

**TYPE C**

*Clark-Aiken*

**SUPER-SPEED PRECISION**

**CUTTER-LAYBOY  
UNIT**



**sustained  
accuracy**

**sustained  
operation**

**negligible  
broke**

**THE COMPLETE LINE**

*Clark-Aiken*

**HIGH-SPEED PRECISION**

**CUTTER-LAYBOY UNITS**

**THE CLARK-AIKEN COMPANY  
LEE, MASSACHUSETTS**

# 50% to 300% greater production; broke under 1/2 of 1%

Designed to provide efficiency in sheeting and finishing room operations comparable with that of modern paper mills, the Clark-Aiken Type C Super-Speed Precision Cutter-Layboy Unit sets new records for sustained high-speed operation, sustained accuracy and reduction of broke.

It embodies, for the first time, full coordination of cutter, layboy and delivery as regards design, construction and operating speeds to permit functioning as a unit.

It is cutting single-sheet 24-pound air-dried 25% rag at speeds up to 600 feet per minute in sustained operation through an eight-hour shift, without shutdowns except for roll replacement and pile removal. Under similar conditions, speeds up to 800 feet per minute are maintained on single-sheet 40-pound stock. In both instances, broke is well under 1/2%.

Production increases of 50% to 300% with important reductions in broke are frequently reported.



## THE CUTTER

The cutter is designed to accurately maintain sheet length in continuous operation at high paper travel speeds. Rugged, heavily-reinforced cast iron end frames and girts of heavy-wall tubing give it great strength and rigidity, insuring continuous, vibrationless operation. Shafts turn in large annular ball bearings to insure smooth running, accurate alignment, high power efficiency and low maintenance. Efficient gun lubrication is provided to all bearings from readily accessible points. Precision-cut, semi-steel gears and fibre pinions provide smooth, quiet operation. Cutter guards conform to most state laws.

### choice of three drives for most efficient sheet-length adjustment

Users have a choice of three types of knife-cylinder drives for efficient sheet-length adjustment:

- (1) The Clark-Aiken Change-Gear and Cone-Pulley System, proven in years of service the most effective for obtaining and maintaining accurate sheet length under all operating conditions. Rough adjustments in increments of 1", 2" and 3" are made by replacing the change gear, held by one nut; final adjustments are made by means of an adjusting screw which shifts the idler pulley locating the belt on the pulleys.
- (2) The Vari-Pitch Sheave System provides a greater range of final adjustment through adjustable sheave

pulleys, reducing from 22 to 4 the number of change gears required to cover the entire sheet-length range.

- (3) The P. I. V. System, specially built, pre-loaded for maximum accuracy and located in a special housing cast integral with the frame, permits change of sheet length through the full range without changing gears. It is recommended for use where the cutter is used on a board or paper machine or direct-connected to processes where it is not feasible to stop the cutter to change sheet length.

An inspection plate is provided in the integrally-cast housing to permit access to the drive to take up the chain.





**micrometer knife  
adjustment for paper  
thickness and knife wear**

The patented Clark-Aiken worm-screw micrometer adjustment permits the knife to be accurately adjusted and locked to accommodate any thickness of paper and to compensate for knife wear.



**lifetime tapes**

Another Clark-Aiken development, four-inch tapes, heavier than narrow tapes, give life service, save down-time replacing broken tapes. Greater cross section reduces stretch and need frequent adjustment.



**ball-bearing shearing-type  
slitters cut clean, sharp  
edges with minimum dust**

Adjustable, ball-bearing, shearing-type slitters are used for edge trimming and intermediate slitting. Any number of intermediate slitters may be used and a scale on the shaft facilitates accurate setting. When sharp and in proper condition, slitters will cut clean, sharp edges with little or no dust.



**oversize pinch roll reduces  
possibility of slippage**

Diameter of the heavy rubber-covered herringbone helix spiral pinch roll has been increased from 8 1/2 inches to 9 3/4 inches, giving 18% more gripping surface to prevent slippage in multiple sheeting. Another Clark-Aiken innovation, the sand-blasted draw roll, further guards against slippage.

**adjustable lead-in roll  
helps to remove  
curl and wrinkles**

Furnished as standard equipment, the adjustable lead-in roll, a Clark-Aiken innovation, assists in removing curl and taking wrinkles out of the sheet before slitting.



**exclusive Clark-Aiken self-  
sharpening "Spiral Shear"  
knife for clean, sharp cuts**

The patented Clark-Aiken "Spiral Shear" Cutting Knife operates with scissors action, insuring clean, sharp edges on any type or weight sheet. The cast iron cutting knife\* operates against a bed knife of high-grade knife steel, precision ground, making it self-sharpening.

