SECTION B — PERFORMING OPERATIONS; TRANSPORTING

B41 PRINTING; LINING MACHINES; TYPEWRITERS; STAMPS

B41J TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS (composing B41B; printing on special surfaces B41F; laundry marking B41K; erasers, rubbers or erasing devices B43L 19/00; fluid media for correction of typographical errors by coating C09D 10/00; recording the results of measuring G01; recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching, G06K; franking or ticket-printing and issuing apparatus G07B; electric keyboard switches, in general H01H 13/70, H03K 17/94; coding in connection with keyboards or like devices, in general H03M 11/00; receivers or transmitters for transmission of digital information H04L; transmission or reproduction of documents, or the like, e.g. facsimile transmission, H04N 1/00; printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance, see the relevant subclasses)

Note(s)

1. This subclass covers:
   - manually controlled power-operated apparatus or apparatus of this type with additional control by input of recorded information, e.g. on punched cards or tapes;
   - the "print-out" features of apparatus controlled by record carriers or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads.
2. This subclass does not cover:
   - electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the "print-out" features of said apparatus;
   - apparatus controlled by record carriers or electric signals, as a whole.
3. In this subclass, the following term is used with the meaning indicated:
   - "paper" covers also similar flexible copy material;
   - "printing material" covers both paper and temporary record carriers from which records are transferred to a paper, but does not cover printing masters, e.g. formes.

Subclass index

KINDS OF APPARATUS
characterised by the mounting, arrangement, or disposition of the types or dies.....1/00
characterised by the printing or marking process for which they are designed.....2/00
characterised by the purpose.....3/00
COMMON DETAILS OR ACCESSORIES
Character selection.....5/00, 7/00
Hammer impression.....9/00
Supporting or handling copy or duplicating material.....11/00-15/00
Transfer material
of page-width.....17/00
in ribbon form; ink ribbon cartridges.....31/00, 33/00, 35/00, 32/00
Inking.....27/00
Spacing.....19/00
Drives.....23/00
Particular operations.....21/00
Others.....25/00, 29/00, 35/00

Kinds of typewriters or of selective printing mechanisms

1/00 Typewriters or selective printing mechanisms characterised by the mounting, arrangement, or disposition of the types or dies (non-selective embossing B44B 5/00)

1/02 • with separate or detached types or dies

1/04 • with types or dies carried upon levers or radial arms, e.g. manually operated (B41J 1/16 takes precedence)

1/06 • • on power-operated levers or arms

1/08 • with types or dies carried on sliding bars or rods

1/10 • • on end surfaces thereof

1/12 • • on side surfaces thereof, e.g. fixed thereto

1/14 • • • the types or dies being movable relative to the bars or rods (mounted on flexible bars or rods B41J 1/16)

1/16 • with types or dies arranged in stationary or sliding cases or frames or upon flexible strips, plates, bars, or rods
1/18 • with types or dies strung on wires or rods
1/20 • with types or dies mounted on endless bands or the like
1/22 • with types or dies mounted on carriers rotatable for selection
1/24 • • the plane of the type or die face being perpendicular to the axis of rotation (B41J 1/60 takes precedence)
1/26 • • • Carriers moving for impression (B41J 1/27 takes precedence) **[3]**
1/27 • • • Carriers moving during impression **[3]**
1/28 • • • Carriers stationary for impression, e.g. with the types or dies not moving relative to the carriers
1/30 • • • • with the types or dies moving relative to the carriers or mounted on flexible carriers
1/32 • • the plane of the type or die face being parallel to the axis of rotation, e.g. with type on the periphery of cylindrical carriers (B41J 1/60 takes precedence)
1/34 • • • Carriers rotating during impression
1/36 • • • Carriers sliding for impression, e.g. manually operated
1/38 • • • • power operated
1/40 • • • Carriers swinging for impression
1/42 • • • • about an axis parallel to the axis of rotation of the carrier
1/44 • • • Carriers stationary for impression
1/46 • • • • Types or dies fixed on wheel, drum, cylinder, or like carriers
1/48 • • • • • with a plurality of carriers, one for each character space
1/50 • • • • • with one or more carriers travelling across copy material in letter-space direction
1/52 • • • • • with copy material moving in the letter-space direction, and carrier mounting being fixed relative to the machine
1/54 • • • • Types or dies movable on wheel, drum, cylinder, or like carriers
1/56 • • • • Types or dies on shuttles or like loose carriers
1/58 • • • • Types or dies upon arcuate bars
1/60 • with types or dies on spherical, truncated-spherical, or like surfaces

2/00 Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed (mounting, arrangement, or disposition of types or dies B41J 1/00; marking methods B41M 5/00; structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier G11B 5/127; heads for reproducing capacitive information G11B 9/07) **[5]**

Note(s)

1. This group covers devices reproducing only a discrete number of tones, whereas group H04N 1/00 covers devices used for the reproduction of documents or the like, which devices are capable of reproducing continuous tone value scales.
2. In this group, the following expressions are used with the meanings indicated:
   - "ink jet" involves the projection of ink on to the printing material, e.g. paper, through a nozzle as a stream of droplets or particles of colouring matter;
   - "continuous ink jet" means a jet of ink transformed into a continuous stream of droplets or particles of colouring matter after having left the nozzle;
   - "ink spray" means a spray of ink transported by a stream of charged particles or air on to the printing material.

