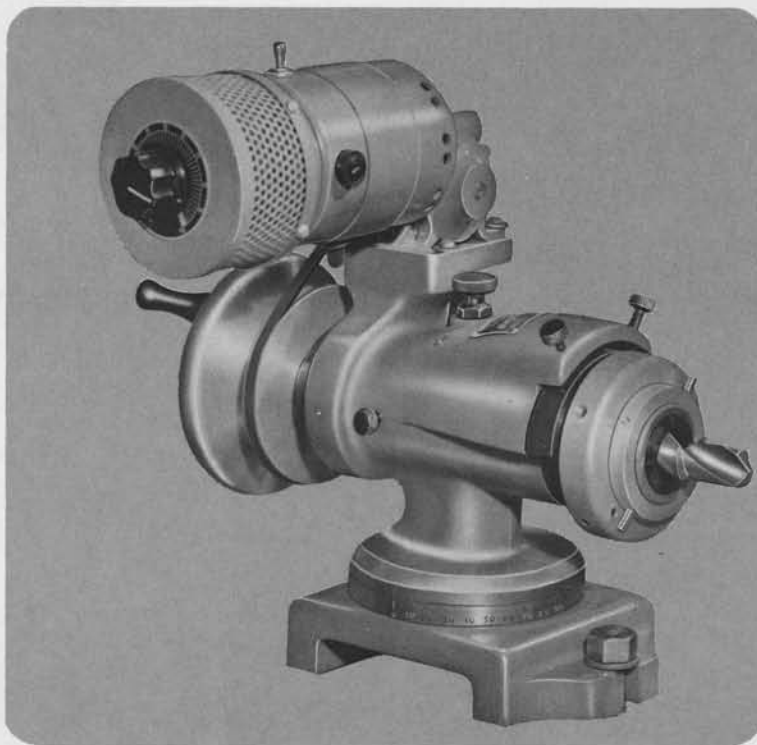


# HARIG® STEPTOOL RELIEF-GRINDING FIXTURE

SIMPLEST AND  
MOST VERSATILE  
DUAL PURPOSE  
GRINDING FIXTURE

- CAM RELIEF...
- DRILL POINTING



MODEL S



**HARIG PRODUCTS, INC.**

1875 Big Timber Road · Elgin, Illinois 60120 U.S.A. Phone (312) 695-1000  
TWX 910-251-3363

# HARIG® STEPTOOL RELIEF- GRINDING FIXTURE

## QUICKLY PAYS FOR ITSELF

**LABOR SAVINGS:** Grinding tools with eccentric relief is no longer an involved, complex operation. A great variety of simple basic tools and also intricate "specials" can now be ground to print or re-sharpened without highly skilled operators. No cams or gearing to buy or change: a single solid cam, infinitely adjustable, produces all lifts, left or right hand—"Like having 1,000 built-in cams in one." Lip-positioner locates drills precisely.

### FAST OPERATION:

- Change from right to left hand in *seconds*.
- Change to different number of flutes in *1 minute*.
- Adjust for more or less relief in *seconds*.
- Change collets in *seconds*.

**GRINDS IN "TENTHS":** Far greater accuracy than ordinary commercial tolerance drill grinders . . . *high precision* pointing and relief grinding!

**CAPACITY:** Grinds from #70 thru 1½". L or R hand, straight or taper shank.

**ACCURATE AND WELL ENGINEERED:** No limit to number of flutes. Perfect automatic indexing . . . perfect concentricity. Variable speed drive. Base graduated 360°.

GET RID OF "HIDDEN OVERHEAD"—PUT HARIG'S RELIEF-GRINDING FIXTURE TO WORK FOR YOU!

**JOB-PROVEN IN ALL K**  
the most versatile, economical,  
available. Produces HELIXPOINT  
(a "must" for tape control drilling)

**SPEED CONTROL DIAL . . .**  
Infinitely variable control over spindle speed makes grinding a pleasure. Simply turn the dial to change speeds.

