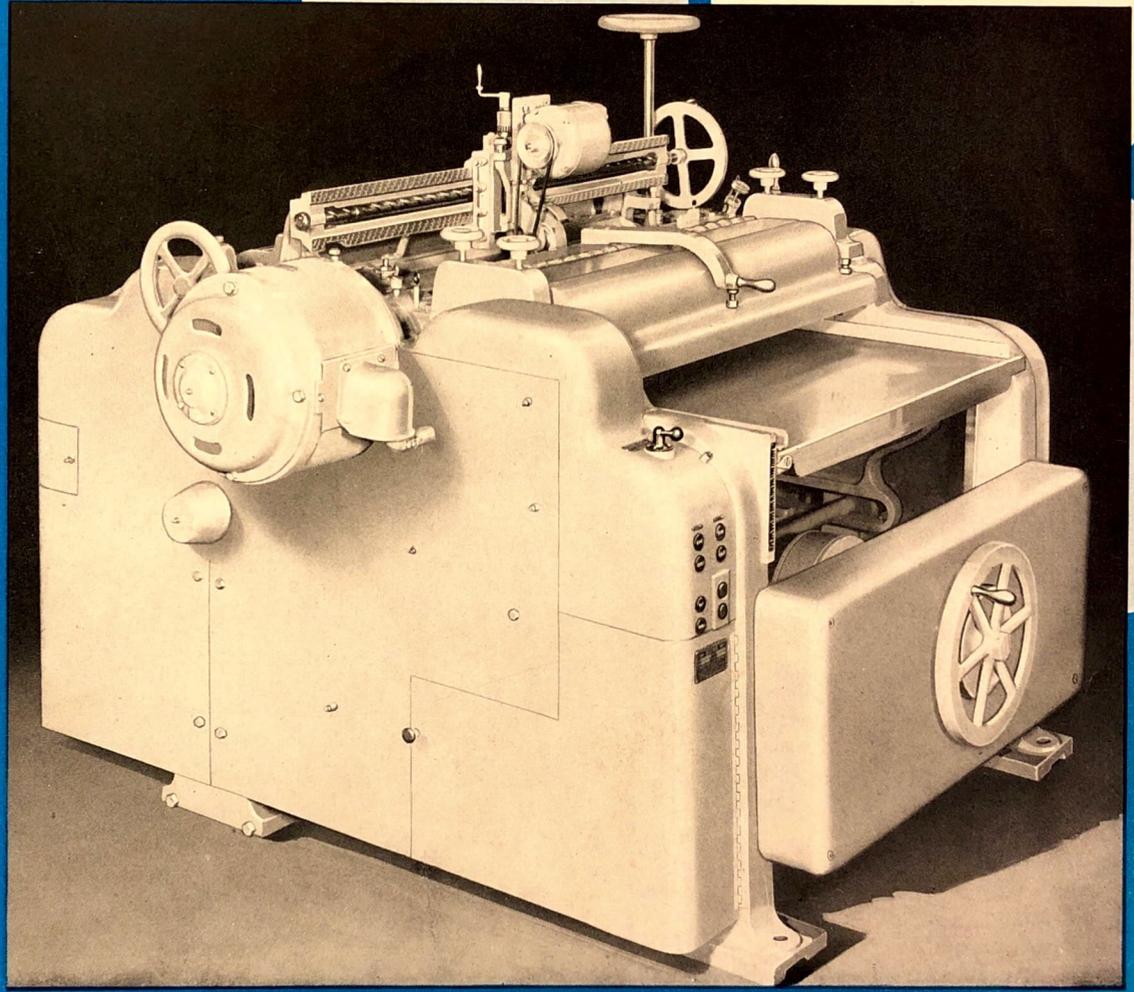


# BUSS



## No. 88



### *Double Surface Planer*



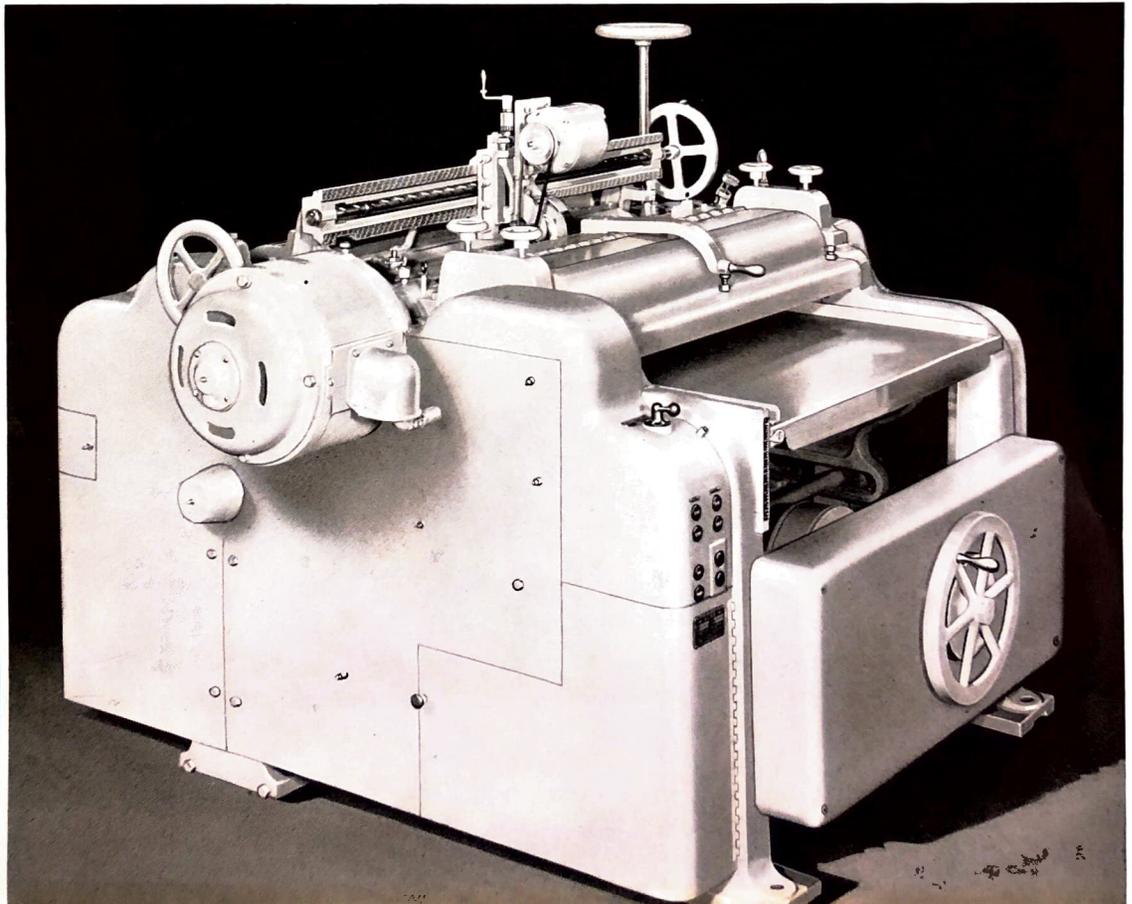
THE MARK OF COMPLETE PLANER SATISFACTION

