

- (1) பக்கங்களின் எண்ணிக்கை 20
 (2) புதுக்கித் திருப்பிய நாள் 2/90
 (3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் 10/2

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

(3)

2.00 துறை

அரசாணை எண். மு. கோப்புத் தாள் எண்.	2578	அச்சகம் பலவகை
நாள் : 18 - 9 - 1889 198 .		

மடிக்கவோ கண்டபடி கையாளவோ கூடாது

Sheet No 2 statement

10 Sheets

ஆவண. கா-1-18,006-15-6-87.

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EWING'S PATENT PUNKAH-PULLING MACHINE.

Reprinted from The Indian Engineer, 25th July, 1888.

In our issue of 31st March last, we briefly noticed this invention, concerning which we have since received fuller information, and the drawing published herewith. We have, moreover, had an opportunity of seeing the machine at work in Treasury Buildings, and can testify to its practical usefulness.

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 sixteenth 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

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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 shown 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.

It will be seen, therefore, that Mr. Ewing converts the oscillating movement of the punkah into a continuous rotatory motion, and, instead of lazily exerting a pull of a few inches, the punkah coolie is obliged to give the punkahs a full and regular swing. To those who do not trouble themselves with the mechanical points of the machine, it will be doubtless considered that this compulsion of the coolie, to perform his work efficiently, is the main point of the invention. So in effect it is. A punkah as ordinarily suspended hangs perpendicularly, and beyond this perpendicular position the punkah coolie rarely, if ever, allows the punkah to go in its backward swing. But for the resistance of the air, a punkah would, of its own weight, if allowed to do so, swing nearly as far in a backward direction as it is pulled in a forward direction by a coolie, and making due allowance for the air resistance

it would certainly swing one-half or two-thirds of this distance. This knowledge is, however, beyond the comprehension of the ordinary coolie, possibly owing to the reason, that the longer reach required by his arm in letting the punkah swing back, would necessitate a standing instead of a sitting posture, a change which would interfere with the somnolent habits of such coolies as are unable to sleep while standing. Mr. Ewing's invention, however, compels the coolies to give a regular and sufficient swing to the punkahs, and the advantages and disadvantages of the Bengal and Bombay sides of the punkah need no longer be considered.

Another feature of Mr. Ewing's invention is, that it secures the "jerk" which is so necessary a feature in punkah pulling. The weight of the punkahs when released by the sudden falling of the rope from the face of the eccentric pulley, aided by the counterweights upon the regulating hangers, compel the punkahs to swing backwards with a sufficient jerk.

In barracks and large offices it would, no doubt, be found advantageous to apply a small motor and dispense altogether with coolies, effecting a still greater saving over the present mode.

The amount expended in pulling soldiers' punkahs during the hot season of 1886, in the Military Presidency of Bengal alone, is stated on page 27 of the Bengal Military Budget Estimate for 1886-87 to have been Rs 3,16,000. What the total would be for the whole of India, not only for soldiers' punkahs, but for public offices and institutions, is a matter for conjecture; but now that a means is at hand whereby this expense can be reduced by, say, 75 per cent., there can be little doubt that a prosperous future awaits the inventor of the Patent Punkah-pulling Machine. The Government, the Military Authorities, and others interested in this important reduction of public expenditure, move with the gravity, which is the birthright of their high office; but it is, however, a fact that the original machine has been working steadily and satisfactorily since the 17th March last in the Treasury Buildings, and that on the 15th May sanction was received from the Government of India to the purchase and erection of other 12 machines in the same building.

We understand that Mr. Ewing is engaged upon the construction of a self-acting punkah for domestic use, which will pull a four-feet punkah for eight hours. The success this gentleman has achieved in his present invention, warrants reasonable hope for the advent of the self-acting machine.

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(3)

If Mr Brumfist
obtains penitence leaves,
he will be able to give
his superior any information
that may be required
about the C.A. Dennis.

With so many important
works, either under construction
or being designed, and
with so much stock at
various work sites I fear
that difficulties may
arise; if Mr Brumfist
leaves India; immediately
after handing over charge
to Mr Ferris; unless the
transfer is carried out in
a thorough manner.

