

## *11.06 Finishes: Shutters*

- a. the context**
- b. sliding shutters**
- c. sheet iron shutters**
- d. roller shutters in Britain**
- e. roller shutters in Australia**
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### *a. the context*

The common louvred casement window shutter, with either fixed or adjustable blades, was widely used. It is no more characteristic of Australia than of many other localities, and it appeared here at the same time as the French window, as both a security and a sunlight control measure. In the great bushfires of 1851 Bishop and Mrs Perry were obliged to keep their 'Venetian shutters' closed as a defence against the heat and dust.<sup>1</sup> In considering joinery, above, we have dealt with some of the timber shutter types which were in normal use in residential buildings, such as the side-hung louvred window shutter, and the shutter sliding into a cavity. Some of these were technically advanced and might have moving parts such as adjustable blades. However we now turn to the generally larger and more elaborate shutters, used mainly on commercial buildings, including multiply folding, sliding, and especially rolling shutters, many of which were made wholly or partly of iron.

### *b. sliding shutters*

Whilst the commonest window shutters were those hinged on either side of the window opening, sliding shutters were not unusual. The house 'Trawalla' in Toorak, Melbourne, had all the major windows fitted with them, and these shutters are now stored in the basement where they are not amenable to a thorough inspection. It appears, however, that they were suspended from wheels which ran in a track across the top of the window. At the base they were constrained by a horizontal guiding track which took no load. On the rear of each shutter and towards the top, is a horizontal toothed metal rack, which suggests that they were moved by a rack and pinion mechanism, by turning a handle at the bottom, the motion of which was transmitted to a vertical axle carrying a pinion wheel, and thence to the rack. Some of the shutters are curved, to fit curved window bays.<sup>2</sup> It seems likely that they were designed by the original architect of the house, F M White, for in 1873 he called tenders for forty-three wrought iron shutters, probably intended for another Toorak house, 'South Dean', which he designed at about this time.<sup>3</sup>

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<sup>1</sup> George Goodman, *The Church in Victoria during the Episcopate of the Right Reverend Charles Perry* (London 1892), p 145.

<sup>2</sup> Inspected 2003.

<sup>3</sup> *Argus*, 29 January 1873, p 3.

Sliding shutters were the subject of two Victorian patents, one granted to David Lorimer in 1861 for fitting the shutters with antifriction rollers 'formed of a number of narrow strips hinged together',<sup>4</sup> and one to Henry Lloyd in 1863 for improvements by which<sup>5</sup>

The shutters are suspended, and slide on relatively small rotative wheels fixed on the back of the shutters, and are entirely disengaged at the bottom, by which their liability to jam is obviated.

Lloyd showed these patent shutters at the 1866-7 Exhibition.<sup>6</sup> The surviving drawings of the architect Nathaniel Billing include a sketch for sliding shop window shutters, which confirms that they might be tailor-made for a job rather than supplied by one of the specialists or patent-holders. Another local patent was that granted to G C Lorimer in 1866 for 'vertical and horizontal steel-band sliding shutters', which provided for the linking of a series of shutters with a flexible steel band, and a method of folding them up.<sup>7</sup> Shutters of this description were shown at the 1866-7 Exhibition by Irving, Glover & Co of Ballarat, who claimed to be the inventors,<sup>8</sup> which suggests that Lorimer may have been merely their agent in obtaining the patent.

### *c. sheet iron shutters*

The British engineer William Fairbairn, when reporting on fireproof construction to Samuel Holme of Liverpool, recommended the use of doors and shutters of double sheet iron plates rivetted to a skeleton frame, so as to enable the building, or parts of it, to be quickly sealed off when threatened by fire. It perhaps was not totally coincidental that Samuel and James Holme of Liverpool were manufacturers of shutters of this type.<sup>9</sup> They were, however, well within the capacity of an ordinary blacksmith, and in most cases are entirely anonymous. In California a rapid development of fireproofing measures was stimulated by the great fires in San Francisco in 1849 and 1850, followed by others in Sacramento and elsewhere. We know that fireproof shutters were in extensive use by 1854, when iron doors were actually being manufactured in San Francisco,<sup>10</sup> and in that year twenty-six iron doors and seven iron shutters from Sacramento reached Sydney.<sup>11</sup> Malcolm Edwards has

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<sup>4</sup> Victorian patent no 459 to David Thomas, 17 May 1861.

<sup>5</sup> Victorian patent no 632 to Henry Lloyd, 2 July 1863.

<sup>6</sup> Intercolonial Exhibition of Australasia, 1866-7, *Official Record, &c* (Melbourne 1867), pp 30, 44.

<sup>7</sup> Victorian patent no 933 to George Glencairn Lorimer, 6 July 1866.

