OPERATING INSTRUCTIONS

MATMAKIR

EASY KASTER

ROUTER PLANER

Hammond Machinery Builders INC.

KALAMAZOO, MICHIGAN

BUILDERS OF THE

TRIMOSAW

HOME OF HAMMOND PRODUCTS

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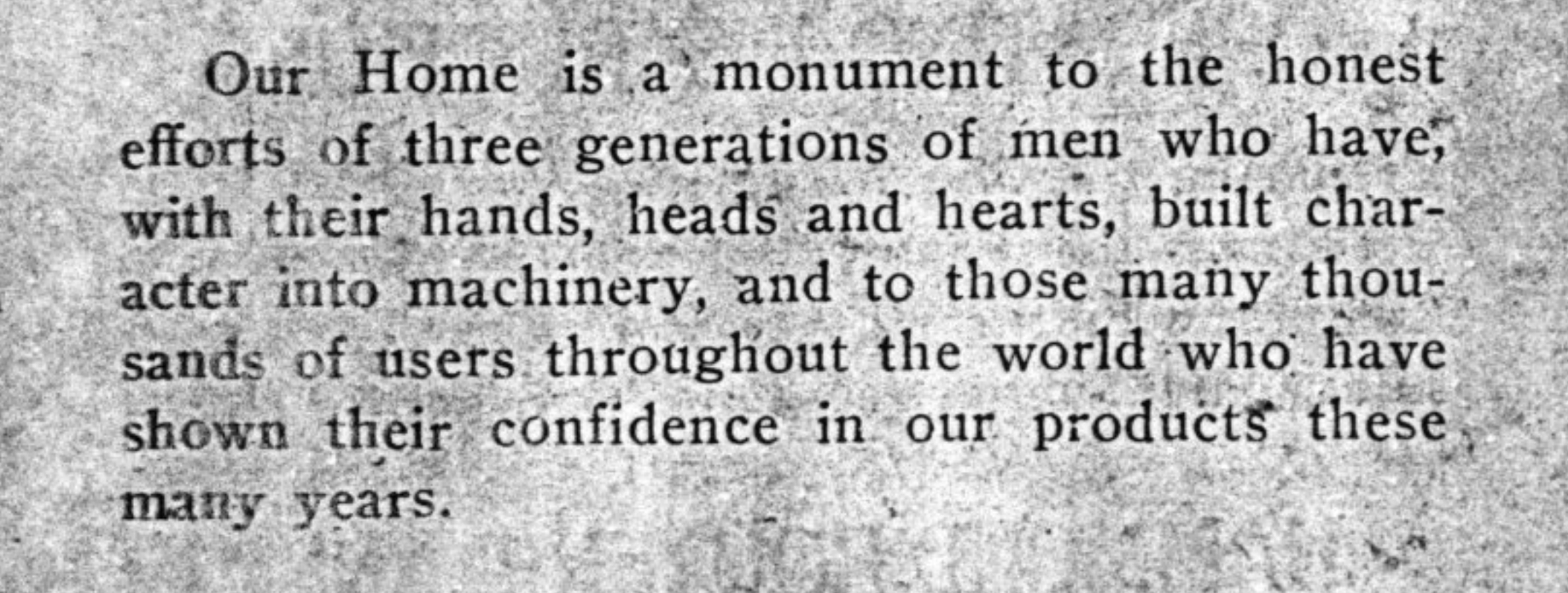
As builders of the highest class of machinery since 1881, we offer the MatMakir, EasyKaster, and RouterPlaner to the printing craft as machines worthy of the same confidence accorded the TrimOsaw which we introduced in 1921. These machines are as fine as it is possible to manufacture. Only the best of materials are used, and Hammond products are built by skilled mechanics who take pride in their ability to produce highly accurate machinery.

Our Home is a monument to the honest efforts of three generations of men who have, with their hands, heads and hearts, built character into machinery, and to those many thousands of users throughout the world who have shown their confidence in our products these many years.



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HAMMOND MATMAKIR OPERATING INSTRUCTIONS

Stereotyping offers many profit possibilities as well as advantages for every all-round print shop. Why so few American printers have taken it up is rather difficult to understand. True, some, especially those who have been publishing newspapers and, therefore, have had more contact with stereotyping, have been employing it for commercial printing for some time and in Europe it is widely used for many kinds of printing. It offers very decided advantages to commercial printing shops — stereotyping is today coming into use rapidly and widely. Methods such as commonly employed in newspaper stereotyping where speed is the first requirement can be very greatly improved upon. With the Hammond MatMakir and the common sense use of the intelligence possessed by the average fellow and with the suggestions herein contained, anyone in a comparatively short time can turn out plates of excellent quality.