Would it not be advisable
to ask the Govt of India
to treat the case as a
special one?

hurry

9.9.09

It will be too late to go up
to India now on this subject
except by telegram - but B.
should have declared his air

Center's earlier - all ap.
plications for priv. leave
under Code para 570
have 4th made - months
before the leave is required,
but B. in his own interests
ought to have followed this
rule - and there would then
have been ample time
to have taken the order of
leave on the subject.

Quon
13.9.89

+ The rules says that application
for priv. leave should not
be made more than 6 weeks
before the leave is wanted.
vide article 870 C.S. Regs.
Code para 570 rules
that officers desirous of
obtaining furlough should
make known their intention
3 months before leave.

✓ C₂

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EWING'S PATENT PUNKAH-PULLING MACHINE.

FIG. 1.
SECTION THROUGH A-B.

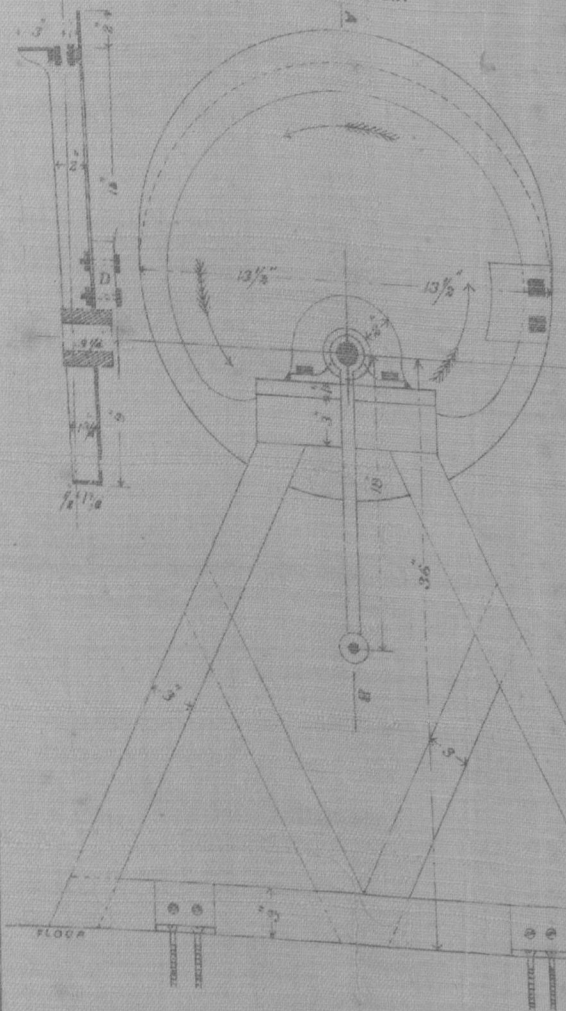


FIG. 2.
SIDE ELEVATION.

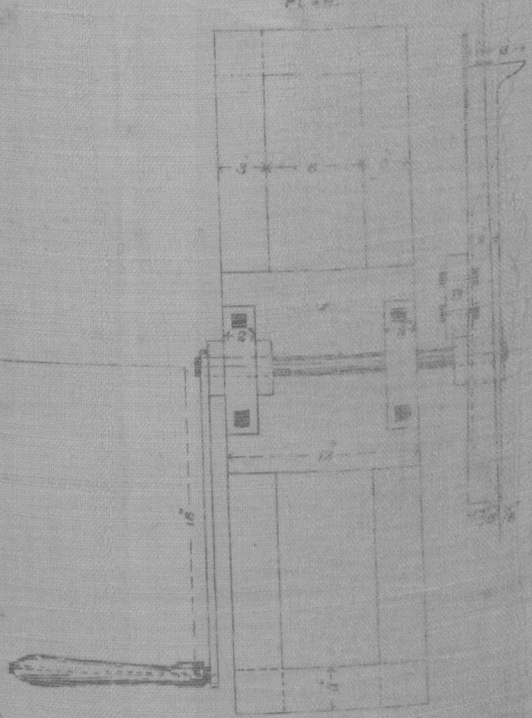


FIG. 3.
PLAN.