**NEUTRAL KNOB . . .** Divorces action from the cam for plain cylindrical grinding.

**FINELY GRADUATED SWIVEL BASE** swings fixture universally to angular settings without limitation.

**MODEL S**

**NOVEL  
FEATURES  
SIMPLIFY  
OPERATION**



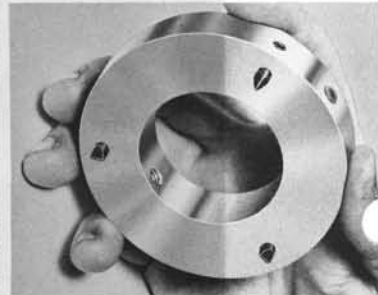
Infinite cam adjustments to vary the clearance angle are made merely by shifting two buttons.



Tools located by grasping with lip-positioner and inserting into fixture against positive stop.



Center gauge locates odd flute numbers.

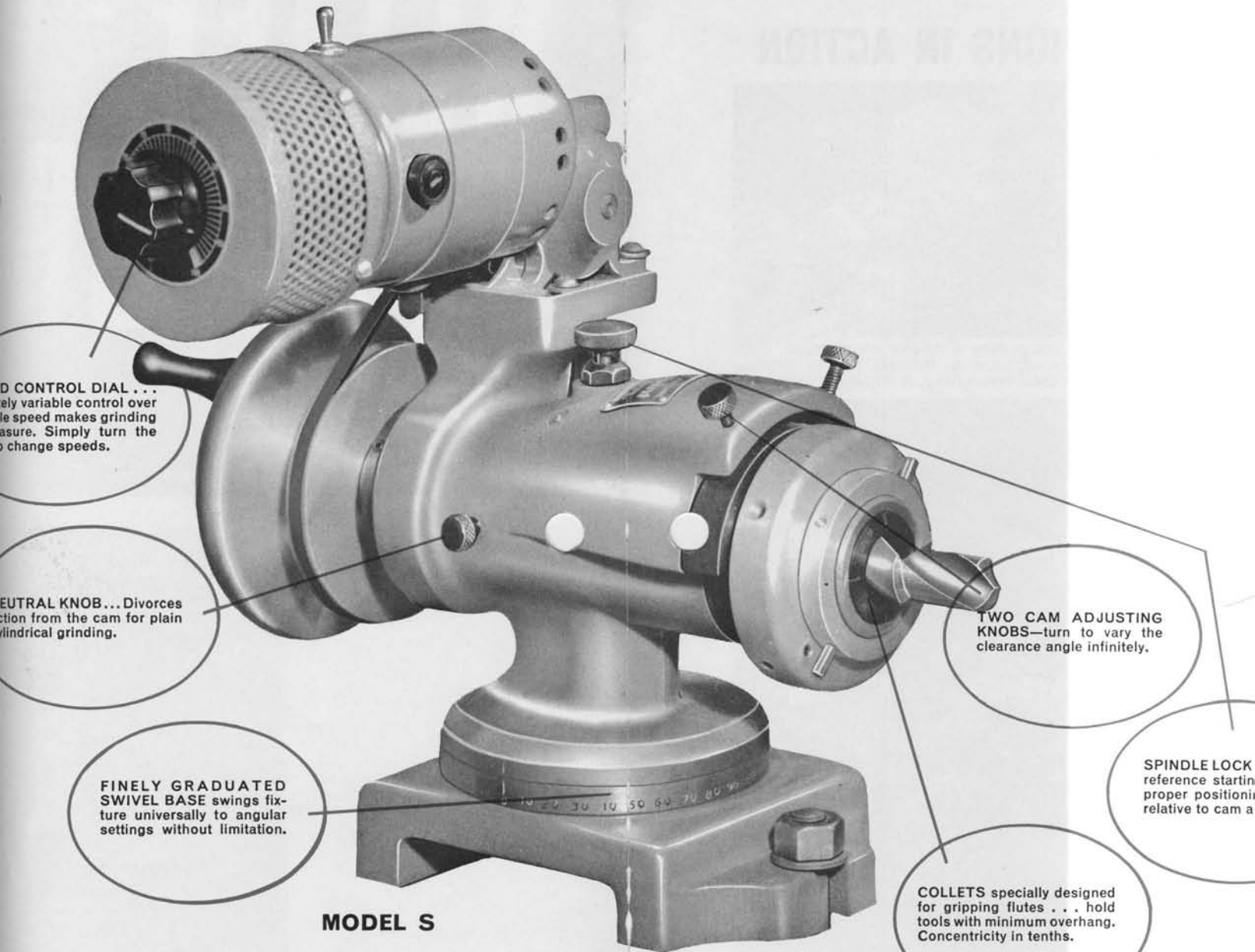


No limit to flute numbers from 1 to 24 including odd numbers. Change to different number of flutes.

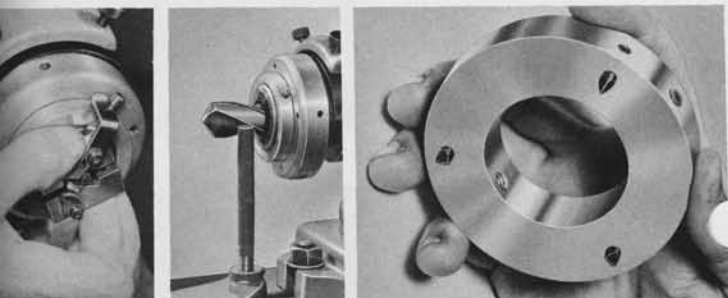
# JOB-PROVEN IN ALL KINDS OF METALWORK

the most versatile, economical, easy-to-use precision cam-relief grinding machine available. Produces HELIXPOINTS

(a "must" for tape control drilling)



