CONTROL FOR FORWARD AND REVERSE
  Cyclical or sequential (e.g., machine controlled, etc.)
  Including device for shifting belt laterally of its direction of run
  Including separate belts for forward and reverse
  Belt selection by shifting or tightening belt
  Including device for shifting belt laterally of its direction of run
  Including coaxial pulleys rotated in opposite directions by single endless belt simultaneously engaging both pulleys

PULLEY WITH BELT-RECEIVING GROOVE FORMED BY DRIVE FACES ON RELATIVELY AXIALLY MOVABLE COAXIAL CONFRONTING MEMBERS (E.G., EXPANSIBLE CONE PULLEY, ETC.)
  Members are gripping jaws actuated during each rotation of pulley
  Via relatively rotating cam and follower
  Speed responsive
  And load responsive
  To centrifugal force
  Via pivoted weight
  Via ball
  Via liquid
  Load responsive
  With actuator driven by electrical or fluid motor
  Via relatively rotating cam and follower
  Including interengaged threads
  Including plural separate cam and follower pairs for adjusting plural members
  Temperature responsive
  Adjusted by power from pulley drive train
  And member has plural, relatively axially movable drive faces
  And pulley shiftable laterally of its axis of rotation
  Mounted on laterally shiftable motor

...Mounted on laterally shiftable countershaft
...Fluid pressure actuator for adjustment of member
...Including actuator interconnecting plural pulleys on spaced shafts for simultaneous adjustment
...For axial adjustment of each member on each pulley
...By dual lever mechanism
...Plural members forming plural belt-receiving grooves on common axis
...With member common to plural grooves
...Plural members common to plural grooves
...Axially spaced members simultaneously adjustable
...On bolt radially spaced from pulley axis
...By manual actuator for one or both confronting members
...With neutral condition of drive
...Screw actuated
...With additional linkage in actuator drive train
...By opposite-handed screw threads engaging adjacent members
...With means to positively lock members in adjusted position
...Including lubrication or particular guide or bearing for movable member
...Self-lubricated bearing
...With lubrication of support for movable member
...With spring device

PULLEY WITH EXPANSIBLE RIM MEANS OR PULLEYS WITH ALTERNATELY USEABLE NESTABLE RIMS
  Nestable rims of diverse kind (e.g., one grooved and the other cylindrical, etc.)
  Structure for variably adjusting radius of rim section
...By actuator responsive to speed or load
...By fluid pressure actuator or inflatable rim
CLASS 474 ENDLESS BELT POWER TRANSmission SYSTEMS OR COMPONENTS