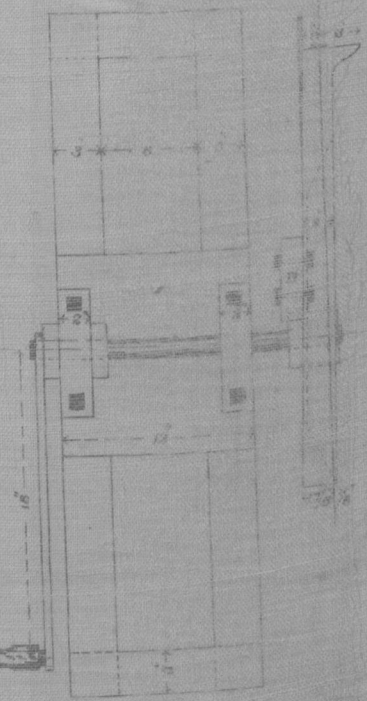
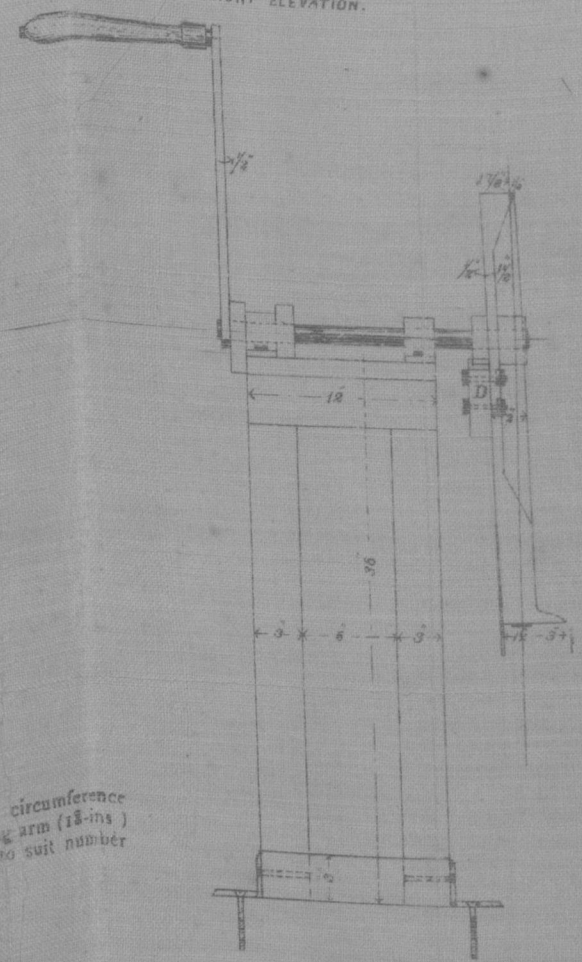


FIG. 4.
FRONT ELEVATION.



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.) or 60.5 ins. D.D.D. Lead weight to suit number of punkahs to be pulled.

