INSTRUCTION MANUAL

Hollow Chisel Mortiser

(Model 14-650)

PART NO. 900651 (011)

DELTA

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visit our website at: **www.deltamachinery.com.**

ESPAÑOL: PÁGINA 19

For Parts, Service, Warranty or other Assistance,

please call 1-800-223-7278 (In Canada call 1-800-463-3582).

SAFETY RULES

Woodworking can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. Safety equipment such as guards, push sticks, hold-downs, featherboards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. Always use common sense and exercise caution in the workshop. If a procedure feels dangerous, don't try it. Figure out an alternative procedure that feels safer. REMEMBER: Your personal safety is your responsibility.

This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, DO NOT use the machine until you have first contacted Delta to determine if it can or should be performed on the product.

Technical Service Manager
Delta Machinery
4825 Highway 45 North
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(IN CANADA: 505 SOUTHGATE DRIVE, GUELPH, ONTARIO N1H 6M7)

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL**. Learn the tool's application and limitations as well as the specific hazards peculiar to it.

2. **KEEP GUARDS IN PLACE** and in working order.

3. **ALWAYS WEAR EYE PROTECTION**.

4. **REMOVE ADJUSTING KEYS AND WRENCHES**. Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".

5. **KEEP WORK AREA CLEAN**. Cluttered areas and benches invite accidents.

6. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.

7. **KEEP CHILDREN AND VISITORS AWAY**. All children and visitors should be kept a safe distance from work area.

8. **MAKE WORKSHOP CHILDPROOF** – with padlocks, master switches, or by removing starter keys.

9. **DON'T FORCE TOOL**. It will do the job better and be safer at the rate for which it was designed.

10. **USE RIGHT TOOL**. Don't force tool or attachment to do a job for which it was not designed.

11. **WEAR PROPER APPAREL**. No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.

12. **ALWAYS USE SAFETY GLASSES**. Wear safety glasses. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty. These safety glasses must conform to ANSI Z87.1 requirements. Note: Approved glasses have Z87 printed or stamped on them.

13. **SECURE WORK**. Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

14. **DON'T OVERREACH**. Keep proper footing and balance at all times.

15. **MAINTAIN TOOLS IN TOP CONDITION**. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

16. **DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits, cutters, etc.

17. **USE RECOMMENDED ACCESSORIES**. The use of accessories and attachments not recommended by Delta may cause hazards or risk of injury to persons.

18. **REDUCE THE RISK OF UNINTENTIONAL STARTING**. Make sure switch is in "OFF" position before plugging in power cord.

19. **NEVER STAND ON TOOL**. Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

20. **CHECK DAMAGED PARTS**. Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function – check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

21. **DIRECTION OF FEED**. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

22. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF**. Don't leave tool until it comes to a complete stop.

23. **DRUGS, ALCOHOL, MEDICATION**. Do not operate tool while under the influence of drugs, alcohol or any medication.

24. **MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while motor is being mounted, connected or re-connected.

25. **THE DUST GENERATED** by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

26. **WARNING: SOME DUST CREATED BY POWER SANDING, SAWING, GRINDING, DRILLING, AND OTHER CONSTRUCTION ACTIVITIES** contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

SAVE THESE INSTRUCTIONS

ADDITIONAL SAFETY RULES FOR HOLLOW CHISEL MORTISERS

1. **DO NOT** operate your mortiser until it is completely assembled and installed according to the instructions.

2. **IF YOU ARE NOT** thoroughly familiar with the operation of mortisers, obtain advice from your supervisor, instructor, or other qualified person.

3. **MAKE CERTAIN** the machine is fastened to a supporting surface to prevent it from tipping over during operation.

4. **NEVER** turn the mortiser **"ON"** before clearing the table of all objects (tools, scrap pieces, etc.).

5. **ALWAYS** keep hands, fingers and hair away from the rotating bit.

6. **DO NOT** attempt to mortise material that does not have a flat surface, unless a suitable support is used.

7. **ALWAYS** position holddown directly over workpiece to prevent workpiece from lifting during operation.

8. **ALWAYS** support workpiece securely against fence to prevent rotation.

9. **BE SURE** drill bit is sharp, not damaged, and properly secured in the chuck before operation.

10. **MAKE SURE** chuck key is removed before starting machine.

11. **NEVER** turn on the power with the drill bit or chisel contacting the workpiece.

12. **NEVER** perform layout, assembly, or set-up work on the table while the mortiser is operating.

13. **ADJUST** the depth stop to avoid drilling into the table.

14. **ALWAYS** turn off the power before removing scrap pieces from the table.

15. **SHUT-OFF** the power, remove the drill bit and chisel, and clean the table before leaving the machine.

16. **FOR YOUR OWN SAFETY** – Don't wear gloves when operating the machine.

17. **SHOULD** any part of your tool be missing, damaged, or fail in any way, or any electrical component fail to perform properly, shut off switch and remove plug from power supply outlet. Replace missing, damaged, or failed parts before resuming operation.

18. **THE USE** of attachments and accessories not recommended by Delta may result in the risk of injuries.

19. **ADDITIONAL INFORMATION** regarding the safe and proper operation of this product is available from the National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143-3201 in the Accident Prevention Manual for Industrial Operation and also in the Safety Data Sheets provided by the NSC. Please also refer to the American National Standards Institute ANSI 01.1 Safety Requirements for Woodworking Machinery and the U.S. Depart-ment of Labor OSHA 1910.213 Regulations.

20. **GROUND ALL TOOLS**. If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle. If an adapter is used to accommodate a two-prong receptacle, the adapter lug must be attached to a known ground. Never remove the third prong.

21. **WHEN THE TOOL IS NOT IN USE** the switch should be locked in the **"OFF"** position to prevent unauthorized use.

22. **SAVE THESE INSTRUCTIONS**. Refer to them frequently and use them to instruct other users.

UNPACKING AND CLEANING

Carefully unpack the mortiser and all loose items from the carton. Remove the protective coating from the machined surfaces of the mortiser. This coating may be removed with a soft cloth moistened with kerosene. Do not use acetone, gasoline, or lacquer thinner for this purpose. Fig. 2 illustrates the mortiser and all loose items removed from the carton.