<sup>8</sup> *Intercolonial Exhibition of Australasia, 1866-7: Official Record, &c* (Melbourne 1867), p 44.

<sup>9</sup> William Fairbairn, *On the Application of Cast and Wrought Iron to Building Purposes*, (London 1854), pp 114-131.

<sup>10</sup> Malcolm Edwards, "'Substantial, Fire-Proof Edifices ...'" Made so by the Marvellous Invention of Iron Door and Window Shutters', *California Historical Quarterly*, 50 (1971), pp 431-7.

<sup>11</sup> *Sydney Morning Herald*, 10 June 1854, p 4; 9 July 1856, p 4, quoted in P A Barrett, 'Building through the Golden Gate: Architectural Influences from Trans-Pacific Trade and Migration between Australia and California 1849-1914' (Master of Planning & Design, University of Melbourne, 2001), p 58.

been able to identify specialist manufacturers in operation in California a decade later.<sup>12</sup>

The use of iron shutters both for fireproofing and for security became normal nineteenth century practice for areas containing official records of importance, and surviving examples include sliding ones at the Registrar-General's Office and at the Central Plan Office, Melbourne. In the part of the Brisbane Treasury building occupied by the Registrar General the window and door openings were secured by shutters, most of which survive. Casement plate metal shutters are used at ground floor level, and roller shutters in the upper levels, the latter branded 'Clark Bunnett & Co. Limd. London'. These seem designed to isolate the fireproof areas at both external and internal openings, but they do not do so consistently, for the exterior windows to William Street are not (and never were) fitted with them. Sheet metal shutters were also being advertised by Francis & Co of London in the 1890s.<sup>13</sup>

Sliding metal doors were similarly used for reasons both of security and of fire protection. An example was the Metropolitan Gas Company building in Melbourne, of 1890, where the doors from a back stairway to a lane were 'hung sliding with Kennel's patent pulleys and approved rails'.<sup>14</sup> In the 1930s hollow steel doors were made by Wunderlich Pty Ltd, who supplied them throughout Australia, and by the two Melbourne firms, Australian Metal Products Pty Ltd (makers of the 'Dowell' brand) and Charles Marshall Pty Ltd.<sup>15</sup> In 1954 Australian Metal Products were still making the 'Dowell' brand, which was all metal, as well as the 'Standwell', which was timber-framed but metal clad. Both met fire underwriters' specifications,<sup>16</sup> as did Wormwald Brothers Industries' sliding and hinged metal doors, branded 'Metalbilt'.<sup>17</sup>

#### *d. roller shutters in Britain*

The firm of Clark Bunnett & Co appears to have been an amalgamation of two of the most important British manufacturers. British patents were granted to Michel in 1818 and Whiting in 1819 for what seem to have been revolving wooden shutters,<sup>18</sup> and Gwilt refers to the first revolving wooden shutters as having been made at Ipswich at about that time, or a little after.<sup>19</sup> In 1832, when stones were thrown at Apsley House during the Reform Riots, the Duke of Wellington had revolving 'iron blinds or shutters' fitted to the windows.<sup>20</sup> These, which were described as 'most unsightly

<sup>12</sup> Edwards, 'Substantial, Fire-Proof Edifices', loc cit. Typical dimensions and details are described. The evidence for their prevalence in 1854 is a lithograph of Columbia at that date.

<sup>13</sup> Francis & Co, *Francis & Co's New Premises, &c* (London, no date [c 1893]), pp 431-7.

<sup>14</sup> Reed, Smart & Tappin, 'Specification &c, Erection of New Premises Flinders Street the Metropolitan Gas Co Limited' (Melbourne 1890), p 51.

<sup>15</sup> W L Richardson [ed], *Ramsay's Architectural and Engineering Specifications [Volume 1]* (Melbourne no date [1934]), p 91.

<sup>16</sup> F W Ware & W L Richardson [eds], *Ramsay's Architectural and Engineering Catalogue* (Melbourne 1954), § 20/2.

<sup>17</sup> *Ramsay's Catalogue* [1954], § 20/3.

<sup>18</sup> *Builder*, III, 126 (5 July 1845), p 315, reporting Bunnett and Corpe v. Smith.

<sup>19</sup> Joseph Gwilt [ed Wyatt Papworth], *An Encyclopædia of Architecture* (London 1899 [1842]), p 659.

<sup>20</sup> Bunnett and Corpe v. Smith, loc cit.

objects', were manufactured by Bramah of Pimlico, and consisted of iron laths supported on copper chains attached to a roller. The roller could be turned by a cord passing over a pulley, all concealed in the reveal of the window, and when the shutter was pulled up it was concealed in a cornice box at the top. These 'bullet-proof' blinds, as they were sometimes known,<sup>21</sup> soon found imitators, and Turner and Barron put up several revolving iron shutters at Lord Brownlow's house in Belgrave Square in 1833, and subsequently at various banks and other establishments.