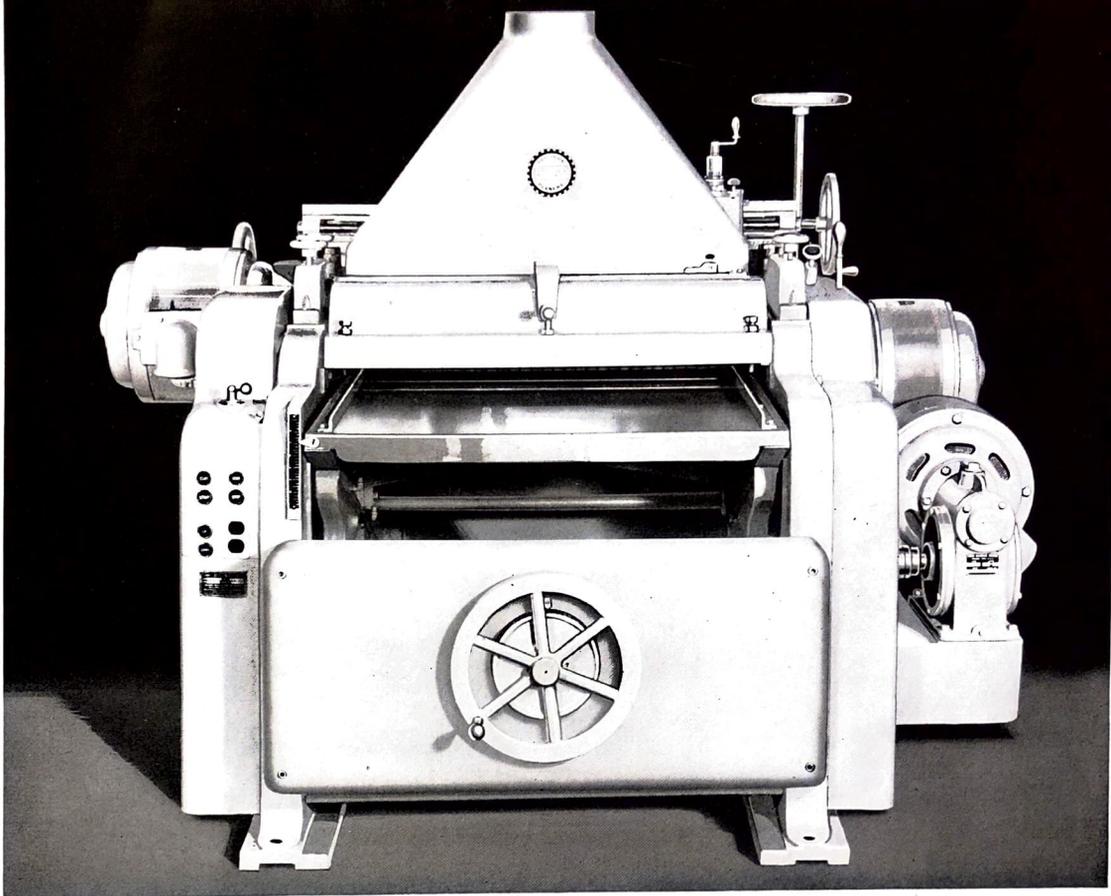
# BUSS *No. 88*

## **DOUBLE SURFACE PLANER** *Wedge Adjusted • Eight Driven Rolls*

- **An up-to-the-minute modern Cabinet-Type Surfacer, for all general planing work, from sizing to cabinet finishing, and panel precision work.**

LEFT FRONT VIEW





FRONT VIEW

**THE BUSS No. 88 Double Surface Planer** as indicated throughout this bulletin is a modern planer in every detail. Thoroughly streamlined, it combines staunch, rugged reliability, accuracy and complete accessibility with the finest of the thoroughly proven BUSS developments. This assures maximum production of highest quality planing, greatest economy of labor and maintenance costs. When you buy the BUSS No. 88 you get no unknown factors.

Details of design and construction on the following pages will indicate to you the excellence of the No. 88. Further investigation and comparison, we feel confident, is bound to convince you that the No. 88 is by long odds the best buy in the double surface planer field.

As planer specialists, devoted solely to building the best planers for every production requirement, it is not only our desire that you select a BUSS planer, but that you obtain the one best suited to your particular requirements. The *Buss Line* covers a wide range of Planing. If there is any question as to capacity, horse power, or equipment best adaptable to your use, please bear in mind we will be glad to engineer your surfacing requirements and aid you in your selection.

