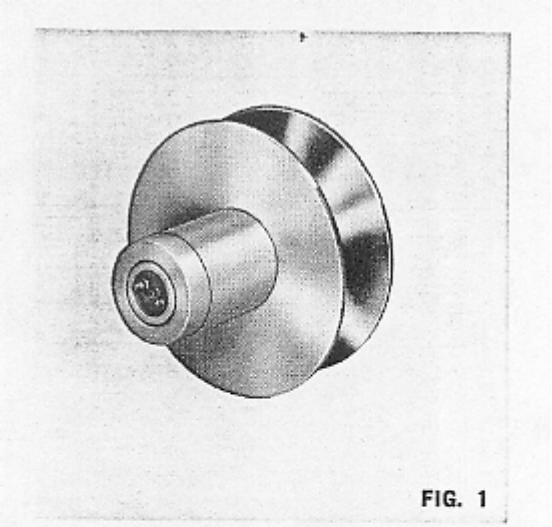


FIG. 1

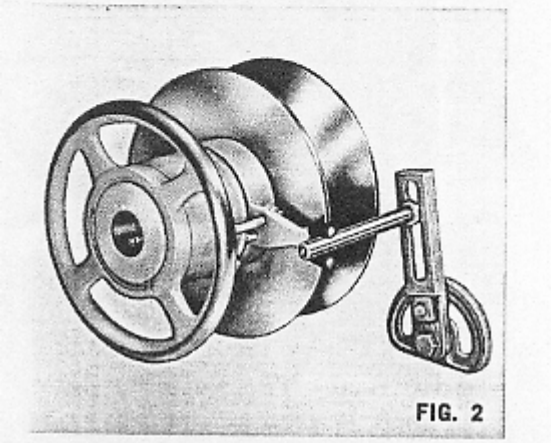


FIG. 2

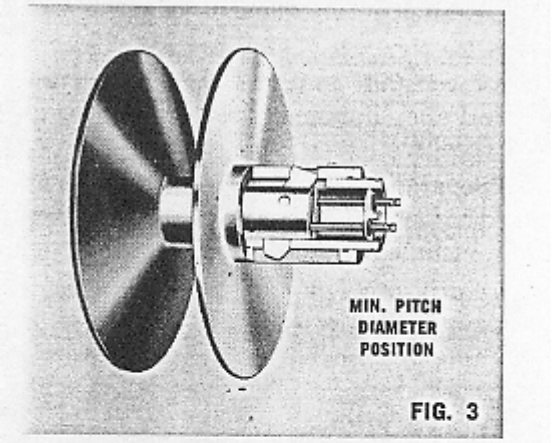


FIG. 3

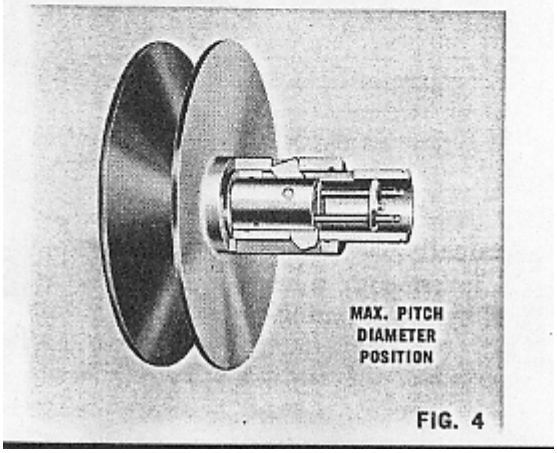


FIG. 4

Lewellen Pulleys track a V-type belt at infinitely adjustable itch ratios to provide a variable-speed drive.

A spring – or ball bearings – directly thrusts the pair of sliding cone discs to drive the Variable Belt at controlled traction throughout the speed range.

A cam, pivoted in the mounting sleeve, mechanically and symmetrically aligns the pair of discs - and the Variable Belt – and rotates the assembly. (Fig. 3 and 4.)

The spring loaded Variable Pulley, Fig. 1 and 5, provides moderate speed ranges obtained by adjusting the shaft center distance.

Combining the spring-loaded Variable Pulley (Fig. 1) and the manually regulated, bearing-loaded Adjustable Pulley, Fig. 2 and 6, provides wider speed ranges at fixed shaft centers.

