Tuning Hammers

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There are two ways to define force: a lever and an inclined plane. A wheel is a series of continuous levers. A screw is a spiral inclined plane. In a tuning lever, there are a variety of forces, all of which can be narrowed down to these two principles.

Clearance:

Sometimes a different angle of tuning head will allow sufficient clearance for overhanging lids, plate struts, and other protruding piano parts. There are two ways to achieve clearance with a tuning hammer.

- Head extensions enable the tuning hammer to clear overhanging lids or high plate ridges.
- Angled heads tilt the handle up to a degree that the handle can clear.

Stringing Styles

Over the years there have been variations of styles of tuning.

- Stringer pianos use metal hooks that go into the plate.
- Wegman tuning devices
- Wurlitzer drilled in from the back and slipped in a wedge; the plate was thicker

Tuning Hammer Factors

- Weight
    - Light-weight tuning hammers have the advantage of being easy to use over a long period of time.
- Length
    - The length of a hammer makes a difference in the feel. How you approach the piano determines the level of physical comfort tuning. Standing vs. sitting makes a difference on how a hammer is used, and how much strength is required to move a pin. Each position influences the optimal length of the tuning hammer handle.
    - Short hammers require more strength, but have a direct feel with the pin's motion.
    - Long hammers have more leverage and are easier to turn, but there is less connection with the feel of rotation of the tuning pin.
- Materials
    - Hammer construction
        - Titanium with a carbon fiber shaft.
        - Steel shaft with a poly-carbon handle
        - Steel shaft with wood handle
        - Steel shaft with a wooden ball handle
    - Handles
        - Standard tuning lever mild-tapered bulb was an improvement over a straight stick.
        - When the ball handles came out, Scott added two layers of thick vinyl tubing at the end of the handle for a better grip. Balls can be screwed directly onto the end of a shaft.

- Hand-sculpted or lathe-shaped handles of varying designs are designed for hand comfort and ease of optional hand positions
- Materials range for ease, comfort, weight, and space requirements
    - Wood
    - Plastic composites
    - Carbon fiber
    - Metal (steel, titanium)

Heads

- Periodically take your hammers apart to clean and lubricate.
    - Use a little lubricant when putting on a head.
    - Scott uses Never-Seize from auto body stores
- Tips and tuning lever shafts have varying tapers
- Heads vary from 5 to 15 degrees
    - The greater the angle, the easier it is to clear odd angles, but the greater the possibility for flag-poling
    - The straighter the angle, there is more control but sometimes it will not clear

Tips

- Shapes
    - Star tips, #1, #2, #3
    - Square tips
    - Oval tips
- Brands
    - Hale tips fit well
    - Fluegelbaur
- Fitting
    - Tight fit gives strong control but is sometimes difficult to remove from the pin
    - A little play allows some buffer for small impacting, plus allows some play for the pin torque to release

Hand Position

- Under-handed
- Over-handed
- In the middle
- At the end of the handle
- Close to the tip

Arm Position

- Tune uprights with the left hand
- Tune grand pianos with the right hand
- Tune with both arms at once
- Use upper arm, shoulder muscles and back muscles simultaneously
- Sometimes physically giving a little push can help
- On a grand it is possible to tune at 90 degrees

Hammer Designs

- Goose Necks
- Michael Callahan Titanium
- Fujan tube hammer
- Charlie Huethry designed a ball that he stuck on a tube.
- Wooden balls screwed onto the end of a metal shaft.
- Levitan's C-Hammer

Accessories

- Pin punch
- Tuning pin driver
- Tuning pin remover with reverse threads (place tuning hammer on this tip)
- T-Hammers for stringing
- Tuning pin crank
- Torque wrench with gauge

Impact Hammers

- If the impact is too loose you're all over the place. If they are too tight there is not much force or impact. Impact hammers can save a lot of energy with sore hands or back.
- The original steel impact hammers created a new trend in tuning
- Steve Brady brought a Reyburn impact cyber hammer. For tighter pins an extra weight can be added. It is easier to learn to use these if you learn left-handed. Use the left hand on the left hand of the piano, and the right hand on the right side of the piano.
- Dean Reyburn makes an expensive fancy T-handle impact hammer for tuning grands.
- Joe Goheen has an impact hammer with a weight that is adjustable.

Right vs. Left Hand

- Although Roger is ambidextrous, he finds that he can do finer adjustments with his right hand and larger movements with his left.
- Muscle memory is so strong that it takes a long time to switch
- Steve started by tuning one string left-handed on each note in the treble, and worked his way towards more and more in the bass.
- When Ed's right hand gets sore, his left hand works better.