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The Editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are *sharp*, the articles *short*, and the facts *authentic*, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

A DECISION UNDER THE GERMAN-AMERICAN PATENT TREATY.

In nearly all European countries a patentee incurs a forfeiture for not working his patent within a certain statutory period. In Germany and some other countries this period is three years from the date of the patent's issue. The United States, on the other hand, has stimulated invention by more liberal laws and imposes no obligation whatever on the inventor to manufacture his invention. As a result a German inventor who takes out a patent in this country receives better treatment here than in Germany. The status of a foreign patentee is therefore difficult to define. When an American inventor discloses a secret, his country grants him a monopoly for a limited period as a reward. Once disclosed, all the world is informed of the invention, so that a certain injustice results from the fact that he may not be able to comply with the compulsory clauses of German and other foreign patent statutes. A man with more money than he has can thus take advantage of the situation after the expiration of the statutory period of grace. The only advantage to a foreign country in granting a patent on an invention which has been patented here is that we in our turn are willing to accord the same rights to citizens of that foreign country. It is therefore unfair for us to grant more to foreign inventors than American inventors receive abroad, particularly in view of the fact that no direct benefit is to be obtained from our award for a secret already disclosed.

The only solution of the problem is to be found in reciprocity treaties. Such a treaty has been in force between Germany and the United States since August 1st. By its terms American inventors are absolved from working their patented inventions in Germany within three years from the granting of the German patent. Heretofore failure to comply with this obligation would result in the loss of the German patent if an action for revocation were brought. The new treaty provides in effect that the working of a patent in the territory of one of the contracting parties shall be considered as equivalent to its working in the territory of the other party. Hence, an American citizen who works his United States patent in the United States will no longer be required to work his corresponding German patent in Germany in order to avoid forfeiture of his German patent. Moreover, since reciprocal rights are now granted by Germany, it would seem that an American inventor who takes out a patent in Germany ought to stand before a German court exactly as he would before an American court so far as forfeiture is concerned. In other words, since the United States does not compel him to work his patent, his German patent ought to be good whether he works his American patent or not.

A decision has just been handed down by the Imperial Supreme Court of Germany which construes the treaty from the German point of view and which is so liberal in its conclusion that the treaty may be regarded as retroactive in a measure, so as to apply to unexpired patents granted before the treaty became operative. The facts of the case are not all before us, but from what we may glean from press dispatches it would seem that the case involved the forfeiture of a patent which was taken out in Germany by the German branch of an American house before the treaty was signed and which was not worked within the statutory period of three years. An action brought to revoke the patent resulted in a forfeiture. The present decision, the result of an appeal, reverses the judgment of the lower tribunal, and holds that the patent was not forfeited. Before the decision was handed down by the higher court, the German branch had transferred its title to the American house, but whether this had any effect on the decision we are unable to state because the decision is not before us. Indeed, the status of the German branch is not at all clear. At all events, the decision is highly favorable to American inventors and places the German patents of American manufacturers on a most substantial footing.

THE CHERRY MINE DISASTER.

Now that the wave of newspaper frenzy has passed, there may be some of a scientific turn of mind who are anxious to know the real facts of the terrible disaster at the Cherry coal mine.

Two large veins in this mine, at three and five hundred foot levels, are good producers, levels known as the "second" and "third workings." The first is not worked. When the fire was discovered at or about 3 P.M. on Saturday, November 13th, there were upward of three hundred and fifty men in the mine, a force about equally divided between the second and third veins. Coal was being hoisted from the third to the second level by means of a cage in the ventilating shaft, which is located about three hundred feet from the main shaft. At the second level the coal was transferred to the main shaft, and from there hoisted to the tipple. The main shaft extends to the third working, but it is stopped at the second level by a false floor. The cage in the ventilating shaft is operated by a duplex cylinder engine near the mouth at the surface. It never travels to the top of the ground, and the engineer controls it only by pressure-bell signal. At the main shaft there are two cages whose cables are run to opposite sides of the hoisting drum, so that one is raised while the other is lowered. The men, of course, take the same course as the coal in going and coming.

Without doubt, the signal system at the main shaft is responsible for several lives. The engine room of the main hoist is located about one hundred feet from the mouth of the shaft. From the engine room a tube runs to the mine, with branches to each of the galleries. At the different landings a small air pump is located. The stroke of the piston in the pump compresses the air in the tube and causes a small hammer in the engine-room end to strike against a gong. The gong is rung once for each stroke of the hand pump at one of the mine landings. A man in the cage obviously cannot direct the movement of the hoist. After the engineer has been signaled to haul up, the men in the car can give no further signals. This arrangement was responsible for the loss of some life.

At the ventilating shaft there is located a large-capacity fan, which normally runs to deliver air down the shaft at a few ounces pressure. The foul air and gases are then forced up the main shaft in a strong breeze. In case of fire, it is customary to reverse this fan, in order that fire will not be pushed out into the main shaft, where the men are attempting to escape, and a signal is arranged to be given from the mine for such an emergency. In this particular mine, however, where the men must use both the ventilating shaft and the main shaft, the reversal of the fan simply cut off those seeking escape at the former in favor of those at the latter.

