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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	1971	Press
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108-109		
Dated	8. 8.	1873.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
8th August 1873.*

No. 108. Read the following letter from Lieutenant J. E. MacCARTHY, His Highness Nizam's Staff, late of the "Royal Scots," to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, Madras, dated 144, Staff Lines, Secunderabad, Deccan, 30th September 1872:—

HAVING seen in the papers that Mr. Orr, of Madras, is in communication with Government about his patented invention of pulling punkahs by steam, I have the honor to submit, by this day's banghy post, to Government for inspection, and after disposal if approved of, plans of an arrangement of punkahs invented by myself by which they can be worked by steam or *other available power*.

As I have never seen Mr. Orr's invention or been given a description of it, I am unable to claim any particular advantage in mine over his, but by what I can glean from the papers, my invention, I believe, has the advantages that it can be erected in any building, and be worked, if steam is found too expensive, by human or animal power. My invention, I beg to add, also allows the punkahs to receive both ways a "Bengal side," and each punkah to be stopped and made to go on again without stopping the others.

I have long intended to obtain a patent for my invention, but as my want of means has always prevented my doing so, I have now determined to offer it to Government, and trusting my invention will be approved of.

NOTES ON THE FIGURES IN THE PLAN.

In this arrangement of Punkahs I have aimed at obtaining the following advantages:—

Advantages.

1. Facility of a number of Punkahs being pulled by one man, or any other power. (Steam, &c.)
2. Each punkah so arranged, that it may be stopped by the occupant of the room, or made to go on again without stopping the whole machinery (an inestimable advantage in a hospital or a sick room).
3. The punkahs to receive *both ways* that peculiar jerk to cause the necessary breeze.
4. Absence of noise.
5. Simplicity of construction, so that the machinery may not easily get out of order.
6. The arrangement being suitable to rooms varying in height.

FIG. 1.—Fig. 1 is the section of a house, showing the punkahs and their attendant machinery—

L, the "working machine," moves the punkahs backwards and forwards by means of the "girdle" (*a a a a*) and the connecting ropes (*b b b b*).

a a a a, the "Girdle," starts from the working machine, goes under the floor of the ground-floor (this would vary according to what floor the working is placed, the kind of building, and the number of rows of punkahs to be erected) up through the walls to the upper floor, under the roof of which it runs to the opposite wall, through which it goes downwards and joins the working machine again. At the angles of the floors and ceilings, the girdle moves over the wheels in the "Brackets" (*d d*). See Fig. 2.

c c c c are "Swivels" for the purpose of tightening the girdle.

The punkahs of the upper storey are worked by the girdle itself, those of the other floors by "connecting ropes" (*b b b b*). See Fig. 2.

c c c c are the "Connectors" to fasten the punkahs to, or free them from the girdle or connecting ropes at the wish of the occupants of the rooms. See Fig. 3.

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FIG. 2.—Fig. 2 is the "wheel bracket" enlarged, it is for the purpose of carrying the girdle and connecting ropes round angles of ceilings and floors, with the least possible amount of resistance to the power (man, beast or steam) placed at the working machine. *b b b* is the connecting rope, it is fastened to the girdle *a a* sufficiently below the lowest wheel in the bracket, so as not to prevent the girdle moving up and down its full swing of one foot each way.

FIG. 3.—Fig. 3 shows the punkah itself. *a a* are the "supporters" to which the "axle," *f*, is fixed. On this axle, where the punkah swings, are two "knife edges" of steel; they are slightly concave and a little broader than the "box" *h*, in order that the latter may not slip off when the punkah is in motion. The *Box* is also of steel and made slightly convex, to move easily on the knife edge. On the upper end of the iron rods, *c c c*, weights are placed so as to form a segment of a circle with the box as the centre, and are sufficiently heavy to nearly balance that portion of the punkah below the axle. In order that each punkah may be stopped or be caused to go on again, or that the man at the working machine should only work those punkahs that are required, to the bar *l* a pulley is fixed, through which a cord runs (the connector *k*), one end of it is fastened to the centre of a short cord, *4 4*, (see *k k k* enlarged) which latter is fixed at both ends to the girdle or connecting rope at a small acute angle, in the sketch it is drawn taught to show the angle, whereas the cord ought to have a slack of two or three inches (shown by the dotted line): this will cause a jerk on both sides, giving each side a "Bengal side" of the punkah. Suppose the machinery at work and a punkah is wanted to be pulled, the connector is pulled till *4-4* is close under the pulley, its end is then fastened to the pin on the body of the punkah, and the punkah moves backwards and forwards. When the punkah is to be stopped the only thing necessary is to cast adrift the connector.

