M.R.O. 1—77,000—8-6-37.

(1) Number of pages 22.

(2) Date of repair 8. 7. 38.

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Financial DEPARTMENT.

G.O. No.	letter 382	Press / Mis.
36-38		
Dated	16-8-	1867.

36-38 11/12

Not to be folded or roughly handled

8.7.38.

Proceedings of the Madras Government, Financial Department, 16*th August* 1867.

Read the following papers :—

No. 36. From the Secretary to the Government of India, to the Secretary to Government, Fort Saint George ; dated Simla, 16th July 1867, No. 1436.

I am directed to forward to you, for communication to the Master of the Madras Mint, copies of the papers noted in the margin, relative to an improved method devised by Mr. Doig, Head Mechanical Engineer of the Calcutta Mint, for annealing copper blanks ; and to request that you will inform this Government of the Mint Master's opinion on the merits of the new process.

Letter from Mint Master, Calcutta, No. 147, dated 28th May 1867, with enclosure.
Do. from do. No. 226, dated 1st July 1867, with a Memorandum, giving full particulars for the manufacture and use of wrought iron cups and covers, and with a copy of the sketch therein alluded to.

From the Officiating Mint Master, to the Secretary to the Government of India ; dated Calcutta, 28th May 1867, No. 117.

I have the honor to bring to the notice of His Excellency in Council that Mr. Doig, Head Mechanical Engineer of the Mint, has introduceed an alteration in the method of annealing copper blanks, which is a great improvement on that formerly adopted.

2. Copper blanks (or discs) previous to being stamped are heated or annealed in a furnace, and used to be enclosed in iron tubes closed at the end and luted with clay. Mr. Doig proposed to place them in a cup with a cover luted with clay, which has been found to answer well as regards annealing the copper blanks, and to be much more economical, as will be seen from the accompanying statement. The cost of annealing per lac of pieces with annealing tubes is Rupees 0·2493, and with annealing cups, as used by Mr. Doig, Rupees 0·8142. The average coinage for five years has been 691½ lacs per annum, so the average saving would be Rupees 3·758 per annum.

3. I recommend that Mr. Doig should receive a recognition of his services in the shape of a gratuity. The utility of his invention is beyond a doubt, and as it may be extended to the Madras and Bombay Mints (in the latter of which at any rate tubes are used) the figures already given do not express all the advantages which Government may ultimately derive from it.

STATEMENT of the cost of Iron Annealing Tubes used in the Mint.

Years.	Iron Tubes.				Copper Coinage.				Rate per lac of Coins.	
	No.	Value			No.	Value			No. of Tubes.	Value, Rupees.
		RS.	A.	P.		RS.	A.	P.		
1864-65.	931	4,088	11	7	5,73,00,553	9,33,887	14	3½		
1865-66.	1141	4,938	6	10	7,17,23,221	11,24,658	6	2		
1866-67, 9 months.	630	2,808	6	3	6,03,65,210	9,44,474	3	4½		
Total...	2,702	11,835	8	8	18,93,88,984	30,03,020	7	10	1·4267	6·2493

CALCUTTA MINT,
20th May 1867.

(Signed) J. A. BALLARD,
Offg. Mint Master.

STATEMENT of the cost of Iron Annealing Cups, with Covers, used in the Mint.

Months.	Iron Cups with Covers used.								Copper Coinage.				Rate per lac of Coins.	
	No.	Weight.			Rate per Md.	Value.			No.	Value.			No. of Cups.	Value, Rupees
		M.	S.	C.		RS.	A.	P.		RS.	A.	P.		
									From 25th to 31st Jan.					
1867, January...	25	60	10	0	0				23,10,400	36,100	0	0		
,, February..	18	30	5	0	0				For February.					
	25	30	5	0	0				88,05,800	1,29,597	8	0		
,, March.....	12	15	2	20	0				For March.					
	18	20	3	13	5				91,48,600	1,66,592	8	0		
	23	10	1	26	11									
Total...	...	165	27	20	0	6 Rs.	165	0	0 2,02,64,800	3,32,290	0	0	0·8142	0·8142

CALCUTTA MINT,
20th May 1867.

(Signed) J. A. BALLARD,
Offg. Mint Master.

From the Officiating Mint Master, to the Secretary to the Government of India, Financial Department, Simla ; dated Calcutta, 1st July 1867, No. 226.

I have the honor to acknowledge the receipt of your letter, No. 822, dated 14th ultimo, and in reply to enclose herewith a Memorandum, giving full particulars for the manufacture and use of the wrought iron cups and covers. Three copies of the sketches alluded to are also herewith enclosed.