It is not known who gave the order to reverse the fan, but the signal came from the mine. The fire had been discovered in the mule barns on the second level between the two shafts, and men had begun to come up from the third level to the second, and to make their way over to the main shaft, to join those from the second level to be raised to the surface. The fan was blowing the fire toward the main shaft. The flames reached the dust-covered pine timbers of the structural work, when the reversal of the fan drew the flames toward the air shaft, thereby setting fire to the timbering there as well. Upon the reversal of the fan the main shaft was cleared for a time. Although the cages were bringing up miners on each trip, some four men decided to go down and assist the rest in getting to the shaft. This was a mistake; for, after the trip down, the would-be rescuers were as badly off as those whom they might have been able to save. After three or four trips down, and with the rescuers' cage at the bottom, the engineer received a bell to hoist away. He had started the cage upward when he received a signal to stop, then to lower, then to hoist, then to stop and lower. Finally there came a signal to stop. The engineer waited in vain for another bell, and after about fifteen minutes he was forced by threats to raise the cage. When it reached the surface, it was red hot and the men in it were all dead. The signal arrangement described was directly responsible for the loss of these lives. When the men in the cage were ready to be hoisted, one of their number had reached to the pump and given the necessary signal. The cage had then started upward, and had proceeded only a few feet when another miner, running toward the shaft, saw it and, reaching the signal on the landing, brought it back. After he had been taken on board and the cage again started upward, a second late arrival repeated the performance. By this time the fire had overtaken them, and rendered further signaling impossible. The cage should have been kept moving, but the engineer was bound by fixed rules and, moreover, had no way of knowing the conditions at the bottom of the shaft.

The only course left was to seal the shafts and smother the flames, which was done by means of steel rails, planks, and sand. On Sunday morning the seal was broken, and the fire found to be only smoldering. At this time it would probably have been feasible to have entered the mine, full of smoke as it was, with the assistance of oxygen helmets. Once down, it would have been a simple task to have quenched the fire with a good stream of water. Instead, the fan was foolishly started, with the idea of clearing the mine of smoke and gas. Common sense could have foreseen but one result. The mine was quickly in flames again, and the hope of saving any of the men who might still be alive was given up.

On Thursday several descents were made by way of the ventilating shaft, but the mine remained practically sealed until Friday, when the first bodies were taken out. Gases or "black damp" offered few obstacles. On Saturday, one week after the accident, the miners who had walled themselves up in some of the galleries of the second vein were taken out very little the worse for their long confinement, a living rebuke to the experts of the State Mining Commission, and of the technologic branch of the U. S. Geological Survey, who had declared positively from the first that there were no live men in the mine, and that a day or two more or less made little difference.

As a result of the Cherry disaster, the subject of safeguards for mines will receive a great deal of attention. It seems many improvements in general mining practice can be made if the lessons taught at Cherry are well learned.

We would make the suggestion that several of the worked-out chambers in each level of a coal mine be fitted up with supplies, food, and water, to last some length of time; that airtight doors of steel be provided; and that pipes from the air compressors on the surface be led to these rooms by way of the shafts. A small amount of air under a few pounds pressure would serve to keep men alive for days and weeks. The expense of such an arrangement would be little.

HIGH AND CROSS-COUNTRY FLYING ABROAD.

Since the daring high flights of Orville Wright at Potsdam and of Count de Lambert above the Eiffel Tower at Paris (which was also made with a Wright biplane), the other foreign aviators have been striving to outdo these feats of high and cross-country flying. At the aviation meetings in England recently, army officers made determinations with their theodolites of the height reached, this being the first occasion when the altitude of an aeroplane has been officially observed in this way. The greatest height reached there was 720 feet, attained by Paulhan on his Farman biplane; but this record was considerably beaten by the same aviator at Mourmelon, France, on the 19th and 20th ultimo. On the first of these two days, M. Paulhan, in a 10-minute flight in a wind said to be of 20 miles an hour velocity, rose to a height of 369 meters (1,210 feet), while Latham, on his bird-like "Antoinette" monoplane, reached 410 meters (1,345 feet), thus making a new height record for a single-surface aeroplane. Not to be outdone by his rival, however, Paulhan the next day made a new official record of 500 meters (1,640 feet), thus duplicating the height reached unofficially by Orville Wright at Potsdam. Besides this, he made a 55-minute flight from Mourmelon to Chalons and back, a distance of about 37 miles, in 55 minutes, or at an average speed of 40 miles an hour. In this flight he attained a height of nearly 1,000 feet, and at its termination glided to earth with his motor stopped from a height of about 700 feet. This method of descent, which is that usually followed by Paulhan, is far less dangerous than was that employed by Orville Wright at Potsdam, when he descended at a terrific speed in one-third the time it took him to ascend, and with his motor throttled only slightly, owing to his inability to throttle it down completely. He did not stop the motor, owing to his fear of alighting upon women or children (who were liable to run out and let the aeroplane fly over them) in case his machine was not completely under control.

Although Latham has not yet beaten Paulhan's record for height, he nevertheless made a sensational cross-country flight on November 23rd from Chalons to Berru, in order to attend a hunting party. At the appointed hour the monoplane appeared like a swift bird in the sky, circled twice around the field, and alighted in front of the hunting lodge. Latham, gun in hand, jumped out of his machine. After a successful hunt, he returned to Chalons in the monoplane. In addition to these two cross-country flights in France and his flight across Berlin last September, Latham also holds the record for flight in a strong wind as a result of his daring performance at Blackpool, England, on October 22nd, when he flew twice around the course in 10¼ minutes in a strong gusty wind which, according to the registration of a recording anemometer, had a velocity at times as high as 30 miles an hour.