BUY BUSS • THEY'RE BETTER BUYS

PAGE THREE



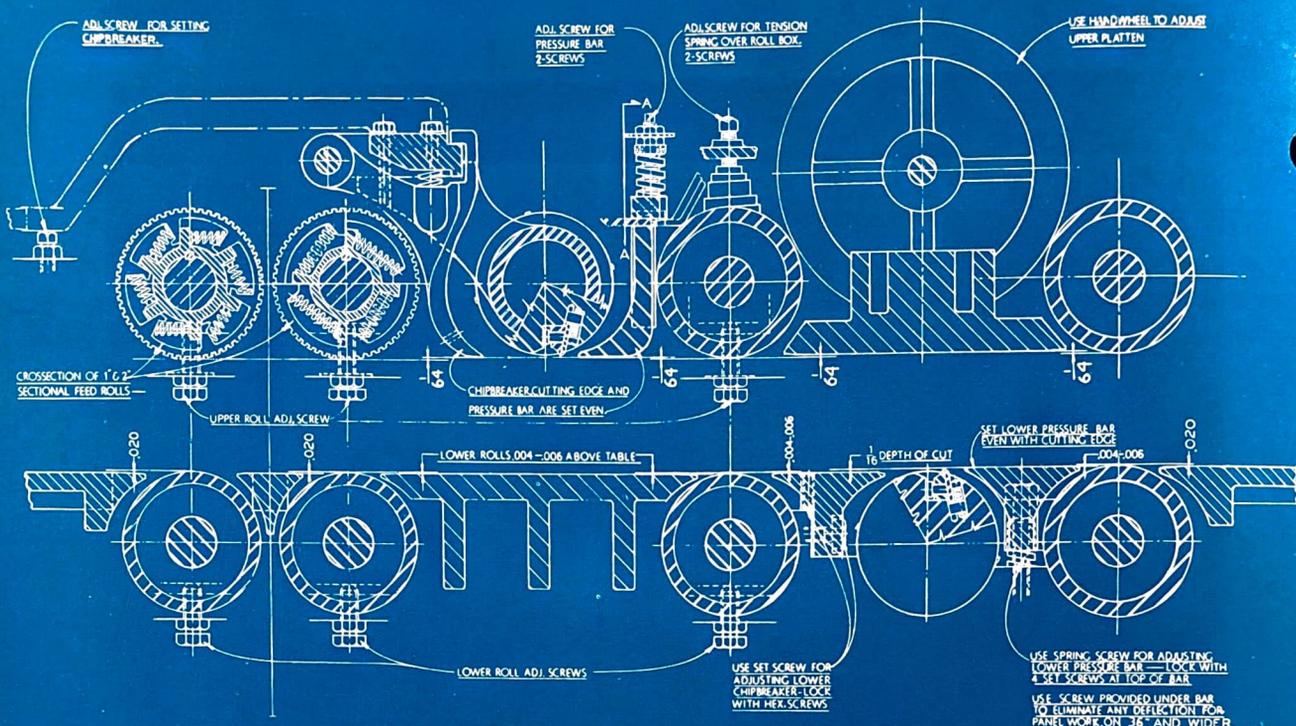


FIG. 1

# CROSS SECTIONAL DIAGRAM OF FEED AND CUTTING MECHANISM BUSS No. 88 Double Surface Planer

In the cross-sectional diagram above, note the eight Feed Rolls, their relative positions, the upper and lower Cutterheads with their Chipbreakers and close fitting Bed Plates. This fully illustrates how the BUSS No. 88 double-surfaces both long and short stock with equally fine results — a very highly important factor in any plant where a variety of both long and short material is encountered. The BUSS No. 88 Double Surfer may be operated as a Single Surfer — only a moment required for the change either way.

Factors which further contribute to making the BUSS No. 88 the most versatile planer on the market, and the greatest producer of fine work at low cost, are the modern BUSS adjusting features fully described on following pages. The ease and speed with which they may be applied greatly reduces change-over time from one stock to another, and assures far greater accuracy. Hence, whenever large volumes of various stocks are to be planed, the BUSS No. 88 is the most advantageous machine that could be selected.



DESIGNED AND BUILT BY THOSE WHO DEVOTE

## General Description

# DESIGN AND CONSTRUCTION THAT ASSURES MAXIMUM PRODUCTION, ABSOLUTE PRECISION, TROUBLE-FREE SERVICE

### EXTRA WEIGHT — Where it Counts

Throughout its long and successful history of planer building, BUSS engineers have been firm believers in heavy castings to absorb or offset the vibration of the revolving knife action as it comes into contact with the wood surface. Therefore Buss Planers, size for size, are the heaviest framed planers made. Likewise throughout the construction of Buss Planers, wherever additional weight will promote greater reliability or smoother and better performance, there you will find extra heavy, extra sturdy parts.

### HEAVY, STURDY SEMI-STEEL CORED FRAME

Not only are the frames of these planers unusually heavy. They are specifically designed for exceptionally generous floor bearing so that the combination of extra weight, floor bearing and rigidity will form a perfectly solid, firm, vibration-free foundation for the bed and running parts. The heavy cored frame castings are doweled and bolted together and completely enclose the operating mechanism. The bottoms of the side frames are accurately machined. Shoes and side plates or inclines are extra heavy, solid web, and hand scraped to extremely close tolerances.

### INCLINED — Wedge Adjusted — EVER ACCURATE BED

The bed or table of this machine is bound to remain absolutely accurate, because it is raised and lowered on long, hand-scraped inclines or wedge-shaped ways by means of two horizontal screws with ball thrust bearings. These inclined ways are  $2\frac{1}{8}$ " wide, solid webbed, with 66" length of base and 74" long at the top; framed and girted as one unit, erected on the hand-scraped integral leg supports at the base. These ways as a unit receive the machined and hand-scraped side plates to which the Platen or Center Bed, under the top cutter head and the lower head unit, is solidly bolted. This insures the beds remaining level and parallel with the cutter heads at all bed positions. With the built-in grinders and jointers to keep the knives parallel with the cutter heads, the operator can produce finished work, with proper adjustments, holding the thickness to .001 tolerance on both sides of the bed. The manual raising and lowering of the table is accomplished by means of a large central hand wheel. A Micrometer Dial, with graduations of .001" for more accurate predetermined bed setting, is furnished.

### POWER ACTIVATED

Power to raise and lower the table or bed is supplied by a  $\frac{1}{2}$ -H.P. built-in motor, push button controlled, and geared directly into the hoisting screws. Provision is made for full protection of the motor and machine in the event the motor is put into action while material is

being planed. The bed has positive safety stops both ways.

### CENTER BEDS

The center beds are thick, one-piece, semi-steel units, heavily ribbed, and normalized and ground to a hard mirror surface, and hard chromium plated for long wear.

### CAPACITY

The Buss No. 88 is equally efficient on heavy first cutting or fine finish work. It is extremely accurate, will absolutely hold its adjustments and plane to exceptionally close tolerances. Although the limit bar is set for minimum stock thicknesses of  $\frac{1}{16}$ ", which is within the range of the knife projection from the lips of the knife bars, with reasonable caution the operator can plane with this machine to  $\frac{1}{32}$ " thickness should the occasion ever arise. Maximum bed drop is 7 inches. Depth or range of cuts from  $\frac{1}{16}$ " to  $\frac{3}{4}$ " controlled by the Front Girt Gauge. Length of stock, minimum: 14" fed through singly, 4" pieces butted. Widths limited to width of bed (see specifications). With the exclusive controls furnished with this machine, described later on, a great variety of planing, first and finish cutting, can be done intermittently — dozens of operations perhaps, over a short period of time — and every one will have the right roll setting, the right bar setting, the right rate of feed, and the right speed; because the settings are quick, with Finger Wheels and Levers; and the settings are all marked in thousandths, therefore finish planing is done with far more speed and practicality with a Buss Planer.

### MOTORS

Motors used on Buss Planers are of the standard shaftless type, fully protected  $40^\circ$  with normal torque and a low starting current controlled by magnetic switches and push buttons. The efficiency of this construction is employed by using the rotor and stator and applying the power with close construction supported by large end bells bolted direct to the machine side frame. These rotors and stators are short and of large diameter and are built directly into the cutter heads. This construction enables the speed of the cutter heads to be stepped up from the normal 3600 RPM to as high as 7200 RPM through high frequency current. The high speed of the cutterheads results in a fine finish at a higher production rate of feed.