A recent thorough investigation has shown that a form 10 inches square standing for one year costs $2.51. Multiply this by the amount standing in the aver-

age shop and the cost of foundry type, metal, and furniture becomes a large factor in printing costs. Further, a piece of type will stand just so many impressions and then must be replaced, whereas, it need seldom be put on the press where facilities for reproducing it in a cast are at hand. And too, the expensive wood type may be reproduced in a mat and thus eliminate still more shop expense. In view of these facts, it is very apparent that a filed mat is very materially cheaper than a standing form.

One mat will cast many plates; the advantage of running four, six or more up is greatly needed today to reduce costs and meet competition. Not only are the labor hours materially reduced, but press time, wear and tear on the press, and electrical power are brought to a minimum. Today's keen competition requires just such advantages as stereotyping has to offer. It is well worth a printer's time to investigate those advantages in his own plant, and the equipment necessary to have them.

The primary requirement for first class work is a sturdily made, accurately constructed mat press. The Hammond Mat-Makir is built to these requirements. All operating parts are of steel and the base is of semi-steel. Both rollers, bed, and gears are accurately machined and the

roller height adjustment is such that the roller will be perfectly level in any position. The MatMakir is specifically made for the job printer, is inexpensive to own, and simple to operate.

CONDITIONING OF THE MAT PAPER

The correct condition or moisture content of the mat paper is fundamental in stereotyping. An unevenly dampened mat will cause warping, distortion, and shallow areas in the molded mat. This is due to the presence of hard (or dry) spots and soft (or damp) spots, the latter of which will be impressed more deeply — thus resulting in a hopelessly distorted reproduction. The mat should be of "cellar dampness" or just damp enough that a corner will stay bent when curved with a finger; in other words, it should not be wet or it will easily fracture when molded, nor should it be dry or it will take no impression.

Mat paper comes to you "mill moistened," that is, in condition to be molded and it must be kept this way. Our humidor is made to keep mat paper in the proper condition. It is a metal box, lined with a material which absorbs and holds water. To moisten the humidor, pour a glass of

water inside and swish it around so that the whole inner surface is covered. Still another way is to mop the whole inside with a water soaked cloth or sponge. A pan of water or a wet sponge or the like should not be placed in the humidor, for a space becomes very damp about this, while the rest of the humidor remains rather dry. The moisture must be evenly distributed in order to dampen the mat evenly. Moistening the humidor need only be done every week or so, dependent, however, on the number of times it is opened. Lay the humidor flat and place the paper in it, and it will always be ready for instant use. In case the paper loses much of its moisture, it must be reconditioned.

To condition mat paper, immerse it completely in water and wipe off with a sponge, then separate each sheet with dry newsprint or blotting material an hour or two before molding. However, there is no necessity of this as long as the humidor is kept thoroughly damp and the mat paper not allowed to stand in the air for any length of time. You may find it helpful in order to keep the mats evenly moist in the humidor to separate each sheet with two or three thin wood strips so that the moisture is distributed around each sheet evenly and thoroughly.

Our standard mat sheet size is 10″x12″

and comes wrapped 24 in a package. A size of 12″x20″ in a package of 12 sheets can be shipped on special order and a size of 20″x24″ is also available in 25 sheet packages.

PREPARATION OF THE FORM FOR MOLDING

Prepare the form to be molded exactly as for printing; keeping in mind it is axiomatic that a stereotype reproduction cannot be any better than its original. Line cuts, half tones, and large type do not mold as deeply as rule and small type, therefore they need to be underlaid with paper of three or four thousandths thickness. This will give proper depth to such large faces when they are locked up in a form containing small faces.

It is necessary in order to prevent the edges of the form from cutting through the mat and is further necessary for the casting operation, to place eighteen or twenty-four point steel or lead bearers around the form. If these are not recessed along one edge, place a six point slug between them and the form, thus providing a sawing guide for squaring up the plate.

