

1880.

VICTORIA.

WOODS' AUTOMATIC CONTINUOUS BRAKE.

RETURN to an Order of the last Parliament,
Dated 13th May 1880, for—

AN OFFICIAL REPORT showing the action of "Woods' Automatic Continuous Brake," its value to the Department, and the cost to date in experiments on the same.

(*Mr. Nimmo.*)

Ordered by the Legislative Assembly to be printed, 26th October 1880.

SCHEDULE OF DOCUMENTS ATTACHED.

- A. List of questions put to the Locomotive Superintendent by the Honorable D. Gillies.
- B. Report of Locomotive Superintendent replying to above questions.
- C. Tracing showing the character of the Brake.
- D. Statement of cost of Drawings, Models, &c.
- E. Further questions put by the Honorable D. Gillies.
- F. Report of Locomotive Superintendent replying to further questions.

A.

1. What was the first intimation received by the Locomotive Superintendent about the proposed introduction on the Victorian Railways of the brake known as "Woods' Patent Brake"? The nature of the intimation, whether verbal or written, and the date?

2. Were all the necessary drawings and details for making "Woods' Patent Brake" furnished to the Locomotive Superintendent before he commenced to make the brake, and if so, by whom; or was a model or were patterns supplied to him by the inventor?

3. If neither drawings, nor a model, nor patterns were supplied, what was the exact information given to the Locomotive Superintendent to enable him to proceed with the manufacture of the brake?

4. Did the Railway Department make either drawings, model, or patterns; and if so, by whom were such made, and under whose directions, wholly or in part, and at what cost?

5. Was the "Woods' Brake," as originally made in the loco. shops, the same in all respects as it now is; and if not, what are the alterations which have been made? Were these alterations made as the result of a series of experiments in the loco. shops; if so, by whose directions were these experiments made, and at whose suggestions were the alterations adopted from time to time? What was the cost of these experiments and alterations?

6. Was the power used in applying the brake in the first instance the same as that which is now used, and was it applied in the same way? If any alterations have been made, describe them fully, and state how often alterations have been made, at whose suggestion, and at what cost?

7. What has been the whole cost of all the drawings, models, patterns, alterations, and experiments made by the Railway Department in bringing the Woods' brake to its present state? Show the time of the various officers that was occupied during the making of the brake, including the experiments and alterations; and give the cost of each of the items separately, if possible.

8. What is the cost of making and applying the Woods' brake in its present shape, per carriage and per engine, apart from the cost of the items referred to in question No. 7?

9. On what lines has this brake worked, and on what lines is it now working?

10. Under what circumstances is it now working, on passenger, goods, or mixed trains?

11. What are the rules issued with reference to the working of the brake?

12. Describe the character and action of the brake.

13. Give particulars of the experience of the Department as to its working.

(Signed)

D. GILLIES.
26/5/80.

[Approximate Cost of Paper.—Preparation, £5 5s. 0d.; Printing (775 copies), £3 10s. 0d.; Total, £8 15s. 0d.]

WOODS'S CONTINUOUS HYDRAULIC RAILWAY BRAKE

Scale - $\frac{3}{8}$ inch to 1 foot.

