

Locomotive Alarm Bell.

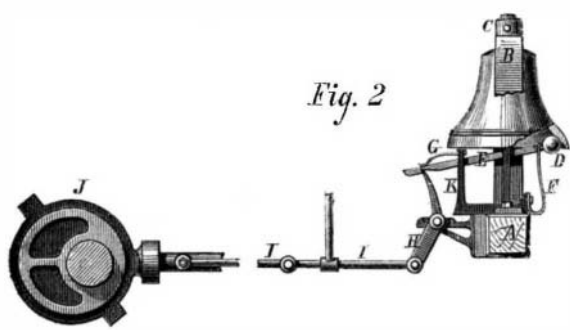
The accompanying engraving represents a continuous ringing or sounding alarm bell, placed on the front beam of a locomotive engine, for the purpose of warning persons about to cross the railroad, or who may be in its vicinity. The bell, it will be seen by the engraving, is so attached that when the engine goes, the bell rings, being struck by the hammer once at each revolution of the driving wheels. Being placed directly in front of the boiler, the ringing or sound of the bell is seldom heard by the engineer or fireman on the engine, and cannot be heard on the train; consequently it is no annoyance to passengers, while, it is claimed, its position causes the sound to be thrown forward, and conducted, by the earth and the railroad track or rails, so that it can be heard a considerable distance in advance of the train, thus giving timely warning.

The inventor, Mr. B. Briscoe, Mechanical Superintendent of the Detroit and Milwaukee Railroad and Steamship line, writes us that these bells have been placed on the engines of that road, 34 in all, and he has no doubt but that it has prevented many accidents, and perhaps saved many lives. He says that during the two years the alarm has been used, "we have not struck a team or vehicle of any kind at or near a crossing, while such accidents (though not frequent) did occur, and, in some cases, loss of life and valuable property resulted before the alarm was brought into use."

The General Superintendent of the road also speaks in high terms of the value of the invention, and states that they are now on trial by some other roads. He thinks the recent terrible accident on the Eastern road would have been certainly prevented by its use.

Upon examination of the invention, we concur in these opinions, and have no doubt that both railway companies and the public would be benefitted by its general introduction, in the diminution of the number of accidents, and in the simplification of litigations arising therefrom. It is often the case in suits arising from railway accidents that there is a disagreement on the part of witnesses as to whether the bell was ringing at the time or not. The application of this improvement would settle all doubts arising from such conflict of testimony, and thus benefit companies, while the certainty of the alarm would prevent accidents arising from neglect.

Fig. 1 is a perspective view of a locomotive with the alarm attached. Fig. 2 is a diagram showing the details of construction.



A represents the front beam of the locomotive, upon which is properly secured the yoke, B, to which the bell is suspended in the following manner: The shank of the bell is turned off smoothly, and inserted through a hole through the top of the frame, which hole is bored to fit the shank of the bell closely, and, at the same time, not so tightly as to prevent the bell from being rotated.