52  ..Including means interconnecting plural pulleys for simultaneous adjustment
53  ...Pulleys on spaced axes
54  ..By actuator having collar concentric with, and movable axially on, pulley axis
55  ...Collar interconnected with rim sections via pivoted link
56  ..By actuator having collar concentric with, and rotatable in plane perpendicular to pulley axis
57  ...Collar interconnected with rim sections via pivoted link
58  POWER OUTPUT PULLEY SELECTIVELY SHIFtable TO DIFFERENT POWER OUTPUT LOCATIONS RELATIVE TO INPUT PULLEY
59  .Pivotable about plural axes
60  ..Nonparallel axes
61  POWER INPUT AND OUTPUT PULLEYS ON NONPARALLEL AXES
62  .With common belt engaging both pulleys
63  ..And shiftable guide roll engaging belt run
64  PLURAL TURNS OF SAME BELT ABOUT PULLEY AXIS
65  .With flexible belt-tracking guide helically coiled about pulley
66  .Plural turns of same belt about axis of each of laterally spaced pulleys
67  ..With guide roll
68  ...Plural guide rolls
69  CONTROL FOR VARIABLE INPUT TO OUTPUT SPEED-RATIO
70  .Condition responsive (e.g., responsive to speed, load, etc.)
71  .Cyclical or sequential (e.g., machine controlled, etc.)
72  .Including intermeshing gears in one drive train
73  .Including separate belt on each of coaxial pulleys selectively engaged in drive train
74  ..With overrunning clutch
75  ..Selection by tightening belt on selected pulley
76  ..Selection by axially movable pin engaged in opening through selected pulley
77  .Including coaxial pulleys shiftable axially to align selected pulley with drive belt
78  .Including belt shiftable axially from one to another surface of stepped pulley or coaxial pulleys of different diameter
79  ..And pulley pivotally mounted to facilitate belt shift
80  ..And including belt-shifter mechanism
81  ...For shifting belt from both power input and power output pulleys
82  ...Shifter mechanism including parallelogram linkage
83  .Including mechanism for shifting belt axially on spaced pulleys with tapering drive face
84  PLURAL BELTS OR PLURAL OUTPUT LOADS
85  .Plural belts having interengaged drive surfaces
86  .Plural output loads
87  ..With common belt concurrently engaging input and plural output pulleys
88  .Plural belts in series via countershaft
89  ..Countershaft laterally shiftable
90  STATIC ELECTRICITY ELIMINATOR
91  STRUCTURE FACILITATING LUBRICATION OF BELT, PULLEY, OR GUIDE ROLL
92  CLEANING DEVICE FOR BELT, PULLEY, OR GUIDE ROLL
93  FLUID-IMPELLING MEANS (E.G., FOR COOLING, ETC.)
94  RESILIENT CONNECTION BETWEEN PULLEY OR GUIDE-ROLL RIM AND MOUNT
95  HUB FORMED IN SECTIONS AND SEPARABLE BY MOVING SECTIONS RADially APART (E.G., SPLIT PULLEY TO FACILITATE INSTALLATION, ETC.)
And severed lines for separable rim sections diametrically opposite each other

With spokes connecting hub section and rim section

Plural integral spokes

...With discrete means connecting outer ends of integral spokes to rim

AUXILIARY ENDLESS BAND FOR GUIDING BELT OR HOLDING BELT ENGAGED WITH PULLEY

MEANS FOR ADJUSTING BELT TENSION OR FOR SHIFTING BELT, PULLEY OR GUIDE ROLL

With sensor for controlling operation of shifter to correct belt training deviation

Shifter driven by electrical or fluid motor

...Fluid motor

...Sensor actuates pawl-and-ratchet mechanism to operate shifter

...Sensor includes rotatable belt-engaging surface

...Rotatable on same axis as shiftable guide roll or pulley

...To initiate relative axial movement of belt-engaging surfaces of guide roll or pulley

Load responsive tension adjuster or shifter

Tension adjuster or shifter driven by electrical or fluid motor

Tension adjuster has surface in sliding contact with belt

Pulley or guide roll has eccentric mount for shifting or tensioning movement

Pulley shifter

Pulley on shaft of adjustably mounted drive motor

Spring biased in belt-tensioning direction

Pulley is vehicle drive pulley (e.g., bicycle sprocket, etc.)

Spring biased in belt-tensioning direction

Pulley shiftable into engagement with exterior of belt surface

Belt shifter for shifting belt laterally or for selective engagement and supported disengagement of belt with pulley

Pulley has slot in groove-forming flange facilitating belt installation or removal

For shifting exterior surface of belt into engagement with pulley

For shifting belt laterally

...By adjusting axial inclination of belt guide roll

...With idler support having circumferentially spaced rollers to receive shifted belt

...Including means for selectively clutching coaxial idler support to pulley

...Shifter actuated by screw or gear drive

...Shifter actuated by flexible cable

...Shifter actuated by handle pivoted about fixed axis

....And connector link between handle and shifter pivotable about spaced fixed axis

...Portable hand tool for removing or installing belt

...Guide roll forms belt-thickness gap with pulley

Gravity actuated guide roll for tensioning belt

Guide roll mounted for movement of its axis along arcuate path to tension belt

...Plural guide rolls engaging single belt

...Guide roll spring biased in belt-tensioning direction

...Guide roll mounted for movement of its axis along rectilineal path to tension belt

...Plural guide rolls engaging single belt

...Guide roll spring biased in belt-tensioning direction

PULLEY ENGAGES EXTERIOR SURFACE OF BELT

BELT GUIDE HAS SURFACE IN SLIDING CONTACT WITH BELT
PULLEY HAVING CIRCUMFERENTIALLY SPACED PORTIONS OF DRIVE FACE SPACED UNEQUAL DISTANCES FROM PULLEY AXIS OF ROTATION (E.G., ELLIPTICAL PULLEY, ETC.)

