

STAKING TOOLS

and how to use them . . .

K & D
since
1876


K&D MANUFACTURING CORPORATION
POST OFFICE BOX 521 • 250 BANK STREET
LEBANON, NEW HAMPSHIRE 03766

Since 1876, K & D Manufacturing Corporation has specialized in designing and manufacturing high quality, precision instrument tools. Initially, these found use largely by watchmakers and jewelers, but with the advent of miniaturization, the demand for K & D tools grew tremendously. Today, K & D Manufacturing Corporation is constantly developing new tools and refining the existing line to fulfill application requirements for virtually every type of precision mechanical and electrical/electronic assembly and service work.

Thanks to the company's many years of experience in tool design and manufacture, plus a rigid policy of quality control, K & D tools have earned a reputation for being durable, dependable . . . and a pleasure to own and to use.



STAKING TOOLS



... like any other precision product, must be given proper care and attention in order for you to attain complete satisfaction and produce quality workmanship. Years of technical "know-how" have enabled K & D Manufacturing Corporation, manufacturers of watch-makers' tools since 1876, to produce the best Staking Tool at the most reasonable price.



Staking Tools



**No. 43-119
18-R DELUXE STAKING TOOL SET**

Set contains:

- No. 43-355 & 43-360 Balance Staff Removers
- No. 43-401-130 Cone Miller
- No. 43-118-01 Frame complete with Die Plate,
Micrometer Stop, and Lever
- No. 43-118-03 Hardwood Box
- No. 43-305B & 43-305C Adjustable Roller Remover Stumps
- No. 43-316 10 Sub-Punches & Holder
- No. 43-321 7 Jewel Pushers & Holder
- No. 43-322B 18 Jeweling Reamers & Holder
- No. 43-323 & 43-323B Cannon Pinion Closing Punches
& Stumps
- No. 43-324 6 Friction Jeweling Stumps
- 100 Selected Punches & 20 selected Stumps



18-B Frame and Die Plate
without Micrometer
Stop and Lever



No. 43-118
18-B STAKING TOOL SET

Set contains:

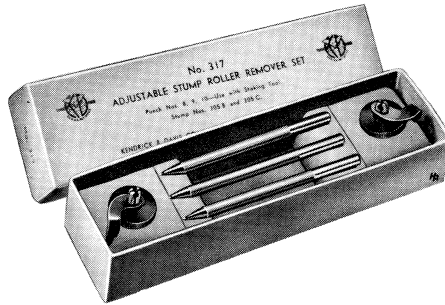
- No. 43-116-01 (18-B) Frame
 - No. 43-118-03 Hardwood Box
 - No. 43-305 B & 43-305C Adjustable Roller Remover Stumps
 - No. 43-316 10 Sub Punches & Holder
- 100 Selected Punches & 20 Selected Stumps

The following sets consist of the 18-B Frame & Hardwood Box:

- No. 43-099A 30 Punches & 10 Stumps
- No. 43-100A 60 Punches & 20 Stumps
- No. 43-101A 80 Punches & 20 Stumps
- No. 43-102A 100 Punches & 20 Stumps

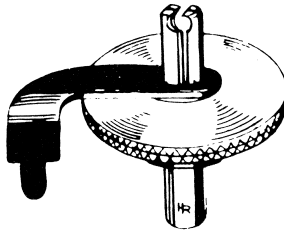


STAKING TOOL ACCESSORIES



No. 43-317 ADJUSTABLE ROLLER REMOVER SET

Contains 3 cross hole punches (K & D Punches 7, 8, and 9) and 2 adjustable stumps with discs and locking arms. In use, the tool fits in the die plate of the staking tool frame and the bent arm or locking lever fits into one of the die plate holes or center hole of the die bolt. The balance with the roller attached should be inverted and slipped in between the jaws, so the jaws come between the balance hub and the top of the roller table. The gap in the jaws is adjusted by turning the knurled collet or disc. Using the corresponding roller remover punches, tap the balance lightly, and the roller will slip off the balance shoulder.



No. 43-305-B and 43-305-C ADJUSTABLE ROLLER REMOVER STUMPS

Each is furnished with adjusting disc and locking lever as in the No. 43-317 set. The stumps are made of tool steel and are hardened and tempered. The discs and locking levers are satin chromium plated.

No. 43-305-B for baguette and bracelet watches

No. 43-305-C for pocket watches



PUNCH



STUMP



No. 43-323

CANNON PINION CLOSING PUNCH AND STUMP

The stump is slotted to hold the cannon pinion, and the punch is wedge shaped. To use this tool, fit the stump to a hole in the die plate and center it. Place the cannon pinion in the stump slot, and pass the punch through the staking tool frame bushing over the cannon pinion. Light taps will then dent the cannon pinion, tightening it on the center wheel staff.

No. 43-323 Punch and Stump for Pocket Watches

No. 43-323-B Punch and Stump for Bracelet and Baguette Watches

No. 43-350 BALANCE STAFF REMOVERS

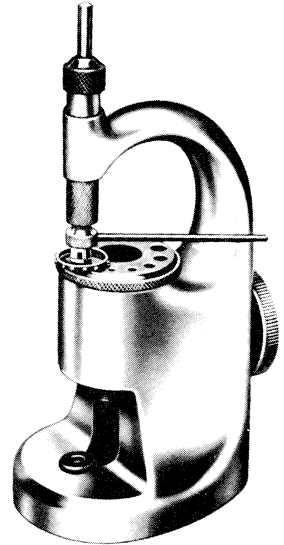
A valuable tool for extracting staffs quickly and efficiently. The balance arms are protected against distortion and splitting. All parts except the punch are satin chromium plated.