Lewellen Pulleys directly connect motor and machine.

Infinitely variable speeds are incorporated, compactly and economically.

Speeds are adjustable while running, accurately and conveniently.

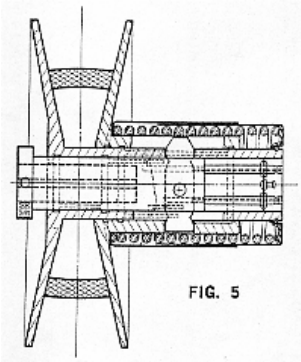


FIG. 5

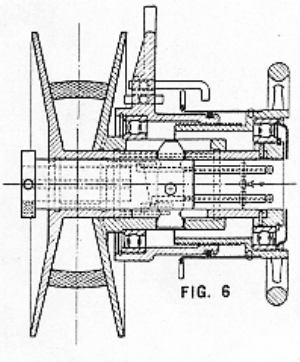


FIG. 6

Installing Variable Pulley and Adjustable Base with Remote Control

To mount motor and locate Adjustable Base, follow procedure under Adjustable Base with Hand wheel. Check Pilot Motor gear head oil level. Follow attached motor Instruction Tag for operating and servicing. Follow attached Wiring Diagram for connecting pilot motor and push button station.
CAUTION – The power circuit connection must be made between driving motor and starter so that pilot motor is inoperative when drive is not running. Set collars "E" and "F", fig. 14, for fastest and slowest speed positions of slide, following wiring diagram instructions.
CAUTION – Make certain that limit switches "D" and "C" function. The wiring diagram describes the reconnections to be made if limit switches are inoperative.

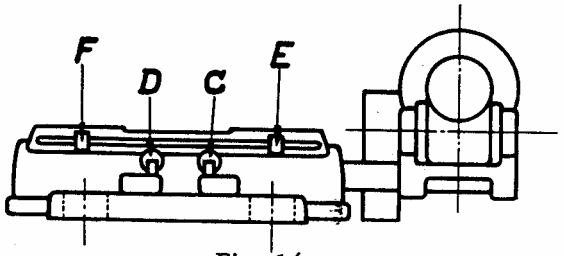


Fig. 14

Installing Combination Pulleys

See Fig. 15 and Fig. 25.

Adjust motor and machine shafts to correct centers and make certain shafts are parallel.
Place Adjustable Pulley on motor shaft as close to shaft bearing as possible. Lock Adjustable Pulley in place by tightening set screws.
While holding outer bearing housing are of Adjustable Pulley turn hand wheel and separate discs.
Place Variable Pulley on machine shaft.
Place Variable Belt at minimum pitch diameter of Adjustable Pulley
Carefully separate discs of Variable Pulley and place Belt between discs. Take up slack by turning Adjustable Pulley hand wheel, making sure belt does not slip out of Variable Pulley discs.
Using parallel bar on back sides of discs, align Variable Pulley with Adjustable Pulley, so that Variable Belt will track in a straight line. Lock Variable Pulley in place by tightening set screws.
Locate guide bracket in most convenient position on motor side of Adjustable Pulley.
Assemble guide rod thru fork of outer bearing housing arm. Make certain rod projects thru fork far enough for complete travel of fork.
Outer bearing housing arm should slide freely on stop rod.
Drill guide bracket mounting holes and bolt bracket in place.
Lubricate both pulleys.
Start motor. Turn Adjustable Pulley hand wheel to desired slowest speed.
Adjust short stop in outer bearing housing arm so that lug from thread cover hits stop at this speed. Lock set screw on short stop.
Turn hand wheel in opposite direction to desired fastest speed and adjust long stop so that lug from thread cover hits stop at this speed. Lock set screw on long stop.

