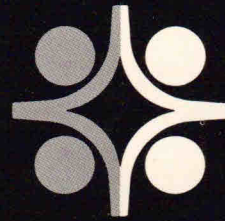


Langston



LEADERSHIP
— BY DESIGN

Speedmaster

Today's most advanced slitter-winder



Langston Speedmaster

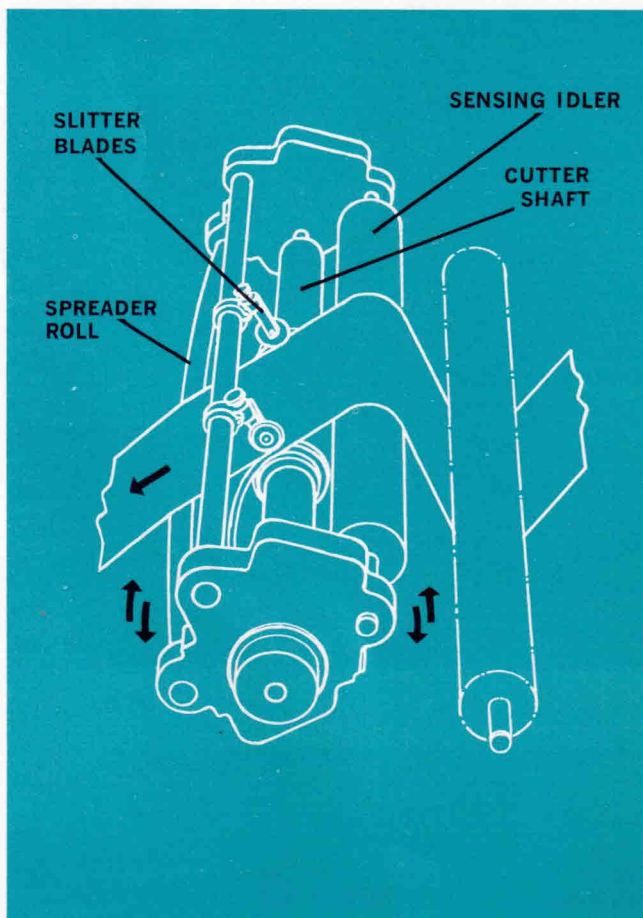
**For uniform density rolls and high volume production
on all grades of paper and board**

The Speedmaster is unique in many respects, but one in particular . . . it has a rotating cradle. Frictionally driven slitters, spreader and sensing idler roll are all mounted as a unit to pivot around the cutter shaft. With its rotating cradle, *the Speedmaster has all the advantages of threading between the drums, but none of the traditional disadvantages.*

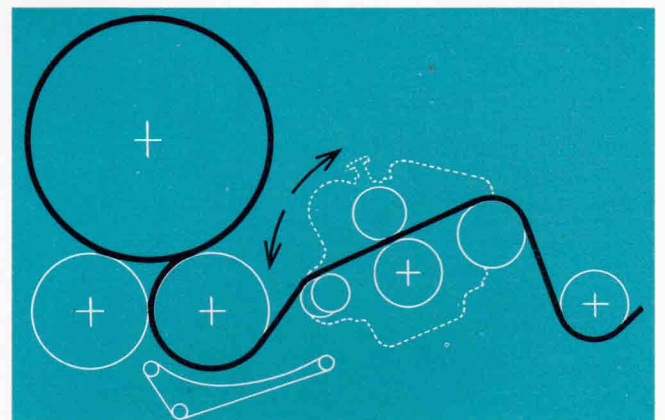
Slitters are in the rear, behind the winding drums. This permits web threadup between the drums, which means inherently better control of roll density. And when the cradle is in the down position ready to run, slitters are close to the drums—so there is only a short draw between point of slit and point of wind. This allows better spreading with less trouble. Yet

the slitters are easy to set. By pushbutton, the operator merely rotates the cradle to the up position; then both top and bottom slitters are right at his fingertips, where they can be accurately set in comfort and with good visibility.

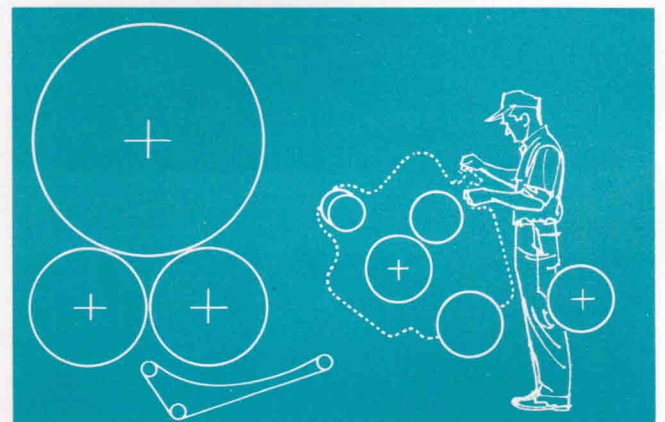
The rotating cradle performs one more important function—precision control of spreading. A 1- or 2-degree rotation of the cradle moves the spreader in or out of the sheet line to vary the amount of wrap on the bowed roll; this infinitely adjusts roll separation. Its exclusive rotating cradle is just one of the reasons the Speedmaster is acknowledged to be "today's most advanced slitter-winder."



Unique cradle rotates both top and bottom slitters, plus the spreader and sensing idler, all by pushbutton.



Cradle in running position puts slitters and spreader close to winding drums.



With cradle in up position, top and bottom slitters are easily reached for quick setup.

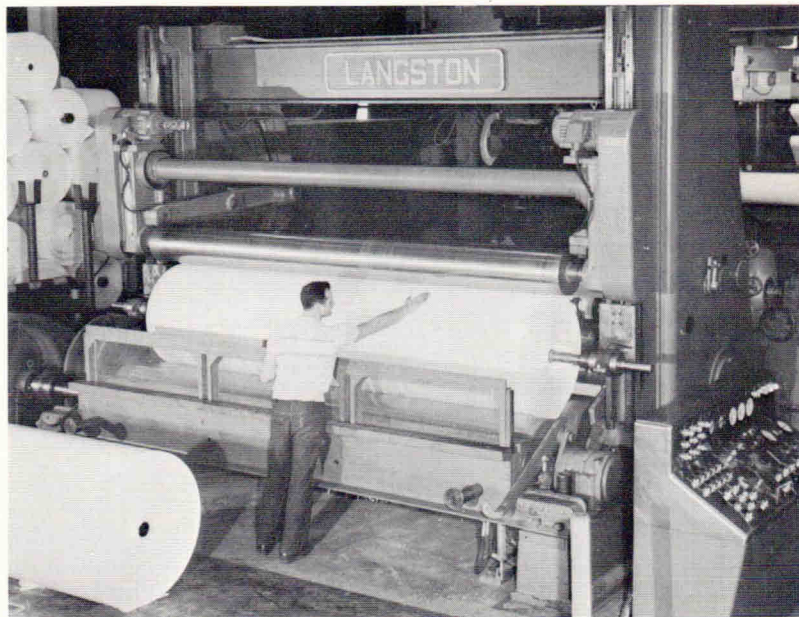
Many design advances. In addition to the exclusive rotating cradle, Langston engineers have combined in this one machine many other design advances. Heavy-duty construction and precision manufacture throughout the machine assure smooth operation even when winding large-diameter rolls at high speeds. Antifriction bearings, selected for highest life factor, are used throughout the machine, with thrust bearings for all elements in direct contact with the paper roll. Both winding drums are of steel. All rotating members are dynamically balanced. These proven design features dampen vibration, provide smoother running. Settings remain fixed, elements rigid and firmly aligned.

Handles paper and board. Design of the Speedmaster permits custom building of each machine for the application. The Speedmaster is being used as a machine winder, on salvage or cull work, and in finishing departments. This exceptional adaptability of the Speedmaster means consistently superior rolls and maximum machine production in handling a range of stocks from the lightest-weight tissues to the heaviest board. The Speedmaster is capably performing on newsprint, telephone directory paper, milk carton stock, .009 board, one-time carbon, bible, coated and super-calendered magazine papers, to name a few examples.

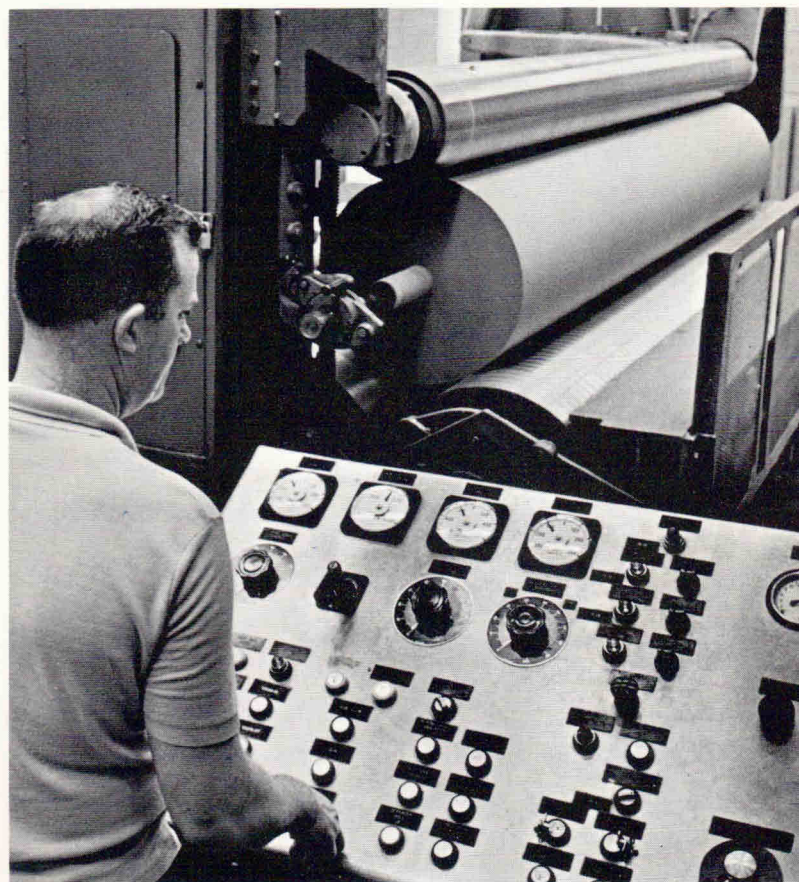
Choice of features. You have your choice from the widest variety of available features as determined by paper grade, basis weight, roll size, winding speed, and production conditions. The many automatic and power-operated controls eliminate much manual effort and time and assure more dependable results. Further, an operator's console is available which concentrates all winding controls at a single point within easy reach of one operator.

