

Enormous New Plant Is A Monument To Efficient Service

For a great many years we have been manufacturing coin operated instruments of various kinds. Every instrument built by us is designed to make money for the retailer. Our constant aim has been to build the best—most efficient—most profitable—most popular coin operated musical instruments on the market. This ideal combined with prompt, courteous, whole-hearted service has made us the World's largest manufacturers of coin operated machines.

The Mills Automatic Phonograph as well as the Violano, Orchestra, Piano, etc., are each an outstanding success in their class.

Any owner of the Mills Phonograph always gets prompt service and real satisfaction on every purchase. You will find that it is greatly to your advantage to buy and operate Mills coin operated machines. This in itself will assure you the utmost in quality, service and genuine satisfaction.

MILLS NOVELTY COMPANY
4100 Fullerton Avenue
Chicago, Illinois

Reprinted by The Vestal Press

Directions For Operating The Mills Automatic Phonograph

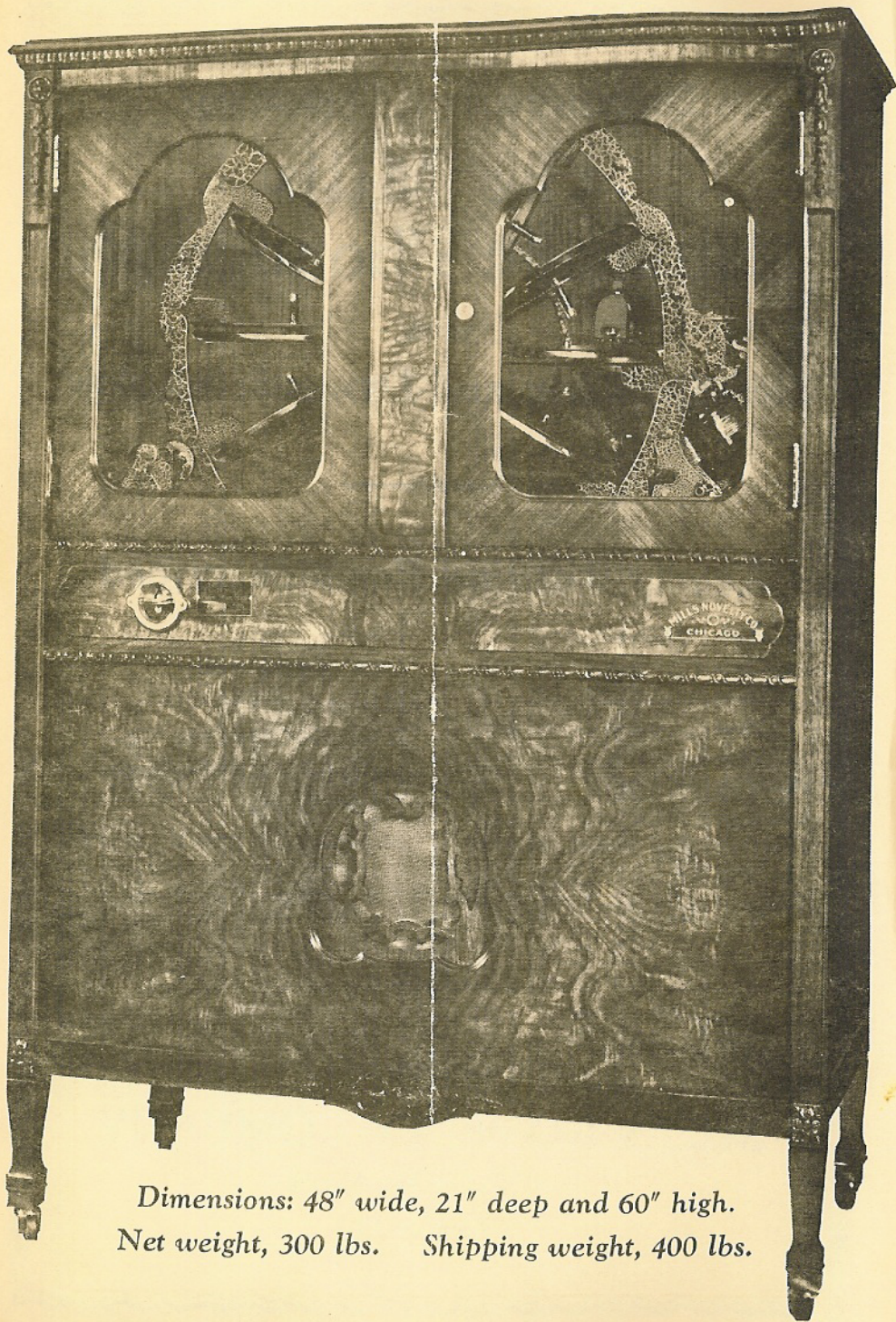
with
Electric Pickup and Dynamic Speaker