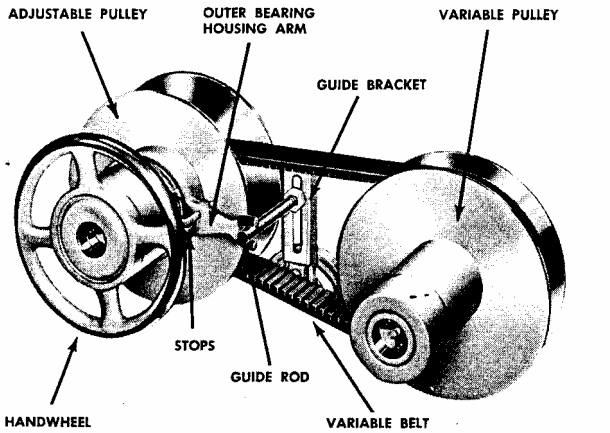


Fig. 15

Installing Combination Countershaft

Adjust countershaft motor rails to your motor mounting dimensions. Place motor on motor rails.
Adjust motor rails vertically to correct shaft centers. Make certain shafts are parallel. Align motor shaft bearing even with countershaft bearing. Bolt motor in place.
Using the same procedure outlines under Combination Pulleys: Install Adjustable Pulley, Variable Pulley and Variable Belt. Then assemble guide bracket.
Locate Combination Countershaft in relation to driven machine. Drill mounting holes and bolt Combination Countershaft in place.
Make certain countershaft is parallel with driven shaft. Start motor and set stops as described under Combination Pulleys. The Combination Countershaft is now ready to run and may be connected to the machine.
Include Combination Countershaft bearings in the routine lubrication of the Pulleys. Use Greases listed below.

Lubrication

Both Variable and Adjustable Pulleys must be lubricated regularly.
Add fresh grease to both fittings at hub end of each pulley at the following intervals:

Intermittent Service – Every other week
24 Hour Service – Every week

All parts of both pulleys are lubricated through the grease fittings. Use generous amounts – forcing out old lubricant and filling internal grease channels with fresh lubricant. Grease channels are vented – pulleys can not be over-lubricated.
IMPORTANT: After lubricating, shift drive through its entire speed range. This distributes lubricant and prevents sticking.
We recommend these grease: Gulfcrown E.P. No. 2 made by Gulf Oil Corporation; or Mobilplex E.P. No. 2 made by Mobil Oil Corporation.

Warranty

Our products are warranted to be free from defectsin material and workmanship. Out warranty is specifically limited to repair or replacement at our factory free of charge, within one year from date of delivery of our unit which has failed to perform peorperly, porviced the unit is returned to our factory freight prepaid and has not been subject to improper handling, overloading, servicing, or faulty installation. Out responsibility shall be terminated whenever a unit is modified or repaired by any one other than seller. Under no circumstances shall we be responsible for consequential damages.

Variable Pulley

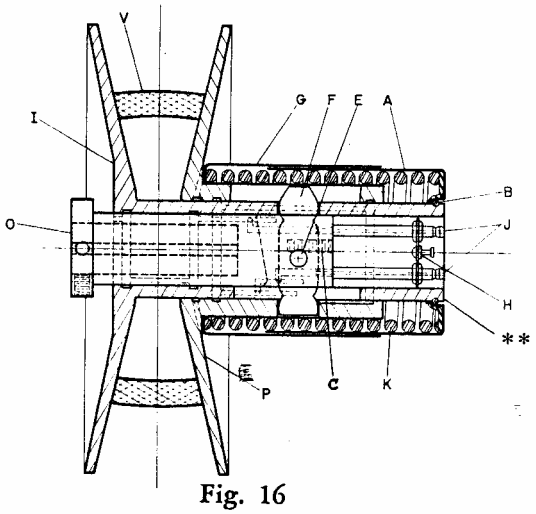


Fig. 16

A – Inner Spring Cover
B – Snap Wire
E – Pivot Pin
F – Shifting Link
G – Outer Spring Cover
H – Dust Seal
I – Inner Disc
J – Lubrication Fittings
K – Sping
O – Sleeve (Specify Bore)
P – Outer Disc
V – Variable Belt (Specify Length)
** Identifying size and 5 digit series number stamped here. Also on decals on O.D. of pulley hub.

Disassembly of Variable Pulley

Refer to fig. 16 above and fig. 23, page 4. Place pulley on table of arbor press or drill press as shown and described, fig. 23. Press inner spring cover "A", fig. 16, down until snap wire "B" is exposed. Remove snap wire and unload spring slowly. CAUTION: The spring is compressed to one-third its free length. Unload spring carefully, holding it in line to prevent buckling and possible injury.

