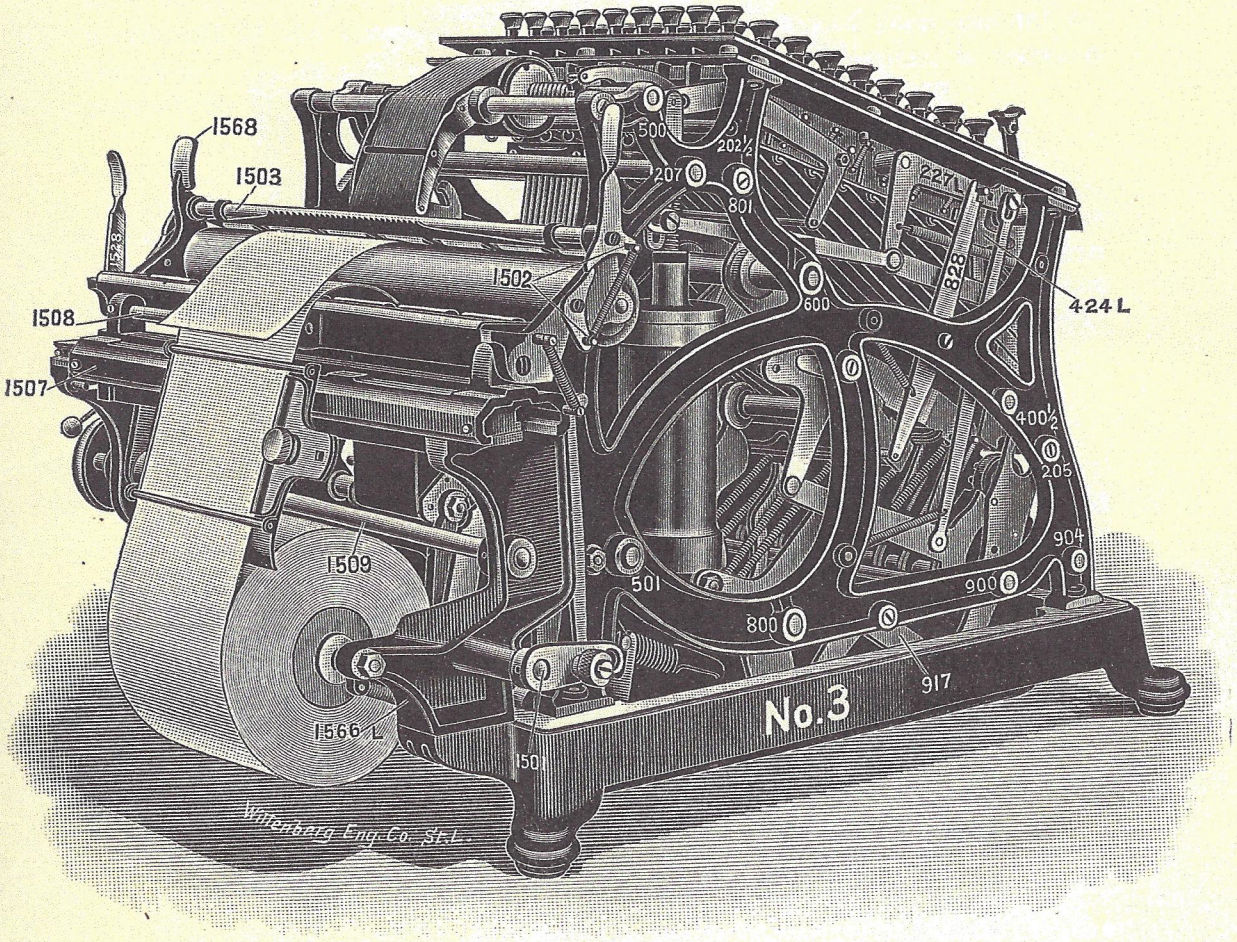
—1904—

No. I.



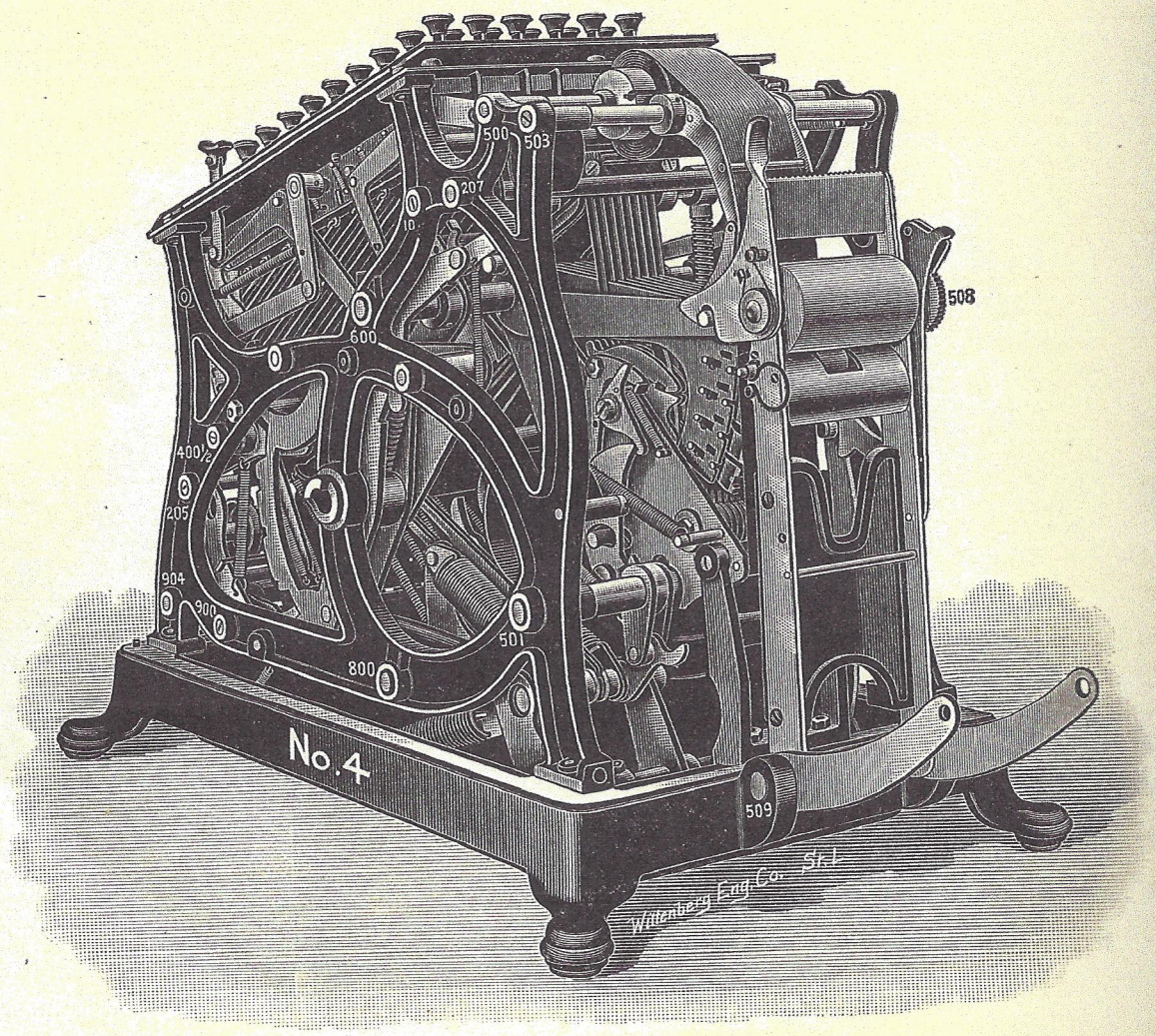
View from right side with case and lever removed and sectors brought to position to print 9,999,999,99.

No. 3.



Left view showing symbol numbers.

No. 4.



Right view showing symbol numbers.

TO CLEAR THE MACHINE.

First depress and release the error, or total key, situated in the left lower corner of the key board, restoring to their normal position any keys that have been depressed. Then make one complete movement of the operating lever, depress the total key, and hold down during another complete movement of the operating lever (a complete movement of the lever is to draw it forward and allow it to return to its normal position). If any amount appears on the paper after these operations, it should be torn off prior to the beginning of a list. After each amount of the check or voucher is set up on the key-board, a complete movement of the operating lever is required to record such amount on the paper, and to register it in the accumulating mechanism, in forward part of the machine.

TO PRINT THE TOTAL.

After the last amount is recorded, the operator should make one complete movement of the handle without depressing any keys, then depress the total key, holding it depressed during one complete movement of the operating lever. This will print the total, and leave the machine clear to begin on another list.

TO CARRY FORWARD A TOTAL.

Make a complete movement of the handle, then depress the total key during the forward movement only of the operating handle, and release prior to return of operating handle. This will print the total, and still retain it in the accumulating mechanism, and it can then again be printed at the top of the next column, by simply depressing the total key, drawing the handle forward, and releasing the total key prior to the return of the handle, as before.

The total key is also used as an error key. If the operator depresses the wrong key, it can be corrected by a pressure on the total key. This pressure will restore all the keys to their normal position, and the operator must then reset the keys properly. This key must not be used for correction after the operating handle has been started.

The spacing on the paper between amounts can be regulated by the adjusting of the stop at the left of the printing frame, which limits the movement of the feeding arm.

The paper can be readily withdrawn from below, if so desired, by depressing the right hand end of the grip roll (in No. 3 Machine, by lifting handle on left side of sliding carriage).

After the sum is completed the paper should be fed forward (by means of ratchet wheel for Nos. 1 and 4), No. 3 by means of knob on right side of impression roll. Sever it over the cutter by a quick downward movement in such a manner as not to disturb the paper remaining in the machine.

Do not attempt to operate the machine on an inclined desk. It should be placed in a level position, with the center of the key-board about on a plane with the elbows of the operator.

Never attempt to pull out the ribbon through the back of the case, as the ribbon will become tangled.

NOTICE TO OPERATORS.

We wish it understood by all operators that in case of errors in addition, **the slip on which it occurred,** together with the number of the machine, must accompany the complaint, as it enables us to judge and suggest a remedy.

If any trouble occurs with the machine we ask that an accurate description of the trouble, together with number of machine, be given.

NOTICE TO AGENTS AND REPAIRMEN.

We must insist that repair men refrain from attempts at repairs until absolutely certain that they have located the trouble and know the remedy, and are fully competent to make the needed repairs. It is often the case that machines are returned to us which show reckless attempts, ignorantly applied, to repair some slight or imaginary trouble.

If you cannot locate and remedy the difficulty, do not meddle with the machine. Notify home office, giving the number of the machine, a complete statement of the trouble, using symbol numbers, and also send us slips showing samples of the work.

In forwarding a complaint use the duplicate record book furnished for that purpose. These slips must contain the location of machine and **number,** date of complaint, description of the trouble (using symbols), and, in case of any breakage (the result of carelessness on the part of operator), give full details, which will enable us to render a bill for the extent of such damages.

Unless these instructions are strictly followed we will not accept the machine on its return, nor pay express charges, and we will hold parties responsible for the value of the damage.

We will furnish gratis, to our repair men, tools as follows:

One large hook for 180.
One small hook for 480 and 481.
One oiling wire.
Clock oil.
One ordinary screw driver.
One pair pliers.

We do not give a key with machine while under the term of the guarantee, as we cannot allow any one incompetent to experiment at our expense.

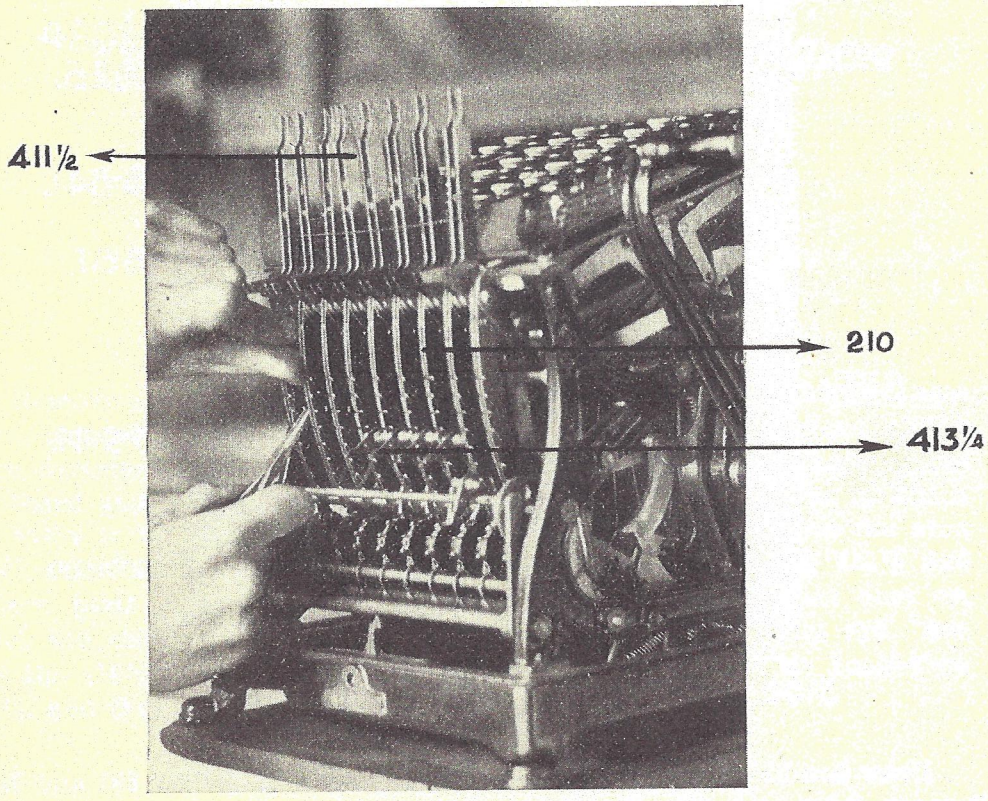
TO REMOVE CASE.

First remove the operating handle, then release 512, allowing the printing frame to drop back out of the way. Unlock the case and lift the forward part to a slight extent, then lift the case vertically. (This refers to No. 1 and No. 4 machines). For No. 3 machines, mark position of metal feed wheels on shaft. Loosen screw on outside wheels and move same toward center. Unhook spring on driving arm, insert key in lock, turning to the left. Lift front of case to clear pins in corner of base. Press backward and lift case vertically. Care should be taken that the rear part does not strike the face of the type.