2/005 • characterised by bringing liquid or particles selectively into contact with a printing material (printing by selective application of impact or pressure on a printing or impression-transfer material B41J 2/22) **[5]**
2/01 • • Ink jet **[5]**
2/015 • • • characterised by the jet generation process (B41J 2/215 takes precedence) **[5]**
2/02 • • • • generating a continuous ink jet **[5]**
2/025 • • • • • by vibration **[5]**
2/03 • • • • • by pressure **[5]**
2/035 • • • • • by electric or magnetic field **[5]**
2/04 • • • • generating single droplets or particles on demand **[5]**
2/045 • • • • • by pressure, e.g. electromechanical transducers **[5]**
2/05 • • • • • • produced by the application of heat **[5]**
2/055 • • • • • • Devices for absorbing or preventing back-pressure **[5]**
2/06 • • • • • by electric or magnetic field **[5]**
2/065 • • • • • • involving the preliminary making of ink protuberances **[5]**
2/07 • • • characterised by jet control (B41J 2/205 takes precedence) **[5]**
2/075 • • • • for many-valued deflection **[5]**
2/08 • • • • • charge-control type **[5]**
2/085 • • • • • • Charge means, e.g. electrodes **[5]**
2/09 • • • • • • Deflection means **[5]**
2/095 • • • • • electric field-control type **[5]**
2/10 • • • • • magnetic field-control type **[5]**
2/105 • • • • for binary-valued deflection **[5]**
2/11 • • • • for ink spray **[5]**
2/115 • • • • synchronising the droplet separation and charging time **[5]**
2/12 • • • • testing or correcting charge or deflection **[5]**
2/125 • • • • Sensors, e.g. deflection sensors **[5]**
2/13 • • • • for inclination of printed pattern **[5]**
2/135 • • • Nozzles **[5]**
2/14 • • • • Structure thereof **[5]**
2/145 • • • • Arrangement thereof **[5]**
2/15 • • • • • for serial printing **[5]**
2/155 • • • • • for line printing **[5]**
2/16 • • • • Production of nozzles **[5]**
2/165 • • • • Prevention of nozzle clogging, e.g. cleaning, capping or moistening for nozzles **[5]**
2/17 • • • characterised by ink handling **[5]**
2/175 • • • • Ink supply systems **[5]**
2/18 • • • • Ink recirculation systems **[5]**
2/185 • • • • • Ink-collectors; Ink-catchers **[5]**
2/19 • • • • for removing air bubbles **[5]**
2/195 • • • • for monitoring ink quality **[5]**
2/20 • • • • for preventing or detecting contamination of compounds **[5]**