To use: Select a hole in the staking tool frame die plate which fits closely over the hub of the staff. Center the hole with the centering punch and place the staff in the hole so the balance arms rest on the die plate.

Place the remover over the balance as illustrated. The hole in the bottom of the remover fits over the hairspring shoulder of the staff. Pass the extracting punch through the staking tool frame and remover so that it rests on the pivot of the staff.

Now turn the upper knurled sleeve counter-clockwise so it moves upward against the staking tool arm. The stop arm of the tool will swing against the body of the staking tool frame and prevent the body of the tool from turning. Tighten the sleeve just enough so the remover sits firmly in the staking tool frame.

Strike the Punch with a sharp blow using a brass hammer (K & D No. 26-491) and the staff will come through the hole in the die plate. The removers are made in two sizes, $\frac{7}{8}$ " for the old 600 series frames (as illustrated) and $1\frac{1}{8}$ " for the 18 series frames.



No.	For	Size
43-353	Pocket Watches	$\frac{7}{8}$ "
43-355	Pocket Watches	$1\frac{1}{8}$ "
43-558	Bracelet Watches	$\frac{7}{8}$ "
43-360	Bracelet Watches	$1\frac{1}{8}$ "

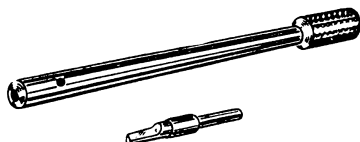
(When ordering, specify size: $\frac{7}{8}$ " or $1\frac{1}{8}$ ".)

Replacement Punches

- 43-350-11 — Pocket Watches
- 43-350-B11 — Bracelet Watches



FRICTION JEWELING ACCESSORIES



No. 43-322-B JEWELING REAMERS AND HOLDER

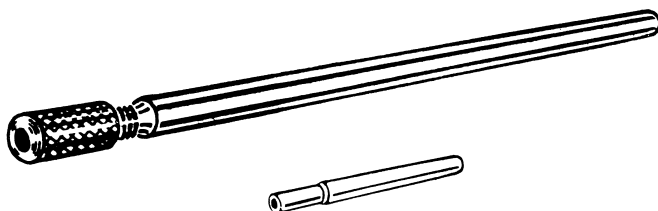
The set contains 18 jewelry reamers and holder that fits all K & D staking tool frames. Each reamer is numbered to correspond with the jewel size, but has been precision ground .01 mm. smaller, so that the jewel will fit snugly. As an example, a No. 6 reamer actually measures .59 mm. Reamer sizes are: .59, .69, .79, .89, .99, 1.09, 1.19, 1.29, 1.39, 1.49, 1.59, 1.69, 1.79, 1.89, 1.99, 2.29, 2.59, 2.99.



No. 43-324 FRICTION JEWELING STUMPS

The set consists of 6 hollow friction jewelry stumps graduated in size to accommodate the jewelry reamers.

Stump No.	13-F	14-F	16-F	17-F	19-F	20-F
Hole Diam. in mm.	3.05	2.05	1.77	1.48	1.15	.85



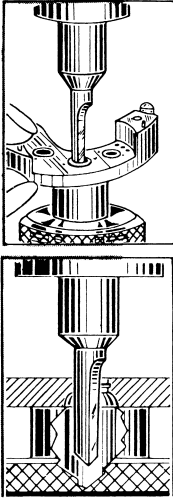
No. 43-321 JEWELING PUSHERS AND HOLDER

Set contains 7 jewelling pushers and holder. The pushers are concaved and graduated in size to cover the full range of standard jewels. They are made of steel and hardened and tempered. The handle or holder fits all K & D staking tool frames.