\*High speed steel cutting knife furnished for cutting certain grades of papers



**infinitely-variable final  
sheet length . . . length  
adjustment easily made**

A handwheel permits final sheet-length adjustment to be made or changed while the cutter is operating. The range is infinite and sheet length is constantly maintained after adjustment is made.

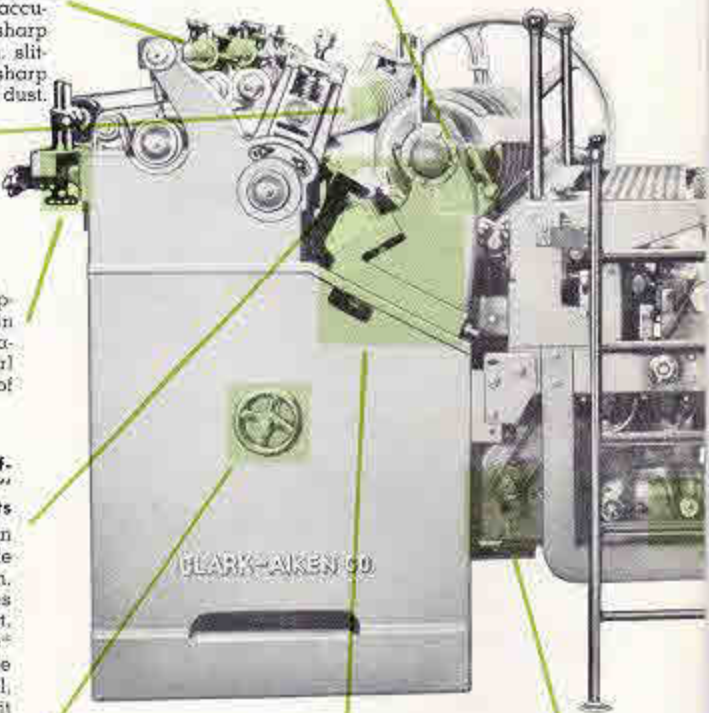


**straight-line sheet squaring  
eliminates paper buckling**

Sheet squaring is accomplished at the same angle as the paper travels. This eliminates buckling frequently encountered when the squaring adjustment is at an angle different from paper travel.

**adjustable speed  
tapes prevent te**

Speed of take-off adjustable through secondary speed selector chronize tape to cutting cylinder helps keep the tape from hitting preceding and eliminates tearing of the paper.



**scale-setting of slitters and joggers for accurate sheet alignment**

The slitter shaft and jogger-supporting bar are marked with a scale graduated in  $\frac{1}{8}$  inches. This permits quick, accurate setting and alignment of the sheet from slitters to pile without use of tapes.



**quick, accurate jogger adjustment**

Joggers are adjusted by a handwheel which turns a small gear in mesh with a rack and are locked in position by a second handwheel. A scale graduated in  $\frac{1}{8}$  inches permits quick, accurate setting of joggers for perfect alignment of paper from slitters to pile.



**trouble-free chain-and-sprocket pile lowering**

The pile table is lowered and quickly raised by counter-balanced silent roller chain operating on steel sprockets. The chain is designed for long service with minimum attention. This design eliminates difficulties due to wear and bending common to screw-type lowering systems.

**independent-motor-driven cam-operated joggers**

Joggers are cam-operated, using oilite bearings for smooth, quiet operation and are driven by an independent  $\frac{1}{4}$  h.p. motor.



**clear floor under delivery**

No motors or other parts are mounted under the delivery, leaving the floor clear for cleaning.

**adjustable speed lower tapes for variable overlap**

Travel speed of lower tapes is quickly and easily adjusted through a P. I. V. speed selector, permitting any desired overlap up to 8 to 1.

**speedy, ratchet-type tension adjustment**

Tension of top and bottom tapes is quickly adjusted by a simple ratchet device. Adjustment can be made while the cutter is operating.



**automatic pile-lowering electronically-controlled**

Pile lowering is automatic, controlled by an electric timer. Lowering speed may be regulated to accommodate any thickness of paper in single or multiple sheeting at any speed, or can be mechanically controlled.

**take-off ring**

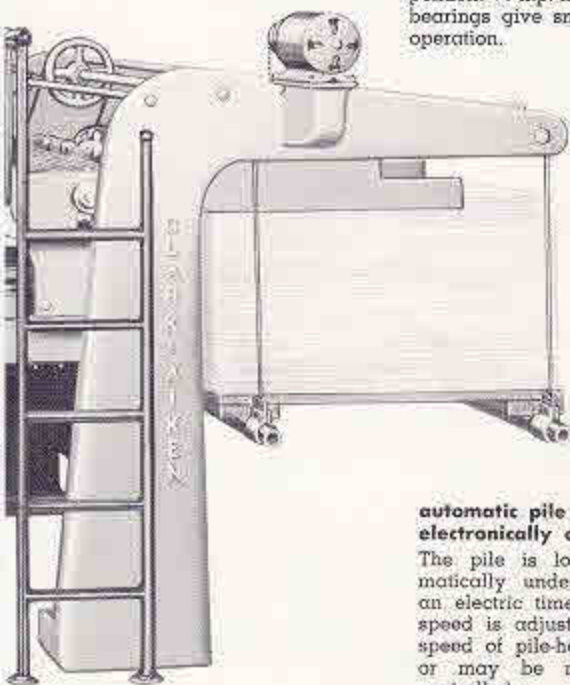
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## THE *Clark-Aiken* OVERHANGING-TYPE LAYBOY for back or side pile removal