Turner and Barron's shutters consisted of narrow strips of iron connected with copper hinges and raised by a catgut band wound from a roller at the top of the window to a small windlass below, and they suffered from two disadvantages: first, there were interstices left between the slats, and second, the hinges were accessible from the outside. However, in 1839 Bunnett received a patent for improvements in revolving iron shutters, whereby they consisted of strips of iron connected by hinges in such a way as to avoid the necessity of cutting away the edge of the strip to receive knuckle of the hinge, and with each lath or strip overlapping the one below, concealing the hinges from outside violence. Bunnett also introduced the endless screw and worm-wheel as particularly suitable for raising and lowering the shutter. His shutters came into general use in Britain, and were installed by nearly all the insurance companies and banks.<sup>22</sup>

By about 1842, according to Gwilt, revolving shutters were being made:<sup>23</sup>

of steel, in one sheet, without either chains, links or rivets, or pins; the steel being corrugated transversely gives them the appearance of laths, and enables them to be coiled into a small space.

These sound very like the 'Improved Metallic Shutters' of another manufacturer, Andrew Smith of 69 Princes Street, Leicester Square, who advertised them in the English *Builder* from July 1843.<sup>24</sup> In 1844 Smith erected eight shutters for Smith, Payne and Co's building in George Street, Mansion House, which infringed Bunnett's patent. Bunnett and Corpe, as the firm had now become, sued Smith in the following year and obtained judgement and damages.<sup>25</sup> By 1847 they could supply their iron shutters 'with convex laths, if required', and were also selling revolving wood shutters, for which they said the patent had expired.<sup>26</sup> Whose patent it was is not apparent: it was clearly not that of W Snoxell, who in 1845 had patented improvements in roller blinds and shutters,<sup>27</sup> and had been selling his revolving

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<sup>21</sup> J C Loudon, *Encyclopaedia of Cottage, Farm and Villa Architecture* (sec 557), p 270.

<sup>22</sup> *Builder*, III, 126 (5 July 1845), p 315. For an illustration and description of Bunnett's shutters, see [J L Tarbuck], *The Builder's Practical Director* (?Leipzig c 1858), pp 136-7.

<sup>23</sup> Joseph Gwilt [ed Wyatt Papworth], *An Encyclopædia of Architecture* (London 1899 [1842]), p 659.

<sup>24</sup> *Builder*, I, 23 (15 July 1843), no page. At the same time there was an A Bunnett of 19 Newington Causeway who advertised as a manufacturer of every description of internal and external blinds and shades, but his relationship with the Bunnett of Bunnett and Corpe is not clear: *ibid*, III, 126 (5 July 1845), p 324. Bunnett and Corpe advertised as engineers at 26 Lombard Street, London, and at the Works, Deptford: *ibid*, 137 (20 September 1845), p 456.

<sup>25</sup> Bunnett and Corpe v. Smith, *loc cit*.

<sup>26</sup> *Builder*, V, 246 (23 October 1847), p 512.

<sup>27</sup> *Builder*, III, 112 (29 March 1845), p 153.

wooden shutter, which was said to cost little more than ordinary shutters, and to have the advantage over other wood shutters that it was made without metal hinges and could not rust and get out of order.<sup>28</sup> In 1850 Snoxell advertised both wood and iron shutters and claimed to have made some up to 400 square feet (37.2 m<sup>2</sup>) in area, which opened and closed easily without machinery.<sup>29</sup>

In September 1845, six months after Snoxell's first advertisement, R Howard and Co of 115 Old Street advertised the Improved Patent Convex Iron Revolving Safety Iron Sliding Shutter, of which they were the patentees, but which apparently was made for them at Patrick Clark and Co's Tunnel Iron Works, 238 Wapping.<sup>30</sup> Howard apparently had acquired temporary rights from the owner, one Harcourt Quincey, and in 1848 Quincey transferred the rights from Howard to Clark & Co themselves.<sup>31</sup> Clarks then continued to make the shutters for about four years, until in 1853 they began advertising revolving iron shutters made under Lewis's patent.<sup>32</sup> What was involved in the new patent is not entirely clear from their illustration, but it appears that Patrick and Alexander Clark obtained a patent in their own right on 9 October 1852 for two distinct and novel types of shutter. Quincey, however, showed in his own right at the Great Exhibition of 1851 a 'Working mode of two revolving iron safety shutters, with patent convex laths (one fixed above and one under the window), with improved gearing ...'.<sup>33</sup>