TO REPLACE THE TYPE.

Remove the broken or injured type with a pair of pliers. Separate the type plates only sufficiently to insert the upper end of the type, then force it into position and see that the lug on the type enters the notch in the type plate, and that the shoulder on the type is square against the end of the plate. After inserting type see that the ink ribbon is replaced straight and the slack taken up.

TO REPLACE 413¼.

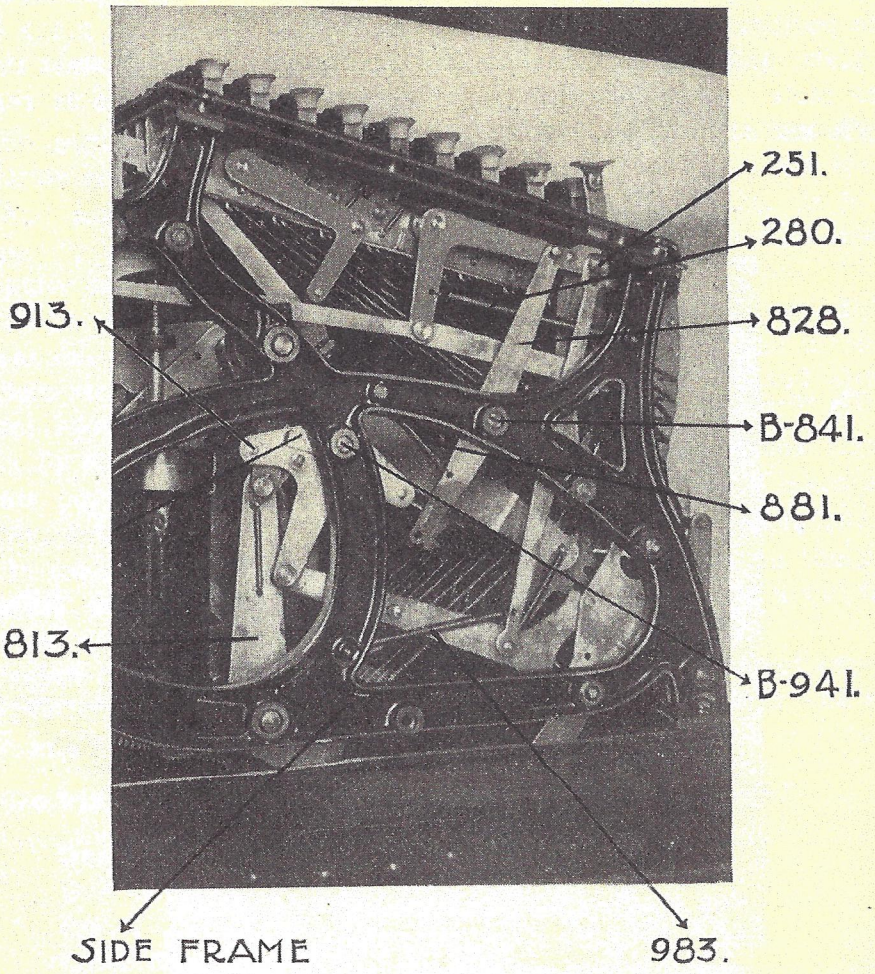


Remove the case according to instructions. Depress the 9's and draw the handle forward to the first stop. Unhook springs 480¾ and lift the

411½ up out of the way. Spread the 210's apart with the thumb and finger and remove the 413¼ with a small pair of pliers, starting to remove them from the right side. Replace with new 413¼ and return pieces removed to the factory. In replacing new 413¼ it will be necessary to place the wing of the 413¼ over the 400½ shaft.

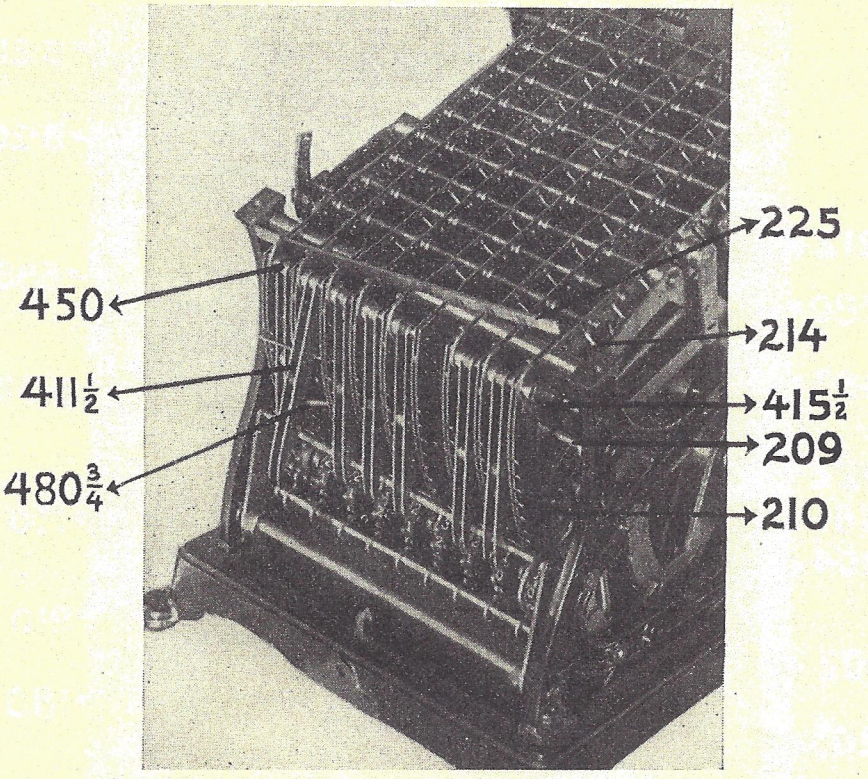
TO REPLACE 911 AND CONNECTIONS.

(Section 9-34.)



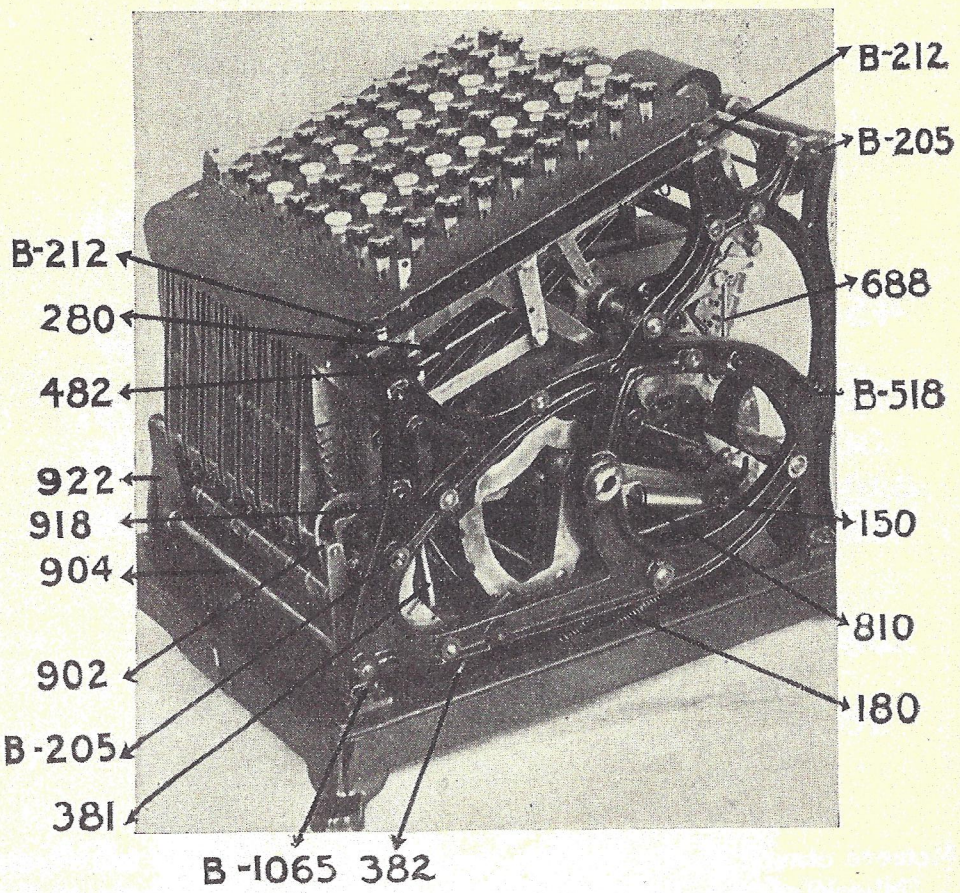
Draw handle forward to second stop, unhook springs 280, 881 and 983. Remove B-841 and 828, also B-941 and 251. Pass the piece out toward back of machine, between 813 and the side frame. Reverse the operation for replacing this section.

TO REPLACE 415½ AND 411½.



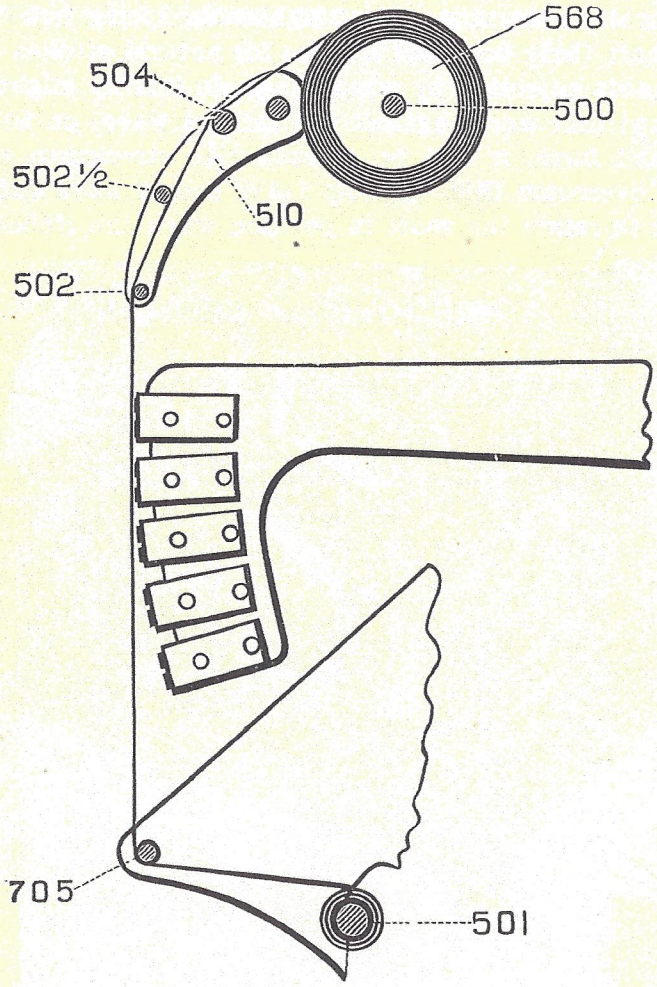
Remove case according to instruction. Then remove total and repeat key. Unhook springs 483. (These springs are under the front of the cloth covering of the key-board and are hooked to 415½.) Remove the key-board and then crossbar 225. Unhook 480¾ in the section in which the 415½ is to be replaced. Pry apart the 210's and take out the stud (450) supporting the 411½ and 415½. Insert new 415½ and 411½ and replace parts removed. Test 415½ for side play to see that hook on which 610 rests can not get too far to one side so as to miss 610. See that the 415½ is above 214 and over shaft 209; that 480¾ is hooked on 411½, and that 483's are hooked on 415½'s.

TO REPLACE 918.



Remove the case according to instructions. Unhook springs 482, 280, 382, 688 and 381. Remove screws B-212, B-205, B-518, B-1065. Remove outside 810 from stud 851. Unhook springs 180 in base and remove nut on stud 150, then 150. The side frame can then be easily removed. Then remove the 9-33 (which is section composed of 902, 904, 922), and the 918 (9-29). Spread the 922 apart and remove shaft 902. Take off the old 918 and replace with new one. Then replace all parts removed.

TO REPLACE INK RIBBON.



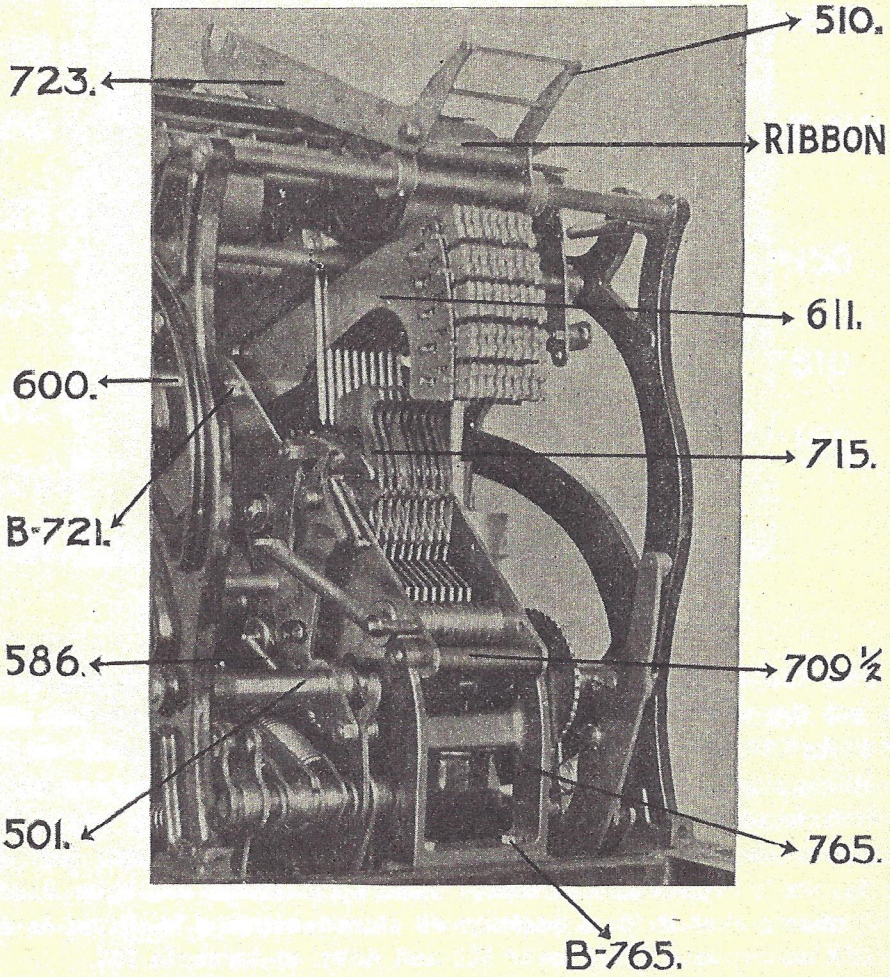
Pass the wired end of the ribbon over 502, under 502½ and over 504, then put the wire in the hole in the right-hand end of drum 568 with the long end of the wire to the right; this will bring the ribbon about in line with the guides 510. Hold the ribbon in right hand and turn shaft 500 with left hand between thumb and finger. After winding the ribbon on drum, pin the lower end to the tape attached to shaft 501, taking care to pin it even with the tape. Take up all slack and then look carefully and see that it is in position as shown above, i. e., from drum 568 over 504 underneath 502½, over 502 and down underneath 705.