The Clark-Aiken Overhanging-Type Layboy was developed for installations where room is not available for rear end pile removal or where side removal is preferable. Skids rest on heavy tubes which ride in stirrups suspended by cables and are easily removed when maximum pile height is reached and skids rest on floor.

### **independent-motor-driven cam-operated jiggers**

Jiggers are cam-operated and are driven by an independent  $\frac{1}{4}$  h.p. motor. Oilite bearings give smooth, quiet operation.



### **automatic pile lowering electronically controlled**

The pile is lowered automatically under control of an electric timer. Lowering speed is adjustable to any speed of pile-height growth or may be mechanically controlled.

### **quick, accurate jigger adjustment**

Jigger adjustment is identical with that used on the conventional Clark-Aiken layboy, using a handwheel which turns a small gear in mesh with a rack. A scale permits accurate setting and a second hand-wheel locks the jigger in position.

### **quick unloading and return**

A spring draws the rear pile-supporting cables out of the way when the tube is removed from the stirrups, eliminating interference with unloading. When empty skids are placed on the tubes, they are quickly raised to loading position.



# THE DELIVERY

## **overlap readily adjustable from either side**

Handwheels on both sides of the delivery permit adjustment of overlap from either side.

## **tape grip easily adjusted for any weight of paper**

Tape rolls are adjusted vertically to regulate the grip of tapes for handling of any type or weight paper by loosening two bolts at each end of the roll. Adjustment is locked by tightening the bolts again.

## **anti-friction bearings throughout**

Tape rolls turn in large annular ball bearings to provide free running and minimize strain and wear on tapes.

## **adjustable air pressure**

Independent motor-driven centrifugal blowers are provided at both cutter and layboy end of the delivery. Valves on each air outlet permit control of the amount of air delivered.

# THE LAYBOY

The layboy is not an adaptation but is specially designed for sustained high-speed operation to handle the greatly-increased output of the Clark-Aiken Super-Speed Cutter. End frames are heavy iron castings, tied together by heavy rolled steel channels to form a strong, rigid unit capable of withstanding strains of high-speed operation. This construction practically eliminates vibration, minimizes wear and maintenance and drastically reduces shutdowns and broke common with lighter, less rigid design.

For smooth, trouble-free operation, accuracy and power economy at high speeds, all shafts turn in large, annular ball bearings efficiently gun lubricated.

## **limit switches prevent jamming when raising and lowering**

Limit switches instantly stop the independent pile raising and lowering motor when the pile table reaches the upper or lower limit of its travel and shut off the cutter motor when the lower limit is reached. This safety feature eliminates jamming of the pile table and sheets backing up when the pile has reached its maximum height, at the same time warning the operator that the pile should be removed.

## **fast table return reduces idle time**

After skids are removed, the pile table is quickly returned to loading position, greatly reducing idle time.

## **variable-speed drive gives infinite speed range . . . permits perfect synchronization with other operations**

The cutter and delivery system are driven by a special variable-speed drive unit designed especially for cutter operation.

The unit consists of a 15 h.p. 230-volt variable-speed direct-current motor, controlled through a special rheostat to provide an infinite voltage range, and operating on current produced by a 15-horsepower motor-generator powered from the alternating-current mill lines. This permits an infinite drive-motor speed

range of 0 to 2400 r.p.m. and an infinite paper-travel speed range of 0 to 800 feet per minute. The special rheostat control is designed to permit start-jog-stop operation.

The cutter is driven through a five-belt V-drive from the motor pulley. Slitters and delivery take power from the cutter drive through chain and sprocket drives, insuring synchronization of slitter operation and tape travel with cutting speed.

## **wide, safe platforms and ladders**

Wide platforms are provided over each end of the delivery. Safety-tread steel platform floors and sturdy

guard rails and ladders of welded steel tubing protect the operator when working on the platform.

## **full capacity range to meet all mill requirements**

Clark-Aiken Type C Super-Speed Precision Cutter-Layboy Units are built in a complete size range: 76, 88, 100, 112 and 124-inch maximum width capacity, for finishing room service.