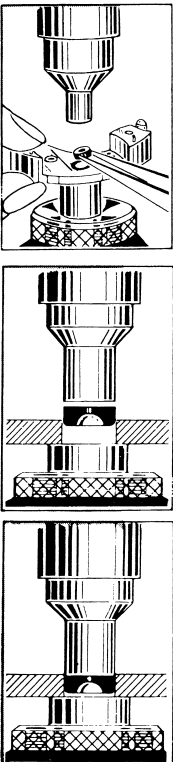
STEPS IN FRICTION JEWELING



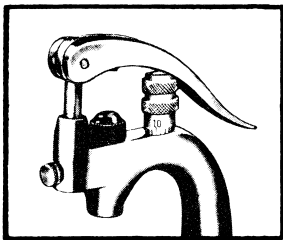
How To Use The Reamers



How To Set Friction Jewels



- 1—Select a jewel stomp that has a hole larger than the diameter of the jewel to be replaced. Place the stomp in the dieplate of the staking tool frame and center.
- 2—Select a pusher that is slightly smaller than the diameter of the jewel to be replaced. Place in holder and pass through staking tool head.
- 3—Except when setting balance jewels, place watch plate or bridge on stomp with inside of plate facing up. When setting balance jewels, outside of plate or bridge faces up. Rest pusher on old jewel, and adjust micrometer stop so that this will be the limit of the movement of the pusher. This is done so that the new jewel will be pressed to the same depth as the old one.
Note reading on micrometer stop.
- 4—Lower micrometer stop, and press out old jewel.
- 5—If the old jewel was a friction jewel, and side of hole is in good condition, steps 6 and 7 may be eliminated. Simply measure hole by using reamer, and proceed to step 8.
- 6—If hole is to be refinished, select a reamer that is slightly larger than the old hole, put in holder, and pass through staking tool head.
- 7—Turn reamer holder and ream out new hole, running reamer through plate or setting and beyond, so that approximately .5 to 1.0 mm. of the shoulder of the reamer enters the hole. Withdraw reamer and holder from staking tool frame.
- 8—The cone miller is then used to remove burrs from around the edges of the hole.
- 9—Place jewel in reamed out hole with oil cup facing down.
- 10—Put pusher and holder back in staking tool head, reset micrometer stop to reading noted in step 3, and rest pusher on new jewel.
- 11—Press lever gently but firmly to force the jewel into the hole. Micrometer stop will prevent lever from pressing jewel further than necessary.
- 12—If, after checking end shake, the jewel needs to be reset higher or lower in the plate, adjust micrometer stop, and press jewel.
- 13—When friction fit jewel settings are loose in plates or bridges, tighten before attempting to set jewels. See instructions on use of Taper Mouth Closing Punches.

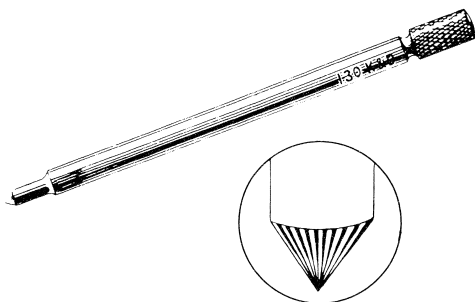


No. 43-18-X JEWELING CONVERSION KIT

To convert the 18-B Set or 18-B Frame for Friction Jewelry Set contains:

- No. 43-401-130 Cone Miller
- No. 43-321 Jewel Pushers and Holder
- No. 43-322-B Jewelry Reamers and Holder
- No. 43-324 Set of Friction Jewelry Stumps
- No. 43-504-S Micrometer Stop and Lever

For older style 18-B sets having a smaller wooden box, purchase additional larger No. 43-118-03 Box.



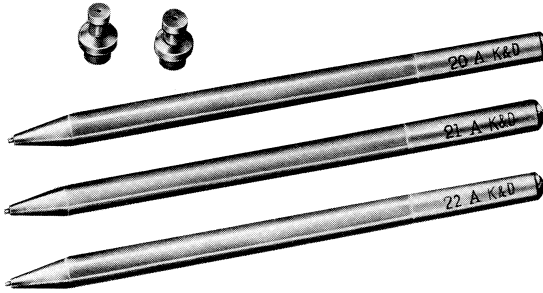
No. 43-401-130 CONE MILLER

Used to remove any burrs from jewel settings or similar counter-sinking operations. Knurled top is satin chromium plated. Miller fits all K & D staking tool frames.



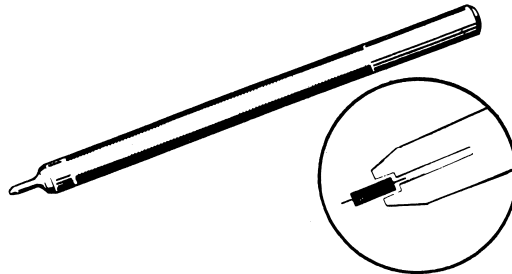
No. 43-316 SUBPUNCHES AND HOLDER

The set consists of 10 subpunches and a holder that fits K & D staking tool frames. The subpunches range in size from .010" to .055" diameter by graduations of .005". They are made of tool steel and are hardened and tempered.



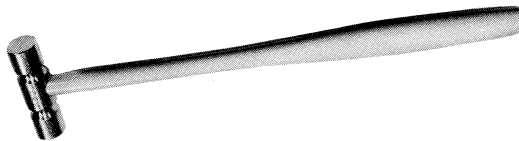
**No. 43-329-A
PUNCHES AND STUMPS FOR INCABLOC ROLLERS**

This set contains K & D Punches Nos. 20-A, 21-A, and 22-A; and Stumps Nos. 62 and 67. The punches are shaped to fit the groove in the bottom of the incabloc rollers.



No. 43-331 PALLET ARBOR PUNCHES

This set contains K & D punches Nos. 131, 132, and 133. They are provided with a double shoulder hole to support both the pivot and part of the body of the pallet arbor. A drop of oil in the hole will prevent the pallet arbor from falling out of the punches.



No. 26-491 BRASS HAMMER

Especially designed for staking tools. Brass head will not mar punches. Just the right amount of spring in the handle. Head is 2" long, weight 1½ oz. Handle is polished, clear lacquered hardwood.