MEMORANDUM

Regarding the Manufacture and use of Annealing Cups for Copper blanks on the principle introduced by Mr. Doig.

The cups are made from wrought iron, discs 14 inches in diameter and $\frac{3}{16}$ inch thick. Their covers are made from discs 12 inches in diameter and $\frac{1}{4}$ inch thick. The discs are heated in the fire of the furnace used for annealing blanks, and while in a heated state they are bent into shape in a cast iron block, as per sketch which is fixed alongside the furnace.

The cups when filled with blanks and covered should be well luted round the edge with clay, and as the covers are exposed to the greatest heat they should also be protected by the same material to preserve them from being oxidised too soon.

After being used for some time they get out of the shape and require to be re-bent in the cast iron blocks as before. If care be exercised in heating them well, and working them into shape quickly, the common iron usually found in the bazaar is quite good enough for them.

The crown of the furnace for heating the blanks should be as low as possible so as to throw the heat down on the cups.

(Signed) J. A. BALLARD,
Offg. Mint Master.

(True Copies).

(Signed) J. E. COOKE,
Asst. Secy. to the Govt. of India.

Referred to the Mint Master for his opinion on the applicability of Mr. Doig's invention to the Madras Mint.

FORT SAINT GEORGE,
30th July 1867.

(Signed) R. S. ELLIS,
Acting Chief Secretary.

Proceedings of the Madras Government, Financial Department,
16th August 1867.

No. 37. From the Mint Master, Madras, to the Acting Chief Secretary to Government, Fort Saint George ; dated Madras, 8th August 1867, No. 223.

I have the honor to return the papers from the Government of India which accompanied your endorsement of the 30th ultimo, and to state that so soon as the coinage of copper is resumed in this Mint, I purpose giving the new method of annealing copper blanks, as proposed by Mr. Doig of the Calcutta Mint, a fair trial. In the meantime, I may observe that it does not appear probable the saving will be so great here as in Calcutta.

2. It appears that the iron tubes formerly in use in the Calcutta Mint cost Rupees 4-6-0 each, and the rate per lakh of pieces annealed was Rupees 6·2493 ; while the cost of the tubes in this Mint, made of $\frac{1}{8}$ inch sheet iron, is Rupees 2-10-0 each, and the rate per lakh of pieces annealed, as per statement enclosed, Rupees 1·3808.

3. In the statement prepared by the Master of the Calcutta Mint, dated 20th May 1867, of the cost of the annealing cups and covers, they are rated at six Rupees a maund, being equal to one Rupee per cup and cover, which gives the impression that the sheet iron only is charged for, and nothing for the labor of forming the cups—perhaps, because it is trifling ; but even the material is estimated to cost more than a Rupee here, and the labor of forming the cups and their covers would in this Mint have to be considered, as there is no steam hammer.

STATEMENT of the cost of Iron Annealing Tubes used in the Mint.

Year.	Number.	Iron Tubes.		Copper Coinage.		Rate per lakh of Coins.	
		Rate.	Value.	Number.	Value.	Number of Tubes.	Value.
			RS.		RS.		RS.
1864-65	390	.....	.....	796,80,000	13,27,500	.....	.....
1865-66	299	.....	.....	541,01,760	9,56,440	.....	.....
1866-67	65	.....	.....	95,40,480	1,95,000	.....	.....
	754	@ 2-10-0 each.	1,979	1433 22,210	24,78,940	·5260	1·3808

(Signed) J. CARPENDALE,
Mint Master.

8th August 1867.

No. 38. To the Secretary to the Government of India, Financial Department, Simla, dated Fort Saint George, 16th August 1867, No. 382.

With reference to your letter, dated the 16th ultimo, No. 1436, I am directed to forward copy of a letter* from the Mint Master, Madras, stating that, as soon as the coinage of copper is resumed, he proposes trying the new method of annealing copper blanks, as proposed by Mr. Doig, and observing that it does not appear probable that the saving at Madras will be so great as in Calcutta.

* Dated 8th August 1867, No. 223.

2. The Mint Master remarks on the cost of iron tubes, and annealing cups and covers, and appends a statement of the cost of iron annealing tubes used in the Mint at Madras.

(Signed) R. S. ELLIS,
Acting Chief Secretary.

Exd. J. Tulloch.

No. 1436.

5

FROM

E. H. LUSHINGTON, ESQ.,
Secretary to the Government of India,

To

The Secretary to the Government of Madras.

Financial Dept.

SIMLA, *the* 16th July 1867.