All models can be furnished with either standard 18-inch cutting cylinder or standard 25-inch cutting cylinder, with normal cutting length ranges as follows:

- |                                   |                      |
|-----------------------------------|----------------------|
| Standard 18-inch cutting cylinder | — Minimum, 18 inches |
|                                   | — Maximum, 60 inches |
| Standard 25-inch cutting cylinder | — Minimum, 25 inches |
|                                   | — Maximum, 86 inches |



## **THE CUTTER FOR THE JOB**

In serving leading mills all over the world, Clark-Aiken engineers have found that no one cutter will efficiently and economically serve the needs of all users, sheeting all types of material in all roll sizes under all operating conditions.

After careful study of sheeting requirements of hundreds of mills and converters, and drawing from the experience of almost seventy years of cutter design

and manufacture, Clark-Aiken is the first builder to offer a complete line of cutters, enabling the user to select the machine which will meet his requirements most efficiently and at the lowest cost.

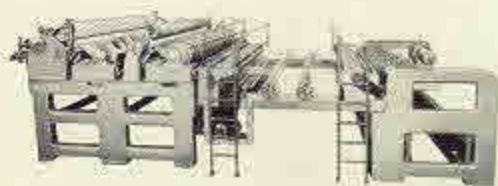
In addition to the Type C Super-Speed Precision Cutter-Layboy Unit, described in this bulletin, Clark-Aiken offers the additional models described on the last page of this bulletin.

## The Clark-Aiken Type H Heavy-Duty High-Speed Cutter-Layboy Unit

The Clark-Aiken Type H Heavy-Duty High-Speed Cutter-Layboy Unit is designed for heavy work such as cutting board or multiple sheeting drawing from as many as 32 rolls of 8-pound bond at one time. The cutter is unusually strong and rigid, with heavy box-type cast and frames and heavy-wall tubing girts. Delivery system and layboy are of similar heavy construction, designed to operate in perfect synchronization with the cutter as a unit.

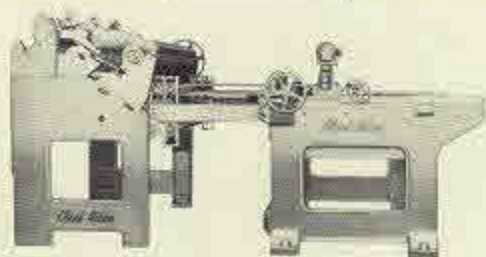
The Type H Unit incorporates many advanced design features of the Type C, including the Clark-Aiken "Spiral Shear" knife, infinite final sheet-length range with either P. I. V. or Change-Gear-and-Cone-Pulley drive, long-life wide types and scale adjustment of slitters and joggers. The cutter bed knife and cylinder housing is cast in one piece to insure accurate alignment and facilitate sheet squaring.

Made in simplex and duplex types, 76 inches to 220 inches maximum width capacity, with 18-inch or 25-inch knife cylinder. All sizes furnished with conventional or overhanging-type layboy or with Clark-Aiken "Vickery" Layboy, described below.



## The Clark-Aiken Type D High-Speed Economy Cutter-Layboy Unit

The Clark-Aiken Type D Cutter-Layboy Unit is the first economy model combining high efficiency and dependability for sheeting bread wrappers, cellophane, aluminum foil, side run rolls, for finishing room service and for the use of converters and printers. Simple in construction, highly efficient, accurate and dependable. Incorporates many features of the Type C, including the Clark-Aiken "Spiral Shear" Knife, independent motorized joggers and scale setting of slitters and joggers, heavy tapes, adjustable speed take-off and lower tapes, overlap and tape grip adjustable from either side and ratchet tension adjustment. Automatic mechanical pile lowering, anti-friction bearings throughout. Low over-all height yet piles to 36 or 48 inches. Available in 36 to 100 inch width capacities with standard 18 inch knife cylinder or 12 inch cylinder for short sheets. Overlapping or tandem delivery. Can be furnished with electronic register cut-off. All sizes furnished with conventional or overhanging-type layboy or with Clark-Aiken "Vickery" Layboy, described below.



## The Clark-Aiken "Vickery" Layboy

The Clark-Aiken "Vickery" Layboy offers an entirely different conception of piling, applicable to all Clark-Aiken Cutters. In operation, the pile remains stationary on skids resting on the floor while the delivery, actuated by hydraulic cylinders, rises as the pile height increases.

Piles may be quickly removed from the back or sides or a track system may be provided for fast removal and replacement with empty skids with minimum production loss from shutdowns.

Sturdily built with heavy cast frames and anti-friction bearings throughout. Highly efficient independent motor-operated by hydraulic lowering system and independent motor jogger operation.



## OTHER CLARK-AIKEN PRODUCTS

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For complete information, write, wire or phone

### THE CLARK-AIKEN COMPANY

Pioneering in Paper Mill Machinery Improvement Since 1828

LEE, MASSACHUSETTS