INSTRUCTIONS FOR ADJUSTING RIBBON.

See that piece No. 619 (which is an arm that works the small ratchet on the 500 shaft) is perfectly free; then wind ribbon on lower shaft. and by pulling lever in machine, see that ribbon reverses on first stroke after reaching the end. If the shaft 501 should roll back and forth, it will be necessary to strengthen spring 518, which is done by removing the screw that holds the spring, and straightening spring out.

If the shaft (501) does not reverse for several strokes of the handle, spring 581 needs adjusting by weakening; do this by slightly closing. If the small pawl that works against the ratchet wheel on 501 shaft should work back and forth, it will be necessary to strengthen spring 581 (by opening) to overcome this. Spring 518½ should have sufficient tension on 500 shaft to retain the shaft in position when the ribbon is rolling on the lower spool.

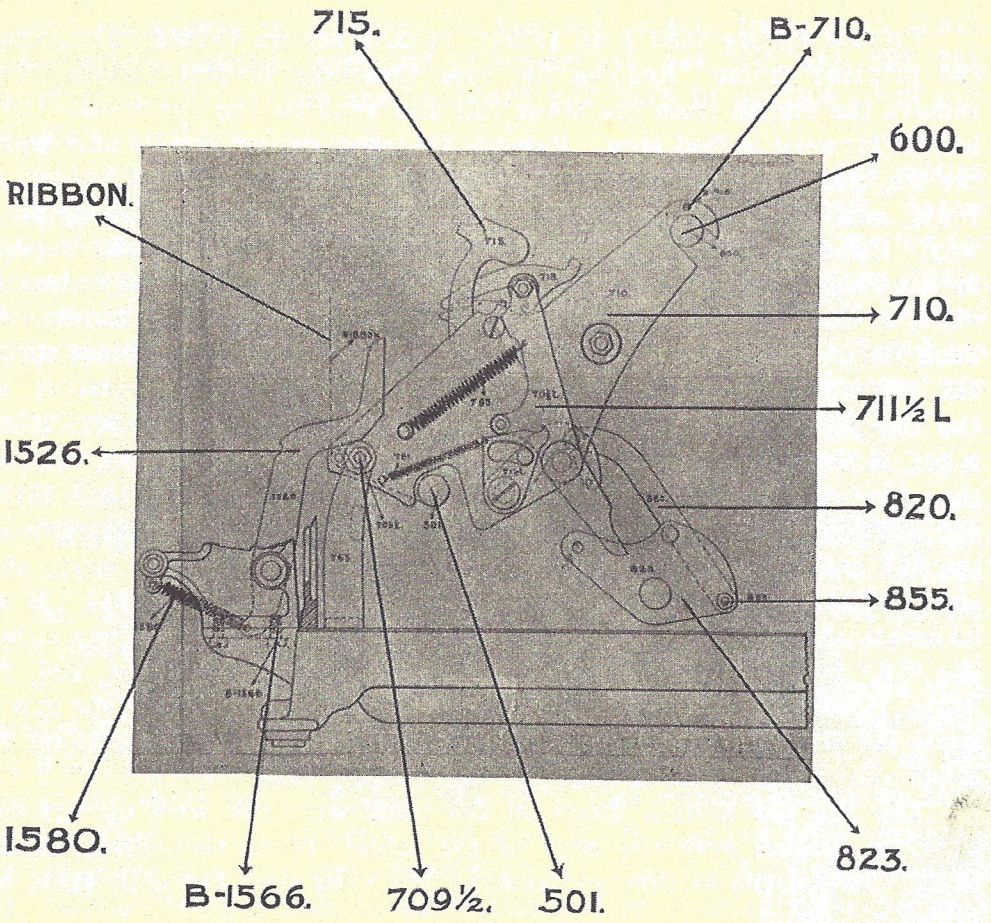
TO REMOVE 700 SECTION.



Unhook spring 1580 on 1526; remove screws B-1566, then remove the printing frame. Remove the case according to instructions. Then remove the ribbon from lower roll and wind on upper one. Strike all the

9's and draw handle forward to second stop. Remove 855, then release handle and draw forward to first stop. Remove 45 nut on rod 709½, also 709½, B-765, 765, B-721, B-710. Swing the 510's and 723 up out of the way. Unhook spring 586. Section 700 can then be easily removed by drawing the upper part away from 600 shaft until the hammers 715 clear the 611; it can then be lifted off the shaft 501.

To replace the 700 section, reverse the operation.



INSTRUCTIONS FOR REFILLING DASH-POT.

Remove the case. Pull handle to first stop. By means of a small funnel pour oil into top of dashpot from the side until filled; then move the handle backwards and forwards slightly until this oil is worked into the pot. Repeat this three or four times; then try machine, and if the handle has an even movement, sufficient oil has been put in; if there is a rapid return of the handle it will be necessary to put more oil in. Care should be taken not to get the pot too full of oil, as this retards the speed of the machine.

REPLACING GLASS IN CASE.

Remove 1011 (clips holding panels in place). After broken glass is removed, scrape litharge from recess in case. Mix litharge and lamp black with liquid glue to thickness of putty. Spread in recess in case Press glass in and secure same by 1011 (clips), tightening screws sufficiently to hold panel in.

DIRECTIONS FOR DISMEMBERING Nos. 3 and 4 MACHINES.

Unhook spring 1580¼ on 1522¼, remove screws B-1566, then remove the printing frame. Remove the case according to instructions. Then remove the ribbon from the lower roll and wind on the upper one. Draw handle forward to first stop. Remove 855, then release handle and depress the 9's, then draw handle forward to first stop. Remove 45 nut on rod 709½, also 709½, B-765, 765, B-721 and B-710. Swing the 510's up out of way. Unhook spring 586. The 700 section can then be easily removed by drawing the upper part away from 600 shaft until the 715's clear the 611's, it can then be lifted off 501 shaft. Then remove the handle. Unhook 180's, 483's and remove 293's, then the key-board. Disconnect springs 482, 280's, 281, 982, 688, 983 and 382 from their studs, 381 from 910-R, and the two 880's from 851 stud. Remove B-942, 942 and 917, B-941, 1559½, B-801, B-205, B-1065. The left side frame can then be removed. Remove the upper ribbon shaft (500), then remove 251, B-518, 552, 150, 1513, 1513½, 501 and connections, 254, 853 and the dash pot. Then remove 119's and the 911 and connections. Remove the 402½ shaft. Remove 400½ shaft and the 918. Then remove the 800 section. Loosen screw in 844. It will be necessary to lift the 617 slightly to free 632 from the 816. Then unhook the 616. Lay the machine on the right side and remove 904, 900, 202, 202½, B-801. Spread the 210's apart by means of a screw driver and remove the 610. Remove the 600 shaft with 665 and their connections, 801, B-205 and the 200 section from the right side frame.

Lay the 200 section down on the table with the wire up, allowing 227-L to project over the edge of the table. Disconnect 480¾, remove 413¼. Invert the section and remove 225, then stud 450 with 411½ and 415½.

INSTRUCTIONS FOR ASSEMBLING Nos. 3 and 4 MACHINES.

1st. After having assembled the several parts into the 200 section, place the 200 section on the right side frame and fasten by B-205. Be careful in tightening B-205 that 205 does not turn. With guide comb 665 and shaft 801 in position on the 611's, place 622 on 600; then insert the 600 section in the side frame. See that 619 is in the proper position. Fasten 801 with B-801. With a long screw driver separate 210 and insert 610. Place 207 and 202½. See that 623 is in position. Place 900 with crotch of 910 astride 205; 904 with rod 902 under 411½. While machine is still on the side, attach base and set the machine in an upright position.

2d. Hook bar 616 on stud 660 in base. Place shaft 800 with roll 632 in cam 816; 844 on shaft 801; the dash pot with 840 on 801, and 853. Place 254, then 119 and connect 880's. Place 518 on right end of 501 shaft and 1513 in slot on left end of 501. Connect 1513 in slot on left end of 501. Connect 1513 with 1513½ and fasten 1513½ to 1066L with 1559½. Connect 552 with 527R and 366 and 110's with 150. With 918 on 400½, place shaft in side frame; then put in 402½, 918 under stud 311. Connect 911 to 227L, with 251. Place 500 with 619 above shaft. See that 623 is in place, and guiding the several shafts, place the left side frame and fasten in position with screws B-801, B-205 and B-1065.

3d. Hook 280's in position; connect 918 to side frame with B-941. Fasten 917 in position, with 942. Connect 982, 983, 180, 381, 382, 281, 280, 482½ and 881. Place the key-board and 293's in position, then connect 483's to 415½'s.

4th. Depress 9's and bring handle to first stop. Place 700 section on 501 shaft and turn to position with the hook over 600 shaft. Insert 709½, then place 765 in position and tighten B-765. Examine section for alignment with slot for 723 in 600 shaft. Then tighten nut on 709½. Then bring handle to second stop and insert 855. Place shaft 503 and 723 in position and tighten B-721, B-503 and B-710. Connect 586 and pin ink ribbon to tape 591. Now place printing frame in position and the machine is ready for the case and operating lever.

DIRECTIONS FOR DISMEMBERING No. 1 MACHINE.

1st. Remove 505; loosen B-509, remove 509 and printing frame. Remove ribbon from lower roll and wind on the upper one.

2d. Strike all the 9's and draw the handle forward to second stop. Remove 855, then release handle and draw to first stop. Remove B-721 and B-503, then remove the parts thus loosened. Remove 45 nut on left side of the shaft 701. (If new style 722's, also remove 45 nut on shaft 706½.) Then replace 45 nut to hold shaft 701 in position, after removing 722. Remove 45 nut on right hand shaft 701, then B-710. Unhook spring 586. Section 700 can then be easily removed by drawing the upper part away from shaft 600 until the hammers 715 pass under 611. It can then be lifted off of the shaft 501.

3d. Unhook 180's. Remove 293's. Unhook 483 and remove key board. Disconnect the springs 480, 288, 280, 281, 687 and 983 from their studs; 381 from 910, and the two springs 880 from the stud 851. Remove 917 and the following screws in the left hand side frame, B-801, B-205, B-400, B-941; then remove the two screws attaching this side frame to the base. The side frame can then be easily removed.

4th. Remove the upper ribbon shaft 500; then in the following order remove 251, B-518, 150, 552, 513, 501, 119, 254, 853 and dash pot. Then 856, 800 and the shaft 400 with 918.

5th. Remove the lever. Lay machine on right side and remove the base, and in the following order remove 904, 900 and 202. Spread 210 and remove 610's, B-801. Remove 600, with 655 and 801. Then B-205 and the section 200 from the right side frame.

6th. Lay 200 section down with the wires up, allowing 227 to project over the edge of table. Disconnect 480, 481 and 484 (if new style). Remove 205 and 413's, invert this section and remove 225. Then stud 450 with 411, 412 and 415.

INSTRUCTIONS FOR ASSEMBLING No. 1 MACHINE.

1st. Lay the 200 section in position with wires up. Place 413's in proper position. Insert 205 in the notches of 210. Then invert the section, and insert stud 450 with 411, 412 and 415, beginning at the right. See that 415 is over the lip of 214 and over rod 209. Replace 225 and see that springs 484 are in the proper notches in 225. If new design see that they are hooked in proper place on 411's. Lay the section in the first position, with 227-L over the edge of the table. Connect 481.

2nd. The 200 section is now placed on the right side frame, and rod 205 fastened by B-205. Be careful when tightening B-205 that 205 does not turn. With guide comb 665 and shaft 801 in position on the 611's, place 622 on 600, and then insert the 600 section in the side frame. See that 619 is in proper position. Fasten 801 with B-801. With a long screw driver separate 210 and insert 610. Place 207 and 202 connecting 229's with 201. See that 623 is in position. Place 900 with crotch of 910 astride 205. 904 with rod 202 under 411's. While the machine is still on the side attach the base and set machine in upright position.

3d. Hook bar for carrying 685's on studs 660 in base. Place shaft 800, and connect to 817 by 856 and B-856. Set the stud 856 so that the projecting straight edge on left end will be parallel with the edge of 824 when the parts are in their normal position. Place 884's, then 888, and dash pot with the socket 840 on 801. Place 853 and 254, then 119, and connect 880. Place 501, 518, 513 and connect 511 with 513 and 117. Connect 552 and 150. With 918 on 400 and 402 in 414, place same in position with 486's under 400 and 918 under stud in 311; guide 412 into notches of the shaft 400. Tighten B-400. This shaft must not bind 412's. Connect 911 to 227-L with 251. Place 500 with 619 above shaft. See that 623 is in place and guiding the several shafts, place the left side frame and fasten in position with screws B-801, B-205, B-400 and B-1065.

4th. Hook 288 in position. Connect 913 to side frame with B-941, and see that 923's are in their proper position. Fasten 917 in position with B-942. Connect 982, 983, 180, 381, 382, 281 and 280. Insert 422 and connect 480's. Place the key board and 293's in position, then connect 483's to 415.