TABLE OF PUNCHES

All Measurements in mm

Punch No.		Hole Dia.	Punch No.		End Dia.	Hole Dia.
1	Set Punch		26B	Staking Rollers		.51
7	Cross Hole Punch	.16	26C	Staking Rollers		.41
8	Cross Hole Punch	.18	27	Closing Collets		1.40
9	Cross Hole Punch	.21	28	Closing Collets		1.18
10	Cross Hole Punch	.25	31	Taper Mouth Closing	3.53	1.09
12	Triangular Punch		32	Taper Mouth Closing	2.90	.91
13	Prick Punch		33	Taper Mouth Closing	2.68	.84
14	Peening Punch		34	Taper Mouth Closing	2.15	.79
15	Stretching and Peening		35	Taper Mouth Closing	2.01	.66
16	Center Wheel Punch	1.94	36	Taper Mouth Closing	1.61	.61
17	Center Wheel Punch	1.51	37	Taper Mouth Closing	1.40	.53
18	Center Wheel Punch	1.18	38	Taper Mouth Closing	1.15	.46
20A	Staking Double Rollers Incabloc		38A	Taper Mouth Closing	.99	.31
21A	Staking Double Rollers Incabloc		39	For Waltham Detachable Staffs (Driving Out)	.71	.21
22A	Staking Double Rollers Incabloc	.35	40	For Waltham Detachable Staffs (Driving In)	1.14	.63
25	Staking Rollers	.79	41	For Waltham Detachable Staffs (Driving In)	.94	.61
26	Staking Rollers	.63	42	For Waltham Detachable Staffs (Driving In)	.76	.45

FLAT FACE HOLE PUNCHES

Punch No.	Hole Dia.	Punch No.	Hole Dia.	Punch No.	Hole Dia.
44	2.38	59A	.81	64	.50
50	1.45	60	.79	69	.45
51	1.40	61	.75	70	.40
52	1.25	62	.74	71	.37
53	1.09	63	.71	71A	.25
54	1.04	63A	.66	72	.34
55	.97	64	.63	72A	.21
56	.95	65	.60	73	.31
58	.90	66	.56	73A	.16
59	.85	67	.53		

ROUND FACE HOLE PUNCHES

Punch No.	Hole Dia.	Punch No.	Hole Dia.	Punch No.	Hole Dia.
74	2.38	89A	.81	98	.50
80	1.45	90	.79	99	.45
81	1.40	91	.75	100	.40
82	1.25	92	.74	101	.37
83	1.09	93	.71	101A	.25
84	1.04	93A	.66	102	.34
85	.97	94	.63	102A	.21
86	.95	95	.60	103	.31
88	.90	96	.56	103A	.16
89	.85	97	.53		

PUNCHES



All Measurements in mm

FLAT FACE SOLID PUNCHES

<i>Punch No.</i>	<i>End Dia.</i>	<i>Punch No.</i>	<i>End Dia.</i>	<i>Punch No.</i>	<i>End Dia.</i>
104	4.10	108	2.36	111 .....	.99
106	3.23	110	1.48	111A .....	.89

ROUND FACE SOLID PUNCHES

<i>Punch No.</i>	<i>End Dia.</i>	<i>Punch No.</i>	<i>End Dia.</i>	<i>Punch No.</i>	<i>End Dia.</i>
112	4.10	117	1.76	119 .....	.99
115	2.73	118	1.48	119A .....	.84
116	2.36				

SCREW KNOCKING PUNCHES

<i>Punch No.</i>	<i>End Dia.</i>
121 .....	.79
122 .....	.70

<i>Punch No.</i>	<i>Inside Hole Dia.</i>	<i>Outside Hole Dia.</i>
131 .....	.15	.31
132 .....	.15	.37
133 .....	.15	.41

PUNCH LIFTER

No. 43-199

Used to remove Punches easily from their holes in the Staking Tool box.



SPECIAL NOTE: There is an exact difference of 30 numbers between equivalent sizes of Round Face Hole punches and Flat Face Hole punches. This information will be useful when staking staffs, when, for example, you would use a No. 69 Flat Face Hole punch after using a No. 99 Round Face Hole Punch.



STUMPS

All Measurements in mm

Flat Face Solid

Used for closing holes in conjunction with Round-Face Solid Punches, Peening, etc.



	Outside		Outside
No.	Dia.	No.	Dia.
1	9.60	8	3.26
3	5.78	11	2.49
5	4.08		

Friction Jewelring

Used with Jewelring Reamers



	Hole		Hole
No.	Dia.	No.	Dia.
13-F	3.05	17-F	1.48
14-F	2.05	19-F	1.15
16-F	1.77	20-F .....	.85

Round Face Solid

Used in conjunction with Round or Flat-Face solid Punches for closing holes, etc.



	Outside		Outside
No.	Dia.	No.	Dia.
25	5.78	33	2.08
29	2.26	37	1.40

Flat Face Hole

Used for resting wheels for driving out staffs, pinion, etc.



	Hole	Outside
No.	Dia.	Dia.
47	2.38	5.79
51	1.93	3.74
60 .....	.92	4.08
62 .....	.79	3.86
65 .....	.64	3.26
67 .....	.57	3.26
69 .....	.51	3.26

Roller Stumps, Driving on

Has central hole to receive staff and side groove for roller pin.



No.	Size
78	Bracelet, Large
79	Bracelet, Small

Roller Stump, Removing

For two-arm balances; has transverse slot to receive balance arm and notch for end of roller pin if it projects.



No.	Size
82	Small, with slot for roller pin.
84	Medium, with 3 spaced slots



Pump Center Stump
No. 85 Large
No. 86 Small

Spring loaded center to keep pivot hole centered while it is being closed.



Large flat face cup
No. 87

Used for bumping plates or bridges end-shaking barrel arbors, etc.



Center arbor support stumps
No. 88 Large
No. 89 Small

For supporting back end of center arbor, while staking on hands or cannon pinion.