2/205 • • • for printing a discrete number of tones (B41J 2/21 takes precedence) **[5]**
2/21 • • • for multi-colour printing **[5]**
2/215 • • by passing a medium, e.g. consisting of an air or particle stream, through an ink mist **[5]**
2/22 • characterised by selective application of impact or pressure on a printing material or impression- transfer material **[5]**
2/225 • • ballistic, e.g. using solid balls or pellets **[5]**
2/23 • • using print wires **[5]**
2/235 • • • Print head assemblies **[5]**
2/24 • • • • serial printer type (B41J 2/25, B41J 2/265 take precedence) **[5]**
2/245 • • • • line printer type (B41J 2/25, B41J 2/265 take precedence) **[5]**
2/25 • • • • Print wires **[5]**
2/255 • • • • • Arrangement of the print ends of the wires **[5]**
2/26 • • • • • Connection of print wire and actuator **[5]**
2/265 • • • • Guides for print wires **[5]**
2/27 • • • Actuators for print wires **[5]**
2/275 • • • • of clapper type (B41J 2/28 takes precedence) **[5]**
2/28 • • • • of spring charge type, i.e. with mechanical power under electro-magnetic control **[5]**
2/285 • • • • of plunger type **[5]**
2/29 • • • • of moving-coil type **[5]**
2/295 • • • • using piezo-electric elements **[5]**
2/30 • • • Control circuits for actuators **[5]**
2/305 • • • Ink supply apparatus (ink ribbons, ink-ribbon mechanisms B41J 31/00-B41J 35/00) **[5]**
2/31 • • using a print element with projections on its surface impacted or impressed by hammers **[5]**
2/315 • characterised by selective application of heat to a heat sensitive printing or impression-transfer material (B41J 2/385, B41J 2/435 take precedence) **[5]**
2/32 • • using thermal heads **[5]**
2/325 • • • by selective transfer of ink from ink carrier, e.g. from ink ribbon or sheet **[5]**
2/33 • • • • from ink roller **[5]**
2/335 • • • Structure of thermal heads **[5]**
2/34 • • • • comprising semiconductors **[5]**
2/345 • • • characterised by the arrangement of resistors or conductors **[5]**
2/35 • • • providing current or voltage to the thermal head **[5]**
2/355 • • • • Control circuits for heating-element selection **[5]**
2/36 • • • • • Print density control **[5]**
2/365 • • • • • • by compensation for variation in temperature **[5]**
2/37 • • • • • • by compensation for variation in current **[5]**
2/375 • • • Protection arrangements against overheating **[5]**
2/38 • • Preheating, i.e. heating to a temperature insufficient to cause printing **[5]**
2/385 • characterised by selective supply of electric current or selective application of magnetism to a printing or impression-transfer material (B41J 2/005 takes precedence; electrography, magnetography G03G) **[5]**
2/39 • • using multi-stylus heads **[5]**
2/395 • • • Structure of multi-stylus heads **[5]**
2/40 • • • providing current or voltage to the multi-stylus head **[5]**
2/405 • • • • Selection of the stylus or auxiliary electrode to be supplied (electronic switching circuits in general H03K 17/00) **[5]**
2/41 • • for electrostatic printing (B41J 2/39 takes precedence) **[5]**
2/415 • • • by passing charged particles through a hole or a slit **[5]**
2/42 • • for heating selectively **[5]**
2/425 • • for removing surface layer selectively from electro-sensitive material, e.g. matel coated paper **[5]**
2/43 • • for magnetic printing **[5]**
2/435 • characterised by selective application of radiation to a printing material or impression-transfer material (optical elements, systems, or apparatus G02B; modulation or deflection of light G02F; electrophotography G03G) **[5]**
2/44 • • using single radiation source, e.g. lighting beams or shutter arrangements (B41J 2/475 takes precedence) **[5]**
2/445 • • • using liquid crystals **[5]**
2/447 • • using arrays of radiation sources (B41J 2/475 takes precedence) **[6]**
2/45 • • • using light-emitting diode arrays **[5]**
2/455 • • • using laser arrays **[5]**
2/46 • • • characterised by using glass fibres **[5]**
2/465 • • using masks, e.g. light-switching masks (photographic composing B41B) **[5]**
2/47 • • using the combination of scanning and modulation of light **[5]**
2/475 • • for heating selectively **[5]**
2/48 • • • melting ink on a film or melting ink granules **[5]**
2/485 • characterised by the process of building-up characters applicable to two or more kinds of printing or marking processes **[5]**
2/49 • • by writing **[5]**
2/495 • • by selective printing from a rotating helical member **[5]**
2/50 • • by the selective combination of two or more non-identical printing elements **[5]**
2/505 • • from an assembly of identical printing elements **[5]**
2/51 • • • serial printer type **[5]**
2/515 • • • line printer type **[5]**
2/52 • Arrangement for printing a discrete number of tones, not covered by group B41J 2/205, e.g. applicable to two or more kinds of printing or marking process (B41J 2/525 takes precedence; for photomechanical production G03F 5/00) **[5]**
2/525 • Arrangement for multi-colour printing, not covered by group B41J 2/21, e.g. applicable to two or more kinds of printing or marking process (for photomechanical production G03F 3/00) **[5]**

3/00 Typewriters or selective printing or marking mechanisms characterised by the purpose for which they are constructed (cryptographic typewriters G09C 3/00) **[5]**
3/01 • for special character, e.g. for Chinese characters or bar codes **[5]**
3/24 • for perforating or stencil cutting using special types or dies
3/26 • for stenographic writing
3/28 • for printing downwardly on flat surfaces, e.g. of books, drawings, boxes
3/30 • for printing with large type, e.g. on bulletins, tickets

3/32 • for printing in Braille or with keyboards specially adapted for use by blind or disabled persons
3/34 • for printing musical scores
3/36 • for portability
3/37 • • Foldable typewriters **[5]**
3/38 • for embossing, e.g. for making matrices for stereotypes
3/39 • • hand-held (manually-controlled or manually-operable label dispensers having printing equipment B65C 11/02) **[5]**
3/407 • for marking on special material (printing on special surfaces B41F 17/00) **[5]**
3/413 • • for metal **[5]**
3/42 • Two or more complete typewriters coupled for simultaneous operation
3/44 • Typewriters or selective printing mechanisms having dual functions or combined with, or coupled to, apparatus performing other functions (printing mechanisms coupled to typographical composing machines B41B 27/41)
3/46 • • Printing mechanisms combined with apparatus providing a visual indication
3/50 • • Mechanisms producing characters by printing and also producing a record by other means (punching mechanisms G06K) **[5]**
3/51 • • • the printed and recorded information being identical; using type elements with code-generating means (G06K 1/12 takes precedence) **[5]**
3/54 • with two or more sets of type or printing elements (B41J 3/60 takes precedence) **[5]**
3/60 • for printing on both faces of the printing material **[5]**
3/62 • for printing on two or more separate sheets or strips of printing material (B41J 3/54 takes precedence) **[5]**