The work area height at the front of the machine is a low 32 in.—no platforming required. And for coated grades, all rolls—even the spreader roll—can be so driven that there are no stationary members to mar or scratch the sheet. Maintenance is minimal. The Speedmaster has a proven record of low-cost upkeep.

On the Speedmaster, straight-sided rolls of uniform density can be wound at speeds up to 7500 fpm, in diameters up to 84 in., and in widths to suit almost any paper machine, supercalender or converting operation.



In line with a supercalender stack, Speedmaster produces large-diameter rolls of coated paper for a prominent New England mill.



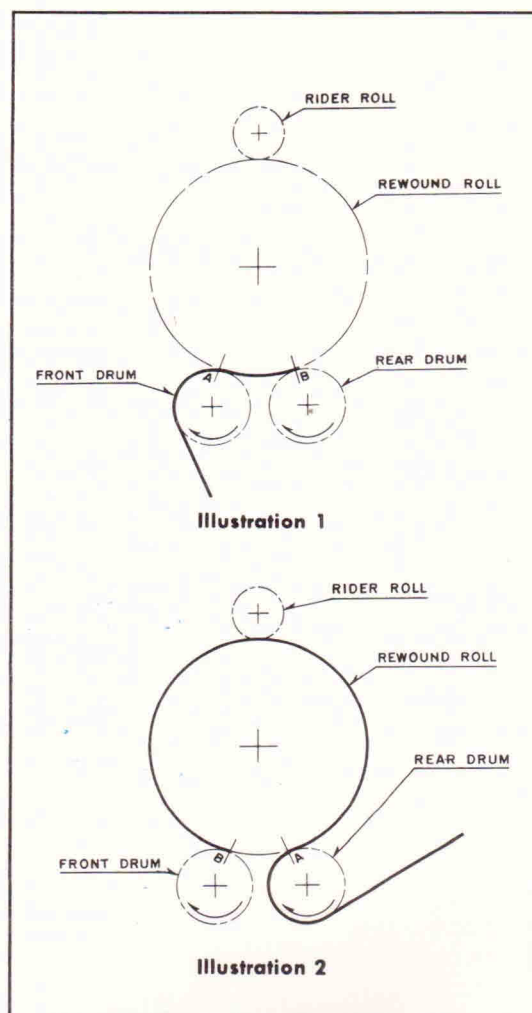
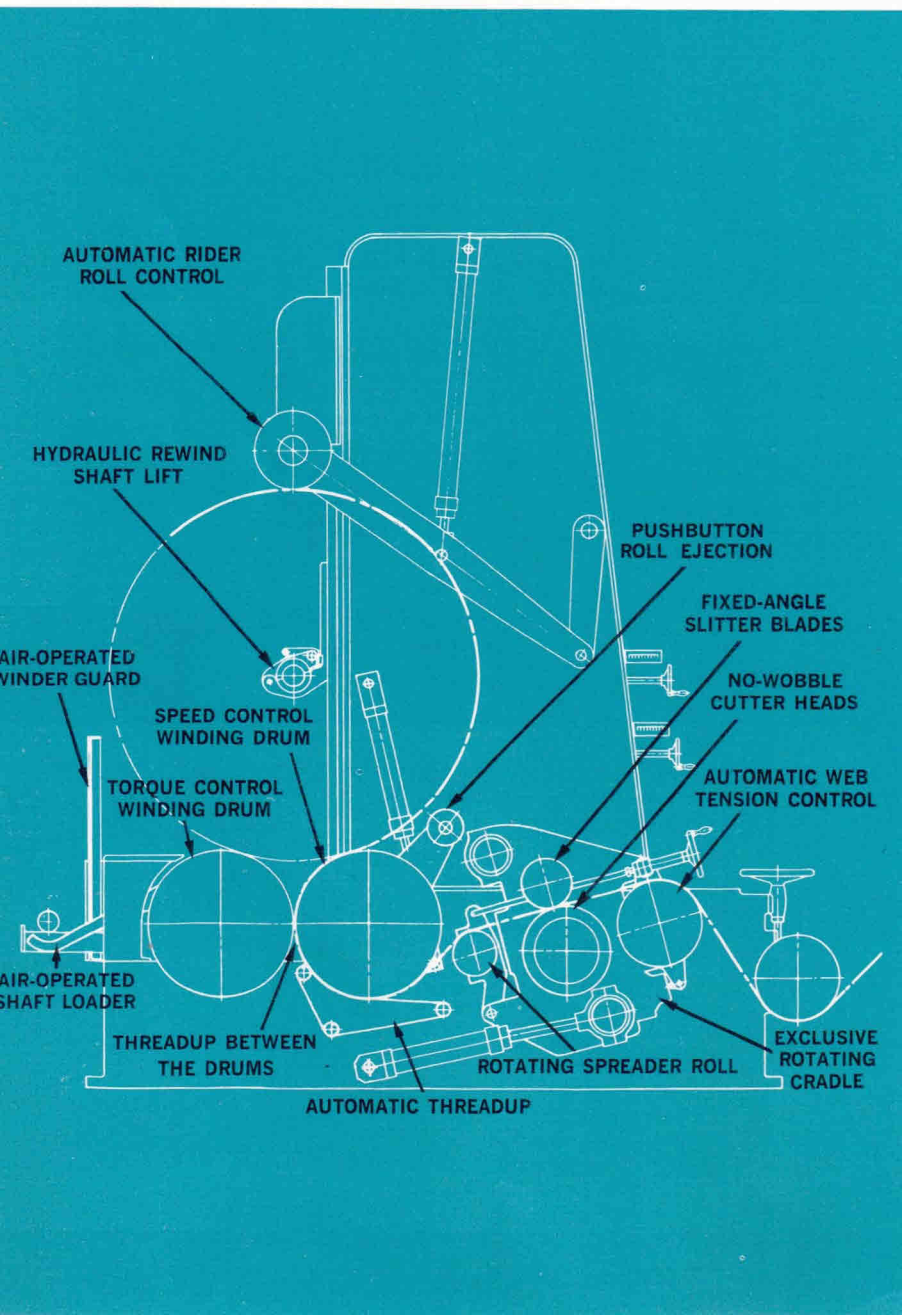
Control console. Speed, rider roll pressure, torque differential, and web tension are controlled from this panel, as are slitter engagement, vertical positioning of rider roll and rewind shaft, and operation of other accessories.

Superior Roll Density Control

- Accurate automatic control
- Threadup between drums

The winding of uniform-density rolls becomes increasingly difficult as the diameter gets larger. Yet today's growing demand for large-diameter rolls means that this must be a primary consideration in

winder evaluation. The Langston Speedmaster offers a unique combination of features to make uniform density possible with all grades of paper or board in roll diameters from the smallest to the largest.



Roll density control. Drawings show the inherent advantage of threadup between the drums in closely controlling roll density. In illustration #1, paper is threaded over the front drum, with torque input to the rear drum. This means that control of the paper is limited to the very small segment A-B. In illustration #2, paper is threaded between the drums, with torque input to the front drum. In this way control of the paper extends from point A counter clockwise all the way around to point B—a much larger segment of the roll circumference.

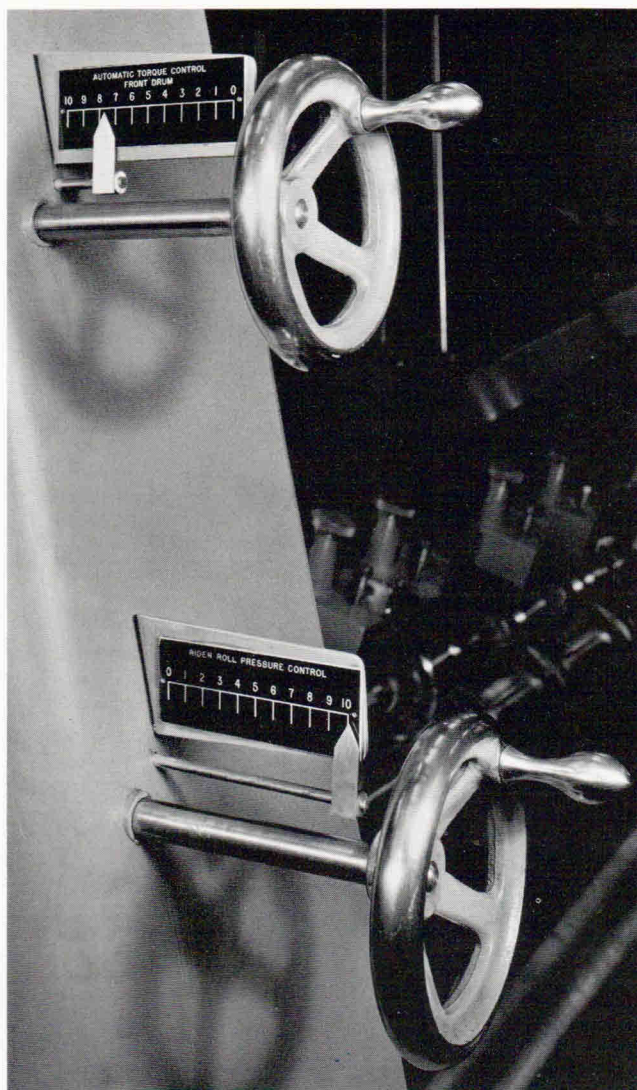
Paper is threaded between the drums on the Speedmaster. Thus the web winds completely around the roll under the constant draw imposed by the torque differential of the front drum. It is this long draw that significantly aids roll density. Each wrap is under complete control all the time it is being laid on the roll. Additionally this method assures tight winding at the center of the roll.