SIR,

I am directed to forward to you, for communication to the Master of the Madras Mint, Copies of the papers noted in the margin, relative to an improved Method devised by Mr. Doig, Head Mechanical Engineer of the Calcutta Mint, for annealing Copper Blanks; and to request that you will inform this Government of the Mint Master's opinion on the merits of the new process.

Letter from Mint Master Calcutta No 117 dated 28th May 1867 with enclosure.
Dº from Dº No 226 dated 1st July 1867 with a Memo: giving full particulars for the manufacture and use of wrought Iron Cups and Covers and with a Copy of the Sketch therein alluded to.

I have the honor to be
Sir
Your Most Obedient Servant

Ed. H. Lushington
Secy to the Govt of India

134

Procs. 16 Aug.
Financial 1867 Dept

From
Secy to Govt. of India
Finl. Dept
No 1436

S L No. 382

$\frac{16}{29}$ July

F/ N 378

Recd.

No 353.

Forwards papers relating to an improved method for annealing copper blanks & requests to obtain the opinion of the Madras Mint Master thereon

Referred.

Referred to the Mint Master for his opinion on the applicability of Mr. Doig's invention to the Madras Mint.

Fort St. George
30th July 1867

W. Ellis
Ag. Chief Secretary.

To, the Mint Master – Dis/pr. 30/7
Rept. 9/8/67

C. gabay
1812

31.

Her Majesty's Mint Calcutta 7

No. 147 dated the 28th May 1867 –

From
Lieutt. Coll. J. A. Ballard R. E.
Officiating Mint Master

To,
The Secretary to the Government of India
Financial Department

Sir,

I have the honor to bring to the notice of His Excellency in Council, that Mr. Doig Head Mechanical Engineer of the Mint has introduced an alteration in the Method of annealing Copper blanks which is a great improvement on that formerly adopted –

2nd. Copper Blanks (or discs) previous to being stamped are heated or annealed in a furnace and used to be enclosed in iron tubes closed at the end and luted with clay. Mr. Doig proposed to place them in a cup with a cover luted with clay which has been found to answer well as regards –

annealing

annealing the Copper Coinage and to the mark none economical as will be seen from the accompanying statement. The cost of the annealing per Lac of Pieces with annealing tubes is Rs. 6. 2493 & with annealing cups as used by the Bombay Mint Rs. 8142. The average Coinage for 5 years has been 691 1/2 Lacs per annum. To the average during which Mr Ballard's 3758 Certificate

Mr Hammond states that Mr Craig & should receive a recognition of his services in the shape of a gratuity. He states that this invention is beyond a doubt due as it may be so stated in the Madras and Bombay Mints (with the latter of which at any rate tubes are used) the Acquires already gain do not apply to all the advantages which Government may ultimately derive from it.

I have &c

J. A. Ballard

Offg Mint Master

Statement

Statement of the Cost of Iron Annealing Tubes used in the Mint.

Year	Iron Tubes No	Iron Tubes Value	Copper Coinage No	Copper Coinage Value	Rate per Lac of Coins No of Tubes	Rate per Lac of Coins Value Rs
1864/65	931	4088 11 7	57300553	933887 14 3½		
1865/66	1141	4938 6 10	71723221	1124658 6 2		
1866/67 9 months	630	2808 6 3	60365210	944474 3 4½		
	2702 u.	11835 8 8	189388984	3003020 7 10	1.4267	6.2493

Calcutta Mint
The 20th May 1867

J. A. Ballard
Offg Mint Master

Her Majesty's Mint Calcutta.
No 226 dated the 1st July 1867.

From
Lieut Col J A Ballard R E.
Offg Mint Master

To,
The Secretary to the Govt of India
Financial Department
Simla

Sir,

I have the honor to acknowledge the receipt of your letter No 822 dated 14 Ultimo, and in reply to enclose herewith a memo: giving full particulars for the manufacture and use of the wrought iron cups and covers - Three copies of the Sketches alluded to are also herewith enclosed -

I have &c
Sd J A Ballard
Offg Mint Master

Memo:

Statement of the Cost of Iron Annealing Cups with Covers used in the Mint

Months	Iron Cups with Covers used No	Weight Each lbs	Value Rs	Copper Coinage Ratio per Lac of Coins Rs	Value Rs
1867 January	25 60	10 " "			from 25th 63rd Jany 23,10,400
Feby	18 30	5 " "			16,700 " "
	25 30	5 " "			8,05,800
March	12 15	2 20 "			166592 8 "
	15 20	3 13 5			9,14,800
	23 10	1 26 11			
	165	2720 "	610	165 "	20264800

Calcutta Mint
the 20th May 1867

Sd J A Ballard
Offg Mint Master

Memo:-

Regarding the Manufacture and use of annealing cups for Copper blanks on the principle introduced by Mr. Doig-

The cups are made from wrought iron discs 14" in diameter & 7/16" thick. Their covers are made from discs 12" in diameter & 1/4" thick. The discs are heated in the fire of the furnace used for annealing blanks and while in a heated state they are bent into shape in a cast iron block, as per sketch which is fixed along side the furnace.