Common details or accessories

5/00 **Devices or arrangements for controlling character selection** (methods or arrangements for sensing record carriers G06K 7/00)
5/02 • Character or syllable selected by setting an index
5/04 • • Single-character selection
5/06 • • Multiple-character selection
5/08 • Character or syllable selected by means of keys or keyboards of the typewriter type
5/10 • • Arrangements of keyboards
5/12 • • Construction of key buttons
5/14 • • Construction of key levers
5/16 • • Mounting or connecting key buttons on or to key levers
5/18 • • Locks
5/20 • • • for subsidiary keys, e.g. for shift keys
5/22 • • • Interlocks between keys, e.g. without detent arrangements
5/24 • • • • with detent arrangements
5/26 • • Regulating touch, key dip or stroke, or the like
5/28 • • Multiple-action keys, e.g. keys depressed by two or more amounts or movable in two or more directions to effect different functions or selections
5/30 • Character or syllable selection controlled by recorded information
5/31 • • characterised by form of recorded information
5/32 • • • by printed, embossed, or photographic records, e.g. cards, sheets
5/34 • • • • by strips or tapes
5/36 • • • by punched records, e.g. cards, sheets
5/38 • • • • by strips or tapes
5/40 • • • by magnetic or electrostatic records, e.g. cards, sheets
5/42 • • • • by strips or tapes
5/44 • • characterised by the kind of storage of recorded information
5/46 • • • the storage being on internal storages
5/48 • • • the storage being on external storages
5/50 • • • • on a single storage
5/51 • • • • on more than one separate storage, e.g. on additional correction strips or tapes **[3]**
5/52 • • characterised by the provision of additional devices for producing a punched or like record, e.g. simultaneously

7/00 **Type-selecting or type-actuating mechanisms** (index setting B41J 5/02)
7/02 • Type-lever actuating mechanisms
7/04 • • Levers mounted on fixed pivots
7/06 • • • and connected to transmission members, e.g. toothed gearing
7/08 • • • • with pin-and-slot or like loose connections; Cam-slot members
7/10 • • • • Chain, belt, flexible-cable, or like members
7/12 • • • U-shaped type-lever on two pivots
7/14 • • • Single key-and-type lever
7/16 • • • Type-head pivoted to, or rotating on, lever
7/18 • • Levers having moving or variable fulcra to alter the mechanical advantage during the stroke
7/20 • • Levers having moving pivots fixed relative to the lever; Type-bars each pivoted on two links
7/22 • • Type-baskets; Bearings or hangers for type-levers
7/24 • • Construction of type-levers (U-shaped levers B41J 7/12)
7/26 • • Special means, e.g. repulsers, for ensuring return of type-levers
7/28 • • Key-lever and type-member returned independently to rest position
7/30 • • Preventing rebound or clash of levers or type-members
7/32 • Type-face selected by operation of sliding members
7/34 • Type-face selected by operation of rotary members
7/36 • Selecting arrangements applied to type-carriers rotating during impression
7/38 • • Type movable on carrier for selection
7/40 • • Type movable on carrier for impression
7/42 • • Timed impression, e.g. without impact
7/44 • • • with impact
7/46 • • Rolling contact during impression
7/48 • Type-carrier arrested in selected position by electromagnetic means
7/50 • Type-face selected by combinations of two movements of type-carrier
7/52 • • by combined rotary and sliding movement
7/54 • Selecting arrangements including combination, permutation, summation, or aggregation means
7/56 • • Summation devices for mechanical movements
7/58 • • • Wedges
7/60 • • • Levers
7/62 • • • Gearing
7/64 • • • Pulley-and-strand mechanism
7/66 • • Movable members, e.g. pins, displaceable according to a code

7/68 • • with means for selectively closing an electric circuit for type presentation
7/90 • Syllable, line, or like type selection
7/92 • Impact adjustment; Means to give uniformity of impression (B41J 9/46, B41J 9/48 take precedence) **[5]**
7/94 • • Character-by-character adjustment
7/96 • Means for checking correctness of setting

9/00 Hammer-impression mechanisms
9/02 • Hammers; Arrangements thereof
9/04 • • of single hammers, e.g. travelling along printing line
9/06 • • • of stationary hammers, e.g. engaging a single type-carrier
9/08 • • • • engaging more than one type-carrier
9/10 • • of more than one hammer, e.g. one for each character position
9/12 • • • each operating in more than one character position
9/127 • • Mounting of hammers **[3]**
9/133 • • Construction of hammer body or tip **[3]**
9/14 • Means for selecting or suppressing individual hammers
9/16 • Means for cocking or resetting hammers
9/18 • • Cams
9/20 • • Springs
9/22 • • Fluid-pressure means
9/24 • • Electromagnetic means
9/26 • Means for operating hammers to effect impression
9/28 • • Cams
9/30 • • Springs
9/32 • • arranged to be clutched to snatch roll
9/34 • • Fluid-pressure means
9/36 • • in which mechanical power is applied under electromagnetic control
9/38 • • Electromagnetic means
9/40 • • including an electro-adhesive clutch
9/42 • with anti-rebound arrangements
9/44 • Control for hammer-impression mechanisms **[5]**
9/46 • • for deciding or adjusting hammer-firing time **[5]**
9/48 • • for deciding or adjusting hammer-drive energy **[5]**
9/50 • • for compensating for the variations of printer drive conditions, e.g. for compensating for the variation of temperature or current supply **[5]**
9/52 • • for checking the operation of print hammers **[5]**
9/54 • • • for checking the breakage of print hammers **[5]**

11/00 Devices or arrangements for supporting or handling copy material in sheet or web form (specially adapted for supporting or handling copy material in short lengths B41J 13/00, in continuous form B41J 15/00; holders for text to be copied B41J 29/00)
11/02 • Platens
11/04 • • Roller platens
11/053 • • • with sound-deadening devices (structure of surface B41J 11/057) **[3]**
11/057 • • • Structure of the surface **[3]**
11/06 • • Flat page-size platens
11/08 • • Bar or like line-size platens
11/10 • • Anvil or like character-size platens
11/13 • • Backings or blankets (for roller platens B41J 11/057) **[3]**
11/14 • • Platen-shift mechanisms; Driving gear therefor
11/16 • • with balancing means
11/18 • Platen-impression arrangements
11/20 • Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment
11/22 • Paper-carriage guides or races
11/24 • Detents, brakes, or couplings for feed rollers or platens
11/26 • Pin feeds
11/27 • • on or within the platen-rollers
11/28 • • Pin wheels
11/30 • • Pin traction elements other than wheels, e.g. pins on endless bands
11/32 • • Adjustment of pin wheels or traction elements, e.g. laterally
11/34 • • Guides coacting with pin feeds
11/36 • Blanking or long feeds; Feeding to a particular line, e.g. by rotation of platen or feed roller
11/38 • • Manually-operated feeding devices
11/40 • • specially adapted for printing musical scores
11/42 • • Controlling
11/44 • • • by devices, e.g. programme tape or contact wheel, moved in correspondence with movement of paper-feeding devices, e.g. platen rotation
11/46 • • • by marks or formations on the paper being fed
11/48 • Apparatus for condensed record, tally strip, or like work using two or more papers, or sets of papers
11/50 • • in which two or more papers or sets are separately fed in the same direction towards the printing position
11/51 • • • with different feed rates **[3]**
11/52 • • in which one paper or set is moved transversely relative to another
11/53 • • • Devices for holding in place one paper or set during replacement of one or more of the auxiliary papers or sets
11/54 • • in which one paper or set is fed towards printing position from the front of the apparatus
11/55 • • • with means for adjusting a paper or set **[3]**
11/56 • specially constructed to facilitate storage or transport of typewriter
11/58 • Supply holders for sheets or fan-folded webs, e.g. shelves, tables, scrolls, pile holders
11/60 • Erasing or correcting tables
11/62 • Shields or masks
11/64 • Applications of scales or indicators
11/66 • Applications of cutting devices
11/68 • • cutting parallel to the direction of paper feed
11/70 • • cutting perpendicular to the direction of paper feed

13/00 Devices or arrangements specially adapted for supporting or handling copy material in short lengths, e.g. sheets
13/02 • Rollers (roller platens B41J 11/04)
13/03 • • driven, e.g. feed rollers separate from platen
13/036 • • co-operating with a roller platen **[3]**
13/042 • • • Front and rear rollers or sets of front or rear rollers each mounted on a separate carrier **[3]**
13/048 • • • Front and rear rollers both mounted on a common carrier **[3]**
13/054 • • • • on the paper apron concentric with the roller platen **[3]**
13/076 • • Construction of rollers; Bearings therefor
13/08 • Bands or like feeding devices
13/10 • Sheet holders, retainers, or stationary guides
13/12 • • specially adapted for cards, envelopes, or the like

13/14 • • Aprons or guides
13/16 • • • movable for insertion or release of sheets
13/18 • • • concentric with roller platen
13/20 • • Bails
13/22 • • Clamps or grippers
13/24 • • Strips for supporting or holding papers
13/26 • Registering devices
13/28 • • Front lays, stops, or gauges
13/30 • • Side lays or gauges
13/32 • • Means for positioning sheets in two directions under one control, e.g. for format control or orthogonal sheet positioning

15/00 Devices or arrangements specially adapted for supporting or handling copy material in continuous form, e.g. webs
15/02 • Web rolls or spindles; Attaching webs to cores or spindles
15/04 • Supporting, feeding, or guiding devices; Mountings for web rolls or spindles
15/06 • • characterised by being applied to printers having stationary carriages
15/08 • • characterised by being applied to printers having transversely-moving carriages
15/10 • • • and mounted on the carriage
15/12 • • • and coupled to the carriage
15/14 • • • and detached from the carriage
15/16 • Means for tensioning or winding the web
15/18 • Multiple-web feeding apparatus
15/20 • • for webs superimposed during printing (machines for separating superposed webs B65H 41/00)
15/22 • • for feeding webs in separate paths during printing
15/24 • • with means for registering the webs with each other

17/00 Mechanisms for manipulating page-width impression-transfer material, e.g. carbon paper (in manifolding devices B41L; sheet material for duplicating or marking B41M 5/00)
17/02 • Feeding mechanisms
17/04 • • Feed dependent on the record-paper feed, e.g. both moved at the same time
17/06 • • • "Creep" feed, i.e. impression-transfer material fed slower than the record paper
17/07 • • • electromagnetically controlled
17/08 • • Feed independent of the record-paper feed
17/10 • • • electromagnetically controlled
17/12 • • Special adaptations for ensuring maximum life
17/14 • • Automatic arrangements for reversing the feed direction
17/16 • Holders in the machine for sheets of impression-transfer material
17/18 • • pivotable to and from the platen
17/20 • • slidable to and from the platen
17/22 • Supply arrangements for webs or impression-transfer material
17/24 • • Webs supplied from reels or spools attached to the machine (reels per se B65H 75/02)
17/26 • • Webs supplied from trays or like supports attached to the machines
17/28 • Arrangements of guides for the impression-transfer material
17/30 • Constructions of guides for the impression-transfer material
17/32 • Detachable carriers or holders for impression-transfer material mechanism
17/34 • Backings for impression-transfer material, e.g. sheets for reducing friction, shields for preventing imprint
17/36 • Alarms, indicators, or feed-disabling devices responsive to material breakage or exhaustion
17/38 • for dealing with the impression-transfer material after use
17/40 • • for retracting sheets for re-use
17/42 • • for webs

