ORGAN VOICING

&

TUNING

ORGAN VOICING

AND

TUNING :

A GUIDE TO AMATEURS

BARDON ENTERPRISES
PORTSMOUTH

First published in 1881 by The John Church Company, Cincinnati.

This edition published in 2005 by Bardon Enterprises.

ISBN : 1-902222-24-5

Typeset and printed in England
by Bardon Enterprises.
Bound in England by Ronarteuro.

Portsmouth, Hampshire, England.

http://www.bardon-enterprises.co.uk

PREFACE.

Every organist should understand the mechanism of his instrument sufficiently well to be able to tune and regulate a note here and there. With this knowledge much trouble and annoyance may be avoided, and many small irregularities can be remedied at once, which otherwise might run on until some real injury to the instrument resulted. The inconvenience of a total lack of knowledge of organ construction is especially felt in small sized towns, because, if the expense incident to sending for a tuner and repairer is not an item for consideration, the delay often is. A little study of the mechanical parts of an organ is enough to fit an organist to set to rights all ordinary mishaps that may occur to the instrument under his control.

This little work was written by a practical organ-maker especially as a guide to amateurs, and to supply the information needed by organists. It describes clearly the best methods for voicing and tuning the various pipes ; gives some useful hints in managing reed-stops ; treats on organ instruction in brief ; tools

required for tuning ; remarks on the materials used for pipes ; in short all the instruction that one interested is likely to obtain from books will probably be found within the covers of this little guide.

CONTENTS.

PRACTICAL HINTS TO AMATEURS

ON

ORGAN VOICING AND TUNING.

CHAPTER I.

ORGAN CONSTRUCTION.

FOR the benefit of those persons who may be desirous of becoming intimate with the musical branch of Organ building, and yet are unacquainted with its constructive features, so much description will be given as may be considered to affect the production of sound.

Fig. 1 traces the mechanism from key to pallet. On depressing the key (*a*), which works on a pin inserted in the *pin-rail* (e), the *sticker* (*d*) raises one end of the *back-fall* (*e*), and pulls down the *tracker* (*f*), which brings with it the *pull-down wire* (*h*), that in its turn bringing down the pallet (*j*), to which it is fastened. The compressed air in the *wind-chest* (*ii*) then escapes through the vent made by the opening of the pallet ; and, should the stop be drawn, ascends to the pipes. It remains to be explained that (*b*), the *thumping-board* or *damper*, assists to keep the keys level.

In reference to *fig.* 2, which further elucidates *fig.* 1, when either pallet (*j j*), is pulled down by the depression of the key, the air ascends the *channels* (*k k k*), and passing through the *slide* (*b*), reaches the pipes above,— the *wind-chest* (*i*), the *rack-board* (*d*), through which the pipe feet pass.

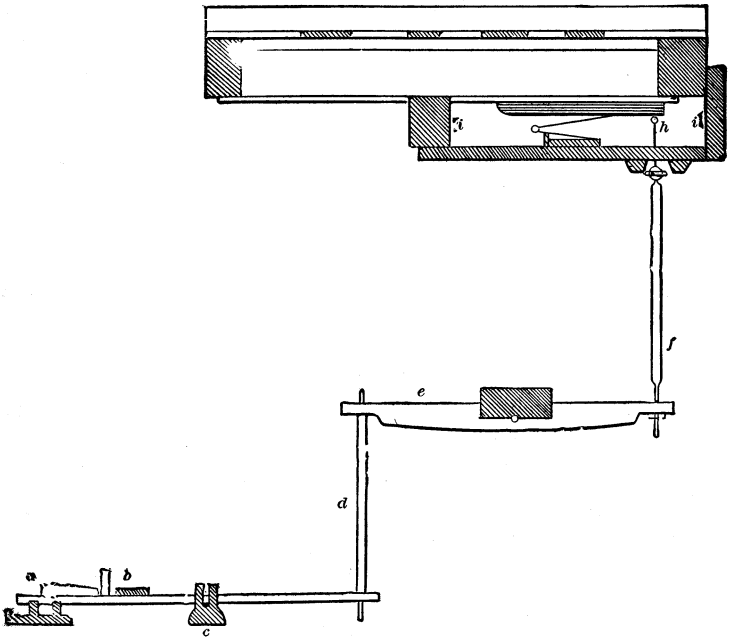

FIG. 1.—FROM KEY TO PALLET.