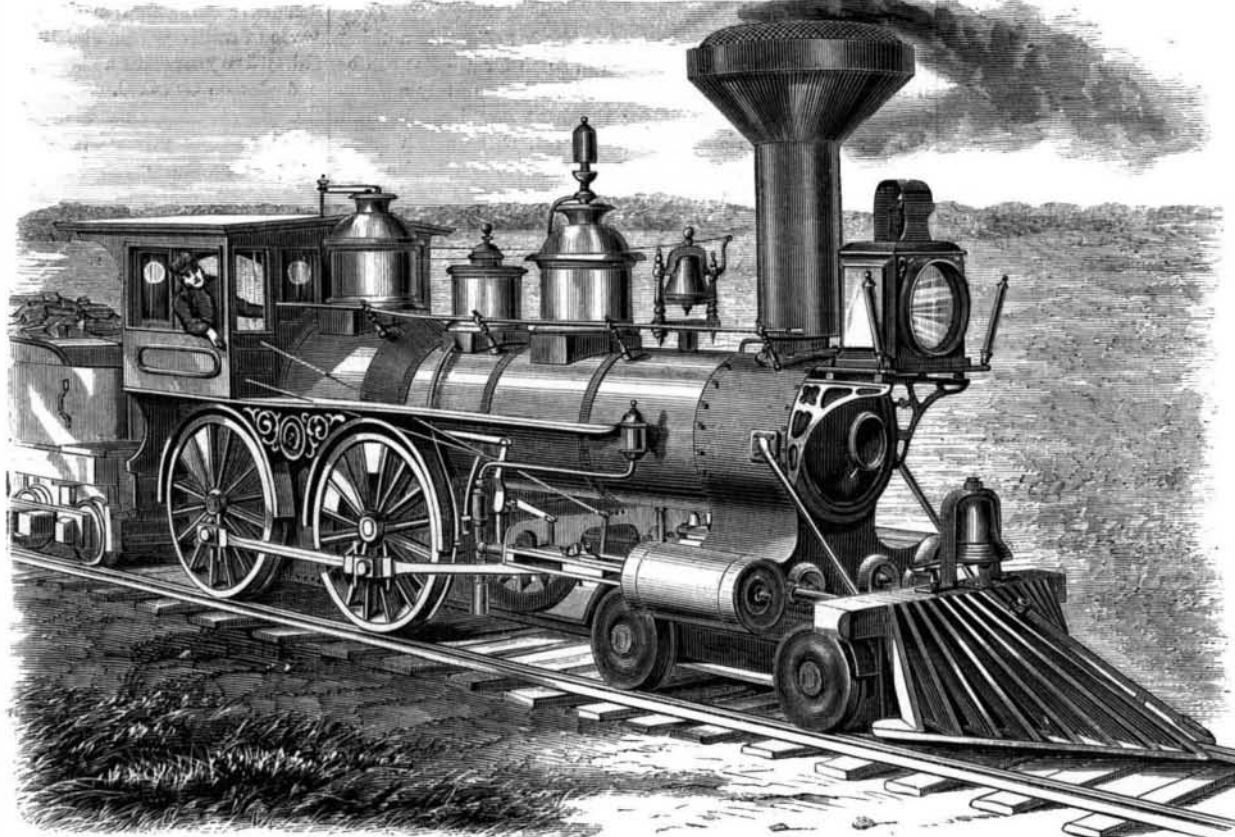
The top of the shank is provided with a proper nut, C, by means of which it is held in the yoke, and which rests upon a metal washer, which, in turn, rests upon a rubber washer, placed on the top of the frame and surrounding the shank. By this means the bell is secured in a vertical position, allowing it no motion but a rotary one about its vertical axis. A hammer, D, is attached to the lever, E. This lever is sustained by the two vertical guides, K, and is actuated by a spiral spring, F. The lever is also held in position by the spring, G, which prevents it from being thrown out of place by the lever, H, which is pivoted to a bracket, and has its lower end pivoted to the connecting rod, I, which receives reciprocating motion from the revolution of the eccentric, J.

The hammer may be so placed as to impinge against the outer or inner side of the bell, as desired. In either case it is secured, in a position out of the line of the center of the bell, in such a manner that each stroke of the hammer will rotate the bell a little distance.

The locomotive being in operation, the revolutions of the

eccentric communicate a rocking motion to the lever, H, by means of the connecting rod. The upper end of this lever engages with a notch on the lower side of the lever, E, thereby withdrawing the hammer head from the side of the bell, and compressing the spring, F. The lever, E, being thus withdrawn, is slightly elevated, in the shorter guide, by the lever, H, and the latter is disengaged from the notch in the lever, E, which is instantly forced down by the spring, G, when the recoil of the spring, F, throws the hammer violently forward against the bell.

A constant and positive action is thus secured; the appara-

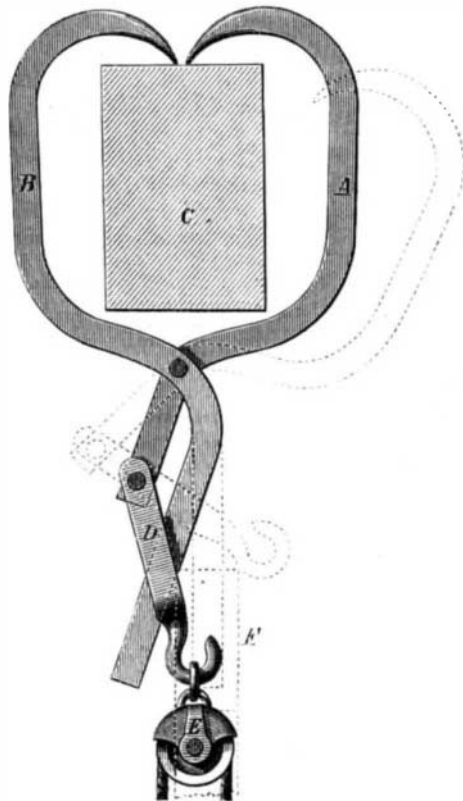
**BRISCOE'S LOCOMOTIVE ALARM BELL.**

tus, interfering in no way with other working parts of the locomotive, is so placed as to be out of the way, while its position is favorable to throw the sound in advance of the train.

