# The Prince of Puzzle-Makers.

## AN INTERVIEW WITH SAM LOYD.

By George Grantham Bain.

The puzzles in this article are published by special permission of Mr. Sam Loyd. The solutions will appear in our next number.

IT was like renewing my youth to meet him—to hear him ask me if I remembered the "Fourteen-Fifteen" puzzle, or the trick donkeys, or "Get Off the Earth." And to hear how those old friends of boyhood's days came to exist and something of their history since I first knew them—that was like meeting an old, old friend and hearing him tell the story of his life. Yet one can never speak of the "Fourteen-Fifteen" puzzle or "Get Off the Earth" as old. They are perennially new. Long after the brain that gave them life is quieted—and may that be many, many years hence—a new generation will be watching the Chinaman fade away at the movement of the pivoted card; or shifting the counters so as to compel Fourteen and Fifteen to take their places in serial relation. Sam Loyd is not of one generation any more than he is of one country—he is universal and everlasting.

MR. SAM LOYD.
*From a Photo. by H. F. Raem.*

A quiet man, with a ready tongue and a quick wit showing through a twinkling eye — that is what first impresses you about the famous puzzle-man. He is reputed to have made a million dollars out of that active brain; yet he is as modest of demeanour and as quiet of dress as though he were a clerk in a business establishment at twenty-five dollars a week. His moustache is white now and his head a little bald — for has he not been entertaining the world for fifty-five years with his odd conceptions? But I can fancy him when he made his first puzzle fifty-five years ago, younger-looking but no more acute mentally than he is now, when he handles sometimes one hundred thousand letters a day from his correspondents, eager to share in the prizes he offers for the solution of his puzzles.

Out of his side-pocket, as he sat down in the wicker rocking-chair in my private office, he took something round, and looked at it with an amused smile.

"I didn't bring it along to show you," he said, "but perhaps it would amuse you."

I took it from him and examined it. You have doubtless seen what the Chinese have done upon the same lines—carving a ball within a ball, or a fully-rigged ship in a bottle. This was a wooden ball, perhaps two inches in diameter, with a careful reticulation, within which appeared another reticulated ball, moving freely, and within that another and another and another—five in all (Fig. 1).

FIG. 1.—FIVE CAGES, ONE WITHIN ANOTHER, CARVED BY SAM LOYD OUT OF A CROQUET-BALL.

"I did it last week," he said, "out of a croquet-ball. It interested me to do it,

FIGS. 2 AND 3.—"NATURAL CARVINGS" FROM SAM LOYD'S CABINET—A SNAKE AND RIP VAN WINKLE.
*From Photographs.*

because it recalled something that happened a good many years ago. You know the 'Little Church Around the Corner' up here in Twenty-eighth Street? Well, I was a pupil there, and in the same class were the two Vanderbilts and James Gordon Bennett of the *Herald*. One day we were told to bring in the most ingenious thing we could devise. Bennett brought something made of paper, and the Vanderbilts, I believe, something made of leather. I carved a ball like this, and it was selected as the most ingenious thing among them."

Again the hand went into the capacious pocket, and a curious bit of carving came out. It was a forked twig, taken just as Nature made it; and, with a face carved under a natural hat at one end and two feet outlined at the other, it was Rip Van Winkle to the life. Mr. Loyd said he had found it in the Catskills—Rip's own country. "Doesn't he look as though he had been asleep a long time?" he asked. Certainly Rip's wooden legs were warped as though he had been out in the night air a long time. Mr. Loyd made another exploration, and brought out a snake—red-mouthed, coiled for a spring. "I found that piece of wood up at Ticonderoga, where it is said Ethan Allen killed the rattlesnake," he said. "I haven't changed it at all. I am always coming on odd things like that. I have a cabinet at home full of them."

Evidently Mr. Loyd's faculty of observation is acute. You or I would not have seen the rattlesnake in the root, or the little old man in the forked twig.

He does not tell it of himself, but Mr. Loyd as a boy had a power of imitation and an aptness at ventriloquism which made trouble for all who came within his mischievous activities' range. He was just a keen-minded vigorous boy, as alert physically as he was mentally. And of this material they tried to make a civil engineer. He took the course and started on the practice of the profession. But already Nature had begun to point out to him the sphere in which he was intended to shine. He had devised several puzzles before he came into his teens. One of the earliest of his problems, drawn by himself in a crude way, was the problem of the three men living in three houses within a wall having three doors, who quarrelled and built each a wall to give him free access to the world outside without coming in contact with his neighbours. Here it is (Fig. 4), just as the nine-year-old boy Sam drew it many years ago. It is told that three neighbours, who shared a small park, as shown in the sketch, had a falling out. The owner of the large house (A), complaining that his neighbours' chickens annoyed him, built an enclosed pathway from his door to the gate at the bottom of the picture (A). Then the man on the right (B) built a path to the gate on the left (B), and the man on the left (C) built a path to the gate on the right (C), so that none of the paths cross, and each man has an exit opposite his door.

