

(1) பக்கங்களின் எண்ணிக்கை 14

(2) புதுக்கித் திருப்பிய நாள் July 89

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் 10/5

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

(4)

PND

முறை

அரசாணை எண்.
மு. கோப்புத் தாள் எண்.

1362

அச்சகம்
பலவகை

நாள் :

21-5-1889

198

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

7 sheets

641 Sahin

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வண் 27-1-18,006-15-6-7.

1362

Enclosure to P. W. D. letter No. 1110 G., dated the 18th April 1889.

A new system of punkah pulling by hand machines patented by Mr. Charles Ewing has recently been introduced in the Offices of the Comptroller General and Accountant General, Bengal, in Calcutta. It is thought that the system may be usefully employed in large Offices, Barracks, Hospitals and other buildings, where a large number of punkahs swing together simultaneously.

2. The following description of the machine and of the manner in which it is worked was published in *The Indian Engineer* of the 25th July 1888:—

The machine is adapted for use in connection with ordinary pole punkahs, but as one machine can pull four-times as many punkahs as a coolie is usually employed upon, it is necessary to pay a little attention to the means of suspension and connection. In Treasury Buildings, the number of punkahs pulled by one machine is sixteen, and if these sixteen punkahs were connected in the usual manner with rope, the slack and spring would have to be taken out of fifteen connections before the 16th punkah would be moved. To avoid this Mr. Ewing uses wire connections in which there is no appreciable spring or slack, and to ensure the whole of the sixteen punkahs swinging backwards and forwards regularly with a full swing, three of the number are suspended by means of gas tubes, bent into the form shewn in our illustration (see diagram). These hangers rest upon knife edges, and at their upper ends, carry a solid bar of the same length as the punkah pole, fitted with two eyes which permit of its being slid into position upon the hangers, where it is clamped with set screws. A light stay is added as shewn, to stiffen each hanger. The object of this counterweight will be readily perceived on reference to the accompanying diagram, and its effect can be modified, according to the number of punkahs in use, by altering its position upon the hangers.

The punkahs being hung, connected together with wire, and provided with a sufficient number of the regulating hangers to ensure a full and regular swing, we will examine the method in which the machine imparts the necessary motion. As shewn, the machine consists of a pair of A frames braced and tied together, forming a substantial framing, which can be attached to the floor by means of angle brackets and wood screws. Upon this frame are fixed two plain bearings carrying a $1\frac{1}{2}$ inch diameter shaft rotated by means of a crank and wooden handle as shewn. At one end of the shaft is keyed, eccentrically, a cast-iron pulley 2 feet 3 inches diameter, by means of which the pulling rope of the punkahs is actuated. The rim of the pulley is not of equal width for the whole of its circumference, and varies from 4 inches in the widest to $\frac{1}{2}$ an inch in the narrowest part, and, moreover, the face is "drunken." The action of the wheel is as follows:—The pulling rope from the punkahs being led over a suitable pulley, is attached to the rim of the drunken eccentric at its widest part by means of the thimble shewn in detail. The punkah hangs in a normal position at the point marked A in the diagram, and when in that position the handle of the machine is at A. While in this position the pulling-rope from the punkahs is fixed to the wide part of the rim of the eccentric wheel. Upon rotating the latter, the rope coils itself upon the rim of the wheel, moving the punkah to the position C, and at the same time a lead weight, D, fixed upon that position of the rim of the wheel which was uppermost at the commencement of the stroke descends, and by its weight assists to overcome the resistance of the punkahs. By the time the punkah has reached the point C, the handle of the machine has arrived at the point c, and the weight D, which was formerly at the top of the wheel, is now at the bottom, and the rope in coiling itself upon the rim has reached the edge of the narrowest portion, aided by the bevel of the "drunken" part of the wheel, and falls off. The punkahs immediately commence to swing backward, until they reach the point A, and the wheel continuing to be rotated, the weight D again reaches its highest position, and all is in readiness for another stroke. The handle can be turned by an ordinary coolie, and while it is continuously rotated, the punkahs are compelled to swing regularly to the full extent that their suspensions admit of.

3. There are altogether thirteen machines working in the Offices above mentioned: the following statement shows the distribution of the machines, the size of the punkahs pulled, and the number of coolies which used to be

employed before Ewing's punkah machines were introduced and the number now employed:—

Distribution Statement.

Distribution Statement.