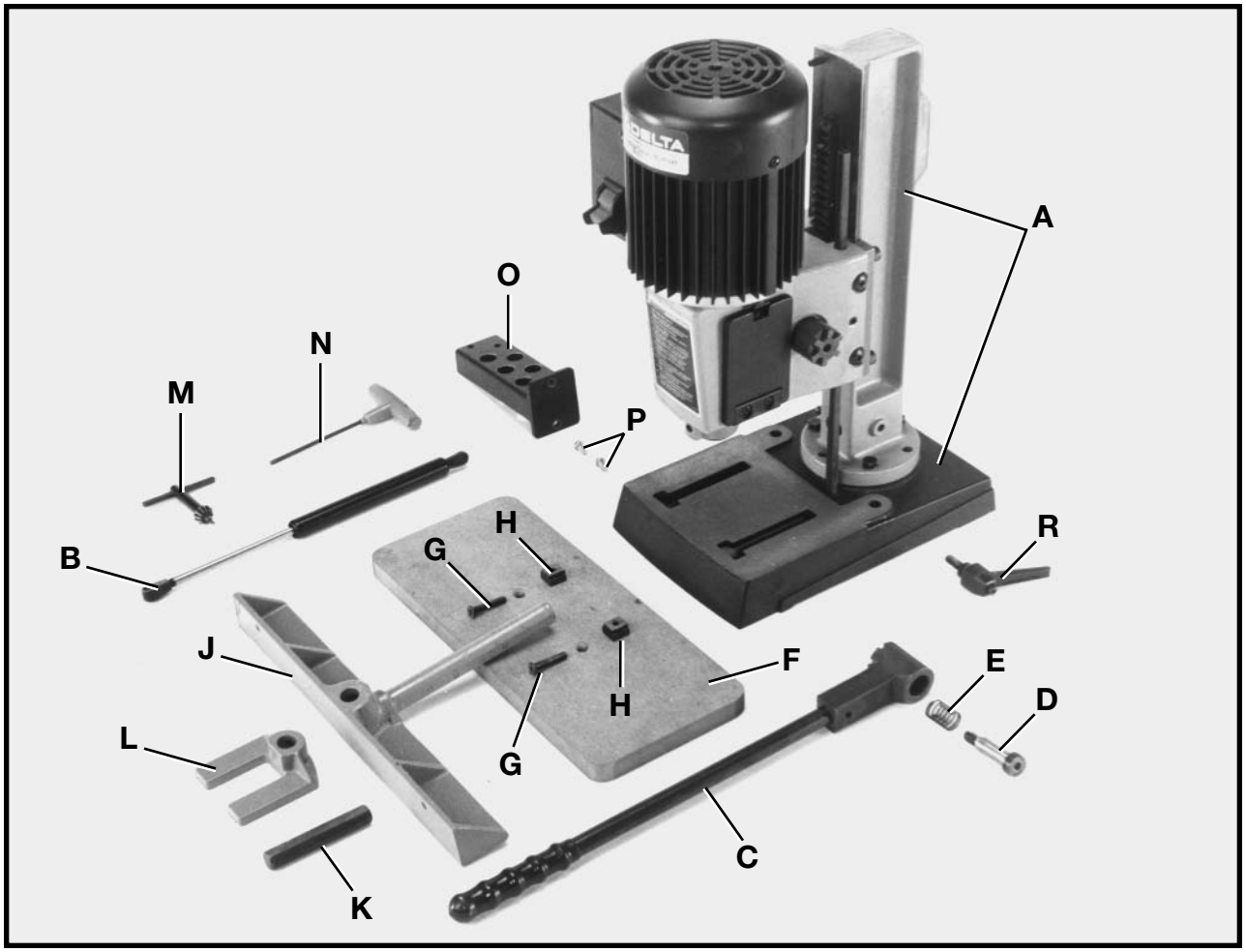

Fig. 2

A - Mortising Machine
B - Hydraulic Cylinder
C - Raising and Lowering Handle
D - Special Screw (for raising and lowering handle)
E - Spring (for raising and lowering handle)
F - Table
G - M6 x 35mm Flat Head Screws (for assembling table to base)
H - T-Nuts (for assembling table to base)
J - Fence
K - Bar (for mounting holddown)
L - Holddown
M - Chuck Key
N - Wrench
O - Tool and Chisel Holder
P - M6 x 25mm Screws (for assembling tool and chisel holder)
* - Flat Washers (for assembling tool and chisel holder)
R - Fence Locking Handle Assembly

* - Not Shown

ASSEMBLY INSTRUCTIONS

⚠WARNING: FOR YOUR OWN SAFETY, DO NOT CONNECT THE MACHINE TO THE POWER SOURCE UNTIL THE MACHINE IS COMPLETELY ASSEMBLED AND YOU HAVE READ AND UNDERSTOOD THE ENTIRE OWNER'S MANUAL.

ASSEMBLING RAISING AND LOWERING HANDLE

1. Assemble hub of handle assembly (A) Fig. 3, to end of pinion shaft (B) and fasten handle to pinion shaft using special screw (C) and spring (D).

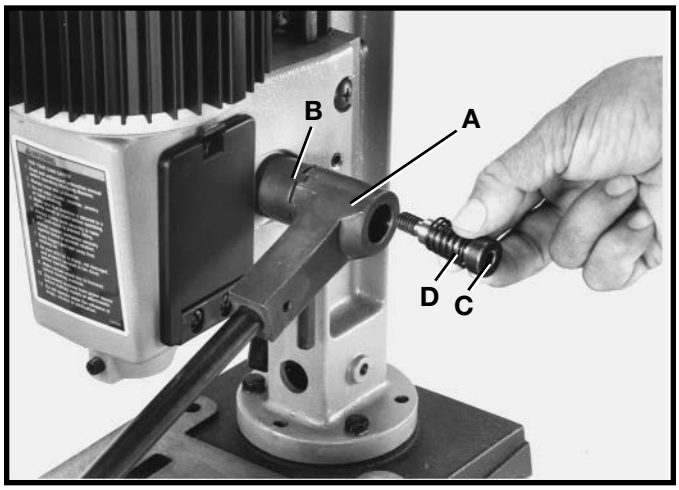

Fig. 3

2. Raise mortising machine head (E) Fig. 4, to the up position by turning handle (A) clockwise. **NOTE:** Handle (A) is spring-loaded and can be repositioned by pulling out handle and repositioning it on pinion shaft (B).

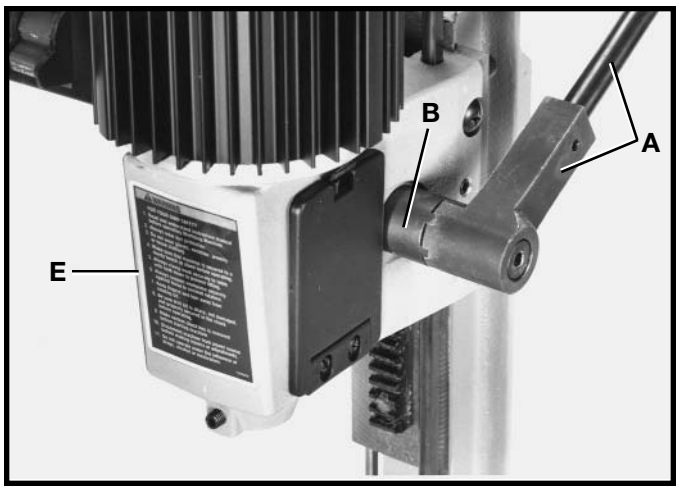

Fig. 4

ASSEMBLING HYDRAULIC CYLINDER

1. Make sure head (A) Fig. 5, is held in the up position and assemble the hydraulic cylinder (B) to the two fittings (C), one located on the column and the other on the back of the head.

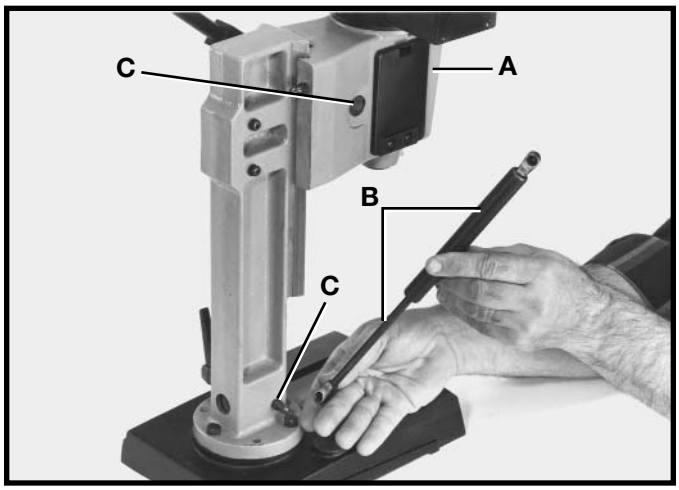

Fig. 5

2. Fig. 6, illustrates the hydraulic cylinder (B) assembled to the machine. The hydraulic cylinder (B) keeps the head in the up position.

