

SPARKS.

Observations and experience tend to prove that to secure the best results in both transmission and endurance, the diameter of pulleys for wire ropes should be from fifty to a hundred times the diameter of the ropes.

One of the most remarkable discoveries of modern times, says Metal, and one whose use it is hardly possible to foresee at the present time, is the fact that vacuum practically cuts off the transmission of heat. Radiant heat has long been supposed to follow laws similar to light and to be transmitted through space in the same way. The fact that heat does not radiate from a high vacuum works a revolution in one department at least of theoretical science.

In a recent number of Engineer a course of interesting applications of a dynamo to a centrifugal pump was shown. The pumps are shown in series. That is each centrifugal delivers into the one next beyond it and so on, there being four in all. The dynamo is placed on the same shaft as the four pumps, with two on each side. The water is delivered to a height of 157 feet. The plan seems to have been devised and the work directed by M. Dumont, of Paris.

Ball bearings have recently been perfected to a wonderful degree. It is reported that a street car, which was equipped with the latest inventions in ball bearings, that would do away almost entirely with friction, was drawn a distance of several hundred feet by a single man tugging gently at three strands of ordinary sewing thread attached to the car. Perhaps a more interesting experiment was that of a carriage manufacturer in the west, who put another style of ball bearings upon the wheels of a large coach to which four horses were ordinarily hitched. Then he took a trained dog and harnessed and hitched him to the pole, when the dog drew a huge coach easily around the yard.

In view of the increasing number of fly-wheel accidents, Power asks if it would not be well in planning power plants, especially electric plants, to keep the vital and dangerous portions out of the plane of the engine pulleys? In the Lowell accident had not a large separator stood directly in the line of the wheel and received the impact of several large pieces, one of the boilers would have inevitably been unseated, with what additional damage and loss can only be surmised. Fortunately the flying fragments of a ruptured wheel will become confined to a narrow vertical plane, and this plane should be so situated with regard to the surroundings as to involve the least danger in case of accident.

In selecting indicator springs it is desirable to have them suited to the conditions of pressure and speed of engine. A good practice says the Stationary Engineer, is to use a stronger spring, for engines operated at a greater number of revolutions, than is the usual practice or as is generally determined by rules which were made before high speed engines became such an important factor as they are at the present time. A card received at this office a short time ago shows a greater initial than boiler pressure. The boiler pressure is 75 lbs. spring 40 and the height of diagram above the atmospheric line indicates 80 lbs. initial pressure: but then the lines of the card were so heavy that it would be difficult to make an average. A stronger spring would have overcome this difficulty and would have given a much closer approximation to the actual conditions existing. It is seldom necessary to make the height of card as much as 2"; a little less than this, say 1 3/4" is much better, especially on high speed engines.

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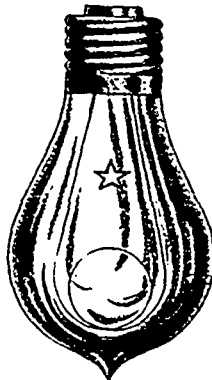
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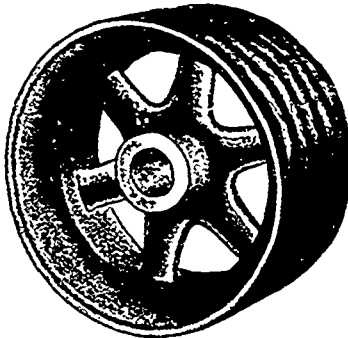
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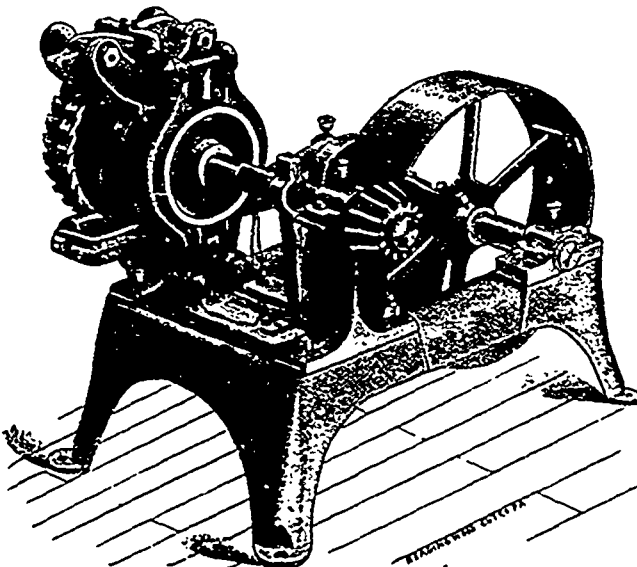
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