**MODEL S**



by grasping with  
and inserting into  
st positive stop.

Center gauge locates  
odd flute  
numbers.

No limit to flute numbers from 1 to 24  
including odd numbers. Change to dif-  
ferent number of flutes.

## SPECIFICATIONS (Motorized Model)

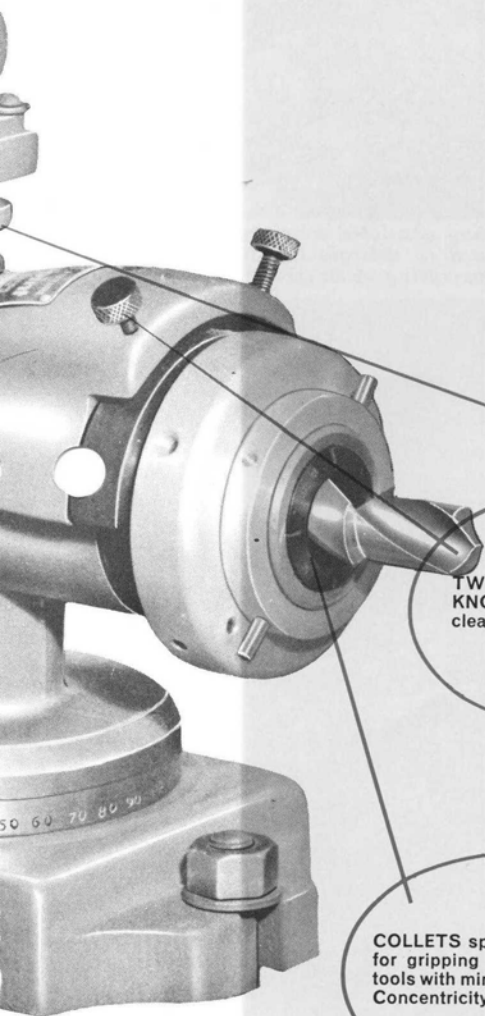
|                    | <b>Model S</b>   |
|--------------------|------------------|
| Range              | #70 thru 1 1/16" |
| Range of Angles    | No limitation    |
| Area of Base       | 8" x 5"          |
| Motor, 110 Volt    | Variable speed   |
| Dimensions, length | 12"              |
| Height             | 12"              |
| Width overall      | 10"              |
| Weight             | 40 lbs.          |



# KINDS OF METALWORKING PLANTS

easy-to-use precision cam-relief grinder and drill pointer

S



TWO CAM ADJUSTING KNOBS—turn to vary the clearance angle infinitely.