DIAGRAM

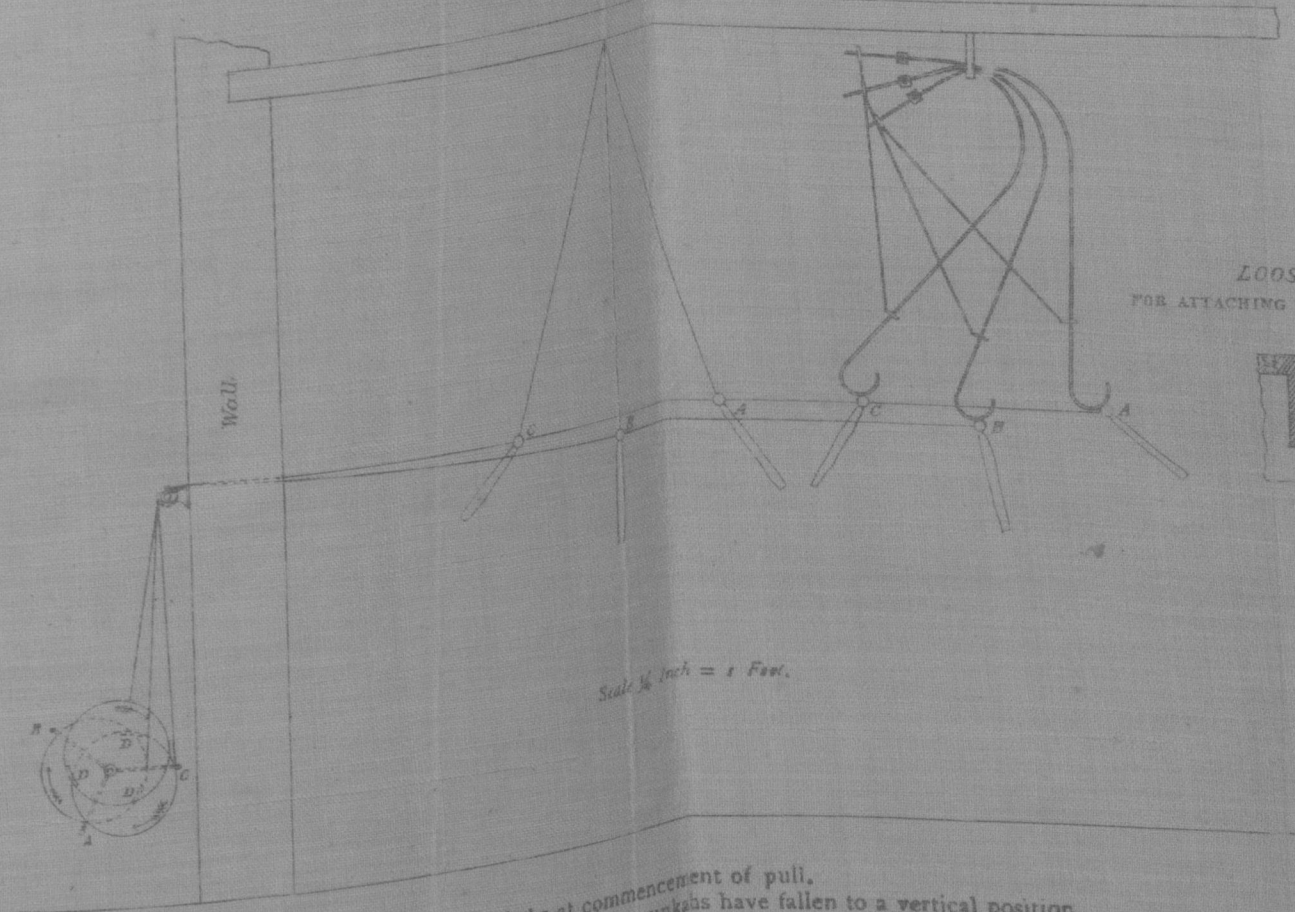
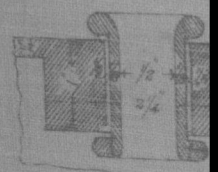


FIG. 5.
LOOSE THIMBLE
FOR ATTACHING PUNKAH-ROPE



SCALE.
Half full size

Scale $\frac{1}{2}$ Inch = 1 Foot.

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

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No. 1001-G.

GOVERNMENT OF INDIA, PUBLIC WORKS DEPARTMENT.
(GENERAL.)

To

C. EWING, Esq.,

17, RIVERSIDE,

BARRACKPORE.

Sir,

Calcutta, the 3rd April, 1889.

With reference to your letter of the 20th ultimo, to the address of Sir Charles Elliott, I am directed to inform you that your "Patent Punkah-pulling Machine" will shortly be recommended to the several Departments of the Government of India, and to Local Governments and Administrations; and I am to add that, so far as present experience in its use goes, considerable economy results from the adoption of the invention.

I have the honor to be,

Sir,

Your most obedient Servant,

(Sd.) G. H. D. WALKER,

Under-Secretary to the Government of India.

Received power

EWING'S PATENT PUNKAH-PULLING MACHINE.