19/00 Character- or line-spacing mechanisms (key actions B41J 25/02)
19/02 • with retarding devices, e.g. brakes
19/04 • Sound-deadening or shock-absorbing devices or measures therein (B41J 19/38 takes precedence)
19/06 • • Resilient mounting of mechanism
19/08 • • Buffers, springs, or like carriage stops
19/10 • • Dash-pots
19/12 • • Gearing made of special material or specially constructed to reduce sound or shock
19/14 • with means for effecting line or character spacing in either direction
19/16 • Special spacing mechanisms for circular, spiral, or diagonal-printing apparatus
19/18 • Character-spacing or back-spacing mechanisms; Carriage-return or release devices therefor
19/20 • • Positive-feed character-spacing mechanisms (controlled by escapements B41J 19/52)
19/22 • • • acting by friction or gripping effect
19/24 • • • Pawl and ratchet
19/26 • • • • moving a paper or like carriage
19/28 • • • • moving a paper or like web or strip, e.g. over a stationary support
19/30 • • • Electromagnetically-operated mechanisms
19/32 • • • Differential or variable-spacing arrangements
19/34 • • Escapement-feed character-spacing mechanisms
19/36 • • • Driving mechanisms, e.g. springs stressed during carriage return
19/38 • • • • adapted for silent return
19/40 • • • Escapements having a single pawl or like detent
19/42 • • • Escapements having two pawls or like detents
19/44 • • • • coacting with two toothed members, e.g. racks or wheels
19/46 • • • • and mounted on a single rocker
19/48 • • • • and mounted on a single slider
19/50 • • • Electromagnetically-controlled escapements
19/52 • • • Escapements controlling positive-feed mechanism
19/54 • • • Construction of universal bars
19/56 • • • Escapements controlling web or strip feed
19/58 • • • Differential or variable-spacing arrangements
19/60 • • Auxiliary feed or adjustment devices
19/62 • • • for back-spacing
19/64 • • • for justifying
19/66 • • Carriage-release mechanisms
19/68 • • Carriage-return mechanisms, e.g. manually actuated
19/70 • • • power driven
19/72 • • • • with power stored during character spacing
19/74 • • with special means to maintain character-spacing or back-spacing elements in engagement during case-shift or like movement
19/76 • Line-spacing mechanisms (special line-feeds, e.g. long feeds, B41J 11/36)
19/78 • • Positive-feed mechanisms
19/80 • • • Pawl-and-ratchet mechanisms

19/82 • • • • moving a paper or like carriage
19/84 • • • • • in the form of a roller rotated for line spacing
19/86 • • • • • • the pawl being normally in engagement with the ratchet
19/88 • • • • moving a type carriage
19/90 • • • • moving a paper or like web or strip, e.g. over a stationary support, automatically in response to movements other than carriage return
19/92 • • • Electromagnetically-operated mechanisms
19/94 • • • automatically operated in response to carriage return
19/96 • • • Variable-spacing arrangements
19/98 • • Escapement-feed mechanisms

21/00 Column, tabular, or like printing arrangements; Means for centralising short lines (carriage-release mechanisms B41J 19/66; key actions B41J 25/18)
21/02 • Stops or stop-racks
21/04 • Mechanisms for setting or restoring tabulation stops
21/06 • with means for preventing rebound from stops
21/08 • Mechanisms for initiating, effecting, skipping, or stopping tabulation movement; Means for centralising short lines
21/10 • with central, counter, or equivalent stop projected into path of tabulation stops
21/12 • characterised by arrangements of electrical contacts
21/14 • characterised by denominational arrangements
21/16 • controlled by the sensing of marks or formations on the paper being typed, an undersheet, or the platen
21/17 • controlled by stored information **[5]**
21/18 • characterised by applications of scales or indicators

23/00 Power drives for actions or mechanisms (B41J 9/00 take precedence)
23/02 • Mechanical power drives
23/04 • • with driven mechanism arranged to be clutched to continuously-operating power source
23/06 • • • by snatch rolls
23/08 • • • by one-revolution or part-revolution clutches
23/10 • • • and arrested in selected position
23/12 • • Mechanism driven by cams engaging rotating roller
23/14 • • Mechanism driven through an oscillating or reciprocating member
23/16 • • Mechanism driven by a spring tensioned by power means
23/18 • • Continuously-cycling drives
23/20 • Fluid-pressure power drives
23/22 • • for key or like type selection
23/24 • • for impression mechanisms
23/26 • • for platen or carriage movements, e.g. for line spacing, letter spacing, or carriage return
23/28 • • for type-carriage movements
23/30 • • for case shift
23/32 • Electromagnetic power drives, e.g. applied to key levers
23/34 • • applied to elements other than key levers
23/36 • • • and acting on type members
23/38 • • • and acting on aligning or case-shift mechanisms