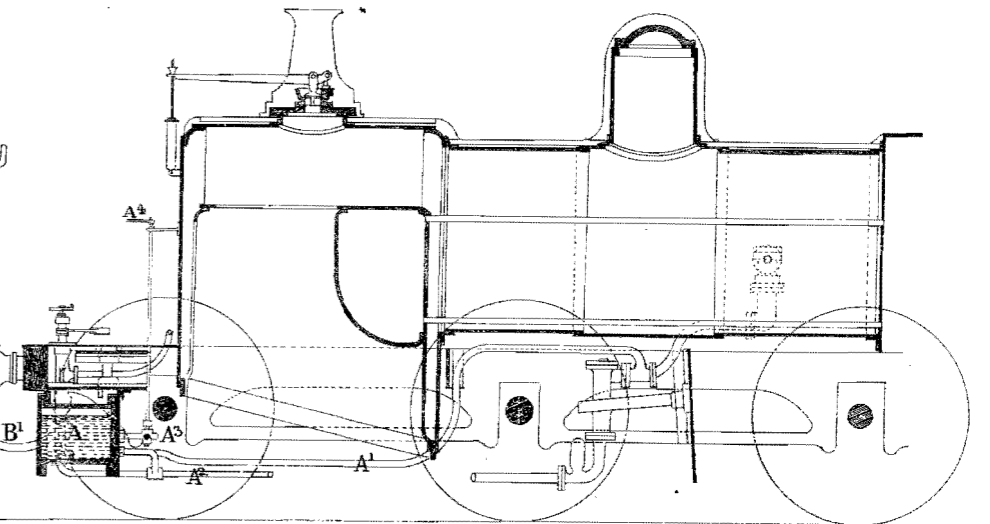
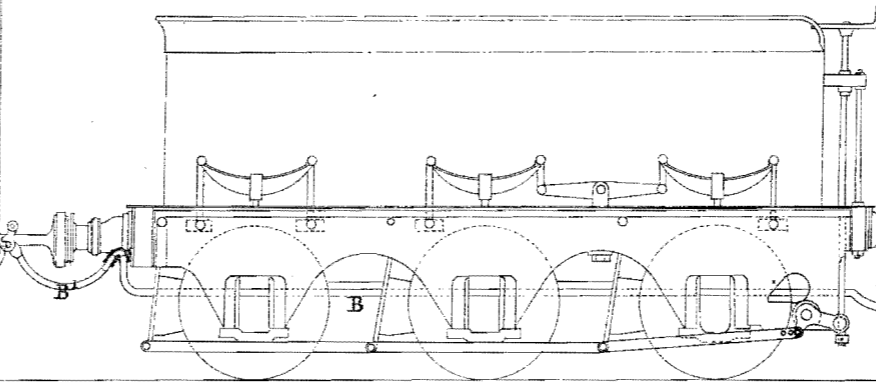
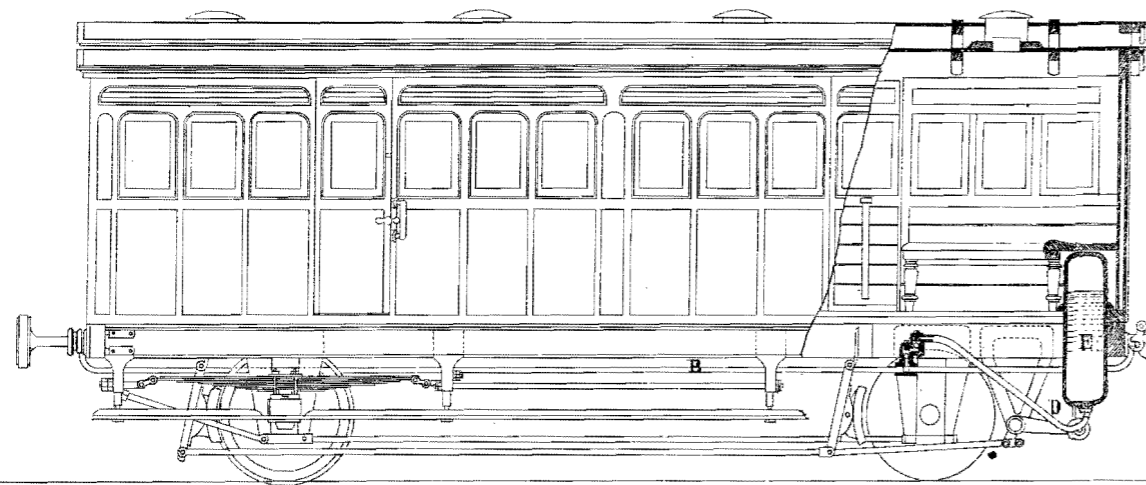


Fig. 1.