The form must be locked up in a good chase and the furniture must be in good condition, for if the chase or furniture is

bowed, warped, or shrunk, the form is robbed of a good impression. The form should be brushed free of any metal fragments or dirt on both top and bottom and any proofing ink cleaned off. In order that there will be no high spots in the lock-up, plane it down. A very important point is quading up the open spaces to as near shoulder high as possible. If this is not done, the mat will sink deeply into these places and thereby become greatly distorted, particularly in the case of a ruled form. This is simple and only requires dropping small pieces of slug material in the larger spaces with no attention to their fitting snugly, so that a quantity of these kept within easy reach will answer the purpose.

MOLDING THE FORM

The adjustment of the roller to the proper height is dependent upon the form that is being molded. For instance, a half tone will require somewhat more pressure than a ruled form to mold to the same depth. One complete turn of the adjusting handle varies the roller height one-tenth of an inch; turning it to the right lowers the roller and turning it to the left raises the roller. With the molding cushion combination that is shipped with the Mat-Makir, the roller should be set at 6 on the

scale for all average work, but the setting can be varied as needed.

After making sure the bed of the MatMakir is well cleaned, place the form on it. Cut a piece of mat paper to a size that nicely covers the bearers and place it *face down* on the form. The face of the paper is the smooth side for taking the impression.

Next the molding cushion is placed on top of the mat paper. Through a thorough investigation, it has been found that it is impossible to be arbitrary concerning a molding material combination suitable to all purposes. The principal requirement of any molding combination is that it be firm enough to get a sharp impression of the type faces and screened illustrations, and yet be resilient enough to give satisfactory depth to the open spaces. In efforts to find the most suitable molding combination, the stereotyping trade today is using over one hundred different kinds with such a variety of materials to choose from as many grades of cork, linoleum, pressed and woven wool blankets, pure gum and composition rubber blanket, paper and fibre boards, zinc and copper sheets, etc.

We recommend a combination of cork and felt blankets and ship them with the MatMakir as standard equipment. This

cork should be placed next to the mat paper and the felt on top of the cork, completely covering the area of the form.

With everything set for molding, the crank should be turned slowly with one hand while the molding materials are held down with the other to avoid any slipping before the mold has a good start. The form should be rolled as slowly as possible, and the impression will be better and less pressure will be required than when rolled rapidly.

The form having been run completely through the machine, the molding cushion is lifted off and the mat carefully removed from the form. A close inspection will tell whether the impression is deep enough. If it is light, adjust the roller slightly lower, and, on the other hand, if a corner of a rule cuts through the mat, the impression is too deep and the roller must be backed off a little. The limit of impression will be had when the shoulders of the type or the bottoms of the open spaces are impressed in the mat. A mat can never be rolled twice — a double impression will occur rendering the mat useless. The mat should now be trimmed along the outside edge of the bearer impression and it is ready to be packed and scorched.

PACKING THE MAT

Packing or "backing-up" in the large open spaces in the back of the mat will, when casting, keep the weight of the metal from pushing these areas of the mat down and thus rid the cast of any open spaces that print up. The mat should be packed before scorching, in order that the packing felt thoroughly adhere before casting, or it might shift and cause high or low spots in the plate, and consequent smudges or voids in the printed sheet. Open spaces should not be packed too closely to the surrounding or adjoining rule or type, for the mat may pull away in casting and sinks or voids occur in the plate.

The best material to use for packing is gummed packing felt, which is inexpensive and makes packing simple, requiring but a minute's time to pack a mat. The best average thickness to use is thirty-five thousandths of an inch and can be purchased from us in strips ready to use.

SCORCHING THE MAT

The scorching of the mat is one of the most important steps in stereotyping, but one which is many times carelessly done. A mat that is not thoroughly dried and flattened will not produce a good cast.

The first requirement is a well designed and built scorcher. Our scorcher has planed surfaces which are faced with asbestos for distributing the heat, a heavy cover which is ventilated for carrying off moisture, and three heats, anyone of which will properly dry a mat. After heating up the scorcher for ten or twelve minutes on "high," turn the switch to "medium" so the heat will not become excessive. The switch may be turned to "low" when the scorcher is not in use, if it is desired to keep it warm and ready for almost instant use, or it may be turned off entirely for the time required to heat it is short. The scorcher should be thoroughly and evenly warm overall before scorching, or the mat will not dry evenly.

To scorch the mat, place it on the asbestos sheet on the bed of the scorcher face down, for the back of the mat is the porous side and it is best to drive the moisture out of this side. Lay the cover gently on the mat and it will, with the scorcher evenly and thoroughly hot, dry and flatten in a minute or two. A little attention given to the proper drying and flattening of the mat will be amply repaid in time saved when casting and in the resulting quality of the cast plate. The mat is now ready to be cast.