FIG. 4.—Fig. 4 is the working machine enlarged. It, when set in motion, causes *5* to move up and down in *6* (which is two feet long in that part where *5* moves) the girdle being fastened to it, in consequence moves also up and down, thereby pulling the punkahs backwards and forwards.

FIG. 5.—Fig. 5 is the "Swivel" enlarged.

FIG. 6.—Fig. 6 shows how, when the punkah is pulled by the upper bar one foot each way, the body swings over a surface of six feet. *B* is the axle. "*ABC*" is the punkah at rest. "*k b l*" is the punkah pulled by the upper bar by the girdle or connecting rope "*g e f*" one foot (*k d* is one foot) to the left. *m b n* is the punkah pulled the same distance "*d m*" to the right. *n o l* is the distance six feet travelled by the body.

FIG. 7.—Shows how the piston of a steam engine can be applied to the working machine.

REMARKS, &c.—The proportions in the plan of the punkah, are the best I think that can be adopted, as when the bar "*1*" fig. 3 is pulled a foot to the right and back again a foot to the left, the punkah gives a breeze over a surface of more than six feet.

The proportions are:—

FIG. 3—1 to 2—that is from the upper bar "*1*," by which the punkah is pulled, to the axle, two feet.

2 to 3—that is from the axle to the bottom of the body, six feet.

Making the whole length from one to three, eight feet. A punkah eight feet high will do for rooms fifteen feet high and upwards.

		Ft.	In.
Rooms 15 feet.	From floor to edge of fringe...	...	5 6
	For fringe	...	1 1
	Punkah (see above)	...	8 0
	Weights	...	0 4
	Between weights and ceiling	...	0 1
		Ft.	15 0

But for rooms under that height the proportions of the punkah must be reduced in proportion to their proportion to each other. For rooms over fifteen feet the only thing to be done is to lengthen the supporters.

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When erecting this arrangement of pulling punkahs care will have to be taken that when the connectors are being fastened in their proper places that the two arrows, Fig. 4 on "*4*" and "*6*," are brought opposite each other, or the punkahs will swing only one way.

(Signed) J. E. MACCARTHY,
Inventor.

No. 109. ORDER THEREON, 8th August 1873, No. 1,971.

CIVIL WORKS, No. 5.

REFERRED for report to a Committee consisting of—

Colonel Foord, R.E.,
Major Rogers, R.E.,
J. Grainger, Esq., C.E.,

who will, if necessary to assist them in reporting, have a working model of the apparatus put up at the workshop and practically tested.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,

Secretary to Government.

To Colonel Foord, R.E.
,, Major Rogers, R.E.
,, J. Grainger, Esq., C.E.

Kerratum

Lt. O No 1971 dated 8 Aug^t 1873.

Fig: 3. Line 4

For "the Punkah is also of steel"

Read "the Box is also of steel."

Sturrock

Ag. Under Secy
for Secy to Govt
P.M.S.

4th Sept 73.

To Col Ford R.R.

Major Rogers R.R.

J. G. Ranger Esq. Dated 4/9/73

Mr. 200 - 40th Vind
Secunderabad
24th Aug^r 1873

Sir,

1971
I have the honor to acknowledge
with many thanks your Memorandum
No. 309 forwarding for my information
a copy of G.O. No. 1941 dated 8th August.
And beg to point out an error - viz:
Fig. 3 line 4 for "The Punkah is also
of steel" read "The box is also of steel"

I have the honor to be
Sir,

Your Obedient Servant
— R. S. Vis Staff —

To,
Colonel G. M. Walker
Secretary, & C. P. M. S.
Obtained

and inclose of ...
Ch. ...


 P. R. S.
 No 1971
 Recd: of the Madras Govt.
 Under date the 8 August 1873
 Read the following
 From Lieut J. R. Macfarley / H.E. of 30 Sep/72

This should be
~~referred for~~
 Referred for
 Report to a Committee
 consisting of
 Colonel Ford R.E.
 Major Rogers R.E.
 J. Grainger Esq^r C.E.
 who will, if necessary
 to assist them in report-
 ing, have a working
 model of the apparatus
 put

No. 4866.
 from
 Mr. J. Macfarley
 R. H. Higgins's Staff
 Superintendent
 24 Aug 1873
 24 Sep 3/73
 Containing sub
 an extractum in
 L. C. No 1971 of 18 Aug 73
 regarding his in-
 vestigation for putting
 down the 1873
 1873
 1873

C/5409
Govt. of 1873 Madras.
PUBLIC WORKS.

To Col. Ford R.R.
R. R. R.

Dated August 8th.

Recd.

Encl.

G. O. 8th Aug. 1873, No. 1971

August

Nos. 108-109

Punkahs. Appointing
a Committee to report
on the invention of
Lt. MacCarthy for
pulling punkahs.