Fig. 1

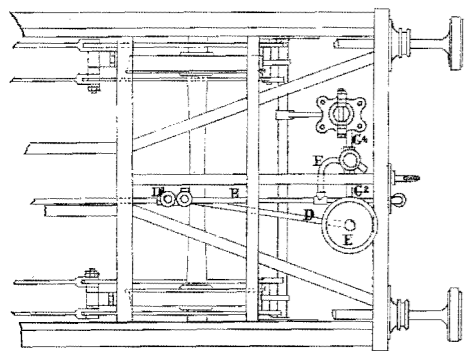


Fig. 3.

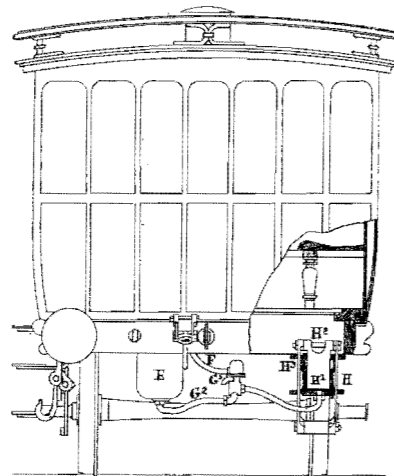


Fig. 2.

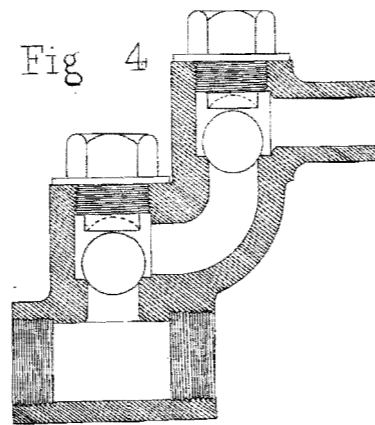


Fig 4

DOUBLE CHECK VALVE
 $\frac{1}{2}$ Full size

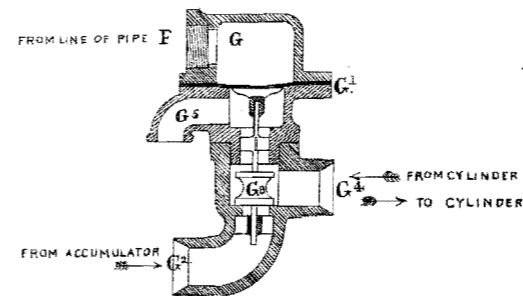


Fig 5

SELF ACTING REVERSING VALVE
 $\frac{1}{4}$ Full Size

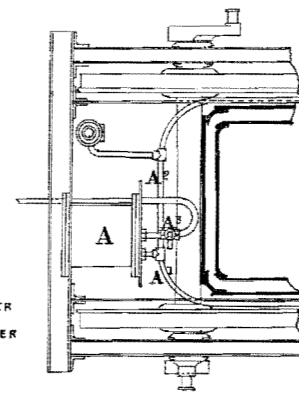


Fig 6

B.

Victorian Railways, Locomotive Superintendent's Office,
Melbourne, 29th May 1880.

SIR,

In deference to your request of the 26th instant, that I should answer the questions put in writing by the Honorable the Commissioner of Railways *re* "Woods' Automatic Continuous Brake," I have the honor to state—

1. The first intimation was about July 1877. Mr. Woods spoke to me in his office respecting the deficiency of brake power upon the Victorian Railways, and called attention to what was being done in other countries upon the subject. He showed me a drawing of a patent he had obtained in Victoria of hydraulic signalling in mines, and had a long conversation respecting its adaptation (in principle) to railway brakes; the specification of the said patent included the adaptation to brakes to railway trains. Mr. Woods had subsequent conversations with me respecting the details, and made rough pencil sketches; he also described some details to Mr. Jackson, shop foreman, in my presence. Mr. Woods instructed me to fit up two carriages upon his principle, and stated that I was not to exceed £100 expenditure, and that if it were not successful he would recoup the amount out of his own pocket.