Amateurs who contemplate the construction of an organ, are cautioned as to the importance of having the channels of the wind chest of sufficient width, so that when all the stops are drawn, the tuning and the intonation remain intact. Instruments are met with which are tolerably well in tune until the full power is employed.

They then become utterly offensive from an insufficiency of wind ; this fault is technically termed "robbing."

It should also be noticed that if the holes in the upper board (*e*), *fig.* 2, for the reception of the pipe-feet, *pinch* the wind-supply, the pipes may be properly voiced, and yet fail in their places. Another hindrance to the free utterance of pipes lies in over-crowding. Numerical strength is too often acquired at a great sacrifice of tone. This evil is too commonly underrated.

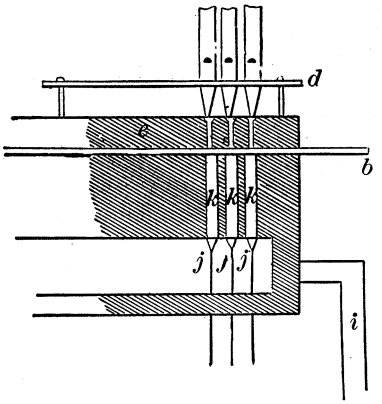

FIG. 2

The form of the horizontal bellows is too well known to need any description here ; reference, however, may be made to a rule, which will ensure a good supply of wind, other things being equal. For a Chamber Organ possessing, as it should, small scale stops suitably voiced and winded, two square feet for each stop is a fair approximation.

In reference to an unsteady supply of wind, some consider a capacious wind-trunk obviates the inconvenience ;

the writer, however, strongly recommends the introduction of a concussion bellows at some point between the bellows and the pipes, especially in Chamber Organs, where the wind-trunks are generally short.

CHAPTER II.

TOOLS FOR VOICING AND TUNING.

THEY are not numerous. Only those requisite for *flue* work will be mentioned ; and, as many of them are simple In construction, suggestions will be offered for their home manufacture.

1. —The *notchers* of various sizes. Four will suffice ; the diagram, *fig.* 3, gives a plan of each.

FIG. 3

The first two can be made from triangular files by grinding their terminals to agree with *fig.* 4 ; the triangular form, however, must not be destroyed. Finish on the oil-stone.

The latter two are adapted from as many blades of steel, $\frac{1}{2}$ in. wide, and to the thickness indicated in the *fig.* It will be seen that these two are double-edged.

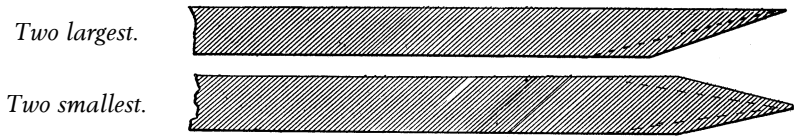

FIG. 4

Fig. 4 represents both kinds in elevation.

The dotted lines show the shape of the least in each case. The pointed terminals of the two least are knife-edged, and need to be finished on the oil-stone. These fixed into suitable handles complete the notchers.

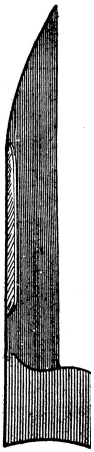

FIG. 5

2. —The "cutting up" knife, of the best steel. A large two-bladed will answer the purpose, by altering the shape of the smallest blade in accordance with *fig.* 5. In sharpening either blade, care must be taken to avoid *rounding* the surface; to this end, keep the blade flat on the stone.

3. —Four iron wires with diameters varying from $\frac{1}{4}$-in. to $\frac{1}{16}$-in. The lengths, from 1 ft. to 2 ft. All neatly rounded at there extremities.

4. —A large pair of scissors with cranked handles.

5. —C*ones*, made entirely of brass. Their forms are illustrated by *fig.* 6, together with a mop, about 1 ft. long, composed of wire and coarse thread. The cones are for tuning; the mop for silencing all the sounds of a given note in the mixture, or compound stop, but the one about to be tuned.

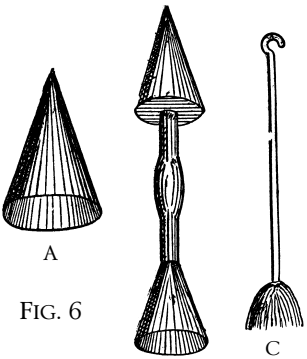

FIG. 6

Object (*a*), *fig.* 6, is a hollow cone, measuring 2-in. across its base, and 3-in, high. Object (*b*) is solid at the pointed end, and hollow at the opposite end, which should be 1-in, in diameter. The operator will consult his convenience by providing himself with another of the last, half the size. The mop (e) has already been described.