Torque differential between the winding drums to assure uniform roll density can be controlled by a number of different drive methods. The choice, of course, is contingent on the desired speed, type of paper, and operating factors. The ultimate in control of draw is achieved with Langston's Torque Control Drive (patented). This system is unmatched for coated and other fine papers where critical standards must be met on large-diameter rolls. The operator sets the initial torque. Then the amount of draw is progressively reduced as the diameter of the roll increases . . . all automatically. Other draw control arrangements (fully described on pages 12 and 13) are available to handle board stock and different grades of paper under various operating conditions.

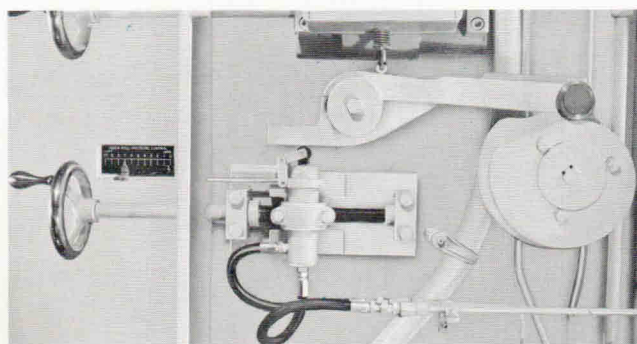
Rider roll pressure can also be automatically controlled to contribute to more uniform roll density. A pre-programmed hydraulic system provides precision control of specific nip pressure throughout the entire winding cycle by progressively reducing rider roll pressure as the weight of the paper roll increases. The operator merely selects the initial setting, based on the stock to be handled; then the entire cycle is automatically controlled. Nip pressure on the two winding drums is held virtually constant to produce a uniformly dense roll from the core out to the last wrap. And with the Langston hydraulic system, pressure is not limited to the weight of the rider roll. More can be exerted.

Automatic, pre-programmed counterweighting has many advantages to boost production and improve roll quality. Degree of rider roll pressure is infinitely adjustable at startup and precision controlled throughout the wind. Fine papers can be wound with more uniform density. Heavy board can be started with harder centers. All with less fatigue-induced errors and involving less operator judgment to minimize hit-or-miss adjustments.

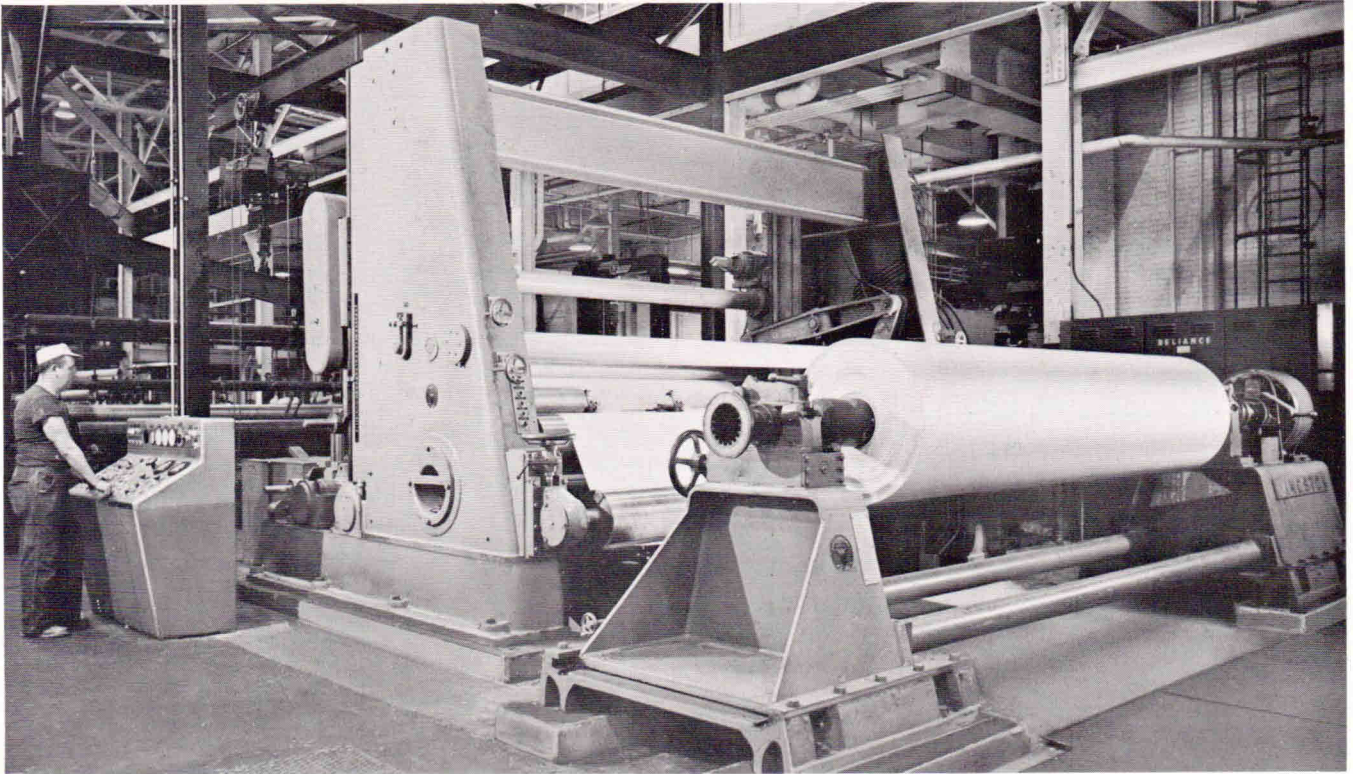
To further aid in control of roll density, rewind shaft brackets can be hydraulically counterbalanced when heavier shafts are used. This provides a supplemental means of reducing nip pressure towards the finish of large-diameter rolls. Also it enables the operator to easily raise and lower the shaft during threadup and startup, saving a few minutes.



Convenient torque and rider roll adjustments. Top handwheel sets initial torque of front drum, which can be reduced automatically as roll weight increases. Bottom handwheel sets rider roll pressure, which is automatically reduced to maintain constant nip pressure.



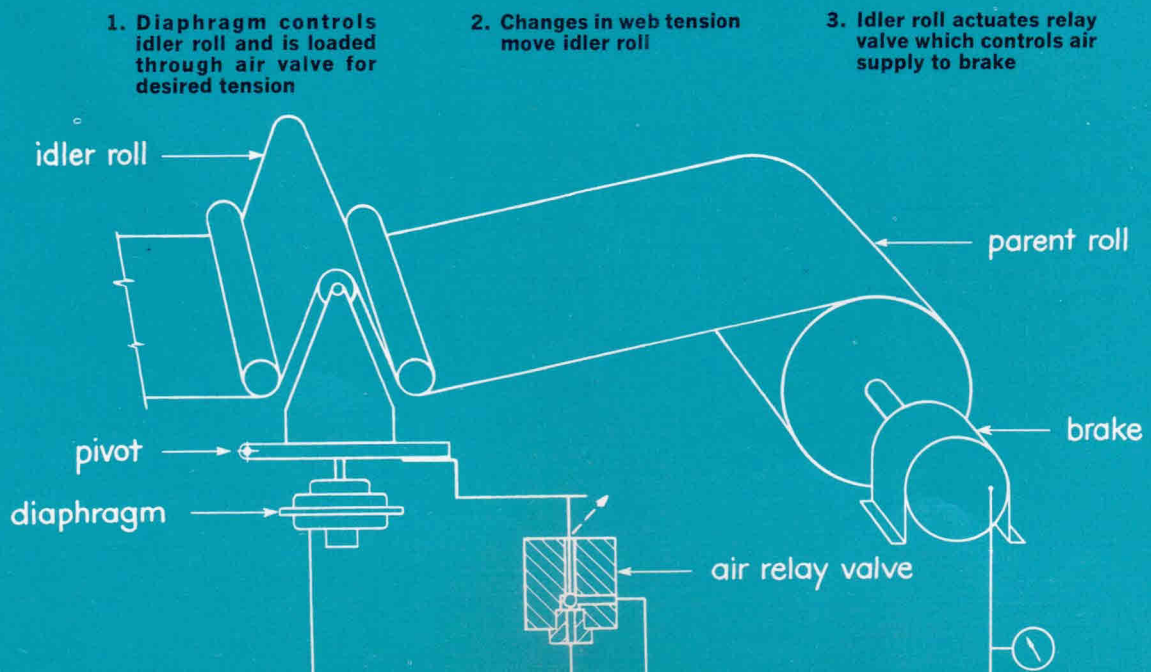
Automatic hydraulic rider roll weight control. A specially contoured cam actuating a sensitive control valve precisely regulates hydraulic pressure to gradually reduce rider roll weight as the diameter of the paper roll increases. Thus nip pressure on the winding drums is held constant automatically to assure uniform density rolls.



