M.R.O. 1—77,006—3-6-37.

(1) Number of pages_____

(2) Date of repair 13.7.44

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 3139. Press Mis.
225-226

Dated 12-12- 1871.

Not to be folded or roughly handled

No. 225. Read the following letter from the Officiating Deputy Secretary to the Government of India, Public Works Department, (Irrigation,) to the Acting Joint Secretary to the Government of Madras, Public Works Department, dated Simla, 12th July 1871, No. 285-I. :—

I AM directed to forward herewith copies of a plan and specification of a shutter for weirs designed by Mr. C. Fouracres, the Executive Engineer of the Dehree Workshops, and to state that it has been introduced with advantage on weirs in Bengal.

SPECIFICATION OF TUMBLER SHUTTER.

THE balance tumbler shutter is designed to hold up a head of water of 4 feet 3 inches about the crest of the anicut, and will upset when the river rises sufficiently to top the shutters.

The shutters are made of teak, in lengths of 18 feet, and are 4 feet 6 inches high, with planks 2 inches thick at the bottom, tapering to 1½ feet thick at top, and are held together with five pairs of battens 7½ inches by 1½ inches thick, rivetted through, as shown in the drawing, with half diameter rivets and three-sixteenth washers.

The main beam is 12 inches by 12 inches, and is fastened down with two 1¼ inch holding bolts to each length of shutter. The cross beams to which the tension rod shoe is bolted is 10 inches by 7 inches and is secured to the masonry with a holding down bolt 5 feet long 1¼ inch diameter to each, with anchor plate and key as shown in the drawing.

The shutters are secured from falling down, should a slight fresh occur or high winds and waves, or a boat run against them, by a retaining bar at the back; the bar is moved with a lever, as shown in the drawing; this is shown engaged, and, to disengage it, the lever is drawn into the grove built in the pier or abutment to receive it, and is then clear of the end of the shutter; the shutter will be ready to fall, and will fall if the water is topping it. The bar is made of 1 inch square iron; the lever will be level with the top of the abutment or pier, and will form no obstruction to the river; an additional length of lever with a socket head made to ship on the end of the lever will give power sufficient to move a bar 200 feet long.

If the shutters are used in such a length that it would not be possible to manipulate a retaining bar so long, then a simple hook to each shutter would secure them; but this must be removed a few days before the freshes come down, when all drift, etc., should be cleared away, so that the shutters would be certain to act at once when the water rose to the proper height.

The main beam should be placed up very true, so that the shutters fit and form a close joint on top of them, and the shutters fitted to each other in the following manner :— The shutters after being squared off at the ends and fixed in the upright position, a good sharp saw should be worked from top to bottom, thus making a tight fit, and at every fourth or fifth shutter, the end of which should be cut a little taper to allow a wedge from top to bottom, to tighten the end joints; these wedges can be removed in a few minutes.

I would recommend the above plan, if perfect tight joints are required, but the wedges must be removed a few days before the freshes are expected, or they may prevent the shutters falling; the removal of the wedges one at each end of the line will be sufficient to ensure the whole line falling when required.

To raise the shutters, the weir lascars go at the back of them, and all take hold of the top of the shutters and gently lift together until the top is above water; when all will lift smartly, the pressure of water against the lower part of the shutter will assist to put it into the upright position; no difficulty has been found to lift them into position with 6 or 8 feet of water running over them.

Proceedings of the Madras Government, Public Works Department, 12th December 1871.

The timber beams can be dispensed with if good cut-stone is used, and close joints are made in the top course of the anicut. The Panchcoorah Anicut is built of brick.

(Signed) C. FOURACRES,
Executive Engineer, Dehree Workshop Division.

No. 226. ORDER THEREON, 12th December 1871, Nos. 3,139.

IRRIGATION, No. 9.

RESOLVED that the plan of shutter for weirs received with this letter be lithographed and circulated to all Superintending Engineers with copies of the specification.

(True Extract.)
(Signed) R. F. OAKES, Captain, R.E.,
Ag. Joint Secretary to Government.

To Superintending Engineers.
To the Chief Engineer for Irrigation.

Exd. E. C. Shunker.

SPECIFICATION OF TUMBLER SHUTTER.

The balance tumbler shutter is designed to hold up a head of water of 4 feet 3 inches about the crest of the annicut, and will upset when the river rises sufficiently to top the shutters.

