

Mixture of Lyon's glue and molasses. — This mixture is often used in harmonium making for the adhesion of the valve leathers. A very thin glue is made with a mixture of two-thirds of Lyon's glue and one-third of molasses ; it is spread on the well-scraped leather and a hot iron passed over, as in ironing. The leather is thus made to adhere very thoroughly and does not harden.

It can also be used for the bellows, but in the proportion of $\frac{5}{6}$ ths of Lyon's glue to $\frac{1}{6}$ th of molasses.

White glue. — A mixture of Lyon's and Givet glue in equal parts, to which zinc white is added. It is used for fitting the ivories.

Different felts used in instrument manufacture.

There are two descriptions of felts intended for covering the hammers :

- A. — Hand felt ;
- B. — Machine felt.

Felts for hand covered hammers A. — For this purpose use is made of felts which do not exceed a thickness of 16 m/m, but are usually 10, 12 and 14 m/m ; the thickness is limited owing to the difficulty of extending thick masses of felt.

The following are the different dimensions of these felts and the weight per sheet of about one metre length :

Full Sheets, 1m45 in length.

Thickness, Bass	5 m/m	6	7	8	9	10	11	12	13	14
— Treble	1 $\frac{1}{2}$ m/m	1 $\frac{1}{2}$	2	2	2	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3	3
Weight per sheet	2 ^k 400	2.600	2.800	3.200	3.600	3.800	4.100	4.250	4.400	4.600

3/4 Sheets, 1m25 in length.

Thickness, Bass	4 m/m	5	6	7	8
— Treble	1 m/m	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2
Weight per sheet	1 ^k 600	1.800	1.950	2.150	2 350

1/2 Sheets, 0m95 in length.

Thickness, Bass	4 m/m	5	6
— Treble	1 m/m	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Weight per sheet	1 ^k 200	1.300	1.400

1/4 Sheets, 0m60 in length.

Thickness, Bass	4 m/m	5	6
— Treble	1 m/m	1	1
Weight per sheet	0 ^k 800	0.900	1 ^k .

These felts are generally white ; coloured felts are very little used.

Felts for machine covered hammers. — Felts of 1 metre are used. The hammers are placed side by side on a stretched felt band. They are separated by cutting when finished.

For this kind of work very thick felts are used, up to 35 and even 40 m/m. For machine felts, sheets 1 metre in width.

THICKNESS	WEIGHT
12 m/m	3*400
14 m/m	3*500
16 m/m	4*100
18 m/m	4*500
20 m/m	5*100
22 m/m	5*200
27 m/m	6*300
30 m/m	6*900

Hand covered hammers are used mostly for wooden pianos fitted only with iron supports.

Machine covered hammers are chiefly used for iron framed pianos. This method of covering has been rendered necessary by the models of pianos with very long strings, over-strung and oblique grands which demand great sonority.

These hammers, with great thicknesses, possess all the qualities of depth necessary for these pianos.

The only drawback is that the felt tends to shrink on the head owing to being glued in strips in this way.

In cutting up, the average is about fourteen strips per piece.

Liquid for hardening the felts of hammer heads, L. Pinet's formula. —

To harden the felt it is sufficient to lightly moisten the hammer head in this liquid and let it dry for some hours, the felt being afterwards toned in the usual way.

Care should be taken above all not to moisten the felt at the place where it strikes; the operation being carried out with a small brush, it is easy to avoid touching the felt at this point.

White felts for dampers. — The sheets are about 75 c/m long by 90 c/m wide in the bass and 55 c/m wide in the treble.

Thickness : Bass.	6 m/m	7	8	9	10	11	12.
Thickness : Treble.	3 m/m	3	4	4	5	5	5
Weight per sheet.	0*400	0.450	0.550	0.700	0.800	0.900	1*.
Thickness : Bass.	13 m/m	14	15	16			
— Treble.	6 m/m	7	7	8			
Weight per sheet.	1*100	1.200	1.300	1.500			

White felts for celestas. — The sheets are 1 metre in length by 1*30 in width, and weigh 225 to 350 grammes each according to thickness.

White felts for mutes. — The sheets measure 0*95 in length, 1*25 in width, 5 m/m in the bass and 3 m/m in the treble. Each sheet weighs 550 grammes.