Automatic web tension control. Braking on unwind stand is gradually reduced as parent roll diminishes to insure constant web tension from beginning to end of wind. Or web tension can be progressively reduced after a specified roll diameter is reached.

Rider roll torque can be controlled too; so just the right amount of draw is exerted between the rear winding drum and the rider roll. A belt-driven system is available with an air clutch fixed directly to the rider roll shaft to control torque input from the console. Or separate satellite motors at both ends of the rider roll, electrically interlocked with the main drive, can be furnished for better power transmission and lower maintenance.

Web tension, another major factor influencing roll density, can be controlled automatically. Either a constant tension system or a tapered tension arrangement can be employed. The correct tension is set by the operator. Then, depending upon the system selected, it is exactly maintained throughout the winding cycle or progressively reduced after a predetermined roll diameter is reached. Both systems are designed as integral parts of the machine.

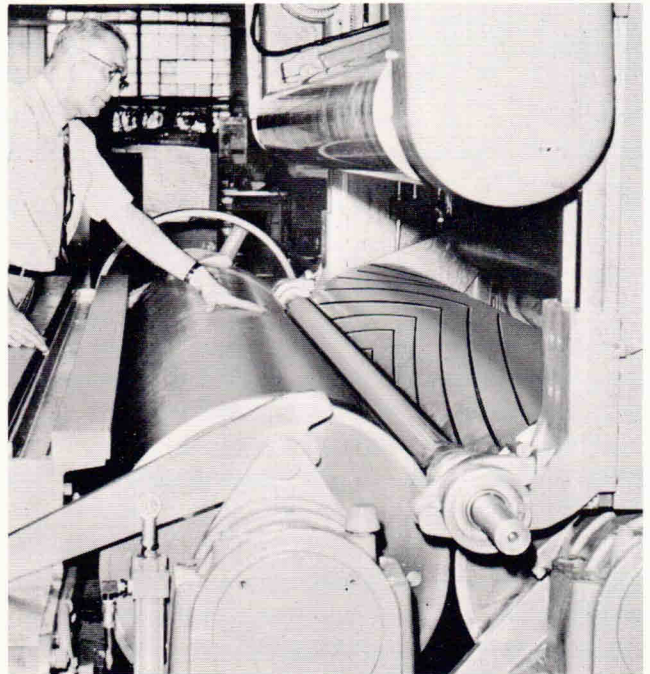


No additional floor space is required. No extra idler rolls are needed on the winder.

For special needs, such as extremely lightweight papers, Langston supplies a regenerative electric control. An electric motor, instead of the usual brake, accelerates the roll for fast starts; then, when operating speed is reached, it acts as a generator to maintain back-tension. Also available is a less expensive system of inertia-compensating motors with overrunning clutch.

Larger winding drums play a big part in preventing excessive nip pressure from causing too great a roll hardness—particularly on the outside of large-diameter rolls. The larger drums distribute the roll weight over a greater area to effectively reduce nip pressure. In some less critical applications, however, smaller drums are completely suitable.

Winding drum sizes for every application. Langston offers a wide range of choices . . . part of the overall flexibility of the machine to meet requirements of all grades of paper and board.



Positive rider roll control. Either a belt-driven system or separate satellite motors (illustrated) provide easy control of torque; so just the right amount of draw is exerted between the rear winding drum and the rider roll.

Precision Slitting and Spreading

■ Exclusive rotating slitter cradle

■ Rear-mounted slitters

■ Pushbutton spreading control

■ Improved design shear-cut slitters

■ Quick, convenient slitter setup

The rotating cradle of the Speedmaster introduces an efficient new concept in slitting and spreading. Several unique advantages accrue from having the spreader, slitters, cutter heads and one idler all integrally mounted on the cradle—and rotatable through a 60° arc.

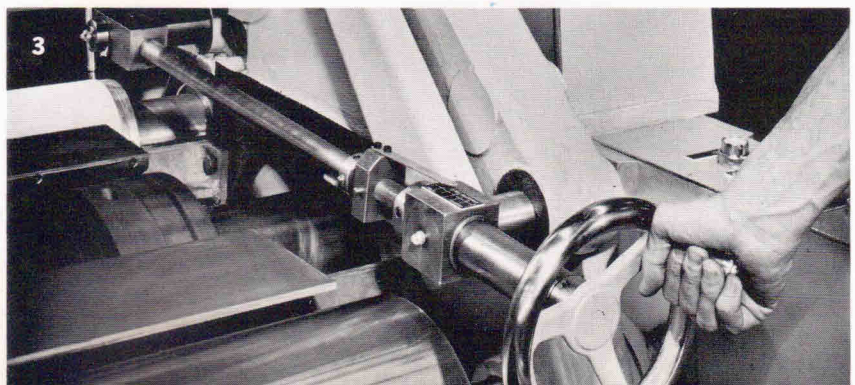
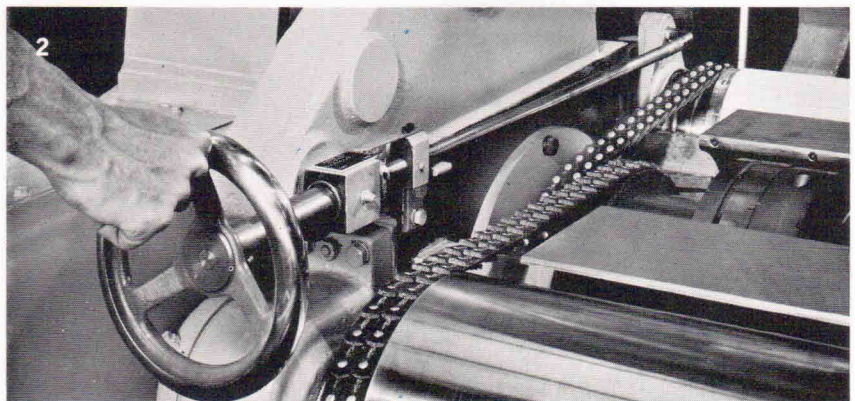
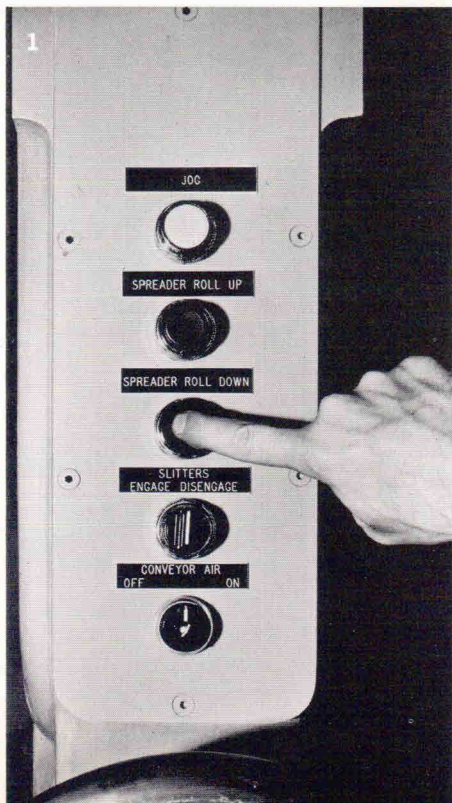
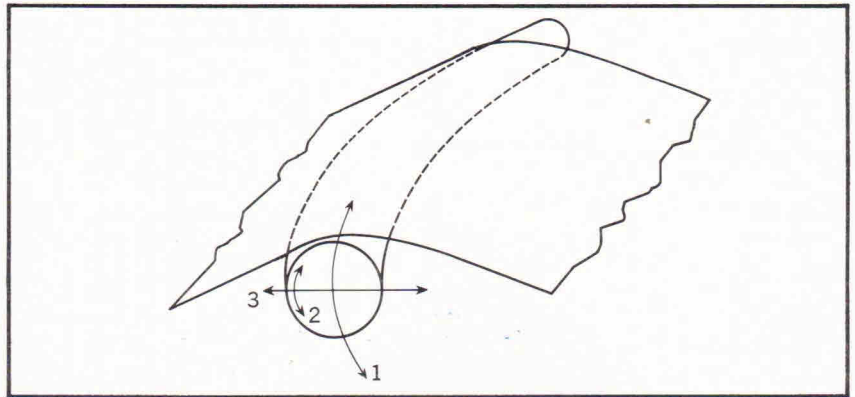
Better spreading. When the cradle is in the down position, ready to run, slitters and spreader are close to the winding drums—closer than has ever

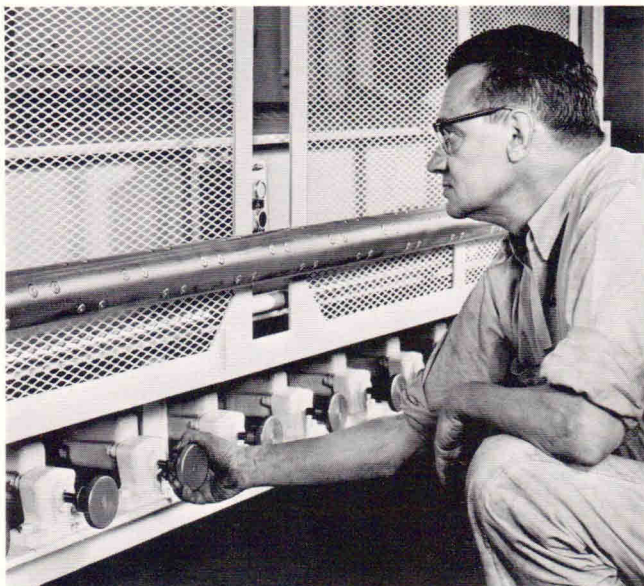
been possible on a winder that has the slitters in the rear. This permits shorter travel of the slit web before it contacts the winding drum. Therefore, any possibility of reclosing or overlapping is greatly reduced.