5th. The 700 section is placed on 501. While the 611's are in their highest position, the top of section 700 is turned and hooked on 600 shaft. Place 722 on right side of shaft 701; tighten the 45 nut. Insert B-710; then place in position 722 on left side and tighten 45 nut. If new design also tighten nut on shaft 706½. Place shaft 503 in position, and fasten the screws B-503 and B-721. Pull handle to second stop and insert stud 855. Connect 586 and pin ink ribbon to tape 501. Now place printing frame in position. It is now ready for the case and operating lever.

SPECIAL INSTRUCTIONS FOR GENERAL OILING FOR No. 1, No. 3 and No. 4 MACHINES.

These instructions are for the thorough oiling of the machine, such as it receives when it is new and first assembled, giving all the points of friction. The points marked with a * (star) should be oiled monthly.

As the section 700 is oiled before it is put into the machine, we give this first separately.

Instead of there being 9 bearings in the No. 4 machine there will be 7.

SECTION 700.

*715 Nine bearings on shaft 701.
716 Nine bearings on shaft 702.
*717 Nine bearings on shaft 700.
*718 Nine bearings on shaft 704.
702 Four bearings.
703 Two bearings in plate 710.
755 One bearing for 820.
*Nine rollers on 716.

This section is placed, and the complete machine, beginning on the right side, is oiled as follows:

415½ Nine bearings, where they connect with 214.
214 Nine bearings, in slots of 210 and 211.
214 Nine bearings, rear ends contact with 228's.
221 Eighty-one bearings, wipe with an oily rag.
352 One bearing, all over.
300 Two bearings.
350 Two bearings, upper and lower.
*311 Three bearings, edge and where it contacts with 622, and on 354.
*313 Two bearings, holes.
*900 Three bearings, right hand bearing, bearing for 920 and end of 919.
*904 One bearing, right hand bearing.
*902 Two bearings, right hand bearing and roll.
*918 Two bearings, bearing and edge for 355.
*400 One bearing, side frame.
402½ One bearing, 424 right.
215½ Two bearings, notch and bearing.

218 One bearing.
*263 One bearing.
208 Two bearings, right end and bearing on 613.
*652 One bearing.
*232 One bearing.
*601 One bearing, in 843 style No. 1.
*601 One bearing, in 632.
*856 One bearing, style No. 1.
860 One bearing, right end.
*800 Two bearings, right hand bearing and 816, style No. 1.
*800 One bearing, side frame.
*366 Two bearings.
*851 Five bearings.
*101 Eight bearings.
*552 One bearing.
*501 Four bearings, right end.
*600 Twelve bearings, right end and 611-L.
659 Nine bearings.
658 Nine bearings.
*207 One bearing, side frame.
202 One bearing, on 229.
202½ One bearing, right side.
*228 Twenty-seven bearings, stud, contacts with 214 and 202½.
*500 Three bearings, right end and 568.
504 Two bearings.
512 Two bearings, style Nos. 1 and 4.
*508 One bearing, right end, styles Nos. 1 and 4.
*507 One bearing, right end, styles Nos. 1 and 4.
509 Two bearings, styles Nos. 1 and 4.
*100 Five bearings.
508 One bearing, left end style Nos. 1 and 4.
526 Two bearings, both sides styles Nos. 1 and 4.
*521 One bearing, styles Nos. 1 and 4.
*507 One bearing, left end styles Nos. 1 and 4.
*202½ One bearing, left end.
*500 Two bearings.
*207 One bearing, left side frame.
840 One bearing.
*501 Three bearings.
*523 Two bearings, trunions.
556 One bearing.
554 One bearing, styles Nos. 1 and 4.
553 One bearing.
516 One bearing, edge.
1559½ One bearing.
1564½ One bearing.
*853 Two bearings.

*600 Two bearings, 1066 and 710.
650 One bearing.
208 Two bearings, trunions and 613.
226 Two bearings.
911 Two bearings.
*800 One bearing, on left side.
816 One bearing, on 632; heavy oil.
711½L Two bearings, where it engages 854 and roll 738.
*718 Nine bearings, where they contact with 611.
*821 Four bearings.
*913 Four bearings.
824 Two bearings, style No. 1.
860 One bearing, style No. 1.
855 One bearing.
*917 Four bearings.
*900 Two bearings, left journal and for 920.
*904 One bearing, left journal.
*902 One bearing, left journal.
400½ One bearing, left journal.
402½ One bearing, left journal.
*424 One bearing, for 261.
828 Two bearings, left side frame and where stud contacts with 813.
955 and 956, eighteen bearings.
924 Nine bearings, edges of cam.
655 Nine bearings, bearings for 610.
610 Nine bearings, edges contacting with 415.
412 Nine bearings, edges contacting with 651
415½ Nine bearings.
450 Sixteen bearings.
460 Sixteen bearings.
413 Nine bearings, bearings on 462.
413½ Eighteen bearings, on 651 and 462,
413¼ Eighteen bearings, on 651 and 462.
210 and 211, nine bearings, slots for 610.

SPECIAL INSTRUCTIONS FOR OILING SLIDING CARRIAGES.

1500 Two bearings in 1568.
1501 Three bearings in 1566L.
1564 One bearing in 1549.
1509 Two bearings in 1566R and L.
1521 One bearing.
1506 Two bearings in 1566R and L.
1558½ One bearing in 1568.
1502 Four bearings in 1582.

1502 Four bearings in 1524 and 1525R and L.
1538 One bearing.
1599 Two bearings in 1568.
1516 One bearing.

A drop of oil occasionally within the rubber hand-piece on the handle will prevent the squeak which sometimes annoys the operator.

Use clock oil, with a flattened wire. Wipe off superfluous oil. Don't use too much; one drop in any bearing is sufficient, much less in some. On the 816 and the 917 use a good grade of cylinder oil.

CATALOGUE OF SYMBOLS.

The machine is divided into sections numbered from 100 to 1500 inclusive.

Section 100 comprises the large shaft in the base, and its parts and connections.

Section 200 includes the key board, large graduated plates, key levers, wires, etc., in the top of machine.

Section 300 the operating lever and its connections on right side frame.

Section 400 the carrying mechanism located in the forward part of the machine.

Section 500 the ink ribbon and its motive connections, Style No. 3, together with the printing frame in the rear of machine. Style No. 1 and No. 4.

Section 600 the central shaft and connections, supporting and operating the sector bars carrying the type.

Section 700 the section supported in the rear of machine by plate 710, and comprises the striking mechanism for the type.

Section 800 the main operating shaft, with its connections, located midway and near the base.

Section 900 the accumulating mechanism, located in front.

Section 1000 consisting of base, side frame, case, check table, etc.

Section 1100 in the No. 3 machine takes the place of the 100 section in the No. 1 machine.

Section 1500 consists of the parts of broad carriage for No. 3 machine.

All these sections are subdivided so that parts of a similar kind in any section will bear symbols relative to similar pieces in other sections. For example, the symbol 211 denotes that the part is a punched piece in section 200, whereas the symbol 330 designates a collar in section 300, and as key to the whole system, remember that the figure in hundreds denotes the section, the figure in tens gives the classification, and the figures in units is the specific piece designated.

CLASSIFICATION OF PIECES.

0 to 9 inclusive, shafts.
10 to 29 inclusive, punched pieces, that is, parts cut from sheet metal.
30 to 49 inclusive, bushings, hubs, collars, etc.
50 to 64 inclusive, studs and pins.
65 to 69 inclusive, castings.
70 to 79 inclusive, wires and connections.
80 to 89 inclusive, springs.
90 to 99 inclusive, miscellaneous.

As it is impossible for our agents or repair men to correspond with us intelligently without some system of symbols for the different parts, we give the following complete list of parts with symbol numbers for the different styles of machines.

The letters R and L are affixed to numbers to designate similar parts which occupy right or left positions in machines with reference to operator's position in front of machine.

The letter N is prefixed to symbol numbers of parts special to No. 4 machine.

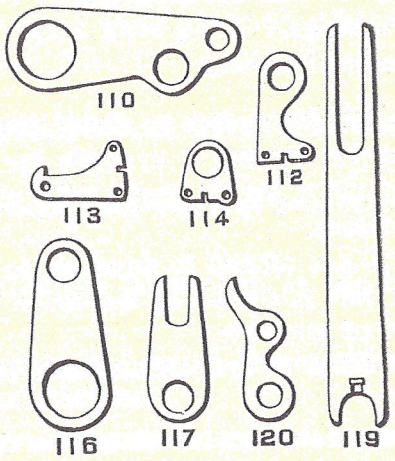
The letter B, prefixed to symbol numbers, denotes screws used to fasten parts designated by the numbers.

MISCELLANEOUS PARTS.

45 3-16 inch hexagon nut.
46 ⅛ inch hexagon nut.
50 Pins to fasten ½ inch hubs to shaft.
56 Pins to fasten hubs to ½ inch shaft.
56½ Taper pins to fasten hubs to ½ inch shaft.
59 Pins to fasten hubs to 5-16 inch shaft.
59½ Taper pins to fasten hubs to 5-16 inch shaft.
60 Pins to dowel punched pieces to hubs.

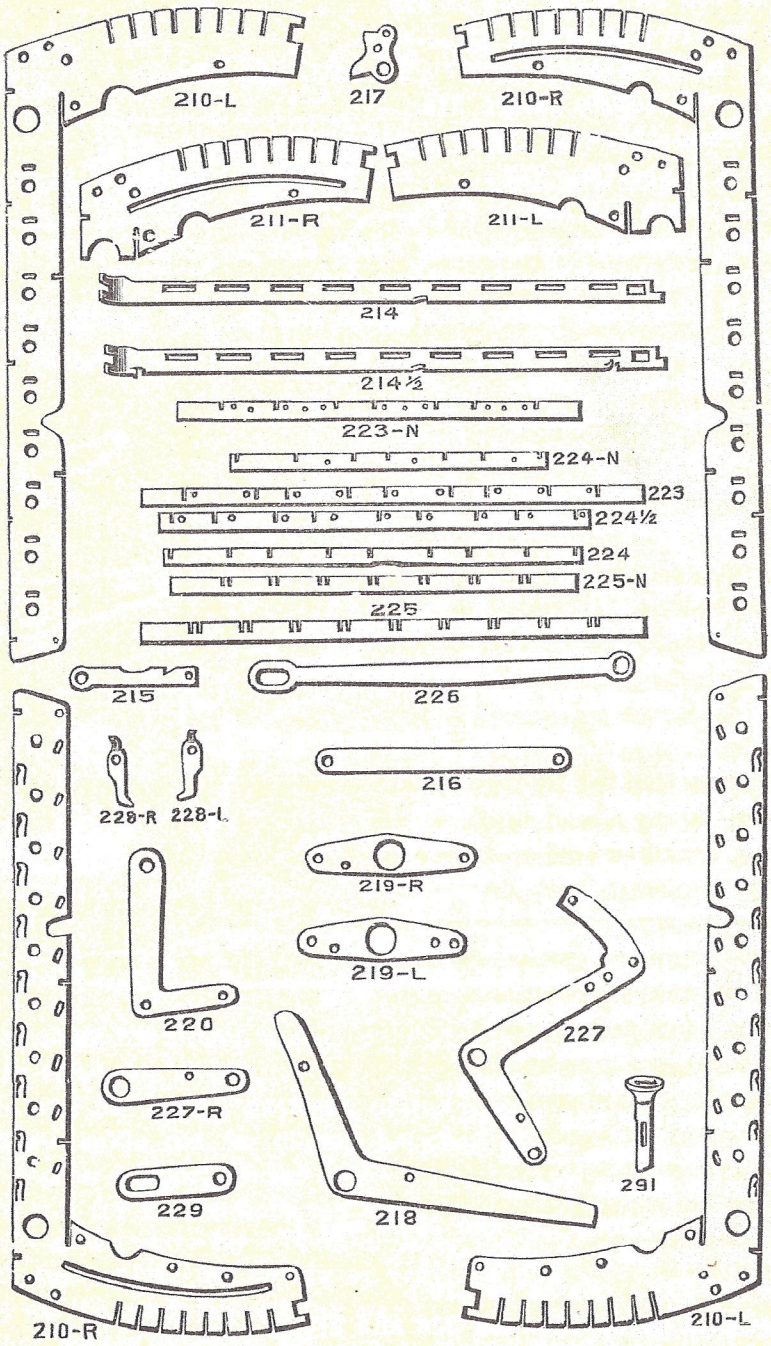
STYLE No. 3.

Section 100.



101 Short rod carried by 100, to which springs 880 are attached.
110R Arm on right end of 1100.
110L Arm on right end of 1100 supporting shaft 101.
112 Plates on 101 for springs 180.
113 Plates on lower end of springs 180.
114 Plates on lower end of springs 880 bearing on sleeve 132.
116 Arm on 100, supporting left end of shaft 501.
117 Arm on left end of 100 to operate shaft 501.
118 Small cross pieces in the end of springs 180 and 880.
119 Pitman's transmitting motion from 1100 to 800.
120 Lower link of toggle joint between shafts 101 and 501.
131 Bushing in 110L for shaft 101.
132 Sleeve on shaft 101 for Pitman's 119.
133 Hub for 116.
134 Hub for 110.
135 Bushing in 116 for shaft 101.
150 Screw stud in 110R for Pitman 366.
151 Dowel pins securing 110R and 110L to hub.
152 Pins to fasten hubs to shaft 1100.
153 Dowel pins securing 116 to hub.
154 Dowel pin securing 117 to shaft 1100 (same as 661).
166. Bearings for shaft 100.
180 Main driving springs hooked into base.
B-166 To bind 166 to 1065 and 166 to 1165.