TROUBLES ENCOUNTERED

THEIR CAUSES AND REMEDIES

1—Trouble due to improper conditioning:

A mat that is totally dry will take practically no impression and one that is soak-ink wet will fracture when molded. An unevenly dampened mat will warp and distort when it is molded. This is caused by dry (or hard) spots in the mat that do not mold as deeply as the damp (or soft) spots, and thus the mat pulls and distorts. Even distribution of the moisture in the paper is as absolutely necessary as the correct amount of moisture. To properly condition the mat paper, refer to the paragraph — "Conditioning of the Mat Paper," page 5.

2—Troubles due to improper preparation of the form:

The form may be smashed or injured when molded. This is usually due to locking the form up too loosely, or not having thin rule and the like adequately quaded up. Again, if the form is too loosely locked, it will curve and bulge, thereby spoiling the reproduction.

Distortion and warping of the mat is not alone due to improper conditioning, but also to the variations in the form. The

variations that often cause trouble are large, deep open spaces that must be quaded up to as near shoulder high as possible, otherwise the mat draws and pulls down into these — causing warps and waves in the entire mat. These spaces may be quaded up with anything handy; it is not necessary to cut slugs to fit, just take small pieces from the "hell-box" and drop them in such spaces.

Large type or half tones that are locked in a form and that do not print up should be underlaid with paper about three thousandths of an inch thick. If the half tone still does not print, and is mounted on a wood base, the wood is compressing and must be replaced with a metal base. Any wood mounted cut is likely to do this, and even the hardest of wood bases may have soft spots in them; however, a mold may be tried, providing the wood is hard, and good results can many times be had.

A mixture of old type, new type, lead rule, and brass rule is likely to require a good deal of make-ready on the press, for the old type and lead rule may have worn just enough to be slightly lower than type-high. Again, the axiom that the stereo-type reproduction can be no better than the original, holds true.

In case that the edges of the mat are dished upward, (disregarding improper

scorching,) there is only one cause, type-high bearers have not been used. Bearers never less than eighteen points thick, and preferably wider, must be used to mold any type or rule form, line cut, or screened illustration. If bearer without a recessed edge is not at hand, place a six point slug between it and the form, thus providing a sawing guide on the plate.

3—Troubles due to improper scorching:

The beginner is likely to scorch too fast and the mat may be warped and waved, and not thoroughly dried. Such a mat probably has been scorched too quickly and it would be best to turn the scorcher switch to "medium" or "low" and allow the mat to thoroughly dry and flatten. If waves still persist in the mat, dampen the entire back of the mat and again scorch it slowly and thoroughly.

Always keep in mind that the scorcher must have the heat distributed equally and thoroughly over both the cover and the bed. Uneven heat in the scorcher may not only cause warping of the entire mat, but also "dishing" of the impression of a reverse plate or large type so that the printing faces of the cast will be concave and only the edges will print. The remedy is damping the mat and re-scorching it in an evenly hot scorcher.

SOME HINTS AND SUGGESTIONS ON:

MOLDING OF THE MAT

1—A cut or group of cuts does not have to be locked up; it is only necessary to place bearers around each and then mold. As mentioned before, it may be necessary to change the wood base to metal in case it is impossible to get sufficient impression. To mold a thin plate on a metal base, it is only necessary to lay it on the base and place eight point slugs around the plate to act as bearers. A wood block should be placed in front of any form that is not locked in a chase in order to give the roller an easy start.

2—Whenever possible, lock up a rule form with the majority of the rules running in the direction of the motion of the machine's bed. In other words, mold a rule form "with" the rule rather than against it. This will eliminate a great deal of distortion in the mat. If a corner of a rule cuts through the mat, the pressure may be a little too great, but the probable cause is that the form has not been adequately quaded up.

3—A molding cushion of about the same area as the form will not only last

longer, but will produce a better mat. It is advisable to cut the molding materials to the average size of the print shop's forms. Still better, the molding blankets might be cut into two or three different sizes. It is best for good impressions and preservation of the molding materials to do something of this sort. To preserve the blankets still more, do not mold with them twice in the same place and wear and tear on just one spot will be eliminated.