Key to Working Parts Described

- | | |
|---|-----------------------------------|
| A—Ferris Wheel. | K—Disc motor. |
| B—Cut-off Lever. | L—Changing motor. |
| C—Volume Control. | M—Tone arm bumper. |
| D—Timing Screw Lock Nut. | N—Record retaining clip. |
| E—Timing Screw. | P—Tone arm raising lever. |
| F—Magnetic Pickup. | R—Modulator. |
| G—Turn Table. | S—Changing motor starting switch. |
| H—Changing motor running switch. | |
| Cabinet Level—on base castings in front section of machine. | |

Manufactured by

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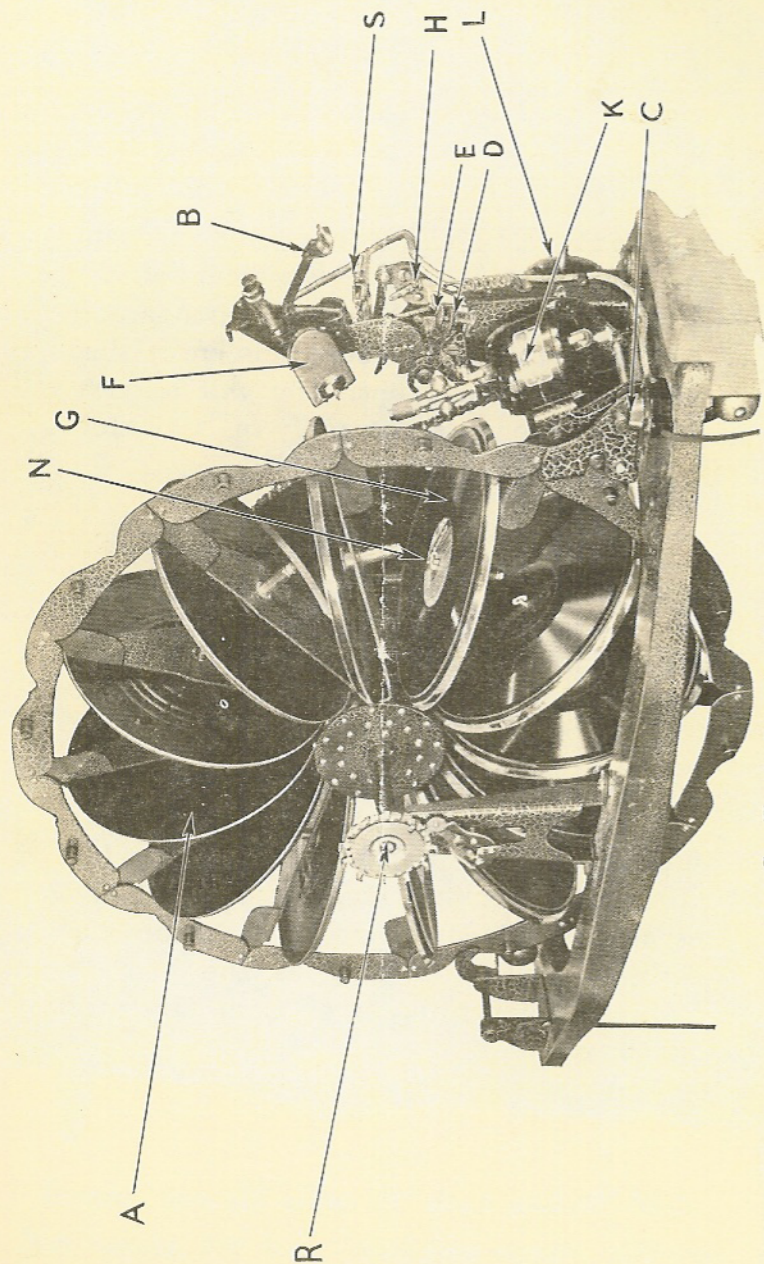