	Office of	Situation.	NUMBER OF MACHINES.		Number of Punkahs.	Each measuring in length.	NUMBER OF COOLIES.				
			Class A.	Class B.			Formerly employed.	Estimated to be required			
								Now.	Later on.		
First storey	Accountant General, Bengal	South	1	---	9	4 of 16 feet 4 of 22 "	5	3	2		
	Comptroller General	East	1	---	16	10 feet	7	3	3		
	Forests Savings Bank		1	---	15	10 "	7	3	3		
	General and Book	South	---	1	10	10 "	5	3	2		
Second storey	Comptroller, India Treasuries	West	---	1	20	10 "	8	3	3		
	Book and Account Current		---	1	16	10 "	9	3	3		
	Treasury Accounts	East	---	1	15	10 "	6	3	3		
	Accountant General, Bengal--	South	---	1	12	10 "	7	3	2		
Third storey	Budget Section	West	---	1	15	10 "	6	3	3		
	T. M. and Record	East	1	---	15	13 of 10 feet 2 of 9 "	6	3	3		
	T. A., T. B. and		1	---	14	12 of 10 " 2 of 9 "	5	3	3		
	T. C. Sections	East	---	1	18	16 of 10 " 2 of 9 "	6	3	3		
	T. D. and contingent Section		1	---	10	9 of 10 " 1 of 9 "	3	3	2		
	Record	North-East	1	---	11	9 of 10 " 2 of 9 "	3	3	3		
	Local Fund		1	---	7	6	181	77	89		
			7	6	181	---	77	89	34		

The coolies were &

The coolies were formerly paid Rs. 4 a month each, but it will probably be necessary to pay the men working the machines a rather higher rate.

It is estimated that when the men are accustomed to the work, it will be necessary to employ 34 men at Rs. 5 a month. So that the monthly charge will be Rs. 170 as compared with Rs. 308 which was the cost of 77 men at Rs. 4. The saving in these offices will therefore be Rs. 138 monthly.

4. The machines have cost:—

Royalty on each to Patentee	Rs.
Manufacturing charge	100
	130
Total	230

or Rs. 2,990 for the whole number erected. So that, if the punkhas are worked for seven months in the year, the capital cost will be saved in about four years after making some allowance for maintenance.

No. 1110 G.

GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
GENERAL.

To

THE GOVERNMENTS OF MADRAS, BOMBAY, BENGAL, THE NORTH-WESTERN PROVINCES AND OUDH AND THE PUNJAB.
THE CHIEF COMMISSIONERS OF THE CENTRAL PROVINCES, BURMA AND ASSAM.
THE RESIDENT AT HYDERABAD.
THE AGENTS TO THE GOVERNOR GENERAL FOR CENTRAL INDIA, RAJPUTANA AND BELUCHISTAN.
THE ACCOUNTANT GENERAL, PUBLIC WORKS DEPARTMENT.
THE DIRECTOR GENERAL OF RAILWAYS.
THE CONSULTING ENGINEERS TO THE GOVERNMENT OF INDIA FOR RAILWAYS, CALCUTTA, CENTRAL DIVISION AND LUCKNOW.
THE DIRECTOR GENERAL OF TELEGRAPHS.

Calcutta, the 18th April 1889.

SIR,

I am directed to forward for information a description with a plan of a punkah-pulling machine patented by Mr. C. Ewing of Barrackpore. It will be observed that the machine has been introduced with success in the Treasury Buildings in Calcutta, and it may be possible on the ground of economy and convenience to use it more extensively, if found to be suitable.

I have the honour to be,

SIR,

Your most obedient servant,

H. J. S. Muller Captain,
Asst. Secy. to the Govt. of India, Legislative Dept.
In charge P. W. Dept.

Documents accompanying.
Description of punkah-pulling machine with plan.

*To the Govt of Madras
P. W. Department*

SMC No. 4027

(5)