2. Not beyond what is stated in reply to No. 1 question.

3. Answered in No. 1.

4. The Department made the detail drawings by Mr. Ramsay, working draftsman, under directions of shop foreman, with my instructions. The cost is included in the return herewith furnished in answer to No. 7 question.

5. The principle is the same, the brake-blocks and rigging being altered to suit the different classes of carriages, including the American cars. No experiments were made in the workshops beyond what is quoted below.

6. The two first carriages were tried by direct power from the boiler, but the power was immediately altered to cold pressure from the force-pump prior to any trial trips on the lines. The alterations made were to save the escape water at engine to run back in the tank, and a cock introduced at the reversing-valve at each carriage instead of a lever and weight. No difference in cost. Also a double-check valve instead of a single one on line of piping.

7. *Vide* attached return in detail from Accountant.

8. Messrs. Wright and Edwards, engineers, Melbourne, supplied twenty sets carriage gear complete, under contract, at £37 19s. each; to this must be added the cost of fixing by the Department, which I estimate at £5, making a total cost per carriage, £42 19s. The portion of this due to the patent would, I estimate, be under £20. The tank engines cost £22 4s.

9. Melbourne and Sandhurst, Geelong and Ballarat, Williamstown, Essendon. It is now running on the Main line, the Williamstown, and the Essendon line. Upon all trains on the latter lines.

10. Passenger trains alone.

11. No rules have been issued to the drivers. Verbal instructions were given to the drivers that first worked the brake.

12. See tracing attached.

13. The brake has been working satisfactorily.

(Signed)

S. MIRLS.
29/5/80.

The Secretary.

D.

WHOLE COST of all Drawings, Models, and Patterns in connection with Woods' Brake from commencement, July 1877 to 1st May 1880.

				Days.	Hours.	Rate per Day.	£	s.	d.	
1877.	July 29.	Ramsay, A.	... Drawings for Brake—Carriages	...	12	3	12/	7	8	6
	"	Hird, W.	... Pattern-maker "	...	14	6	12/6	9	4	5
	"	Hiddle, D.	... " " "	...	12	0	12/	7	4	0
	August.	Ramsay, A.	... Drawings " Carriages 39 and 60 B	...	1	6	12/	1	1	0
	"	Hird, W.	... Pattern-maker " "	...	12	6	12/6	7	19	5
	"	Hiddle, D.	... " " "	...	2	5½	12/	1	12	3
	Sept.	Ramsay, A.	... Drawings " Carriages	...	4	7½	12/	2	19	3
	"	Hiddle, D.	... Pattern-maker " "	...	15	7	12/	9	10	6
	Oct.	Ramsay, A.	... Drawings " "	...	10	2	12/	6	3	0
	"	Hird, W.	... Pattern-maker " "	...	12	4½	12/6	7	17	0
	"	Hiddle, D.	... " " "	...	19	5½	12/	11	16	3
	Nov.	Ramsay, A.	... Drawings " "	...	1	6	12/	1	1	0
	Dec.	Ramsay, A.	... " " "	...	3	7	12/	2	6	6
	"	Hird, W.	... Pattern-maker " "	...	0	4½	12/6	0	7	0
	"	Hiddle, D.	... " " "	...	0	2½	12/	0	3	9
1878.	Jan.	Hiddle, D.	... " " "	...	0	6½	12/	0	9	9
	"	Ramsay, A.	... Drawings " Vans and Engines	...	18	3	12/	11	0	6
	"	Hird, W.	... Pattern-maker " Engines	...	2	4	12/6	1	11	3
	"	Hiddle, D.	... " on gear " "	...	21	0½	12/	12	12	9
	Feb.	Hird, W.	... " " Carriages and Engines	...	9	1½	12/6	5	14	5
	"	Hiddle, D.	... " " Carriages	...	16	4¼	12/	9	18	5
Carried forward							...	£118	0	11

