the buffing strains are taken care of by relatively light longitudinal center sills. The total weight of this car in working order fully loaded is 36 tons. The car is equipped with Westinghouse automatic brakes and the air compressor is of the axle driven type and mounted on the trailer truck.

The car is designed to maintain a speed of 35 miles an hour on level track, 24 miles an hour on a 1 per cent grade and 15 miles an hour on a 1½ per cent grade. The car is also capable of hauling a trailer at a speed of 30 miles an hour on a level track and 15 miles an hour on a 1 per cent grade. The fuel is to be coke and the consumption is not to exceed 16½ pounds per mile.

This is the first standard car of the Railway Auto Car Company which will be built and delivered in this country, and its performance will be watched by railway mechanical men with a great deal of interest.

Letters from Practical Mechanics

A Center Indicator

Editor, Modern Machinery:—

The accompanying sketch shows a home-made center indicator which does not take a great deal of time to make and yet answers the purpose as well as a more complicated one. The indicator is used to locate centrally a piece of work held on the face plate or in the chuck of a lathe, the work having a prick punch mark which is to be the center of the hole.

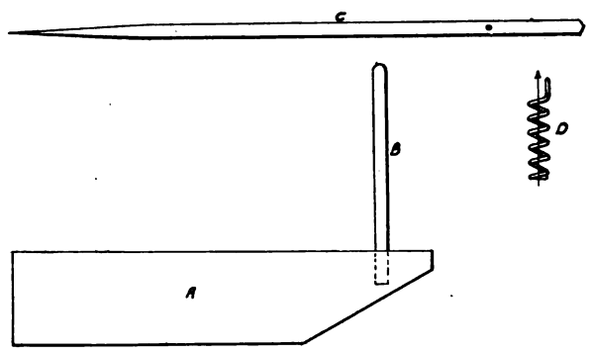
A is a shank of regular forged tool side and B is a round piece of stock of about 3-16 in., made to screw or press into A. C is the pointer or indicator 12 ins. long and 3-16 in. round. A hole is drilled 1½ ins. from the blunt end. To fasten the pointer C to rod B any coil spring will do being of the size stock as the small hole drilled in the pointer C and having one end of the spring wire straight to go into the hole in pointer C.

D is a coil spring.

The shank A is put in the tool post of the lathe and the spring D is forced over rod B, putting the spring over B as the arrow shows on spring D; this springs the coils apart and the spring grips the rod firmly. Then put the straight part of the spring in the hole in pointer C and the indicator is ready for business. After the blunt end of pointer C is engaged in the work the lathe carriage is moved toward the work, thereby making the spring tense and holding the pointer firmly to the work.

Yours truly,

C. J. S.

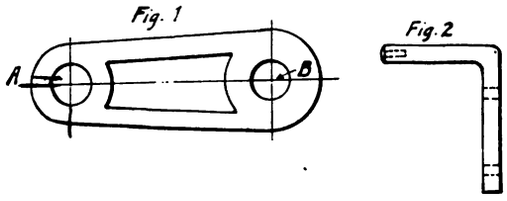


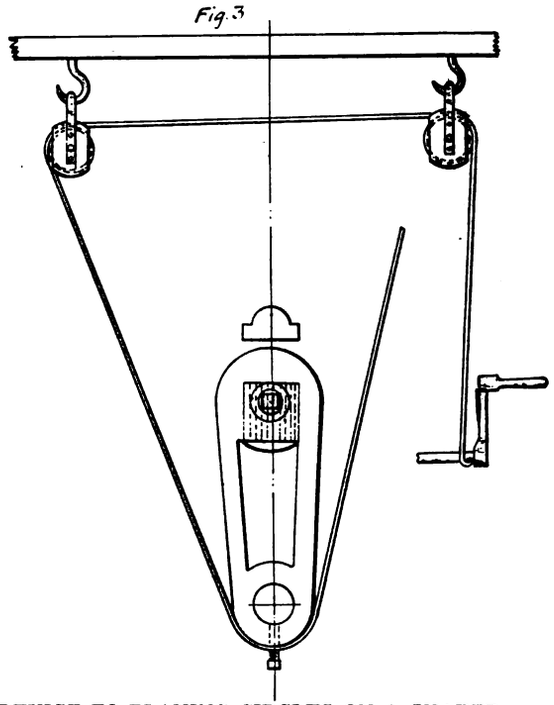
CENTER INDICATOR, FOR USE IN CENTERING WORK IN A LATHE.