"FROM notices which have appeared in earlier issues, the punkah-pulling invention of Mr. Charles Ewing, C.E., will, by this time, be tolerably familiar to our readers. In our issue of December 5th, 1888, we referred to a trial of the invention, as applied to the Dum-Dum Barracks, by a Military Board, and in our issues of January 30th and February 6th, we drew attention to a visit paid to the Treasury Buildings by Sir Charles Elliott, K.C.S.I., for the purpose of witnessing the working of Ewing's patented system in that building, which is fitted throughout with the machines. The Public Works Member made his inspection on January 22nd, when he was accompanied by Cols. Pemberton, R.E., Conway-Gordon, R.E., and Begbie, R.E.; Major Brackenbury, R.E., and Mr. R. B. Buckley, C.E. The general opinion expressed at the time, was one of approval, but the matter has not been allowed to rest there. The capability of the punkah-pulling machine for effecting a marked economy in the heavy charges annually incurred for punkah coolies by various Governments and Administrations, did not escape notice, and we are not surprised to now learn that the machine will shortly be recommended for general use, to the several departments of the Government of India, and Local Governments and Administrations: experience of its use in the Treasury, during the hot weather of last year, having shewn that a considerable saving results from its adoption. The full effect of the step contemplated may not be immediately apparent to our readers, or even to the Government; but from our knowledge of the system we may say that, excluding interest on the first cost of the machines, a saving of from fifty to seventy-five per cent., as compared with the cost of the present system, will be effected, according as the construction of the buildings in which the machines are fitted, permits of their most or least expensive application, respectively.

It will be remembered that when we first drew attention to the possible saving that would be effected by the adoption of the machine, we were met by frivolous objections on the part of those who were interested in other systems, or who had failed to grasp the principle of Mr. Ewing's invention, which owes its economy to the ingenious manner in which the energy developed by the continuous exertion of a cooly is accumulated, and given out only when required, thereby enabling three or four times the amount of work to be performed that could be accomplished without the intervention of the machine. At the time we replied fully to the arguments arrayed against us and it is now gratifying to find that the favourable opinion we then expressed is about to be confirmed by the recommendation of Government. We have already remarked upon the efficiency of the contrivance, and it now only remains for us to congratulate the inventor, as a member of the profession we represent, upon the success he has achieved in a field that has attracted a measure of competition without parallel in this country, which the value of the prize at stake can alone account for."—*The Indian Engineer*, 10th April, 1889.

"REFERRING to our previous notices of Mr. Charles Ewing's Patent punkah-pulling machines, we are informed that the favourable opinion which we have at all times expressed of this invention has now been confirmed by the Government of India, in the Public Works Department. On the 22nd of January last, the Hon'ble Sir Charles Elliott, Public Works Member of Council, accompanied by Colonel R. C. B. Pemberton, R. E., Secretary to Government of India, P. W. D.; Colonel L. Conway-Gordon, R. E., Director General of Railways; Colonel A. G. Begbie, R. E., Accountant-General, P. W. D.; Major Brackenbury, R. E., and Mr. R. B. Buckley, M. I. C. E., Under-Secretaries to the Government of India, visited the Treasury for the purpose of inspecting the machines which were last year fitted up throughout the building, and at the time general approval was expressed by the visitors. Mr. Ewing, on the 5th instant, received an official communication from the Government of India, in which he was informed that his invention 'will shortly be recommended to the several Departments of the Government of India, and to Local Governments and Administrations,' and that, 'so far as present experience in its use goes, considerable economy results from the adoption of the invention.' Sir Charles Elliott is to be congratulated upon the decisive action which he has taken in the matter, as the general introduction of the machines which may now be expected will not only be a boon to those using them, but also effect a very large saving annually in the cost of punkah-pulling. Messrs. Macknight, Anderson & Co., of 5, Fairlie Place, Calcutta, are the Agents. The first of Mr. Ewing's automatic punkah-pulling machines, to work a punkah for 9 hours by means of a falling weight, is to be ready soon. This invention has a value which can hardly be over-estimated, as, whenever used, the punkah-coolie, with his perverse ways, is conspicuous by his absence. This machine alone entitles Mr. Ewing to the undying gratitude of the dwellers of the plains."—*The Englishman*, 11th April, 1889.

Cm 8357

Don

The Examiner's Office holds that Article 336(a) applies to an officer who remains in the service after he attains the age of 55 years. It is intended to show what description of leave may be granted to such an officer. This is more clearly expressed in the corresponding ~~to~~ Article 377 applicable to Indian services.