The Clarks' metal shutters were made up of laths which were almost flat except that they had rolls at either edge in opposite directions, making a kind of elongated S-scroll in cross-section, so that the upper roll of one could be fitted into the lower roll of the next. This apparently connected the laths more securely, and allowed the shutter to be rolled up either way. The wooden shutters consisted of laths which were a truncated wedge in cross-section, with a broad semicircular rebate in one side of the wide edge, which hung downwards. The upper or narrow edge was rounded, to fit into the rebate at the bottom of the lath above, and it can be imagined that if one side

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<sup>28</sup> *Builder*, III, 106 (15 February 1845), p 84. Snoxell, far from admitting that the absence of a worm and wheel placed his shutters at a disadvantage, made a point of remarking that 'persons dissatisfied with the patent rising gear ... can have it removed, and the shutters made to draw up in any part of the premises without the slightest exertion, without machinery.' His own shutters at this stage had their edges sheathed in iron. *Builder*, V, 246 (23 October 1847), p 512.

<sup>29</sup> His advertisement mentions his original address, in addition to steam works at 135 Old Street. *Builder*, VIII, 347 (20 July 1850), p 347.

<sup>30</sup> *Builder*, II, 137 (20 September 1845), p 456. The patent convex laths were said to be twelve times stronger than ordinary flat laths. Howard & Co also supplied 'greatly improved gearing for Raising and Lowering their Patent Shutters, which, possessing all the advantages of the endless screw (worm and wheel) cannot, even by wear, be made to run down, and entirely avoids the use of the ratchet wheel ..': *Builder*, IV, 201 (12 December 1846), p 599.

<sup>31</sup> Clark & Co, still at the same address, now describe themselves as the sole manufacturers of the revolving shutters with convex iron laths (thus apparently contradicting Bunnett & Co's puff: *Builder*, VI, 273 (22 April 1848), p 203. By 1849 there were also available Cowdrey's Improved Safety Revolving Wood Shutters, without hinges, said to be constructed on the same principle as the others, but with cheaper fittings: *Builder*, VII, 317 (3 March 1840), p 108.

<sup>32</sup> *Builder*, X, 495 (31 July 1852), p 496. They cost 3 s 6 d a square foot. The advertisement included an illustration, and gave the company's address as 31 Chancery Lane, as well as Wapping.

<sup>33</sup> Great Exhibition of the Works of Industry of all Nations, 1851, *Official Descriptive and Illustrated Catalogue* (3 vols, London 1851), I, p 325.

of the shutter was flush, then the wedge-shaped laths caused the other to have a profile rather like weatherboarding or louvres. On this profiled side a strip of sheet iron was attached to each lath to protect the surface and, as it turned over the upper and lower edges, to hold the timber from splitting. Clark & Co had also patented at this time the use of standard prefabricated windows with frames, sashes, and the shutters already built in, thus avoiding a great deal of on-site work.<sup>34</sup>

In the United States A L Johnson of Baltimore was credited with the invention of 'rolling iron shutters', and these became integral to Daniel Badger's system of iron building fronts. When Badger illustrated iron shutters in 1865 they appeared to have interlocking S-shaped laths, like Clark's but with proportionately larger scrolls.<sup>35</sup> If this were Johnson's original form of shutter it would be of some significance, but it seems more probable that it was a later version, inspired by the British example.

In July 1853 Bunnett & Co, 'original patentees of the revolving iron shutters' advertised that they were the only licensees of Harcourt Quincey's patent, Patrick Clark's licence having ceased, and an injunction against him having been obtained by the patentee to stop him making the shutters. Bunnett, it was said, had become a licensee in 1850 to enable him to put out his 'New Patent Curvilinear Iron Shutter', which combined the advantages of the convex shutter with improvements suggested by experience of Bunnett & Corpe's original patent,<sup>36</sup> and which had obtained the prize medal at the Great Exhibition of 1851.<sup>37</sup>

Clark wrote to the English *Builder* to state that he had ceased making the revolving iron shutters, not because of the injunction, but because he had obtained a patent

for the greatest improvements ever effected in Revolving Shutters - namely, the combining two materials (iron and wood), in their construction, and forming knuckle or hinge in the solid with the lath, which greatly increases the strength, and allows them to be rolled in either direction.

The injunction had been obtained against him, Clark maintained, only as a matter of form, and with his consent. In fact the patentee had been most anxious that he should continue making the convex shutters, but he would not do so because he now had something much better.<sup>38</sup> Bunnett & Co replied to the effect that the whole of this was untrue, and even produced a letter from their solicitor designed to establish that the injunction was a hostile one.<sup>39</sup> It must have been quite soon after this that Clark adopted a far simpler shutter consisting simply of a corrugated sheet of steel, and thus eliminated all the problems of joints and apertures.