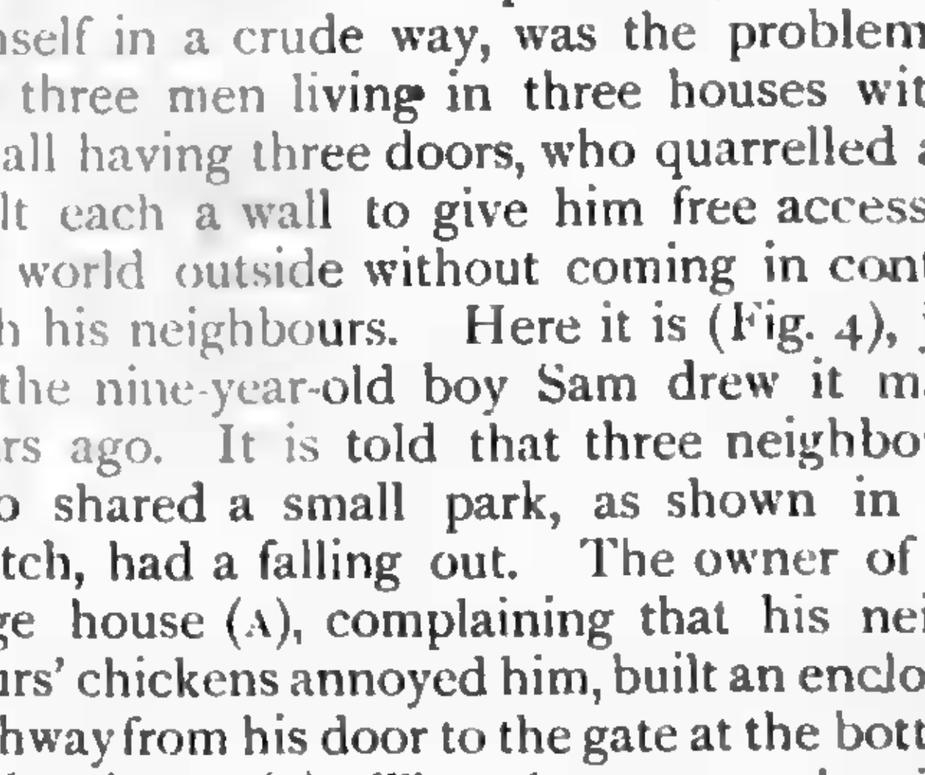



FIG. 4.—ONE OF SAM LOYD'S FIRST PROBLEMS, INVENTED WHEN HE WAS ONLY NINE YEARS OLD—IT IS FULLY EXPLAINED IN THE ARTICLE.

With the talent for this sort of thing half developed in his brain, what had he to do with civil engineering and its slow road to success and wealth? When he was still only seventeen, and just beginning to be an engineer, he devised a puzzle which made for him in a few weeks ten thousand dollars. It decided him abruptly not to spoil a good puzzle-maker for a poor civil engineer. This puzzle is one which will live always, I believe, for it is as great a favourite to-day as it was half a century ago. It is the puzzle of the trick donkeys (Fig. 5).

"Fancy!" as Hedda Gabler's husband so often reiterates, that not millions but thousands of millions of these have been sold, and you will understand in what a curious way Mr. Loyd found the key to success—not in great things, but in little things often multiplied. In fact, it is his theory, verified so well in his own experience, that it is the little and not the great thing that is most often profitable.

"I am still taking orders for those donkeys in million lots," he said. "When I first sold them I had my own printing outfit; but now I have the printing done by someone else. Of course, my legal rights in all my early devices have lapsed by this time, but copyrights and patents mean very little to me. People don't care for my puzzles unless they can have them with my name on them. Those trick donkeys have been associated with a great many incidents in the lives of business houses and business men. There is a big dry-goods and department store in New York which uses a star as a sort of trade-mark. The donkeys were responsible for that. When the firm started in business they gave me an order for a million copies to give away. When I was setting up the card, I noticed that there was a space between the donkeys which looked blank, so I stuck in a star. When I saw the head of the house later, he said to me, 'What is the meaning of that star, Mr. Loyd?' 'To make little boys ask questions,' I answered. He laughed and said, 'You see, it made me ask one.' His partner came up at this moment and said, 'We've used that star now in connection with these million cards; why not use it hereafter as a trade mark?' And that was the origin of an emblem which has since become famous in the world of trade.

"I recall another incident of the donkeys' career. P. T. Barnum, who was running his circus when the donkeys were most popular, asked me if I would take ten thousand dollars and call them 'P. T. Barnum's trick donkeys.' I said I would, and about that time I was filling an order from a big Philadelphia concern for a large number. So I shipped them the cards with Barnum's name on them. Back came a letter from the head of the house, saying, 'We have several tons of advertising literature of P. T. Barnum on hand, awaiting your orders. I'm enough of a humbug myself without advertising through my store that much greater humbug Barnum.' For a time I was afraid I should lose my cards, but I went to Philadelphia, explained the matter, and persuaded the house to take the cards and use them."