To remove discs, pull out dust seal "H", loosen set screw "C", and remove pivot pin "E". Then remove shifting link "F". Discs and sleeve now come apart. Re-assemble in reverse order.

IMPORTANT

Lewellen Pulleys are precision built units, and when treated as such, they will give lasting satisfaction. DO NOT DRIVE OR FORCE PULLEYS ON SHAFT. They are bored accurately as specified. Be sure that motor and driven shafts are parallel. Align Pulleys per instructions on page 4.
Optimum efficiency results when belt ambient temperature is less that 135°F. Higher temperatures shorten belt life.

Adjustable Pulley

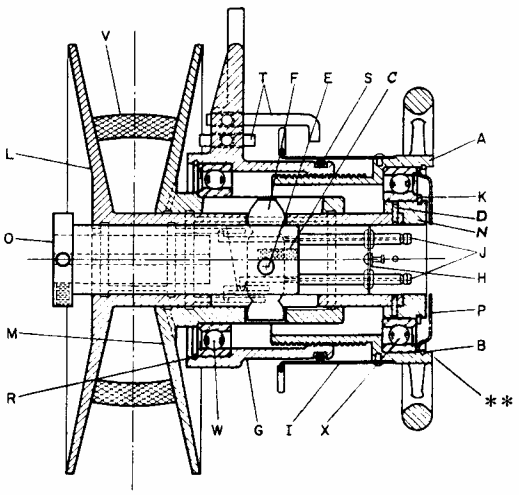


Fig. 18

A – Inner Bearing Housing with Hand Wheel
B – Inner Disc Bearing Wire
E – Pivot Pin
F – Shifting Link
G – Outer Bearing Housing
H – Dust Seal
I – Thread Cover
J – Lubrication Fittings
K – Truarc Ring
L – Inner Disc with Bearing Hub
M – Outer Disc
O – Sleeve (Specify Bore)
P – Bearing Closure
R – Outer Disc Bearing Wire
S – O-Ring
T – Adjustable Stops
V – Variable Belt (Specify Length)
X – Inner Disc Ball Bearing
W – Outer Disc Ball Bearing

Disassembly of Adjustable Pulley

Refer to fig. 18 above and fig. 24, page 4. Adjust dics "L" and "M" to mid-position for all sizes except 412. 412 discs are adjusted together to closest position. Remove snap wire "B" and bearing closure "P", then remove truarc ring "K". Innerand outer bearing assemblies will then slide free from the discs.
To remove discs separately, first drive out roll pins "D" and remove bearing hub "N". Next, pull out dust eal "H", loosen set screw "C", and remove pivot pin "E". Then remove shifting link "F". Discs and sleeve nowcome apart. Re-assemble in reverse order.
To remove sleeve sleeve "O" without separating discs "L" and "M", it is not necessary to remove bearing hub "N".

Assembling The Variable Belt

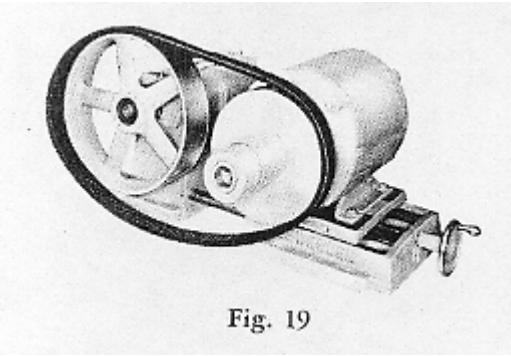


Fig. 19

By backing off the stops (see page 1) and shifting the Base further, the Variable Pulley Belt assembles easily, fig. 19.
The Belt enters or release without prying the Pulley discs apart.

The Combination Pulleys Belt is quickly installed or removed for all catalog listed shaft centers.
To remove the Belt, stop the drive with the Belt in the position shown, fit. 20.
Turn the Adjustable Pulley hand wheel, opening the discs wide, fig. 21. Roll the Belt out of the Variable Pulley.
Roll the Belt out of the Adjustable Pulley, fig. 22. Reverse the procedure to install the Belt.