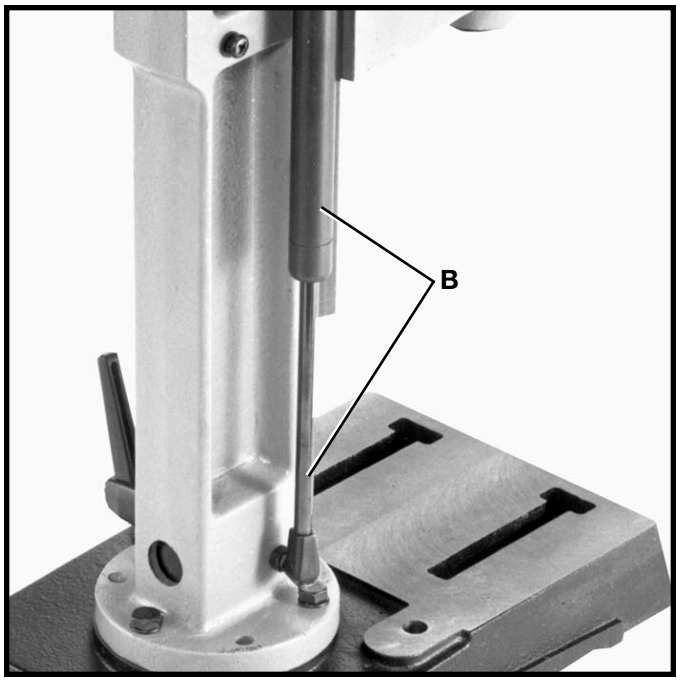

Fig. 6

ASSEMBLING TABLE

1. Assemble the table (A) Fig. 7, to the base using the two M6 x 35mm flat head screws (B) and T-nuts (C). Insert the two screws (B) into the two holes (D) in table board (A). Place the two T-nuts (C) into the slots provided in the bottom of the base and tighten the two screws (B) into the two T-nuts (C) securely.

2. The table (A) Fig. 7, can be moved in or out by loosening the two screws (B), and re-positioning the table, and then tightening screws (B).

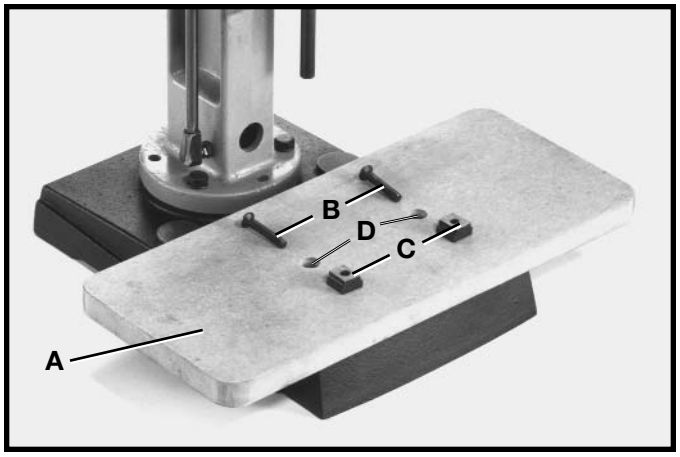

Fig. 7

ASSEMBLING FENCE AND HOLDDOWN

1. Locate handle assembly and remove screw (A) Fig. 8, and spring (B) from handle (C). Seperate handle (C) from stud (D). Do not lose spring (B).

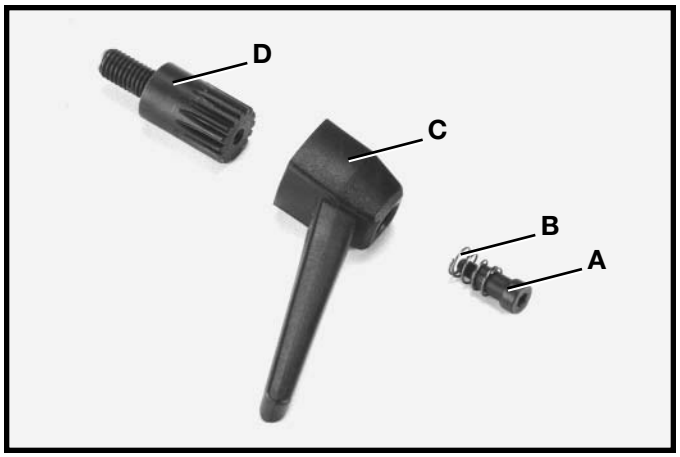

Fig. 8

2. Thread stud (D) Fig. 9, into hole on side of column, as shown. Do not thread stud (D) all the way into hole at this time.

3. Reassemble handle (C) Fig. 9, on stud (D) and replace screw (A) and spring (B).

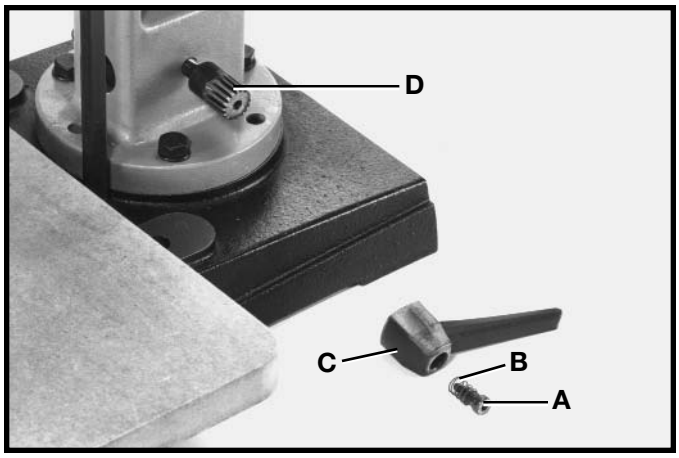

Fig. 9

4. Fig. 10 illustrates the handle assembly (C) assembled to the column.

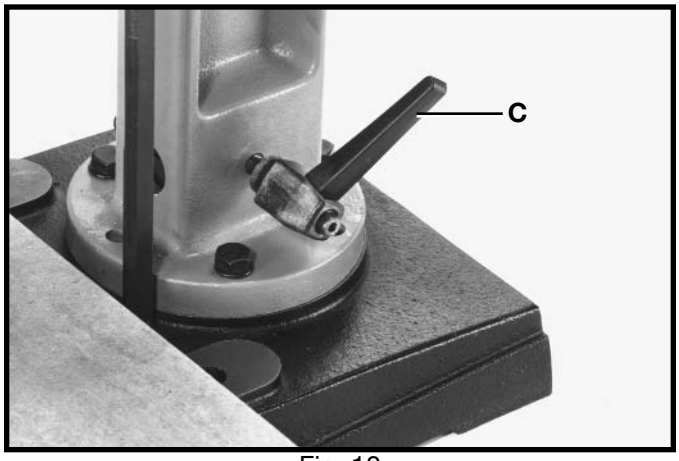

Fig. 10

5. Insert bar of fence assembly (E) Fig. 11, through hole in column as shown. Tighten handle (C) against flat on fence bar to hold fence in position. **NOTE:** Handle (C) is spring-loaded and can be repositioned on the stud located underneath the handle by pulling out the handle and repositioning it on the stud.