Crotch No. 90

For supporting cannon pinion while adjusting setting friction.



For driving in Waltham detachable staffs

No.	Size	Hole diam.	Outside diam.
92	16s	.94	5.61
93	12s	.74	5.31
94	0s	.61	4.92



For driving out Waltham detachable staffs

No.	Size	
95	16s	Taper Mouth
96	12s	Taper Mouth
97	0s	Taper Mouth



For staking Elgin staffs

No.	Hole diam.	Outside diam.
99	1.50	5.79
99A	.89	5.79



Vee Slot
No. 100 Large
No. 100-A Small

For driving out escape pinions without disturbing wheel bushing, etc. Very practical and useful.

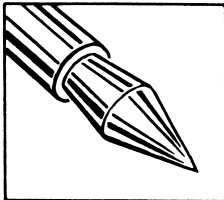


Solid V-Slot
No. 101

For supporting cylindrical parts.



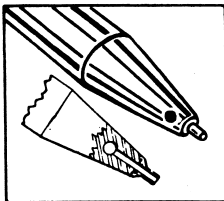
Punches



SET PUNCH No. 1

- For centering the dieplate

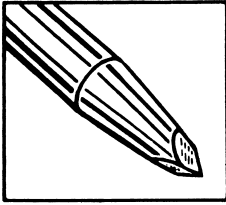
Any other use would soon ruin the set punch, the point being very accurately ground.



CROSS HOLE PUNCHES No. 7 to 10

- for driving in and out staffs from rollers
- for driving in and out friction staffs (except Waltham, see punches 39 to 42)

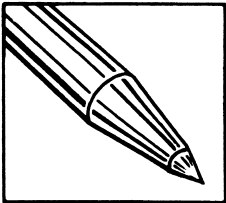
The hole is shaped so that the punch rests on the shoulder of a cone-shaped pivot. The hole in the side is for observation and to facilitate the removal of a pivot that might become broken and lodged in the hole. Care must be taken in selection of the correct hole size so that the punch fits the pivot snugly, but not tight.



TRIANGULAR POINTED PUNCH No. 12

- **for tightening roller tables**

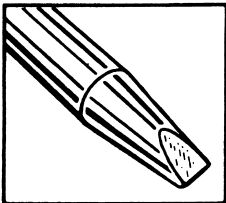
Raises three slight burs equidistant about the hole of a roller. Actually, an emergency measure when a proper fitting roller or staff cannot be obtained.



PRICK PUNCH No. 13

- **for marking centers**

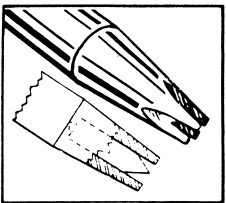
Has stronger point than set punch and can be used to mark or nick.



STRETCHING AND PEENING PUNCHES Nos. 14 and 15

- **for stretching balance arms**
- **for stretching metal**

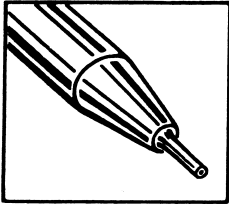
After removing the roller and hairspring, place the balance in the hole of a flat faced hole stump or punch which can be inverted to act as a stump. The hole should be just large enough to accommodate the hairspring shoulder of the staff snugly but not tight. Place the peening punch on the balance arm close to the staff and tap the punch with a series of light blows. The result should be checked often as overstretching is difficult to correct.



CENTER WHEEL PUNCHES Nos. 16, 17 and 18

- **for indenting the riveting of safety pinion staffs**

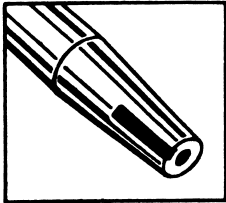
The safety pinion staffs may slip in the center wheels of 18s Waltham watches and others using this feature. To secure the staff to the wheel firmly these punches are used to indent the riveting of the staff in four places with one blow.



ROLLER PUNCHES Nos. 20A to 22A

- for staking double rollers
- for staking Incabloc rollers
- **Punches 20A and 21A are specifically for Incabloc rollers and are shaped to fit the groove in the bottom of the roller**

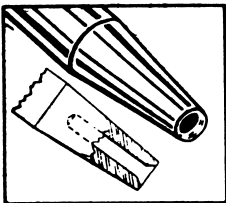
All the punches are used to drive the roller on the staff and should be selected so that the hole will be large enough to go over the roller shoulder of the staff, but small enough to rest on the small roller table.



ROLLER STAKING PUNCHES Nos. 25 to 26C

- for driving single or impulse double rollers on balance staffs

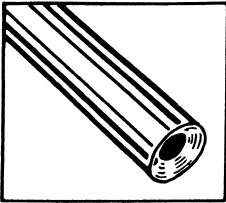
These punches are made with a hole in the center to go over the balance staff and a groove in the side to receive and protect the roller jewel. Care should be used in selecting the proper punch to avoid the possibility of creating pressure on the roller jewel causing it to break or loosen. Some watchmakers prefer to use these punches inverted in the frame allowing the roller to rest on the top of the punch and driving the staff down into the roller with a flat face hole punch selected to fit over the collet shoulder of the staff. You can also reverse the procedure by placing the balance wheel over a flat face hole stump and driving the roller down on the staff using a roller staking punch.