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<sup>34</sup> *Builder*, XI, 522 (5 February 1853), p 95.

<sup>35</sup> D D Badger, *Illustrations of Iron Architecture* (New York 1865 [facsimile 1970]), p 3 & pls xxxix & lxxi.

<sup>36</sup> *Builder*, XI, 545 (16 July 1853), p 462.

<sup>37</sup> *Builder*, XI, 545 (16 July 1853), p 462. However, no such prize medal in Bunnett's name is recorded in the lists published in the *Illustrated Exhibitor* (London 1851), pp ix-xliv.

<sup>38</sup> *Builder*, XI, 544 (9 July 1853), p 444.

<sup>39</sup> *Builder*, XI, 548 (6 August 1853), p 508.

In the 1860s Francis & Co - a firm which seems to have emerged at about this time - were advertising both wood and iron revolving shutters; Snoxell advertised them of wood, or iron, or iron-edged; Bunnett & Co offered iron and copper; and Clark & Co offered wood, iron, and steel, the latter being their patent safety shutter in a single piece of steel. By 1853 Clark had also been advertising a wide range of sash bar sections for shop fronts, consisting of timber wrapped around in sheet metal,<sup>40</sup> and Bunnetts also made sash bars which, though not illustrated, were probably similar.<sup>41</sup>

Other British makers followed Clark's lead in turning to steel, one example being Price's revolving shutters, mentioned in a description of 1870.<sup>42</sup> A London manufacturer's catalogue late in the century, probably about 1890, includes many of the earlier types, unqualified by any references to patents or proprietary names. Samuel Haskins & Brothers dealt in wooden shutters made up of slats of various profiles, joined on the rear or flat face with steel bands, copper bands or iron hinges; and also with 'curvilinear' wrought iron shutters, in which the slats were of an elongated 'S' profile.<sup>43</sup> Francis & Co now offered an even wider range of roller shutters, some with close-fitting wooden slats on steel or copper bands, some of wood slats joined with hinges, some of curved iron slats, and some of continuous corrugated iron. In addition they had a wide range of sash bar profiles in sheet copper over a wooden core.<sup>44</sup>

#### *e. roller shutters in Australia*

Bunnett & Co's patent revolving shutters were supplied with a prefabricated iron store which reached Melbourne in 1853 from the makers, Robertson & Lister of Glasgow,<sup>45</sup> and revolving wooden and metal shutters seem to have become common in the southern colonies of Australia in the late 1850s. Various local patents were taken out,<sup>46</sup> but which of these represent local inventions, and which are the extension of British patents, is not immediately clear.

Clark's self-coiling revolving wood shutters were imported from England, and in 1862 could be installed at 3s 3d a square foot,<sup>47</sup> while another English firm, Francis & Co, advertised in Australia their improved wood revolving shutters, of which the English price was from two shillings a foot, and iron revolving shutters at three shillings.<sup>48</sup>

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<sup>40</sup> *Builder*, XI, 544 (9 July 1853), p 447.

<sup>41</sup> *Builder*, XI, 545 (16 July 1853), p 462.

<sup>42</sup> C J Richardson, *The Englishman's House from a Cottage to a Mansion* (London 1870), p 189.

<sup>43</sup> Saml. Haskins & Bros., *Catalogue of Revolving Shutters, Shop Blinds, &c* (London, no date [c1891]), passim.

<sup>44</sup> Francis & Co, *Francis & Co's New Premises, &c* (London, no date [c 1893]), passim.

<sup>45</sup> *McPhun's Australian News*, 7 (July 1853), p 6: the building was Miller & Dismorr's drapery store in Collins Street (later Cole's Book Arcade).

<sup>46</sup> Victorian patents:

No 23 to William Watson, 7 May 1857, for a method of raising and lowering shutters, doors and blinds.

No 826 to Thomas James Crouch and Ralph Wilson, 30 June 1865, for a shutter which rolled sideways. These are the principals of the architectural firm of Crouch & Wilson.

<sup>47</sup> Charles Mayes, *The Australian Builders' Price-Book* (Melbourne 1862), p 62.

<sup>48</sup> Mayes, *Australian Builders' Price-Book* (1862), p xi.