### LARGE DIAMETER CUTTERHEADS VIBRATIONLESS AT ALL SPEEDS

For smoother and easier cutting, the Cutterheads provided have unusually large diameters (cutting circle of the knives) — a full 5-7/16 inches. They are made of Alloy Forged Steel and are statically and dynamically

ALL THEIR SKILL AND LONG EXPERIENCE TO PLANERS EXCLUSIVELY

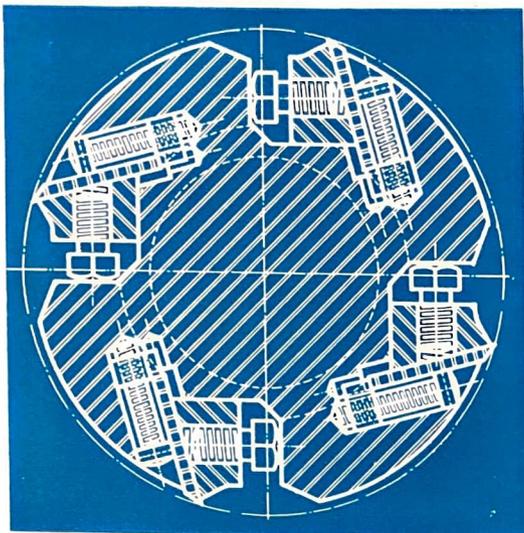


FIG. 2



FIG. 3



FIG. 4

balanced. Each Cutterhead carries four high-speed steel knives, and continuous steel chipbreaker knife bars locked with jack screws. (See Fig. 2). They are mounted in large precision ball bearing housings squarely over the frame. Reservoir oil lubricated. Vibrationless at all speeds. Driven by built-in motors direct on the arbors. Normal speeds 3600 to 6000 RPM. Equipped with mechanical brake.

### SECTIONALLY VENTILATED UPPER CHIPBREAKER

This BUSS Patented Drop Forged Steel Chipbreaker is made of one-piece forged sections 1-15/16" wide, having 3/8" independent yield, and has an automatic lift operated by the infeed rolls which prevents stock hitting high on the heel of the Chipbreaker when cuts greater than 1/4" are taken.

The heavy cast frame carrying the sections moves concentric with the cutter head on one-piece steel trunions that completely encircle the cutterhead. This is a very strong construction and no parts require adjustment or clog with dust. All planing up to 3/8" cuts is held solid to the bed by the individual sections that work with the direction of feed with firm pressure on the stock and with no binding effect. The entire chipbreaker is built to allow each individual section, when raised to its 1/2" limit, to be 1/4" from the full cutting circle. Cuts beyond 3/8" lift the entire chipbreaker on the circling trunions. The inside of the chipbreaker is smooth, and uniformly curved from the bits to above the cutterhead throat making a clean unobstructed passage for the material removed by the knives. It is ventilated its entire length, which greatly facilitates the exhaust system in removing chips, dust and shavings. The bits are completely machined and hardened to resist wear.

### SECTIONAL INFEEED ROLLS

#### 1" Wide or 2" Wide Sections Optional

The BUSS No. 88 has two Sectional Infeed Rolls. The 1" wide Sectional Infeed Roll is made of Drop Forged Steel Sections. The outer ring section is completely machined to 5-3/16" diameter and 1" wide, and corrugated to grip the lumber. It is driven by a six-splined forged steel spider section also completely machined, which in turn is driven by the keyed roll shaft, 1-15/16" diameter. The pockets recessed in the Outer Rings receive one end of the coil spring — 1 5/8" long — the opposite ends fit over

the forged integral pins on the driving forged steel spider sections. Thus, a positive strong gear action drive is obtained with minimum inside friction and wear. Each unit is packed in graphite grease and a thin steel divider is placed between each sectional unit. These dividers greatly prolong the life of the roll. They make a sealed pocket for every individual spring. The 1" Sectional Roll has 5/16" independent yield and is recommended for finishing work, narrow pieces or wide panel stock. (See Fig. 4).

**The 2" Sectional Roll** is made of steel castings of similar construction. The Outer Ring Section is completely machined to 5-3/16" diameter and 2" wide. It is driven by a staggered eight-splined spider section, bored and fitted to the 1-15/16" diameter keyed shaft. The 2" and 1" wide sections will interchange on the same Driving Roll Shaft. The 2" Sectional unit has eight springs each 2" long — four on each side. The dividers also interchange, and each unit is packed in graphite grease. This type of sectional roll has an independent yield of 3/8" and is recommended for first cutting of great variations, also finishing planing and wide panel stock. (See Fig. 5) (Selection optional).

### TOP PRESSURE BAR WITH INDEPENDENT END ADJUSTMENT

The Top Pressure Bar or Shoe directly behind the Cutterhead is a heavy cross section semi-steel casting, face ground to a hard mirror surface and Chromium Plated. This insures a straight bar with long wear, and chromium being one of the hardest non-friction metals, the stock is held firmly to the platen or center bed with the least frictional resistance. It is bolted from the top to the upper steel rail that has heavy spring tension at each end, and independent end adjustment, with positive indicating gears and locking springs. The ends of the Pressure Bar fit into milled slots or ways in the Cutterhead Bearing Housings. An additional feature is *take up gibs* in these ways to compensate for eventual wear. Thus, a perfect fit is maintained and the face of the Bar pressing the material is always flat or parallel with the work. Extremely close and accurate adjustment is afforded by the Quick Acting Micrometer Central Control described on page 9.

**Gearing:** The Feed Roll and Intermediate Gears are semi-steel, broad faced, and cut from the solid blanks. All small and fast running gears are eliminated by the use of a Worm and Gear Reduction Unit running in a bath of heavy oil.

### LOWER PRESSURE BAR

Like the top Pressure Bar, it is a semi-steel casting, face ground and Chromium Plated. It is set and carried even with the cutting circle of the knives. It has heavy springs and can be carried solid or with slight tension. Set screws with lock nuts at each end of this bar regulate the tension. It is raised or lowered for depth of cut as a unit with the Cutter Head.

### LOWER CHIPBREAKER

The lower Chipbreaker or Bar in front of the lower cutterhead is a large, solid steel unit, ground true and Chromium Plated. It is carried even with the center bed under the top cutterhead. It is positive locked, but is adjustable for parallelism if required.