4—It is sometimes difficult to get a good impression from some very fine type or from type lines close to rules. A little deeper impression may be easily had by merely dampening the entire back of the mat and molding the mat in this more pliable condition.

5—Many plants find it wise to make two mats of each form before distributing it. This is inexpensive and gives a good margin of safety against any possible damage in handling or casting one of the mats.

MANIPULATING MATS

1—Warps or shallow spots in a mat may be eliminated to some extent by placing the mat face up on a flat surface and rubbing the spot hard with a finger in a

circular motion, starting from the center. The spot may need to be moistened in order to make it more pliable. Light machine oil or glycerine will soften it up. If this will not flatten the mat, dampen it on its back and slowly scorch it.

2—A type line, half tone, or some other part of the form may have molded shallow. To remedy this, cut with a knife a slit along or around (depending on how wide the spot is) this area on the back side of the mat, of course not cutting clear through the face. Bend and rub the mat to work the shallow spot down and to weaken it so that, when the mat is cast, the weight of the metal will force this spot against the casting box plate.

3—A spot on a mat that prints white, such as a white line where two mitres meet, may be made to print by wetting the spot and rubbing it down with the flat end of a pencil or similar tool. This area will then cast solid and print black.

It is very important for consistent making of good mats to have one man in the plant study these instructions and alone be responsible for the operation of the machine. Any intelligent person can became a proficient stereotyper in a fairly short time.

HAMMOND EASYKASTER OPERATING INSTRUCTIONS

This machine receives its name, "Easy-Kaster," because of the ease with which it operates throughout all steps in casting. The box rolls from a convenient table height into pouring position, and back again to unloading position — eliminating all back breaking lifting. The melting pot is counterbalanced — once the tilting handle is released, the flow of metal is immediately shut off. The pouring spout is non-spilling — making casting safe.

Bed and cover are heavily ribbed and accurately machined so that flatness will be maintained for years. The melting pot is steel—not cast iron—thus it will heat faster and never crack. The box will cast either type-high or shell. Casting bars are also accurately machined.

Gas, gasoline, or electric heating units are supplied with the EasyKaster, a pre-heating unit and also an electric thermostat can be furnished.

The EasyKaster is properly designed and engineered; heavily constructed, and built to last.

PREPARING THE MAT FOR CASTING

Preparatory to casting, pack, trim and scorch the mat (see paragraphs "Packing the Mat" and "Scorching the Mat" in the MatMakir Instructions, page 11.

Paste a tail piece on to the mat with a strip of gummed tape, or the like. This tail piece must be as wide or wider than the mat and long enough to extend a few inches beyond the box, and may be of any kind of paper. This serves as a guide for the metal and prevents the metal from running in back of the mat. It is best to paste the tape on both sides of the joint between the tail piece and the mat. The mat should then be placed in the scorcher to have it thoroughly warm and dry for casting.

PREPARING THE EASYKASTER FOR CASTING

Begin melting the metal down some little time before casting in order to reach the pouring temperature. This temperature may be determined by dipping a strip of newsprint into the metal. The pouring temperature is reached when the paper strip is burned to a light brown, but is not so crisp as to crumble when folded with the fingers.

If the machine has no preheating units, a blank type-high cast must be poured and left stand a number of minutes to thoroughly heat the box. This is done to prevent chilling and consequent spoiling of the cast. To sufficiently heat the box with shell casts, it will require three or four blank casts. The casting bars must be hot for cold bars cause the adjacent metal to chill. To warm bars that have not been used for the blank cast, lay them on top of the melting pot. The one aim in casting is to have everything that the metal touches hot so that it will flow smoothly into place before solidifying and with the metal at the proper temperature, the cast is ready to be made.

CASTING WITH THE EASY-KASTER

1—With bed held in horizontal position by the latch on the right-hand side and the clamps loose, raise the cover to its vertical resting place.

2—Clean the bed, the cover and the casting bars.

3—Having heated the mat thoroughly in the scorcher (or on top of the metal pot — but this is not desirable because the mat is likely to lose its flatness), place it face up at the farther end of the bed

with the tail piece extended over the front end of the bed.

4—The heated casting bars should be placed on the bearer impressions in the mat; the short bar being placed at the back against the shoulder on the rear end of the bed; the two long bars on the sides of the mat, abutting the short one, and covering the mat and tail piece the whole length of the bed.

