AN ELECTRO-MECHANICAL COIN COUNTING AND WRAPPING MACHINE.

BY A. FREDERICK COLLINS.

Of the many labor-saving devices introduced into banking and business methods in recent years certainly not one of them is more successful in reducing to a minimum the amount of work involved than the coin counting and wrapping machine. Where a large number of coins have to be counted and wrapped by hand those who do the work must be highly skilled or there will be numerous errors, and this is especially true when the operators become fatigued. The machine illustrated in connection with this article was constructed by Edward Van Winkle, an electrical engineer, of New York city, and the speed and accuracy with which it counts and wraps coins is a matter of no little surprise to one who sees it in action for the first time.

A conception of what the machine can do can perhaps best be conveyed by comparing it with hand labor. The most proficient manual expert can count and wrap without error not more than one package of coins per minute, while the machine will wrap from eight to twelve packages per minute, depending upon the size of the coins. It is evident, therefore, that the machine will duplicate the work of eight or twelve persons, with the added advantage of absolute accuracy.

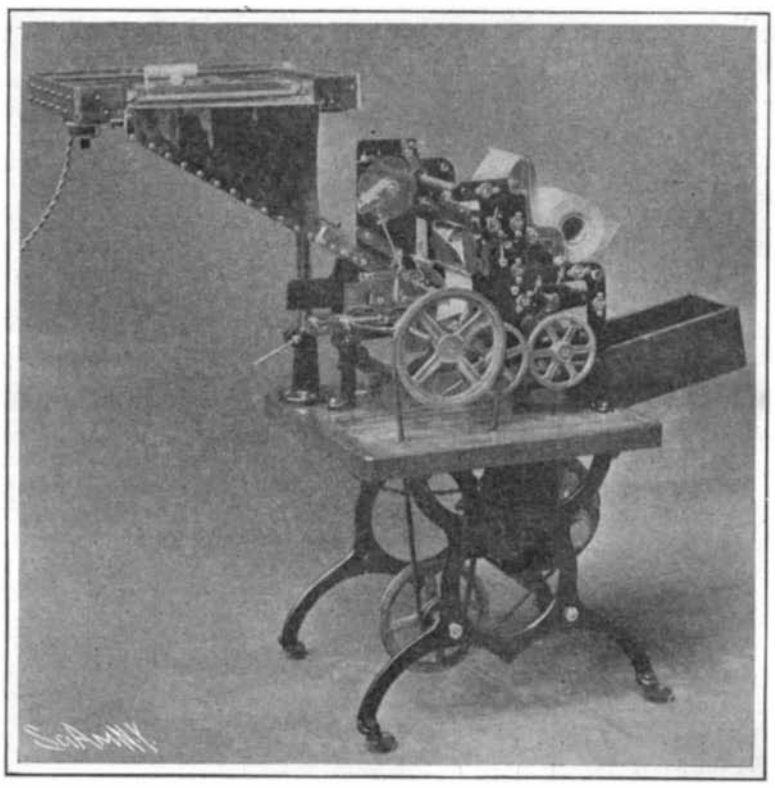
The machine, which is driven by an electric motor, is as nearly automatic as human ingenuity can make it, and its speed is limited only by the ability of the operator to scrutinize the coins and feed them into a hopper, and actual working tests have shown that at least three hundred coins can be looked over, and bad ones eliminated, every minute by a fairly rapid operator. A reference to the illustration will enable the reader to form a good general idea of how the money is counted and then wrapped, not by electricity exactly, but rather by a mechanism driven by an electric motor.

Flush with the top of the elongated hopper is a small table and on this the coins are placed. The operator spreads them out so that they may be quickly observed, individually and collectively, and in case there are any mutilated or counterfeit pieces among them they can be thrown out. This preliminary work accomplished they are merely pushed into the hopper and left to the machine to do the rest. From the hopper they are conducted by and through a conduit to a reciprocating push-bar, and here, regardless of thickness and diameter, they are brought together in a row preparatory to being wrapped. When the number of coins required to make a bundle, of say twenty half-dollars, are brought forward the last one registers the fact, and also sets the wrapping mechanism, inactive until now, into operation.