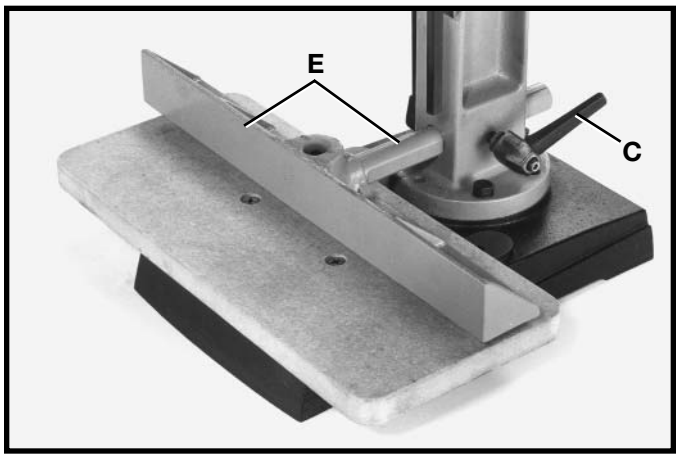

Fig. 11

6. Insert bar (F) Fig. 12, into hole on top of fence as shown, and tighten set screw (G) against flat on bar (F).

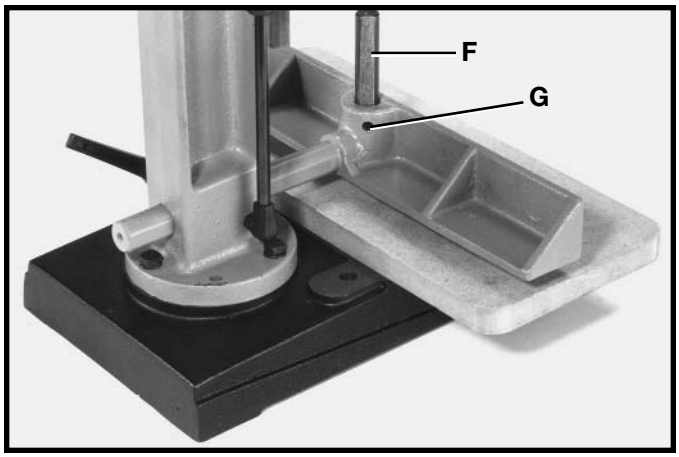

Fig. 12

7. Assemble the holddown (H) Fig. 13, onto bar (F) as shown, and tighten set screw (J) against flat on bar.

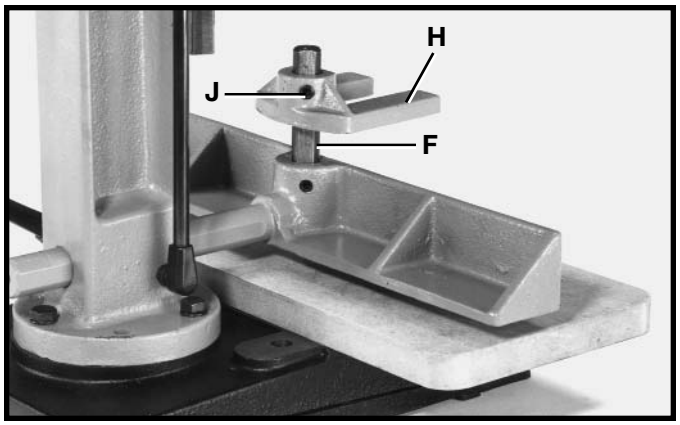

Fig. 13

ASSEMBLING TOOL AND CHISEL HOLDER

1. Assemble tool and chisel holder (A) Fig. 14, to side of column using the two M6 x 25mm screws (B) and flat washers as shown.

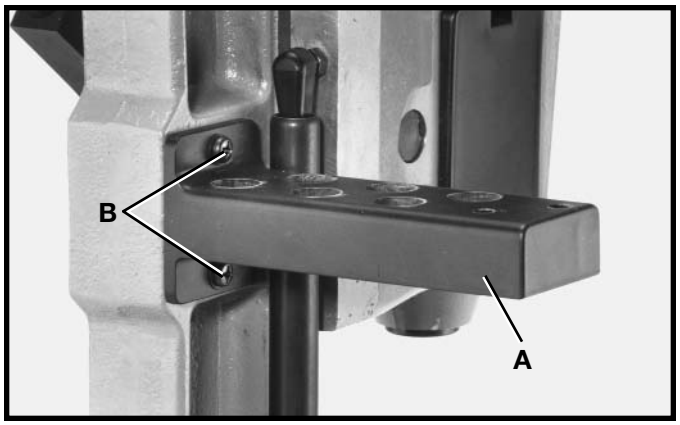

Fig. 14

2. Fig. 15, illustrates the chuck key (C), wrench (D) and chisels and bits (E) in holes of tool and chisel holder (A) when not in use.

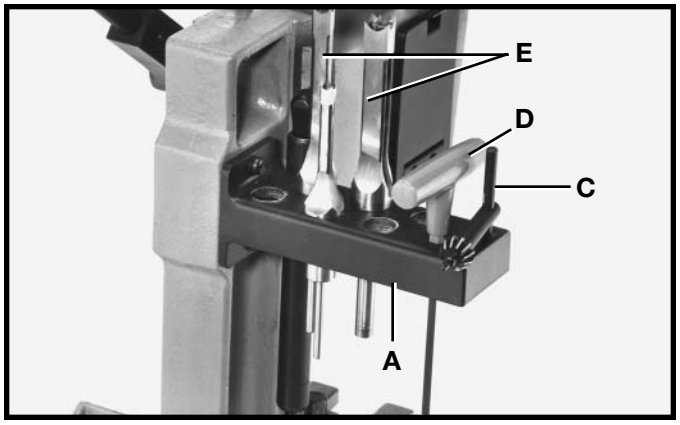

Fig. 15

FASTENING MORTISER TO SUPPORTING SURFACE

This machine must be fastened to a supporting surface to prevent it from tipping during operation. Two holes are supplied in the base casting to accept screws (A) Fig. 16, for this purpose.

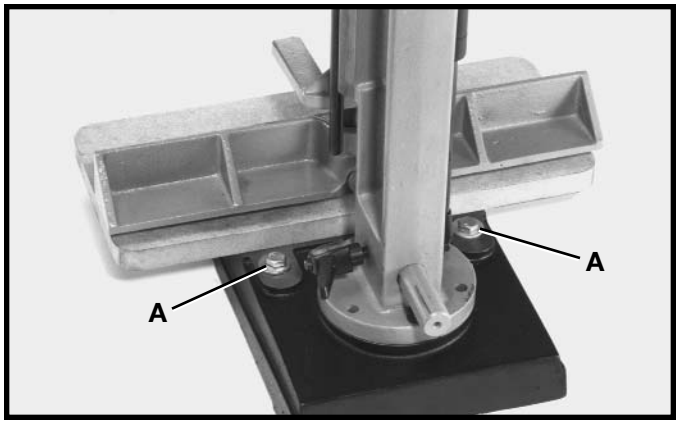

Fig. 16

CONNECTING MORTISER TO POWER SOURCE

POWER CONNECTIONS

A separate electrical circuit should be used for your tools. This circuit should not be less than #12 wire and should be protected with a 20 Amp time lag fuse. If an extension cord is used, use only 3-wire extension cords which have 3-prong grounding type plugs and 3-pole receptacles which accept the tool's plug. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as indicated on the tool. All line connections should make good contact. Running on low voltage will damage the motor.

GROUNDING INSTRUCTIONS

CAUTION: THIS TOOL MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. The motor is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding type plugs and 3-hole receptacles that accept the tool's plug, as shown in Fig. 17.

Repair or replace damaged or worn cord immediately.

This tool is intended for use on a circuit that has an outlet and a plug that looks like the one shown in Fig. 17. A temporary adapter, which looks like the adapter illustrated in Fig. 18, may be used to connect this plug to a 2-pole receptacle, as shown in Fig. 18, if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. **THIS ADAPTER IS NOT APPLICABLE IN CANADA**. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground, such as a properly grounded outlet box, as shown in Fig. 18.

CAUTION: IN ALL CASES, MAKE CERTAIN THE RECEPTACLE IN QUESTION IS PROPERLY GROUNDED. IF YOU ARE NOT SURE, HAVE A CERTIFIED ELECTRICIAN CHECK THE RECEPTACLE.

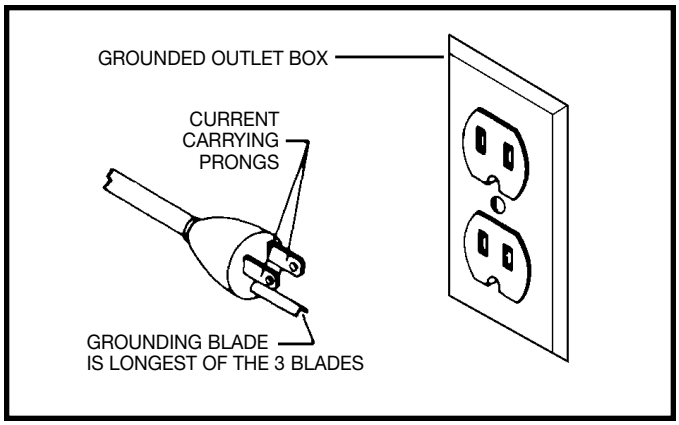

Fig. 17

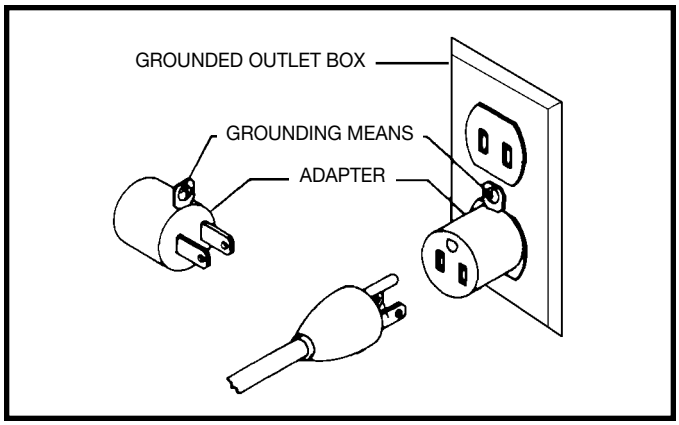

Fig. 18

EXTENSION CORDS

Use proper extension cords. Make sure your extension cord is in good condition and is a 3-wire extension cord which has a 3-prong grounding type plug and a 3-hole receptacle which will accept the tool's plug. When using an extension cord, be sure to use one heavy enough to carry the current of the machine. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Fig. 19 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