### HAND WHEEL CONTROL OF ENTIRE LOWER HEAD ASSEMBLY

The Lower Head, Lower Pressure Bar and Lower Out-feed Roll are raised or lowered as a unit by means of the conveniently located Hand Wheel at the side of the machine. (Six turns of the Hand Wheel counter clockwise raises the Cutterhead 1/64"). For parallel setting, an adjusting screw with lock nut is provided. The top pressure plate over the lower Cutterhead is similar to the Center Bed under the Top Cutterhead. Heavily ribbed, semi-steel, normalized and ground to a mirror surface and chromium plated for long wear. The lower part fits close to the rolls, thus short, thin stock is successfully planed. This plate is Hand Wheel adjusted for operation and adjustable spring tensioned for different kinds of planing work.

### FEEDS

**Variable Feed:** Built into a Worm and Gear Reduction Unit with a 5 H.P., 1800 R.P.M. Motor giving rates of feed 25 feet to 75 feet per minute, or 35 feet to 105 feet per minute. Any desired rate of feed is quickly available, and selected for the kind of material to be surfaced and the production required. The Reduction Unit runs in heavy oil, eliminating all small and fast running gears. This type of feed is positive and absolutely insures the prevention of marking or burning the work due to the tendency of the feed to slow down or slip.

**Four rates of feed,** 27½, 41, 55, and 82 feet per minute, using a 5 H.P., multi-speed motor, are also available. The motor is built into the Worm and Gear Reduction Unit with a drum control and thermal relay protection.

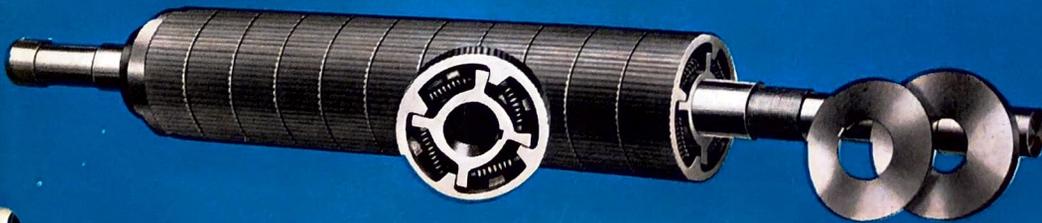


FIG. 5



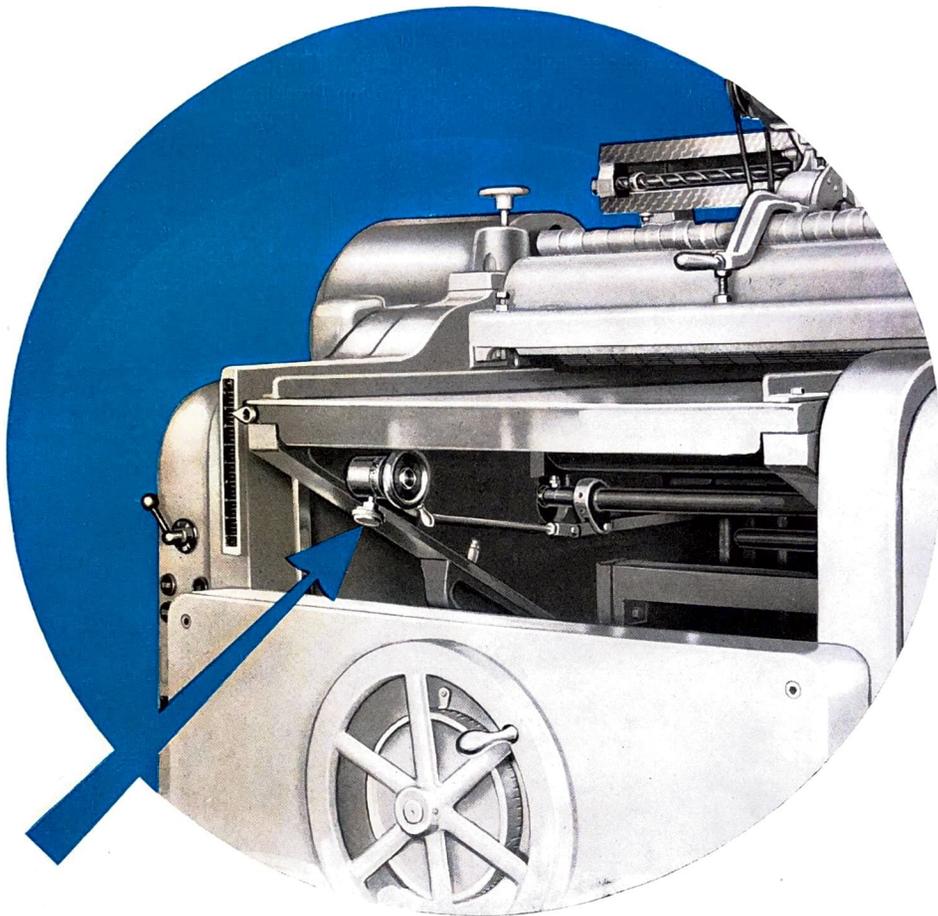


FIG. 6

## *Instant* **SIMULTANEOUS MICROMETER ADJUSTMENT OF LOWER ROLLS** (PATENT APPLIED FOR)

Adjustment of the first three lower feed or bed rolls to the proper heights for rough and finished planing is a slow and often inaccurate job on the ordinary planer since each roll must be individually set by means of two set screws. Consequently many operators give them an average setting and use it for both first and second cuts. This is too low for best results in roughing and too high for the finishing cut. The result is stoppage of the material under the Cutterheads, marking and burning of the work.

With the newly developed BUSS SIMULTANEOUS MICROMETER ADJUSTER the ideal setting of the rolls can be made in a matter of seconds by simply turning the conveniently located Hand Wheel to the set-

ting indicated in thousandths of an inch on the dial, at the operator's position at the front of the machine while the planer is running. Range of adjustment is from 0" to .40".

The combination of the SIMULTANEOUS MICROMETER ADJUSTMENT OF THE LOWER ROLLS described above and the INSTANT MICROMETER CENTRAL CONTROL OF BACK PRESSURE BAR described on the following page gives you the most flexible and accurate planer procurable—a planer that can be instantly adjusted to do the finest kind of work on each and every type of planing regardless of the variety encountered. Nowhere, except in the BUSS line, will you find this great combination of time-saving and better work promoting features.



**PRODUCT OF MORE THAN 80 YEARS**

# *Instant* MICROMETER CENTRAL CONTROL FOR BACK PRESSURE BAR (PATENTED)

***A Self-locking Parallel Adjustment that Prevents "Rocking" or "Swaying"***

This exclusive BUSS feature is one of the most advantageous improvements ever made in Planer construction. For clean, accurate and satisfactory planing, the Pressure Bar must be exactly parallel with the cutting circle — stock must be held firmly to the bed and not under such tension that will prevent it from moving forward freely without twisting and turning. In other words, the Pressure Bar must be adjusted with minute accuracy, especially with Cabinet Planers producing the finest possible grade of planing.