The law in the previous edition of Financial Codes was 46 C.L. Code, which was clearly applicable to officers over 55 years of age, but still in the service.

Article 296 C.S.R., says that the right to receive privilege leave allowances is contingent

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on the return of an office
to duty on the expiry of
such leave, whether he
the branch of the service
to which he belongs, &
under Article 891, an
officer applying for priv. l.
must send a declaration
that he has no intention
of retiring ~~or~~ for three
months after his return
to duty.

As Mr. Brannington
is to retire on the 22nd
Sept 89, the G. office
holds that article 336 (b)
is not applicable to his
case. Articles 614 & 689
relating to Civil Servants
& Milo-Civilians are very
clear on the point.

As Mr. Brannington
is a Govt. of India Officer,
who will cease his con-
nection with this Govt. on
the 22nd Sept, I put up a
draft referring the matter
to the G. of D., but
if considered preferable,
he may be informed
at once that he cannot
get p. l. under the article
quoted by him.

7.9.89 Car

MACKNIGHT, ANDERSON & CO.,
Agents for
Charles Ewing's Patent
PUNKAH-PULLING MACHINERY.

3, FAIRLIE PLACE,

Calcutta, 7th June 1889.

2578
UNDER SECRETARY
27 AUG 89
PUBLIC ET 3 DEPT

Sir,

With reference to the annexed copy of a letter from the
Hon'ble Sir Charles Elliott, Public Works Member of Council,
we beg to advise you that we are now booking orders for Mr. Ewing's
Machines and their accessories, and shall feel much obliged if
you will furnish us with an early intimation of your requirements,
to enable us to put ourselves in a position to meet them with as
little delay as possible. To expedite the execution of orders we
would invite your attention to the following:—

1. Machines.—The pulling machines are of two kinds, one
having an eccentric, which is the more powerful and therefore the
more economical, and the other a wheel which although not so
powerful, gives a better swing to the punkahs in each direction.
The machines are attached to the wall by means of two $\frac{3}{4}$ " bolts.
The guide pulley, over which the rope passes from the wheel to the
punkah, is attached to the same wall, immediately above the wheel,
by means of a third bolt. Where the machines are intended to be
worked in a verandah, a tube, with the guide pulley attached to it, is
substituted for the bolt. A moveable wooden stand can be used
in lieu of the fixed iron wall bracket where desired.

Information required.—Thickness of the wall
to which the machine is to be attached.

2. Hangers for terminal punkah of each set of punkahs to
be worked by a machine. The length of these varies with the
height of the beam, or girder, from which they are suspended, and
the height of the top of the punkah pole, or frame, from the floor.

Information required.—Heights of (1) bottom
of girder or beam, and (2) top of punkah
pole, or frame, from the floor. Also length
of terminal punkah, pole or frame.

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on the return of an Office
— to return to

3. Stirrups carrying knife edges upon which the hangers
rest.

Information required.—If to be used
with wooden beams—none. If with
girders,—width and thickness of bot-
tom flange of girder.

It should also be stated in all cases
whether the beams or girders run
transversely to, or in, the direction in
which the punkahs are to be pulled, and
in the latter case, the distance apart,
centre to centre, of the beams or girders
must be given.

As a guide in estimating the number of machines required,
we may state that the most satisfactory results with one machine
have been obtained when the equivalent of 16 pole punkahs, each
with a fringe 10 ft. 6 inches in length, by 2 ft. in depth, has not
been exceeded.

Where the machines are intended for day work only, as in
offices, the present price for one machine, with one guide pulley,
the necessary bolts and tube, one pair of hangers with stirrups, &c.,
complete, 70 wrought iron screw hooks, (i.e. four to each punkah pole,
and 6 spare ones) and 1000 ft. of No. 9, B.W.G. Galvanized Iron
wire, exclusive of packing and despatching charges, is Rs. 235.

Where intended to be used night and day, and where, conse-
quently, the saving effected sooner enables the cost of the machines,
&c., to be recovered, as in barracks, &c., the present price is Rs. 285.

Special terms will be quoted where power other than
manual is, or is intended to be used.