Patented March 2, 1869. For further information address Benjamin Briscoe, care Detroit and Milwaukee Railroad Company, Detroit, Mich.

BEBOUT'S RAFTER HOOK.

This invention is intended to supply a simple, easily attached, and readily detachable rafter hook, for the support of the tackle of horse hay forks, steelyards, and, in general, for any purpose to which such a device can be conveniently



applied. Farmers and owners of warehouses will at once see the convenience of the improvement, upon perusal of the accompanying description.

Referring to the engraving, A represents a jointed hook bar, and B a similar bar, not jointed; C is the section of a rafter, joist or beam, to which the apparatus is attached, and D is a short bar, pivoted or jointed to the hook, which, together with the hook bar, constitutes the jointed hook bar lettered A. E is a sheave over which the rope is passed for the suspension or elevation of the object to be supported or raised. F is a pole shown in dotted outline. Into a socket in the end of this pole, the shank or lower end of the hook bar, B, enters, when it is desired to put up or take down the apparatus.

Pushing up on this pole disengages both the hook bars from the timber, and they then assume the position shown in the dotted outline. Reversing the operation attaches the apparatus, when the pole may be taken away until it is required to move the hook to some other part of the building.

This invention was patented through the Scientific American Patent Agency, August 8th, 1871, by John Newton Bebout of Oberlin, Ohio, who may be addressed for further information.

Students do not Sleep Enough.

It has become common for the students in our principal colleges to publish weekly, monthly, or quarterly journals, the matter being supplied principally by the students themselves, and relating to college affairs. Some of these are very creditable in character. Among the most respectable is *The Williams Vidette*, from which we copy the following caution:

"Students, as a class, do not sleep enough. There is no law so fundamental and imperative on the student, as the law which requires him to sleep, and no other law does he so systematically and recklessly ignore.

"It is a popularly accepted fallacy that students and literary men do not require as much sleep as mechanics and laborers. Physiology shows us that, during the operation of the intellect, rapid changes of tissue take place, and that a few hours of close application to thought and study exhaust the system more than two or three times the same period devoted to manual labor. It is evident, then, in

order to compensate for this greater waste of tissue, that the brain worker will require more sleep than the muscle worker.

"In the violation of this first great hygienic commandment is found the secret of most of the special diseases to which the student is liable. To this cause can be traced the eye affections that are so common. By neglecting to obtain sufficient rest, the system becomes relaxed and its tone lowered, thereby inviting disease, of which these organs, being especially overtaxed and weakened, are the first to become sensible.

"Anything, therefore, which is intended to increase our facilities for sleeping, is of the highest importance and interest."

What Railway Dust is Composed of.

Mr. Joseph Sidebotham has made a microscopical examination of dust blown into a railway carriage near Birmingham. He says: "I spread a paper on the seat of the carriage, near the open window, and collected the dust that fell upon it. A rough examination of this, with a two thirds power, showed a large portion of fragments of iron, and, on applying a soft iron needle, I found that many of them were highly magnetic. They were mostly long, thin, and straight, the largest being about 1-150th of an inch, and, under the power used, had the appearance of a quantity of old nails. I then, with a magnet, separated the iron from the other particles.

"The weight, altogether, of the dust collected was 57 grains, and the proportion of those particles composed wholly, or in part, of iron was 29 grains, or more than one half. The iron thus separated consisted chiefly of fused particles of dross or burned iron, like 'clinkers'; many were more or less spherical, like those, brought to our notice by Mr. Dancer, from the flue of a furnace, but none so smooth; they were all more or less covered with spikes and excrescences, some having long tails, like the old 'Prince Rupert's drops'; there were also many small, angular particles like cast iron, having crystalline structure.

"The other portion of the dust consisted largely of cinders, some very bright angular fragments of glass or quartz, a few bits of yellow metal, opaque, white, and spherical bodies, grains of sand, a few bits of coal, etc.

"After the examination of this dust, I could easily understand why it had produced such irritation; the number of angular, pointed, and spiked pieces of iron, and the scoriae, or clinkers, being quite sufficient to account for the unpleasant effect.

"I think it probable that the magnetic strips of iron are laminæ from the rails and tires of the wheels, and the other iron particles, portions of fused metal, either from the coal or from the furnace bars. The large proportion of iron found in the dust is probably owing to the metal being heavier than the ordinary dust, and accumulating in cuttings such as those between the two stations named.

"If I had to travel much by railway through that district, I should like to wear magnetic railway spectacles, and a magnetic respirator in dry weather."

TEMPTATIONS are enemies, outside the castle, seeking entrance.