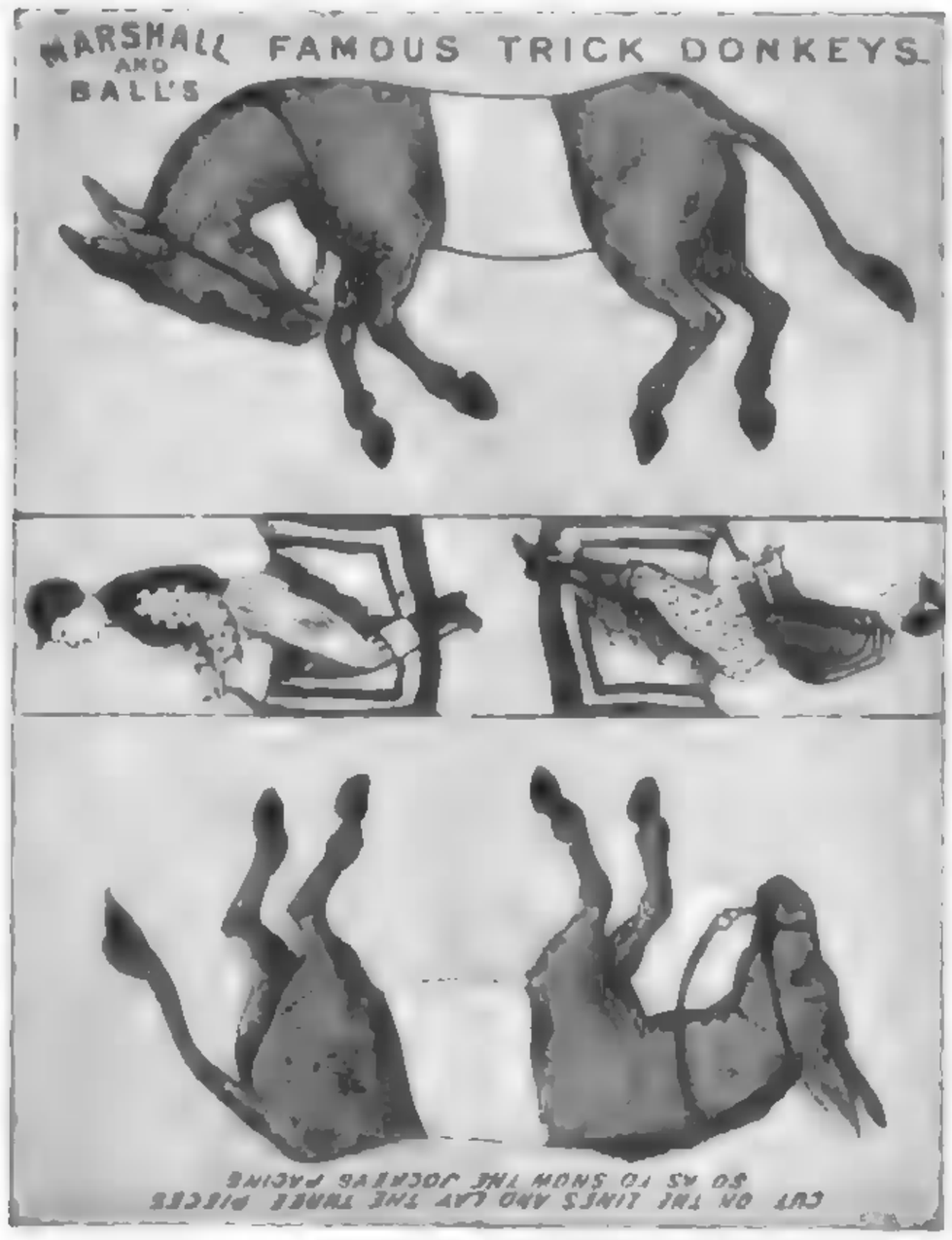



FIG. 5.—THE FAMOUS DONKEY PUZZLE WHICH BROUGHT SAM LOYD THOUSANDS OF DOLLARS WHEN HE WAS SEVENTEEN.

Another very famous puzzle was "The Mystery of the Boarding-house Pie." Fig. 6 illustrates and explains it fully. Mr. Loyd says that this was one of the most popular puzzles he ever devised.

I asked Mr. Loyd what was his best puzzle. "Get Off the Earth," he said, promptly. "Unfortunately it came out in a bad year and it didn't achieve the success of some of the others. But I am going to revive it, and there is no doubt it will equal their success. It was developed under rather odd conditions. My son—who thinks I can do anything—said to me one morning, 'Here's a chance for you to earn two hundred and fifty dollars, pop,' and he threw a newspaper clipping across the breakfast table. It was an offer by Percy Williams of two hundred

and fifty dollars for the best device for advertising Bergen Beach, which he was about to open as a pleasure resort. I said I'd take a chance at it, and a few days later I had worked out the Chinaman puzzle. It was two pieces of card, which were fastened together so that they moved on a pivot. As you looked at them there were thirteen Chinamen plainly pictured. Move the cards together a little and there were twelve perfect Chinamen. You couldn't tell what had become of the other Chinaman, try as you would. Scientists have tried to solve it without success. Oh, yes; there is a solution, but I sha'n't tell what it is.