*Dimensions: 48" wide, 21" deep and 60" high.
Net weight, 300 lbs. Shipping weight, 400 lbs.*

SIMPLICITY has been the constant thought in the development of the Mills Coin Operated Automatic Phonograph and so successful has been this effort that its installation and operation will be very easy for anyone who carefully reads the following instructions.

Though primarily designed for public entertainment, its beautiful appearance and entirely automatic performance makes it also adapted to the home where the faithful reproduction of good music is desired.

Long experience in the production of automatic coin operated devices, ample finances for continued experiment and a completely equipped factory operated by especially trained workmen, establishes the Mills Novelty Company as the World's Largest Manufacturers of Coin Operated Machines.



See Key to Operating Parts on Front Cover

Instructions For Installing Mills Phonograph

In order that the Phonograph mechanism will function properly, it is necessary that you keep the cabinet level at all times. We have provided a level for this purpose, permanently mounted on the metal base of the mechanism. This level indicates the true standing of the cabinet at all times. The bubble in this level should always be in the center of the marked lines on the glass. Should you find that the bubble is to the left of marked lines, it indicates that your floor is low on the right end of cabinet and a thin board should be inserted between the floor and casters of Phonograph to bring your bubble over to the center of glass of level. Then, likewise, if your bubble is to the right of the marked lines of level, it indicates that your floor on the left of cabinet is low and a thin board should be inserted between the floor and casters of cabinet to bring it up so as to bring the bubble to the center of glass. Do not tamper with the level because it is adjusted at the factory and never requires adjusting.

In order that all moving parts of the mechanism will remain in place during transit, we have tied them down and attached instruction tags. We suggest that you follow the instructions on these tags. Be careful when removing the strings so that you do not disturb the mechanism.

A wooden block is placed between the Disc Motor and its bracket so as not to injure the driving mechanism during transit. You will note that after removing this block, the driving pulley on Disc Motor will then come in contact with the steel disc that holds the record. By turning the steel disc to the left you will see that the Disc Motor governor and driving pulley will also turn.

At the extreme left end and mounted on the base of the mechanism, you will find a lever and weight mechanism. This mechanism is operated from a roller on the ferris wheel and stops the entire instrument after each record is played. When the roller and ferris wheel move downward, it actuates the cam lever which in turn raises the weight and it continues to move up and then on the downward movement of the weight, it actuates the plunger which