No 1362 w of 21st Ave

1945-89

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146.524

each

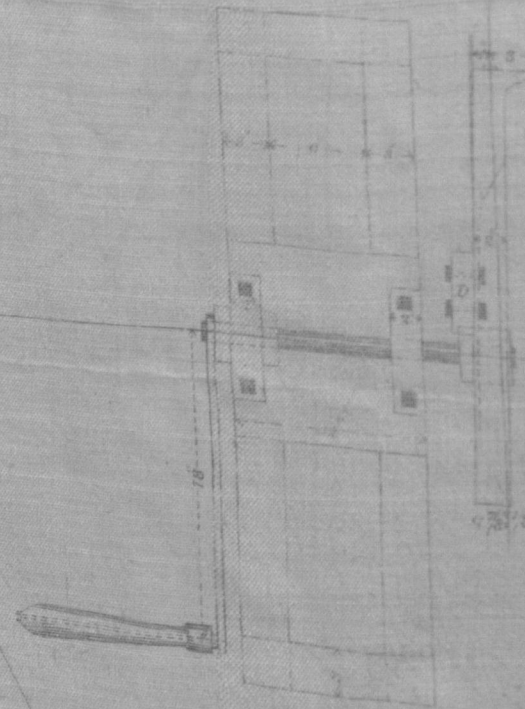
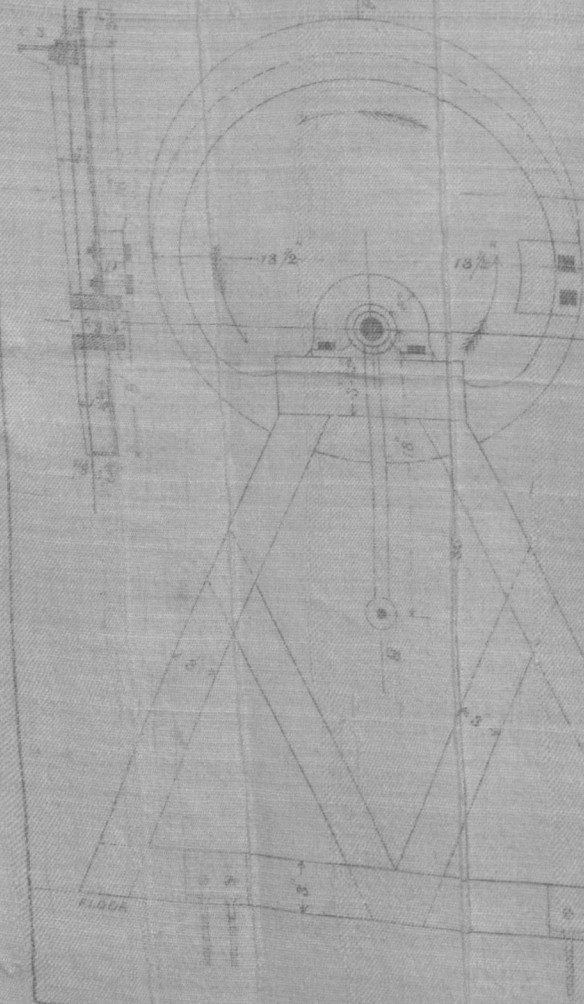
EWING'S PATENT PUNKAH-FULLING MACHINE.

Fig. 1.
Section through A. B.

Fig. 2.
Side Elevation.

Fig. 3.
Plan.

Fig. 4.
Front Elevation.



SCALE.
1 Inch = 1 Foot.
Note.—Travel of punkah-rope = $\frac{1}{2}$ circumference of eccentric (42.5 ins.) + length of long arm (18 ins.) of 60.6 ins. D.D.D.D. Lead weights to suit number of punkahs to be pulled.