Planing Circles on a Shaper

Editor, Modern Machinery:—

It was my good fortune to see a rig for planing circles on a shaper a few days ago. This arrangement was so ingenious and simple that I describe it for the benefit of those of your readers who may have occasion to use it in "their business." Fig. 1 (A and B) shows the casting to be planed. Fig. 2 shows a forging that is bolted on the front of the shaper table. A collar was made to fit tight (moderately) in the holes A and B, but loose on the forging bolted to the table. A small set screw was run in the oil holes leading to A and B and attached to the set screw in the loose end of the casting was a small wire cable leading to a couple of pulley blocks, fastened to the ceiling and leading down to the





DEVICE FO PLANING CIRCLES ON A SHAPER.

feed on the shaper and fastened to the feed bar. The cable wound around the feed bar as it revolved and pulled the fasting around at each stroke of the machine with the same precision as on a plane surface.

When one-half the circle was planed the cable was unwound and taken out of both blocks and passed up again through the block above the feed and the same

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QUESTIONS upon the design and construction of apparatus and the operation of power plants will be answered and discussed.

PRACTICAL HINTS from the shop and the engine room, useful information based upon practical experience and suggestions concerning improvements in apparatus and processes are especially valuable. Rough pencil sketches, helpful to an explanation, will be redrawn, if necessary, and presented in good form.

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CONTENTS

Speed or Feed

AMONG many shops there is a noticeable effort to increase the speed at which machine tools are operated for the purpose of attempting to increase the output of each machine and therefore improve the efficiency of the shop as a whole.

Careful investigation will sometimes show that while the speed at which a machine is operated is high, the depth of cut taken by the tool is comparatively light. To illustrate:—In a certain shop where the rapidity with which wheels were going around would indicate that high speed was the rule, an inspector was asked if feed was not being sacrificed in order to obtain high speed, and if on this account the output was not really lower at the high speed than it would be if the machines were operated at a lower speed and a heavier cut taken. The inspector agreed that this condition prevailed; but said that he was unable to make the management realize that a greater output could be obtained with a heavier cut and a lower speed.

This is a matter which requires careful supervision and it would seem that a series of tests operated to determine whether or not feed is being sacrificed in order to obtain speed would indicate to a certain extent the limit to which speed might be raised to advantage. Such an investigation would determine the economical speed at which a given machine might be operated for certain classes of work. Based on such tests a set of tables might be prepared and distributed for the benefit of the various operators.

While high speed is naturally approved of by all shop managements, this high speed should indicate rapidity of output rather than the rapidity with which the machine tool operates.

Savings from the Scrap Pile

WHILE the scrap pile should not be the pride of the shop, it is worthy of more attention than it receives ordinarily. The easiest way to dispose of material that may be removed from either locomotives or cars is to gather it up as scrap and sell it at scrap value; but in the process much usable material is wasted. At nearly every shop more or less usable material is disposed of at scrap prices regardless of its condition, for the reason that the man who is usually assigned to the duty of picking up scrap in the shop is not competent to determine and separate the usable from the unusable.

In order to separate the usable material from the unusable scrap and save the dollars that are in many cases being wasted, a man should be assigned to the inspection and loading of scrap material. At a small shop this man should be skillful enough to make repairs to a great many articles that find their way to the scrap bin, but which at a small expense could be repaired and serve as well as new material. To illustrate, a monkey wrench that is thrown in the scrap pile on account of the handle being broken could be repaired for a matter of five cents, placed in stock and given out on an order the same as