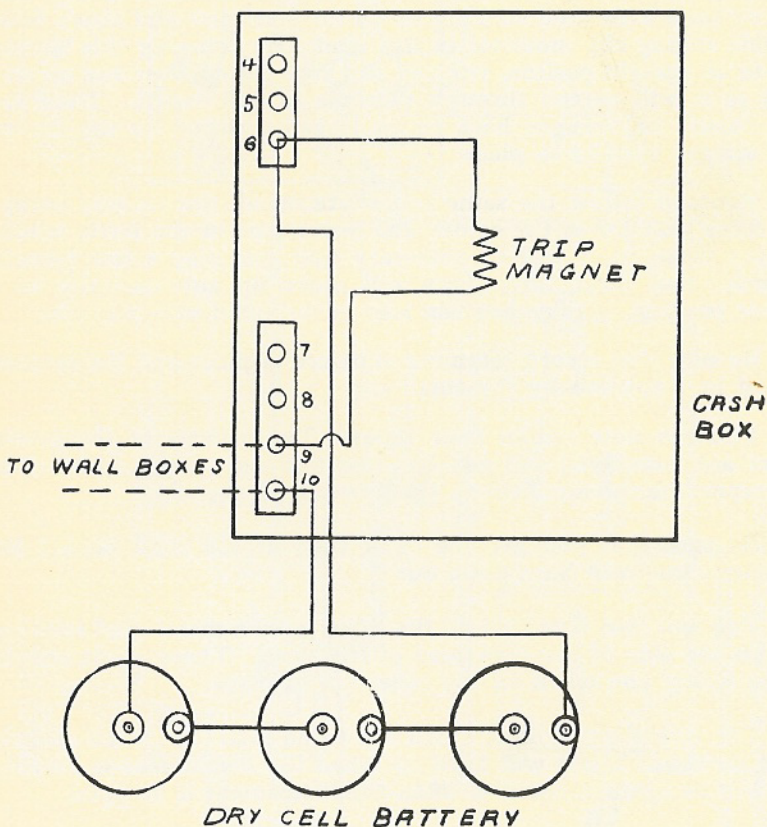


Diagram showing Wall Bex Wiring for D. C. Territory

Working Principle

The ferris wheel "A" accomodates twelve ten-inch records which may all be played without any attention whatever by inserting the required number of coins.

When a coin is deposited, it causes the record changing motor to turn the ferris wheel, which brings a record into playing position with the needle resting on the record and the disc motor turning it. Switch "H" then opens causing the record changing motor to stop.

As the needle reaches the end of the selection, lever "B" closes switch "S", again starting the record changing motor causing the magnetic pickup "F" to be raised from the record as the record is moved out of playing position. If a coin has been deposited for the next record, the action described above will be repeated, but if it has not, then the carbon circuit breaker in the cash box will open and all action will stop.

The machine is designed to operate on fifty or sixty cycle alternating current, but may be adapted to other kinds of current by adding a converter and so little power is required that the current from the ordinary light socket is always sufficient.

The two cabinet lights in the top of the cabinet automatically light when the machine is in operation.

The record changing motor is compound wound and is connected to posts No. 1 and No. 3.

The disc motor is of the shaded pole induction type and is connected to posts No. 1 and No. 2.

The magnetic pickup "F" is connected to the volume control "C" which, in turn, is connected to the binding posts A 4 on the power amplifier in the bottom of the cabinet.

The rubber cable from the black hexagon plug A 1 on the power amplifier goes to posts No. 1 and No. 2 and is the power supply for the amplifier.

This plug is arranged to compensate for extra high or low voltage.

Plug is connected with No. 120 facing up and should be left in that position unless incoming voltage is below 110 volts.

Consult the power company and ascertain the exact voltage you are being supplied with before changing plug.

In the majority of cases the plug should be left with 120 facing up and we advise this if instrument is giving enough volume of tone.

Only two more wires go from the junction block and these are connected to No. 7 and No. 8 in the cash box and carry all the current for both motors and the amplifier.