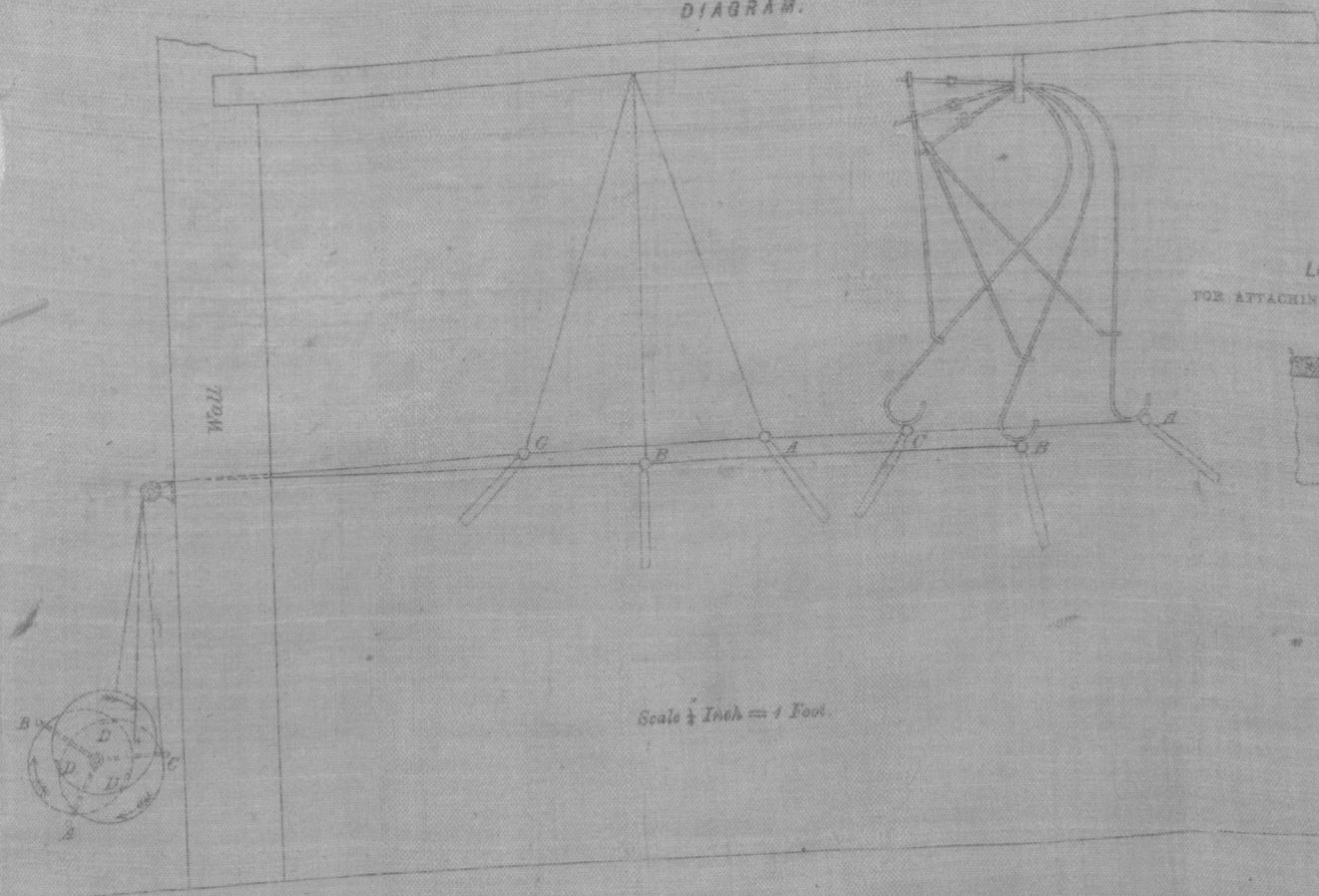
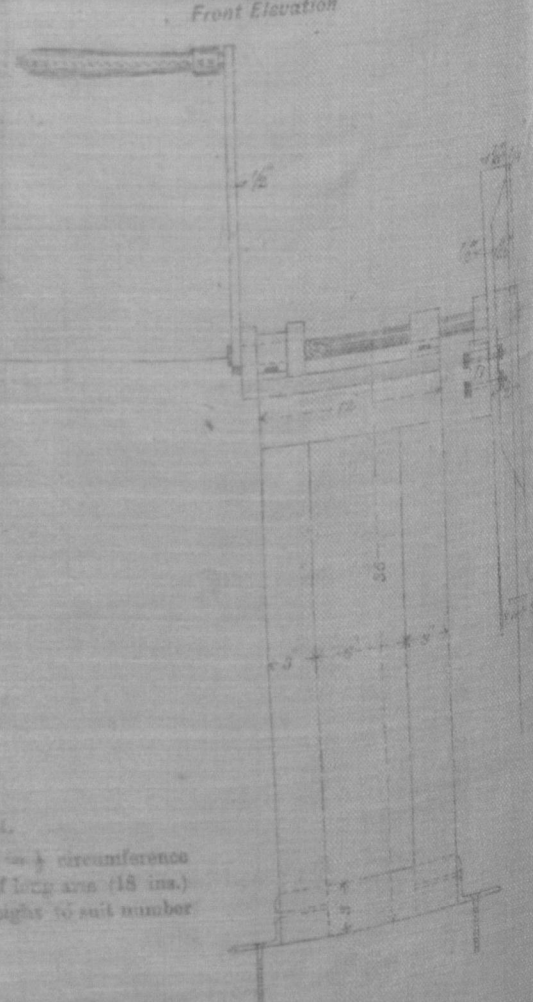
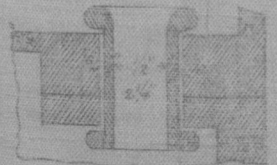


Fig. 5.
LOOSE THIMBLE C.
FOR ATTACHING PUNKAH-ROPE TO ECCENTRIC.