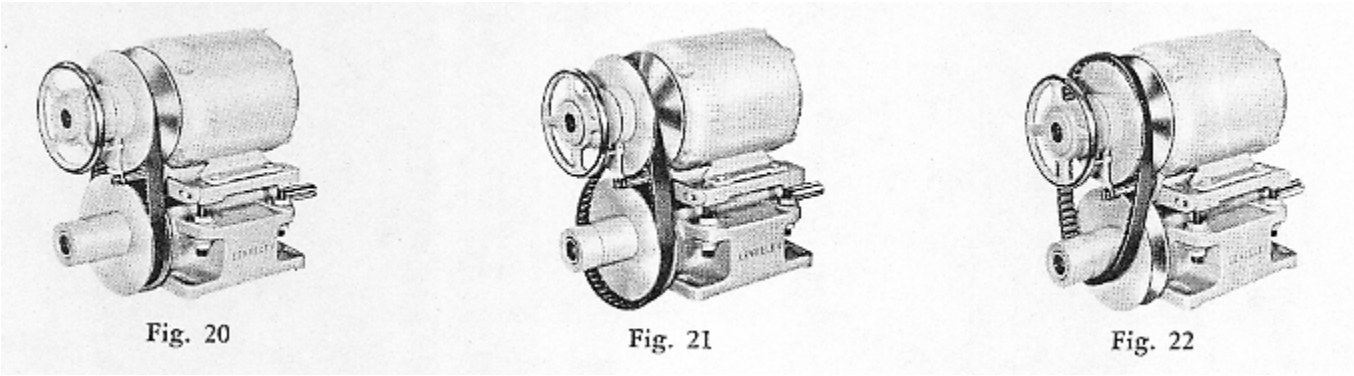


Fig. 20 Fig. 21 Fig. 22

Assembling The Pulleys

Fig. 23 shows how to disassemble the Variable Pulley as described page 3. Note that the Pulley disc rests on the supporting bars.

Fig. 24 shows tge assenbkt if tge Adjustable Pulley. Locatee the discs in the fig. 18 position, and remove the snap wire, closure , and truarc ring. The thrust bearing housings may be removed, assembled or separately, as shown.
This construction provides for installation with hand wheel outside an enclosure.

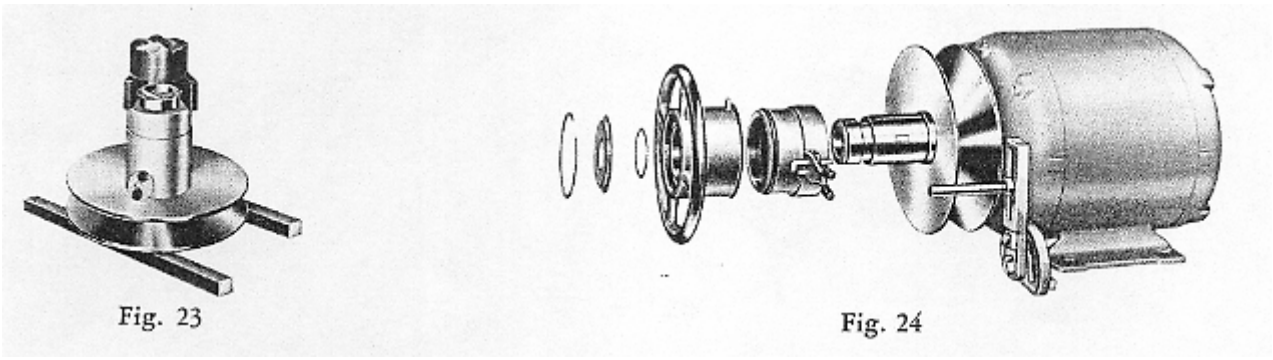


Fig. 23 Fig. 24

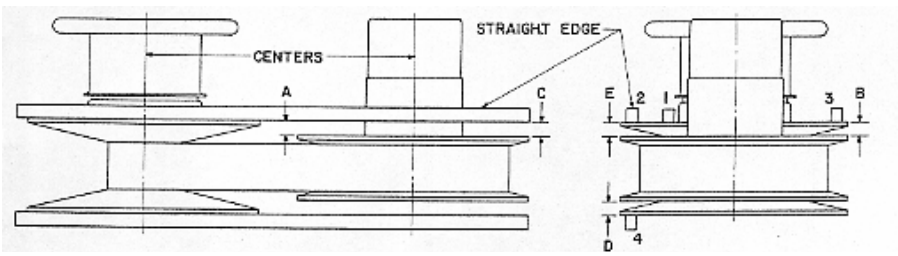
Aligning The Combination Pulleys

(Also Applies To Single Pulley Drives)