MAGNETIC ATTRACTION BETWEEN BELT AND PULLEY

FABRIC DRIVE FACE ON BELT AND PULLEY

GUARD OR HOUSING FOR BELT OR PULLEY

. Connected to belt

. Extending along entire length of belt run

. Individual tubular housings for opposite belt run

SYSTEM INCLUDING SPACED PULLEYS INTERCONNECTED BY A BELT

. Positive drive pulley and friction drive pulley connected by same belt

. With frame or mount for system

AUXILIARY MEMBER REMOVABLY ATTACHED TO PULLEY OR GUIDE ROLL FOR PREVENTING LATERAL DISPLACEMENT OF BELT

POSITIVE DRIVE PULLEY OR GUIDE ROLL

. With particular belt

. Belt has spherical or hemispherical drive faces

. Belt formed of rigid links

. With sequential links pivoted about discrete pivot pin

. And each link has integral surfaces forming inwardly opening groove

. And additional coaxial surface for engaging same belt in shifted condition or for engaging auxiliary belt, brake, or clutch member

. Coaxial surface is belt-engaging surface on friction drive pulley

. Coaxial surface is belt-engaging surface on positive drive pulley of different circumference

. Having nonmetallic component

. Having belt-engaging surfaces on discrete circumferentially spaced, relatively movable or replaceable members

. Movable with respect to each other during operation

. Having axially spaced sets of belt-engaging surfaces

. With stationary support for pulley or guide roll

FRICITION DRIVE PULLEY OR GUIDE ROLL

. With particular belt

. Including plural, coaxial, circumferential belt-receiving grooves

. Plural grooves of different circumferences

. Plural grooves formed in unitary member

. And additional coaxial surface for engaging same belt in shifted condition or for engaging auxiliary belt, brake, or clutch member

. Guide roll on axis perpendicular to top surface of belt for engaging side of belt

. And additional guide roll for engaging top or bottom surface of belt

. Pulley or guide roll including circumferential belt-receiving groove

. Groove formed by rugate or circumferentially spaced drive surfaces

. Groove formed by multiple, abutting, circumferentially connected members

. And circumferentially continuous belt-engaging layer or insert of diverse material added on or between groove-forming flanges

. Layer or insert of resilient material

. Including connected discrete axially spaced groove-forming flanges

. Connected via nesting cylindrical or conical surfaces integral with the flanges

. And abutting radial surfaces integral with the flanges

. Including connector extending through opening in abutting surfaces
Connector comprises tang integral with one of the surfaces.

Pulley or guide roll having plural, discrete belt-engaging faces for engaging flat belt.

Circumferentially spaced faces and axially spaced faces.

Each face has continuous circumferential periphery.

Including grooves or openings in cylindrical belt-engaging surface (e.g., for escape of air, etc.).

Circumferentially extending grooves.

Including nonmetallic belt-engaging surface portion.

Rubber.

Wood or paper.

Leather.

With spokes connecting rim to hub.

Plural spoke sets axially spaced.

Cylindrical rim interconnected to axially spaced support members.

With stationary support for pulley or guide roll.

And ball or roller bearing for mounting pulley or guide roll on support.

MOBIUS BELT

BELT HAVING DRIVE SURFACES ON OPPOSITE SIDE EDGES OF STACKED PLATES HAVING PLANAR FACES PERPENDICULAR TO DIRECTION OF BELT MOVEMENT

POSITIVE DRIVE BELT

Drive surfaces on belt formed by spherical or hemispherical elements.

Drive surfaces on belt formed in or interconnected by continuous flexible member.

Drive surfaces on longitudinally spaced teeth formed integral with flexible member.

Belt formed of rigid links.

Including nonmetallic part.

Including wire member coiled about pivotal axis between links.

Including ball or roller bearing circumferentially spaced about pivotal axis between links.