D.—WHOLE COST, &c.—*continued.*

1878.						Days.	Hours.	Rate per Day.	£	s.	d.
		Brought forward		...	...				118	0	11
March	Ramsay, A.	...	Drawings for Brake—	Carriages	...	0	5½	12/	0	8	3
"	Hiddle, D.	...	Patterns	Engines	...	5	1½	12/	3	2	3
"	Hird, W.	..	"	"	...	1	0½	12/6	0	13	3
April	Hird, W.	...	"	"	...	9	3	12/6	5	17	2
"	Hiddle, D.	...	"	"	...	12	7½	12/	7	15	3
May	Hird, W.	...	"	Carriages	...	5	6¼	12/6	3	12	3
June	Hiddle, D.	...	"	"	...	0	4	12/	0	6	0
July	Hiddle, D.	...	"	Carriages and Engines	...	11	7¾	12/	7	3	8
August	Hiddle, D.	...	"	Engines	...	2	6½	12/	1	13	9
Sept.	Hird, W.	...	"	"	...	2	3½	12/6	1	10	6
Oct.	Hird, W.	...	"	"	...	0	4½	12/6	0	7	0
Nov.	Hird, W.	...	"	Carriages	...	6	2½	12/6	3	18	11
Dec.	Hird, W.	...	"	"	...	7	0½	12/6	4	8	3
1879.											
Feb.	Hird, W.	...	"	"	...	1	0½	12/6	0	13	3
March	Hird, W.	...	"	"	...	2	1	12/6	1	6	7
April	Hird, W.	...	"	"	...	1	0½	12/6	0	13	3
May	Hird, W.	...	"	Engines	...	2	1	12/6	1	6	7
August	Hird, W.	...	"	Carriages	...	0	6¾	12/6	0	10	7
"	Hiddle, D.	...	"	"	...	2	6½	12/	1	13	9
Oct.	Hiddle, D.	...	"	"	...	4	3	12/	2	12	6
"	Hird, W.	...	"	"	...	9	0½	12/6	5	13	3
Nov.	Hird, W.	...	"	"	...	1	0½	12/6	0	13	3
"	Hiddle, D.	...	"	"	...	1	0½	12/	0	12	9
"	Wood, Screws, &c., in making Patterns, say	...			...				5	0	0
									£179	13	2

E.

MEMO. FOR LOCO.

See Motion by Mr. Nimmo, attached. Loco. to answer such portions as may not be included in answers to other queries.

Also, Loco. to produce any pencil sketches as well as finished drawings.

What experiments were made outside the Railway workshops in trial trips, &c., and at what expense?

To how many engines was the brake applied?

(Signed)

D. G.

23/6/80.

F.

Victorian Railways, Locomotive Superintendent's Office,
Melbourne, 25th June 1880.

SIR,

In reply to further questions by the Honorable the Commissioner of 23rd instant, quoted below, I have to state—

Its value to the Department.—It enables the suburban passenger trains to keep time and run at higher speeds than formerly and with greater safety; it has saved several lives and collisions; it enables the speeds of trains to be controlled in descending the steep inclines on the main trunk line.

The cost to date in experiments on same.—Beyond what is quoted in reply to question No. 6, I know of no experiments in the workshops.

Produce any pencil sketches as well as finished drawings.—The pencil sketches were mostly explanatory sketches made in Mr. Woods' office. I cannot produce them; they were not preserved.

What experiments were made outside the Railway workshops in trial trips, &c., and at what expense?—Two trial trips were run in 1878, one on the Geelong line, and one on the Main line, for which the Traffic Branch charged £25 each. Speaking from memory, I think there was another run upon the Main line as far as Keilor Road with the first two carriages.

To how many engines was the brake applied?—The number of engines to which the brake was applied at date of questions 26th May 1880 were:—Suburban tank engines, nine; Main line passenger engines, to work carriages only, eight; Main line passenger engines to work engine as well as carriages, five. The two former retain the ordinary screw brake, and the latter retains its ordinary tender brake.

(Signed)

S. MIRLS,

Loco. Superintendent.

25/6/80.

The Secretary.