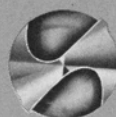
SPINDLE LOCK... Acts as reference starting point for proper positioning of tools relative to cam action.

COLLETS specially designed for gripping flutes . . . hold tools with minimum overhang. Concentricity in tenths.

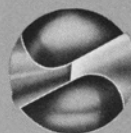
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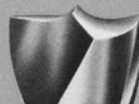
GRINDS ANY TYPE OF DRILL, WITHOUT EXCEPTION



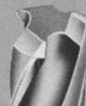
SPLIT-CRANKSHAFT POINT (Also modified-split and web thinned)



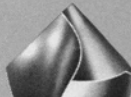
CONVENTIONAL (chisel point)



SHEET METAL AND SPUR-POINT

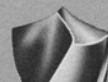


CORE DRILL POINTS  
3 and 4 flute



PLASTIC  
(long point)

## HELIXPOINTS



(6 general types) (end view)  
. . . steadily increasing in application in many plants

1. Self-centering (no walking)
2. Better hole size
3. Smaller burrs
4. Bell mouthing reduced
5. Improved finish
6. Increased drill life

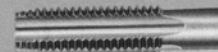
THE SIMPLEST, FASTEST WAY TO DO CAM-RELIEF GRINDING ON AN END-LESS VARIETY OF TOOLS



SINGLE-STEP DRILLS



MULTIPLE-STEP DRILLS



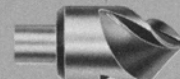
TAPS



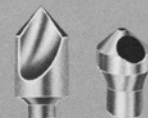
SPECIAL FORM AND STEP TOOLS



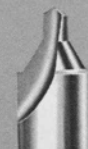
INTRICATE END-CONTOUR TOOLS



SPIRAL FLUTE COUNTERSINKS



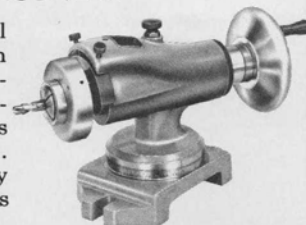
SINGLE FLUTE-DEBURRING COUNTERSINKS



COMBINED DRILL AND COUNTERSINK

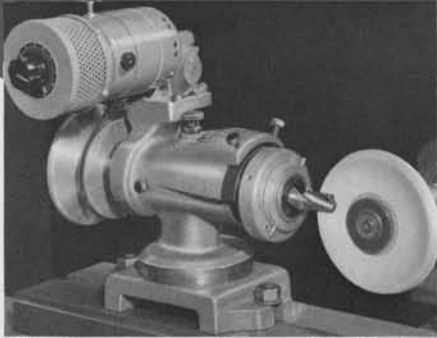
## HAND OPERATED MODEL M

Recommended for small shops having a minimum amount of tools—a favorite among screw machine shops and plants with limited usage. Priced economically enough to make savings felt.