Links pivotable about diverse axes during operation (e.g., "universal" connection facilitating alignment with sprockets in diverse planes).

Ball-and-socket connection.

Link including integral surfaces forming inwardly opening groove (e.g., silent chain, etc.).

Plural links having laterally aligned groove-forming surfaces.

Connector or bearing member extending through or positioned in laterally aligned openings in adjacent links is noncircular in transverse cross section.

Multiple connector or bearing members extend through or positioned in common opening.

Concave surface of one connector or bearing member abuts convex surface of another connector or bearing members.

Including diverse member for interconnecting opposite ends to complete loop (e.g., repair link for broken chain, etc.).

Including separate locking member for retaining link-connector in laterally aligned openings through adjacent links.

Common locking member retains longitudinally spaced connectors.

Strandlike locking member (e.g., wire, etc.).

Threaded connection between connector and locking member.
...Locking member received in annular groove extending entirely around circumference of connector

...Locking member includes portion disposed within opening which receives connector

....Locking member extends through all aligned openings

..Link including discrete members forming laterally spaced sides of opening for pulley tooth

....With particular structure facilitating disassembly of adjacent links

...With discrete connector extending through laterally aligned apertures in adjacent links

....Connector has bearing surface which is noncircular in transverse cross section

....Connector connects sequential links each having discrete members forming laterally spaced sides

.....With sleeve rotatable with respect to each link for engaging pulley tooth

..Link including common member forming laterally spaced sides of opening for pulley tooth

....With discrete member interconnecting sequential pulley-tooth-receiving links

....Connector member inserted through lateral opening in pulley-tooth-receiving links

....Common member surrounds opening for pulley tooth on all sides

....Member formed from sheet metal

**FRICITION DRIVE BELT**

..Including plural interconnected and transversely spaced pairs of oppositely facing side-drive surfaces (e.g., plural "V-belts", etc.)

..Having drive surface on helically coiled wire or cord

..Including plural interconnected members each having a drive surface facing in a common direction

..Forming imbricate structure

..Belt has oppositely facing side-drive surfaces (e.g., "V-belt", etc.)

..Surfaces on ball or roller elements

..Oppositely facing surfaces are on pair of discrete elements

....And sequential pairs are interconnected longitudinally by distinct pivot elements

..Plural, inwardly facing drive surfaces along the direction transverse to longitudinal extent of belt

....And plural, inwardly facing drive surfaces along the direction parallel to longitudinal extent of belt

..Including link-chain coextensive with continuous surface belt

..Including groove, openings or pockets formed in belt surface and arranged along entire length of belt (e.g., for flexibility, air escape, etc.)

..Grooves transversely extending on belt surface

..And additional groove on opposite surface

..Groove continuous and longitudinally extending

..Including particular means connecting opposite ends to form loop

..Connected by adhering surface on one end to surface on other end (e.g., by adhesive, heat, seal, etc.)

..Including discrete connector

....Connector comprises element inserted into longitudinal openings in belt ends

....Connector comprises plate clamped externally of belt ends

....Connector comprises cord sewn through belt ends

..Drive surface on single sheet or web wound in plural, completely overlying convolutions

..Including embedded elongated strand having multiple components or layers of diverse materials
Including plural superposed layers each having strands particularly oriented relative to belt dimension

Strands in the layers are oblique to longitudinal run of belt (e.g., plural layers of bias fabric, etc.)

Including discrete embedded fibers

Including plural layers of different elastomeric materials

Having trapezoidal cross section (e.g., "V-belt", etc.)

Including fabric web (e.g., knit, woven, etc.)

Fabric having particular knit or weave

And additional coating, layer, or reinforcement of diverse kind of material

Additional material is leather

Additional material is metal

Additional material is rubber

Including metallic drive face

MISCELLANEOUS

CROSS-REFERENCE ART COLLECTIONS

900  PHASE VARIATOR
901  PULLEY OR GUIDE ROLL FOR TRACK OF ENDLESS TRACK VEHICLE
902  PARTICULAR CONNECTION BETWEEN RIM AND HUB
903  PARTICULAR CONNECTION BETWEEN HUB AND SHAFT

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS