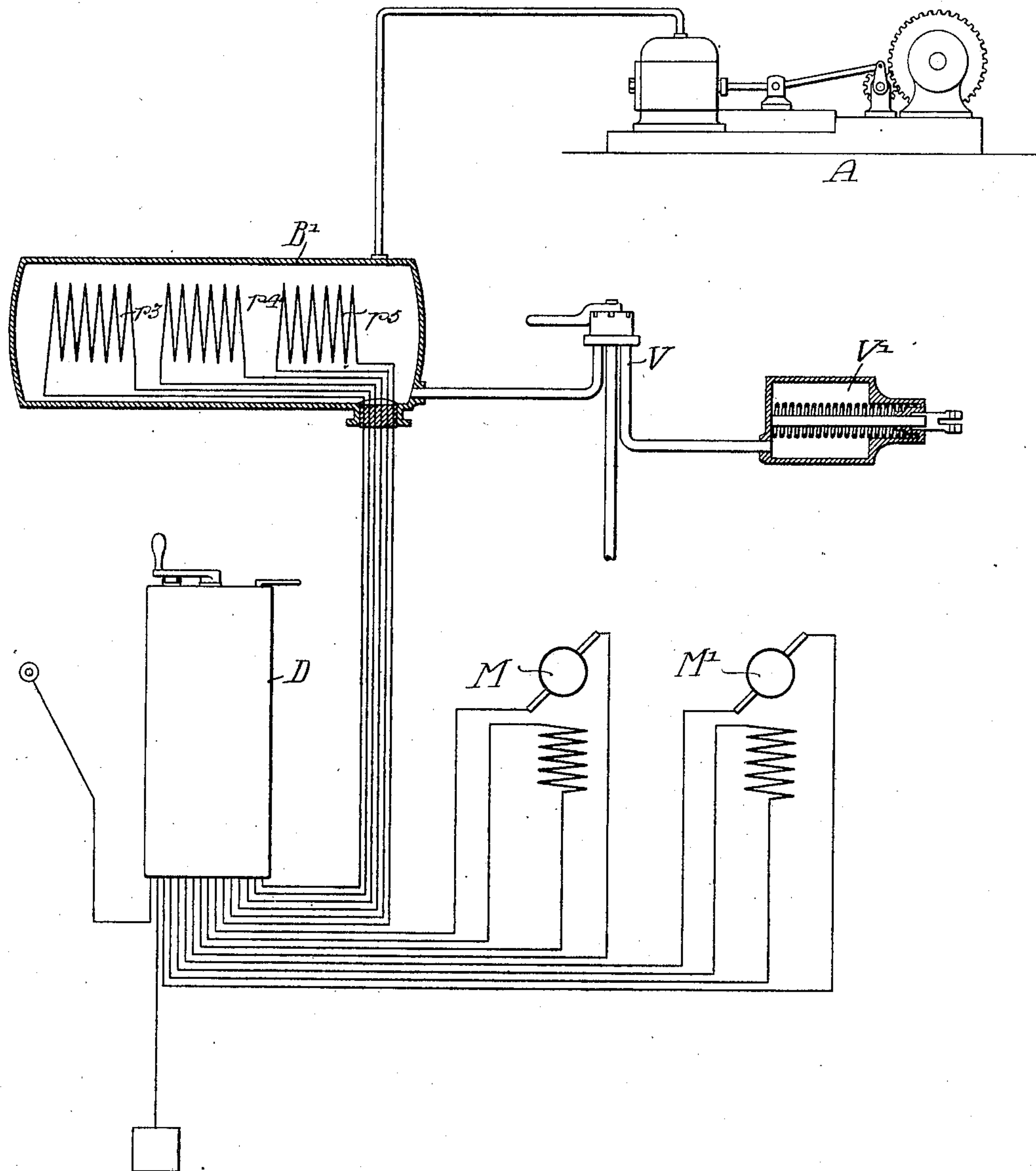


No. 827,515.

PATENTED JULY 31, 1906.

A. C. EASTWOOD.
COMPRESSED AIR POWER APPARATUS.
APPLICATION FILED JULY 6, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR C. EASTWOOD, OF CLEVELAND, OHIO.

COMPRESSED-AIR POWER APPARATUS.

No. 827,515.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed July 6, 1905. Serial No. 268,497.

To all whom it may concern:

Be it known that I, ARTHUR C. EASTWOOD, a citizen of the United States, residing in Cleveland, Ohio, have invented certain Improvements in Compressed-Air Power Apparatus, of which the following is a specification.

The object of my invention is to provide a new and useful system for increasing the efficiency of systems employing apparatus operated by compressed air as well as electrical apparatus of such a nature that it generates considerable heat, this end being secured by employing the heat generated by the electrical apparatus and usually permitted to go to waste for the purpose of raising the temperature of air while this is confined in a reservoir under pressure prior to its use. This object I attain as hereinafter set forth, reference being had to the accompanying drawing, in which the figure is a diagrammatic view illustrating one application of my invention.

In carrying out one application of my invention in order to produce a very considerable increase in efficiency I employ it in connection with the air-brake system on electrically-operated cars and locomotives. For this purpose an air-compressor is employed ordinarily operated by power derived from the line, the air being compressed and delivered to a storage tank or receiver and the compressor being automatically stopped when the pressure in the receiver reaches a predetermined maximum and again started when the pressure has dropped to a predetermined minimum.

With most railroad systems at present in use the control of the speed of the driving-motors of the locomotive or car is almost universally effected by means of a resistance in circuit with the motor-windings, there being a very considerable amount of heat generated in this resistance, which heat is generally wasted.

According to my invention I utilize all or a portion of this waste heat by inclosing any desired amount of the controlling resistance within the receiver or reservoir of the air-brake system, as shown in the drawing herewith, in which A represents the compressor, and B' the receiver, in the latter of which are

inclosed several banks of controlling resistance r^3 r^4 r^5 for the car-motors M and M', the controlling-valve for the air-brake system being shown at B and the brake-cylinder being illustrated at B'. The motors are operated in any desired manner by means of a controller D.

It will be seen that under operating conditions heat from the resistance (generated when the motors are being started or operated at slow speeds) is communicated to the air in the receiver, thereby increasing its pressure while maintaining it at a constant volume, and consequently decreasing the amount of work which must be done by the compressor to maintain a mean pressure in the receiver. As a consequence of this arrangement of apparatus a materially smaller compressor may be employed for a given service with a consequent smaller demand for power from the source of power-supply.

I claim as my invention—

1. The combination of a compressed-air motor, a source of supply for compressed air, an electric motor, means including a body of resistance for controlling said motor, and means for causing the air from said source of supply to be heated by said resistance before it passes through the air-motor, substantially as described.

2. The combination of a compressor, a reservoir for compressed air, a compressed-air motor, an electric motor, and means including a body of resistance for controlling the operation of the electric motor, said resistance being placed to heat the compressed air in said reservoir, substantially as described.

3. The combination of the electrical driving apparatus of a car, with air-braking apparatus, certain of said electrical apparatus being placed to deliver heat to the air of the braking apparatus after the compression and before the use of said air, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR C. EASTWOOD.

Witnesses:

WM. E. SHUPE,

JOS. H. KLEIN.