# HARIG® STEPTOOL RELIEF- GRINDING FIXTURE

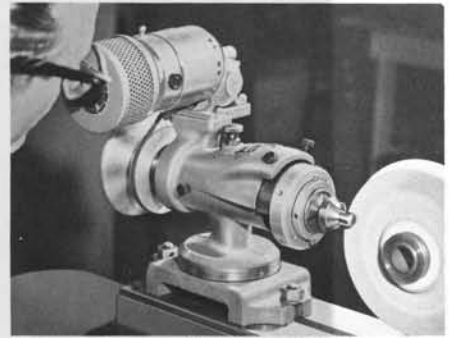
## A FEW OPERATIONS IN ACTION



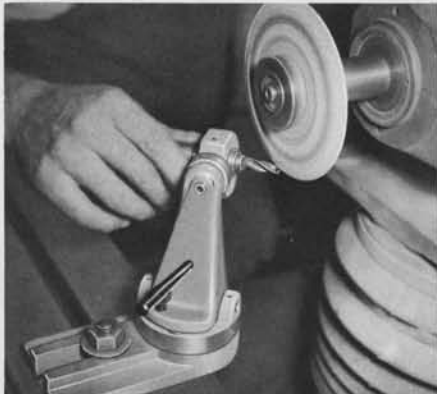
*Grinding a stepdrill to point. Savings can pay for fixture in three months. A five to 20-minute operation.*



*Sharpening a tap. Ten seconds of rotation and the tap is sharp and ready to cut.*

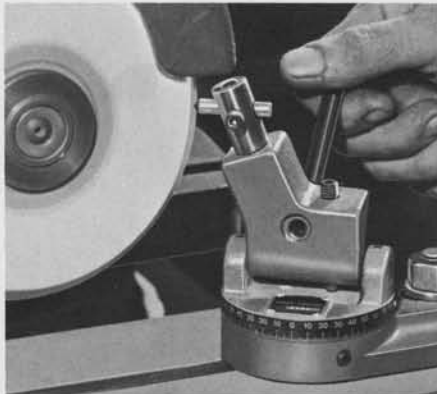


*Sharpening a piloted countersink. Cam is adjusted to delicate lift to produce chatterless cutting. A 10-second operation.*



*SPIRA-MARGIN fixture thinning the web, or splitting the point.*

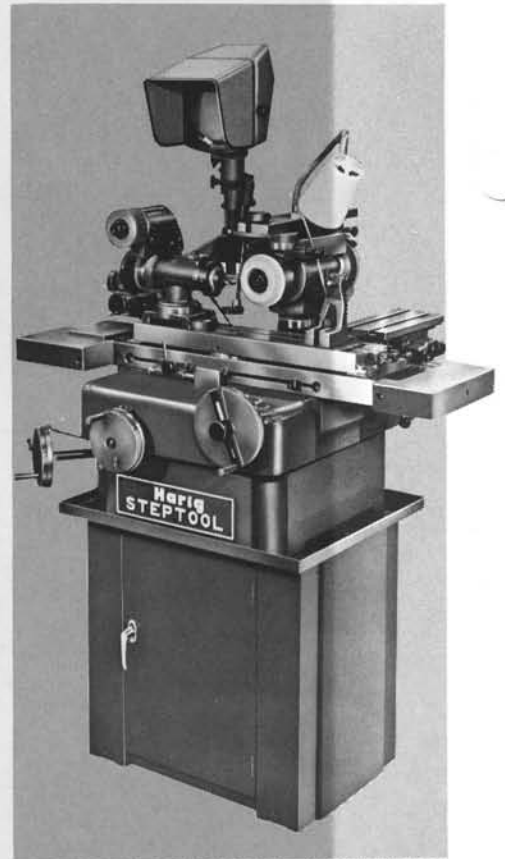
## ACCESSORIES AND MACHINES



*ANGLE DRESSER is completely universal-low cost. May be left on machine.*



*Spira-Margin fixture creating a double margin twist drill, which will greatly improve hole size accuracy.*



*HARIG STEPTOOL "3 in 1" MACHINE — DRILL POINTER, RELIEF and TOOL GRINDER. A complete floor model machine. Write for literature.*

*Design changes, specifications, and arrangements subject to change without notice.*



*HARIG AIR-FLO® fixture . . . for sharpening end mills and milling cutters.*

*Write for literature.*

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