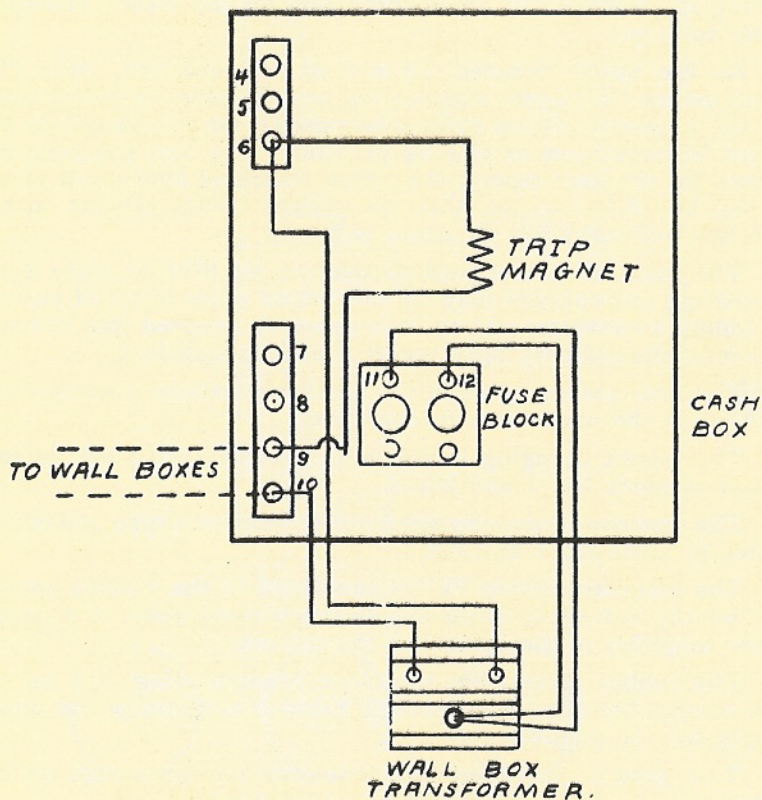


Diagram showing Wall Box Wiring for A. C. Territory

The two field posts A-2 on the power amplifier take the black wires from the field on the dynamic speaker.

The two green wires from the voice coil of the dynamic speaker go to the two output posts A-3 of the power amplifier.

One of the modulator wires is connected to the 5000 Ohm modulator resistance. The other modulator switch wire is connected to one of the A-4 posts. The other A-4 post is connected to the other end of the modulator resistance.

The two wires from the cabinet lights go into the cash box, one of them to No. 4 and the other to No. 11.

The four converter wires coming out of the cash box are connected to converter connecting block A-5 when no converter is used. They are marked "AC-1," "AC-2," "DC-1," and "DC-2."

"AC-1" and "DC-1" are connected together on one post and "AC-2" and "DC-2" are connected together on the other post of block A-5.

"AC-1" goes to No. 7 in the cash box.

"AC-2" goes to No. 8 in the cash box.

"DC-1" goes to No. 4 in the cash box.

"DC-2" goes to No. 11 in the cash box.

When a converter is used, these four wires are removed from the converter connecting block and "DC-1" and "DC-2" are connected to the input side of the converter and "AC-1" and "AC-2" are connected to the output side of the converter.

The two connections 13 and 14 in the cash box go to the 110 volt service plug.

The carbon circuit breaker is connected to No. 4 and No. 5.

The trip magnet in the cash box is connected to No. 6 and No. 9.

Connecting Wall Boxes

When wall boxes are used the wires from them go to posts No. 9 and No. 10 in the cash box, figure 1.

If you are operating in a direct current district, connect three dry cells in series to posts No. 6 and No. 10, figure 2.

If you are operating in an alternating current district, connect the secondary of a Mills Wall box transformer to posts No. 6 and No. 10 and connect the primary of the transformer to posts No. 11 and No. 12 of the fuse block, figure 3.