SCALE.
Half full size.

A.A.A. Position of handle and punkahs at commencement of pull.
B.B.B. Ditto when punkahs have fallen to a vertical position.
C.C.C. Ditto when punkahs have been pulled up to their farthest extent and rope is falling off drunken eccentric.
D.D.D. Lead weight being raised by punkah cooie when punkahs are swinging back and which doubles his power when punkahs are being pulled up.

SAC No. 4

B. 7013626 of 2/15/89

Oct. 4/88 - 4027 (S. 1/1/89)

In the General Hospital
Theodore, the printer,
one pulled, during the
last weather April 6. Sept.
I think, for 22 hours or so
firing up by steam.

The arrangements now
proposed will not get over
the difficulty; of the forms
the printer pulls again,
and I doubt if it could be
introduced with advantage
into the General Hospital;
but the Mail Department
might use the machine
with advantage in hot weather.

The best plan would be for
the General Supr of the
Hospitals to arrange to
pull all the forms
in one word of the Hospital
by this machine, the
arrangements being made
at the end of the hot weather,
when the printers are
not working in the General
Hospital.

of the apparatus & could
decide whether it was
worth adopting.

If instructions are given to
the Genl. Supdt. a practical
trial might be made in
a ward with perhaps
20 punkahs -

I think the estimate of
cost 130 Rs is too low

MUR
7.5.89

The experiment might
be made as suggested.

It will not do for day
work - and from the list of
buildings where it has been
used, this would appear to
be so - The cost of 130,
that has obtained from
actual experience. I think
should be sufficient in the

Headm. Minding. P. M. S.

7.5.89

136 ✓ 4007.
D.W.

There are very few
if any public offices
in the Madras
Presy where a
Ewing machine
could be introduced
as an economical
measure. The reason
is that the rooms
in most cases are
small with one or
perhaps two punkahs
each. In the General
Hospital the punkahs
are I believe pulled
by machinery but
in all the barracks
of the troops in the
plain manual
labor is used. A
considerable saving
might it seems be
effected in the Milly
Dept. There are two
rooms in the Secret-
ariat building in
the Fort where a Ewing
machine might be
used. I refer to the

rooms occupied
the offices of the Chief
and Revenue Secre-
-aries. I believe about
six punkahs will
in each of these rooms.
The public offices
Calcutta are near
all situated in new
buildings the rooms
of which have been
made large enough
to accommodate a
number of clerks &
a large number of
Gowling's machine
could well be utilized.
It seems probable
that the rope used will
require constant re-
-newal and as per-
-kahi coolies are san-
-tioned for only six
months in the year
the machines would
be apt to deteriorate
during their off season.
Perhaps the Supt P. W.
Workshops might be
asked for an estimate
of the cost. The manu-
-facturing charges
Rs. 130 in Bengal. It
is not stated whether
Govt has obtained
any monopoly. 4A

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 21st May 1887

Read the following

B
attach 2 spare
copies of C. 402
to each copy of
this P.O.
1362
From the Secretary to the Govt of India P. W. Dept (H. E. No. 1110 G of 18th April 1887.

Before sanctioning the adoption
of this machine in public
buildings in the Madras Presidency
the Government would like to
have it practically tested here.
This may best be done at the
General Hospital, Madras, where
all the punkahs of one ward
can be connected with the
machine. The experiment
will be carried out by the
General Superintendent P. W.
Workshops at the end of the
hot season, when the punkahs
are not usually worked and

14th May

when they will therefore
be available for the trials.

2. The result will in
due course be reported on
by a Committee composed
of the Suply Engineer V Ando,
the Resident Physician General
Hospital and the General
Superintendent P. W.
Workshops - The points to
be noticed are the efficiency
of the apparatus, both for day
and night work, and its
cost as compared with:-

- (1) the present steam arrange-
ments at the Hospital
and
- (2) ordinary hand labor -

3. The General Superintendent

1362

J. W. Workshops will
arrange to have a machine
in readiness for work at
the earliest possible date
to be fixed by the
Resident Physician of the
Hospital -

Pueda
11 May. 9.5.89

WCR
17.5.89

22/5/89

To
The Suply Engineer V Ando
Public Dept

(Chief Secretary for
favor of counter initials)

R.S.

Do 1062.11 of 24 pages

⑤

C. Sack

Hm 13/5. 2m 15/5.
Ms. 45/5. Chlemy 10/5. 19