The coins, now counted and bunched, are carried by means of a holder from the buncher to the wrapper, the holder returning to its first position into which the coins are deposited ready for the next package. While the coins are thus being carried to the device which rolls them into packages the holder picks up and takes with it the end of the paper to be used in wrapping and which has been conveniently left behind by the package wrapped before it. At the same instant with this action the lower coin roll is thrown out of its normal position forming in consequence a recess or pocket with the two upper rolls, and into this the row or bunch of coins is transferred.

The roll returning to its first position, it, with the others, begins to revolve and the band of wrapping paper is drawn by friction around the bundle of coins, between it and the rolls, by the motion of the latter. Making two complete revolutions, the paper is wound tightly around the coins twice and projecting beyond them allows enough for the crimp. When the paper has been wrapped around the coins a V-shaped knife severs it from the roll of paper.

The final process consists of crimping the edges of the package, and this is done by turning them inwardly by the crimpers, these drawing the converging edges of the paper, made by the knife, in opposite directions, the result being a clean, smooth and mechanically perfect package in which neither paste nor glue is required as a fastener. Since all coins are not of the same thickness, naturally the length of the package varies for different coins; but whatever may be the length, the crimpers force the edges of the paper up tightly to the surface of the coins. When the crimping is completed the package resembles somewhat a cartridge, when it is ejected from the machine into a box, which may then be detached and carried wherever the packages of coin may be needed. One of the clever features about the machine-made wrapper is that, like a good safe, it is burglar-proof; that is to say, it is quite impossible to break into it and extract a coin without completely destroying the paper case in which it is wrapped. As the ends of the package are not sealed, it is unnecessary to write or print on the wrapper the value of the coin inside, as the denomination can be readily seen; if, however, such markings should be desired the roll of paper can be printed before it is put into the machine. The longest wrapper measures 7¾ inches long by 2⅜ inches wide, while the shortest wrapper is 4⅛ inches long by 2⅞ inches wide. The long wrappers are adapted to twenty-five-cent pieces, and the short ones to fifty-cent pieces. It is pointed out that the economy of paper can only be realized when one attempts to wrap the coins by hand in a wrapper that has been cut off by the machine.



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While Mr. Van Winkle designed and constructed the machine described, he was not the inventor, but developed it for one of his clients. He gives us this excellent version of its origin: "The inventor of the device had been connected with a 'penny-in-the-slot' machine company and was dependent for his living upon returns from several of these vending machines; his revenue was all in coin and he came to dislike the sight of it. He had three nail kegs in his room in which he deposited his daily collections, and if perchance he wanted to pay some bill by check he and all his family would have to stay up all night counting and wrapping these coins so that he could deposit them in the bank. His wife suggested in fun one evening, while his family were industriously wrapping in order to swell his bank account sufficiently to pay his rent, that he invent a way to count the coin by machinery and thus save the tedious hand labor."