"Well, on my way to show the puzzle to Williams, I stopped at the *Brooklyn Eagle* office to ask Anthony Fiala—who afterwards led an expedition to the Arctic—to touch it up a bit for me. He was the artist of the *Eagle* and an old friend of mine. I could draw pretty well—in fact, I should make a very fair newspaper artist—but, of course, he knew more about it than I did. Fiala was so taken with the puzzle that he asked if he might show it to St. Clair McKelway, the editor. McKelway was much taken with it, and wanted to know the price. I told him it wasn't for sale. He showed it to the publisher of the paper. He wanted to know the price. Then he called in William Ziegler, the millionaire who financed two trips to the Arctic, who wanted to buy it. But I told them all it was disposed of. Finally they proposed that I should run a puzzle department for the paper; and before I left them they had given me an order for two thousand five hundred dollars' worth of copies of the puzzle, and agreed to pay me a salary of fifty dollars a week to run a puzzle column. Since that time I have received salaries of twenty-five to one hundred dollars a week from several papers at the same time for conducting their puzzle departments. Besides, I have a big source of profit in the letters I receive. I offer prizes for the solution of puzzles. Just now I have a distribution of ten thousand dollars on my hands. These competitions bring me sometimes one hundred thousand letters a day. I have a corps of clerks go over them and pick out, possibly, a thousand that I ought to see personally. But the letters I sell because the addresses and names are valuable. Two days ago I sold a lot of one hundred thousand letters to a mail order house for one hundred and twenty dollars, and the next day I sold a Sunday newspaper another lot at one dollar a thousand—one hundred dollars. That isn't a bad addition to one's income."

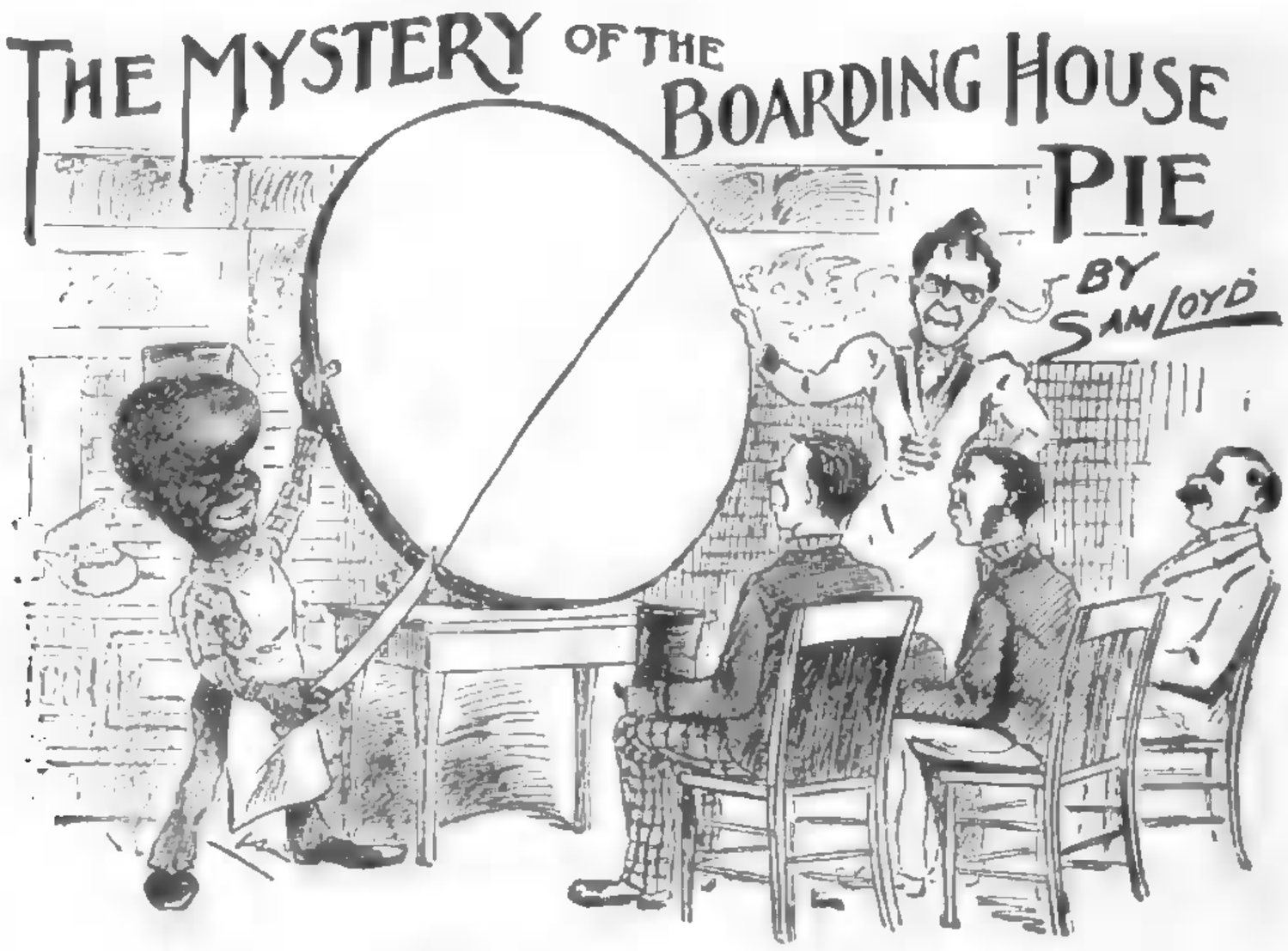



FIG. 6.—PROPOSITION: INTO HOW MANY PIECES, OF VARIOUS SIZES, IS IT POSSIBLE TO DIVIDE A PIE WITH SIX STRAIGHT CUTS OF A KNIFE?