Different conditions of stock demand different Pressure Bar adjustments, as when stock is rough on two sides, a slight slackening of the pressure is desirable; and on stock with two smooth sides, to be replaned to thickness, the Pressure Bar must be set down a little for firmer contact. Then pressure increases slightly by reason of dulling the knives and the bar must be raised. True — adjustments are slight — measured in thousandths of an inch, yet are essential for fine, accurate work.

Prior to the patented Buss Pressure Bar Micrometer Ad-

justment shown here, adjustments were made with two elevating screws, one at each end of the Pressure Bar. Consequently after repeated uncalibrated adjustments, one end at a time, it was almost impossible to adjust the pressure bar evenly on both ends. The result was the bar out of alignment, twisting stock, unsatisfactory work and lost time.

THE BUSS Quick Acting MICROMETER CENTRAL CONTROL makes possible instant, self-locking, parallel adjustments by thousandths of an inch and eliminates all further independent end adjustments. Initial settings are made by means of the independent adjusting screws. All further settings occasioned by changing conditions of materials or knives are made instantaneously with the MICROMETER CENTRAL CONTROL, thus maintaining a steady flow of finished product. Also, intermittent operations, from first cutting to fine finishing, are instantly available. This is an extremely advantageous feature appreciated by every Planer operator because it prevents stock "turning", "sticking in the feed", "clipping" at the ends or variations in thickness of finished material.

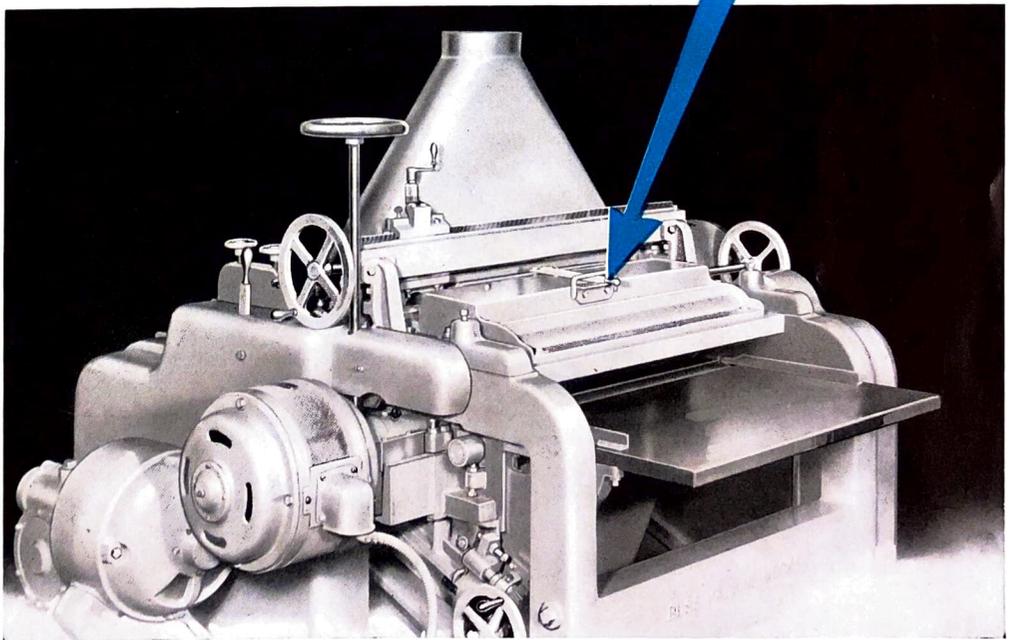


FIG. 7

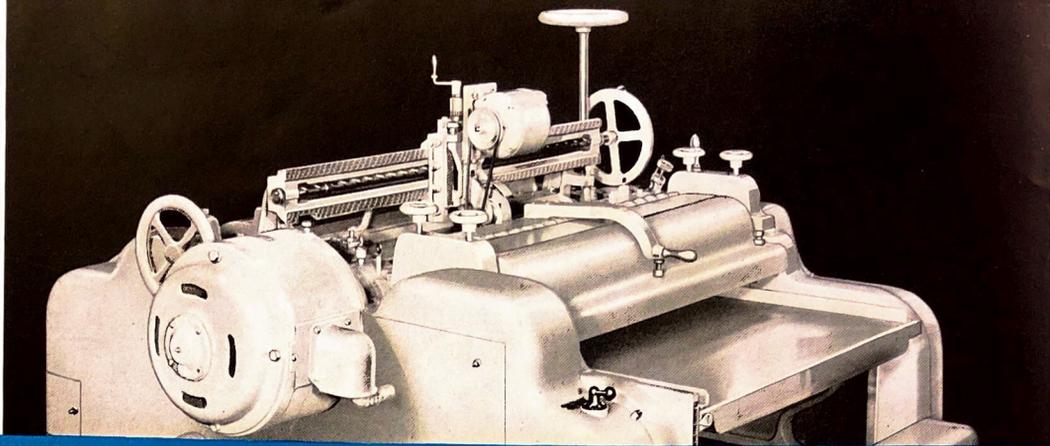


FIG. 9

## PRECISION – EFFICIENT – CONVENIENT EQUIPMENT FOR GRINDING AND JOINTING KNIVES (Built in)

Adjustments are provided for true paralleling of the Grinding Rails for both the Upper and Lower Cutterheads. The Vertical Screws in the Jointing and Grinding Heads are spring tensioned with Barrel Disc Indicators graduated for .001" setting for Down Feed of both Jointing Stone and Grinding Wheel. Large Hand Wheels provide fast uniform screw feed. A Plunger Lock for the Top Cutterhead and a Counter Weight for the Lower Cutterhead are provided to freeze the heads against a Knife Stop Indexing Device while grinding the Knives. (See Figures 9 and 10.) This is not only the simplest and most convenient method but is extremely accurate, and any degree of indexing for grinding different bevels is available. A Diamo-Carbo wheel dresser is furnished to keep the grinding wheel true round and free cutting. The Jointing and Grinding of the Knives in the Lower Cutterhead is easily accomplished by expelling the Head and Motor Assembly on a Dolly as a single unit by means of a Hand Wheel through a Rack and Pinion — a patented feature — making it possible to accurately and quickly joint and grind the Knives outside of the machine. (See Figure 10.) Steel Guards are provided for protection during the jointing operation. Inside JOINTING BAR for Lower Cutterhead is available.

With these exclusive and highly desirable BUSS features, the Knives in either the Upper or Lower Cutterhead can be precision ground and jointed in a few minutes time.