COLLET CLOSING PUNCHES Nos. 27 and 28

- for closing hairspring collets

Breguet collets should be closed from the top side and flat collets from the bottom to obtain the maximum clearance between the punch and the hairspring. The collet can only be closed to a point where the sides of the slot touch each other and if this is not sufficient, the collet or the balance staff should be changed. Be careful to select the proper size punch as one that is too large will shear off the hairspring after a few taps of your hammer. Always use these punches in the Staking Tool frame and rest the collet on a solid face stump.



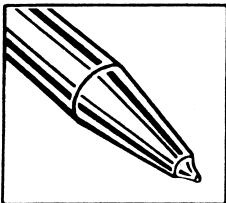
TAPER MOUTH CLOSING PUNCHES Nos. 31 to 38A

- for closing holes in sockets of hour and second hands
- for spreading friction fit jewel settings or bushings
- for closing tips of sleeves

Taper mouth hole closing punches have the effect of gathering in and condensing stock which is in most instances a post, socket or bushing.

Perhaps the most common use of this punch is to close the hole in hour hands which is accomplished by first placing the hand on a flat face stump with the socket in an upright position. Select a taper mouth punch which fits over the socket and will not touch the body of the hand. Tap the punch lightly with a brass hammer turning it about one quarter of a turn after each blow.

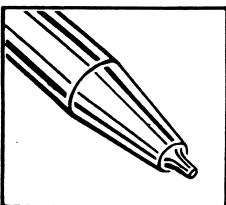
These punches are also ideal for spreading friction fit jewel settings such as used by Waltham. To spread a jewel setting, select a punch slightly smaller than the setting itself. Place the setting on a flat face stump and center with the taper mouth punch. Light tapping will create a ridge or groove and spread the setting just enough to afford a tight fit.



DRIVING OUT PUNCH No. 39

- for removing Waltham detachable staffs

This punch is used in conjunction with stumps 95, 96 and 97. The hub of the balance wheel fits into the tapered hole of the stump. The punch has a tapered hole to fit on the pivot of the staff. A few light taps are sufficient to drive out the staff.



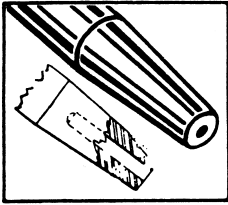
DRIVING IN PUNCHES Nos. 40 to 42

- for staking Waltham detachable staffs

These punches are used in conjunction with stumps 92, 93 and 94. A stump is selected with a hole large enough to accommodate the hairspring shoulder of the staff and the balance is inverted on the stump. A punch is selected which will go over the roller shoulder of the staff and seat itself against the hub. A few light taps are sufficient to drive in the staff.



Punches

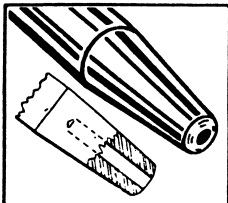


FLAT FACE HOLE PUNCHES Nos. 44 to 73A

- for final staking of balance staffs
- for final staking of train pinions
- for pressing hairspring collets on balance wheels
- for use as stumps when inverted into the staking tools. Ideal for riveting “hard” staffs — will save wear and tear on the expensive dieplate.

When used for final staking of a balance staff or pinion, it is important to select the correct size punch for doing a good job and avoiding damage to the punch. A proper fitting punch should fit freely over the collet hub with a clearance of about .02 to .03 mm. Always tap the punch lightly with a brass hammer turning it about one quarter of a turn after each blow.

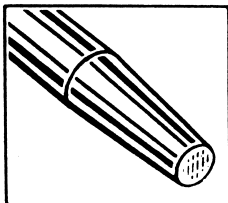
If you select too large a punch, it is possible that you may not obtain the full degree of bearing surface, thereby, placing too much pressure on the inside corner of the punch causing it to flatten out or chip. If you select too small a punch, the staff becomes a wedge and will split the punch or round the inside corners of the punch.



ROUND FACE HOLE PUNCHES Nos. 74 to 103A

- for spreading undercut of staffs and pinions prior to finishing with a flat face hole punch

Before using this style punch, press the balance wheel firmly over the riveting surface with a flat faced hole punch. Make sure that the shoulder of the staff extends far enough through the wheel to provide sufficient stock to form a rivet. Select the correct size punch in the same manner as with the flat faced hole punches.

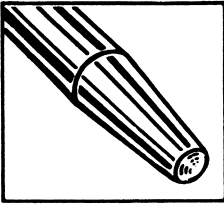


FLAT FACE SOLID PUNCHES Nos. 104 to 111A

- for closing holes
- for adjusting end shake of train bushings
- for riveting where a hole punch is not required
- for use as stumps when inverted in Staking Tool frame



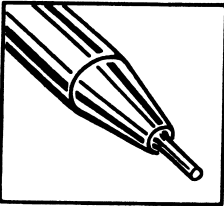
Punches



ROUND FACE SOLID PUNCHES Nos. 112 to 119A

- for closing pivot holes
- for closing minute hand holes
- for burnishing top of old style jewel settings after closing bezel
- for closing holes in rollers

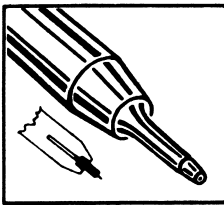
The above punches are generally used in conjunction with a solid face stump and their high polish will leave a fine finish on oil cups or pivot holes. When using to close minute hand holes, always use a Staking Tool frame and avoid direct contact with the dieplate by first placing the hand on a solid face stump. If the hole cannot be closed easily with light tapping, the material is too hard and should have the temper drawn to avoid breakage. These punches were not designed to be used on clock plates.