Mr. Loyd has had very erratic fortune in disposing of his inventions and devices. Like all inventors he has made fortunes for others in things out of which he made almost nothing. The most striking illustration of this is the game of Parcheesi. Its origin and history are as interesting as any romance. A concern dealing in street-selling articles, with which he had done some business, called him in one day and said, "We have just bought a lot of pieces of cardboard divided into coloured squares. They were intended to be used by a worsted house in advertising

their goods. We bought them at rubbish prices. Now, we want you to make up some sort of a game that will sell for a small price, using these squares—something we can sell in the street." Mr. Loyd worked on the problem for a few minutes, and then handed over the scheme of the game of Parcheesi. "That ought to go," he said. "How much do we owe you?" said the head of the concern. Mr. Loyd said that it was so simple a matter he didn't care to charge anything for it. But the man insisted on giving him ten dollars. And that is all that Sam Loyd got out of a game which made millions for its manufacturers. Only a few days ago Mr. Loyd was in a shop in New York looking at games, and he asked the shop-girl which game was the most popular. She replied that they sold more of Parcheesi than of all the other games put together. Mr. Loyd, by the way, was the inventor not alone of the game, but of the story which went with it, to the effect that it had been found among the natives of East India by a missionary.

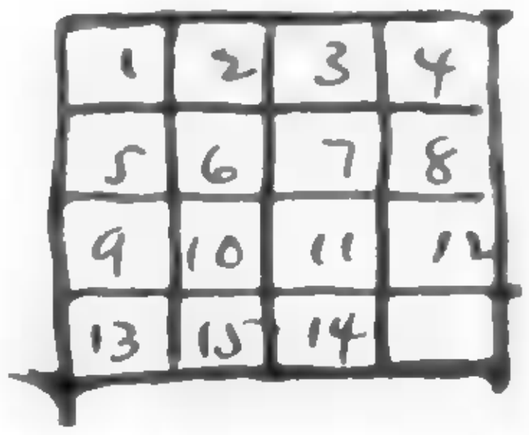



FIG. 7.—THIS IS A ROUGH SKETCH OF THE "FOURTEEN-FIFTEEN" PUZZLE, A PROBLEM WHICH COULD NOT BE SOLVED.

Mr. Loyd has patented and copyrighted many of his inventions, but he failed to get a patent on the "Fourteen-Fifteen" puzzle. It consisted of fifteen square blocks in a box which would hold sixteen (Fig. 7). They were arranged serially, with the fifteen before the fourteen, and the puzzle was to shift them about until the fifteen was in its right place.

"Of course it couldn't be done," said Mr. Loyd, "and that's why I didn't get my patent. It was necessary then to file with an application for a patent a 'working model' of the device. When I applied for a patent they asked me if it was possible to change the relations of the fourteen and fifteen. I said that it was mathematically impossible to do so. 'Then,' said the Commissioner, 'you can't have a patent. For if the thing won't work, how can you file a working model of it?' His logic was all right, and the result was that I didn't get my patent. In spite of that, however, there are thousands of persons in the United States who believe they solved that puzzle. I was talking with my shoemaker the other day, when a big Irishman, sitting not far away, who had overheard us, said, 'Are ye the mon that invinted th' Foorteen-Fifteen puzzle? I did that puzzle.' I laughed, and said that couldn't be, because it couldn't be done. 'Don't you say I didn't do it,' he replied, 'or I'll flatten the nose on y'r face.' He was a pretty big man, and I suppose he could have done it, too. Yes, there were many thousands of persons who were sure they had done it; but the thousand dollars reward I offered for anyone who would do it was never claimed. Not long ago the Sunday editor of a New York paper wanted to use it again as a supplement, and I suggested he should offer a thousand dollars reward for the solution. He refused. He said he remembered very well that he had done the puzzle once, and he wasn't going to throw away a thousand dollars. Before I could persuade him to offer the reward, I had to bring the thousand dollars to his office and deposit it in the safe. It was never claimed."

Mr. Loyd is not only a clever artist but he was once a wood engraver, and engraved the plates of his puzzle pictures himself. One of these he showed me in his files as a curiosity of his earlier career. It is the Rip Van Winkle puzzle.


FIG. 8.—THE RIP VAN WINKLE PUZZLE: FIND THE DOG.

I asked Mr. Loyd what was the mental process of making a puzzle.

"Some I work out very slowly," he said, "and some come to me like a flash. They are all based on mathematics. I have no regular method and no regular hours of work. Sometimes I do three puzzles in a day. Often a puzzle will suggest itself to me when I am talking to a man. The other day I was talking with the maker of a fountain pen about offering some as prizes,

and in the course of our conversation he made a contract with me for one thousand dollars' worth of advertising in my puzzle magazine, which I am just starting. Suddenly a puzzle came into my mind and I sketched it for him. Here it is."