The Speedmaster can be specified with any of three spreader arrangements.

First is the conventional bow-type—a cambered bar extending the width of the machine. It has

Complete spreading control. Mount Hope curved roll has three adjustments to assure good roll separation. 1) Entire roll can be moved in or out of sheet line by pushbutton to adjust amount of wrap. 2) Roll can be rotated by handwheel to change the effective degree of bow in sheet. 3) One end of roll can be angled by handwheel to take up loose edges in the sheet. Both handwheel adjustments are calibrated, as is cradle rotation.





Spreader contour control. Curvature of bow or roller-bow type spreaders is adjusted from front of machine where effect can be watched.

regularly spaced adjustment points so that the contour of the bow can be fitted to the job. These adjustments are made from the front of the machine where their effect is easily observed.

Second, is the Langston roller bow*—a series of closely spaced, special design rollers mounted on a shaft across the width of the machine. It is recommended for coated and other fine papers to avoid marking the sheet. Its contour, too, is adjustable from the front of the machine. Moreover, it can be laterally positioned.

Third, is the Mount Hope type roll—a curved, rubber-covered roll that is power driven. Like the roller bow, it is recommended for high-finish papers to prevent scuffing and pickup.

All three types of spreader arrangements can be adjusted by merely rotating the cradle. This moves the spreader in or out of the sheet line to vary the wrap of the slit web on the spreader. And it does so without affecting the tangent line of the sheet through the slitters.

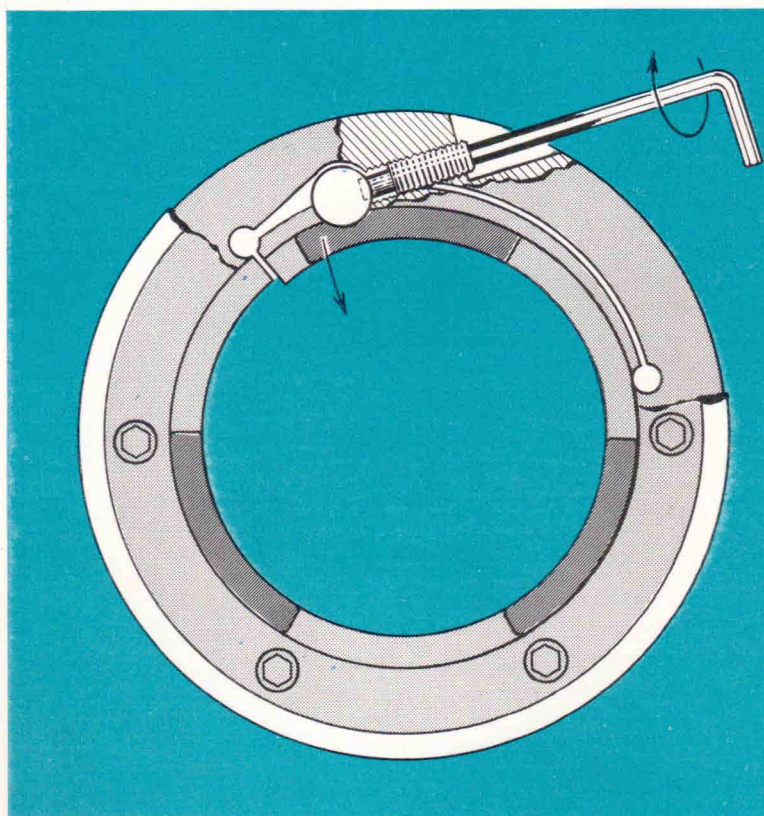
With the Mount Hope curved roll there are two additional adjustments. The roll can be rotated by handwheel, to vary the effective degree of bow across the sheet. And a separate handwheel moves just one end of the roll in or out of the sheet line to compensate for loose edges in the parent roll. Both adjustments are calibrated for accurate repeat performance.

*Patent applied for

Cleaner, more accurate slitting. Both the cutter heads and the frictionally driven slitter blades are of an improved design to assure the cleanest possible cut. Slitting precision is maintained throughout the wind. In fact, the power-driven cutter heads are *guaranteed to run true within $\pm .001$ in.* This means virtual elimination of annular rings, the wavy slit edge which appears on the finished roll as a result of slight variations in web width.

The cutter head assembly has a wider contact area on the shaft to increase stability by producing a better base-to-height relation. The hubs are interlocking to permit narrower slitting. And they are solid rather than split to resist any force which might lead to distortion and cocked slitters. The shaft is chrome plated to resist rusting, reduce dust collection, and provide better clamping surface.

Tapered roller bearings, individually fitted for minimum running clearance, prevent lateral movement in the cutter shaft. Specially designed locking collars for the unwind shaft have the bearing housing secured to the shaft, which rotates in antifriction thrust bearings. This provides maximum flexibility while reducing end play and excessive wear.



Improved design cutters. Power-driven cutter heads are solid, with leafspring locking to shaft to avoid distortion and runout.

The frictionally driven slitter blades are the fixed shear-angle type for cleanest possible cut over a wide range of board and paper. They are simple, yet accurate and ruggedly dependable. Blades are preset at the proper angle to the cutter head. With this fixed-angle design, the chance of improper setting is eliminated. Less sharpening is required. Chipping and excessive wear are reduced to extend the effective life of the blades. All slitters are made of a special steel alloy, machined and hardened to closest tolerance.

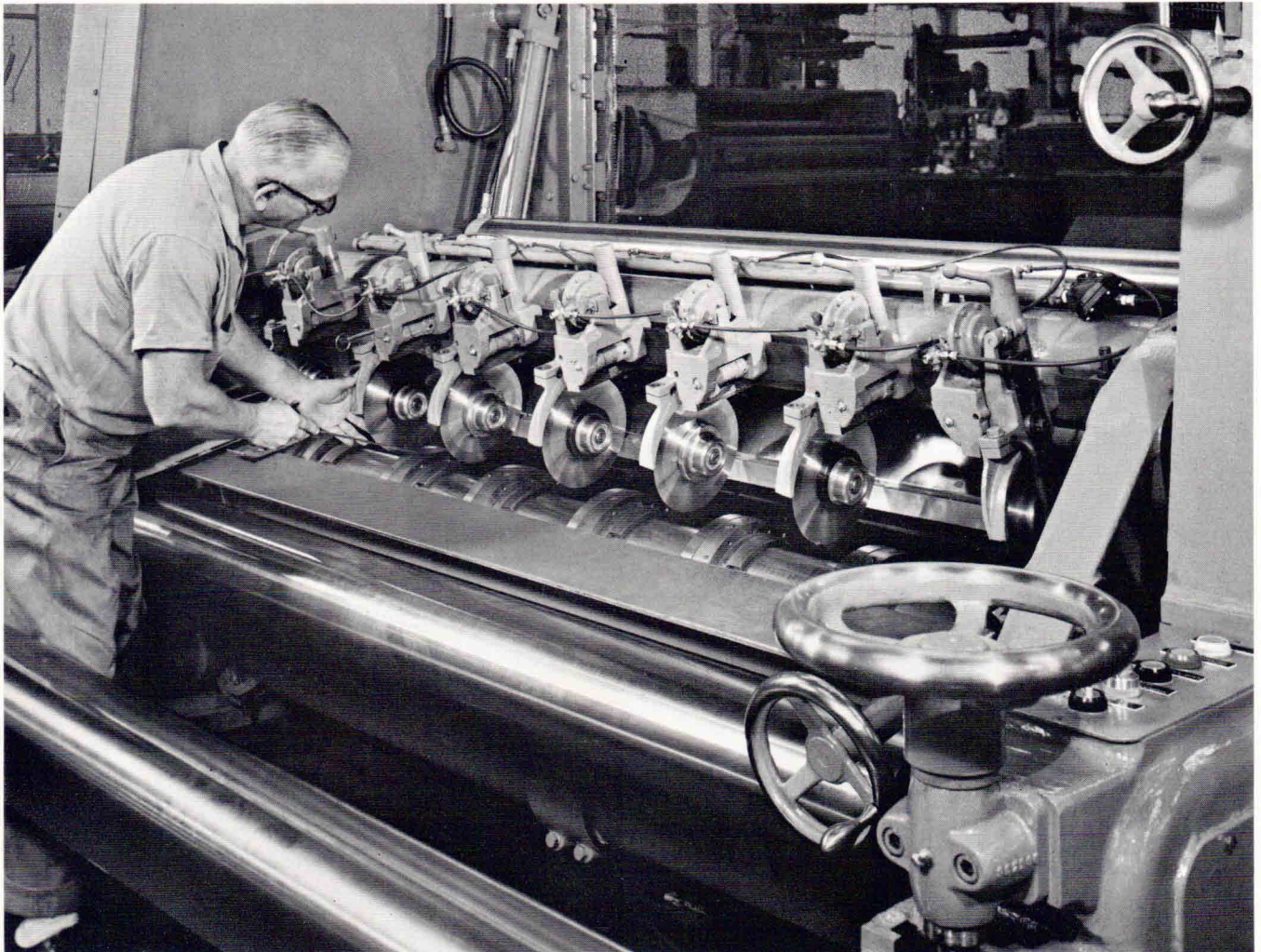
The design of the Speedmaster, with its rotating cradle, also means better trim removal. The vertical, unobstructed fall straight to the intake has proved trouble-free, even at highest speeds.