SCREW KNOCKING PUNCHES Nos. 121 and 122

- for driving out screws which have broken in the plates
- for driving out friction banking pins

Care must be used with these punches or breakage can be expected. In driving out a broken screw, one good blow is much better than a succession of light blows and less likely to break the punch.



PALLET ARBOR PUNCHES Nos. 131 to 133

- for staking friction pallet arbors

These punches have a specially designed double shoulder hole which accommodates both the pivot and part of the body of the pallet arbor. The inside shoulder of the punch rests on the shoulder of the pallet arbor. A drop of oil in the hole of the punch will keep the pallet arbor from falling out of the punch.



CORRECT USE OF PUNCHES AND STUMPS

Staking Tool punches, like all watchmakers' tools, are precision made to benefit skilled workmen and must be used with care.

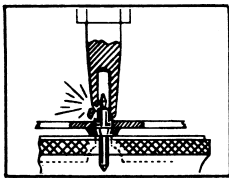
Each Staking Tool punch was primarily designed for a specific type of work and careful handling must be exercised to avoid breakage and unnecessary wear. A few "do's and don'ts" are listed below to assist you in properly using your Staking Tool punches and stumps.

In handling the frame itself . . .

most watchmakers prefer to center the die and tighten with the die binder while resting the frame firmly on the bench. Others like the dieplate to "float" or remain loose since this allows for self-centering of the punch and staff.

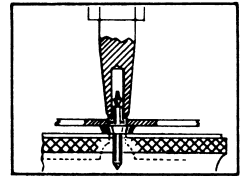
Some prefer to hold the frame . . .

by the neck (off the bench) because they feel that the double blow (caused by the dieplate and punch against the staff from both sides) lessens the pressure on both parts and does a better all around job.



WRONG

CHECK PUNCH SIZE CAREFULLY



RIGHT

For staking staffs and pinions . . .

the common practice is to use a round faced hole punch first to flatten the undercut of the balance staff over the balance arm. A flat faced hole punch is then used to finish the riveting and to bring it firmly down over the arm. If a punch fits too tightly over the hairspring shoulder of the staff, it will not produce a good job and may even split the punch.

For closing holes . . .

round faced solid punches are generally used and should only be used in the Staking Tool frame to avoid off center jobs. If used on steel, extra caution should be exercised to avoid breakage — use light blows.



Small cross hole and special Waltham punches . . .

are the most delicate and often misused punches. Do not use these punches for any other purpose than that for which they are designed.

Always use a brass hammer . . .

which saves battering your punches. If a steel hammer is used, the end of the punch may flatten out and make it impossible to invert in the frame. We recommend using the K&D No. 26-491 Brass hammer which was made especially for Staking Tools.

Light tapping . . .

will stake a staff properly and sufficiently tight. It is recommended to turn the punch slightly between the taps or turning the balance wheel to produce a better job. Forceful pounding quite frequently will cause distortion of the balance arm as well as damage the die and punches.

American made balance staffs are harder . . .

than Swiss staffs, and for this reason the use of stumps or inverted punches is recommended to avoid direct wear on the expensive dieplate.

Check periodically for rust . . .

and remove from punches and die with fine emery paper. Turning the punches in your lathe will speed the job of rust removal. To prevent rust from summer humidity and perspiration, the punches and the dieplate should be periodically wiped with a rag saturated with lathe oil.

Check punches for wear . . .

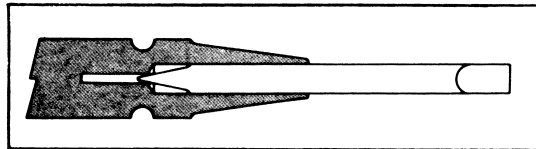
about once a month, especially the flat and round face hole punches in the most used sizes. Good workmanship cannot be expected if you use a worn or battered punch. Replacements are inexpensive and well worth the investment.



MISCELLANEOUS TOOLS

PRECISION INSTRUMENT SCREWDRIVERS

No. 41-160 SERIES (Solid Chuck)

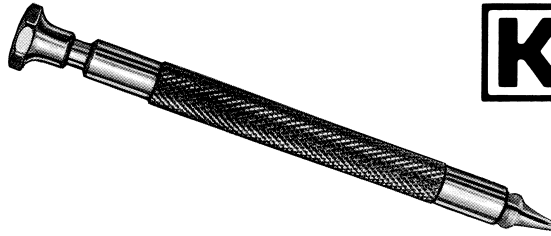
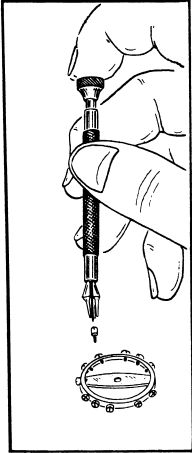


Solid, slotted handle holds blades securely and keeps them rigid. Cupped Nylon heads swivel smoothly and are non-roll. Blades No. 3 through 10 are double ended and reversible. The handle is Brass with satin chromium plating. Blades are of hardened & tempered tool steel.