Mr. Loyd drew nine eggs in rows of three like this (Fig. 9) :—

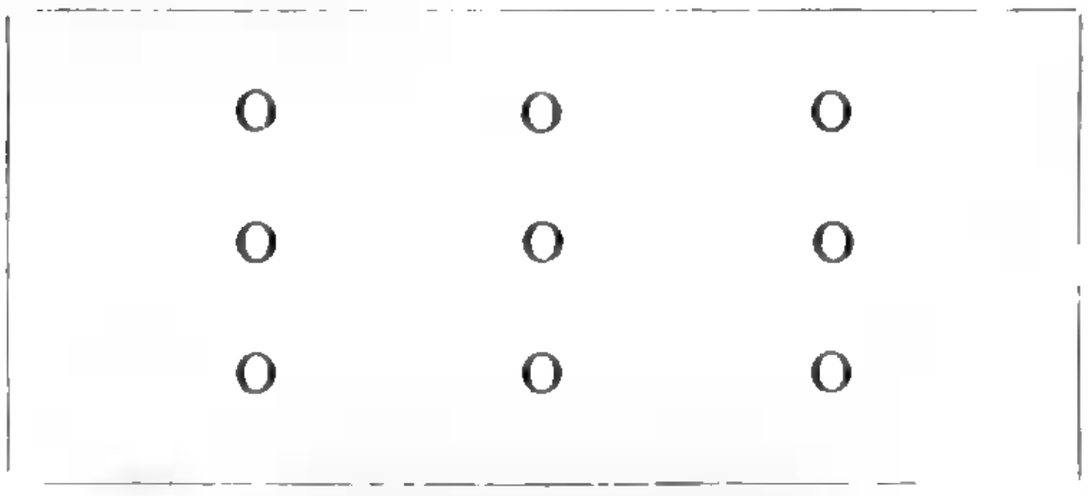


FIG. 9.—THE COLUMBUS EGG PUZZLE.

"The problem is to draw straight lines to connect these eggs in the smallest possible number of strokes. The lines may pass through one egg twice and may cross. I called it the Columbus Egg Puzzle. It seemed so easy to my friend the manufacturer that I said to him, 'If you solve it in an hour I will give you your thousand dollars' worth of advertising free.' He thought it was easy. But neither he nor any of his employés could solve it in an hour or a day.

"When you've solved that problem, try this one about Bo-Peep and her little sheep (Fig. 10). You may think that the one will help you with the other, but you'll find it won't."

He was once expert, he told me, in cutting silhouettes, and to prove that his hand had not lost its cunning he took my desk scissors and a scrap of paper, and in less than a minute had presented to me a very good outline of the head of George Washington (Fig. 11). These silhouettes, he told me,


FIG. 11.—SAM LOYD IS AN ADEPT AT CUTTING SILHOUETTES, WHICH HE USES AS ADVERTISEMENT DEVICES—HERE IS ONE OF GEORGE WASHINGTON, CUT IN LESS THAN A MINUTE FOR THIS ARTICLE.