MINIMUM GAUGE EXTENSION CORD

RECOMMENDED SIZES FOR USE WITH STATIONARY ELECTRIC TOOLS

Ampere Rating	Volts	Total Length of Cord in Feet	Gauge of Extension Cord
0-6	120	up to 25	18 AWG
0-6	120	25-50	16 AWG
0-6	120	50-100	16 AWG
0-6	120	100-150	14 AWG
6-10	120	up to 25	18 AWG
6-10	120	25-50	16 AWG
6-10	120	50-100	14 AWG
6-10	120	100-150	12 AWG
10-12	120	up to 25	16 AWG
10-12	120	25-50	16 AWG
10-12	120	50-100	14 AWG
10-12	120	100-150	12 AWG
12-16	120	up to 25	14 AWG
12-16	120	25-50	12 AWG
12-16	120	*GREATER THAN 50 FEET NOT RECOMMENDED*	

Fig. 19

ASSEMBLING CHISEL AND BIT

⚠WARNING: WHEN ASSEMBLING THE CHISEL AND BIT, MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE.

Insert bit (A) Fig. 20, into chisel (B). **NOTE:** The opening (C) on the side of the chisel should always be to the right or left, never to the front or rear. The opening allows chips to escape during operation.

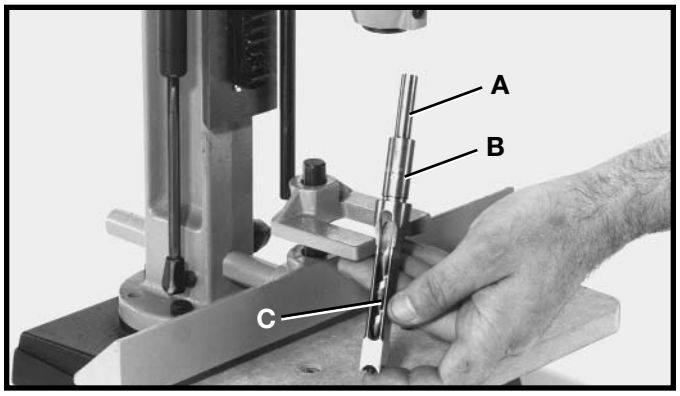

Fig. 20

3. Loosen screw (D) Fig. 21, and push chisel (B) up through hole in head as far as possible. Then lower chisel (B) 1/16" to 3/16" and tighten set screw (D). **IMPORTANT:** When inserting chisel (B) Fig. 22 into head, there must be a space of 1/16" to 3/16" clearance between the bushing (E) and shoulder (F) of chisel as shown. This assures having proper clearance between the cutting lips of the bit and points of the chisel after the bit is inserted into the chuck.

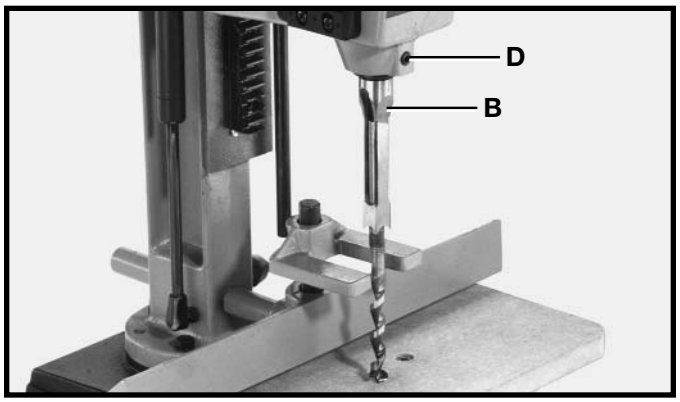

Fig. 21

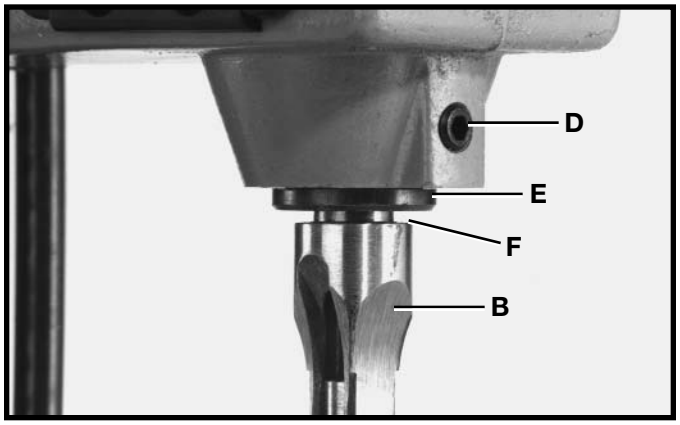

Fig. 22

4. Push bit (A) Fig. 23, up through chisel and into chuck (G) as far as it will go, and then back the bit off 1/16", and lock bit in chuck using chuck key supplied.

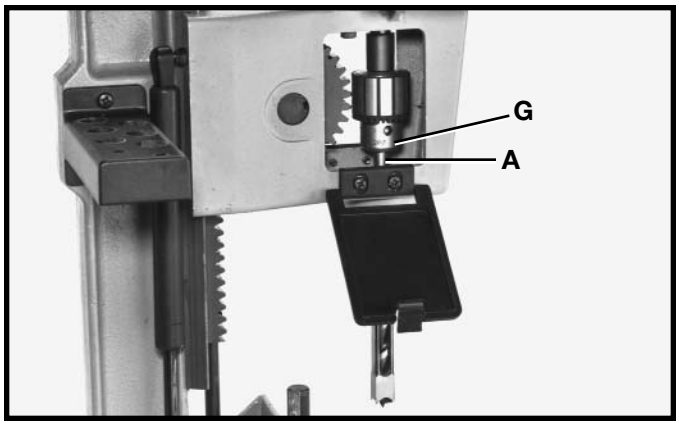

Fig. 23

5. Loosen set screw (D) Fig. 24, and push chisel (B) up against bottom of bushing (E), as shown, and tighten set screw (D). This should provide the proper distance between the cutting lips of the bit and the points of the chisel.

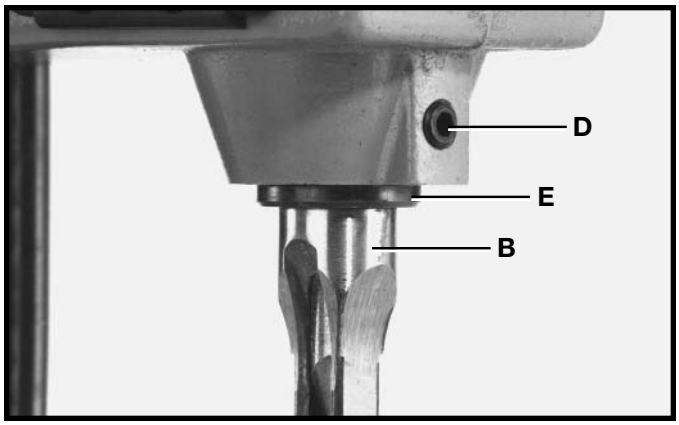

Fig. 24

6. The flat portion of the bit should be adjusted to a minimum of 1/16" away from the bottom of the chisel, as shown in Fig. 25. For certain types of wood it may be necessary to increase this distance up to a maximum of 3/16" clearance. This method assures having proper clearance between the cutting lips of the bit and the points of the chisel.