<i>K&D Part No.</i>	<i>Blade Diameter</i>	<i>Color of Head</i>	<i>Handle Dia.</i>	<i>Length Overall</i>
41-160-01	.016" .40 mm.	Turquoise	3/16"	3"
41-160-02	.020" .50 mm.	Pink	"	"
41-160-03	.025" .65 mm.	Beige	"	"
41-160-04	.030" .75 mm.	Black	"	"
41-160-05	.035" .90 mm.	Gray	"	3 1/4"
41-160-06	.040" 1.00 mm.	Red	"	"
41-160-07	.055" 1.40 mm.	Green	"	"
41-160-08	.070" 1.80 mm.	Yellow	"	"
41-160-09	.080" 2.00 mm.	Brown	7/32"	3 1/2"
41-160-10	.100" 2.50 mm.	Blue	"	"

SETS

<i>Sizes in Sets</i>	<i>K&D No.</i>
01 thru 10.....	41-161
03, 06, 07, 08, 09, 10.....	41-162
02, 04, 06, 08, 10.....	41-163
01 thru 04.....	41-164
05, 06, 07, 08, 09.....	41-165

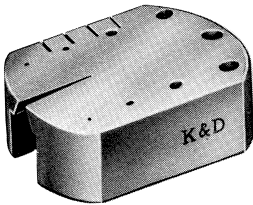


No. 41-427 SCREW-HOLDING SCREWDRIVER

Designed for micro-miniature screws. Blade is spring-loaded, centered in slotted, 3-prong jaws. Jaws open when the hex swivel head is pressed down. Ideal for balance screws as illustrated.

No. 41-427 .027" Diameter Blade

No. 41-428 .055" Diameter Blade

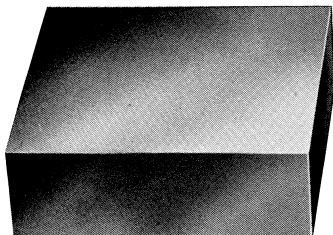
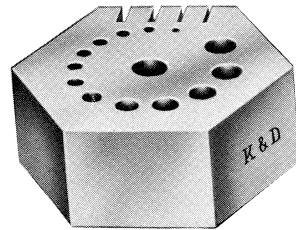


No. 10-086 "V" SLOT ANVIL

Used as a base for staking, riveting, and drilling small parts. V-slot is handy for removing pinions and similar items. Case hardened and ground flat and smooth. Has 9 graduated holes, with one size for K&D stumps, and 5 milled slots. Measures 1 3/4" long, 1 1/4" wide, and 1/2" thick.

No. 10-085 HEXAGON ANVIL

Used as a base for staking, riveting, and drilling small parts. Case hardened and ground flat and smooth. Has 16 holes graduated from 3/64" to 1/4", and 5 milled slots. Measures 1 5/8" across the flats, and approximately 3/4" thick.



K&D STEEL BENCH BLOCKS

Used to support work while flattening and when laying out designs. Case hardened, and ground flat and smooth.

No. 10-088 2 1/2" x 2 1/2" x 3/4"

No. 10-089 4" x 4" x 3/4"



No. 16-794 CASE OPENER

The blade is oval shaped, sharp, especially designed for opening cases, and is made of well tempered tool steel. A closed end ferrule mounts onto a black lacquered hardwood handle of non-roll design. Overall length of the tool is 4½".

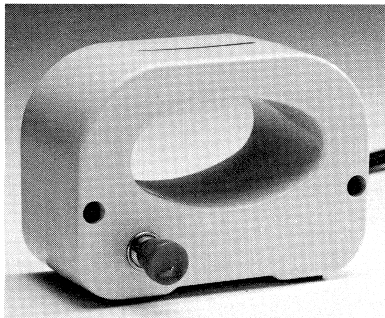


No. 35-365 PIN PUSHER

One end is forked for removing spring bars from watch cases with blind holes. The other end is straight for through holes. The handle is aluminum and both ends are replaceable.

No. 35-365-01 Forked End only

No. 35-365-02 Pin End only



No. 19-205 DEMAGNETIZER-MAGNETIZER

The unit has a coil opening of 1½" x 3", and is equipped with a large button on the momentary switch. It is rated at 300 watts at 120 volts A.C. and comes with an 8-foot SJ cord set.



K&D

GUARANTEE OF PUNCHES

A fair understanding promotes good feeling and confidence. K&D Staking Tool punches are properly made of fine quality steel and tempered to the degree most suited for the purpose intended. Should any punch be found defective in workmanship, material or temper, we will replace it without charge. However, the best of punches can be broken and unless the broken punch shows a flaw in the steel or other imperfection, we must charge for replacing them.

K&D

When steel is hardened to the highest degree it cannot be tough at the same time, for example, round face hole punches made chiefly for riveting staffs, pinions, etc., must be tempered very hard so that they will not become battered. If the punch is used correctly, it would last for years but once put over a staff or pinion a little too large for the hole, the punch will split. If it did not split, it would show conclusively that it was too soft to be a good and durable riveting punch. Hole punches thus broken usually show a bright surface inside the hole at the mouth of the punch.

K&D

Another type of punch such as cross hole punches and those for knocking out broken screws must be tempered tough. These if tempered hard as a riveting punch would be broken the first time they were used. Taper mouth hole punches also need to be drawn to a lower temper than riveting punches.

K&D

We pack all goods with great care and leave our plant in good order. We cannot be responsible for damage done by transportation companies. Goods arriving in damaged condition should be receipted for as in such condition and a claim made to the company delivering them for reimbursement.