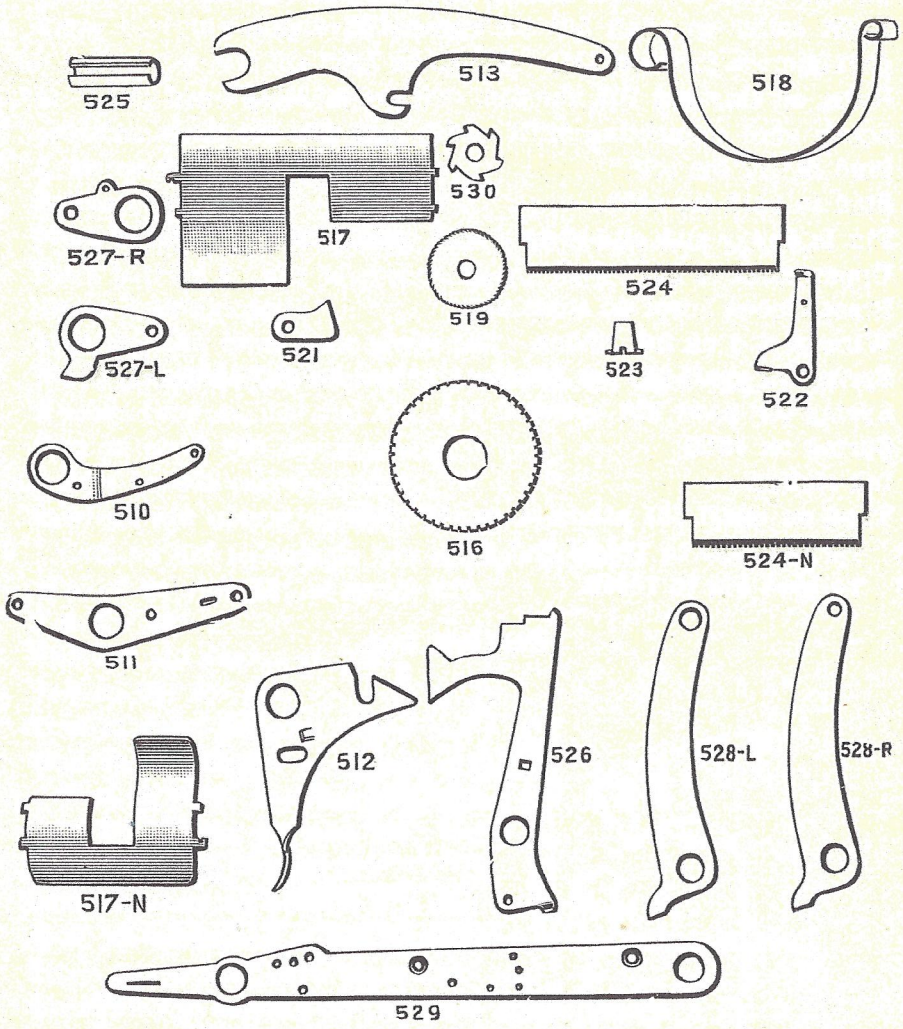
Section 200.



200 Rods supporting 1st, 2d, 5th, 6th and 7th rows of key levers.
200¼ Rod in 210's carrying spring 285.
201 Rod supporting rear end of section 200.
201½ Rod supporting front end of section 200.
202 Rod carried by shaft 207 to return 214.
202½ Rod supporting 214's.

203 Rod carried by 220 to lock 214.
204 Shaft in 210 supporting 227R and 227L.
205 Guide rod for lower end of 210.
206 Rod in 210 supporting 220.
206¼ Rod in 210's carrying 227¼R and L and 229½.
207 Shaft with 202 to return 214.
208 Lower rod between 220 to engage 613.
208½ Shaft supporting 218.
209 Rod between 216 lifting 415½.
210R Large graduated plate with guide slot for 610.
210L Large graduated plate without slot.
211R Small graduated plate with guide slot for 610 riveted to 210L.
211L Small graduated plate without slot, riveted to 210R.
212 Lower key-board plate.
213 Upper key-board plate.
214 Connecting bars for 217.
215 Link on 218 for repeating button 293R.
216 Links connecting rod 209 with 227R and 227L.
217 Key levers.
218 Repeat lever.
219R Right arm on shaft 207 supporting 202.
219L Left arm on shaft 207 supporting 202.
219¼ Arm on left end of 207.
220 Arms on rod 204 carrying locking rod 203.
221 Key stems.
223 Rear connecting strip for 210.
224 Intermediate connecting strips for 210.
225 Front connecting strip for 210.
226 Link connecting 227L and 219L.
226¼ Link connecting 227¼L and 227L.
226½ Link connecting 227¼R and 219R.
227R Right arm on shaft 204.
227L Left arm on shaft 204.
227¼R Arm on right end 206¼.
227¼L Arm on left end 206¼.
228R Pawls to detain 214's.
228L Pawls to detain 214's.
228½ Washer between 210 and 228R and L.
229½R Arm on 206¼ to engage 718.
230 Hubs for 219. (Same as 539.)
231 Separating collar between 226 and 219L.
232½ Roller on 219R. (Same as 1539.)
234 Hub for 218.
237 Collars separating key plates 212 and 213.
247 Hubs for 227R and L.
247¼ Hub in 227¼R.
251 Stud connecting 227L and 911.
251¼ Stud to connect 227L, 216 and 1416.

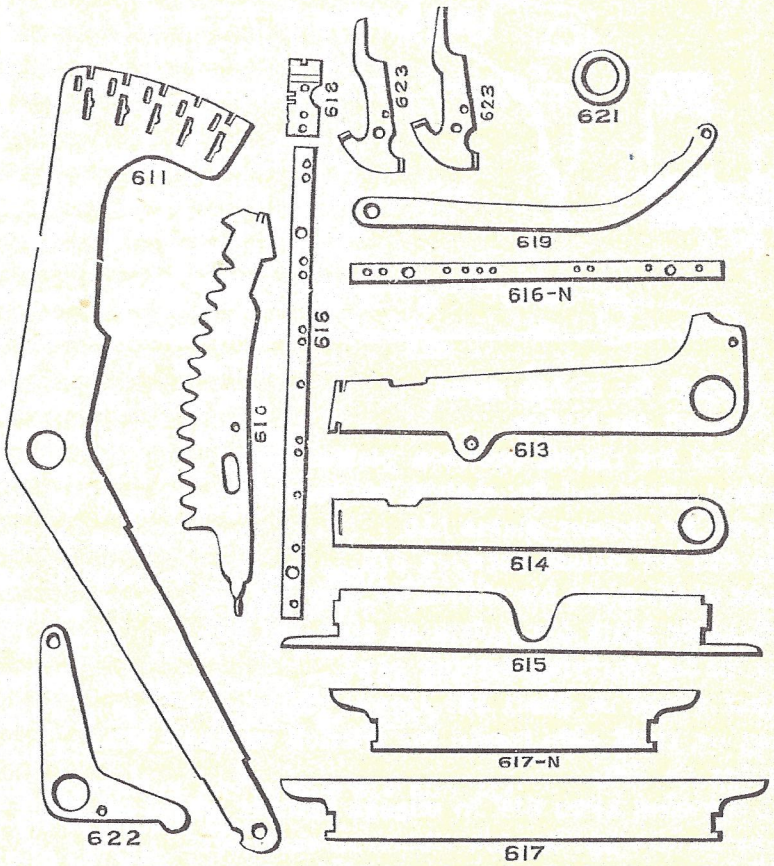
Section 500.



500 Upper shaft for ribbon spool.
501 Lower shaft for ribbon.
502 Guide rod for ribbon between plates 510.
502½ Center guide rod for ribbon beiween 510.
503 Stay rod to support plates 510.
504 Guide roll for ribbon between 510.
510R Right guide plate for ribbon on stay rod 503.
510L Left guide plate for ribbon on stay rod 503.
511 Arms on 501 carrying driving pawl.
516 Ratchet wheel on shaft 501 (lower ribbon shaft).
518 Spring on right side frame for friction on shaft 501.
518½ Spring on 500.
523 Pawl between arms 511 to engage ratchet wheel on shaft 501.
525 Clip to secure tape for ink ribbon to shaft 501.
527R Link of toggle with spring on shaft 501.
527L Link of toggle on which hammer 713 strikes.
530 Ratchet wheel on upper ink ribbon shaft.

531 Collar between 511.
532 Thrust collar on shaft 500 for brass ribbon spool.
533 Tight collar on shaft 501 between 527R and L.
538 Anti-friction rolls on 511. (Same as 738.)
539 Hubs, on stay rod 503, for 510. (Same as 230).
552 Screw stud connecting 527R and L and 120.
553 Stud in 511 for roll.
556 Stud in 1513 for 1539.
561 Pin in lower end of 511 to dowel collar 531.
562 Upper studs in 511.
568 Brass ribbon spool on shaft 500.
570 Wire in end on ink ribbon.
580 Spring on shaft 500 for friction against brass ribbon spool.
581 Spring for pawl 523 between 511.
586 Spring on 527R.
591 Ink ribbon.
592 Tape on shaft 501 attached to ink ribbon.
B 503 To bind 503 to 1066R and L.
B 518 To bind 518 to 1066R.

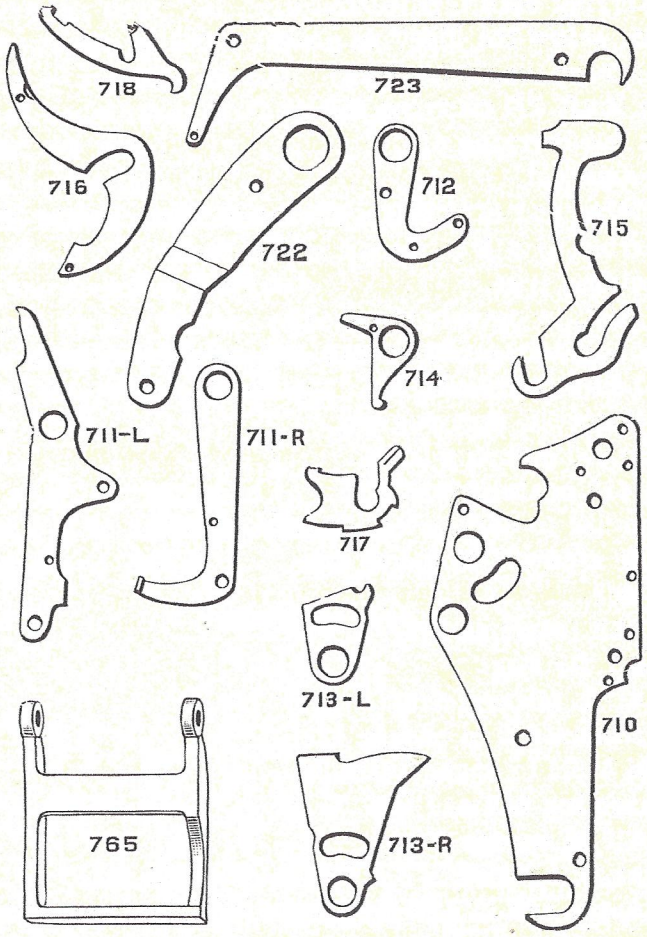
Section 600.



600 Shaft supporting sector bars 611.
601 Stay rods between arms 613.
610R Sector on right carried by 611.

610 Sectors carried by sector bars 611.
611 Sector bars on 600 carrying type plates.
612 Plate carrying star type plate.
B 612 Regular screw for 612.
B 612¼ Long head screw for 612.
613 Arms on shaft 600 carrying 617.
614 Arms on 600 carrying 615.
615 Bar to retain 611.
616 Plate holding end of springs 685 and 686 attached to 611.
617 Plate carried by 613 to return sector bars.
618 Plates holding type.
619 Arm on 613L to operate shaft 500.
620 Washers separating sectors 610 and sector bars 611.
621 Washer between 620 and 614.
622 Arm on shaft 600 carrying 623.
622¼ Arm on 600 carrying 623¼.
623 Pawl on 622 operating 207.
623¼ Cam on 622 to engage key release device.
624 Washer on stud 651 in sector 610.
630 Hub for 622.
631 Hub for 613 (same as 833).
632 Roll on 601 for 816.
650 Stud in 613-L for arm 619.
651 Stud in sectors 610 to engage 413¼.
651½ Stud in 610R to engage 413¼R.
652 Stud connecting 622 and 623.
653 Stud in 622 to engage 218.
655 Studs connecting sectors 610 and sector bars 611.
656 Stud in upper end of 619 for ratchet wheel on shaft 500.
657 Studs supporting type plate 618.
658 Short pins in casting 665 to guide sector bars 611.
659 Long pins in casting 665 to guide sector bars 611.
660 Studs in base to support 616.
661 Pin to dowel 613 to hub (same as 154).
662 Limit stud in 1066R for 622.
665 Casting on shaft 801 holding pins to guide sector bars 611.
666 Caps clamping pins 658 and 659 to casting 665.
670 Ring in 611 No. 2 and No. 4.
680 Carrying spring attached to lower end of sector 610.
682 Springs for type plates 618.
685 Driving springs on sector bars 611.
686 Spring on 611 No. 2 and No. 4.
688 Spring on 623.
691 Type.
691½ Star type.
692 Packing under caps 666.
B 666 To bind 666 to 665.
253 Stud in right side frame for spring 688 on 623.

Section 700.



700 Shaft supporting catches 717.
700¼ Shaft supporting 717's.
701 Shaft supporting hammers 715.
701¼ Shaft supporting 715's.
702¼ Shaft supporting 712 and 716.
702½ Shaft supporting 712 and 716.
703 Shafts supporting 711R and 711½L and carrying shaft 704.
704 Shaft supported by 711R and 711½L carrying 718.
704¼ Shaft carrying 718's.
705 Guide roll for ribbon between plates 710.
706 Stay rod for 710.
707 Rolls between plates 710 retaining 715 and 716 in position.
708 Rod between plates 710 to limit movement of 717.
709 Rod between 712 to return 716.
709¼ Rod between 712 and 712¼ to restore 716's.
709½ Rod in 765 supporting section 700.
710R Right side plate supporting section 700.
710L Left side plate supporting section 700.