Clark's steel revolving safety shutters - described as 'Clark's New Patent' - were also imported, and as shown in their advertisement seem to be the same as those in the Treasury Building at Brisbane, with the drum concealed in boxing at the window head.<sup>49</sup> In 1877 Clark's patent steel revolving shutters were still being imported, but their timbers shutters were not so described, and may have been locally made.<sup>50</sup> In 1869 Clark's shutters were used on a major scale for all the ground floor windows of the new McEwan's Building in Elizabeth Street, Melbourne, at a cost of £400.<sup>51</sup> By 1875 Henry P Welch of Melbourne was advertising as the sole Victorian agent for Clark's shutters,<sup>52</sup> and they were used internally on a large scale at William Clarke's 'Rupertswood', Sunbury, Victoria, of 1874-6, to divide the drawing room - of 60 x 30 feet [18 x 9 m] - into three when required.<sup>53</sup> They were also used in 1876 on the large windows of Hufton Shaw & Co in Little Collins Street.<sup>54</sup>

Bunnett's patent revolving shutters were actually being made in Melbourne by 1862,<sup>55</sup> and they advertised that their Australian clients included the Bank of Australasia, the Bank of New South Wales, the Bank of Victoria, the English, Scottish and Australasian Chartered Bank, Farmer & Giles of Sydney, and the Union Bank of Australasia.<sup>56</sup> In 1867 revolving shutters of an unspecified make were used to enclose 39 metres of verandah at a Melbourne house.<sup>57</sup> In 1873 revolving shutters were used on Farmer's store in Sydney, not to seal the windows themselves, which were set back from the street line, but along the back of the colonnade to act as sun blinds when required.<sup>58</sup> In Sydney Blacket & Co designed various buildings with shutters, but without specifying any particular brand or maker, one being over the entrance of a building extension for Briscoe, Drysdale & Co in 1883, which was 4.7 metres wide.<sup>59</sup>

At the time the Brisbane Treasury was built Mayes's *Builders' Price-Book* was still listing Clark's shutters (rather than Clark & Bunnett's), those of wood still at 3s 3d a foot, while Clark's imported 'steel self-revolving safety shutters for shop fronts and private houses' cost 4s 6d, not including fixing.<sup>60</sup> The specifications for the Treasury, both stage 1 and stage 2, refer to the shutters as Clark's, thus (stage 1):<sup>61</sup>

<sup>49</sup> Mayes, *Australian Builders' Price-Book* (1862), p 155.

<sup>50</sup> Charles Mayes, *Australian Builders' Price-Book* (3rd ed, Melbourne 1866), p 2.

<sup>51</sup> *Illustrated Australian News*, 27 December 1869.

<sup>52</sup> Victorian Intercolonial Exhibition, Melbourne, 1875, *Official Catalogue of Exhibits* (Melbourne 1875), advertiser p 40.

<sup>53</sup> Michael Clarke, *Clarke of Rupertswood 1831-1897* (Melbourne 1995), p 96, quoting the *Weekly Times*.

<sup>54</sup> *Argus*, 13 November 1878, p 2; 9 August 1879, p 2.

<sup>55</sup> Mayes, *Australian Builders' Price-Book* (1862), p 62.

<sup>56</sup> Mayes, *Australian Builders' Price-Book* (1862), p 150.

<sup>57</sup> Frew's 'Rajpootana' in Acland Street, St Kilda: *Argus*, 15 March 1867, p 6.

<sup>58</sup> H M Franklyn, *A Glance at Australia in 1880* (Melbourne 1881), p 437.

<sup>59</sup> Mitchell Library, CY POS/13 Blacket Plans D210-1; also an anonymous shopfront, D201, #5, and a building for P N Russell & Co, D210-1, #6.

<sup>60</sup> Charles Mayes, *The Australian Builders' Price-Book* (5th ed, Melbourne 1886), p 83.

<sup>61</sup> *Specification of the Material and Works required in the erection of Public Offices, Brisbane ...* (contract signatures 27 April 1886), p 41. See also p 37 of the specification for stage 2.

The nine windows in the east block and eleven doors in same (see Detail Drawings Nos. 7 and 8) to have Clark's patent steel revolving shutters, with rollers, sockets, fastenings, channelled grooves, and every requisite, fixed and left in good order and condition.

and, elsewhere,<sup>62</sup>

The doors to the fireproof rooms of the east block on each floor except basement (see Detail Drawing No. 8) to have wrought-iron grooves secured to the jambs with [?] 1 x 1/2 x 4 1/2 inches long, every 18 inches, pinned in with cement.

The fascia-plate of shutter space to be of cast-iron, panelled and moulded, fitted with four lugs, built in with cement.

The door leading to room No. 14, ground floor, and No. 13 on first floor, to have grooves and fascia-plates as above,

The windows to Elizabeth street only of fireproof rooms, east block, to have grooves for coiled shutters similar in all respects to the above. Also the casement to each floor leading to the William-street flank arcade, but none to the arcade in corner block.