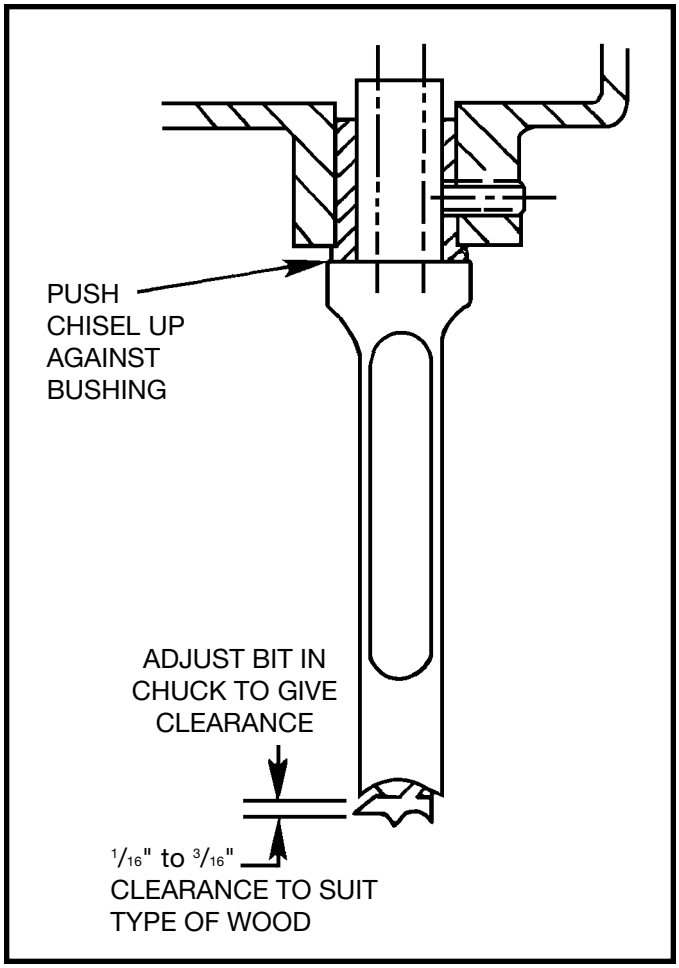

Fig. 25

OPERATING CONTROLS AND ADJUSTMENTS

SWITCH

The switch (A) Fig. 26, is located on the side of the motor. To start the mortiser, move the switch (A) to the up position. To turn the mortiser **"OFF"** move the switch to the down position

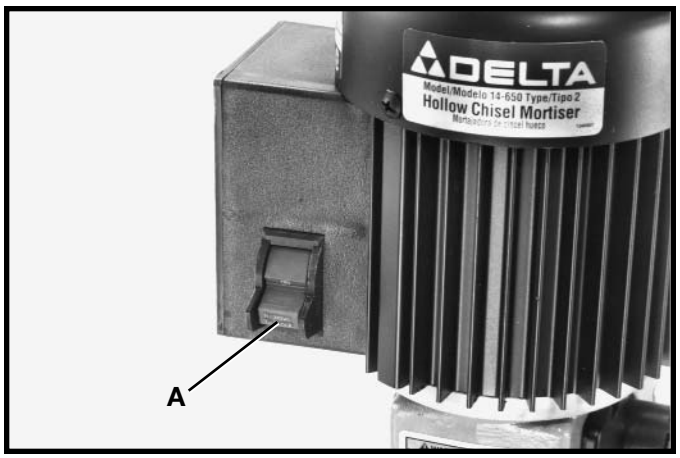

Fig. 26

LOCKING SWITCH IN THE "OFF" POSITION

When the tool is not in use, the switch be locked in the **"OFF"** position to prevent unauthorized use. This can be done by grasping the switch toggle (B) Fig. 27, and pulling it out of the switch, as shown. With the switch toggle (B) removed, the switch will not operate. However, should the switch toggle be removed while the machine is running, the switch can be turned **"OFF"** once, but cannot be restarted without inserting the switch toggle (B).

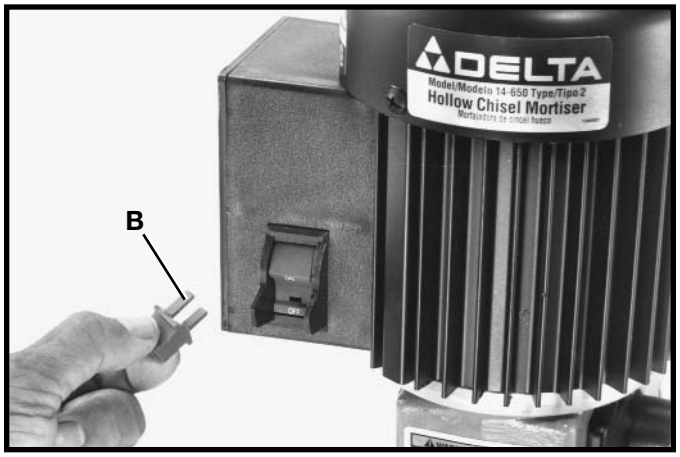

Fig. 27

RAISING AND LOWERING THE HEAD

The head (A) Fig. 28, is raised and lowered by means of the lever (B). For maximum leverage during the mortising operation, the lever (B) can be repositioned by pulling out the hub (C) of the lever assembly and repositioning hub on the pinion shaft.

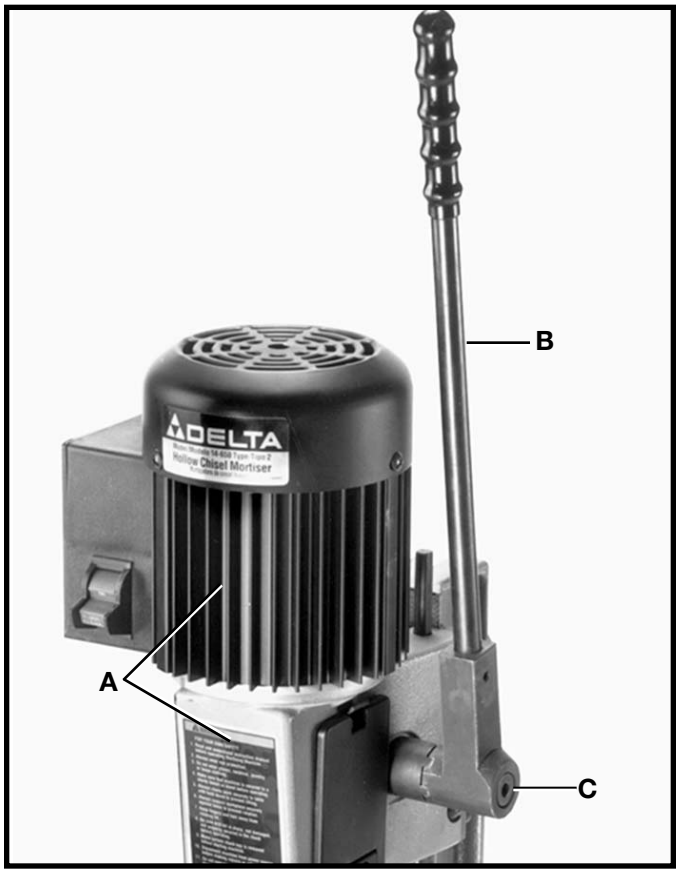

Fig. 28

ADJUSTING DEPTH STOP ROD

A depth stop rod (A) Fig. 29, is provided to limit the depth of the chisel (B). To adjust the depth stop rod (A), loosen screw (C) and lower head until the chisel (B) is at the desired depth. Lower depth stop rod (A) until it contacts base (D) and tighten screw (C).