The Combination Pulleys drive must be aligned on parallel shafts to give satisfactory service. The method described here will show both misalignment of the Pulleys and out-of-parallel shafts.
After mounting the Combination Pulleys and Belt, follow the method shown in fig. 2 for an accurate check of alignment, using a straight edge scale.
Dimensions A and C are measured at position 1 of the straight edge. E is measured at position 2, B at position 3.

Move or shim motor until dimensions A, C, E, and B are all equal.
The shafts are now parallel.
Next compare dimension E and D, holding the straight edge at positions 2 and 4.

Slip one of the Pulleys along shaft until dimension E and D are equal.
The pulleys are now aligned.
Make sure that the center distance of the shafts is still correct.



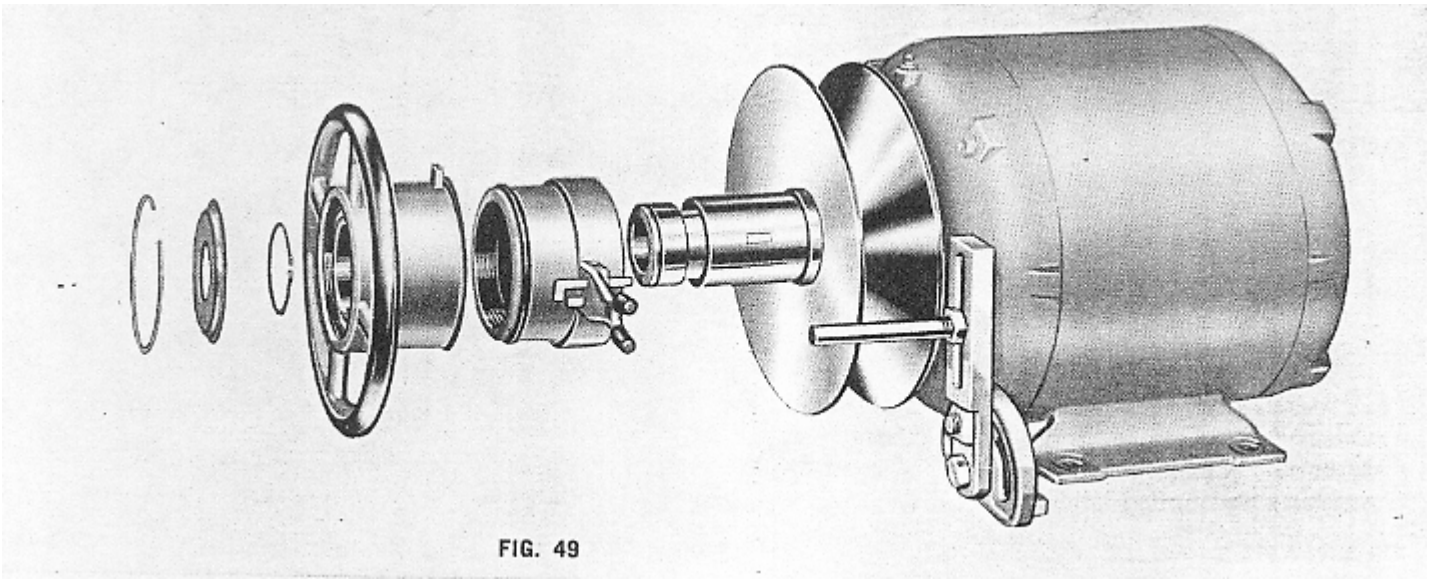


FIG. 49

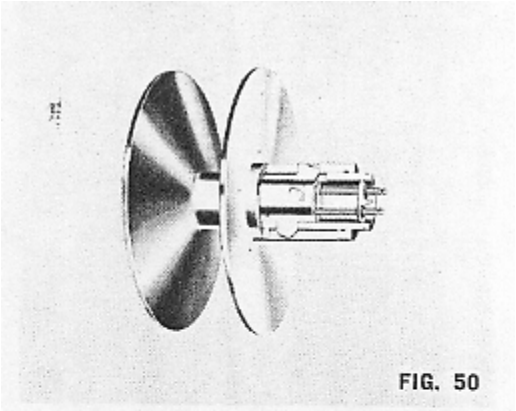


FIG. 50

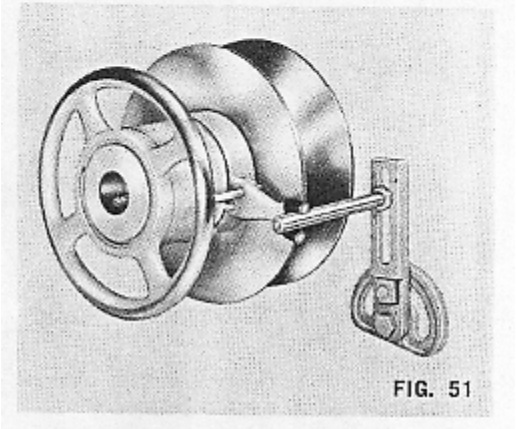


FIG. 51

Adjustable Pulley

Like the Variable Pulley, the Adjustable Pulley discs are symmetrically cam aligned, Fig. 50. Discs are independently ball-bearing thrust. Ball bearing housings are thread connected.

Turning the hand wheel re-positions the Adjustable Pulley discs, changes pitch ratios of both pulleys, and varies the speed.

Any speed setting is maintained, and does not drift.

Closures protect the Adjustable Pulley internals, including the threads which have an O-ring sealed cover.

Rotating parts adjacent to hand wheel are shielded.

Lubrication fittings are recessed, but accessible at the hub end.

Bearings and housings may be removed by releasing a lock wire and tru-arc ring, Fig. 49. Or, preferably, the complete assembly of bearings and housings may be removed, leaving the setting of speed-limiting stops intact.