The shutters are made of teak, in lengths of 18 feet, and are 4 feet 6 inches high, with 2 inches thick at the bottom, tapering to 1½ feet thick at top, and are held together with [illegible] battens 7½" × 1½" thick, rivetted through, as shown in the drawing, with [illegible]meter rivets and [illegible] washers.

The main beam is 12"×12", and is fastened down with two 1¼" holding bolts to each length of shutter. The cross beams to which the tension rod shoe is bolted is 10"×7" and is secured to the masonry with a holding down bolt 5' long 1¼" diameter to each, with anchor plate and key as shown in the drawing.

The shutters are secured from falling down, should a slight fresh occur or high winds and waves, or a boat run against them, by a retaining bar at the back; the bar is moved with a lever, as shown in the drawing; this is shown engaged, and, to disengage it, the lever is [illegible] into a groove built in the pier or abutment to receive it, and is then clear of the end of the shutter; the shutter will be ready to fall, and will fall if the water is topping it. The bar is made of 1" square iron; the lever will be level with the top of the abutment or pier, and will form no obstruction to the river; an additional length of lever with a socket head made to ship on the end of the lever will give power sufficient to move a bar 200 feet long.

If the shutters are used in such a length that it would not be possible to manipulate a retaining bar so long, then a simple hook to each shutter would secure them; but this must be removed a few days before the fresh comes down when all drift, &c., should be cleared away so that the shutters would be certain to [illegible] at once when the water rose to the proper height.

The main beam should be placed up very true, so that the shutters fit and form a close joint on top of them, and the shutters fitted to each other in the following manner:—The shutters after being squared off at the ends and fixed in the upright position, a good sharp saw should be worked from top to bottom, thus making a tight fit, and at every fourth or fifth shutter, the end of which should be cut a little tapering, a wedge from top to bottom to tighten the end joints: these wedges can be removed in a few days.

I would recommend the above plan, if tight joints are required, but the wedges must be removed a few days before the freshes may prevent the shutters falling; the removal of the wedges one at each [illegible] will be sufficient to ensure the whole line falling when required.

To raise the shutters, the weir lascars [illegible] back of them, and all take hold of the top of the shutters and gently lift together, until top is above water: when all will lift smartly, the pressure of water against the lower part of the shutter will assist to put it into the upright position: no difficulty has been found to lift them into position with 6 or 8 feet of water running over them.

The timber beams can be dispensed with if good cut-stone is used, and close joints are made in the top course of the annicut. The Panchcoorah Annicut is built of brick.

C. FOURACRES,
Executive Engineer, Dehree Workshop Division.

All communications should be addressed to the Secretary.

No. 285 I.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

IRRIGATION.

To

The Acting Joint Secretary to the
Government of Madras
Public Works Department.

Simla 12th July 1871.

Sir,

I am directed to forward herewith copies of a plan and specification of a shutter for weirs designed by Mr. C. Soura Executive Engineer of the Dehree Workshops, and to state that it has been introduced with advantage on weirs in Bengal.

I have the honor to be,
Sir,
Your Most Obedt. Servt.

H. W. Ramsay Col. R.E.
Offg. Deputy Secretary to the Govt. of India.

Public Works 1871 Department

No 3162

From

The Government of Be.

P. W. D.

Date'd 12th July
Rec'd 20th do } 1871

Enclos'd. No 2854.

Subject

Forwarding a pa
and specification of a chatta
for weirs designed by Mr. E
Fenwick the Executive Engr
of the Dehree Workshops, and
stating that it has been
introduced with advantage
on weirs in Bengal.

No 3139 - 12th Dec 1871
W Ravi order

Provincial that the plan of a chatta
with specification &c. &c. referred to in
Dehree Engineer's No. 3139 dated 12th
September 1871 be submitted for the sanction
of the Government of India.

To
The Secretary
to the Chief Engineer
for Irrigation
Lahore

Lahore 14th Nov 71.

Chief Engr's No 2354 dated 23rd
Nov 1871

Cp-3442

Govt. of Madras 1871

PUBLIC WORKS.

To The Superintending Engineer.

Dated.

Read.

12th Decr 3139.

Nos. 2254 2256

Weirs. Plan & Specifi-
cation, ~~Forwarded~~ by the
Supt. Weir, of a Standing
Low Weir designed by Sr.
Cushny. Forwarded by the
Deputy Workshop Order
to be lithographed for
the Superintending Engineers