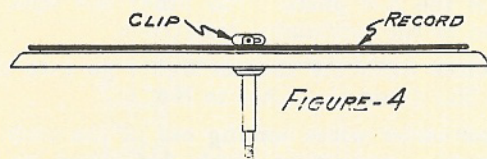


FIGURE-4

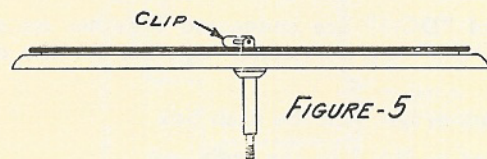


FIGURE-5

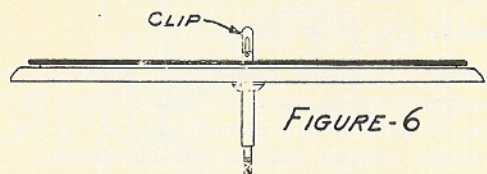


FIGURE-6

Record Locking Device

Illustrations above show clip at top of record. Figure 4 shows record locked into position. Figure 5 shows clip pushed to side which is first movement to unlock record. Figure 6 shows clip in upright position which permits record to be taken from or placed on steel turn table. When changing records be sure that clip is properly adjusted so as to lock record into place.

Regulating the Speed of Record

To set the governor so that the records will turn at their proper speed of eighty revolutions per minute—insert a coin in the slot and when a record comes to playing position, loosen lock nut "D" and turn adjusting screw "E" until the time of the music sounds about right to your ear.

Then raise the tone arm up and back as when changing records.

Stop the turn table by holding it and place the timing disc on top of the record.

Then release the turn table and watch the black lines on the timing disc which will appear to move.

If the black lines appear to move to the right, the record is turning too slowly.

If they appear to move to the left, the record is turning too fast.

If they appear to stand still, the record is turning at the right speed.

When the set screw "E" is adjusted so that the black lines appear to stand still, tighten lock nut "D."

When setting the speed with timing disc, the cabinet lights must be on.

Adjusting Modulator

To adjust modulator "R"—bring a record to playing position and if it is extra loud, turn the lever on the modulator in so that the switch contacts close and leave it that way.

After the modulator has been set for each record, the general volume may be reduced by adjusting the volume control "C."

Oiling

About once a month put a few drops of sewing machine oil in the two oil cups on each motor—one oil hole at each end of the main shaft—and a little on the chain that drives the Ferris Wheel.

Each turn table is mounted on ball bearings packed with a high grade grease and, therefore, does not need oiling.

Locating Trouble

Trouble

Probable Causes

When coin is deposited cabinet lights do not light. Neither of the motors run.

No current from light socket.
Fuses blown in cash box.
Carbons in circuit breaker do not come together.

Cabinet lights light but motors do not run.

A C and D C wires loose on junction block A-5.

Cabinet lights light, disc motor runs but changing motor does not run.

Changing motor running switch does not close.
Ferris wheel locked so that it cannot turn.
Defective changing motor.

Cabinet lights light, changing motor runs, disc motor does not run.

Governor brake set too tight.
Defective disc motor.

Record comes almost but not quite up to playing position.

Changing motor chain too tight.

Ferris wheel keeps revolving and does not stop at playing position.

Lever "P" does not open changing motor running switch "H." Contacts on switch "S" stuck together.

Changing motor does not start after a record has been played.

Lever "B" does not close switch "S".

Record starts to change but stops just as needle lifts off record.

Switch "H" not closed.

Needle lands on smooth edge of record and rides there without starting to play.

Tone arm bumper not in proper adjustment.
Machine not set level.

Machine plays more records than coins deposited — or — Register does not register for all records played.

Adjusting screw on lever at left of register in cash box not in adjustment.

No Volume. Weak Volume.

Defective pickup — speaker — amplifier or tubes. Tubes in wrong sockets.

Modulator does not operate.

Defective modulator resistance.
Modulator switch not in adjustment.

Suggestions

Insert a new tungsten needle in the pickup each day.

Do not work on the electric circuit without first disconnecting the main service wire.

Do not drop the needle abruptly on the record.

Don't get water on the power amplifier when washing windows, floors, etc.

The motors are not overheated as long as you can bear your hand on them.

Do not use sand or emery paper on the motor commutator but use a clean piece of cloth.

Sometimes reversing the wires on input posts A-4 will eliminate a power line hum.

Do not put your arm through the ferris wheel while it is turning.