

wheel, 5 feet in diameter, which is keyed to a triple screw of 6 inches diameter. The fly-wheel is actuated by two rapidly-revolving discs which can be brought into contact with its leather-covered rim. One friction disc raises, and the other depresses the screw. The operator works the press by depressing a stirrup rod with his right foot. This action brings one of the friction discs into contact with the rim of the fly-wheel, and thus the required blow is given to the die. On the operator withdrawing his foot, a balance weight raises the stirrup, the other friction disc comes into operation, and the screw is raised. After the blow has been delivered, the height to which the screw shall rise is regulated by a brake adjustment; and having reached that height, it remains there until the stirrup is again depressed. In this press a blow may be given varying from a few pounds to about forty tons.

Each coinage die requires three blows from the punch before the impression received is sufficiently sharp in all its details. After each of the first two blows the die is annealed in the die furnace. After the third blow it is turned to the correct size, and then hardened and tempered; after which it is ready for use in the coining press. It is usual for a pair of dies to strike about 89,000 pieces before they are unfitted for further use.

#### MACHINE SHOPS.

*Repair Shops, etc.*—In the machine shop the following tools have been installed:

- One 14-inch by 72-inch Norton roll grinding machine.
- One Brown & Sharpe No. 13 universal grinding machine.
- One Brown & Sharpe No. 2 milling machine.
- One Bertram planing machine.
- One Barnes 21-inch drilling machine.
- One sensitive drill.
- One 16-inch gap lathe.
- One 14-inch Pratt and Whitney lathe.
- One shaping machine.
- One polishing spindle.

In addition to the above, fitters' benches, grindstone, power hack-saw, etc., have been installed.

The roll grinder and the planer are driven by their own motors, while the other machines are grouped.

An elevator is situated in one corner of the shop, communicating with the smith's shop, which is in the basement next to the boiler room.

The smith's shop contains a Buffalo down draft forge, a Fairbanks' 100-lb. power hammer, shearing machine, etc.