25/00 Actions or mechanisms not otherwise provided for
25/02 • Key actions for specified purposes
25/04 • • Back-spacing
25/06 • • Carriage return
25/08 • • Case shift
25/10 • • Ink-ribbon adjustment
25/12 • • Character spacing
25/14 • • Line spacing
25/16 • • Line spacing and carriage return by a single key
25/18 • • Tabulating
25/20 • Auxiliary type mechanisms for printing distinguishing marks, e.g. for accenting, using dead or half-dead key arrangements, for printing marks in telegraph printers to indicate that machine is receiving
25/22 • for aligning characters for impression (in machines using index setting B41J 5/02)
25/24 • Case-shift mechanisms (B41J 11/14 takes precedence; key actions B41J 25/08); Fount-change arrangements
25/304 • Bodily-movable mechanisms for print heads or carriages movable towards or from paper surface (type carriers sliding for impression B41J 1/36; type carriers swinging for impression B41J 1/40) **[5]**
25/308 • • with print gap adjustment mechanisms **[5]**
25/312 • • with print pressure adjustment mechanisms, e.g. pressure-on-the-paper mechanisms **[5]**
25/316 • • with tilting motion mechanisms relative to paper surface **[5]**
25/32 • Impression mechanisms in which a roller co-operates with stationary type-faces
25/34 • Bodily-changeable print heads or carriages (B41J 1/20, B41J 1/22, B41J 1/60 take precedence) **[5]**

27/00 Inking apparatus
27/02 • with ink applied by pads or rotary discs
27/04 • • Pads or discs; Ink-supply arrangements therefor
27/06 • • Arrangements to ensure maximum life of pads or discs
27/08 • • Arrangements for multicolour work
27/10 • with ink applied by rollers; Ink-supply arrangements therefor
27/12 • • Rollers
27/14 • • Arrangements for multicolour work
27/16 • with ink deposited electrostatically or electromagnetically, e.g. powdered ink
27/18 • • with liquid ink deposited
27/20 • with ink supplied by capillary action, e.g. through porous type-members, through porous platens
27/22 • with inking discs or sectors

29/00 Details of, or accessories for, typewriters or selective printing mechanisms not otherwise provided for
29/02 • Framework
29/04 • Means for attaching machines to baseboards
29/06 • Special supports, platforms, or trolleys for supporting machines on tables
29/08 • Sound-deadening or shock-absorbing stands, supports, cases, or pads separate from machines
29/10 • Sound-deadening devices embodied in machines (B41J 19/04 takes precedence)
29/12 • Guards, shields or dust excluders **[5]**
29/13 • • Cases or covers **[5]**
29/14 • Attachments operated by the leg, e.g. the foot or knee
29/15 • Script supports connected to the typewriter or printer (tables, desks, office furniture, in general A47B) **[5]**
29/16 • Auxiliary receptacles for articles, e.g. erasers, pencils
29/17 • Cleaning arrangements **[5]**

29/18 • Mechanisms for rendering the print visible to the operator (ink-ribbon shifts B41J 35/20) **[5]**
29/19 • • with reflectors or illuminating devices **[5]**
29/20 • Arrangements of counting devices
29/22 • • Line counters
29/24 • • Word counters
29/26 • Devices, non-fluid media or methods for cancelling, correcting errors, underscoring or ruling **[4]**
29/28 • • Writing or like instruments in holders or guides
29/30 • • Wheels
29/32 • • Type-members
29/34 • • • repeatedly actuated
29/36 • • for cancelling or correcting errors by overprinting (B41J 31/00 takes precedence) **[4]**
29/367 • • • sheet media carrying a pigmented transferable correction layer **[4]**
29/373 • • • sheet media bearing an adhesive layer effective to lift off wrongly typed characters **[4]**
29/377 • Cooling or ventilating arrangements **[5]**
29/38 • Drives, motors, controls, or automatic cut-off devices for the entire printing mechanism
29/387 • • Automatic cut-off devices **[5]**
29/393 • • Devices for controlling or analysing the entire machine **[5]**
29/40 • Means for printing fixed, i.e. unchanging, matter in addition to selectable matter
29/42 • Scales and indicators, e.g. for determining side margins
29/44 • • for determining top and bottom margins or indicating exhaust of paper
29/46 • Applications of alarms, e.g. responsive to approach of end of line (responsive to transfer-material breakage or exhaustion B41J 17/36, B41J 35/36)
29/48 • • responsive to breakage or exhaustion of paper or approach of bottom of paper
29/50 • Side-stop mechanisms
29/52 • Top-and-bottom stop mechanisms
29/54 • Locking devices applied to printing mechanisms
29/56 • • and manually actuated
29/58 • • and automatically actuated
29/60 • • • in response to failure of power supply
29/62 • • • by the absence of paper to lock hammer mechanism
29/64 • • • by a function of the printer to lock the keyboard
29/66 • • • • Locking devices actuated when platen reaches the end of a line
29/68 • • • by completion of a page or predetermined number of lines or exhaustion of paper to lock the keyboard
29/70 • • • Interlocks between any two carriage-moving mechanisms, e.g. character-space, back-space, tabulation, carriage-return, or carriage-release mechanisms