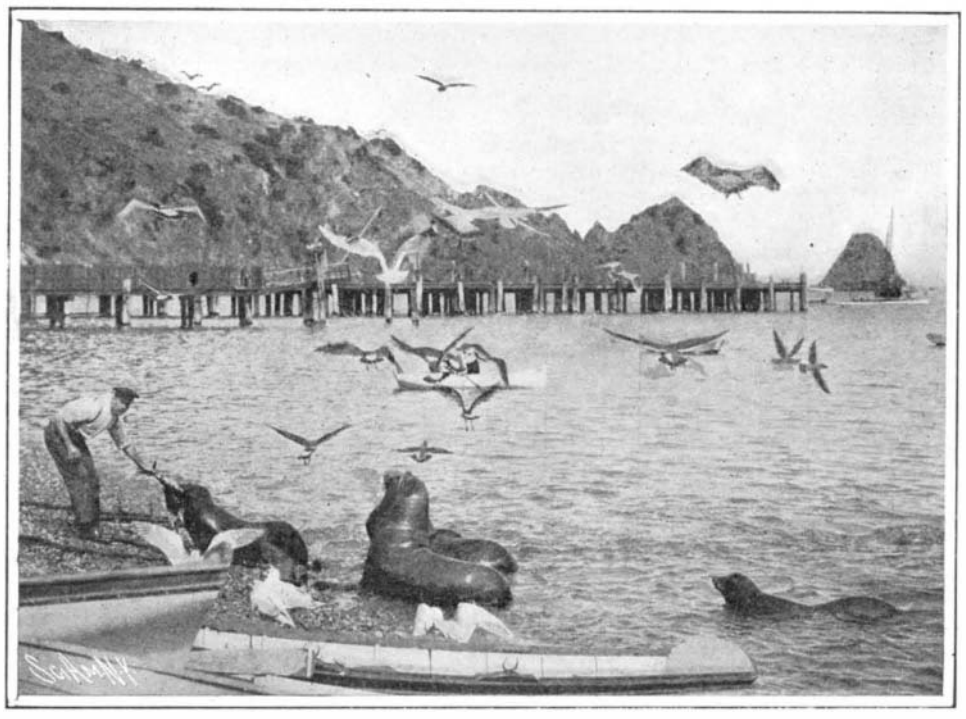
Acting upon this suggestion he invented a machine, patented it and then built it, only to find on completion that it would not do the work commercially as it should. His general idea was good but the mechanical movements he utilized in developing it were not the proper ones. Instead of the three rotary rolls as now employed he used a loose belt to form a pocket; instead of crimping the ends he used glue to fasten the package, and finally instead of feeding the paper from below he fed it from above. Under more scientific treatment, however, all the defects were eliminated and a perfect coin counter and wrapper resulted. Thus a machine of great value has been brought about in one that otherwise would have ended in flat failure, and all due to simple but necessary changes.

The electric motor for running the new machine consumes but three-tenths of an ampere at 110 volts and connection is easily made by means of a light socket and a plug. A turn of a button switch starts or stops it as desired.

THE TAMENESS OF WILD ANIMALS.

BY CHARLES FREDERICK HOLDER.

That wild animals become extremely tame is well known. The wild quail of Southern California will enter gardens, and nest there; and in the protected season I have seen a flock standing in a country road, a jaunty male between them and my horse, not twenty feet away; moving only when I moved, and then with reluctance. Several years ago some residents on one of the channel islands of Southern California introduced a number of black-tailed deer which were protected to such extent that in time they discovered that they were privileged characters, and assumed nearly the absolute contempt for human beings held by the sacred bulls of India, that crowd men and women from the road. They persisted in entering gardens, day and night, destroying the plants, and finally to locate them the dwellers on the island had bells fastened to them. One buck made his home near the town of Cabrillo and walked about the place and over the hills with the freedom of a dog. When a boat landed off the pier the buck ran down to greet the newcomers and share their lunch, and became a welcome guest at barbecues and lobster and clam bakes. As time went on this deer through attention became extremely arrogant and began to resent any lack of attention; in a word, like many persons, he could not stand prosperity, and one day when an old lady refused to allow him to eat her lunch, the buck drew off and bowled the lady over. This seemed to open up a new field of pleasure to the deer (and women particularly appeared to be the object of his enmity), which at last became so pronounced that the animal had to be placed in confinement. Nearly all animal life is protected at this island. I have counted half a hundred bald eagles in an eleven-mile run; have seen them take a large fish from the water within easy gunshot, and they build their nests on pinnacles that are not difficult of approach. The sea birds are equally tame. Gulls gather in flocks a few feet from those who feed them; in the winter flocks of cormorants swim into the bays and are so tame that they merely divide when a boat passes, and fishermen often find that the cormorants take off bait almost as fast as they can put it on. Gulls dash at bait, and I have seen a long-winged, petrel-like bird follow my line under water at a cast, using its wings to fly along, and take the bait; and at times scores of sea birds are seen inshore feeding upon small shrimps, paying no attention to observers photographing them.



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WILD SEA-LIONS COMING OUT UPON THE BEACH TO BE FED AT AVALON, CAL.

The most remarkable illustration of tameness to be seen here is that of the sea-lions, the story of which is so graphically told in the accompanying photograph. For ages the animals have held possession of a mass of rock on the shore of the island. A few years ago many were killed by vandals, but laws were passed and for a number of years the sea-lions have been protected and the rookery has increased in size until a split has recently occurred and another settlement

(*Continued on page* 8.)