December 4, 1903.

## CASKEY PUEUMATIC PUNCH.

This device is another of the constantly increasing examples of the successful application of compressed air to practical uses. The first Caskey punch over built, while of crude design and entirely different from the finished product on the market to-day, actually punched 90 per cent. ket to-day, actually punched 90 per cent. Regarding the operation of the Caskey of the holes in two torpedo boat destroy-punch, the ball piston No. 4, carrying ers. It was not until two years later the tail rod or intensifier 15, is seen in

punch would pay for itself over and over in time and labor saved.

· Portability, speed, accuracy, lightness of weight, and convenience, are but a fow of the numerous advantages which it combines to a remarkable degree, and the fact has been demonstrated tipe and again that wherever it is cheaper to move the tool than the work-there the Caskey punch is invaluable.



McCaskey Pneumatic Punch-Sectional View.

market, and the interim was of course devoted to perfecting and improving This practice has been continued, them. until at the present day the Caskey punch stands, it is claimed, without an equal in its line.

The legitimate field in which it can be operated is, apparently, unlimited, but they are of particular value in the maof the engineer, foreman, or superinten-dent, numerous cases where a Caskey

## THE GRANBY SMELTER

Ore shipments from the Granby miues at Phoenix, B.C., are now being increased to the rate which is expected to be coutinued for months to come, namely, from 1,200 tons daily to 2,000 tons each 24 hours, and Canadian Pacific Railway officials are straining every effort to supply the dump cars and the motive power now six furnaces in blast at the company's smelter at Grand Forks, B.C., giving the works the maximum capacity of which they are capable until further contemplated enlargements are made-some time in the coming year. The mine equipment is fully capable now, with the two 30drill air compressors and two steam shovels, of haudling a daily tonnage up to 3,000 tons. At the smelter itself the improvements that have been made in the last few months have been many, so that the normal capacity, which has been to turn out blister copper at the rate of

that these machines were placed on the extreme rearward position, the extremity of the stationary hollow rod, 14, being at the approximate centre of the ball piston. When the piston begins its stroke, im-pelled by the constant air pressure from A, the rod 14 telescopes into tail rod 15, at once sealing all communication hetween the tail rod and the interior of the piston proper.

As the piston and rods 14 and 15 are chine shop, and a glance at the illustra- kept filled with oil, it will be apparent Ill., who invite correspondence regarding tion will undoubtedly bring to the mind that the entire air pressure back of the it; and they will have pleasure in sendpiston is concentrated upon the column ing illustrated catalogue containing com-of oil contained in rod 14, and the pas- plete description of it.

smelter include the two new water jacket furnaces, manufactured, as were the others, by the Allis-Chalmers Co., Chica-Three new Connellsville blowers about 700 men are employed. go, Ill. have also been added, thus providing one blower for each new furnace, with one in reserve for emergencies. The flue dust chamber has also been enlarged by 250 feet. In the electrical department the additions comprise one 25 h.p. motor in to handle this increased tonnage between the furnace room, for the purpose of the mines and the smelter. There are operating the additional automatic furnoperating the additional automatic furnace charging apparatus, of the type already in use at this smelter, and which were patented by the superintendent, A. B. W. Hodges; also three 100 h.p. motors to operate the blowers. The transformer capacity has been added to the extent of 1,100 b.p., affording a total of 1,700 h.p. trausformer capacity. This is for use only for the power furnished by the Cascade Water, Power & Light Co., the Granby Company having 1,100 h.p. developed in its own powerhouse on the river bank below the smelter. With these improvements the Granby smelter about a million pounds monthly, will be is now undoubtedly, with its stand of two it. increased now to a capacity of close to a copper converters, the largest copper million and a half pounds monthly. Be- smelter in the Dominion of Canada. As sides the slag hauling locomotives for there seems to be no trouble in regard to school building at Kippen, Ont., exploded, taking off the bot slag from the four of the supply of coke, it is expected that the six furnaces, the new additions to the the smelter will be able to operate inde- Loss about \$3;000.

sages leading to the punch ram chamber. Further, the volume of oil so moved at each stroke being just sufficient to depress the punch 36 the proper distance, as soon as hole is punched no further downward motion is possible. It will be clear that all jarring and undue strain on the parts are thus prevented, and a steady, yet positive action gained.

When the piston has completed its working stroke a slight turn of the valve 32, admits the air to the other end of the cylinder thus equalizing the air pressure on both sides of the piston ; but the area of the stationary rod 14 being less than that of the tail rod 15, the ball piston is. forced back in position for another stroke. A great saving in air consumption is effected by this arrangement, the same air being utilized to drive the piston in both directions.

Owing to the peculiar construction and arrangement of the ball piston and parts coacting therewith, it is impossible for any air to get into the high pressure passages, unless the oil level in piston is permitted to fall below the top of opening in the tail rod, when piston must be refilled at once. A great annoyance and drawback incident to the use of other hydropneumatic tools, is thus entirely eliminated

The materials used are the best obtainable, no expense being spared to make each part as nearly perfect for its purpose as possible. A special alloy of aluminum is used wherever suitable, thus reducing weight to a minimum.

This machine has recently been placed on the market by the Chicago Pneumatic Tool Co., 1010 Fisher Building, Chicago, Ill., who invite correspondence regarding

fuitely to its fullest capacity, requiring some increases in the working forces at both mines and smelter, where now

## A NEW MACHINE CO.

The Niagara Falls Machine & Foundry Co., Niagara Falls, Ont., is one of the comparatively new industries of Canada, and one which has made remarkable progress during the past year or so. The company have a thoroughly equipped foundry and machine shop, and while they do all kinds of work along these lines. they have recently turned their attention to the manufacture of heavy boisting engines, craues and similar ma-chinery. They have furnished nearly all the equipment of this kind required in the great work being done by the different power companies at Niagara Falls. Mr. O. D. Glasgow, a well-known business man, of Niagara Falls, is general mausger of the company, and is largely responsible for the remarkable success of

A gas tank in St. Andrew's Sunday

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