### SMOOTH FEED ROLLS

The BUSS No. 88 has six smooth STEEL feed rolls that work in connection with the Sectional Top Infeed Rolls. These rolls are made of steel tubing  $\frac{3}{4}$ " wall thickness. Semi-steel ends are pressed in. This unit is keyed onto the driving shaft — machine turned and ground to  $5\text{-}3/16$ " diameter. The ends of the shaft of  $1\frac{1}{2}$ " diameter are fitted with hardened ground sleeves that run in anti-friction roller bearings. Steel rolls grip the wood surfaces better than semi-steel or cast iron and this type of construction insures perfectly balanced rolls, consequently a steady feed. The top out feed roll is cover guarded and provided with a dust wiper.

### ROLL BOXES

The Roll Boxes on Buss Planers are exceptionally long; 6" long for all the top rolls and 5" long for all the lower rolls. They are  $2\frac{5}{8}$ " wide and  $2\frac{3}{4}$ " deep. Each roll box has **two anti-friction roller bearings**; one at each end; and a large central reservoir for lubricant. The

boxes are dustproof and carry the roll shaft of  $1\text{-}7/16$ " diameter special steel, on which are pressed the hardened roller bearing sleeves. Buss Roll Boxes are long, strong, double bearing units, and at the same time retain roll centers of  $13\frac{5}{8}$ " as well as the  $5\frac{5}{8}$ " distance between the first and second infeed roll.

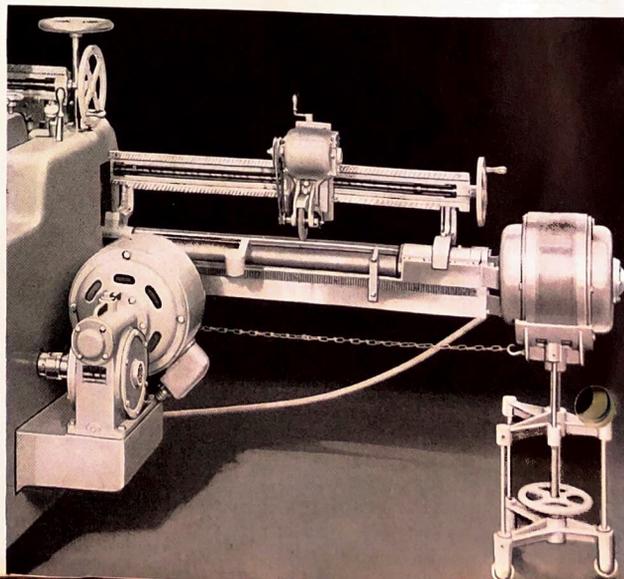
### SHEARING BAR (Patented)

A feature of considerable importance found only in Buss Planers is the heavy tool steel Plate machined to a Knife Edge, running the length of the top cutterhead and built into the Top Back Pressure Bar. This prevents loose knots from jamming between these two parts, preventing damage and greatly reducing shaving printing, by guiding the shavings directly to the exhaust system. (See Fig. 1.)

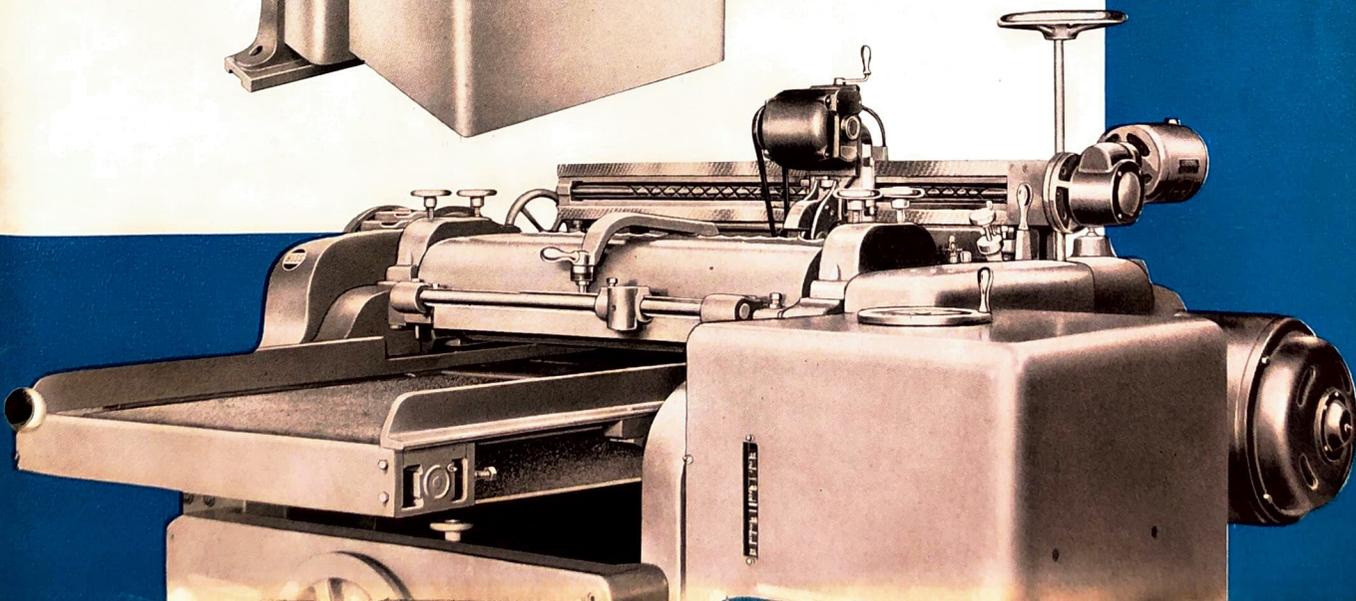
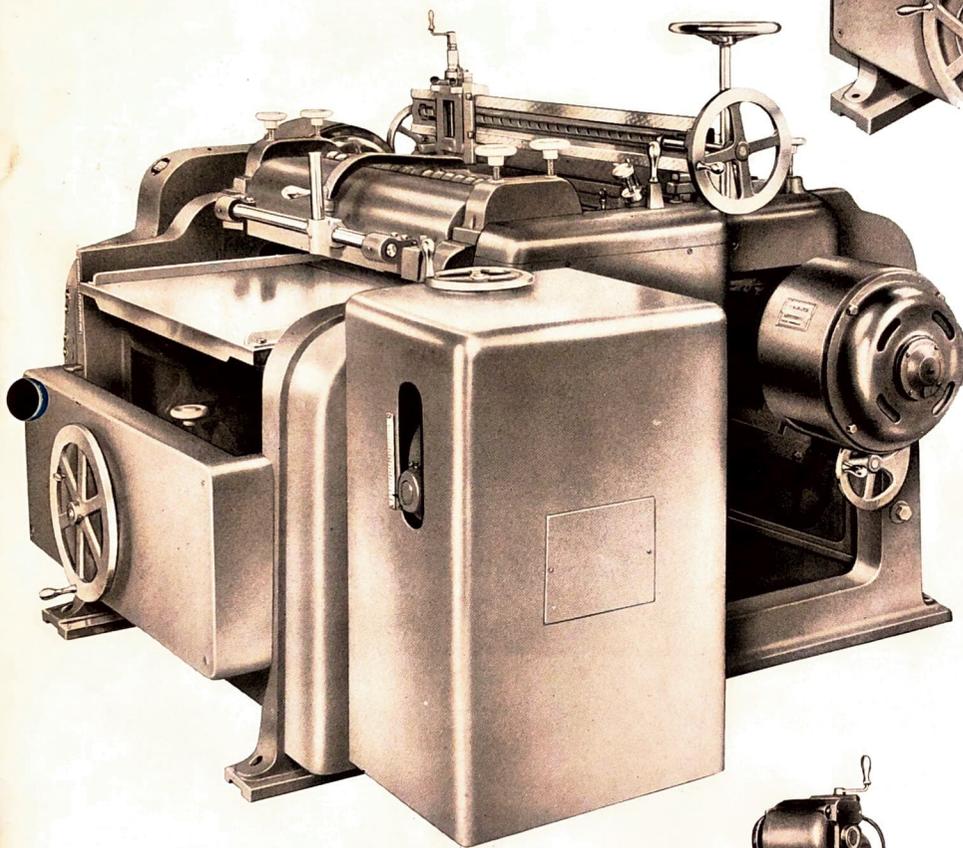
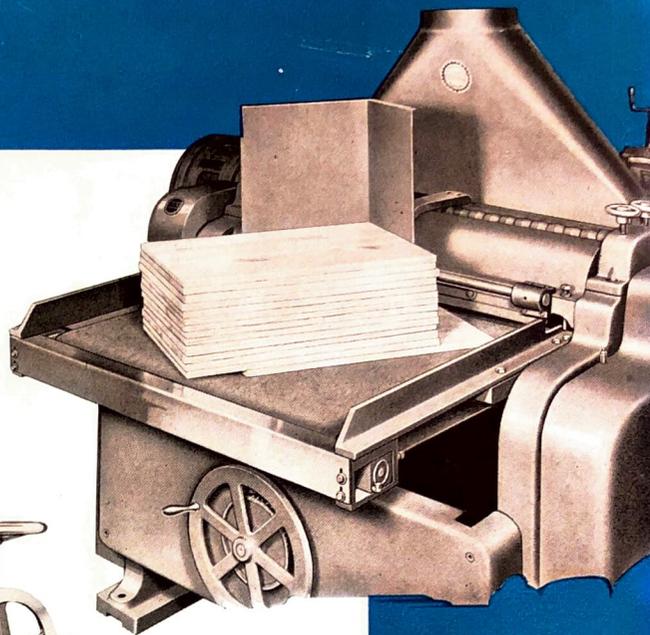
### SAFETY FEATURES