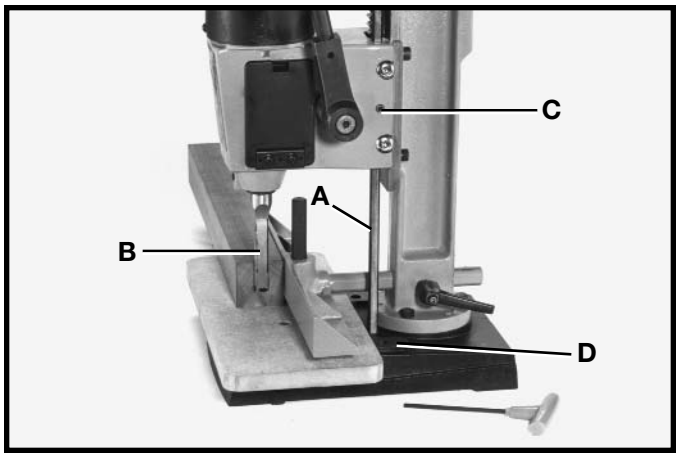

Fig. 29

ADJUSTING FENCE

The fence (A) Fig. 30, can be moved in or out by loosening lever (B), sliding fence to the desired position and tightening lever (B). **NOTE:** Lever (B) is spring-loaded and can be repositioned by pulling out on the lever and repositioning it on the serrated nut located underneath the lever.

ADJUSTING HOLDDOWN

The purpose of the holddown (C) Fig. 30, is to prevent the workpiece (E) from lifting as the chisel (D) is raised up, out of the hole. The holddown (C) should be adjusted so it just touches the top of the workpiece (E) and allows the workpiece to slide left or right. The holddown (C) can be turned upside down to accommodate thicker workpieces. To adjust the holddown (C), loosen screw (F), position holddown, and tighten screw (F).

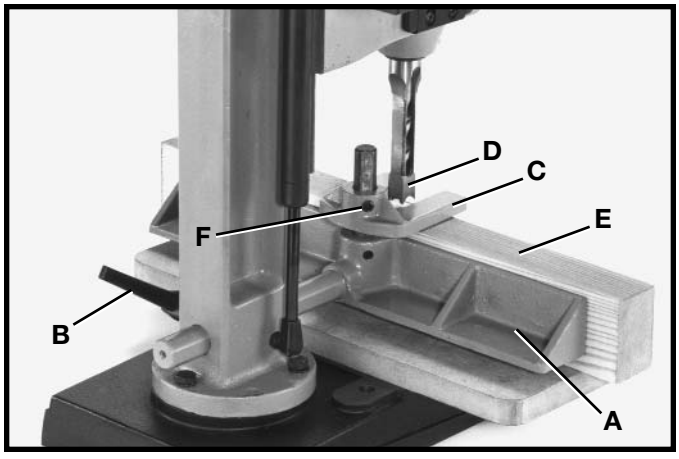

Fig. 30

ADJUSTING CHISEL PARALLEL TO WORKPIECE

The chisel (A) Fig. 31, can be adjusted parallel to the workpiece by loosening screw (B) and rotating chisel until the back surface of the chisel is touching workpiece. Then tighten screw (B).

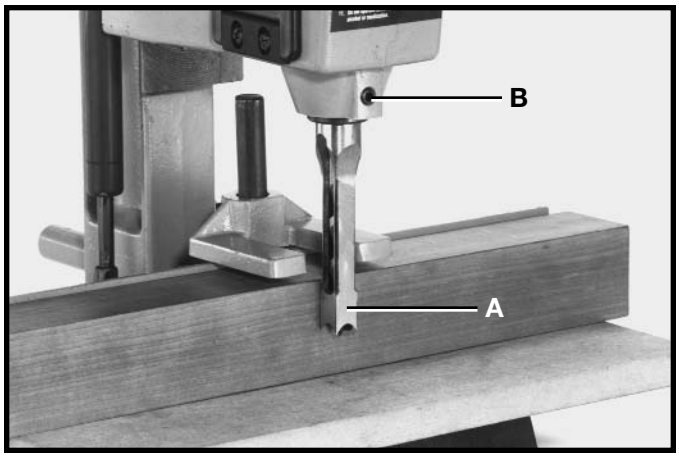

Fig. 31

ADJUSTING SLIDING FIT BETWEEN HEAD AND COLUMN

A dovetail gib (A) Fig. 32, is provided on the rear of the head to insure a good sliding fit between the head and the column when the head is raised and lowered. Adjustment is made by loosening the two screws (B) and turning adjusting screws (C). Then tighten two screws (B). **NOTE:** Correct adjustment is when a good snug sliding fit is obtained without any side movement between the gib and the column. This adjustment should not be too tight that it restricts the sliding movement or too loose that it affects accuracy.

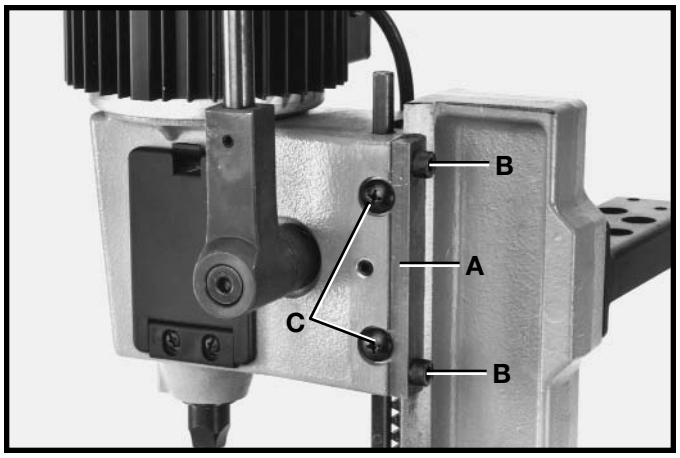

Fig. 32

OPERATION

1. Make sure that chisels and bits are sharp.

2. Fig. 33, illustrates a typical mortising operation. Note that the opening (A) in the chisel is to the right. This means that after the first incision is cut, the workpiece should be moved to the right for subsequent cuts. This allows chips to escape freely through the opening in the chisel.

3. Make sure the workpiece is held firmly against the fence when cutting and that the holddown (B) Fig. 33, is properly adjusted.The rate of penetration of the chisel must be fast enough to prevent burning at the tip of the bit, but not too fast as to stall the motor. You may encounter smoke from the bit or material once the chisel has engaged the material. The smoke created is a natural operating occurrence in hollow chisel mortising and is caused by material chip friction and the resins in the stock being burned off. Bluing of the chisel after initial use is not indicative of a dull chisel, but a combination of friction and resin buildup on the cutting faces of the chisel. A dull chisel can be detected by the amount of excess force required to complete a cut.

4. When performing a through mortise, a thin piece of wood should be placed between the workpiece and the table. This prevents “chip-out” at the bottom of the mortise and also prevents damage to the table.

5. Fig. 34, illustrates the mortising operation completed.

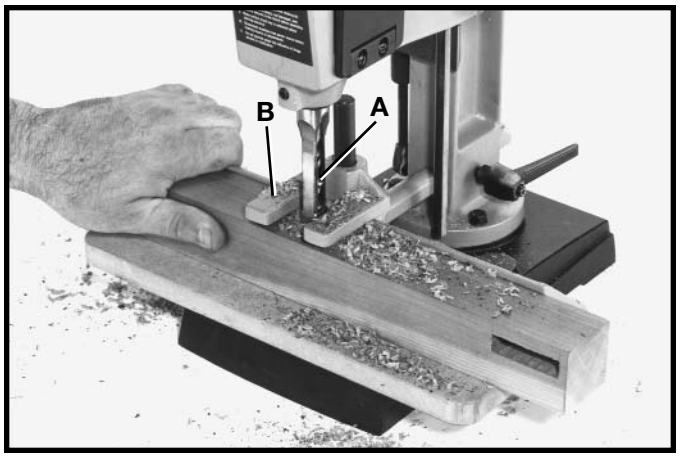

Fig. 33


Fig. 34

USING AUXILIARY WOOD FENCE

When mortising extra high workpieces (A) Fig. 35, an auxiliary fence (B) can be fastened to the fence (C) with wood screws (D) through the two holes in the fence. This provides additional support for the workpiece during the mortising operation. Note that the holddown (E) can be turned upside down to accommodate the extra height of the workpiece.