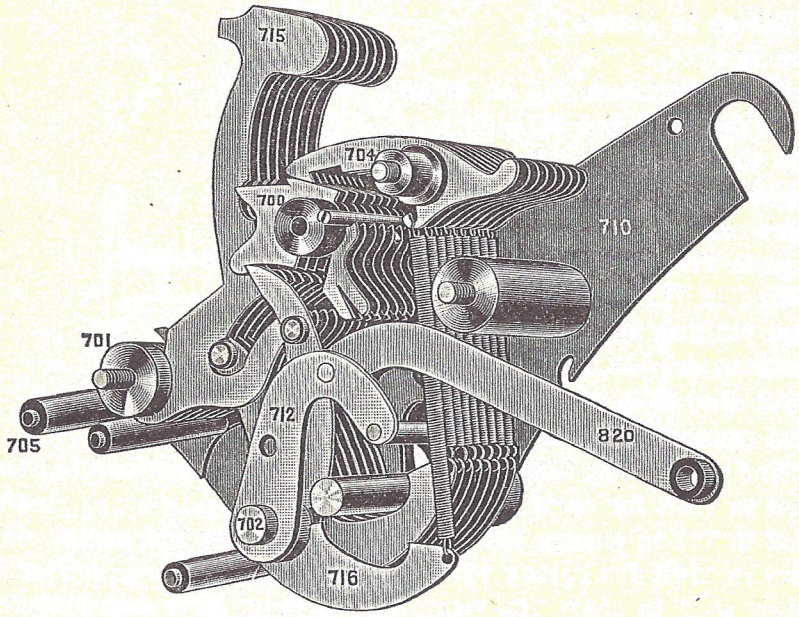
711R Right arm on shaft 703 carrying shaft 704.
711½L Left arm on shaft 703 carrying shaft 704.
712 Arms on shaft 702 operated by Pitman 820.
712¼ Right arm on 702¼.
713R Hammer on shaft 702 to strike 527L.
713L Cam on 702 engaging 738.
714 Catch on shaft 700 to retain hammer 713R.
715 Hammers on shaft 701 to strike type plates.
716 Drivers on shaft 702 to operate hammers 715.
716R Driver to operate star type hammer.
717 Catches on shaft 700 to retain 716.
717R Retainer for 716R.
718 Pawls on shaft 704 to trip 717.
721 Washer on 701.
B 721¼ Screw to bind 723 to 710.
723 Link connecting 710R with ribbon guide wire between 510's.
738 Anti-friction roll on 711½L (same as 538).
739 Bushings in plates 710.
740 Hub for 714.
741 Rolls for hammers 715 on drivers 716.
742 Hubs for 711R and 711½L.
743 Hub for hammer 713R.
745 Washers on 706.
750 Screw studs supporting catch 714.
751 Stud in 712R and L to return hammer 713R and 713L.
751¼ Stud in 712¼ to return 713.
752 Stud binding shaft 700 to 710L.
753 Studs in drivers 716 for rolls.
754 Limit stud in catch 714.
755 Stud connecting 712L and Pitman 820.
755¼ Stud connecting 712L to 820.
756 Stud in 710R for spring 784.
757 Stud in 723 to engage 512.
758 Stud in 710R for spring 783.
759 Screw stud in shaft 702 retaining hammer 713R and 713L.
760 Stud for 738 in 711½L.
761½ Stud in 711½ for spring on 713L.
765 Casting supporting 700 section.
780 Springs connecting drivers 716 and pawls 718.
780¼ Driving springs for hammers.
781 Spring to restore 713L.
783 Spring on stud 758 for hammer 713R.
784 Spring on stud 756 for catch 714.
785 Spring on shaft 701 for 711½L.
785½ Spring on 701¼ for 711½L.
B 710 To bind 710L to 665.
B 721 To bind 723 to 710R.
B 765 To bind 765 to 1165.

The hammers 715, which strike the type plates, are operated by the rolls on 716, which are retained by the catches 717 on shaft 700; and 718 on shaft 704, when not in contact with sector bars 611, pull the catches 717, releasing 716 and causing the hammers 715 to strike the type plates.

The extreme lower right hand end of 717 on shaft 700 is slotted and the piece above the slot offset to lap over the piece, below the slot of the one next to the right. By this means when any one 717 is pulled high enough by 718 on shaft 704, it releases all the 716's to the right in succession, and thus the ciphers to the right of the first key struck will be automatically printed in any column wherein no key has been depressed.

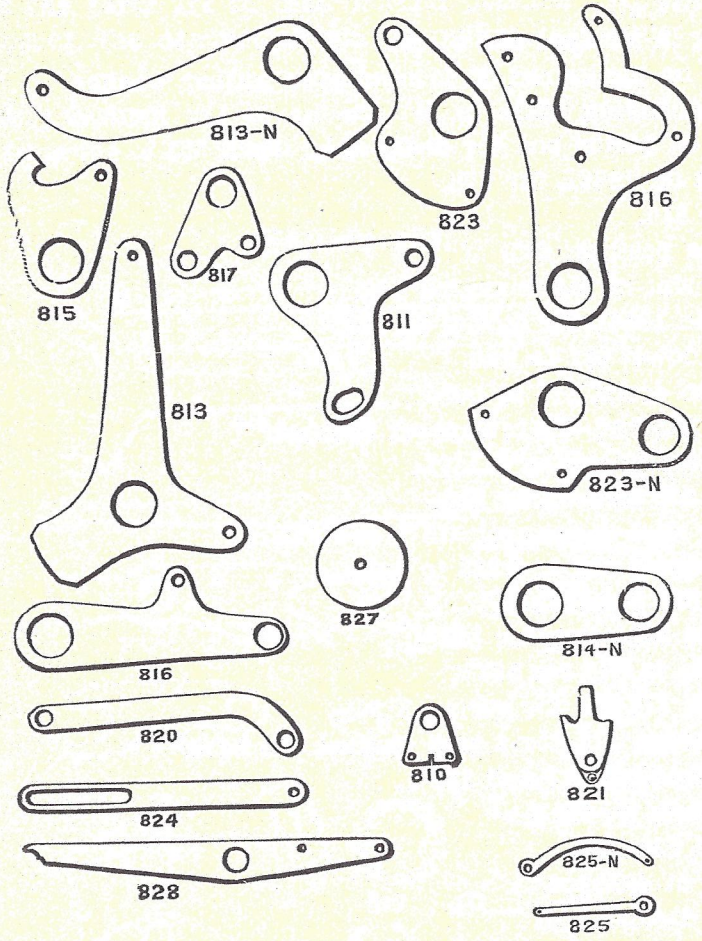
The double lever 712, connected to shaft 800 by the arm 820, returns the hammer 715 and other parts to their normal positions ready to give the next impressions on the paper.

The springs 780, connecting 716 and 718, give the blow to the hammers 715 and also retain 718.



Section 700 Assembled.

Section 800.



800 Main operating shaft.
801 Shaft supporting guide comb 665 and piston rod of dashpot.
802 Dashpot piston rod.
810 Plates in upper ends of springs 880 on 851.
811 Arms on shaft 800 receiving motion from shaft 101.
813 Arm on shaft 800 to operate 913.
816 Cam on shaft 800, lower pieces of toggle joint.
820 Pitman connecting 823 and 712L.
821¼ Pawl on 813 engaging 913.
823 Arm on shaft 800, with stud to operate 711½L, and with 813 carrying dashpot.
824¼ Washer on 856¼.
826 Washer between 821 and 813.
827 Deflecting plate over piston in dashpot.
828 Arm on 1066L to lock 227L.
828½ Arm on 1066L to lock 227L.
831 Hub for 811.
832 Bushing on curved end of 820.

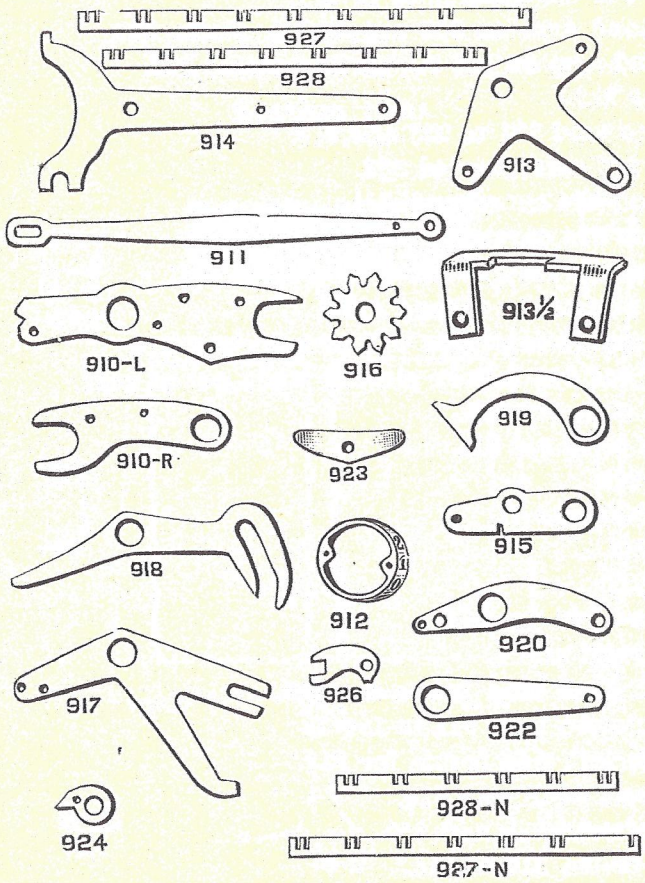
833 Hubs for 813, 815 and 823 (same as 631).
834 Sleeve on 851 for 119.
335 Hub in 828½.
836 Bushing in straight end of 820.
837 Washer on piston rod of dashpot over leather washer.
839 Thrust collar on 801.
840 Socket on piston rod for dashpot on shaft 801.
841 Bushing on 1066L for 828.
842 Hub for 816.
844 Collar to position 665.
851 Stud in slot of 811 engaging 119.
851½ Stud in 1066L for spring on 828.
852 Pins to dowel 811 to hub.
852½ Pins to dowel 816 to hub.
853 Stud in 823 and 813 to support dashpot.
854 Stud in 823 engaging 711½L.
855 Stud in 823 connecting 820.
856¼ Screw stud to connect 918¼ and 813.
857 Pins to dowel 813 and 823 to hubs.
858 Stud in 828 to engage 813.
858½ Stud in 828; stop for 821¼.
859 Dowel pin in 813 for 883¼.
859½ Stud in 821¼R for spring 883¼.
862 Stud between 811 for a stop against the base.
863 Stud connecting 813 and 821¼.
864 Small rivets in 821¼.
865 Piston in dashpot.
867 Cylinder of dashpot.
868 Head of dashpot.
870 Wire ring on piston rod supporting leather washer.
880 Spring transmitting motion from shaft 1100 to 800.
881 Spring on 828.
883¼ Spring on 821¼.
885 Buffer springs between 811 for 851.
886 Spring on piston rod over leather washer.
891 Leather washer on piston rod.
B 801 To bind 801 to 1066R and L.
B 841 To bind 841 to 1066L.
B 844 To bind 844 to 801.
B 868 To bind 868 to 867.

The dashpot consists of a cylinder and piston, the circulating medium being ordinary cylinder oil. As there is insufficient power in the driving spring of the machine to create a vacuum under the piston, the oil will circulate through the port as the cylinder recedes, and, of course, on return of cylinder will be forced again through the port and above the piston. The plate 827 over the piston deflects the oil as it passes through the port from beneath and prevents agitation on the surface.

It is essential that the inlet through the head of cylinder be made for the free circulation of air, and consequently in reshipping machines be positive that the parts are in their normal position. If, however, leakage should occur, the dashpot should be refilled to prevent a pounding in operation.

In refilling dashpot put in enough oil to allow piston three-fourths inch stroke from top of oil to cylinder head.

Section 900.

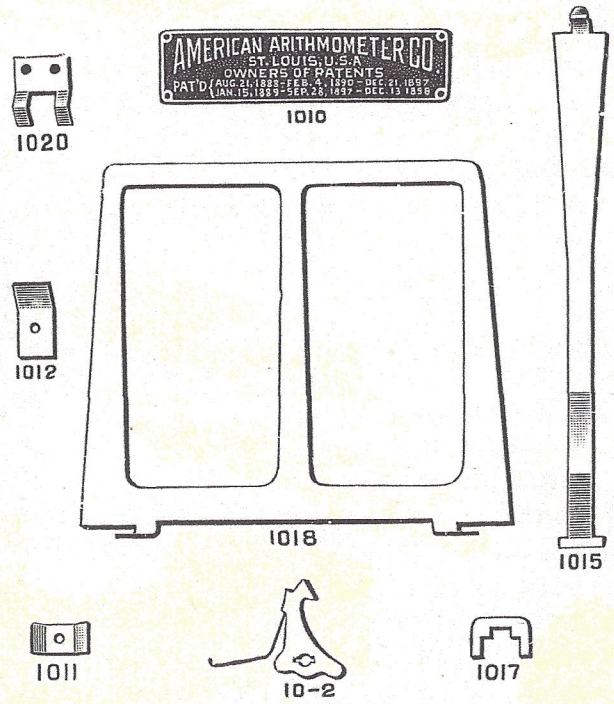


900 Pinion frame shaft.
901 Rod connecting pinion plates 915 with 910R and L.
902 Rod between 922 to reset strikers 411½.
902½ Rod between 922½R and L.
903 Small rod between 920R and L passing through 926.
904 Shafts supporting 922.
905 Stay rods between 920 with notches for 926.
906 Lower stay rod between plates 920.
910R Arm on right side of pinion frame.
910L Arm on left of pinion frame.
910¼R 910R changed to take 921.
910¼L 910L changed to take 921.