Every moving part is covered. The sectional rolls are guarded in connection with our "no-kick-back" Sectional Chipbreaker. Every possible precaution has been taken to guard against the operator who may become careless. This Bulletin describes Buss Planer Features both standard and extra. Details for special installations or material will be furnished on application.

FIG. 10



- *Right* —  
Illustrating: CONVEYOR BELT,  
HOPPER FEED.
- *Center* —  
Illustrating: VARIABLE FEED.
- *Lower* —  
Illustrating: AUTOMATIC MOTOR  
GRINDER, CONVEYOR  
BELT FEED, HOPPER  
REMOVED.



# Specifications

## BUSS No. 88 DOUBLE SURFACE PLANERS

	30" x 7"	36" x 7"	40" x 7"
<b>CAPACITY</b>			
Thickness . . . . .	1/8" to 7"	1/8" to 7"	1/8" to 7"
Shortest Stock . . . . .	Single pcs. 14" Butted 4"	Single pcs. 14" Butted 4"	Single pcs. 14" Butted 4"
<b>FEEDS</b>			
<b>VARIABLE FEED UNIT</b>			
Rates of Feed — Standard Feet per Minute . . . . .	All Rates 25 to 75	All Rates 25 to 75	All Rates 25 to 75
Rates of Feed — Available Feet per Minute . . . . .	35 to 105	35 to 105	35 to 105
<b>FOUR SPEED MOTOR UNIT</b>			
Rates of Feed — Available Feet per Minute . . . . .	27½, 41, 55, 82	27½, 41, 55, 82	27½, 41, 55, 82
<b>HORSEPOWER MOTORS</b>			
Upper Cutterhead . . . . .	20-25 H.P., 3600 R.P.M.	25 H.P., 3600 R.P.M.	25 H.P., 3600 R.P.M.
Lower Cutterhead . . . . .	15 H.P., 3600 R.P.M.	15 H.P., 3600 R.P.M.	15 H.P., 3600 R.P.M.
Power Raise and Lower . . . . .	½ H.P.,	½ H.P.,	½ H.P.,
Grinding . . . . .	¼ H.P.,	¼ H.P.,	¼ H.P.,
Feed . . . . .	5 H.P.,	5 H.P.,	5 H.P.,
<b>DIAMETER SHAVING HOOD OPENING</b>			
Upper Cutterhead . . . . .	10"	10"	10"
Lower Cutterhead . . . . .	8"	8"	8"
<b>FLOOR SPACE</b> . . . . .	98" x 78"	98" x 84"	98" x 88"
<b>WEIGHT, NET</b> . . . . .	11,500 lbs.	12,300 lbs.	13,000 lbs.
<b>WEIGHT, CRATED</b> . . . . .	12,000 lbs.	12,900 lbs.	13,700 lbs.
<b>WEIGHT, BOXED FOR EXPORT</b> .	13,000 lbs.	14,000 lbs.	14,900 lbs.
<b>CUBIC FEET, EXPORT BOXED</b> .	340	375	450

### LARGER SIZE CUTTER HEAD MOTORS FURNISHED TO ORDER

Electrical Equipment is all enclosed and wiring is according to N.E.M.A. specifications.

Power Current — 220 or 440 voltage, 60 cycle, 3 phase is standard equipment.

Other voltage, cycle, or phase can be furnished.

Higher frequency current application is available for all Buss Planers.

Grinding motor ¼ H.P. 1 phase to operate on 110-115 voltage is standard equipment.

Grinding motor to operate on power current, furnished on application.

# B U S S M A C H I N E W O R K S

201-217 W. 8th St.

HOLLAND, MICHIGAN

Telephone 2341

**THE BUSS IS A REAL PLANER**