Clark & Bunnett's shutters were used not only in the Treasury, but again in the Lands Administration Building, despite the fact that there were local alternatives. At Townsville the front of the Townsville Bond and Free Storage Company building was closed by a single six metre wide Clark, Bunnett & Co self-acting steel shutter.<sup>63</sup>

#### *f. local manufacture*

Although British makers and their local licensees and agents remained important, a significant local manufacturer emerged in the person of Richard Brady (1829-1921) of Glebe, Sydney. Brady had already been in business making roller doors in Manchester from about 1870, and the company he established there was claimed to be still a leading manufacturer 110 years later, though its name is not vouchsafed to us. Brady emigrated to Australia in 1883 and established his business in Glebe. In 1889 he took out a New South Wales patent for what were reported as 'ventilating, revolving, and self-coiling shutters, either from top or from the bottom,' but unfortunately this does not tell us precisely what principle he was using at this stage.<sup>64</sup> The company's own historical note suggests that at this time the common roller shutters were mainly of timber slats or of corrugated steel, balanced by counterweights. Brady, and no doubt others over the years, replaced the counterweights first with clock-type springs, and finally with spiral springs. The corrugated steel curtains, it is claimed, were replaced with hinged steel laths before

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<sup>62</sup> *Specification of Public Offices, Brisbane*(1886), p 30.

<sup>63</sup> *Australasian Builder & Contractor's News*, 6 April 1889, p 331.

<sup>64</sup> *Australasian Builder & Contractor's News*, 24 September 1889, p 316.

the turn of the century, and then by interlocking laths.<sup>65</sup> However, given that this account is almost the reverse of the evolution which had taken place in England, it must be viewed with some scepticism.

Brady showed his roller shutters at the Centennial Exhibition, Melbourne, in 1888-9,<sup>66</sup> and the architect J S Jenkins, who was one of the jurors, went on to order two revolving shutters for the front of Cook & Co, drapers, in the Melbourne suburb of Richmond. Jenkins was almost ecstatic at the result. The price was lower than if they had been ordered from England, and little higher than 'the clumsy things which have hitherto been made in Melbourne' [?Bunnett's]. They filled openings nine feet [2.7 m] wide - which Jenkins had thought might be impossible - they reached Melbourne within fourteen days of the order, they were easily installed by a common carpenter, they worked very easily, and they looked handsome.<sup>67</sup> Another favourable report was published soon afterwards, stating that Brady's shutters cost only 15% more than 'the obsolete, inconvenient, frame shutter',<sup>68</sup> presumably meaning the old-fashioned rectangular panels. Examples of Brady's later work survive today, one on a shop at the corner of [?Centre Road] and Rowntree Road, Balmain. In this case it disappears into a cavity above the window.<sup>69</sup> By 1908, if not earlier, Brady was manufacturing revolving shutters to his own patent,<sup>70</sup> and a surviving example in East Balmain may be of this vintage.<sup>71</sup> In 1919 the company advertised that their shutters could be balanced either by weights or by springs, and could be made to act automatically in case of fire.<sup>72</sup> The business was ultimately taken over by a Melbourne firm called Airport Doors.<sup>73</sup>

Competition developed during the early twentieth century. By 1906 J S Kent (late Lowe & Kent) of South Melbourne advertised as iron shutter makers.<sup>74</sup> By 1908 Wormwald Brothers were supplying fireproof steel doors,<sup>75</sup> and by 1914 they had branches in Sydney and Melbourne, and were supplying their 'Waterloo' brand steel roller doors.<sup>76</sup> In 1934 it was reported that a special fire resisting door was available, constructed with dovetailed steel sheeting over a steel double angle frame, encased

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<sup>65</sup> 'The Company and its Products', in Richard Brady & Sons, Pty Limited, Catalogue (Sydney, no date [?c1950]), unpaginated.

<sup>66</sup> Melbourne Centennial Exhibition 1888-1889, *Official Record* (Melbourne 1890), pp 505, 851.

<sup>67</sup> *Australasian Builder & Contractor's News*, 7 September 1889, p 237.

<sup>68</sup> *Australasian Builder & Contractor's News*, 30 November 1889, p 525.

<sup>69</sup> Information 1995 from Michael McCowage, who says that Brady won an award in one of the nineteenth century exhibitions, the certificate for which is still held by his successors, Airport Doors.

<sup>70</sup> C E Mayes, *The Australian Builders & Contractors' Price Book* (Sydney 1908), pp vii, 137; see also *Building*, 12 August 1911, p 112; Mayes, *The Australian Builders Price Book* (1914), advertisement p 17.

<sup>71</sup> At the end of Darling Street, East Balmain, on the east side near the intersection of Nicholson Street.

<sup>72</sup> *Building*, 12 September 1919, p 140.

<sup>73</sup> Information from Michael McCowage, 1995.

<sup>74</sup> Sands & McDougall's Melbourne, Suburban and Country Directory for 1906 (Melbourne 1906), p 1762t.