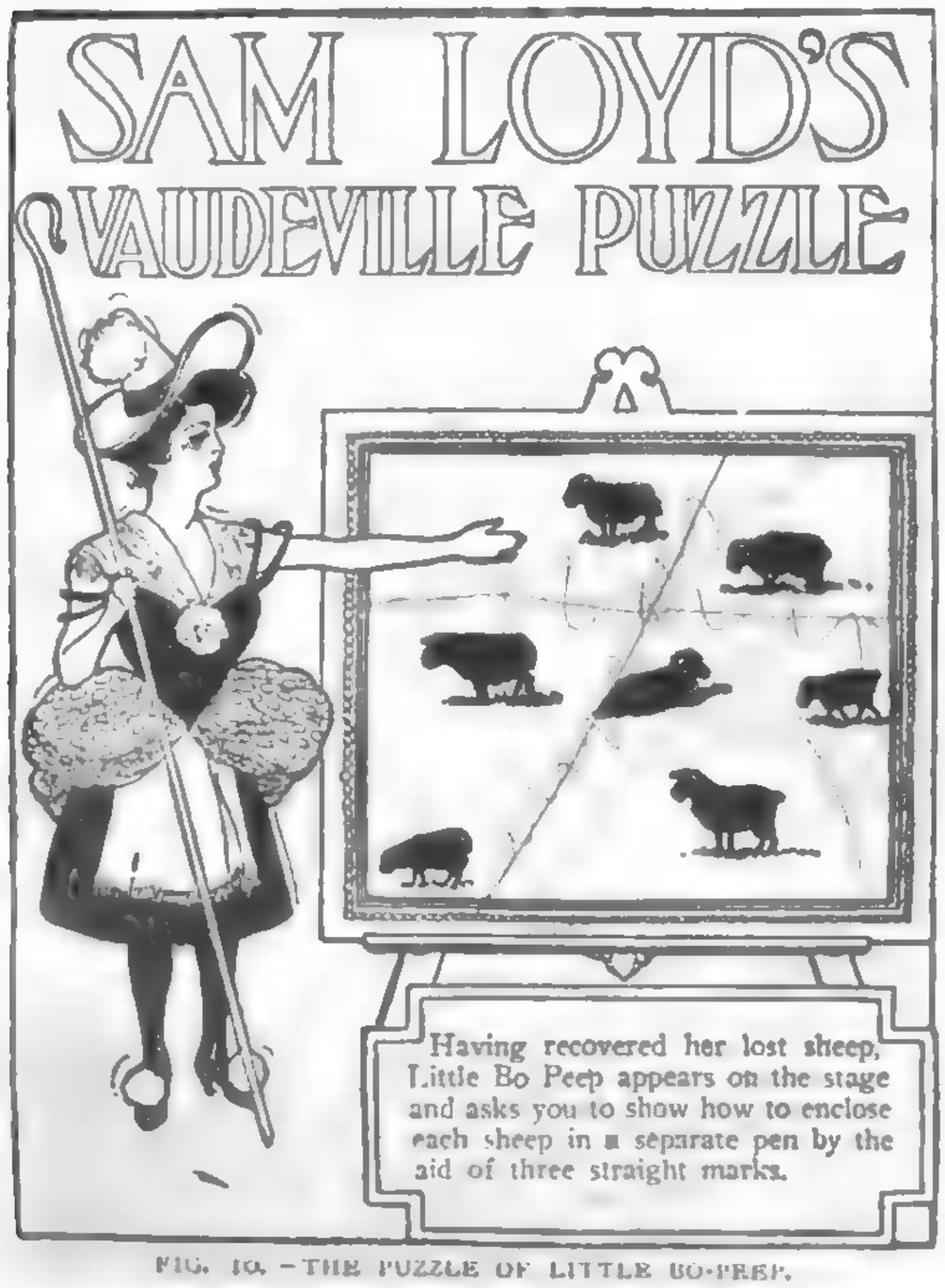



FIG. 10.—THE PUZZLE OF LITTLE BO-PEEP.

he sometimes used in advertising devices, and he recalled the occasion when a firm called him in to devise an advertisement, and he took out his scissors and quickly cut out profiles of the members of the firm. He presented them as a valuable advertising suggestion. The two men liked the suggestion, but when Mr. Loyd said he wanted fifty dollars for them they demurred. They argued that the silhouettes would not be saleable to anyone else, and that Mr. Loyd would probably sell them cheap, as he must sell to them or throw the silhouettes away. But when they saw him take them up to tear them to pieces, they cried, "Don't do that. You might not be able to make them so well again." And they ended by paying him his fifty dollars. That is a small fee compared with some Mr. Loyd has received. He was asked by a maker of sewing-machines to devise a puzzle, and he named a rate of one hundred dollars. But when he came to deliver the goods, he said to the manufacturer, "Here is your one-hundred dollar puzzle. But I have another

which I have just thought of that is certain to be a great success. But I should have to charge you one thousand dollars for it." The manufacturer looked at the second puzzle and said it was just what he wanted, but he did not feel that he could pay so much. However, did Mr. Loyd ever back his own judgment? Mr. Loyd said he did. Would Mr. Loyd be willing to sell on condition that if the device was a "blooming success" he was to receive one thousand five hundred dollars, and if not he was to get nothing? Mr. Loyd would and did. The bill was made out on those terms, and Mr. Loyd went away. Six months later he appeared at the office of the manufacturer, and had to recall himself to that gentleman's memory.


FIG. 12. — THIS IS THE CELEBRATED "PONY PUZZLE," OF WHICH MORE THAN A THOUSAND MILLION COPIES WERE SOLD—THE PROBLEM IS TO CUT OUT THE SIX PIECES AND REARRANGE THEM SO AS TO FORM ANOTHER PONY.