Faster, easier slitter setup. Two features contribute to quick accurate setup—the unique

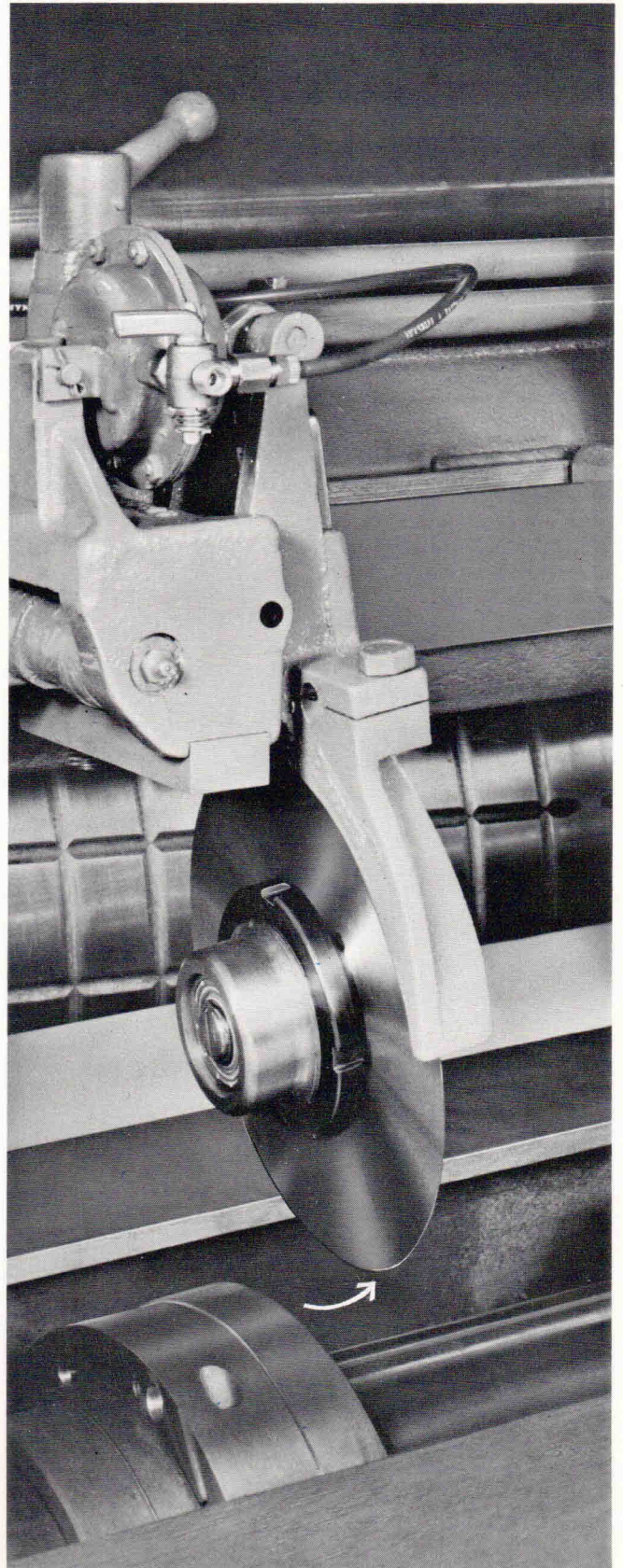
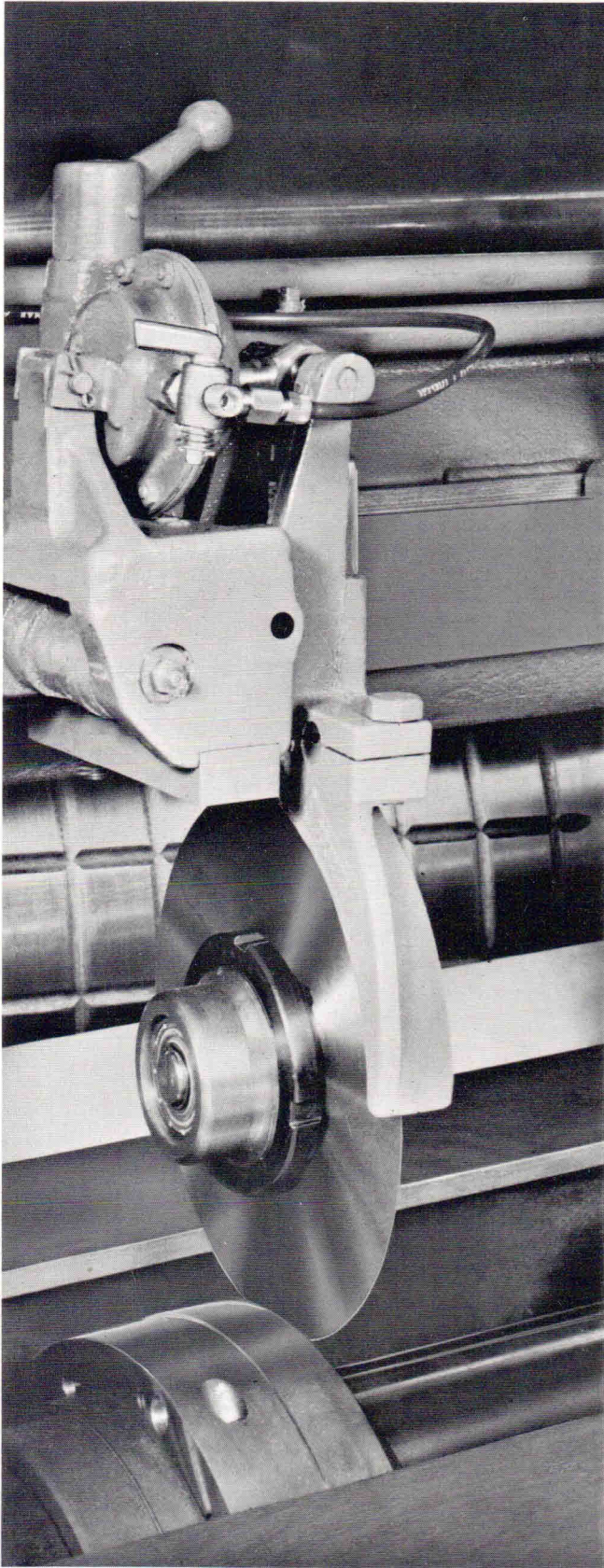
rotating cradle and pneumatically operated slitters.

To setup for a new order, the cradle is rotated to its up position, by pushbutton. This puts both top and bottom slitters at the operator's fingertips. He sets them in comfort and with good visibility, standing on the floor. In this way he does the job better and faster. After setup, he just pushes a button to rotate the cradle back to running position.

Pneumatically operated top slitters make the job even faster. They never have to be removed from the shaft, except for sharpening. To engage or disengage all slitters at once, the operator just turns a switch on the console, which swings them out of the sheet line. To disengage just one slitter, he opens the valve on that slitter. To change loading pressure of the top slitter on the bottom slitter, he turns the air valve on the console. This controls all slitters at once to assure a uniform pressure on each blade.



Quick slitter setup. With rotating cradle in up position, both top and bottom slitters are right at operator's fingertips. And he stands on the floor where he can do the job fast and accurately.



Air-loaded slitters. Top slitters are individually disengaged from bottom slitters by valve shown at top of pictures—simultaneously by switch on console. This swings the top slitter out of the sheet line so that it never has to be removed from the shaft.

Positive Torque Control Drives

Choice of drive arrangements for easy, reliable control of draw between the drums