911 Pitman connecting 914 and 227L.
912R and L Dial wheels.
913 Rocking arm on left side frame operating 914 and pinion frame.
914 Bifurcated Pitman to operate pinion frame.
914¼ Loop end connecting link to operate pinion frame.
915 Arms on shaft 900 supporting dial wheels.
916 Pinions.
917. Arm on left side frame to lock pinion frame.
918 Arm on shaft 400 operating 904.
918¼ Link connecting 813 and 922½L.
919 Arms on 900 engaging stud in 311.
920R Right hand arm on 900 supporting plates 926.
920L Left hand arm on 900 supporting plates 926.
921 Shield for 912.
B 921 Screw to bind 921 to 923 and 910.
922 Arms on 904 carrying rod 902.
922½R Arm on 904 carrying 902½.
922½L Arm on 904 carrying 902½.
923 Tapped lug in 910¼R and L to support 921.
924 Cams on pinions to engage 413¼.
925 Washers separating cams 924 and pinions 916.
926 Plates on rod 903 to lock pinions when out of gear.
927 Upper tie strip for 915.
928 Lower tie strip for 915.
930 Hubs for 922.
931 Hub in 920R and L.
934 Hub for 917.
935 Hub for 918.
936 Roll on rod 902 for 918.
940 Hubs for 910R and L.
941 Bushing in left side frame for 913.
941¼ Round nut to bind 913 to 1066L.
942 Bushing in left side frame for 917.
943 Hub between 910R and 919.
944 Sleeves between 915 and 940.
950 Rivets to fasten 912 to 916.
951 Pins to dowel cams 924 to pinions.
952 Screw stud in left side frame for spring 983 on 911.
953 Pins to dowel 910 on hub.
955 Stud supporting pinions 916.
956 Long studs supporting the two outside pinions (R and L).
957 Stud connecting 911 and 914.
957¼ Shoulder screw connecting 911 and 914¼.
958 Studs in 910L to engage 914.
959 Stud connecting 913 and 914.
959½ Stud connecting 918¼ and 922½L.
960 Studs in 920L to engage 917 (same as 961).
961 Studs in 913 to engage 821¼ (same as 960).

962 Limit studs in 914.
963 Stud in 917 to engage lower edge of 813.
964 Limit stud in 1066R for 918.
964¼ Spring stud in 1066L for spring 984.
982 Spring on 917.
983 Spring on 911.
984 Spring on stud 964¼. (Same spring as 586.)
B 941 To bind 941 to 1066L.
B 942 To bind 942 to 1066L.
253 Stud in base for spring 982 on 917.

Section 1000.



1011 Clips fastening glass panels to case.
1012 Clip in case to hold lower end of 1116½.
1013 Spring lock.
1014 Detachable check table.
1015 Support for 1014.
1017 Supporting clip for lower end of 1015.
1018 Leaf of table 1014.
1020 Clip on under side 1014 for 1015.
1024 Spring on under side 1014 for 1018.
1040 Transfers on case and front panel.
1050 Dowel pin in forward corner of base for case.

1050¼ Dowels in 1165.
1051 Rivets to fasten 1012 to 1016.
1052 Studs in rear of case to enter holes in side frames.
1053 Screw stud in 1060 to support 1014.
1054 Pin supporting the spring lock 1013.
1055 Stud in case for spring lock 1013.
1056 Key for spring lock 1013.
1060T Studs in case supporting top check table.
1060F & B Stud supporting side check table.
1061 Rivets for 1020.
1063 Rivets for 1024.
1066R Right side frame.
1066L Left side frame.
1070 Ring in 1056.
1080 Spring for 1013.
1090R Glass panel in right side of case.
1090L Glass panel in left side of case.
1091 Front glass panel in case.
1094 Rubber tips in feet of base.
1096 Hood.
B 1011 To bind 1011 to 1167.
B 1065 To bind 1065 and 1165 to 1066R and L.

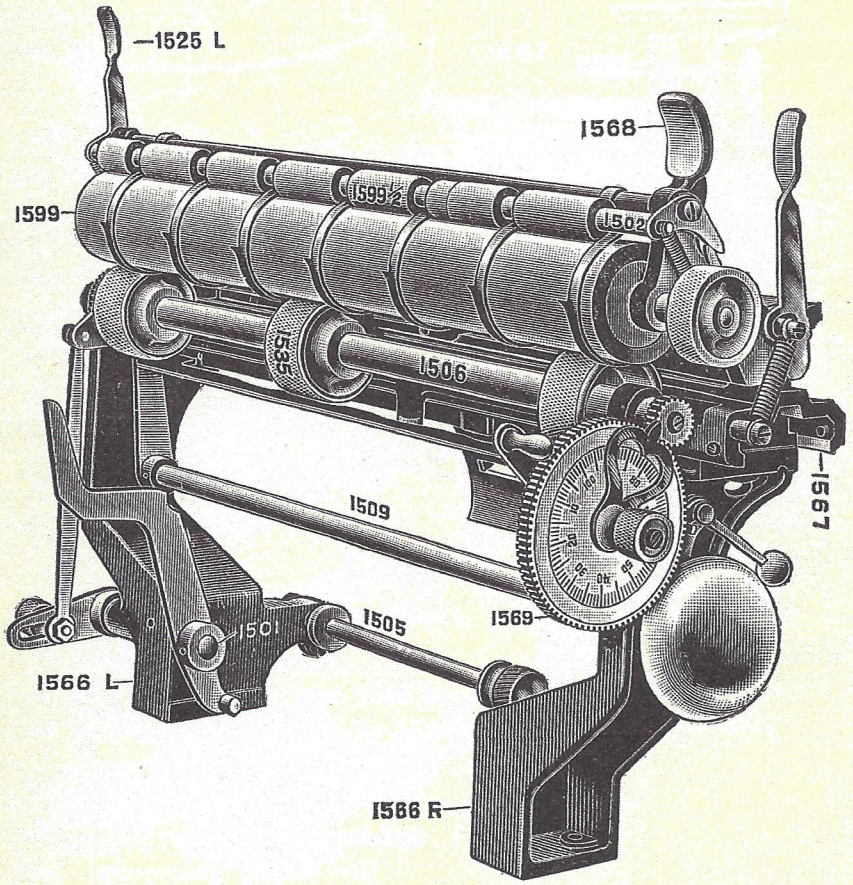
Section 1100.

1100 Main shaft in base transmitting motion to 800.
1116½ Back plate of machine.
1127 Arm on 1100 to operate 501.
1136 Collar on 1100 between 166 and 1513.
1165 Base of machine.
1167 Case of machine.

Section 1400.

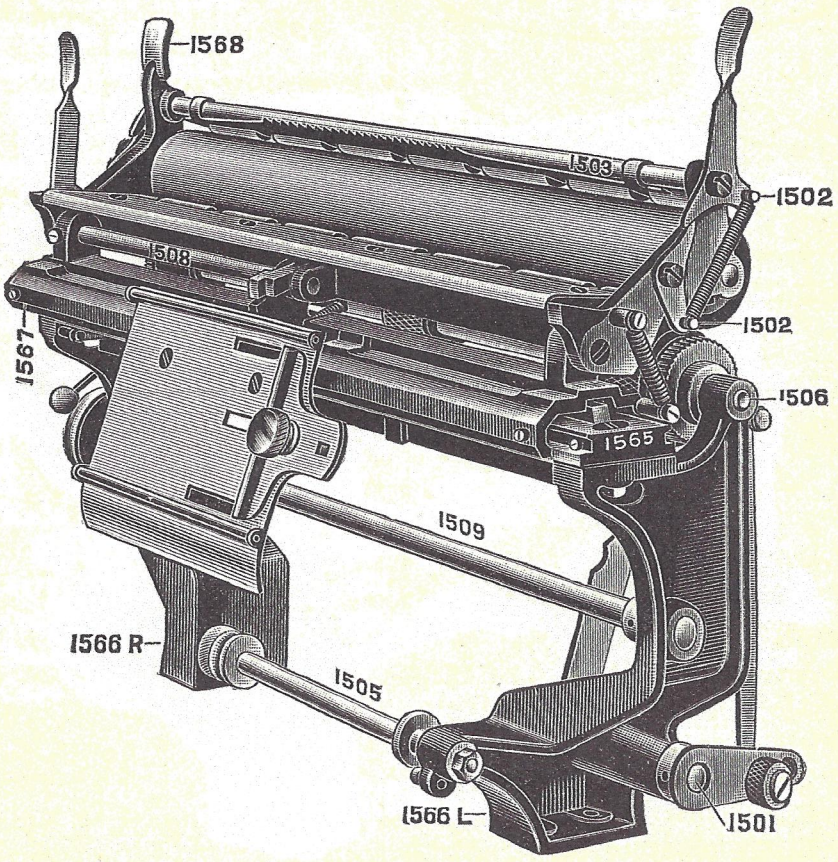
1400 Shaft carrying 1410 and 1411.
1410 Arm on 1400 connecting with 1416.
1411 Arm on 1400 carrying 1412's.
1412 Lugs on 1411.
1416 Link connecting 1410 and 227¼L.
1430 Hub in 1410.
1431 Hub in 1411.

Section 1500.

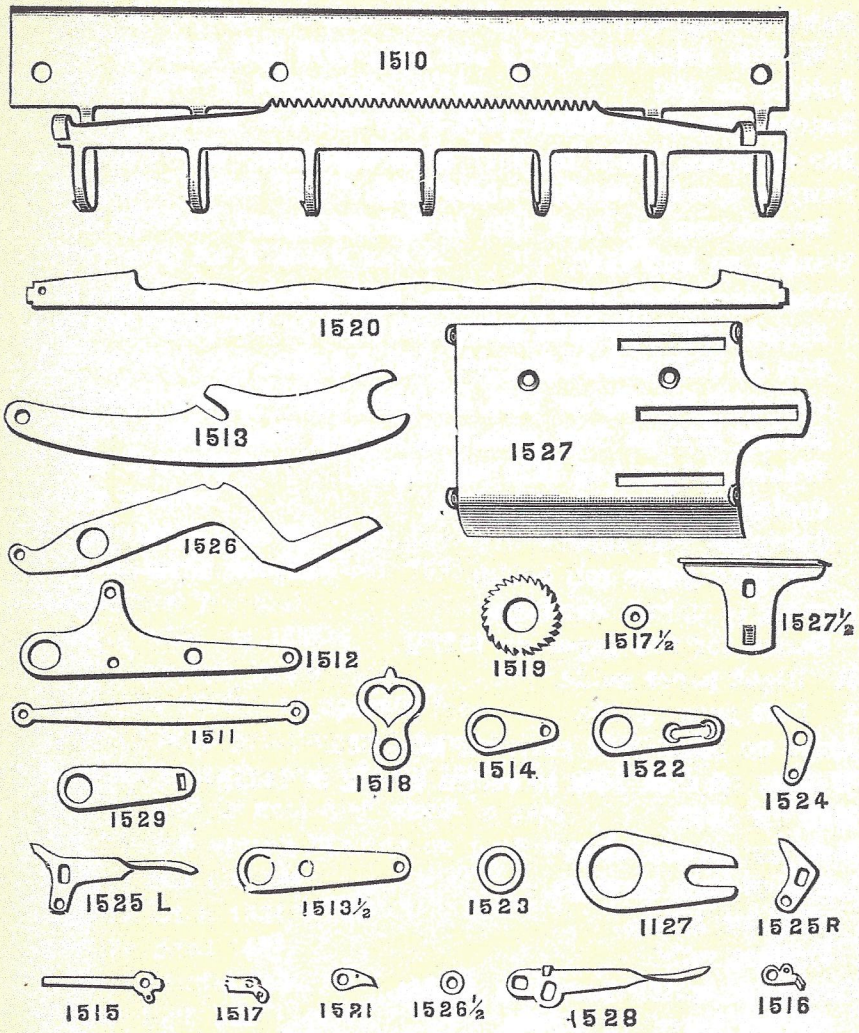


View from Right.

Section 1500.



View from Left.



1500 Shaft supporting 1599¼.
1501 Shaft carrying 1526½ and 1522½.
1502 Shaft carrying pressure rolls 1599¼.
1503 Shaft carrying 1525R and L.
1504 Roller on paper guide 1527¼.
1505¼ Rod supporting paper roll.
1505½ Rod supporting paper roll.
1506 Shaft carrying driving rolls.
1508 Shaft to operate latch 1534.
1509 Shaft carrying arms 1529 and 1512.
1510 Paper guide and cutter.
1511 Connection between 1522¼ and 1514.
1512 Plate carrying counter.
1513 Arm on 1100 shaft to operate 1526¼.
1513½ Intermediate link between 117 and 1513.
1514 Rocker arm carrying pawl 1521.
1515 Arm carrying clapper for bell.
1516 Pawl to lift clapper.

1517 Pawl to stop dial wheel 1569½.
1517½ Washer separating 1512 and 1515, 1512 and 1517.
1518 Pointer on dial.
1519 Ratchet wheel on shaft 1506.
1520 Bar engaging roller on 1567 to release dial.
1521 Pawl to operate ratchet wheel 1519.
1522¼ Rocker arm on shaft 1501 to operate feed.
1523 Washer on hub 1547.
1524 Arms supporting lower pressure rolls on 1502.
1524¼ Support for 1527¼ on 1567.
1525R Arm on 1503 carrying upper pressure rolls.
1525L Arm with handle on 1503 carrying upper pressure rolls.
1526¼ Rocker arm on 1501 receiving motion from 1513.
1526½ Washer separating 1511 and 1522¼.
1526¾ Spring washer on 1562¼.
1527¼ Guide for roll paper.
1527⅓ Elevated paper roll holder.
1528 Handle to unlock carriage.
1528¼ Gauge for roll paper on 1527¼.
1528¼R Right paper guide.
1528¼L Left paper guide.
1529 Arms on shaft 1509 carrying bar 1520.
1530 Washer on stud 1558 to retain spring in 1532.
1531 Hub for 1529.
1532 Hub for pointer 1518.
1534 Latch to lock carriage.
1534½ Hub for 1513½.
1535½ Driving rolls.
1537 Cover for spring barrel in 1569½.
1537¾ Spring barrel in 1569½.
1538 Roll engaging 1520.
1539 Anti-friction roll on 1513. (Same as 232½.)
1540 Hub for 1526¼ and 1522¼ and 1512.
1541R & L Bushing in end of 1598¼.
1547 Bushing in ratchet wheel 1519.
1548 Prick wheels for feeding.
1549 Knob to adjust feed.
1550 Stud in 1568 for spring on 1534.
1550½ Pin in 1558 for spring 1595.
1551 Shoulder screw in lower end of 1511.
1552 Stud in 1512 supporting 1515 and 1516.
1552½ Key in latch 1534.
1553 Stud in 1512 supporting 1517.
1554 Stud in 1566L for 1580.
1555½ Shoulder screw to bind 1524 to 1568.
1556 Screw in end of 1506 to bind pinion 1591.
1556½ Screw to bind 1525 to 1503.
1557 Shoulder screw for roller 1538.