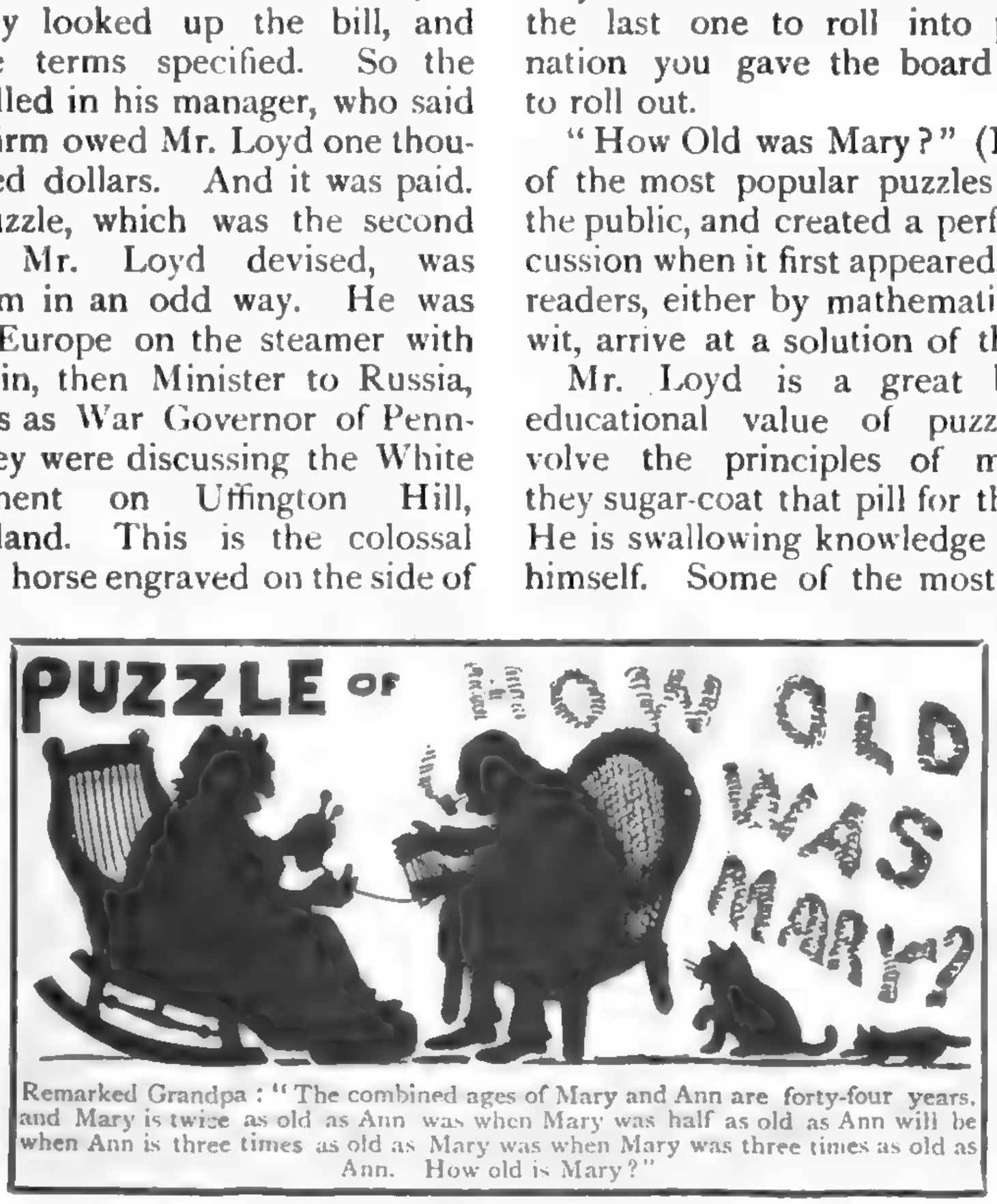
"Oh, yes," he said, "we owe you one thousand dollars, I believe, Mr. Loyd." "No, you don't," said Mr. Loyd; "you owe me one thousand five hundred dollars, or nothing." They looked up the bill, and those were the terms specified. So the manufacturer called in his manager, who said he thought the firm owed Mr. Loyd one thousand five hundred dollars. And it was paid.

The Pony Puzzle, which was the second famous puzzle Mr. Loyd devised, was suggested to him in an odd way. He was returning from Europe on the steamer with Andrew G. Curtin, then Minister to Russia, and once famous as War Governor of Pennsylvania, and they were discussing the White Horse Monument on Uffington Hill, Berkshire, England. This is the colossal figure of a white horse engraved on the side of the hill, visible for many miles. It is said to be more than a thousand years old. Mr. Curtin thought that it might contain a suggestion for a puzzle. Mr. Loyd accepted the suggestion, took a piece of black paper and a pair of scissors, and in a few minutes produced the Pony Puzzle. This (Fig. 12) is the way it was originally made. Mr. Loyd afterwards improved it in form, but he says he still has an affection for the original old nag. Mount this silhouette on a piece of thin card, cut out the six pieces separately, and see in how many ways they can be arranged to make a pony, and how nearly you can make one like the white horse. The whole country laughed for a year over this ridiculous pony, and more than a thousand million copies of it were sold.

"Pigs in Clover" was another of Mr. Loyd's most famous puzzles. It has been imitated, but none of the imitations has equalled the original in popularity. The pigs were tiny spheres, which were to be made to take their places in little holes in a board by inclining it until they rolled in. Almost as surely as you got the last one to roll into place the inclination you gave the board caused another to roll out.

"How Old was Mary?" (Fig. 13) was one of the most popular puzzles ever put before the public, and created a perfect *furore* of discussion when it first appeared. Can any of our readers, either by mathematics or by mother-wit, arrive at a solution of this brain-reeler?

Mr. Loyd is a great believer in the educational value of puzzles. They involve the principles of mathematics, but they sugar-coat that pill for the reluctant boy. He is swallowing knowledge while he amuses himself. Some of the most noted scientists have been puzzle-makers—Tyndall, Huxley, Humboldt—but the world's puzzle-maker, known to three generations and beloved of all of them, is Sam Loyd.




Remarked Grandpa: "The combined ages of Mary and Ann are forty-four years, and Mary is twice as old as Ann was when Mary was half as old as Ann will be when Ann is three times as old as Mary was when Mary was three times as old as Ann. How old is Mary?"

FIG. 13.—"HOW OLD WAS MARY?"