<sup>75</sup> Wormwald Bros. Limited, *Protection Against Fire* (Sydney 1924), p 5 reproduces a testimonial relating to fire doors which survived a fire of 1908.

<sup>76</sup> Mayes, *The Australian Builders Price Book* (1914), advertisement p 20, & p 169.

with cement mortar and reinforced with mild steel rods. The name of the manufacturer was not stated.<sup>77</sup>

The Wormwald Brothers Sydney factory was indeed at Waterloo, and by 1924 they had other works at Melbourne, Brisbane, Adelaide and Perth.<sup>78</sup> By 1931 they were advertising that Waterloo shutters had been used in all the New South Wales Government tramway sheds, and many large Harbour Trust entrances. They were made of rolled steel slats of either 17 or 21 gauge, each slat being curved in section, but with each edge rolled into a tighter curve such that they interlocked, and could only be assembled by sliding them past each other lengthwise. The company also made Waterloo wooden shutters, used for private garages.<sup>79</sup> In the 1950s they could supply 'Metalbilt' steel rolling shutters with automatic closing gear, and they also made steel grilles suitable for closing entrances to commercial premises.<sup>80</sup>

In 1914 Mayes listed patent revolving shutters in four categories. Self-coiling wood revolving shutters of an 'early English registered design' were balanced by weights or springs, and came in a chequered pattern in red deal. Another type of revolving wood shutter was suited both to houses and to shop fronts, and was priced the same. Then there were interlocking self-coiling steel shutters, both fire resistant and burglar proof; and patent automatic steel interlocking shutters, also fireproof, suited to lift openings and bridge ways.<sup>81</sup> Austral Roller Shutters was established by 1923, and made roller shutters of both redwood and steel.<sup>82</sup> By 1949 they were making standard steel shutters of two inch [50 mm] 21 gauge [0.85 mm] interlocking slats, and 'heavy section slab shutters of three inch [75 mm] 18 gauge [1.2 mm] slats.<sup>83</sup> They could supply automatic closing steel roller shutters, to meet fire underwriters' specifications, and aluminium shutters as well.<sup>84</sup> Their wooden shutters were still being produced in recent years, especially for marine environments where rusting was a problem, and this probably explains the far greater prevalence of wooden shutters in Sydney than in Melbourne. In 1934 the range included the Austral, the Waterloo, Brady's (for which Charles Marshall Pty Ltd were Victorian agents, and those of F Dowell & Sons, Fitzroy, Melbourne.<sup>85</sup>

After World War II a greater range of manufacturers produced both steel roller shutters and steel-clad fireproof doors. Some makers, like the Trevor Boiler & Engineering Co Ltd - apparently established before 1930 - made roller shutters which did not claim to meet underwriters' standards. Charles Marshall Pty Ltd of Melbourne were making a range of fire underwriter's doors and fittings, steel doors, &c, including horizontally sliding sets of garage doors carried on roller bearing

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<sup>77</sup> Richardson, *Ramsay's Specifications*, p 94.

<sup>78</sup> Wormwald Bros, *Protection Against Fire*, passim.

<sup>79</sup> *Ramsay's Architectural Catalogue* (Melbourne 1931), p 150.

<sup>80</sup> *Ramsay's Catalogue* [1954], §20/5.

<sup>81</sup> Mayes, *The Australian Builders Price Book* (1914), p 239.

<sup>82</sup> Information from Michael McCowage, 1997, resulting from a telephone conversation with the sales manager, Mr Andrew Bonner, in 1994..

<sup>83</sup> Information from Michael McCowage, 1997, resulting from a telephone conversation with the sales manager, Mr Andrew Bonner, in 1994..

<sup>84</sup> *Ramsay's Catalogue* [1954], § 20/1.

<sup>85</sup> Richardson, *Ramsay's Specifications*, p 84.

hangers.<sup>86</sup> Wormwald Brothers marketed the Bangor sliding door track, which was essentially similar.<sup>87</sup> Wormwalds also introduced the 'Metalbilt' overhead door, a type suited to garages, which was spring balanced and ballbearing mounted, and broke into four horizontal panels as it rose and turned inwards. Such doors had been introduced overseas much earlier.<sup>88</sup> K-M Steel Products made a different type, a door which rose as a single panel, balanced by the company's patent springs.<sup>89</sup> Another such door was the 'Biltwell', and this was the subject of a patent application.<sup>90</sup>

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<sup>86</sup> *Ramsay's Catalogue* (1949), §33/1.

<sup>87</sup> *Ramsay's Catalogue* (1949), §33/5.

<sup>88</sup> *Ramsay's Catalogue* (1954), §20/1.

<sup>89</sup> *Ramsay's Catalogue* (1954), §20/6.

<sup>90</sup> *Ramsay's Catalogue* (1954), §33/13.