5—Post card or bristol board should be used to line the cover of the box to give an even heat and smooth surface to the back of the cast. However, ordinary wrapping paper will do the job, although not as well, and will not last as long. The sheet is placed on top of the casting bars and must be wide enough to cover them and long enough to extend a few inches beyond the box. This lining will usually receive enough heat when clamped in the box but may be pre-heated by laying it on top of the melting pot.

6—Carefully lower the cover on to the bars and clamp each clamp lightly and then give them all a final good tightening in order to have the cover locked flat.

7—Having released the latch, roll the box forward and it automatically stops in pouring position.

8—Pull the melting pot lever down to stop or to any intermediate point and the metal will flow through non-spillable spout into the box. It is always best to pour as fast as possible to eliminate uneven solidification. Always pour 4 or 5 inches of blank cast beyond the mat in order to have enough pressure on the upper part of the cast for proper settling. Casting the full length of the box does no harm and eliminates need of getting close to the pouring metal to look down into the box to judge the height of the metal.

9—A shell cast will freeze in a moment and may be removed almost immediately, but a type-high cast will take a few minutes to solidify.

10—Roll the box back to horizontal position, and being sure the latch has caught, unclamp and raise the cover to its vertical resting place. Withdraw the lining sheet and side casting bars, and carefully remove the cast, placing it on some flat surface.

A close inspection of the cast will show whether the printing surface is good. If so, the plate may be squared and routed. In removing and handling a cast, a pair of stereotyper's pads or a heavy pair of canvas gloves must be worn for protection against heat.

The best metal to use is stereotype metal. All others are made for their various purposes and are not entirely satisfactory when used for stereotype plates.

HINTS AND SUGGESTIONS ON CASTING THE MAT

1—Graphiting the mat produces an excellent cast and also eliminates any sticking of the mat to the cast which may happen after the mat has had a number of plates cast from it. Rub on with a ball of cotton lint just enough powdered graphite to cover the surface of the mat.

2—Before casting a mat that has been on file or one which has been lying in the open air for some time after it has been scorched, scorch it again to dry out any moisture collected from the air. A mat must be thoroughly dry and it must be hot when cast or the cast will chill and be useless.

3—A mat that is bowed or otherwise not flat, but yet is not distorted to such an extent that a light weight would not easily flatten it, can be cast successfully by glueing gummed paper strips around its edges and laying the casting box bars on these strips. This will allow the mat to readily position itself in the casting box,

and is particularly advantageous when casting a mat of a rule form, for such a mat is many times distorted to some extent. This will avoid an area on the cast that prints light. A warped mat can be flattened by dampening it and re-scorching.

4—As mentioned above, a mat molded from a rule form is often distorted. In casting, the weight of the metal will make it lie flat against the casting box plate if placed in the box so the majority of the rules are running vertically when the box is in pouring position. In most cases this means placing the mat in the box sidewise instead of endwise.

5—Sometimes a stereotype plate of, for instance, a large wood letter has a slightly speckled surface and will not print properly. This is easily remedied by polishing it with a very fine emery paper. To do this, lay the emery paper on a flat surface and polish off the face of the letter. An abrasive eraser may also be used.

6—Many times casts that print up poorly need only to be type-high planed, because the casting box or its bars might not have been locked quite evenly.

7—Refer to the MatMakir instructions for further suggestions that will undoubtedly prove helpful.

With the operation of the EasyKaster as with the MatMakir, it is very important for the consistent making of good casts to have one man in the plant study these instructions and alone be responsible for the operation of the machine. Any intelligent person can become a proficient stereotyper in a fairly short time.

HAMMOND ROUTERPLANER OPERATING INSTRUCTIONS

The Hammond RouterPlaner is a quality machine which fills the needs of every printer and publisher and fits his pocketbook.

The routing is done by a radial arm which operates fast and easily.

The machine planes an absolutely smooth and type-high surface.

The motor is high speed, ball bearing, universal, one-quarter horse power, totally enclosed except for two screened air vents, and of well-known make.

The RouterPlaner is available in either bench or floor model and also as either a Router only or a Planer only.

Standard equipment for the Router only, includes one 1/16″, one 3/16″, one 1/2″ router bits, chuck wrench, type-high gauge, and clamps for both type-high and shell casts. Standard equipment for the Planer only, includes the above without the router bits plus one 1½″ type-high planing tool, one planer plate, and one "Hold-down" clamp for type-high planing.