The prices apply to Government offices and barracks
only.

We have the honor to be,
Sir,

Your most obedient servants,
Macknight, Anderson & Co.

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 simultane-
ously.

2. The following description of the machine and of the manner in
which it is worked was published in *The Indian Engineer* of the 28th 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 neces-
sary to pay a little attention to the means of suspension and connection. In the Treasury Build-
ings, 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 counter-weight 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 a
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 posi-
tion 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 punkahs have
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.

	Office of	Situation.	NUMBER OF MACHINES.		Number of Punkahs.	Each measuring in length.	NUMBER OF COOLIES.		
			Class A.	Class B.			Formerly employed.	Now.	Later on.
First storey	Accountant-General, Bengal	South	1	...	9	5 of 16 feet 4 of 22 "	5	3	2
	Comptroller-General	East	1	...	16	10 feet	7	3	3
Second storey	Forests Savings Bank	South	1	...	15	10 "	7	3	3
	General and Book	West	...	1	10	10 "	5	3	2
	Comptroller, India Treasuries	East	...	1	20	10 "	8	3	3
	Book and Account Current	South	...	1	16	10 "	9	3	3
	Treasury Accounts	West	...	1	15	10 "	6	3	3
	Accountant-General, Bengal—	East	...	1	12	10 "	7	3	2
	Budget Section	South	...	1	15	10 feet	6	3	3
	T. M. and Record	East	1	...	14	12 of 10 "	5	3	3
Third storey	T. A., T. B. and	West	...	1	18	16 of 10 "	6	3	3
	T. C. Sections	East	1	...	10	9 of 10 "	3	3	2
	T. D. and contingent Section	North	1	...	11	9 of 10 "	3	3	2
	Record	East	...	1	10	9 of 10 "	3	3	2
	Local Fund	South	...	1	10	9 of 10 "	3	3	2
		West	...	1	10	9 of 10 "	3	3	2
			7	6	181	...	77	39	34

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. 303, which was the cost of 77 men at Rs. 4. The saving in these offices will therefore be Rs. 133 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 punkahs are worked for seven months in the year, the capital cost will be saved in about four years after making some allowance for maintenance.

THAILL & Co., Advertiser Press, Calcutta.

MACKNIGHT, ANDERSON & CO.,
Agents for
Charles Ewing's Patent
PUNKAH-PULLING MACHINERY.

5, FAIRLIE PLACE,

Calcutta, 22nd July 1889.

Sir,

In continuation of our communication, dated 7th June last, we have now the pleasure to hand you a copy of the circular letter therein referred to as issued to the Local Governments, &c., by the Hon'ble Sir Charles Elliott, Public Works Member of Council, together with the drawings to which he directs attention.

We have the honour to be,

Sir,

Your obedient Servants,

Macknight, Anderson & Co.

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.

Sir,

Calcutta, the 18th April 1889.

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,

J. H. SADLER, Captain,

Asstt. Secy. to the Govt. of India, Legislative Dept.

In charge, P. W. Dept.

Documents accompanying.

Description of punkah-pulling machine with plan.

No. 1111 G.

Copy forwarded to the several Departments of the Government of India.

J. H. SADLER, Captain,

Asstt. Secy. to the Govt. of India, Legislative Dept.

In charge, P. W. Dept.

CURRENT No.

[9]

2578
DEPARTMENT.

(10)

From

No.

Dated

Received

Enclosures

SUBJECT.

10
10

CURRENT No.

[9]

DEPARTMENT.

8677

From

Messrs Macknight
Anderson & Co
Calcutta

No.

Dated

Received

Enclosures

SUBJECT.

No. 2578 W & 18 Sept 1889

ask for order of
Charles Ewing's Patent

Punch Pulling Machine

Forwarded to the Public Works Dept

with reference to 1362 W

of 21st May 1889

11/11/89

Assistant Secretary

29/5/89 20463 Mr 8 Pub.

2441 W 74/9/89
2120 W 7 0/0/89
2054 W 7 30/7/89

No. 2578 W & 18 Sept 1889

Recorded in
Continuation of 5.00

No. 2441 W & 4 Sept 1889

1889

17-9-89

17-5-89

12/3/9