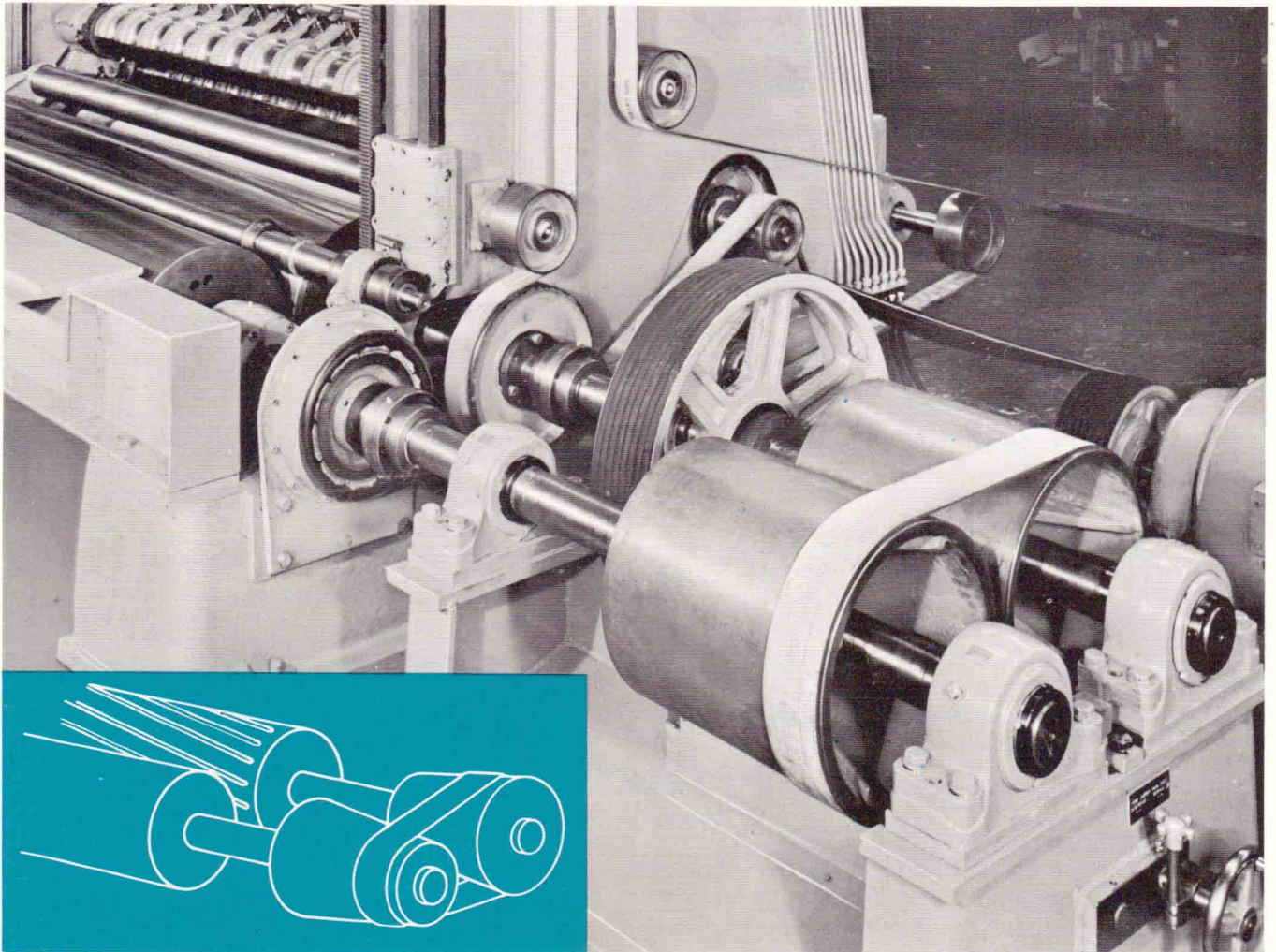
On the Speedmaster, web threadup is *between* the drums. The speed control drum is in the rear, the torque control drum in front. Consequently, the amount of paper tension, or draw, is determined by the extra driving effort of the front drum. It is this torque input that primarily governs roll hardness—the greater the torque differential, the harder the roll.

The Speedmaster is available with a choice of drives to suit almost any operating requirement. Virtually any degree of torque control can be supplied. All

drives permit jogging, threading, smooth acceleration and deceleration.

Cone pulley drive permits some versatility to handle a limited variety of paper and board grades. Easily adjusted, this economical method offers infinite variation of torque within the range of the cones. Simply by moving the belts forward or back on the cones, speed differential between the winding drums is altered to increase or decrease roll hardness. A constant speed a-c motor can be supplied to drive through an electrical eddy current coupling. A variable voltage d-c motor drive is also available.

Cone pulley drive provides quick, easy adjustment of torque.



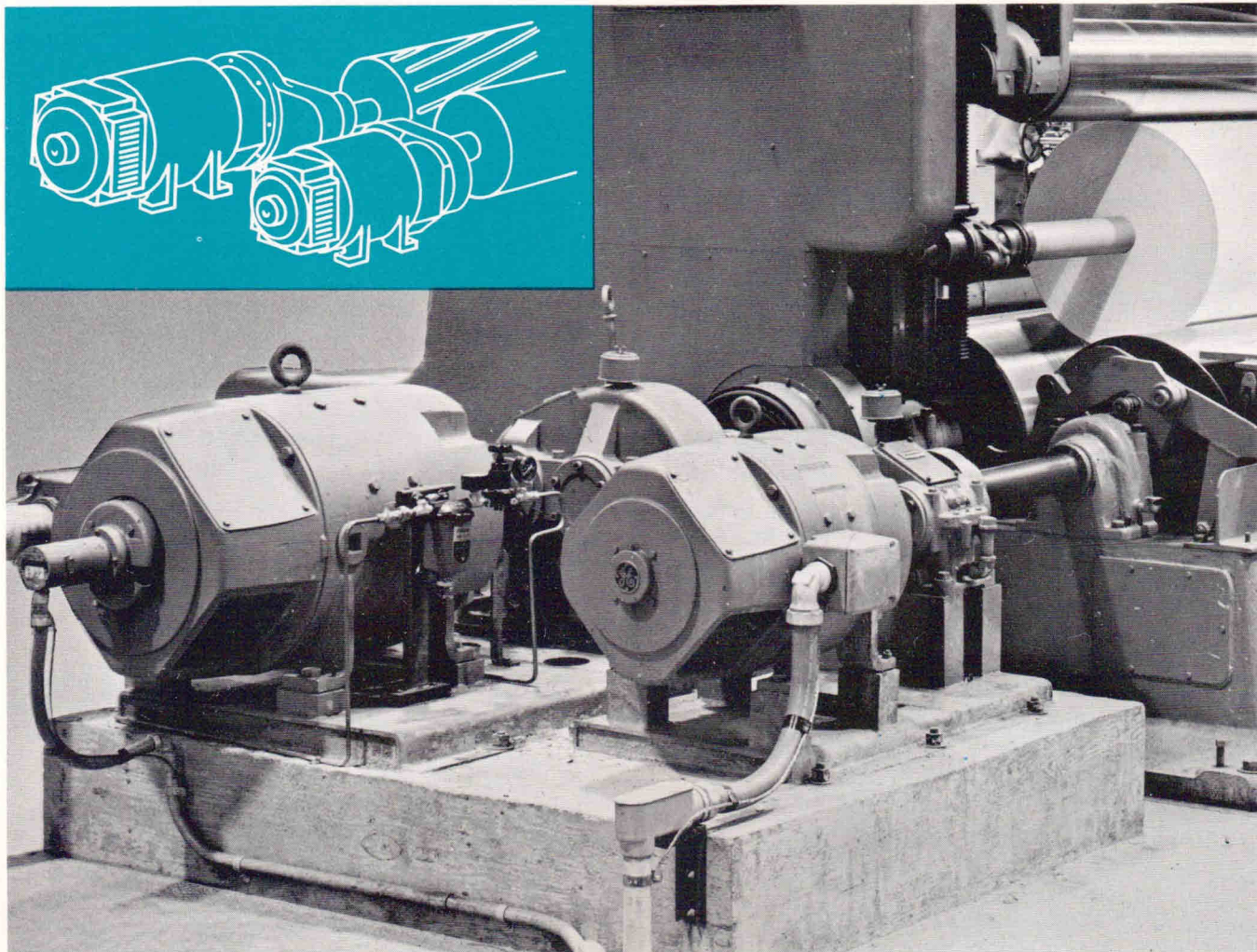
2-motor system for more positive and convenient control of draw over a wider range of paper stocks. Two variable voltage d-c motors of the same horsepower are direct coupled to the two winding drums on a load sharing basis. From his position at the console, the operator makes the initial settings. Then, if desired, he can vary the voltage into the two motors by dial control as the winding progresses to reduce the draw between the drums. This 2-motor arrangement has proven most satisfactory on kraft papers and other high tensile stocks.

Automatic torque control provides the ultimate in control of draw. Although the patented Langston Torque Control Drive is a new concept, it has already proven capable of producing large-diameter rolls with a uniformity of density never before achieved. It affords ample flexibility of control to handle a diverse range of paper grades. And it

eliminates a lot of operator guesswork and errors in judgment. For coated and other fine papers, when critical standards must be met on large-diameter rolls, this system is unsurpassed.

Two variable voltage d-c motors of different horsepower are direct coupled to the winding drums—the main drive motor on the rear speed control drum, the secondary motor of a lesser horsepower on the front torque control drum. Through a pre-programmed system, torque is automatically controlled to gradually reduce the draw between the drums as the weight and diameter of the roll increase. From his console the operator selects the machine speed and sets the torque input. Then that speed is maintained while the torque is progressively decreased. An independent manual setting permits the operator to adjust the torque of the front drum over a 10 to 1 range during roll buildup.

Torque control drive decreases draw tension automatically as roll diameter increases.



Accessory Equipment and Operating Timesavers

to boost machine productivity and improve roll quality

The Langston Speedmaster can be equipped with a wide choice of optional extras to cut operating costs, boost production, improve roll quality, and increase operator efficiency.

Complete line of unwind stands to suit almost any requirement for rapid loading, accurate control of paper tension, alignment of web and oscillation.

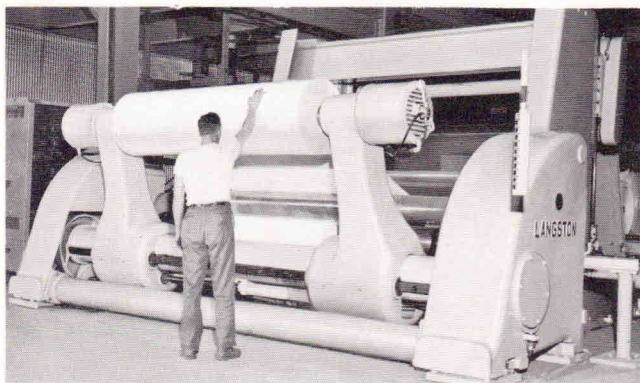
The *shaftless models* completely mechanize the roll loading function. Having complete pushbutton control, one man can tightly engage the roll core, quickly elevate the roll and position it laterally. No heavy shafts to handle—no cone tightening—no couplings to engage—no crane lifting. When fully equipped, adjustment of the web tension, web alignment and oscillation are all automatic to provide unsurpassed operational efficiency.