Clamping Cuts: First of all, clean the table. Then slide the block clamp into the slot and clamp it near the front of the table. The beveled edge should be up for a type-high cut and down for a shell plate. Place the cut against the block clamp and slide the proper (one for type-high and one for shell) eccentric clamp from the rear of the table into the slot and up against the cut. To lock this clamp onto the table, turn the upper lever to the right. To lock the cut securely into place, turn the lower handle to the right which not only clamps the cut, but forces it down firmly onto the table.

Sometimes the tightened lever extends over the face of the cut. To remedy this, remove the clamp and turn the square head screw a quarter or a half turn to the left and then replace the clamp.

Inserting Router Bits: Open the chuck by hand or with the wrench and insert the bit as far as it will go and lock it securely with the chuck wrench.

Adjusting to Routing Height: The hand wheel on top of the motor arm raises and lowers the router bit, and the hand wheel on the side of the router arm locks it securely in position. Thus to rout to

the desired depth, lower the bit to a spot on the plate which is of the desired depth, using the top hand wheel, then lock the bit in this position with the side hand wheel.

Routing: Place the left hand on the long handle, and the right hand on the short handle — then move the router bit in any direction desired. Proficiency in routing comes with practise, but a novice can produce good results in his very first attempt.

In routing along an edge, move the router bit so it clears itself — that is, move the bit in such a direction that its cutting side is not being pulled into the metal. This will eliminate burrs.

Foot Treadle: The foot treadle will raise the router bit above the face of the cut so that the operator can quickly move the bit to any position with no danger to the face of the cut. When the foot treadle is released the bit will drop to the depth of its original position.

Mortising: There is no way to mortise type-high plates on a router. A drill and jig saw or a raising and lowering circular saw (both of which are incorporated in the TrimOsaw) are the only devices by which this can be done. However, shell

plates can be mortised, but a special attachment is necessary and is supplied as extra equipment.

TYPE-HIGH PLANING

Clamping Motor Spindle: With the "Hold-down" clamp, clamp the long handle to the center of the guide bar. The nearer the motor spindle is to the guide bar, the more rigid it will be, and this will depend upon the size of the work. In tightening the "Hold-down" clamp, tighten the side thumb screw first and then the bottom lever screw.

Inserting and Adjusting Planer Tool to Type-High: Insert the planer tool as far up into the chuck as it will go and lock it securely with the chuck wrench.

To adjust it to type-high, place the type high gauge on the planer plate and with the top hand wheel lower the tool carefully to the type-high gauge. The gauge should just slide horizontally with no vertical movement. At this point lock the tool in place with the side hand wheel and the machine is ready for type-high planing.

Use of Planer Plate: Make sure the plate is clean and lock the cut face down on the planer plate between the stationary

and eccentric clamp (see "Clamping cuts" paragraph for use of the eccentric clamp). Be sure when locking the cut that all four corners are down flat on the plate.

Type-High Planing: Stand on either side of the machine. Start planing on the upper left hand corner of the cut — push the plate forward until a path has been cut along the left hand side — then move the plate about an inch to the left and pull the plate forward, cutting another path — continue this until the cut is completely planed.

Better results are always obtained when the planing is done slowly, and it will also be found better to take two light cuts rather than one heavy one, when planing metal.

The machine and its adjustments are accurate so that with a little practice the operator will obtain excellent results.

How to Sharpen Router Bits and Type-High Planing Tool: Router bits must never be ground except on their ends, i.e., not on their sides, and of course to the correct angle so that they will present a beveled cutting edge to the work. For clearance there should be a backward and a sideward bevel on the end of the tool. In other words there are two cutting edges, one on the side and one on the end,

and the point at which these two meet should be clear and should be the first part to touch the work. This requires a bevel away from it in two directions — one sidewards and one backwards. Inspection of a new bit will show this — try to maintain the original bevel.

The cutting knife in the type-high planing tool must be removed to be sharpened. It is sharpened in the same way as the router bit.

INTRODUCED '21

LEADER SINCE '26

MODEL A-3 TRIMOSAW

CIRCULAR SAW AND TRIMMER

TABLE 28" x 28"

GAUGE CAPACITY, 86 PICAS

ROUTER — DRILL — JIG SAW

TYPE-HIGH PLANER

COMPLETE WITH SAW SHARPENING DEVICE

Hammond Machinery Builders INCORPORATED

FORMERLY HILL-CURTIS CO.

KALAMAZOO, MICHIGAN