6. —A *knocking-up cup*, similar in form to the cone (*a*) fig. 6, except at the point, for which is substituted a solid knob.

It is of great substance, and, therefore, heavy, that it may the more readily effect its mission, namely, that of "knocking-up," or reducing the wind-hole of the pipe.

7. —*Files* of different kinds will be wanted for the stops of wood. Some should have their edges bevelled, or knife-edged, and serrated; others should be flat, and all of them varying in size from 6-in, to 1-ft. They should include coarse and fine cuts.

8. —Proportional compasses with sliding centre, or "dividers" set to thirds, fourths and fifths, will be wanted when "cutting up" the mouths of the pipes.

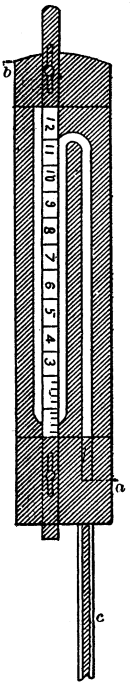

FIG. 7

9. —*Wind-gauge.* If one can not be borrowed for the purpose of correcting the wind-pressure, *fig.* 7, briefly described, may afford assistance in constructing one. A glass tube, of about 40-in, long and 1-in, inside diameter, is bent to the shape described by the unshaded channel

traceable in the figure, commencing at (*a*), and terminating at (*b*). This fitted into a groove, made in the wooden frame surrounding the tube, can be made to stand erect in a sound-board hole (say mid, C), by the insertion of an ordinary wooden pipe foot (*e*), which, of course, will meet the glass tube. A little water being put into the tube at (*b*), and, with one exception, the wind-gauge is complete.

In order to correct the pressure, place the gauge in the above-named hole, and add a small quantity of iron or stone slabs to the surface of the bellows. On depressing the key, the water within the tube will be seen to fall on one side, and rise on the other ; the difference between the two stationary surfaces of the water, measured by the *sliding* inch rule, forming part of, and passing out at either end of the wind-gauge, gives the pressure in inches.

The quantity of slabs can then be regulated until the required pressure is obtained.

CHAPTER III.

REMARKS ON THE MATERIALS USED FOR PIPES. PRESSURE AND PITCH.

THE metals used in the construction of Organ pipes are various. They include tin, ¾-tin, "spotted" metal, plain metal, type metal and zinc. The first approaches as near to purity as is possible, and has a beautiful silvery appearance. Both its beauty and its wear are of a lasting character, and it possesses the additional advantage of lightness, enabling it the better to support its own weight, and rendering it portable. When in use it imparts a somewhat reedy quality to the tone, and is, therefore, not unsuitable for reed stops, and those of the Gamba kind.

The second metal named (¾-tin) has similar qualities to recommend it, but in a lesser degree, as it contains ¼-lead. It is not quite so expensive.

The third (spotted) takes its name from its mottled appearance, which indisputably proves the presence of tin ; the extent of that presence, however, may vary from ⅓ to ½. The interstices between the spots are largest where the presence of tin is least, and they entirely disappear if the amount of tin is sufficiently increased. This metal possesses good "all round" qualities.

By the next (plain metal) is meant a composition of type (a combination of lead and antimony) and tin ; the

first largely predominating. Although receiving the most patronage of any, the average quality soon discolours and is heavy. It is, however, found to assist the "diapason" quality of tone, especially from about fiddle G upwards. Type metal is either too brittle for tuning purposes, or too heavy to support its own weight, according to the predominating ingredients.

The last-named metal (zinc) is frequently used for basses and "fronts," and if of good substance, and provided the speaking pipes are furnished with "metal" mouths, has much in its favour, being both portable and economical. In use it is slightly wanting in the richness of tone peculiar to "metal."

The use of a superior metal in the trebles of all the metal stops is generally and justly considered to give additional brightness to the tone, and on that account commends itself for use in the upper portion of the stop.

For the wood pipes, well seasoned pine, free from knots, is commonly used. A wood pipe, on examination, will be found to have its block faced with mahogany, and its cap made partially or entirely of the same material. Mahogany alone is used when the instrument is intended for a hot climate.

Touching the manufacture of all pipes, it is of paramount importance to the voicer, that they should be thoroughly well made. For a pipe to speak readily and well, it is essential that its component parts be put together with particular accuracy. Attention to this one