This construction permits locating the hand wheel outside an enclosure with an opening which clears only the thread cover.

The bracketed rod, which guides the bearing housing arm, Fig. 51, may be conveniently located to clear the Variable Belt.

Selecting the Combination Pulleys Drive

For horsepower, speed, and frame size of motor, select the Adjustable Pulley, Variable Pulley, Variable Belt, from the table below. Selector Table also lists Combination Countershaft

Complete specifications are:

Adjustable Pulley …….size, bore, shifting device
Variable Pulley……..size, bore
Variable Belt…….size, pitch length
Combination Countershaft……size

For speed ranges, variable speeds, ratings, shaft centers, and dimensions, refer to rating tables, pages 22 thru 26.

For dimensions of accessories, see pages 28 thru 33.

Where requirements differ from catalo listings, please consult Factory.

Combination Pulleys Size	Max. Speed Range	Consisting of			Motor Rating		U NEMA FRAME	Combination Countershaft Size	T NEMA FRAME	Combination Countershaft Size
		Adjustable Pulley Size	Variable Pulley Size	Variable Belt Size	HP at 1800 rpm	HP at 1200 rpm				
406	10:1	406	406	406	1/2	3-Jan	48	406	48	406
406	10:1	406	406	406	3/4	2-Jan	56	406	56	406
408	9:1	408	408	408	1	4-Mar	182	408	143T	408T
408	9:1	408	408	408	1 1/2	1	184	408	145T	408T
409	8:1	409	409	409	2	1 1/2	184	408	145T-182T	408T-408
411	10:1	411	411	411	2	1 1/2	184		145T-182T	
409	8:1	409	409	409	3	2	213	408	182T-184T	408
411	10:1	411	411	411	3	2	213		182T-184T	
410	8:1	410	410	410	5	3	215	510	184T-213T	51
410/8	8:1	410	410/8	410	7 1/2	5	254U	510	213T-215T	510
412	7:1	412	412	412	10	7 1/2	256U	510	215T-254T	510
412/15	7:1	412	412/15	412	15	10	284U		254T-256T	510
414	7:1	414	414	414	20	15	286U-324U	412	256T-284T	412
414/25	7:1	414	414/25	414	25 & 30	20	324U-326U	412	284T-286T	412