1557½ Screw in 1567 to retain shaft 1508.
1558 Stud supporting dial wheel.
1558¾ Stud in 1569½ supporting 1532.
1558½ Shoulder screw in hinge of 1567 and 1568.
1559½ Stud in 1066L for link 1513½.
1560 Stud in dial wheel 1569½ for stop.
1561 Stud in 1566¼R for spring 1583.
1562¼ Screw stud for 1528¼R and L.
1563 Stud in latch 1534 for spring.
1563½ Stud in right end of 1568 for spring 1587.
1564 Shoulder stud connecting 1521, 1511 and 1514.
1564½ Stud connecting 1513½ and 1513.
1565 Guide for 1567.
1566¼R Side bracket.
1566¼L Side bracket.
1567 Slide supporting 1568.
1568 Frame carrying printing roll 1599¼.
1569½ Gear wheel for dial.
1578 Retaining wire for 1528¼.
1580 Spring to operate paper feed.
1580¼ Spring on 1526¼ to operate feed.
1581 Springs to hold printing roll down.
1582 Springs on pressure roll shafts 1502.
1583 Spring on 1520 to hold dial wheel in gear.
1583½ Flat friction spring bearing on feed wheels.
1584 Spring on bell clapper.
1585 Spring on latch 1534.
1586 Spring for pawl 1521.
1587 Spring on handle 1528.
1589 Spring in 1532 and 1549.
1590½ Balls.
1590¾ Knob on 1505½.
1591 Pinion on shaft 1506.
1592 Handle on 1512.
1593 Clapper on 1515 for bell.
1593½ Escutcheon pin to rivet 1594 to 1569½.
1594 Dial.
1595 Watch spring in 1569½.
1595½ Bell.
1596 Thumb nut on 1505½.
1597 Knob on printing roll 1599¼.
1598¼ Brass tube in printing roll.
1599¼ Rubber printing roll.
1599½L Short pressure roll on 1502.
1599½ Long pressure roll on 1502.
B 1566 Screw to bind 1566¼ to 1165 and 1565 to 1566¼.
B 1535 Set screws in driving rolls.
B 1567 Screws in 1567 and 1565 to retain balls.

B 1510 Screw to bind 1510 to 1568.
B 1527 Screw to bind 1524¼ to 1567.
B 1530 To bind 1530 to 1558.
B 1541 Set screw on 1541R.
B 1527¼ Screw for 1527¼.
B 1527⅓ Knurled head screws in 1527⅓.
B 1547 Set screw in 1547.
253 Studs for springs 1581 in 1568 and 1567. Limit stud in 1566¼R for 1529.

SPECIAL PARTS IN No. 4 MACHINE.

N 100 Large shaft in base transmitting motion to shaft 800.
N 101 Short rod carried by 100, and to which springs 880 are attached.
N 119 Pitman transmitting motion from 100 to 800.
N 134 Hub for 110.
N 150 Screw stud in 110R for Pitman 366.
N 151 Dowel pins securing 110R and 110L to hub.

N 200 Rods supporting 1st, 2d, 5th, 6th and 7th rows of key levers.
N 201 Rod supporting rear end of section 200.
N 201½ Rod supporting front end of section 200.
N 202 Rod carried by shaft 207 to return 214.
N 202½ Rod supporting 214.
N 203 Rod carried by 220 to lock 214.
N 204 Shaft in 210 supporting 227R and 227L.
N 205 Guide rod for lower end of 210.
N 206 Rod in 210 supporting 220.
N 207 Shaft with 202 to return 214.
N 208 Lower rod between 220 to engage 613.
N 208½ Shaft supporting 218.
N 209 Rod between 216 lifting 415½.
N 212 Lower key-board plate.
N 213 Upper key-board plate.
N 223 Rear connecting strip for 210.
N 224 Intermediate connecting strips for 210.
N 225 Front connecting strip for 210.
N 273 Retaining strips for key stems.
N 292 Cloth covering on key-board.

N 336 Collar under 358N.
N 352 Pointed stud in operating lever.
N 358 Stud between sector 311 and 312 for Pitman 366.
N 400½ Shaft carrying 424 and 416.
N 402½ Rod carried by 424 to engage 411½.
N 423 Cross strip to hold spring 483.

N 500 Upper shaft for ribbon spool.
N 501 Lower shaft for ribbon.
N 502 Guide rod for ribbon between plates 510.

N 502½ Center guide rod for ribbon between 510.
N 503 Stay rod to support plates 510.
N 504 Guide roll for ribbon between 510.
N 505 Rod supporting roll of paper.
N 506 Small guide rod for paper between side plates 529.
N 507 Binding shaft for paper feed.
N 508 Shaft for rubber impression roll.
N 509 Shaft in base supporting printing frame.
512 Catch for 529R.
513 Arm on shaft 100 to operate lever 526.
515 Collar on bushing 548 to secure lever 526.
N 517 Curved guide plate for paper.
519 Ratchet driving wheel for impression roll.
520 Washer between lever 526 and pawl 521.
521 Pawl to engage ratchet wheel 519.
522 Arm to 529L to regulate the movement of 526.
N 524 Paper cutter.
526 Arm on side of printing frame to drive impression roll.
528R Right arm to support roll of paper.
528L Left arm to support roll of paper.
529R Right side plate for printing frame.
529L Left side plate for printing frame.
535 Sleeve on right end of shaft 507 for spring.
547 Bushing in 529R for impression shaft 508.
548 Bushing in 529L for impression shaft 508.
549 Bushing in ratchet wheel on shaft 501.
550 Stud in 529R for 512.
554 Stud in 511 to engage 513.
556 Stud in 513 for roll.
557 Stud fastening spring 589 to 529R.
558 Stud supporting 522.
563 Screw fastening ratchet wheel to impression shaft 508.
564 Stud in 526 supporting pawl 521.
N 569 Casting connecting side plates of printing frame.
N 580 Spring on shaft 500 for friction against brass ribbon spool.
587 Spring for lever 526.
589 Spring for binding shaft 507.
590 Thumb nut on shaft 505 holding paper roll.
N 591 Ink ribbon.
N 595 Rubber binding roll for paper on shaft 507.
N 599 Rubber impression roll.
B 509 To bind 509 to 1065.
B 569 To bind 529R and L to 569.

N 600 Shaft supporting sector bars 611.
N 601 Stay rods between arms 612.
N 615 Bar to retain 611.
N 616 Plate holding end of springs 685 and 686 attached to 611.

N 617 Plate carried by 613 to return sector bars.
N 665 Casting on shaft 801 holding pins to guide sector bars 611.
N 666 Caps clamping pins 658 and 659 to casting 665.
N 692 Packing under caps 666.

N 700 Shaft supporting catches 717.
N 701 Shaft supporting hammers 715.
N 702½ Shafts supporting 712 and drivers 716.
N 703 Shafts supporting 711R and 711½L and carrying shaft 704.
N 704 Shaft supported by 711R and 711½L carrying 718.
N 705 Guide roll for ribbon between plates 710.
N 706 Stay rod for 710.
N 707 Rolls between plates 710 retaining 715 and 716 in position.
N 708 Rod between plates 710 to limit movement of 717.
N 709 Rod between 712 to return 716.
N 709½ Rod in 765 supporting section 700.
N 730 Hub in 711½L.
N 761 Pins to fasten 711½L to 703.
N 765 Casting supporting 700 section.

N 800 Main operating shaft.
N 801 Shaft supporting guide comb 665 and piston rod of dashpot.
N 802 Dashpot piston rod.
N 813 Arm on shaft 800 to operate 913.
N 814 Arm on 800 carrying dashpot.
N 823 Arm on shaft 800, with stud to operate 711½L and with 814N carrying dashpot.
N 830 Hub for 813.
N 841 Bushing in outer end of 814 and 823.
N 858 Pin to dowel 814 and 813 together.
N 865 Piston in dashpot.
N 867 Cylinder of dashpot.
N 868 Head of dashpot.
N 886 Spring on piston rod over leather washer.

N 900 Pinion frame shaft.
N 901 Rod connecting pinion plates 915 with 910R and L.
N 902 Row between 922 to reset strikers 411 and 411½.
N 903 Small rod between 920R and L passing through 926.
N 904 Shafts supporting 922.
N 905 Stay rod between plates 920 with notches for 926.
N 906 Lower stay rod between plates 920.
N 927 Upper tie strip for 915.
N 928 Lower tie strip for 915.

N 1016 Back plate in case.
N 1065 Base of machine.
N 1067 Case.
N 1091 Front glass panel in case.
N 1096 Hood.

SPECIAL PARTS IN No. 1 MACHINE.

100 Large shaft in base transmitting motion to shaft 800.
505 Rod supporting roll of paper.
506 Small guide rod for paper between side plates 529.
507 Binding shaft for paper feed.
508 Shaft for rubber impression roll.
509 Shaft in base supporting printing frame.
517 Curved guide plate for paper.
524 Paper cutter.
569 Casting connecting side plates of printing frame.
599 Rubber impression roll.
1016 Back of case.
1026 Narrow paper guide.
1027 Spring supporting narrow paper guide.
1029 Flange for collar 1030.
1030 Collar on shaft 505 for narrow paper.

OBSOLETE PARTS.

The following parts are not used in the manufacture of our present machine, but will be found in our older style of machines.

210R 1 right-hand graduated plate.
214R Connecting bars for 217 in 1st, 3d, 5th and 7th rows old style.
214L Connecting bars for 217 in 2d, 4th, 6th and 8th and 9th rows old style.
214½ Connecting bars for 217.
217R Key levers.
217L Key levers.
222 Washers on shaft 204 separating 220 and 210.
224½ Intermediate connecting strip for springs 284½.
N 224½ Intermediate connecting strip for springs 284½.
229 Links to limit movement of rod 202.
232 Anti-friction roller 219R.
233 Short collars on 201 guiding 229.
235 Long collars on 201 guiding 229.
250 Stud in 1066L for 281.
278 Division wires on key-board.
284½ Spring on 214.
288 Spring on 227L.
294 Washer on 204 separating 210, 228.
354 Stud in 311 to engage 919.
400 Guide rod for lower end of 412.
N 400 Guide rod for lower end of 412.
402 Striker rod for 412's.
N 402 Striker rod for 412's.
411R Right plate of striker for 412.
411L Left plate for striker for 412.
412 Detents for sectors 610.

412½ Arm on 413½ to detain 613.
413 Carrying pawls detaining 411.
413½ Carrying pawls detaining 411½R and L.
413¾ Carrying pawl.
414 Strip to locate position of 400.
415 Retainers for 610's.
421 Pawl to arrest left hand pinion 916.
421½ Pawl to arrest left hand pinion 916.
422 Cross strip to which springs 480 are attached.
N 422 Cross strip to which springs 480 are attached.
429 Washer separating 421 and 413.
431 Bushing in 421.
431¾ Bushing in 421½.
444 Bushing for 415.
464 Stud in 4131 for spring 488.
480 Springs on bar 422 to actuate strikers 411.
480½ Spring on 413½.
481 Springs on 413 connected to 411.
484 Springs for 412.
486 Springs for 421.
488 Spring for 413L.
654 Stud in 1066R for 687 on 623.
687 Spring on 623.
702 Shafts supporting 712 and drivers 716.
N 702 Shafts supporting 712 and drivers 716.
706½ Stay rod between 722.
N 706½ Stay rod between 722.
711L Left arm on shaft 703 carrying shaft 704.
713 Hammer on shaft 702 to strike 527L.
722R Arm supporting 700 section in rear.
722L Arm supporting 700 section in rear.
815 Arm on 800 operating 816.
816 Arm on shaft 800, lower pieces of toggle joint.
817R Upper right hand link of toggle joint between 800 and 601.
817L Upper left hand link of toggle joint between 800 and 601.
821 Pawl on 813 engaging 913.
825 Pitman connecting pawl 821 and spring 883.
N 825 Pitman connecting pawl 821 and spring 883.
825½ Pitman connecting 821 and 883½.
829 Sleeve between 840 and 1066L on 801.
N 829 Sleeve between 840 and 1066L on 801.
829½ Sleeve between 840 and 844.
N 829½ Sleeve between 840 and 844.
838 Tight collars on studs 861 and 816.
841½ Bushing for 828 on 1066L.
B 841½ Screw binding 841½ to 1066L.
850 Rivet for 816.
856 Stud connecting 816 and 817.

860 Stud connecting 817R and L and 824.
861 Studs in 815 and 816 for springs 884.
883 Spring for 821.
N 883 Spring for 821.
884 Spring connecting studs in 815 and 816.
888 Spring on 801.
890 Socket on piston rod for dashpot for shaft 801.
918½ Arm on shaft 400 operating shaft 904.
954 Stud in base for springs 982 on 917.
958½ Upper stud in 910L to engage 914.
1010 Name plate on case.
1057 Rivets for name plate.
1060½ Studs supporting side check table.
1095 Pieces of rubber under clips 1011.
B 400 To bind 400 to 1066R and L.
B 1067 To plug holes on outside of case for B-1011.
1160 Stud in case stop for handle.
1161 Stud in case stop for handle.
1527 Guide for roll paper.
1527½ Gauge for roll paper on 1527.
1527¾R & L Arms on 1527 supporting 1505½.
1533 Collar on rod 1505.
1535 Driving rolls.
1536 Spring ring in 1569 to wind spring.
1537½ Spring barrel in 1569.
1553¾ Limit stud in 1566R for 1529.
1553½ Limit stud in 1566R for 1529.
1554½ Stud in 1526 for 1580.
1555 Stud in knob 1590 to lengthen 1505.
1559R End in printing roll 1599.
1559½R Journal in 1559R.
1559L Journal in printing roll 1599.
1560½ Stud in 1516 to engage 1515.
1561½ Pin in 1518 engaging teeth in 1569.
1562 Screw stud to bind gauge 1527½ to 1527.
1562½ Studs for springs in 1568, 1567.
1569 Gear wheel for dial.
1566R Side bracket.
1566L Side bracket.
1568½R Caps on 1568R.
1568½L Caps on 1568L.
1580 Spring on 1526 to operate feed.
1590 Knob on 1555.
1594½ Rivet to bind 1595 to 1536.
1593¾ Escutcheon pin to rivet 1527¾ to 1527.
1598 Brass tube in printing roll.
1599 Rubber printing roll.
B 1568 Screw to bind caps 1568½R & L to 1568.

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