Shaft type stands, ruggedly designed, and for any size reel spool or shaft, are available in several

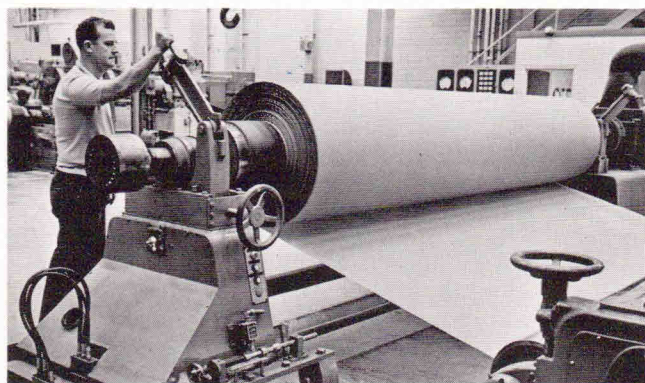
models—standard and heavy-duty construction. All can be equipped with pneumatic or electric braking systems and automatic control of web tension, web alignment and oscillation.

Roll lowering tables to quickly deposit finished rolls at floor level. Two basic models offered, choice depending primarily on available floor space and mill conditions.

The *stationary model* consists of a sturdy, hydraulically operated table, scooped at one end. It pivots back to receive the finished roll, then gradually tilts forward to gently lower the roll onto the floor or conveyor—all by pushbutton control. Interlocked electrical circuit prevents roll from being ejected until table is in position. Simplicity of design for easy maintenance; quick, dependable action; low installation and initial cost.



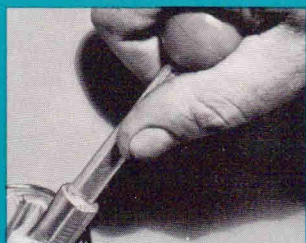
Shaftless unwind stand



Shaft-type unwind stand

Automatic, power-operated controls save operator time

Convenient, easily understandable power controls cut several minutes from every winding cycle—reduce operator fatigue and errors



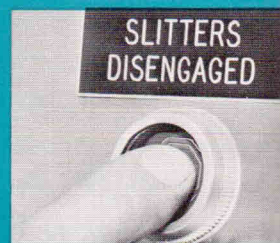
Raising winder guard



Threading web



Adjusting spreader



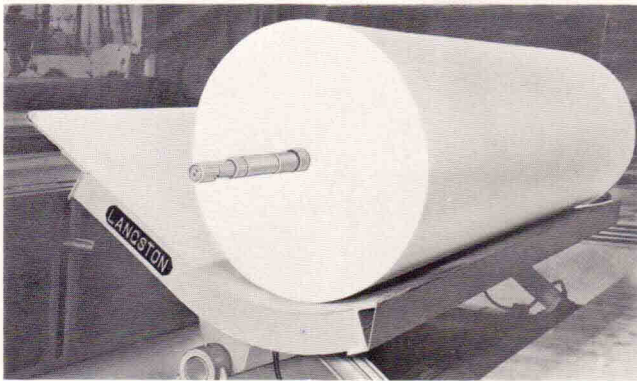
Disengaging slitters

Where floor space is at a premium, an *elevator model* can be supplied. Table top is flush with the floor and completely out of the way during the winding cycle. When the rolls are nearly finished, the table is elevated, receiving arms are extended, and chocks are raised. Then rolls are ejected from the winder and gradually lowered—all by pushbutton.

Control console so entire operation can be managed by one man. Web tension, rider roll pressure, speed, draw control are all set and maintained at this one easy-to-read panel. In addition to the controls necessary for machine operation, the console has power controls for slitter engagement, raising and lowering rider roll and rewind shaft, and operation of other accessories.

Automatic threadup to guide web into place quickly without tearing. Operator pulls the web under one idler roll over the other and starts it into the slitters; then air-assisted threading conveyor takes it the rest of the way. It is fast and safe. No crawling on or under the machine required.

Winder guards to assure worker safety. Air-operated shield extending entire width of machine must be raised in front of winding drums before winder can be run. Electrically interlocked system permits jogging for threadup with guard in down position, but it must be raised to accelerate.



Stationary lowering table

Roll ejector to automatically push finished rolls off the winding drums onto lowering table. A hydraulically operated, pushbutton-controlled roller raises under the rear of the paper roll, gently removing it from the winder.

Web guide to maintain minimum trim allowance and to straighten out slipped rolls with little or no trim slitting. Pneumatic or photocell sensing device at edge of sheet detects any deviation and immediately signals backstand to automatically vary lateral position of parent roll. Accurate, minute compensation. Instant correction.

Automatic tension control to maintain pre-selected web tension between the winder and the backstand throughout the winding cycle. The operator makes his setting from the console. Then a pneumatic control on a sensing idler takes over to constantly register sheet tension and automatically adjust braking effort as compensation is necessary. For certain paper grades a taper tension system is offered which gradually reduces web tension after a certain roll diameter is reached.

Drum grooving to suit any paper requirement. The rear speed control winding drum can be supplied with a herringbone pattern as standard, with spiral grooving or a combination of the two as optional extras.

Large-diameter idler rolls to prevent "checking" of heavy board stock.

Score-cut slitters instead of shear-cut type.

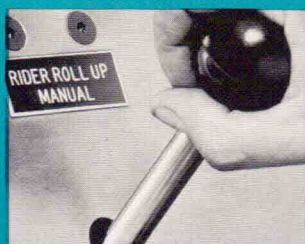
Shaft loaders

Shaft pullers

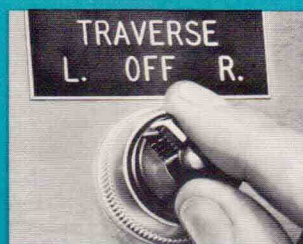
Pneumatic collapsible shafts



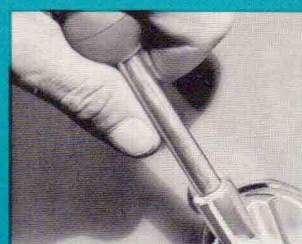
Positioning rewind shaft brackets



Positioning rider roll



Shifting backstand



Loading rewind shaft

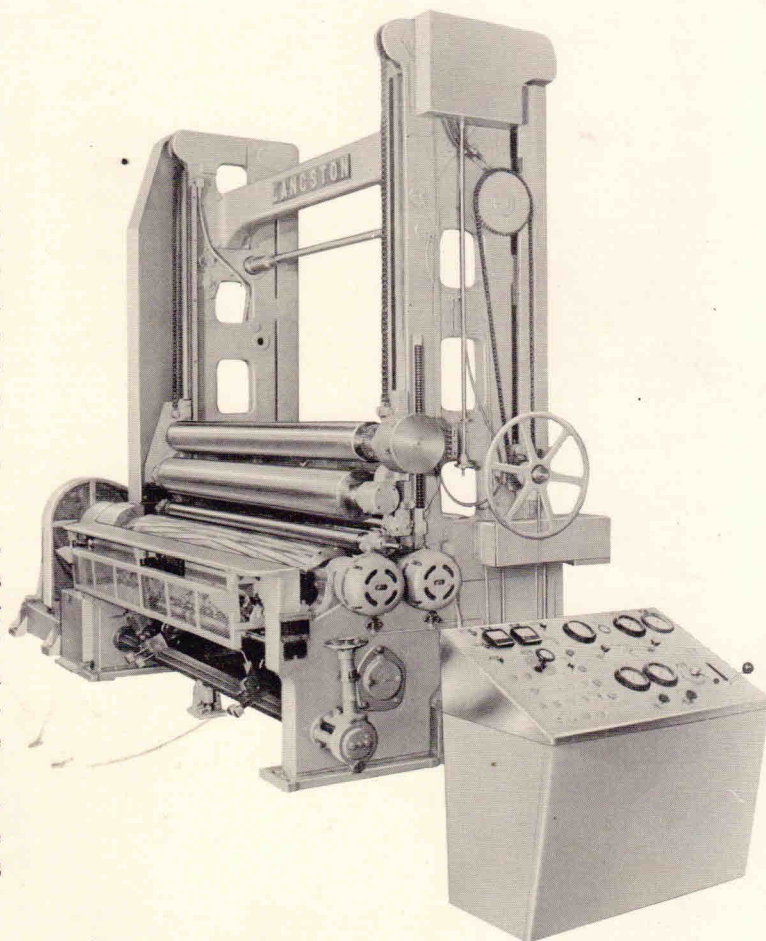


Ejecting finished roll

Langston Slitter-Winders

Besides the Speedmaster series, Langston offers several other models for both winding and rewinding operations. The small Model AA is the most simple and economical machine and it has an exceptional record on certain grades of board and paper where highly critical standards need not be met. At the other extreme, the heavy-duty Model DA can be fully equipped to handle virtually any grade or basis weight; producing quality, straight-sided rolls of uniform density at top speeds.

All models are of the 2-drum design with threadup over the front drum. Fixed angle shear-cut slitters are situated immediately in front of the winding drums for shortest draw and easiest access. Every machine is designed with a driven rider roll, which can be mechanically or hydraulically counterbalanced for precision control of nip pressure on the winding drums. A choice of main drive systems—gear, V-belt, 2-motor—provides a considerable degree of draw control between the drums. A complete line of optional equipment and accessories is available.



CALL ON LANGSTON...

Contact Langston and you will get the services of a completely capable Sales Engineer. He is well-versed in the technology of the paper business. Equally important, he is an engineer by training and by education (all Langston Sales Engineers are graduate engineers). He can discuss machinery requirements with your production and engineering staffs at the technical level necessary in arriving at detailed specifications on exactly what equipment is best suited to your present and future needs. Call on Langston and take advantage of this professional service.



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WINDERS, REWINDERS, SHEET CUTTERS AND UNWIND STANDS FOR THE PAPER INDUSTRY