The cups when filled with blanks and covers should be well luted round the edge with clay and as the covers are exposed to the greatest heat they should also be protected by the same material to preserve them from being oxidised too soon.

After being used for sometime they get out of the shape and require to be relent in the cast iron blocks as before. If care be exercised in heating them well and working them into shape quickly the common iron usually found in the bazar is quite good enough for them.

The Crown of the furnace for heating the blanks should be as low as possible so as to throw the heat down on the cups.

By I A Ballard
Offg Asst Master

(True Copies)

Asst Secy to the Govt of India

1435

D Gosen
25/7

Revd. 16th August & Sent to Mint Master
for Remarks Bo 353/67.

No. 223 8th August 1867.

From Colonel J. Carpendale R.E.
Mint Master

To The Acting Chief Secretary
to Government

Sir,

read 1. I have the honor to return the papers from the Government of India which accompanied your endorsement of the 30th Ultimo, and to state that so soon as the Coinage of Copper is resumed in this Mint, I purpose giving the new Method of Annealing Copper blanks as proposed by Mr. Doig of the Calcutta Mint a fair triab. In the meantime I may observe that it does not appear probable the saving will be so great here as in Calcutta.

2. It appears that the iron tubes formerly in use in the Calcutta Mint cost Rupees 4-6-0 each, and the rate per lac of pieces annealed was Rs. 6-2493, while the cost of the tubes in this Mint made of 1/8 inch sheet iron is Rs. 2-10-0 each, rate per lac of pieces annealed as per Statement enclosed Rs. 1-3766.

In

3. In the Statement prepared by the Master of the Calcutta Mint dated 20th May 1867 of the cost of the Annealing Cups and Covers, they are rated at Six Rupees a Maund being equal to One Rupee per Cup and Cover, which gives the impression that the sheet iron only is charged for and nothing for the labor of forming the Cups, perhaps because it is trifling but even the material is estimated to cost more than a Rupee here, and the labor of forming the Cups and their Covers, would in this Mint have to be considered, as there is no Steam Hammer.

I have the honor to be,
Sir,
Your most obedient Servant,

H Grimmdale
Mint Master

A.M.

17

Statement of the cost of Iron Annealing Tubes used in the Mint.

Year	No.	Iron Tubes		Copper linings		Ratio per lac of coins	
		Rate	Value	No.	Value	No. of Tubes	Value
			Rs.		Rs.		Rs.
1864-65	390	"	"	7968000	1327500	"	"
1865-66	299	"	"	5410760	956440	"	"
1866-67	65	"	"	954480	195000	"	"
	754	@2-10-each	1977	14332240	2478940	.5260	1.3808

8th August 1867

H Grimmdale
Mint Master

A.M.

dispd 20/8

Financial Departt.

No. 382.

To,

The Secretary to the
Government of
India
Fin Dept
Simla

Sir,

With reference to
your letter dated the
16th Octbr, No. 1436, I
am directed to forw.
: ward copy of a letter
from the Mint Master,
Madras, stating that
as soon as the Coinage
of Copper is resumed
he proposes giving to
the new method of an.
: nealing Copper blanks,
as proposed by him
Dorig, experiment, and
observing that it does
not appear probable
: ble that the Savings
at Madras will be so
great

* 8th Augt 67. No 223.

Pd 20

Pd 20

trying

Pd 353

Rec'd 10 Augt.
Forwarded
1867 Despatch

From
The Master
of the Mint Madras
To
The Officiating Secretary
to Government
Fort St George

Dated 8th
Rec'd 13 August 1867
No 223.

Subject

Returns the half
Receive from the Govt of
Madras endorsed by
this Govt dated 30 Octbr
with reference to the introduc
: tion of the new pattern
Cups for annealing Copper
Blanks by Mr Doig of
the Bombay Mint

Copy
Encl 12

Encl 353

great as in Calcutta.

2. The Hindustan remarks on the cost of iron tubing, and annealing Copper Covers, and appends a Statement of the Cost of Iron annealing Tubing used in the Hindustan at Madras

Fort St. George
16th August 1805.

Financial 1867 Departt.

No 382.

To
The Secy: to the Govt.
of India

Dated 16 August 1867.

31 c 38.