<u>Ink ribbons; Ink-ribbon mechanisms</u>

31/00 **Ink ribbons** (sheet material for duplicating or marking B41M 5/00; storing webs or tapes, e.g. on reels, B65H 75/00)**; Renovating or testing ink ribbons**
31/02 • Ink ribbons characterised by the material from which they are woven
31/04 • • woven from synthetic material
31/05 • Ink ribbons having coatings other than impression-material coatings
31/06 • • the coatings being directly on the base material, i.e. below impression-transfer material; Ink ribbons having base material impregnated with material other than impression material
31/08 • • the coatings being superimposed on impression-transfer material
31/09 • Ink ribbons characterised by areas carrying media for obliteration or removal of typing errors **[4]**
31/10 • Ink ribbons having arrangements to facilitate threading through a machine
31/12 • Ink ribbons having arrangements to prevent undesired contact between the impression-transfer material and machine parts or other articles
31/14 • Renovating or testing ink ribbons
31/16 • • while fitted in the machine using the ink ribbons

32/00 **Ink-ribbon cartridges [3]**
32/02 • for endless ribbons **[3]**

33/00 **Apparatus or arrangements for feeding ink ribbons or like character-size impression-transfer material** (ink-ribbon cartridges B41J 32/00)
33/02 • Ribbon arrangements
33/04 • • mounted on moving carriages
33/06 • • Ribbons associated, but not moving, with typewriter platens, e.g. extending transversely to the length of the platen
33/08 • • • and extending parallel to the length of the platen
33/10 • • Arrangements of endless ribbons
33/12 • • Ribbons carried by coaxially-mounted spools
33/14 • Ribbon-feed devices or mechanisms
33/16 • • with drive applied to spool or spool spindle
33/18 • • • by ratchet mechanism (B41J 33/30 takes precedence)
33/20 • • • by friction
33/22 • • • by gears or pulleys
33/24 • • with drive applied directly to ribbon
33/26 • • • by rollers engaging the ribbon
33/28 • • • by mechanism pulling or gripping the ribbon
33/30 • • Escapement mechanisms
33/32 • • Electromagnetic devices
33/34 • • driven by motors independently of the machine as a whole
33/36 • • with means for adjusting feeding rate
33/38 • • Slow, e.g. "creep", feed mechanisms
33/382 • • • the ribbon being fed only during carriage return
33/384 • • • • and attached to the carriage during writing
33/386 • • • the ribbon being fed only by operation of the line-spacing mechanism
33/388 • • • the ribbon being fed only when type impression takes place
33/40 • • with arrangements for reversing the feed direction
33/42 • • • manually
33/44 • • • automatically
33/46 • • • • and characterised by its application to mechanism in which two spools are driven by pawl-and-rachet mechanism
33/48 • • • • • comprising two pawls and ratchets, one for each spool
33/50 • • • • • comprising a single pawl or integral double-tooth pawl selectively engageable with two ratchets, one for each spool
33/51 • • • • and characterised by the use of particular reversing control means

33/512 • • • • • using a pivoted reversing-feeler engaging the external periphery of the wound ribbon
33/514 • • • • • using a pivoted reversing-feeler engaging the interior of the wound ribbon
33/516 • • • • • using a reversing-feeler responsive to the tension of the ribbon
33/518 • • • • • the reversing-feeler engaging buttons or the like secured to the ribbon near its ends
33/52 • • Braking devices therefor
33/54 • • for ensuring maximum life of the ribbon (B41J 33/38 takes precedence; by adjustment of vibrator mechanisms B41J 35/14)
33/56 • • • Ribbon adjusted transversely
33/58 • • • Ribbon fed angularly
33/60 • • responsive to telegraph code or other extraneous signals

35/00 Other apparatus or arrangements associated with, or incorporated in, ink-ribbon mechanisms
35/02 • Frames or holders for unwound short lengths of ink ribbons
35/03 • • the holder being movable to inoperative position, e.g. by swinging upwardly
35/04 • Ink-ribbon guides
35/06 • • stationary
35/08 • • with tensioning arrangements
35/10 • • Vibrator mechanisms; Driving gear therefor
35/12 • • • adjustable, e.g. for case shift (key actions B41J 25/02)
35/14 • • • • for multicolour work; for ensuring maximum life of ink ribbon; for rendering ink ribbon inoperative
35/16 • Multicolour arrangements (B41J 35/10 takes precedence)
35/18 • • Colour change effected automatically
35/20 • Ink-ribbon shifts, e.g. for exposing print, for case-shift adjustment, for rendering ink ribbon inoperative
35/22 • Mechanisms permitting the selective use of a plurality of ink ribbons
35/23 • • with two or more ribbon guides
35/24 • Mechanisms specially adapted for feeding impression-transfer materials of foil form
35/26 • Ink-ribbon shields or backings
35/28 • Detachable carriers or holders for ink-ribbon mechanisms
35/30 • Manifolding or like arrangements
35/32 • • for producing a plurality of copies along the printing line by a single ink ribbon
35/34 • • using a plurality of separate ink ribbons, e.g. including one hectographic ink ribbon
35/35 • • using unwound short lengths of ink ribbons
35/36 • Alarms, indicators, or feed-disabling devices responsive to ink-ribbon breakage or exhaustion
35/38 • Feeding the ink ribbon to waste after use