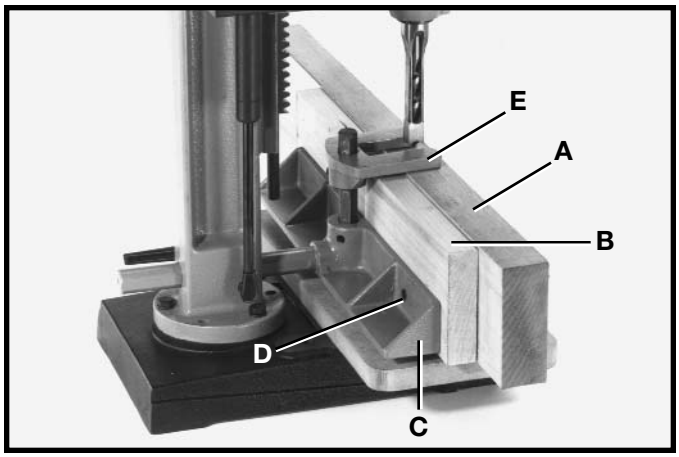

Fig. 35

ROTATING COLUMN 180 DEGREES

The column (A) Fig. 36, can be rotated 180 degrees, as shown, if it is desired to use workpieces off the table. To rotate the column, remove three screws, two of which are shown at (B), rotate column (A) 180 degrees and replace the three screws (B).

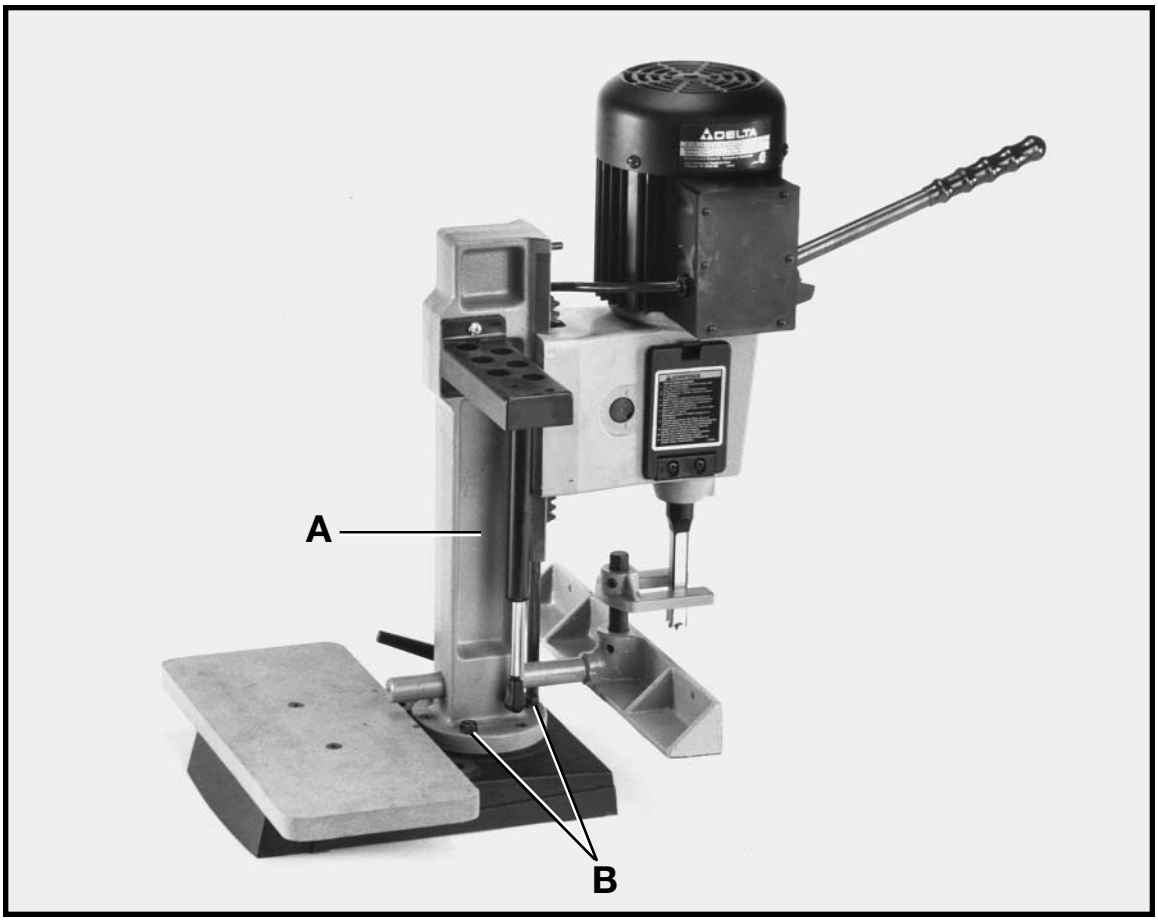

Fig. 36

USING BITS WITH EXTRA LONG SHANKS

When using bits with extra long shanks, it will be necessary to remove the extension (A) Fig. 37. This can be accomplished by inserting screwdriver into center hole of motor end cap (B) Fig. 38, and into slot in end of armature shaft. Then using chuck key, unscrew and remove chuck (C) Fig. 37, and extension (A). Remove extension (A) from chuck (C) and replace chuck (C) on end of motor shaft.

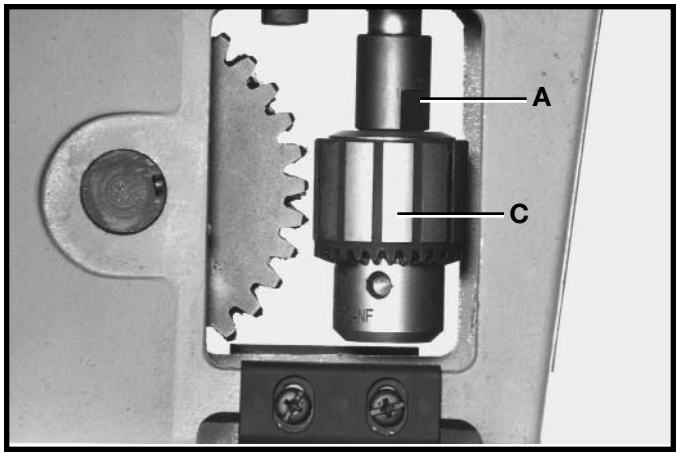

Fig. 37

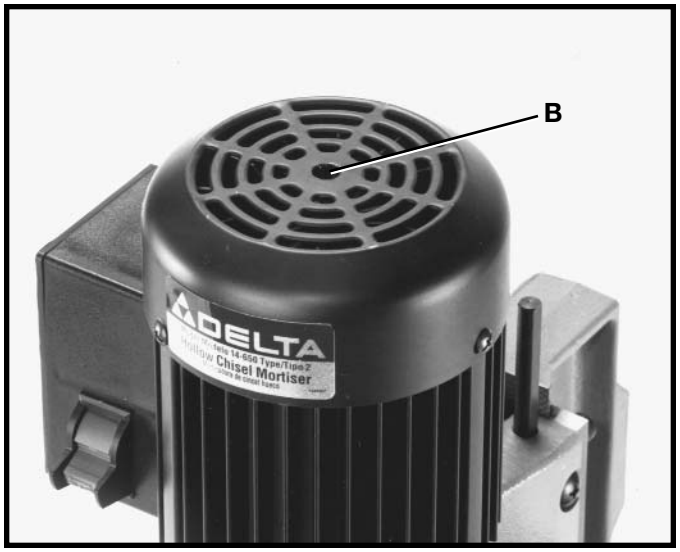

Fig. 38

NOTES

PARTS, SERVICE OR WARRANTY ASSISTANCE

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